Program Evaluation

Final Contract Report

Evaluation of AHRQ's Partnerships for Quality Program

Program Evaluation

Final Contract Report

Evaluation of AHRQ's Partnerships for Quality Program

Prepared for:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

Contract No. 233-02-0086

Prepared by:

Mathematica Policy Research, Inc.

Authors
Debra Lipson
Marsha Gold
Melanie Au
Katherine Gruene Segersten

AHRQ Publication No. 08-M010-EF
December 2007

Contract No.: 233-02-0086
MPR Reference No.: 6182-400

MATHEMATICA
Policy Research, Inc.

Evaluation of AHRQ's Partnerships for Quality Program

Final Report

December 20, 2006

Debra Lipson
Marsha Gold
Melanie Au
Katherine Gruene Segersten

Submitted to:

Department of Health & Human Services
Agency for Healthcare Research and Quality
Redland Technology Center, 1st Floor
540 Gaither Road
Rockville, MD 20850

Project Officer:
Charlotte Mullican

Submitted by:

Mathematica Policy Research, Inc.
600 Maryland Ave. S.W., Suite 550
Washington, DC 20024-2512
Telephone: (202) 484-9220
Facsimile: (202) 863-1763

Project Director:
Marsha Gold

ACKNOWLEDGEMENTS

The authors wish to extend their sincere appreciation to many people who made this report possible. We are indebted to the Partnerships for Quality grant leaders, including the Principal Investigators and their many partners throughout the country, who generously shared their time, project reports, and related project materials. Their insights into the challenges associated with partnership projects, and the factors that made their projects successful were extremely valuable.

We also thank the AHRQ staff who provided background about the origins of the PFQ program, as well as AHRQ project officers from throughout the agency, for helping us to understand their role in grant oversight and the significance of the grants they managed in their respective fields. We are especially grateful to Charlotte Mullican, AHRQ's program director for PFQ for her leadership of the program, and to Angela Lavanderos, program assistant, for making available program documents and information needed for this evaluation.

At Mathematica, Judith Wooldridge provided valuable feedback and suggestions on earlier drafts of this report. We also very much appreciate editorial assistance from Daryl Hall and Barbara Geehan, and production support from Felita Buckner.

Finally, we wish to acknowledge and give credit to David Introcaso, former program officer in the evaluation unit of AHRQ and instigator of this evaluation, for his vision and constructive guidance throughout the first half of the evaluation.

CONTENTS

Chapter		Page
	EXECUTIVE SUMMARY	xi
	STRUCTURE OF THE REPORT	xxi
I	BACKGROUND ON THE PFQ PROGRAM AND EVALUATION GOALS	1
	A. RELEVANCE OF PARTNERSHIPS TO AHRQ GOALS	1
	B. ORIGINS AND PURPOSE OF THE PFQ	2
	C. GRANTEE SOLICITATION AND AWARDS	3
	1. Solicitation Process	3
	2. PFQ Grantees	6
	D. PROGRAM INFRASTRUCTURE AND OVERSIGHT	7
	1. Organizational position of PFQ within AHRQ	7
	2. Program-wide Structure and Elements	9
	E. EVALUATION OBJECTIVES	10
II	EVALUATION FRAMEWORK, METHODS, AND DATA SOURCES	11
	A. EVALUATION FRAMEWORK	11
	B. OVERVIEW OF EVALUATION DESIGN	13
	C. SOURCES OF INFORMATION	13
	1. Program and Grantee Documents	13
	2. Interviews	15
	D. KEY CONSTRAINTS AND LIMITATIONS	18
III	WHAT DID GRANTEES SEEK TO DO?	21
	A. PFQ PROJECT FOCUS	21

CONTENTS *(continued)*

Chapter **Page**

III. *(continued)*

B. INTERVENTION MODELS AND STRATEGIES 24

1. Models 24
2. Intervention Strategies 25

C. PFQ GRANTEE ORGANIZATIONS AND PARTNERSHIPS 27

1. Lead Grantee Organizations 27
2. Partners and Other Affiliates 28

D. EXPECTED OUTCOMES AND EVALUATION APPROACHES 30

1. Evaluation Focus 30
2. Research and Evaluation Approaches 32
3. Evaluation Responsibility 32

E. IMPLICATIONS OF DIVERSE PROJECTS FOR EVALUATION 33

IV WHAT DID THE PFQ PROJECTS ACHIEVE? 35

A. OVERALL OUTCOMES 35

B. OUTCOMES OF PROJECTS SEEKING TO CHANGE CLINICAL PRACTICE 37

1. Reach 37
2. Implementation of the Intervention Model/Strategy 39
3. Effects on Health Care Delivery Processes and Clinical Outcomes 40
4. Effects of Projects Focused on Infrastructure and Learning 42

C. OUTCOMES AND FINDINGS FROM BIOTERRORISM AND EMERGENCY PREPAREDNESS PROJECTS 43

D. SUSTAINABILITY AND BROADER DIFFUSION OF PROJECT ACTIVITIES 44

1. Sustainability Indicators 45
2. Indicators of Broader Diffusion 46

V CONTRIBUTION OF AHRQ AND PROGRAM-WIDE INFRASTRUCTURE 49

A. GRANT OVERSIGHT 49

CONTENTS *(continued)*

Chapter **Page**

V *(continued)*

1. The Project Officer Role 49
2. Grants Management 51

B. OVERALL PROGRAM MANAGEMENT 53

1. Program Management Structure 53

C. AHRQ COUNCIL OF PARTNERS 55

1. Council Structure 55
2. Perceptions of the AHRQCoPs Meetings 56
3. Subcommittee Work 57

D. CROSS-GRANTEE COLLABORATION 61

VI CONTRIBUTION OF PARTNERSHIPS AND OTHER KEY FACTORS TO PROJECT SUCCESS AND SUSTAINABILITY 63

A. VARIATION IN PARTNERSHIP STRUCTURE AND COMPOSITION 63

B. FACTORS BEHIND SUCCESSFUL PARTNERSHIPS 66

1. Position of Lead Organizations and Intermediaries 66
2. Experience and Skill in Managing Partnerships 66
3. Partners' Prior History in Working Together 67
Involvement of Target Organization Administrators and Staff in Decision Making 68
5. Partners who Can Promote Sustainability and Broader Diffusion 69

C. ROLE OF OTHER KEY FACTORS IN PROJECT SUCCESS/ SUSTAINABILITY 69

1. PI Leadership 69
2. Good Timing and a Supportive Environment 70
3. Ability to Overcome Provider Resource Constraints 70
4. Effective Use of IT for Quality Measurement and Provider Feedback 72
5. Effective Leverage of Grant Resources 73

D. LESSONS ON ELEMENTS OF AN EFFECTIVE PARTNERSHIP FOR QUALITY 74

CONTENTS *(continued)*

Chapter **Page**

VII HOW SIGNIFICANT OVERALL WAS PFQ IN CONTRIBUTING TO AHRQ'S BROADER STRATEGIC GOALS? 77

A. PFQ'S ACCOMPLISHMENTS AND LIMITATIONS 77

B. FUTURE OPPORTUNITIES AND LESSONS 78

1. Elements of Effective Partnerships for Translating Research into Practice 78
2. Leveraging AHRQ's Internal Resources to Help Translate Research into Practice 79
3. Appropriate Use of Quality Improvement Tools and Techniques for Translating Research into Practice 79
4. Future Design of Programs for Translating Research into Practice 80

REFERENCES 83

APPENDIX A: ADDITIONAL TABLES A-1

A.1 Focus and Targets of PFQ Grants A-3
A.2 PFQ Grant Projects – Partner Organizations A-5
A.3 PFQ Project Evaluation Approaches and Measures A-11
A.4 PFQ Grants – Reach: Target Populations/Organizations and Number Participating in PFQ Project A.17
A.5 PFQ Grant Outcomes A-21
A.6 PFQ Grant Projects – Sustainability and Diffusion of Project Interventions A-27

APPENDIX B: GRANT SUMMARIES (under separate cover) B-1

TABLES

Table		Page
I.1	ANNUAL AND TOTAL AHRQ FUNDING FOR PFQ	6
I.2	GRANTEES UNDER THE PARTNERSHIPS FOR QUALITY PROGRAM	8
II.1	SUMMARY OF EVALUATION DESIGN	14
II.2	SUMMARY OF AHRQ INTERVIEWS AND TOPICS OF CONCERN	17
II.3	SUMMARY OF GRANTEE INTERVIEWS AND TOPICS OF CONCERN	19
IV.4	PRELIMINARY IMPACTS OF PFQ PROJECTS	36
V.1	AHRQ COUNCIL OF PARTNERS SUBCOMMITTEES	59

FIGURES

Figure		Page
II.1	KEY COMPONENTS OF PARTNERSHIPS FOR QUALITY STRUCTURE AND HOW THEY DRIVE OUTCOMES	12

EXECUTIVE SUMMARY

The Partnerships for Quality (PFQ) program sponsored by the Agency for Healthcare Research and Quality (AHRQ) aimed to accelerate the translation of research findings into practice on a broad scale through partnerships led by organizations well-positioned to reach end users. Initiated in 2002, PFQ was one of AHRQ's first efforts to use partnerships to improve health care quality, safety and security. Hence, AHRQ is very interested in understanding what can be learned from the experience. AHRQ contracted with Mathematica Policy Research, Inc. (MPR) towards the end of the program to evaluate PFQ and discern the lessons it might have for future efforts at translating research into practice. This final report provides the results of MPR's evaluation.

A. PFQ PROGRAM GOALS AND CONTEXT

AHRQ's solicitation for the PFQ program represented an important departure from its traditional health services research grants. It was designed to encourage applicants beyond the usual academic institutions the agency had historically funded. AHRQ wanted to fund "change agents" that not only possessed the evidence-based knowledge to improve care but also could create the partnerships and had the capacity to influence changes in health care organization and delivery. In addition to their own projects, grantee agencies were expected to participate in cross-grantee meetings and activities designed to foster learning and develop new knowledge on how to use partnerships to achieve quality goals.

AHRQ spent about $20.5 million on PFQ over the life of the program, of which about $17.6 million came from AHRQ appropriations and about $3 million from other DHHS funds. Most grantees received four years of funding, although a few were for shorter periods of time either by design or because problems arose. AHRQ originally awarded grants to 22 organizations, but only 20 remained after the first year. One of the 22 withdrew from the program before it received funding, and another grant was not renewed after the first year. These two are therefore not included in this evaluation.

The 20 projects that are the focus of this evaluation targeted a broad range of diseases, conditions, and health care issues or settings. Most (17) projects focused on clinical quality improvement and received grant awards of about $300,000 per year. Of the 17 in this first subset, 15 focused on improving provider quality of care, and 2 focused on purchasers' roles in influencing quality of care. The other three projects focused on improving the preparedness of health care providers to respond to bioterrorism and other emergencies, and received grant awards that were about $100,000 per year. Two of the 20 grantees had both bioterrorism preparedness and quality improvement components. In pursuing their goals, the 20 PFQ projects used a wide assortment of partnership models and partner organizations, and employed diverse strategies and techniques for increasing provider use and adoption of evidence-based practice.

When PFQ was developed, AHRQ's mission was transitioning from focusing mainly on the production of knowledge to promoting the actual use of knowledge to improve care delivery. AHRQ senior executives involved at the outset indicated that they hoped the PFQ program would help promote a change in culture within the agency. Many AHRQ staff were involved in

developing the grant solicitation, although several of them are no longer with the agency. The perceived novelty of PFQ's focus and the turnover in agency leadership involved in its development are important factors to understand in assessing PFQ's experience, since they affected the strength and clarity of the agency's direction for the program.

B. KEY EVALUATION QUESTIONS

The goals of this evaluation are to determine the effectiveness of the grant-funded projects, learn how partnerships could be used effectively to translate research into practice, and assess the overall contribution of the PFQ program to AHRQ's strategic goals. This evaluation addresses four key questions:

1. What impact did PFQ project activities have on improved health care quality processes and outcomes, and on the dissemination of effective quality improvement methods? In other words, how effective were the projects in accomplishing what they proposed and what AHRQ funded?
2. Did PFQ generate partnerships and infrastructure important to sustaining change on an ongoing basis? How did the partnerships and networks created by the PFQ projects contribute to the project outcomes?
3. How adequate was AHRQ's support and oversight of the program? How well did the agency support the projects and generate synergy and collaboration across projects?
4. What contribution did PFQ make towards AHRQ's strategic goals, both through the individual projects and the program-wide activities?

C. EVALUATION METHODS

To guide the evaluation, MPR developed a conceptual framework that identifies key participants, the way they are linked, and the critical questions of interest from each perspective. The framework is based on the premise that the success of PFQ in achieving its goals depends on productive interactions among four core participating groups: 1) AHRQ staff, 2) the lead grantee organizations, 3) the relevant collaborators and targets for each grantee's efforts, and 4) the coordinating activities put in place by AHRQ to foster program goals and link PFQ to AHRQ's broader quality agenda and objectives. The evaluation framework also assumes that each actor/program component must successfully execute a set of relevant tasks, decisions, and communications for PFQ to achieve its goals.

The data for this evaluation were AHRQ and grantee documents, interviews with AHRQ staff and grantee leaders and partners, and observation of two AHRQ-grantee (AHRQ Council of Partners) meetings. The information derived from these sources was used to describe and assess the outcomes from the perspective of each set of actors and understand which factors facilitated or impeded their work. The evaluation is largely qualitative in nature. However, when grantee progress reports and self-assessments included concrete process or outcome measures of the reach and impact of their efforts, they were included in this evaluation.

D. MAJOR FINDINGS

1. What Did PFQ Grantees Seek to Do?

The central focus of PFQ was to apply evidence-based practices to improve quality of health care. PFQ also provided grants to improve the health care system's readiness to address bioterrorism preparedness, although grants in this area were smaller. Of the 21 grants made initially, 18 received funds for the first purpose and 5 for the second. The latter five include two that included both components. The particular approach used by grantees varied substantially across grants, as did the conditions, settings, and populations they aimed to reach.

Clinically Focused Grants. Of the 18 grants focused on quality, 15 planned to work directly with providers (directly or through intermediary organizations) while 3 attempted to leverage purchasing power in ways that would change incentives to reward providers of high quality care. Of the 15 grants focused directly on changing provider behavior, 6 worked with hospitals, 4 with long-term care/home health providers, and 5 with office-based physicians. Most grantees planned to work through the full four-year period on interventions that were either sequenced and/or expanded to reach more providers and patients over time. Of the 15 grants that sought to influence provider behavior, all but 3 hoped to measure changes in care processes as a way of evaluating their success. These three exceptions had less tangible aims related to the development of infrastructure and knowledge that might ultimately support improvements in quality or safety. For the most part, the three purchaser-led grants (one of which was discontinued after the first year, reducing this subset to 2 of 17 quality oriented grants) planned to gauge their success by their ability to modify incentives, rather than by the effects of changing incentives, although one pilot project in this group examined whether workers modified their choice of hospital in response to discounts for using high quality facilities.

Bioterrorism Preparedness Grants. Bioterrorism preparedness projects typically defined their target audience more broadly than other grantees. The three projects devoted entirely to this goal sought to develop simulation models to test the utility of community response to bioterrorism threats or other vital emergencies, train practicing physicians on how to respond to threats, and assess bioterrorism readiness among provider systems in particular locales. Two grantees had dual purpose funding (quality improvement and bioterrorism preparedness) each of which had strong hospital links, which they sought to leverage in examining emergency and disaster preparedness more broadly. The bioterrorism preparedness grants did not typically include a formal evaluation component and instead proposed to judge their success by producing findings that would help to improve the health care system's ability to respond to disease outbreaks or disasters.

Lead Organizations. Of the 20 PFQ grants that had more than a year of funding, 12 went to organizations of the type highlighted by the Request for Applications (RFA): 5 to provider-affiliated research groups, 5 to health professional organizations, one to an accreditation body, and one to an employer coalition. Of the remaining eight, four went to independent research organizations, two to state government agencies, one to a university, and one to a private company that sells electronic medical record systems. Though AHRQ did not allow academic institutions to be the grant recipient (except in the case of bioterrorism preparedness), they could be involved in the leadership group; principal investigators based in academic institutions led six grants.

Partners and Affiliates. Consistent with the RFA, grantees proposed partnerships with a variety of organizations and individuals that could help them achieve their goals. Both the number and types of organizations involved varied, as did their respective roles on the grants. Some partners were expected to work closely with the lead grantee on the overall leadership of the project. Instead, or in addition to this, others were chosen because of their ability to fulfill particular roles. Some were "intermediaries" who helped to recruit target organizations and create linkages for the grantee. Others were the "target organizations" themselves. Another group of partners included advisors with specialized expertise, such as clinical, health services research, or particular aspects of health delivery.

2. To What Extent Did PFQ Grantees Succeed?

For a program with limited visibility, PFQ does appear to have made a difference in health care security, quality and safety in some of the targeted health care organizations, and raised quality of care processes and outcomes for many Americans. Though final outcomes are not known yet for all projects, available results are encouraging, suggesting that some grantees made notable progress and others developed less striking, but important new knowledge. The report provides substantial detail about the projects' impact in four categories: reach, implementation, effectiveness, and sustainability as well as potential for broader diffusion. Overall results are briefly described here.

Projects with Particularly Striking Outcomes. In terms of their ability to change clinical practice in ways consistent with evidence, four projects stand out based on the magnitude and scope of their effects: 1) Child Health Corporation of America, which improved clinical performance in several areas at 18 hospitals and has expanded quality improvement efforts at 42 children's hospitals; 2) International Severity Information Systems, which streamlined care processes in nursing facilities in ways that led to demonstrated reduction in pressure ulcers; and has launched a follow-up project to spread its approach more widely; 3) Physician Micro Systems/MUSC, which has expanded an effective strategy to get performance data into greater use in physician offices for improved process of care; and 4) the Visiting Nursing Service of New York, whose model for diabetes home care has shown positive effects and is being extended in 10 states.

Projects Illustrating New Approaches That May Ultimately Generate Payoffs. Though less striking, four other projects developed new approaches to quality improvement that have the potential for attaining broader scope and merit greater attention: 1) the American Academy of Pediatrics, which has sustained its clinical improvement efforts through new projects that build on its practice-based, quality-improvement CME course, and has linked the approach to board certification; 2) the American College of Physicians, which had strong preliminary results in diabetes care improvement and is pursuing team-oriented CME projects in other clinical areas; 3) the AMA, which is now working with EMR vendors to integrate its performance measures into their systems; and 4) Catholic Healthcare Partners, whose work on improving heart failure care in hospitals is promising and is being disseminated nationally through the American Heart Association.

Projects That Generate Important Lessons Despite Disappointing Results. Other grants effectively pursued important areas but did not generate detectible positive improvements,

though they have important lessons to share within their respective fields. For example, The Leapfrog Group's work on performance incentives may well be very important in enhancing understanding of the barriers to introducing these incentives. The Lehigh Valley Hospital and Health Network's approach to diabetes control proved it was financially feasible for primary care physicians, but little was done to replicate it beyond the 10 small practices where it was tested. Similarly, the Association of California Nurse Leaders work on falls prevention, though ultimately disappointing in its results, was important and will likely enhance support for performance monitoring in other clinical areas. Others, like the work by JCAHO, while directed more at building knowledge than seeking immediate changes in practice, may have promise down the road in influencing care.

Bioterrorism Preparedness Project Outcomes. Among this set of projects, the tools developed for training physicians in Connecticut were important, even though project leaders found that training had only a short-term effect on physician knowledge. Findings from the other three bioterrorism preparedness projects may help some local health providers strengthen their plans, and produce new knowledge or tools for health system response planning, but their significance and overall contribution to the field are difficult to assess.

Other Projects. A few grants, however, did not appear to be well-conceived from the start, even though they were well-intended. For example, the fact that nursing needs to be a focus in improving quality in nursing homes should not have been a surprise to the American Medical Directors Association Foundation. More thought could have been given to the goals and approach behind HealthFront's project, which achieved less than it originally planned. The impact of RTI's study of the science of partnerships remains difficult to evaluate.

3. What Role Did Partnerships Play in Contributing to Grantee Success in Accelerating the Translation of Research and Evidence-based Guidelines into Practice?

A key premise of the PFQ program and of this evaluation was that the success of the projects depended on effective partnerships and working relationships among the lead grantee organizations, key collaborators and target organizations or providers. Without effective partnerships, the projects would be unlikely to achieve buy-in to evidence-based changes for improving health care quality, safety, and security. Without strong support from project collaborators and target organizations, health care improvements would be less sustainable.

The evaluation examined the form and composition of the partnerships created in the 20 PFQ grant projects and assessed the role they played in project success and sustainability. The projects used different partnership models, most of which appeared to be appropriate to their aims and targets. The projects that set goals for changing clinical processes or outcomes were most likely to establish direct working relationships with the target organizations, and use intermediaries to provide training, technical assistance and support. In general, projects that worked closely with target organizations tended to have more tangible outcomes, as measured by the grantees' own results at the time of this evaluation. However, it could be the scale and purpose of the projects, rather than the relationships with the target organizations, that made achieving concrete outcomes easier or harder. A few projects used intermediaries to increase the reach of the project and to sustain quality improvement activities beyond the grant period, suggesting a model that might be used when broad reach and sustainability are key goals.

Certain characteristics and processes appear to contribute to effective partnerships in PFQ projects, based on some key themes that emerged from interviews with project PIs and their partners. These include:

- The position of lead organizations and intermediaries vis-a-vis the target organizations; professional associations and other national groups that represent the health care providers who were the targets were especially well-placed to command their respect and confidence.
- PFQ leaders also had to have some prior experience and skill in managing partnerships to make them work effectively.
- Progress is easier when partners have a prior history of working together, though there are ways to build trust quickly without it. A participatory approach to decision making is also useful for gaining buy-in, and the involvement of target organization administrators and staff in deciding how to implement the intervention is particularly important in many situations.
- Certain types of partners are needed to promote the sustainability and broader diffusion of an effective approach to quality improvement, who may be different than those needed for implementation at the local level.

While the PFQ projects all used varied forms of partnership as a mechanism to accelerate the translation of research into improved health care quality, safety, and security, they faced many of the same challenges confronting all efforts to diffuse innovation and change personal and organizational behavior. The most significant factors that appear to have enabled projects to overcome these challenges and make progress in meeting their goals include:

- Strong principal investigators and sponsoring organization leadership
- Good timing and a supportive external environment to motivate providers to use the interventions to meet performance expectations
- An ability to overcome provider resource constraints of competing priorities and limited time, staff or resources
- Effective use of information technology for quality measurement and provider feedback
- Effective leverage of AHRQ grant resources.

4. How Did the AHRQ Infrastructure and PFQ Program Components Contribute to Grantee's Success?

The PFQ program contained several elements that sought to contribute both to the success of individual grantee efforts and to help the program achieve its overall goals. These included overall program oversight by AHRQ leadership, the PFQ program director, and the grants

management office; grantee oversight and support from 10-12 AHRQ project officers over the course of the four-year program; meetings and collaborative efforts across project investigators through the AHRQ Council of Partners (AHRQCoPs) , working subcommittees, and other cross-grantee communication and networks.

Overall Program Direction. Perhaps because of the turnover in AHRQ leadership at the start of PFQ (including the departure of a key PFQ champion) as well as competing priorities, senior executives at AHRQ do not appear to have given PFQ the kind of ongoing attention and guidance that tends to be important in shaping important projects like this. Agency leaders appear to have been more deeply invested in conceiving the PFQ program and designing the RFA than they were in providing strong leadership and support to the program once it was launched. Lack of senior leadership was particularly an issue because lead program staff were not involved in developing the program, were located relatively low down in the organization, and otherwise faced challenges in leveraging the efforts of associated PFQ project officers distributed across the many divisions and centers within AHRQ. Important program decisions, such as the content of cross-cutting collaborative activities, appear to have been made without strong guidance and input from the agency leadership, despite the recognition that the program had a novel and challenging goal. While the program director sought to work together with individual project officers to define these parameters, critical decisions probably received less consideration and input than they could have.

Project Officers. PFQ was structured so that AHRQ staff who functioned as project officers were the primary means of oversight for individual grants. Project officers (POs) were drawn from centers throughout the agency, one of a number of AHRQ programs that began to use this approach around that time. PO assignments were usually but not always based on the focus and content of the grants, and appear to have been made by AHRQ management. Project officers had substantial flexibility to define their roles and the amount and kind of support they provided to each project. Some project officers, with expertise particularly matched to grantees, engaged with the projects in their portfolio frequently and substantively, providing suggestions on strategy and linking grantees to other initiatives and leaders in their fields, or helping to obtain additional funding and partners to expand their projects. PFQ projects that received such dedicated support said this helped them to succeed. Another group of project officers provided more traditional oversight, reading progress reports and giving some feedback to project investigators, though the amount of interaction varied, with some project officers providing little or no input or support to projects. Grantees typically appreciated it when their project officers were available and encouraging. Most were disappointed if they received little feedback on reports, though some seemed to desire more interaction than others. AHRQ could do better at providing guidance to project officers, but AHRQ's structure also limits the rewards for good performance in this area.

Grants Management. For the most part, grants management appears to have operated smoothly from a fiscal perspective within PFQ. Some grantees expressed concern over the reporting needed to support annual approval of the following year's funding. PFQ award amounts were set at the outset but re-approved annually, and grantees had to submit an annual report and justify any carry-over funds. Because PFQ was structured as a cooperative agreement, the program director decided to require quarterly reporting, a first for the agency though now more common. The grants management office experienced problems tracking these reports that were initially submitted to project officers. Some grantees, particularly with less

AHRQ experience, found the requirements demanding and many expressed dissatisfaction with submitting reports for which they obtained little feedback. PFQ's effort to create a database for electronic web-submission of data was unsuccessful as grantees found the web interface cumbersome and duplicative of other efforts.

Program-wide Elements. With the goal of creating a program-wide focus for cross-fertilization, PFQ required what turned out to be twice-a-year meetings of grantees, organized into a group called the AHRQ Council of Partners (AHRQCoPs). The Council divided the group into subcommittees on functional aspects of the projects—implementation, dissemination, partnerships, evaluation, and sustainability. While the meetings and subcommittee work were valued by some PIs, the majority of PIs expressed frustration with them, because they took away valuable funding, time and attention of the PIs from their projects and were not well-structured to foster synergy among the projects. The AHRQCoPs and its subcommittees will be producing a set of articles, to be published in a forthcoming special journal supplement, on partnership functions and lessons. However, these activities and any learning was linked only tangentially to the work grantees sought to carry out in their projects, and hence provided limited benefits to most efforts. While the meetings sought to foster cross-grantee collaboration and some examples of this occurred, the relationships formed as a result of the AHRQCoPs meetings seem fairly similar to what one might have expected from any meeting that allowed networking opportunities. Over time, a few principal investigators either assigned responsibility for attending to junior staff or stayed for only a portion of the meeting, sometimes due to scheduling conflicts. Many PIs, however, were very enthusiastic about the work of the group.

5. How Significant Overall Was PFQ in Contributing to AHRQ's Broader Strategic Goals?

PFQ grantees clearly did not have the scale of impact originally expected by AHRQ's program developers, or promised in the RFA or the program announcement. Such expectations were somewhat unrealistic, given the nature of the grants funded and the scale of the projects' goals, which—though not trivial—did not match original ambitions. Yet, despite the relative invisibility of the program now within AHRQ and an infrastructure that was not very well-developed to provide all grantees with the level of support to amplify and diffuse their efforts more widely, many PFQ grantees attained substantial accomplishments, generating lessons which appear to be highly relevant to AHRQ's priority of translation of research to practice.

While the theme of partnerships has bound these projects together, it is not the only, or perhaps even the most important outcome of the program. In many projects, the use of partnerships was one of several means to an end; and a focus just on partnerships would overlook some of the most important lessons to be mined from them to inform AHRQ's strategy for closing the gap between evidence-based knowledge and actual practice in health care delivery.

In part because final results are still pending for a number of projects, little has been done to date to extract the lessons of PFQ and take advantage of the opportunities they present. The next six to nine months (January 2007 to September 2007) is a critical period for AHRQ senior managers to consider how to leverage the lessons and results of the PFQ projects, because the final outcomes and reports from nearly all projects will be submitted to the agency during this time. AHRQ has an opportunity to reap the benefits from its earlier investment in PFQ.

However, doing so will require agency leadership and commitment of resources in a number of ways:

- ***Elements of Effective Partnerships.*** PFQ grantee experiences and lessons can help AHRQ learn how to create effective partnerships for scaling and speeding up the translation of research into practice. Critical elements that need attention, among other things, include: 1) national organizations and individual leaders appropriate to the health care issue or topic of focus, 2) selection of well-connected intermediaries and target organizations, 3) skills and experience in partnership management, and 4) use of strategies and tools that overcome provider barriers to change.

- ***Health Care Setting, Condition, or Issue-Specific Lessons.*** A few of the AHRQ project officers that oversaw the PFQ grants have taken the initiative to connect principal investigators and their partners to other public and private quality improvement initiatives in their specific fields. All of the projects' results should be assessed both individually, and collectively, to identify opportunities and avenues to apply their lessons and quality improvement capacity to other AHRQ initiatives and efforts. However, not all PFQ project officers at AHRQ have the level of expertise or connections to do this. In addition, staff workloads and incentive structures do not reward staff well for this type of grant oversight. Training and support would be valuable to help project officers maximize their contribution to grantee work within the time and other constraints they face. AHRQ should also pursue strategies to direct more attention to PFQ project results by key audiences through various dissemination vehicles that directly reach the providers and professionals in relevant fields

- ***New Quality Improvement Tools and Techniques.*** Several PFQ projects made important advances in testing and demonstrating the effectiveness of new tools and techniques for helping providers adopt or more fully implement clinical care guidelines. From the effective use of appropriately-scaled information technology, to the development of practice-based CME, to the integration of performance measures into electronic health records, to purchaser's design of incentive programs, the PFQ projects have important lessons to share about how these strategies can be used to help providers measure, report, and improve care quality. While some PFQ principal investigators have already begun to translate their success into lessons for those in these other fields, AHRQ staff can provide further support for these efforts.

- ***Internal Agency Leadership and Support.*** PFQ reinforces the importance of agency leadership to the successful transition of new approaches to funding and translation work. New programs warrant as much attention over the full course of their lives—including follow up after the grants officially end—as they do in their formation. The way AHRQ is structured makes the role of program manager very challenging, especially in programs without a "coordinating center" and sufficient staff resources, because success in this role requires skills of strong leadership and the ability to use informal support structures. Only a small subset of AHRQ staff is likely to have these skills, and AHRQ's leadership would do well to nurture and support staff who can fulfill this role.

In sum, PFQ generated capacity and knowledge that can support other AHRQ's efforts to translate research into practice. Harvesting its potential will further leverage the agency's $20 million investment in PFQ and enhance the strategic value of this program as an early pioneer whose experience and lessons can inform attempts to translate research to practice on a broad scale.

STRUCTURE OF THE REPORT

Chapter I provides background on the origins and purpose of the PFQ program, the grant solicitation process and grants funded; and the infrastructure AHRQ created to oversee the program. Chapter II provides more detail on the evaluation approach, methods and data sources. Chapter III describes what grantees sought to accomplish in their PFQ projects and how they structured their partnerships. Chapter IV assesses the PFQ projects' accomplishments and outcomes.

The next two chapters assess the contribution to PFQ projects' successes of AHRQ's oversight and program infrastructure (Chapter V) and partnerships and other factors (Chapter VI). Both chapters assess how these factors facilitated or hindered projects' progress and outcomes. Finally, Chapter VII contains conclusions regarding the PFQ program's overall contribution to AHRQ strategic goals, and what the outcomes and lessons from the program mean for any future efforts by AHRQ to use partnerships to translate research into practice on a broad scale.

While this report tries to identify common themes and lessons across the 20 PFQ projects, it cannot capture the richness and diversity of their experiences over the last four years. Appendix B partially fills this gap by providing brief summaries of the 20 projects' goals, major activities, partners and partnership structure, key findings and products, and plans for continuation, where relevant.

I. BACKGROUND ON THE PFQ PROGRAM AND EVALUATION GOALS

The Partnerships for Quality (PFQ) program sponsored by the Agency for Healthcare Research and Quality (AHRQ) aimed to accelerate the translation of research findings into practice on a broad scale through public-private partnerships led by organizations well-positioned to reach end users. PFQ was one of AHRQ's earliest efforts to structure work in ways designed to support this goal. As a result, AHRQ is very interested in understanding what can be learned from the experience. To support this interest, AHRQ contracted with Mathematica Policy Research Inc. (MPR) in the last few years of the program to evaluate PFQ and the lessons it might have for future efforts in translation.

In this first chapter of the final evaluation report, we review: 1) why partnerships are important to AHRQ's goals, 2) the origins and purpose of PFQ, 3) the grantee solicitation process and grantees selected, 4) the infrastructure AHRQ created to promote and oversee the success of the program, and 5) the key evaluation objectives.

A. RELEVANCE OF PARTNERSHIPS TO AHRQ GOALS

The Agency for Healthcare Research and Quality (AHRQ) is increasingly focused on improving health care delivery and outcomes (Gray et al. 2003; Clancy 2004b). In its efforts to improve quality, AHRQ engages in four types of work: research to support evidence-based decision making; use of data to drive quality; accelerating the pace of quality improvement; and improving the infrastructure for quality health care (for example, informatics). (Clancy 2004a). AHRQ also views itself as the "science partner" to the Centers for Medicare and Medicaid Services and the states with respect to quality improvement. Collaboration is essential, given what AHRQ's director Dr. Carolyn Clancy has termed the "Quality Challenge," as reflected in the gap between current practices and what we know from research to be effective (Clancy 2005). This is what commonly is referred to as the challenge of "translating research to practice."

A critical strategy used by AHRQ to reduce the gap is to accelerate the pace of quality improvement through partnerships with public and private sector organizations that can move research on effective care into practice across the health care system. Through these partnerships, AHRQ seeks to encourage the adoption of practices that research has shown to be effective. Examples of such partnerships include programs such as the Primary Care-Based Research Network, the ACTION program (formerly the Integrated Delivery System Research Network), the Put Prevention into Practice program, and the Partnerships for Quality program, which is the focus of this study. Through these and other programs, AHRQ seeks to strengthen its ties to organizations that are well-positioned to reach providers and other important parties able to influence health care delivery.

Research suggests that partnerships such as those AHRQ is investing in are critical to enhancing the use of evidence-based practices (Greenhalgh et al. 2004). For example, the diffusion of effective practices is more likely to occur if, among other things, it has the support of early adopters (opinion leaders receptive to change and well-integrated into the appropriate networks) (Berwick 2003). If early adopters make their practices observable and gain the trust of

relevant networks that are perceived as subscribing to similar values, further diffusion is much more likely to occur. Thus, involving key leaders who are respected in health care or influential in its practice is vital to encouraging practice changes that improve health care delivery.

B. ORIGINS AND PURPOSE OF THE PFQ

The process through which the Partnerships for Quality (PFQ) program was developed involved many people, including some no longer with the agency. Through the solicitation, AHRQ was seeking to move beyond its original efforts at translation to reach a broader set of providers and others who were well-positioned organizationally to effectively translate research to practice. While AHRQ had previously attempted some work of this kind through the Translating Research into Practice Programs (TRIP I and II) and PFQ could be considered "TRIP III," staff also viewed the two sets of programs as distinct.

As some characterized it, the TRIP program begun in 1999 was more about small-scale researcher-driven studies that worked with health care organizations to determine which techniques led to effective use of research in the delivery of care. PFQ, on the other hand, aimed to encourage change in practice on a broad scale so that care was more consistent with emerging research evidence. One AHRQ staff member, for example, said that while TRIP was trying to translate research into practice, TRIP ended up funding rigorous studies on how to change outcomes in well-defined populations and didn't have the reach intended by PFQ, which was meant to be broader to include the next generation. PFQ could reinforce, for example, ongoing partnerships between AHRQ and groups like the American Medical Association (AMA) and others that might be key to encouraging adoption—but unlikely to apply for a grant—and hence would not otherwise have a way to work closely with AHRQ on translation.

At the time the PFQ program was developed, AHRQ's strategy was evolving from one that supported quality improvement by funding the *production* of knowledge to funding promotion of broader *use* of knowledge. The development of the PFQ initiative was indicative of a change in culture; the agency saw PFQ as the beginning of a series of projects with demonstrably broad impacts through which the agency could show "look, we are touching America," as one former AHRQ executive characterized it. Through the PFQ program, AHRQ hoped to find out what could be accomplished and how sustainable it could be after the grants ended.

Top leaders of the agency (especially Lisa Simpson, who then was deputy and Carolyn Clancy who now is the director) say they conceived of the idea for the program and developed a one-page summary of it that reportedly was approved at AHRQ's Executive Management Meeting (EMM) (AHRQ's senior management group). Staff members were then tasked to develop the concept into a Request for Application (RFA). A senior staff member (Elinor Walker, since retired) was assigned to write the solicitation, working with a committee of AHRQ staff set up for the process. Staff involved in the effort said that designing the solicitation was challenging because the goals of the program were so ambitious in relation to the limited funds available for it.

The final RFA resulted from an iterative process between AHRQ leadership and the RFA development committee. One AHRQ senior official described the RFA development process as difficult and contentious. Though details reported by participants in the process are now somewhat vague and inconsistent, we understand that AHRQ leadership and the committee had

to grapple with competing views on a range of issues including: who to target with the solicitation (traditional researchers versus others), whether to allow the substantive focus to vary each year based on emerging research results from AHRQ or elsewhere (versus maintain a single focus over the years), whether to focus on clinical concerns only or broader strategies for quality improvement, and how to balance the desire for nontraditional grantees who had broad reach with concerns that such grantees were not used to working under a grant mechanism that held them accountable for the funds and could have limited experience with evaluating their projects. AHRQ leadership wanted internal grantee evaluations that might help the agency show that its findings were reaching or being adopted by health care providers nationwide—information that would be invaluable in gaining support for funding agency programs.

As ultimately released, the solicitation for PFQ applications was designed to encourage applicants beyond the usual academic institutions the agency had historically funded. AHRQ wanted to fund "change agents" that not only possessed the evidence-based knowledge to improve care but could also create the partnerships and had the capacity to influence changes in health care organization and delivery. The agency's desire to fund a different kind of grantee, these "change agents," required reworking the usual processes by which grantees were solicited, reviewed, and chosen. AHRQ barred universities from serving as grantees, though researchers affiliated with universities might be involved, even as project investigators.

Our ability to describe the origins of the PFQ program (or the decision process on awards) in more strategic terms is limited by the fact that many people who developed PFQ are no longer with the agency and many key decisions on strategy either are undocumented or not retrievable for the evaluation. Though we were able to interview several current or former staff involved in the program, these interviews did not take place until several years after the program was initiated. By then, some details were forgotten and some perceptions modified by more recent events.

Staff turnover made it hard to cleave to the original PFQ vision. Current PFQ experience needs to be understood in this context as do past pressures to address other priorities after the grants were awarded. Without strong guidance from leadership, AHRQ's ability to ensure the original program vision and concept into the day-to-day work of program implementation was hampered, as discussed later in the report.

C. GRANTEE SOLICITATION AND AWARDS

1. Solicitation Process

Because PFQ reflected a new program strategy for AHRQ, it required changes in the usual way grants are reviewed. To facilitate PFQ's agenda, the agency had to ensure that 1) the RFA was different from previous solicitations, encouraging more health system leaders to apply than in the past, 2) the review panel maintained a good balance of academics and people with operational experience with health care delivery, and 3) the funding committee balanced both rigor and relevance in its funding decisions.

The PFQ request for applications, released on May 10, 2002, sought applicants for cooperative agreements[1] to conduct projects designed to "accelerate the pace with which research findings are translated into improved quality of care and the health system's ability to deliver that care."[2]

The solicitation encouraged applicants with the capacity to influence health care organization and delivery and evaluate the impact of their efforts, such as health care professional organizations, accrediting agencies, practice networks, employer coalitions, and health insurers. Academic institutions could be one of the partners, but not the grantee. The multi-year projects had to:

- Identify high-priority areas that are important to core audiences and for which evidence-based findings can guide improvements;
- Translate, disseminate, and implement evidence-based findings, with a preference for those supported by AHRQ research;
- Annually update opportunities for collaboration and efforts to respond to issues on security, safety, quality, effectiveness or outcomes of care;
- Estimate the impact of implementation efforts on policies, processes, or outcomes and stakeholders; and,
- Facilitate AHRQ's understanding of research needs as perceived by diverse stakeholders relevant to the PFQ.

The solicitation described a program structure that envisioned an initial planning phase of one year for each grant and a second phase of up to three additional years of funding for grantees able to show potential. By the end of the sixth month in the second phase, grantees would have to demonstrate that the aims would be accomplished if funding continued. The solicitation also encouraged shorter projects with more limited objectives. Budgets for the initial year were not to exceed $100,000, with subsequent annual funding potentially two to four times that amount. Funding for the second phase would depend on what had been achieved in the initial phase. Each project was to include an evaluation, as well as progress reports, at stipulated intervals. In a late modification, AHRQ decided to expand the focus of PFQ to include projects relating to bioterrorism. In contrast to the original grants, which were made with AHRQ's direct funds, bioterrorism grants were funded with money AHRQ received from other parts of the Department of Health and Human Services to address bioterrorism readiness needs. The amount of the

[1] Agencies signing cooperative agreements with AHRQ are not "grantees" in the traditional sense, since the cooperative agreement connotes a more collaborative relationship. "Cooperative activities are intended to strengthen individual projects and at the same time generate collaboration across projects." However, cooperative agreements are a type of grant and in practice, lead agencies were referred to as grantees, so we use this term hereafter.

[2] AHRQ Partnerships for Quality, Request for Applications (RFA): HS-02-010, Release Date: May 10, 2002 http://grants1.nih.gov/grants/guide/rfa-files/RFA-HS-02-010.html

bioterrorism grant awards after the first year (about $100,000 per year) was considerably lower than the other awards under the PFQ program (about $300,000 to 400,000 per year).

We have little information on the selection process. Our interviews with staff suggest that AHRQ succeeded only partially in its efforts to recruit a more diverse review panel than was typical. However, there was enough diversity of the panel to create some discomfort among those more experienced in the traditional review panel process. For example, one participant told us:

> *There were people that felt that the reviewers were too researchy. I think I felt uncomfortable during a lot of the review because there was a lot of conflict, a lot of inconsistency. For some of the reviewers, the whole emphasis of the review would be on the research. And for some of the others, research wasn't sufficient. I didn't feel that a great many of them gave adequate attention to all the aspects—the feasibility, the likely value of the program, the evaluation. My feeling is that unless you've got a decent evaluation, you aren't going to learn much that you can use. I was kind of uncomfortable. But again, we didn't have a mode.*
>
> *The panel had to have some researchers and some doers. The researchers didn't have a lot of meat to chew on and I was uncomfortable with what the doers were really bringing to the table. There were a lot of arguments and in each case, you weren't sure who to believe because you couldn't be sure what they were basing their comments on. It's not that researchers don't have disagreements like that, but it's generally clear what they are basing their arguments on.*

Not surprisingly, differences of opinion carried over into how participants on the panel viewed the ultimate decisions on awards. Some staff told us with concern that AHRQ's final decision on PFQ awards did not strictly follow the ranked technical scores. Some said that the review summary did not reflect the panel's richer views. AHRQ leaders, however, say that adjustments between proposals' ranking based on technical scores and actual awards are now routine to achieve a balance in work across topic areas.

Another factor that complicated the grant selection process was that AHRQ planned to allocate funds to PFQ's overall budget for projects focused on children's mental health from a dedicated source. Even though several applications that planned to focus on this area scored well, available funds were insufficient to fund all of them. They were therefore "skipped" in order to fund projects focused on a broader set of health issues and conditions.

Establishing an appropriate set of reviewers for grants as path-breaking for the agency as those envisioned under PFQ must have been challenging. As one interviewee noted, awards needed to balance rigor against relevance, with an applicant pool other than "the usual suspects." Balancing traditional grant reviewers that focus on the rigor of design with other reviewers looking more at operational practicality probably was not easy. We heard, for example, one AHRQ staffer say that some of the latter were not "objective" whereas another felt the panel didn't have enough experience with quality improvement. It is unfortunate that detailed documentation of the review process is not available as it could have helped us provide more concrete feedback to the agency on lessons for future reviews of this sort.

2. PFQ Grantees

AHRQ spent about $20.5 million on PFQ grants over the program's life, of which about $17.6 million came from AHRQ appropriations and about $3 million from other departmental funding (see Table I.1). Twenty-two grants were made originally, with 20 remaining after the first year. One of the 22 withdrew from the program before it received funding and another grant was not renewed after the first year.[3] Grantees received an initial award and then up to three additional annual awards over the remaining period of the program. The initial grants were awarded in late September 2002, with federal FY 2002 funds used to support work in federal FY 2003. The final fourth-year grants were made in September 2005 with an end date of September 2006. Of the 20 multi-year grants, 14 had an end date of September 30, 2006, although some of these grantees have applied for or received no-cost extensions so their work will continue into next fiscal year.

TABLE I.1

ANNUAL AND TOTAL AHRQ FUNDING FOR PFQ

	Total	FY 2002	FY 2003	FY 2004	FY 2005
AHRQ Expenditure[1]	$17,558,902	$1,757,669	$5,471,549	$5,391,424	$4,938,260
Funds provided though other HHS programs[2]	$2,988,672	$599,968	$891,276	$899,305	$598,123
Total Grant Expenditures	$20,547,574	$2,357,637	$6,362,825	$6,290,729	$5,536,383

Source: Information provided by the Division of Financial Management at AHRQ; received by MPR in 10/2005. Updated information was not provided in time for this report.

[1]AHRQ expenditure refers to funds appropriated directly to AHRQ

[2]Includes funds transferred to AHRQ from the Health Resource and Services Administration (HRSA) and from the Department's Office of the Secretary's Office of Public Health Emergency Preparedness. Also includes AHRQ funds earmarked for children's mental health (NME funds).

[3] The American Board of Family Medicine was approved for work with NCQA to incorporate validated quality measures into recertification requirements for family physicians but the application was withdrawn before funding. In addition, the Pacific Business Group on Health received funding for one year before mutually agreeing with AHRQ to terminate due to its inability to obtain CMS data that was needed to implement its project.

Table I.2 lists the 21 grantee organizations, the principal investigators affiliated with each grant, the total award, and predicted end date and status as of September 2006. Most grantees ultimately received the full four years of funding though funds were dispersed on an annual basis based on renewal application. A few were for shorter periods of time, either by design or because problems arose. Since one of the original 21 grants was terminated after the first year, this evaluation focuses on the 20 grant projects that continued for more than a year. We defer describing the characteristics and focus of these 20 grantees until Chapter III.

D. PROGRAM INFRASTRUCTURE AND OVERSIGHT

AHRQ executives said that there was not a lot of discussion in advance of PFQ on how the program would be administered. Establishing an administrative infrastructure was further complicated because several of the staff involved most closely with the program in its formation would soon be retiring or were otherwise unavailable.

The PFQ infrastructure that was ultimately established appears to be a blend of the way AHRQ traditionally oversees grants with some program-wide elements designed to encourage synergy across grants on issues of mutual interest.[4] This infrastructure relied on internal AHRQ staff and was not heavily resourced. The basic elements of the infrastructure are as follows.

1. Organizational position of PFQ within AHRQ

PFQ was housed within one of AHRQs main operational centers—the Center for Primary Care, Prevention, and Clinical Partnerships (CP-3). That was at least in part because Charlotte Mullican, who headed the program and monitored several grants, was located in that center, as were two project officers for six additional PFQ grants.

Seven additional project officers who oversaw individual PFQ grants came from a variety of centers within AHRQ. PFQ was one of the first programs in the agency, in addition to TRIP I and II, to draw its project officers from across the agency (rather than from a single center), reflecting the scope of the program. Individual project officers appear to have been assigned by dividing grants across AHRQ's line centers based on the grant focus. Specific project officers were assigned by center directors based on availability of appropriate project officer staff. This resulted in a matrix form of organization in which individual project officers had lead responsibility for individual grants, while the PFQ program director managed program-wide meetings and tasks that would benefit from consistent efforts across grantees. Early in the program, the program director had weekly meetings with project officers to discuss common elements of the program and issues of mutual concern (for example, grantee reporting requirements) though such meetings ended well before our evaluation began.

[4] Staff told us these were modeled after the formal councils that were part of AHRQ's ongoing work with the Translating Research into Practice program in Phase I and II.

TABLE I.2

GRANTEES UNDER THE PARTNERSHIPS FOR QUALITY PROGRAM

Grantee Organization & Principal Investigator (PI)	Total Funding Dollars[1] (Years of Funding)	Expected End Date and Current Status[2]
1. Altarum Institute (HS013683) PI: George J. Miller	$397,835 (4 years)	September 2006 (Completed)
2. American Academy of Pediatrics (AAP) (HS013721) PI : Carole M. Lannon, Center for Health Care Quality, Cincinnati Children's Hospital Medical Center	$1,298, 266 (4 years)	September 2006 (Completed)
3. American College of Physicians (ACP) (HS013688) PI:Vincenza Snow	848,736 (3 years)	September 2005 (Completed-No Cost Extension through September 2006)
4. American Hospital Association (AHA), Health Research and Education Trust (HS013685) PI : John R Combes	$1,282,730 (4 years)	September 2006 (Completed)
5. American Medical Association (AMA) (HS013690) PI: Karen S. Kmetik	$1,211,074 (4 years)	September 2006 (Completed)
6. American Medical Directors Association (AMDA) (HS013710) PI: David F. Polakoff	$ 1,299,164 (4 years)	September 2006 (Completed)
7. Association of California Nurse Leaders (HS013704) PI: Nancy Donaldson, CalNOC & UCSF School of Nursing	$1,160,856 (4 years)	September 2006 (Completed)
8. Catholic Healthcare Partners (CHP) (HS013723) PI: Donald E. Casey	$ 1,278,719 (4 years)	September 2006 (Active-No Cost Extension to September 2007 under review)
9. Child Health Corporation of America (CHCA) (HS013698) PI: Paul J. Sharek, Stanford University School of Medicine & L Packard Children's Hospital (member of CHCA)	$ 1,144,950 (4 years)	September 2006 (Completed)
10. Connecticut Department of Public Health (HS013693) PI: Louise Dembry, Yale-New Haven Health System & Yale School of Medicine	$ 299,999 (3 years)	September 2005 (Completed)
11. HealthFront (HS013718) PI: Michael Callahan	$1,281,576 (4 years)	September 2006 (Completed)
12. International Severity Info Systems, Inc. (HS013696) PI: Susan Horn	$1,297,577 (4 years)	September 2006 (Active-No Cost Extension through March 2007)
13. Joint Commission for Accreditation of Healthcare Organizations (JCAHO) (HS013728) PI: Jerod M. Loeb	$ 1,181,351 (4 years)	September 2006 (Active-No Cost Extension through September 2007)
14. The Leapfrog Group (HS013680) PI: Suzanne Delbanco	$1,295,537 (4 years)	September 2006 (Active-No Cost Extension through September 2007)
15. Lehigh Valley Hospital and Health Network (HS013712) PI: Mark Young, later Kenneth D. Coburn	$ 294,841 (2 years)	September 2005 (Ended September 2004)
16. New York State Department Of Health (HS013699) PI: Suzanne Broderick/Beth Dichter	$1,161,932 (4 years)	September 2006 (Active-No Cost Extension through September 2007)
17. Pacific Business Group on Health (HS013684) PI: David Hopkins	$114,665 (15 months)	September 2006 (Ended December 2003)
18. Physicians Micro Systems, Inc. (HS013716) PI: Steven M Ornstein, Medical University of South Carolina	$1,294,555 (4 years)	September 2006 (Active-No Cost Extension through March 2007)

TABLE I.2 *(continued)*

Grantee Organization & Principal Investigator (PI)	Total Funding Dollars[1] (Years of Funding)	Expected End Date and Current Status[2]
19. Research Triangle Institute (HS013706) PI: Lucy A Savitz, later Shulamit Bernard	$ 994,976 (3 years)	September 2005 (Active-No Cost Extension through September 2007)
20. Texas A&M University Health Sciences Center (HS013715) PI: Josie R Williams	$ 399,816 (4 years)	September 2006 (Completed)
21. Visiting Nurse Service of New York, Center for Home Care Policy and Research (HS013694) PI: Penny H Feldman	$ 913, 667 (4 years)	September 2006 (Active-No Cost Extension through September 2007)

Source: AHRQ Grant's On-Line Database, RFA HS-02-010, accessed April 29, 2005; PFQ documents provided by AHRQ staff, including funding spreadsheet provided by AHRQ grants office, received October 23, 2006.

[1]All grants started September 29, 2002. The last was to end September 2006. Many have received no cost extensions.

[2]Status was determined from an October 2006 funding spreadsheet from AHRQ's Office of Grants Management. For the grants with end-dates of September 2006, "completed" indicates that AHRQ expects the project to end on time, and "active-no cost extension" indicates that AHRQ has given a no-cost extension or is reviewing a request for a no-cost extension. In situations where information provided by PI interviews on project status differed from the report from the Office of Grants Management, we deferred to the information provided by AHRQ.

In interviews, project officers conveyed different approaches to their oversight tasks. From our perspective, there appear to be two different strategies taken by project officers. The first, typically preferred by project officers with a strong substantive interest in a given topic area, was to work closely with their grantees to help form linkages with others involved in the same issue. The second was what can be viewed as a more generic oversight role that focused on overseeing adherence with grant requirements rather than seeking involvement in the substance of the work. Project officers pursuing the first strategy typically focused more on work with individual grantees rather than program-wide activities, though they might do both. Regardless of strategy, the amount of time spent by project officers on oversight varied substantially based on their interests and competing work assignments.

2. Program-wide Structure and Elements

AHRQ desired to encourage a program-wide focus with communication across grantees. The infrastructure to accomplish this included 1) periodic meetings of all grantees serving as a "Council of Partners;" and 2) a website where materials could be placed to foster communication. The concept behind the AHRQ Council of Partmers (AHRQCoPs) was not well-developed in the original RFA, though grantees were asked to include funds to attend an annual meeting.

AHRQ leadership appears to have left the decision on how to form AHRQCoPs to staff who, we were told, decided to model it on the structure used for the Translating Research into Practice (TRIP) grants. At the initial AHRQCoPs meeting, grantees were asked to elect leadership and approve a charter. The intent was that AHRQCoPs was to be grantee run with AHRQ support. Early meetings involved grantee presentations. Later on, the group divided into five subcommittees perceived to reflect the main challenges shared across all grantees: 1) science and partnership, 2) evaluation, 3) implementation, 4) dissemination and impact, and 5)

sustainability. Each subcommittee took responsibility for structuring one of the semi-annual COP meetings and set an agenda that addressed each subcommittee's area of interest (for example, implementation). The meetings included a combination of speakers and time for subcommittee work. Later on, participants on AHRQCoPs suggested that they work together on a journal supplement that would complement their work by documenting what had been learned about their experience. This supplement was under active development at the end of the program. The decision to focus on subgroups by cross-cutting challenge rather than substantive focus areas of the grantees was made after some debate among the program director and project officers.

In Chapter V, we provide additional details on the way AHRQCoPs functioned and how AHRQ staff and grantees viewed it as contributing to the success of their individual grants and the program as a whole.

E. EVALUATION OBJECTIVES

PFQ is a complex program involving a multiplicity of organizations and substantive foci. AHRQ asked that the evaluation not just document the richness of the program, but sort through the experience of diverse grantees to answer questions of interest to AHRQ. These questions are:

1. What impact did PFQ project activities have on improved health care quality processes and outcomes, and on the dissemination of effective quality improvement methods? In other words, how effective were the projects in accomplishing what they proposed and what AHRQ funded?

2. Did PFQ generate partnerships and infrastructure important to sustaining change? How did the partnerships and networks created through the PFQ projects contribute to the project outcomes?

3. How adequate was AHRQ's support and oversight of the program? How well did the agency support the projects and generate synergy and collaboration across projects?

4. What contribution did PFQ make towards AHRQ's strategic goals, both through the individual projects and the program-wide activities?

In addition, AHRQ leadership expected that the evaluation would inform internal management and operations of programs similar to PFQ. For example, the results of the evaluation could inform the development of future RFAs and their review, funding processes for projects similar to PFQ, appropriate leadership structures for AHRQ programs that are cross-center versus those owned by a single center, and the roles and responsibilities of project officers in overseeing and documenting impact of grantee projects.

II. EVALUATION FRAMEWORK, METHODS, AND DATA SOURCES

A. EVALUATION FRAMEWORK

To guide the evaluation, we developed a conceptual framework that identifies key participants, the way they are linked, and the critical questions of interest from each participant's perspective. Figure II.1 presents this framework.

The framework highlights the fact that the success of PFQ involves successful interaction of four core participating groups whose contributions are essential in improving quality of care. These are: 1) AHRQ, 2) the lead grantee organizations, 3) the relevant collaborators and targets for each grantee's efforts, and 4) the coordinating activities put in place by AHRQ to foster overall program goals and link PFQ to AHRQ's broader quality agenda and objectives.

The second dimension of the framework involves a series of relevant tasks, decisions, and communications that each actor/program component must successfully execute if PFQ is to achieve its goals. Specifically:

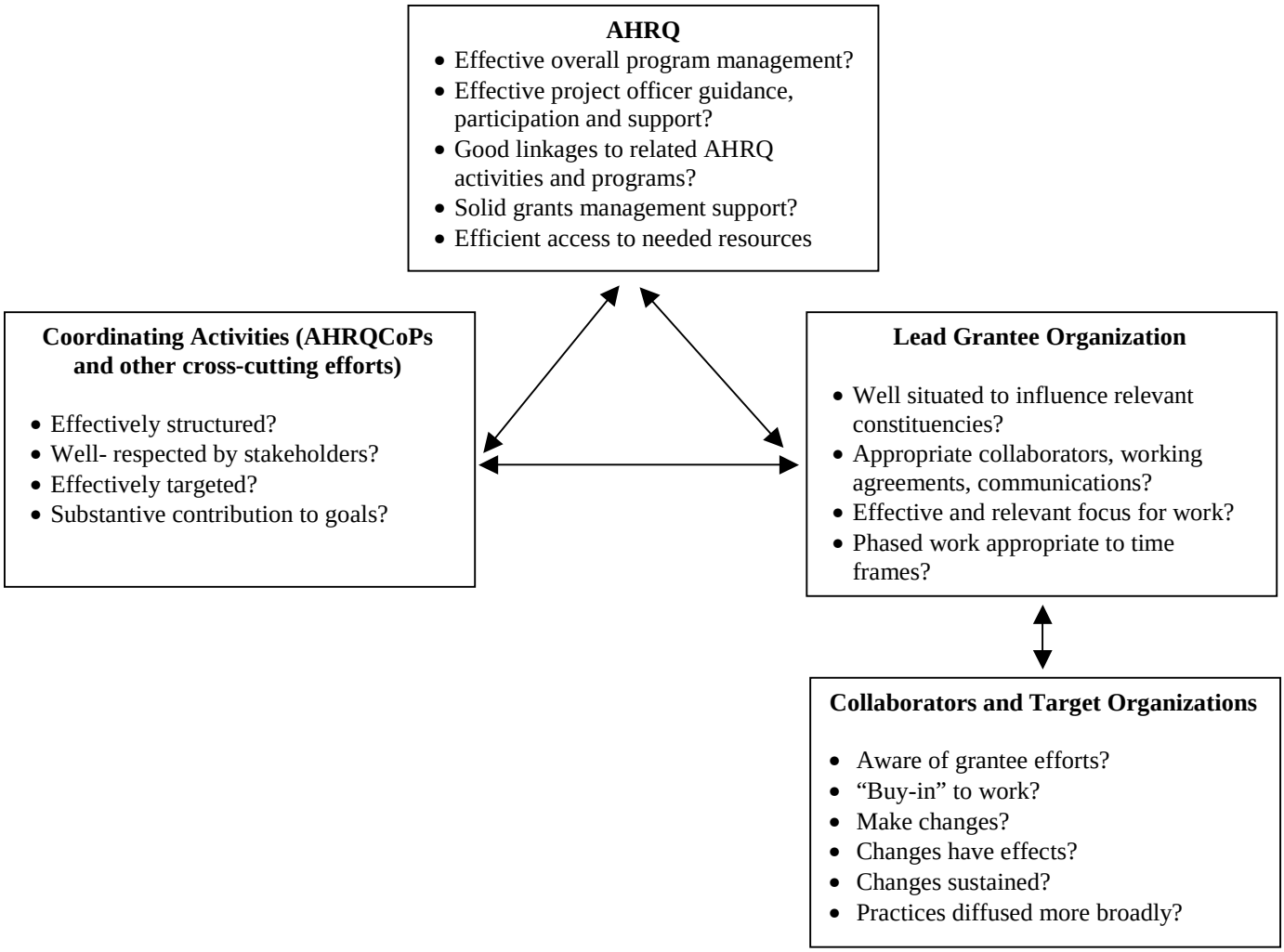
- ***AHRQ*** needs an infrastructure to support the program and ensure that it is well-linked to the agency's overall goals. AHRQ must establish effective project officer guidance and oversight of each grantee, along with effective overall program management and linkages to other AHRQ activities. Grants management needs to support the program, and PFQ staff must be able to access needed resources (financial and otherwise) on a timely basis.

- ***Lead grantee organizations*** are the link between AHRQ and those in the field whose involvement is pivotal to quality improvement. The chosen organizations need to be well-situated to influence their constituencies and must demonstrate access to the appropriate collaborators and communication channels, as well as the existence of working agreements—all of which are prerequisites for change. But focus is critical to change. Though the specific focus will vary across grantees, each grantee needs an effective focus relevant to those it seeks to influence and the focus must be suited to making concrete improvements in quality. In addition, activities need to evolve over time to generate increasing impacts appropriate to the project's span and its goals.

- ***Collaborators, target organizations and providers*** are the places where care is delivered, and are the core stakeholders. Their involvement is essential to individual grantees' strategies for improving care quality. Improvements in quality cannot occur unless targets "buy in" to the grantee's goals and are provided with the motivation and support to achieve them. To achieve AHRQ's goal for PFQ, these changes in practice or in purchaser decision making need to be sustained and ultimately diffused more broadly both in and across individual organizations.

FIGURE II.1

KEY COMPONENTS OF PARTNERSHIPS FOR QUALITY
STRUCTURE AND HOW THEY DRIVE OUTCOMES



- ***Coordinating activities*** are those efforts carried out by AHRQ or others aimed at helping grantees learn from one another, and linking PFQ's work to the broader quality agenda. They include the PFQ website (the website run by National Institutes of Health and used to foster electronic communication), the PFQ database, and AHRQCoPs sand its subcommittees. To be effective, coordinating activities need to be well-structured, well-regarded and well-supported by those whose involvement and participation is critical, and well-targeted to support substantive contributions to PFQ goals.

B. OVERVIEW OF EVALUATION DESIGN

Our approach to the evaluation involved a combination of document review, interviews, and limited observation of selected AHRQCoPs meetings. The intent was to use these sources to capture information on how each component was executed and what factors facilitated or impeded work. The evaluation is largely qualitative in nature. However, to the extent grantee progress reports and self-assessments include concrete measures of the "reach" and impact of their efforts on process or outcome measures, we include them in this report.

Table II.1 summarizes the overall evaluation design. It shows the four key questions or areas of interest described in Chapter I, the key measures that are relevant to answering them as derived from the evaluation framework, the data sources that were used to create the data needed on each measure, and how the analysis was conducted.

C. SOURCES OF INFORMATION

1. Program and Grantee Documents

At the start of the evaluation, MPR worked with AHRQ staff to gather documentation about the program and about each grantee.

Program Documents. We could not obtain documents that described PFQ's history, purpose, and design. While we had access to the RFA, we were unable to review the original documents detailing the idea behind the program, such as e-mail or internal memos summarizing the discussions that occurred during the development of the RFA on the issues of the program's purpose, focus, and targeted participants.

Leadership indicated that because the program was taking AHRQ in a new direction of translating research into practice, the processes for reviewing/scoring applicants and selecting grantees required new methods that diverged from the traditional AHRQ methods. Unfortunately, we were unable to obtain documentation that may have explained how these processes differed from the agency's traditional methods (for example, list of technical reviewers, technical review scores for applicants, AHRQ's executive management meeting (EMM) notes). What we were able to learn about the genesis of the program and grantee selection primarily came from interviews with AHRQ staff, discussed in Chapter I. AHRQ's Office of Grants Management generated a spreadsheet of total funding given to each grantee over PFQ's four years.

TABLE II.1

SUMMARY OF EVALUATION DESIGN

Purpose (area of interest)	Key Measures	Data Source	Analytic Method
Impact of Grant (Evaluation Question 1)	Who was reached? Did practices change? Any observable impact on care outcomes?	Grantee self-assessment PFQ progress reports Interviews with selected grantee targets	Synthesize information by grantee and across grantees
Generation of partnerships and infrastructure important to sustaining change (Evaluation Question 2)	Strength and sustainability of partnerships? Adequacy of communication flows and buy-in to decisions Quality of activities undertaken? Ability to obtain support from other ongoing processes and structures? Likelihood activities would have occurred without PFQ?	Interviews with AHRQ staff, grantees, and selected grantee targets MPR assessment of contribution of partnerships to outcomes Program and coordinating committee documents	Synthesize information by grantee and across grantees
Adequacy of AHRQ program support and oversight (Evaluation Question 3)	Effective substantive grantee guidance? Oversight of timeliness and performance? Effective grant management? Adequate AHRQ linkages?	Interviews with AHRQ staff and grantees Grantee progress reports PFQ database use PFQ website use Observation of AHRQCoPs meetings	Synthesize information across areas of interest program-wide
PFQ's continuation to enhance quality and outcomes consistent with AHRQ's and HHS' strategic goals (Evaluation Question 4)	Appropriate grantees and linkages? Execution of concrete efforts to promote evidence-based quality improvement with "reach"? Effective linkages and contributions to broader context?	Grantee applications and progress reports Interviews with AHRQ staff and grantees Program and AHRQCoPs documents	Synthesize information by grantee and across grantees

Grantee Documents. We had greater success accumulating materials on individual grantees, including original applications, annual renewal applications, technical reviewer comments (when available), quarterly progress reports, funding recommendations, and funding awards on all 20 of the PFQ grants. MPR staff went on-site to AHRQ's Office of Grants Management, which housed grantee documents, to sort through and copy relevant materials from grantee files. Not all files were complete because either PIs did not submit all the quarterly progress reports, or grantee POs did not forward copies to Grants Management for filing. To conserve use of resources on this unbudgeted function (the evaluation RFP had indicated AHRQ would provide materials), MPR staff read materials for all 21 grants initially funded, and copied the documents that seemed most relevant, such as those listed above. This meant that some materials attached in appendices, such as survey tools, that supplemented the progress reports were not copied.

To provide a concise overview of each project's focus, progress, and results, we drafted summaries of each grant project using the documents available to us. We supplemented the summaries with information from interviews with grantee PIs and partners and materials provided after the interviews, such as progress reports, project data/outcomes, articles, and presentations. We provided PIs the opportunity to review and comment on our draft summaries before finalizing them for this report. See Appendix B for the final summaries of all PFQ projects, containing information on project goals, activities, partners and partnership functioning, results, major products, and potential for sustainability or follow-on projects.

Program Tools. AHRQ gave MPR access to the PFQ website that had information on grantee projects, subcommittee notes and tools, and an events calendar. The website also contained a checklist for the database that grantees used to enter information about their projects. MPR staff reviewed the PFQ database information to extract information on grantee partners, tools, and target populations as entered in June 2004, shortly after the database was created. But MPR could not use the database to track grantee progress, since few grantees updated the information.

MPR also had access to other parts of the PFQ website, which was used as a tool for communication among grantees as well as a central storage area for work related to AHRQCoPs. Since grantees found e-mail or telephone calls to be more convenient as a method of communication, the website was not widely used, though there are several documents on AHRQCoPs work products, such as an evaluation framework and implementation assessment tool, and meeting minutes from the AHRQCoPs' semi-annual conferences.

2. Interviews

We interviewed AHRQ staff and individuals associated with each grantee to support this evaluation. Notes from the interviews were coded by major topic and entered into Atlas.ti, a searchable information database, which we used to analyze themes across grants and interviewees.

- ***AHRQ Staff.*** We interviewed 17 AHRQ staff, including 4 current and former staff involved in PFQ program development and grant selection about the program's history and goals, 9 current project officers and one former project officer overseeing

grants about their roles and their views of grantee and program success, 2 staff members from the Office of Grants Management on managing the grants, and one representative from the Office of Communications and Knowledge Transfer about program and grantee plans for information dissemination.[5] Interviews ranged in time from 30 to 60 minutes and were conducted in Fall 2005 early in the evaluation. We conducted a longer interview with the program director, who also served as a program project officer. Most interviews were in person at the AHRQ offices; the rest were by telephone. Topics for each type of interview are shown in Table II.2. Two MPR staffers participated in each interview—the project director and an analyst who took notes and documented the interview for use in the evaluation.

- ***Grantees and Affiliates.*** We conducted in-depth telephone interviews with 19 of the 20 grant principal investigators. For the remaining project, we spoke with primary project staff who were knowledgeable about the grant work. Most of the grantee PI interviews lasted 90 to 120 minutes. In addition to speaking with the PI, we spoke with people who were considered partners or collaborators for the grantee projects.

  The actual number of partner interviews scheduled for each project was determined after reviewing documents and holding interviews with PIs to consult them on which partners were important for us to contact. For projects in which the activities were primarily research or the partners were not involved to a significant degree, only the PI and one or two other people were interviewed. For more elaborate projects, with diverse types of partner organizations, we interviewed three to five partners per project. Most interviews with partners were 30 to 60 minutes.

  The purpose of the PI interviews was to obtain additional details on grant-related activities and partnership structure and functioning that would complement the information in grantee reports. The interviews with PI and partners covered the same general topics, discussing grant history and rationale, the evolution of project goals and activities, project accomplishments, partnership functioning, AHRQ support, and perceived sustainability of project activities. However, the PI interviews covered the topics in more depth and were used to gather factual information on the project's progress as well as PI perception on the grant experience. The partner interviews did not cover the topics in as much depth and were primarily used to collect information on the partner perception of the grant experience. See Table II.3 for a list of topics.

  In total, we conducted 76 interviews, including 19 grantee PI interviews and 57 partner interviews. Given the number of grants, we decided to conduct the interviews in waves, with earlier interviews focused on grants that had been completed earliest so there might be results to discuss. At the time this report was written, 12 grantee projects had been completed, 7 had received no-cost extensions, and one had requested a no-cost extension[6].

[5] We attempted but were unable to secure an interview with a former staff member who oversaw the technical review process to gain additional insight into how the process differed from AHRQ's traditional methods.

[6] Information provided by an AHRQ Grants Management Office report, created October 23, 2006. If there was a discrepancy between information provided by the PI and the report, we assumed the Grants Management report had the most updated information.

TABLE II.2

SUMMARY OF AHRQ INTERVIEWS AND TOPICS OF CONCERN

Type of Interview or Activity and Estimated Number of Interviews[1]	Topics Covered
Selected Executive Management Meeting (EMM) Staff and Other Critical Function Leaders (4 individuals)	Program history and links with broader AHRQ objectives; expected measures of success Aspects of communication flows, relationships with associated program staff, overseers, grantees, and collaborators
PFQ Program Director (1 individual)	Roles and responsibilities within PFQ, relationship to other responsibilities Review of program operations, activities of the coordinating committee and related groups Experience with gaining administrative or decision-making support Perceptions of individual grantees, their efforts, and relevant history Selected reports on aspects of communication flows, relationships with associated program staff, overseers, grantees, and collaborators
Individual Project Officers (10 individuals, including 1 past project officer)	Responsibilities for particular grantees and the associated history Approach to task and view of role and appropriate time commitment Experience with gaining administrative or decision-making support Summary of history and relevant efforts of individual grantees for which they are responsible, key issues or insights to consider, questions to ask Selected reports on aspects of communication flows, relationships with associated program staff, overseers, grantees, and collaborators
Grants Award and Monitoring and Dissemination staff [2] (3 individuals)	Role and responsibilities Perceptions of individual project officers and grantees with whom they are involved or responsible, key issues or insights to consider Awareness of broader context Selected reports on aspects of communication flows, relationships with associated program staff and grantees

[1] Interview numbers add to 18 because the program director also served as a project officer.

[2]We intended to discuss the process of making grant awards but could not as the staff involved had refused.

D. KEY CONSTRAINTS AND LIMITATIONS

The evaluation was constrained by a number of factors. These included:

- ***A Late Evaluation Start.*** While the program began in October 2002, the evaluation did not begin until October 2005. As discussed previously, the late start meant that our ability to understand the origins of the program was limited, as many key decisions were not documented and the facts were elusive. We also were unable to observe the evolution of AHRQCoPs directly since all but two meetings occurred before the evaluation began.

- ***Limited Primary Data Collection.*** Our evaluation relied on grantees' own evaluations of their success. Each grantee defined their evaluations differently, capturing different information. In many cases, evaluations were not complete when our evaluation report needed to be completed and some investigators were more willing to share early findings with us than others.

- ***Limited Documentation.*** While grantees were required to file quarterly and annual reports, grantees varied in both the completeness and timeliness with which they responded. The reports also were not always forwarded to the grants office and in the grantee official file.

- ***Grantee Diversity.*** The diversity of grantees and foci of the interest made the evaluation challenging. Individual grantees not only focused on different substantive areas of translation, but the way they defined success and the strategies they pursued to do so differed greatly. This meant that the appropriate metrics for evaluating each grantee's results were not the same.

- ***Timing.*** AHRQ wanted to get formative feedback from PFQ as early as possible and structured the evaluation so that it would provide results soon after the formal end of the program. This timing, together with the sheer number of grantees, meant that many interviews were conducted well before grantees finished their work. Though we were able to ask grantees to update their experience in early October 2006, this still was too soon for some to have finished their evaluations. Ultimately, of the 20 grantees, 12 (8 of those with clinical improvement goals, and 4 of those producing bioterrorism preparedness studies) were able to provide some preliminary results or outcomes in time to include in this report. Most of the other eight projects had information about their reach into target providers, lessons about the implementation process, or some indication about the likelihood of sustainability or further diffusion of their approach.

TABLE II.3

SUMMARY OF GRANTEE INTERVIEWS AND TOPICS OF CONCERN

Type of Interview and Estimated Number of Interviews	Topics Covered
Project Principal Investigator (2 hour interview)—19 Interviews	Grant history, strategy and rationale
	Overall Responsibilities of PFQ PI
Partner/Collaborating Organization (30 minute to 1 hour interview)—57 Interviews	Evolution of Project Goals, Activities and Partners over time
	Project Accomplishments
	Partnership Functioning and Effectiveness
	Factors promoting/inhibiting success
	Perceived sustainability and role of grant/partnership
	AHRQ support, effectiveness and efficiency of oversight/management/guidance
	Contribution of Program-wide PFQ Activities and Communication[1]

[1] We covered this topic with all PIs but only a few project partners who had participated in AHRQCoPs meetings.

III. WHAT DID GRANTEES SEEK TO DO?

This chapter describes the PFQ grantees and their goals. Specifically, it discusses the intended grant focus; intervention strategies; the characteristics of the organizations awarded PFQ grants, proposed partners and their roles; and the expected outcomes and how they intended to measure their success. We focus on grantees' initial intentions, based on the applications and interviews conducted with grantees. We defer to Chapter IV for our analysis of grantees' success in implementing these plans and the outcomes of their efforts.

A. PFQ PROJECT FOCUS

The central focus of PFQ was to apply evidence-based practices to improve quality of health care. PFQ also provided grants to improve the health care system's readiness to address bioterrorism, although grants in this area were smaller than were the core grants focused on improved quality of health care. Of the 21 PFQ grants, 18 received funds for the first purpose and five for the second. The latter five included two (JCAHO and RTI) whose grants had both clinical quality improvement and bioterrorism preparedness components.

The RFA allowed grantees substantial flexibility in choice of focus and approach, though it encouraged work in at least one of AHRQ's targeted priority health care settings, health conditions/issues,[7] and/or populations.[8] These priorities are broadly defined and so were the foci of PFQ grants. Appendix Table A.1 provides details on the specific focus of each grantee, but the themes across the projects are briefly described here.

Quality Improvement Grants. Of the 18 grants funded to encourage providers to better use evidence-based care to enhance its quality, 15 did so by working directly with providers, or through intermediaries that represented them, and 3 by attempting to leverage purchasing power to change incentives to reward providers that provide high quality care. Of the 15 grants focused directly on changing provider behavior (see Box 1), 5 worked to improve the quality or safety of hospital-based care, 4 with long-term care/home health providers, 5 with office-based physicians, and one with large integrated health delivery systems.

[7] The RFA stated that grants could focus on priority health conditions, including: cancer, diabetes, heart disease, chronic kidney disease, or respiratory disease, as well as priority health issues, including maternal and child health, mental health, long-term care, and bioterrorism. Some of these priority conditions and issues were expected to fall within the categories to be addressed by AHRQ's National Health Care Quality Report, under development when the RFA was released. The 2005 National Healthcare Quality Report identified nine clinical conditions or care settings: cancer, diabetes, end stage renal disease, heart disease, HIV/AIDS, maternal and child health, mental health and substance abuse, respiratory disease, and nursing home and home health care.

[8] The RFA stated that PFQ applications should address priority populations identified in AHRQ's authorizing legislation: inner-city areas and rural areas (including frontier areas); low-income groups; minority groups; women; children; the elderly; and individuals with special health care needs, including individuals with disabilities and individuals who need chronic care or end-of-life health care.

BOX 1

15 GRANTS TO IMPROVE PROCESS OF CARE AND CLINICAL OUTCOMES BY CHANGING PROVIDER BEHAVIOR (GROUPED BY SETTING**)**

HOSPITAL

- ***American Hospital Association/Health Research and Education Trust (Original grantee: Institute for Healthy Communities) (J.R. Combes):*** Increase and enhance hospital-based palliative care by creating learning center hospitals to host site visits from staff from other hospitals.
- ***Association of California Nurse Leaders (N. Donaldson):*** Decrease incidence of hospital-based falls and falls-with-injury by coaching nurse "linkers" to implement evidence-based interventions in medical-surgical hospital units.
- ***Catholic Healthcare Partners (D.S. Casey):*** Improve health care outcomes for patients with congestive heart failure using hospital-based approaches to encouraging consistent use of evidence-based guidelines for care.
- ***Child Health Corporation of America (P.J. Sharek):*** Work with a subset CHCA's member children's hospitals to integrate evidence-based practices on pain management, medication safety, and patient safety.
- ***JCAHO (J. Loeb):*** Identify whether the introduction of JCAHO's core performance measure sets for hospital care for patients with four conditions were perceived as valuable by hospitals, whether and how they influenced the process of care, and with what impact. (See separate bioterrorism component next page.)

LONG-TERM CARE AND HOME HEALTH

- ***American Medical Directors Association Foundation (D. Polakoff):*** Create local long-term care partnerships and pilot test the use of clinical practice guideline implementation toolkits in nursing facilities in six states.
- ***International Severity Information Systems, Inc. (S. Horn):*** Incorporate findings from the National Pressure Ulcer Long Term Care Study into routine, evidence-based practice in long-term care facilities.
- ***New York State Department of Health (S. Broderick/B. Dichter):*** Evaluate two alternative methods for disseminating evidence-based best practices in long-term care and adult care facilities.
- ***Visiting Nurse Service of New York (P.H. Feldman):*** Establish a national learning collaborative for home health care agencies to improve care for elderly clients with diabetes.

PHYSICIAN OFFICE PRACTICE

- ***American Academy of Pediatrics (C. M. Lannon).*** Improve care for children with ADHD by using web-based tools and practice-based CME to encourage pediatrician's adherence to evidence-based guidelines, and if successful, extend the model to other conditions
- ***American College of Physicians (V.T. Snow).*** Develop and test a team-oriented, practice-based continuing medical education strategy focused on improving care for patients with chronic disease and develop a business case to support its practical application
- ***American Medical Association (K.S. Kmetik):*** Test two approaches for transferring clinical data to support large-scale improvement in ambulatory care for patients with chronic diseases—adult diabetes, coronary artery disease, and major depressive disorder—by promoting use of AMA's performance guidelines.
- ***Lehigh Valley Hospital and Health Network (M. Young/K. Coburn):*** Develop and test a cost-efficient educational intervention to improve care for diabetes in primary care practice.
- ***Physicians Micro Systems Inc. (S. Ornstein):*** Expand availability and use of clinical indicators in physician offices for practice-based quality improvement in practices using one electronic medical record system.

INTEGRATED DELIVERY SYSTEM

- ***RTI (L. Savitz):*** Unlike other PFQ grants, this project focused generically on partnerships. It sought to leverage the experience of its health system partners in the Integrated Delivery System Research Network to improve quality, support more communication across partners, and study partnership issues in AHRQCoPs.

Each grantee defined its target group in different ways. Of the three projects whose quality improvement strategies focused on purchasers, shown in Box 2, one focused on office- based physician care (HealthFront), one on rewarding higher quality hospitals (The Leapfrog Group), and one on creating general measures of performance by the health care system (Pacific Business Group on Health, whose project terminated prematurely, and is therefore not described in the report after this point).

BOX 2

THREE GRANTS TO MODIFY PURCHASER INCENTIVES TO PROMOTE QUALITY

- ***Health Front (M. Callahan):*** Develop nationally recognized measures of provider performance and use them to support purchaser value-based decision making on the part of health plans.
- ***The Leapfrog Group (S.F. Delbanco):*** Leverage payer and purchaser groups in select communities involved in Leapfrog's "Regional Roll Out" to pilot test financial reward and incentive programs targeting hospital and consumer groups.
- ***Pacific Business Group on Health (D. Hopkins):*** Develop comparative performance data on physicians using Medicare claims. Project was terminated early when access to the necessary data could not be negotiated.

In addition to provider type and health care setting, most grantees also focused their efforts by health condition or population group. The most common priority health issues and conditions addressed by the PFQ grants awarded include diabetes (five), long-term care (three), heart disease (four), mental health (three), and child health (two). Fire projects targeted two or more conditions. The most common priority populations targeted by grantees included: the elderly (six projects), special needs populations, including those with disabilities, chronic care, or end of life care (six projects), and children (two projects).

Bioterrorism Preparedness Grants. Projects addressing bioterrorism and emergency preparedness often defined their target audience more broadly than did grantees seeking to improve quality. The three grants funded exclusively to focus on bioterrorism preparedness pursued goals related to increasing health providers' ability to respond to bioterrorism or other disasters.

Both grantees with dual-purpose funding (JCAHO, RTI)—to improve both quality and bioterrorism preparedness—built on strong hospital links and sought to bring in other community groups as appropriate. JCAHO's bioterrorism grant sought to assess the existence and effectiveness of linkages for community-wide bioterrorism preparedness among health care, public health, public safety, and government agencies. JCAHO also planned to compare preparedness for communities with and without disaster experience and identify exemplary practices. RTI hoped to develop and use the same infrastructure used for a previous AHRQ-funded project with its integrated health system partners that used evidence-based research to improve quality, and to facilitate communication that would also address bioterrorism preparedness in the health systems.

BOX 3

THREE GRANTS TO IMPROVE BIOTERRORISM AND EMERGENCY RESPONSE PREPAREDNESS BY HEALTH PROVIDERS

- ***Altarum Institute (PI G. Miller).*** This project focused on developing simulation models to project demand for medical care within communities in response to a bioterrorist attack or acute outbreak of infectious disease. The intent was to test the utility of these models in planning with an urban and a rural healthcare network.
- ***Connecticut Department of Public Health (PI L. Dembry).*** The project focused on developing, providing, and evaluating the effectiveness of web-based bioterrorism preparedness and response training for "front line" practitioners in Connecticut.
- ***Texas A&M University Health Sciences Center PI (J. Williams).*** The bioterrorism preparedness component of this grant, which ultimately became its exclusive focus, focused on analyzing bioterrorism readiness among provider systems in counties in and around San Antonio and Dallas/Fort Worth, Texas.

B. INTERVENTION MODELS AND STRATEGIES

1. Models

PFQ projects were expected to design their interventions to include three major types of activities: 1) *designing, supporting and facilitating* evidence-based improvements in health care security, safety, and quality; 2) *sustaining* these improvements by making them part of the ongoing practice of health care providers and clinicians; and 3) *disseminating* improvements beyond targeted selected population groups. The AHRQ grant solicitation instructed grantees to design their interventions using one of the following models:

1. Short-term; single, relatively limited target
2. Complex plan of multiple targets requiring a sequence of interventions over a longer period
3. Expand over time, adding additional targets or partners in a planned sequence over the period of time

PFQ ultimately included few short-term grants (type 1), with the vast majority of grants funded for at least three years and designed to fit models (2) or (3). An example of the first model is the Connecticut Department of Health Grant that developed a bioterrorism preparedness training program for physicians. An example of the second model is the American Medical Directors Association Foundation grant that focused on nursing facilities in six states to determine the effectiveness of an approach for training nursing home staff to implement clinical practice guidelines and to evaluate nursing homes' experiences and lessons in using implementation toolkits. An example of the third model is the American Hospital Association-HRET grant that planned to expand the number of palliative care learning centers from the three Pennsylvania-based units in Phase I to an additional four national facilities in Phase II.

Some projects followed a model that combined these strategies. For example, over the course of the grant period, Physician Micro Systems, Inc. in collaboration with the Medical University of South Carolina, aimed both to increase the clinical indicators tracked from 22 to over 70 and the number of participating physician practices from 40 to 100 (model 3), and to involve a sequence of interventions, including quarterly reports, site visits, and annual network meetings (model 2). While most of the grantees planned to expand their targets, interventions, and/or partners over the course of the grant periods, some ran into hurdles, such as recruiting issues and staff turnover that delayed and/or inhibited their progress (discussed further in Chapter IV).

Because the PFQ solicitation required that the proposed interventions use successful care models, most of the PFQ projects built on work already underway. One grantee noted that the PFQ program "offered an opportunity to continue what we had already started and what we wanted to do." PFQ funding allowed organizations to expand upon their prior quality improvement or bioterrorism preparedness work and/or accelerate their efforts. Several used the funding to strengthen operational and/or infrastructure support to more comprehensively carry out their work. In addition, a few of the grantees transformed concepts from proposals rejected by other funders into projects that were more in line with the aims of the PFQ program.

Though the RFA encouraged applicants to build their proposed interventions on published evidence of effectiveness, the evidence base is stronger in some areas than others. Bioterrorism projects, in particular, were challenged to address topics where a strong base of evidence and knowledge of how to proceed is just now developing and has many gaps.

2. Intervention Strategies

To achieve their quality improvement goals, PFQ grantees intended to implement a variety of changes in health care systems, organizations, and clinical practices. Projects seeking direct improvements in clinical care primarily utilized training, education, or technical assistance to implement organizational and/or operational process changes in target organizations. Projects seeking to utilize purchaser power to leverage change focused on mechanisms for implementing policy/reimbursement changes. Some bioterrorism preparedness projects also included training and technical assistance, and some studied or developed emergency preparedness planning processes and tools. The effectiveness of these strategies will be examined further in Chapter V.

Changes in Provider Practices and Operations. Of the 15 grants focused directly on changing provider behavior, 12 planned to conduct some form of training, education, or technical assistance to increase use of clinical guidelines in daily practice. This involved staff training on guidelines and/or working with staff to change workflow, the documentation of care processes, or organizational policies to increase adherence to clinical guidelines. Most of these grantees also planned to offer follow-up support to providers.

The majority of these 12 grantees combined the three strategies to maximize providers' adoption of clinical guidelines. For example, the American College of Physicians developed a practice-based continuing medical education course, based on the Institute for Health Improvement (IHI) rapid cycle quality improvement model, to train teams of doctors, nurses, and office administrators on how to improve quality of care and outcomes for patients with chronic diseases. They also developed a toolkit to help the teams implement clinical, administrative, and

patient education techniques to be incorporated into daily workflow, and planned to follow up in between training sessions via conference calls to help providers deal with problems putting the tools into practice.

A few grantees provided intensive on-site training/technical assistance to their targets. For example, project leaders from the Medical University of South Carolina made site visits to some of the groups participating in the practice partner research network (PPRNet) in PMSI's project. During these visits, PPRNet staff or consultants would meet with all members of the practice for about a half day to assess the practice's performance, highlight what was working well and explore opportunities for improvement.

In addition to ACP's project, two grantees incorporated IHI's rapid-cycle quality improvement approach as the basis for their interventions. CHCA adopted this approach in the last two years of its project, to bring more rigor and consistency to its quality improvement efforts in pediatric hospitals. It launched two rapid-cycle improvement projects, each with different sets of hospitals. The hospitals sent teams to learning sessions and received intensive coaching on change implementation in conference calls between sessions. Like ACP, CHCA also created and tested toolkits for implementing patient safety best practices in hospitals. VNSNY also used the IHI rapid-cycle improvement model to design and implement diabetes care improvements in the eight participating home health agencies.

Several grantees planned to collect data on provider performance and report back to them on their progress in following clinical guidelines or meeting performance standards. Lehigh Valley Hospital and Health Network, for example, used a system called Achievable Benchmarks of Care (ABC^{TM}), which sets a benchmark for care based on best practices of regional peers and reports to physicians on how they compare to their peers.

Changes in Payment Policies to Reward Quality. The two purchaser-focused PFQ grants used different strategies for creating or aligning payment incentives to promote quality care. The Leapfrog Group recruited payer and purchaser groups to pilot test financial incentive and reward programs that utilized their recommended hospital patient safety practices in six health care markets around the country. One of the pilots was led by the Boeing Company, which worked with consultants secured by the Leapfrog Group to implement a program for employees enrolled in the company's PPO, which offered a discount on care provided in hospitals that met Leapfrog's quality and patient safety practices. In another pilot project, Leapfrog arranged for technical assistance to the Maine Health Management Coalition to help design and implement a bonus pool for high performing hospitals. HealthFront, which led the other purchaser-focused project, studied the current status of pay-for-performance and public reporting in two health care markets, to identify the degree of alignment among insurers and payers in their use of provider incentive programs. HealthFront reported its findings to the purchasers to prompt discussions about how to make the incentives more consistent. The project also conducted surveys of medical group managers in Minnesota and physicians in Colorado to determine their awareness of and response to different types of incentive programs.

Study of Providers' Bioterrorism/Emergency Response Preparedness. While the five bioterrorism/emergency response preparedness grantees all sought to improve the capacity of the health care delivery system to respond to crises, they did so in different ways. Connecticut Department of Health, in partnership with Yale New Haven Health System, proposed to create

and evaluate the effectiveness of a training program for front-line clinical staff. JCAHO assessed the linkages between the health care system and public health infrastructure through the use of a survey of hospitals and community health centers. Altarum Institute modeled the surge capacity of health care systems in the event of a bioterrorism event, under varying assumptions regarding the public health response.

C. PFQ GRANTEE ORGANIZATIONS AND PARTNERSHIPS

1. Lead Grantee Organizations

The PFQ solicitation encouraged applicants with the capacity to influence health care organization and delivery and the ability to evaluate the impact of their efforts (see Chapter I). Specifically, the solicitation targeted applicants from health care professional organizations, accrediting agencies, practice networks, employer coalitions, and health insurers. Twelve of the 20 PFQ grants were awarded to organizations falling within these categories: five were awarded to provider groups, five to health care professional organizations, one to an accrediting/certifying body, and one to an employer coalition/purchaser collaborative. Of the remaining eight grants, four were awarded to research organizations, two to state government agencies/departments, one to a university, and one to a private company. The organizational types of the PFQ grantees are shown in Box 4.

Seeking to fund a "different kind" of project, AHRQ's RFA solicitation excluded universities from being eligible for PFQ grants, though academically-based individuals were not precluded from being involved in the grants. In fact, Principal Investigators affiliated with academic institutions led 6 of the 20 PFQ grants. Of these six, only one of the academic institutions was the actual grant recipient (Texas A&M University). This grant was also the only one of the six that focused on bioterrorism preparedness, which we believe may have been the reason for this exception. The remaining five university-affiliated Principal Investigators applied to the PFQ program through other organizations, whose responsibilities included an administrative/fund disbursement role.[9]

[9] The remaining five university-affiliated Principal Investigators led projects for two professional organizations, one provider group, one state government department, and one private company.

Box 4
PFQ Grantees by Organizational Type

Provider organizations (PFQ grant usually housed in the research division)	American Hospital Association/HRET Catholic Healthcare Partners Child Health Corporation of America Lehigh Valley Hospital and Health Network Visiting Nurse Service of New York
Health professional associations	American Academy of Pediatrics American College of Physicians American Medical Association American Medical Directors Association Foundation Association of California Nurse Leaders
Health care accrediting/certifying body	Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)
Employer/purchaser collaborative	The Leapfrog Group
Independent research organizations	Altarum Institute HealthFront International Severity Information Systems RTI
State health departments	New York State Department of Health Connecticut Department of Health
University	Texas A & M University System
Private company	Physician Micro Systems, Inc.

2. Partners and Other Affiliates

Number of Partners. In contrast to traditional research grants, the PFQ program encouraged grantees to form partnerships with a variety of types of organizations and individuals that could help reach target providers. The numbers of partners involved in PFQ grant activities varied tremendously across the projects. Some had few partners, while others had as many as 20 or more partners with varying levels of involvement. A full list of partner organizations is shown in Appendix Table A.2, which displays the partners associated with each project according to organizational type.

Grantees structured relationships and communication among partners differently, depending on the scope and focus of their projects. The projects led by the AMA, ISIS, Lehigh Valley Health and Hospital System, and VNSNY intended to collaborate with a dozen or fewer provider organizations as working partners, usually because their interventions were more time-intensive, either for the lead agency or the provider organizations. Other projects, such as those led by the American Academy of Pediatrics, American College of Physicians, Child Health Corporation, and PMSI, planned to engage between 35 and 180 provider organizations, and in these cases group training sessions, quarterly reporting and occasional teleconferences were used to interact with a larger number of target organizations.

Types of Partner Organizations. The four most common types of partner organizations affiliated with PFQ grantees included:

1. Research organizations or university-based researchers, typically responsible for leading the projects' research and evaluation design and implementation
2. National or state health care professional organizations led 5of the 20 projects as noted earlier, but were involved in several other projects as partners to help promote QI approaches or recruit their members to participate
3. Provider organizations or practices, which were often the targets of QI tools and methods
4. State or local public health agencies, one of which led a project (NYS-DOH) and involved as partners in bioterrorism and emergency preparedness projects

Type of Role. Partners played different roles with the grantee team. In some cases, partners were expected to work very closely with the lead grantee on overall leadership for the project. They could be involved in any or all of the following: grants management, research design, quality improvement training, data collection and analysis, and marketing/dissemination of the project results. Instead, or in addition to being part of the leadership team, some partners were asked to perform the following roles:

- ***Intermediaries,*** sometimes referred to as key collaborators, who recruited, trained or provided technical assistance to the target organizations, and served as a critical link between leadership and targets. Those filling the intermediary role included a variety of health care professional organizations, providers, or quality improvement organizations (QIOs).
- ***Targets,*** who included the health care organizations or providers on whom the quality improvement intervention was focused, as discussed earlier.
- ***Advisors,*** who provided expert input to project leaders in their areas of clinical, health services research, and health delivery expertise.

Types of Partnerships. While the way in which each grantee worked with its partners differed greatly among the projects, there were two major types of partnerships, which differed by how the grantee organization related to the target organizations:

- In one model, used largely by the projects that focused on bioterrorism and emergency preparedness, grantees largely involved target organizations as advisors or as study participants.
- In the second model, used by the 14 projects that targeted providers for quality improvement efforts, and 2 focused on purchasers, grantees forged direct working relationships with the target organizations to design, implement, and assess the success of efforts to translate research into quality improvements. Virtually all of the projects adopting this model also involved advisors as partners, but the advisors usually had little or no interaction with target organizations.

We describe in more detail in Chapter VI how these partnerships actually worked – how the partnerships functioned, how partners communicated and made decisions, and how they involved staff in target organizations. Chapter VI also assesses how partnership structure and function contributed to the success of individual projects and to the overall goals of the PFQ program.

D. EXPECTED OUTCOMES AND EVALUATION APPROACHES

The AHRQ solicitation required all PFQ projects to evaluate the effects of their interventions, though it did not clearly specify how the evaluation was to be conducted or what purpose it would serve.[10] As discussed in Chapter I, some originators of the PFQ concept viewed the evaluation requirement as a feedback requirement more than as research for its own sake. According to this view, evaluation was intended to document how projects were helping to move evidence-based research findings into practice on a large scale.

Grantees, however, interpreted the requirement in different ways. Some paid more attention to the evaluation requirements than others. Grantees varied on how clearly they sought to measure the outcomes of their work, how rigorously they tried to pursue their analyses, how much of the grant resources were allocated to the evaluation, and how they viewed the role of such findings to their overall goals.

The rest of this chapter reviews key characteristics of the evaluations proposed by grantees, including the outcomes, research design, and the affiliations they developed to support the evaluation. Appendix Table A.3 provides more detail on evaluation approaches and measures for each grantee. The chapter concludes with a brief discussion about how the variation in evaluation approaches influences the ability of this evaluation to draw insights or compare results across grantees.

1. Evaluation Focus

The focus of evaluation efforts typically differed between clinical improvement and bioterrorism projects. Most of the clinical improvement projects sought to evaluate their success by measuring improvements in the process of care and in clinical outcomes. In contrast, bioterrorism grants planned to measure success simply on the basis of the production of findings on how health providers could improve emergency preparedness.

Projects Focused on Improving Clinical Quality. As discussed previously, 17 grants had this as their goal, including 15 that sought to directly influence provider behavior. Of the 15, all but three (AMA, JCAHO, RTI) planned to measure the changes in care processes that resulted from their work under the grants. The American Academy of Pediatrics grant, for example, planned to compare the percentage of patient charts demonstrating target levels of care for seven

[10] The RFA stated, "AHRQ intends that funded projects be models, and as such yield information that may be useful to other organizations. Evaluation relevant to an individual project must be part of all plans, with an emphasis on acquiring information that will permit assessment and reporting of progress against approved aims as well as internal decision making by the grantee and consortium members. Cost and other resource dimensions must be addressed in evaluation at this level."

ADHD care components between those practices enrolled in e-QIPP and receiving AAP training support with those only entering practice data onto the e-QIPP system. Ten projects (ACP, AHA, AMDA Foundation, ACNL/CalNOC, CHCA, ISIS, Lehigh Valley, NYS-DOH, PMSI, VNSNY) intended to go further by capturing data on patient outcomes of care as well.

The clinical outcomes were most often short-term changes in patient lab scores, patient satisfaction, and similar measures that might be expected to change within the time frame of the project. The Lehigh Valley Hospital and Health Network project, for example, planned to evaluate its project on both process and outcome-based measures by monitoring diabetes process of care measures, and selecting indicators of diabetes control for patients in participating physician practices at baseline, 6 months, and 12 months post intervention. Similarly, the New York State Department of Health planned to examine the degree to which facilities and staff implemented interventions (the process measures), as well as patient falls, hospitalizations, weight loss, and incontinence (the outcome measures) by comparing pre-post measures for two intervention groups and one control group. In addition, the American College of Physicians planned to conduct telephone surveys pre-intervention, during intervention, and post-intervention to evaluate patient satisfaction.

Two projects planned to collect financial information. The project led by the American Hospital Association/HRET had a plan to compare financial data at baseline from three learning labs to post-program data from six learning labs. This metric was likely included in this evaluation because of the PI's interest in creating a business case for implementing palliative care units at hospitals.[11] Lehigh Valley Hospital and Health Network also planned to obtain financial data to help it calculate the cost of the interventions.

To provide context for understanding these outcomes, some grantees proposed a process evaluation. For example, the International Severity Information Systems planned to conduct staff focus groups and interviews to determine staff satisfaction; it also planned to examine how the intervention supported the use of best practice protocols in study units, became integrated into daily workflow, achieved process efficiencies, and gained user acceptance. The American Academy of Pediatrics monitored the frequency and participation in QI activities in treatment and control practices, as well as collecting qualitative information on the factors promoting AAP chapters' ability to develop and sustain QI activities. VNSNY also tracked implementation experiences and perceptions of value by surveying CEOs and other staff in participating home health agencies.

Three of the 15 grantees focused on improving clinical care but did not plan to measure their success based on actual change in the process or outcomes of care (AMA, JCAHO and RTI). The AMA project's planned measure of success was the ability to show that physician groups

[11] The RFA stated, "Documentation of results must include benefits to patients and also **costs and benefits** to individual providers and to the organizations that are likely to have a bearing on long-term adoption and sustainability of the changes [emphasis added]. In other words, it is desirable to 1) institute policy, organizational, or operational efforts that will motivate and support changes in practice to improve quality, and 2) provide evidence that the changes in quality are **cost-beneficial** to the relevant participants so that they can be expected to continue, independent of this or other grant funding".

could transfer clinical data electronically, and that data could be compared to AMA performance standards. JCAHO did not plan to formally evaluate its project, though it did plan to track progress in its survey of hospitals' perceptions of the value of JCAHO's core performance measures for quality improvement initiatives. The RTI project's primary measure of success was the production of lessons on how to create effective partnerships for translating research into practice, based on the experiences of its integrated delivery system partners to spread effective quality improvement methods across and within the systems.

The purchaser-focused grants proposed to gauge their success on whether or not they could modify reimbursement systems and incentives to promote quality care rather than measure the changes in care per se. The most ambitious of these was The Leapfrog Group's plan to study whether purchaser incentives would influence employees' choice of hospitals if they received a discount for using hospitals that met Leapfrog's patient safety standards. HealthFront proposed to measure the proportion of the insured population in two markets that were subject to "aligned incentives."

Bioterrorism preparedness projects. The bioterrorism-focused grants proposed to judge their success by producing findings about what is needed to improve health care system preparedness. The exception was the Connecticut Department of Public Health together with Yale/New Haven Hospital System's Office of Emergency Preparedness, which planned to formally measure success of improving knowledge about bioterrorism preparedness among physicians.

2. Research and Evaluation Approaches

Formal research designs were employed in 12 of the 15 clinical projects that focused on processes and outcomes of care, and in one of the bioterrorism preparedness projects. The rigor and approach to the design varied across these grants. In most cases, investigators proposed quasi-experimental designs that involved pre-post measurement of relevant clinical or other indicators (sometimes with comparison groups), and qualitative studies of implementation processes and participant experiences. Only one grantee—the AMDA Foundation—used a randomized design; it randomly assigned each participating nursing home to one of two clinical practice guideline implementation groups, each serving as cross-controls to the other. However, a few grantees compared results of experimental groups with those of control groups, by allowing those in the latter set to participate in the intervention after the former completed data collection.

3. Evaluation Responsibility

Many of the evaluations were carried out by the grantee organizations themselves, many of whom are non-academic applied research groups, such as Altarum, ISIS and RTI, or research arms of provider organizations, such as JCAHO's Division of Research, VNS of New York's Center for Home Care Policy and Research, Lehigh Valley Hospital and Health Network's Community Health Studies division, and AMA's Clinical Quality Performance Measurement unit.

Some grantees worked closely with researchers or quality improvement measurement experts from non-academic research institutions. For instance, New York State Department of Public Health had co-PIs from the Research Division of the Hebrew Home for the Aged at Riverdale. HealthFront worked with researchers from Park Nicollet Institute. AMDA Foundation worked closely with Quality Partners of Rhode Island, the CMS-designated QIO support center for nursing home quality improvement.

A few projects engaged researchers from either academia or other research institutions to conduct independent evaluations of their projects. These included Catholic Health Partners, which had an academic researcher conduct a formative evaluation; the Leapfrog Group, which had three academic researchers conducting process and outcome evaluations of its pilot projects; and AMA, which sub-contracted with RAND for an evaluation.

E. IMPLICATIONS OF DIVERSE PROJECTS FOR EVALUATION

In evaluating a program like PFQ, which includes grantees with diverse goals, one can evaluate outcomes against overall program goals, as well as against the individual goals each grantee sets for itself in the proposal that AHRQ funded.

In terms of overall goals, AHRQ clearly desired PFQ to have a broad reach in changing health care delivery. Hence, the scale of grantee efforts and their collective reach is an important issue to examine as part of the overall evaluation of the PFQ. To our knowledge, the agency was less prescriptive about strategies for translating research into practice and how trade-offs were to be made when projects brought the potential for large-scale influential national sponsors. But it did propose approaches that were less directly or immediately tied to changing individual provider performance within the time period of the grant. In addition, AHRQ itself acknowledged that given the novelty of the PFQ program, it expected the grantees would learn as they went along. In this context, only a subset of grants might be expected to succeed even if the program as a whole was successful.

We can also assess grantees' successes against their own goals and their implementation progress, but only a subset of projects was designed to achieve (or measure) change in clinical practice. In the next chapter, we evaluate grantees' successes through an overall assessment of the collective experience of grantees, while remaining sensitive to the differences in goals set by each grantee and how concretely they planned to measure success.

IV. WHAT DID THE PFQ PROJECTS ACHIEVE?

AHRQ sought projects that aimed to make a "significant improvement in quality of care for a substantial part of the population of the United States. AHRQ is seeking projects that will, in aggregate, affect the quality of care of patients numbering in the hundreds of millions." (PFQ RFA, May 2002) This chapter assesses the achievements of the PFQ grantees over the course of their projects. After a brief overview of the project's overall outcomes, it reviews the experiences and results of all 20 grants by areas of common focus.

A. OVERALL OUTCOMES

For a program with limited visibility, PFQ does appear to have made a difference in health care security, quality and safety in some of the targeted health care organizations, and raised quality of care processes and outcomes for many Americans. Though final outcomes are not known for all projects, it appears that some projects achieved better results than others (see Table IV.4).

In terms of their ability to change clinical practice in ways consistent with evidence, four projects stand out based on the magnitude and scope of their effects: 1) Child Health Corporation of America, which improved clinical performance in several areas at 18 hospitals and has expanded quality improvement efforts at 42 children's hospitals; 2) International Severity Information Systems, which streamlined care processes in nursing facilities in ways that led to demonstrated reduction in pressure ulcers; and has launched a follow-up project to spread its approach more widely; 3) Physician Micro Systems/MUSC, which has expanded an effective strategy to get performance data into greater use in physician offices for improved process of care; and 4) the Visiting Nursing Service of New York, whose model for diabetes home care has shown positive effects and is being extended in 10 states.

Though less striking, four other projects developed new approaches to quality improvement that have the potential for attaining broader scope and merit greater attention: 1) the American Academy of Pediatrics, which has sustained its clinical improvement efforts through new projects that build on its practice-based, quality-improvement CME course, and has linked the approach to board certification; 2) the American College of Physicians, which had strong preliminary results in diabetes care improvement and is pursuing team-oriented CME projects in other clinical areas; 3) the AMA, which is now working with EMR vendors to integrate its performance measures into their systems; and 4) Catholic Healthcare Partners, whose work on improving heart failure care in hospitals is promising and is being disseminated nationally through the American Heart Association.

Other grants effectively pursued important areas but did not generate detectible positive improvements, though they have important lessons to share within their respective fields. For example, The Leapfrog Group's work on performance incentives may well be very important in enhancing understanding of the barriers to introducing these incentives. The Lehigh Valley Hospital and Health Network's approach to diabetes control proved it was financially feasible for primary care physicians, but little was done to replicate it beyond the 10 small practices where it was tested. Similarly, the Association of California Nurse Leaders work on falls prevention,

though ultimately disappointing in its results, was important and will likely enhance support for performance monitoring in other clinical areas. Others, like the work by JCAHO, while directed more at building knowledge than seeking immediate changes in practice, may have promise down the road in influencing care.

In the area of bioterrorism preparedness, the tools developed for training physicians in Connecticut were important, even though project leaders found that training had only a short-term effect on physician knowledge. Findings from the other three bioterrorism preparedness projects may help some local health providers strengthen their plans, and produce new knowledge or tools for health system response planning, but their significance and overall contribution to the field are difficult to assess.

A few grants, however, did not appear to be well-conceived from the start, even though they were well-intended. For example, the fact that nursing needs to be a focus in improving quality in nursing homes should not have been a surprise to the American Medical Directors Association Foundation. More thought could have been given to the goals and approach behind HealthFront's project, which achieved far less than it originally planned. The impact of RTI's study of the science of partnerships remains difficult to evaluate.

TABLE IV. 1

PRELIMINARY IMPACTS OF PFQ PROJECTS

Level of Impact	PFQ Projects
Large positive effects on practice or strong potential for sustainability or wider diffusion	▪ Child Health Corporation of America ▪ International Severity Information Systems ▪ Physician Micro Systems/MUSC ▪ Visiting Nurse Service of New York
Small positive effects on practice or potential for sustainability or wider diffusion	▪ American Academy of Pediatrics ▪ American College of Physicians ▪ American Medical Association ▪ Catholic Healthcare Partners
Little or no tangible impact but useful lessons if widely disseminated	▪ American Hospital Association/HRET ▪ American Medical Directors Association Foundation ▪ Association of California Nurse Leaders ▪ HealthFront ▪ JCAHO (performance measurement component) ▪ The Leapfrog Group ▪ Lehigh Valley Health and Hospital Network ▪ Research Triangle Institute ▪ New York State Dept of Health
Findings and tools from bioterrorism preparedness projects	▪ Altarum Institute ▪ CT Dept. of Public Health/Yale New Haven Health System ▪ JCAHO (bioterrorism preparedness component) ▪ Texas A & M University System Health Sciences Center

B. OUTCOMES OF PROJECTS SEEKING TO CHANGE CLINICAL PRACTICE

The concepts of the RE-AIM evaluation framework—reach, effectiveness, adoption, implementation and maintenance—are particularly relevant to assessing the impact of the 17 PFQ grants seeking to affect clinical quality of care. [12] The RE-AIM framework is oriented toward assessing the potential for translating research to practice, and for wider dissemination. While this framework can be used to assess interventions at both the individual and organizational levels, in this evaluation we focus on the PFQ projects' effects at the organizational level, since the PFQ projects were intended to scale up proven health care interventions already demonstrated as effective for individuals. This section assesses 17 PFQ grantees' impacts in the RE-AIM framework domains relevant to these projects—reach, implementation, effectiveness, and maintenance/sustainability. [13]

1. Reach

When it announced the original 22 projects to be funded, AHRQ stated that they would "involve more than 88,000 medical providers; 5,800 hospitals, nursing homes, and other health care facilities; and 180 health plans."[14] Although these estimates were based on overly optimistic predictions at the start of the program, PFQ did not achieve short-term effects on the delivery system on this scale.

The number of organizations targeted ranged widely across the PFQ projects, even among those targeting the same type of organizations. (See Appendix Table A.4 for a visual display of the number of organizations, patients, or other targets chosen by each project.) For instance, in projects targeting hospitals for their interventions, the number initially targeted ranged from just a handful (Catholic Healthcare Partners) to between 10 and 40 (CalNOC and CHCA) to 100 (AHA/HRET, Leapfrog) Among those targeting nursing homes, the number targeted ranged from 8 (ISIS) to 30-50 (NYS-DOH and AMDA). In projects targeting physician practices, the number ranged from 8 (Lehigh Valley) to 10-35 (AMA ACP) to more than 100 (PMSI and AAP).

[12] RE-AIM is a "systematic way for researchers, practitioners, and policy makers to evaluate health behavior interventions. It can be used to estimate the potential impact of interventions on public health," according to its developers. For more information, see http://www.re-aim.org/index.html and Glasgow, et al., 1999. AHRQCoPs Subcommittee on Dissemination and Impact also found the RE-AIM framework useful in examining the impact of three PFQ projects.

[13] For example, in the RE-AIM framework adoption refers to the percentage and representativeness of the sites or providers that agree to participate. The representativeness of the participants is important because the results cannot be generalized or may not be broadly replicable if those who participated are more motivated or ready to change than those who did not. This is difficult to assess in the PFQ projects. Because these were applied research projects, virtually none of them randomly selected organizations to participate. A few projects tried to compensate for this by randomly assigning those who agreed to participate to an experimental or control group, or to one or another intervention. A few stated that they tried not to recruit those who were innovative or best-in-class, but they were not able to verify this with any data. Thus, this analysis does not address adoption.

[14] *Partnerships for Quality*. Fact Sheet. AHRQ Publication No. 04-P004, March 2004. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/qual/partqual.htm

Projects meeting or exceeding planned reach/participation. Among 17 projects that specified the number of target health care delivery organizations, physician practices, or other local partners they planned to recruit for an intervention, 14 enlisted at least the number of entities projected in their original proposals. This is not an insignificant accomplishment, since few of the projects paid provider organizations anything for participating other than nominal fees to offset the cost of data collection or travel to project meetings. The only participation incentives project leaders could offer were the free training or technical assistance to improve care quality, and in some cases, the opportunity to learn from others.

Some projects had low targets, so they attained them easily. For example, ISIS enrolled 12 nursing homes, VNSNY enrolled 8 home health agencies, and Catholic Healthcare Partners recruited 6 hospitals. Other projects set substantially higher targets, but still met them. For example, the PMSI project, conducted with the Medical University of South Carolina, expanded the number of primary care practices participating in its performance measurement system from 40 to about 100. Recruiting the practices was part of the PMSI's regular operations, and participation was relatively easy for provider practices, once they purchased the electronic medical record system sold by PMSI. ACP met its target of about 35 physician practices for its team-oriented, practice-based CME training programs, which required practices to send 3 staff members out of the office to participate in training, implement workflow redesign in their practices, and submit data regularly.

Some projects had to revise their recruitment or research design strategy to reach their target. For example, when AMDA realized that the best way to gain nursing facilities' participation was by persuading the Director of Nursing, rather than the Medical Director, it switched its focus. AMDA also loosened its participation criteria and allowed "rolling" enrollment, rather than all at one time. Even Catholic Healthcare Partners initially had a hard time recruiting its own hospital CEOs to participate in its program, when they couldn't see "clear hospital revenue and profitability gains." They overcame the CEOs' resistance by asking the system's ultimate decision makers—the nuns who govern the system—to persuade the CEOs to cooperate.

One project far exceeded the participation target it had originally projected. In the third year of its four-year project, CHCA significantly expanded the number of hospitals eligible to participate in its QI efforts from the original 14 CHCA participating hospitals to all 42 member hospitals. This expansion occurred in part because non-participating sites realized the value of the quality improvement efforts and early PFQ interventions, which coincided with member hospital CEOs recognizing that QI was not just something for the quality department; rather that "quality was the business they were in".

Projects falling short of planned reach/participation. Three PFQ projects did not recruit the targeted number of participating organizations, primarily due to difficulty in overcoming barriers to provider involvement. For example, the American Hospital Association–Health Research and Education Trust (AHA-HRET) sponsored a project that worked with seven hospital-based palliative care units to offer on-site visits and support to other hospital teams wishing to develop or enhance their own palliative care units. This project found that even when most program costs were subsidized, the difficulty of making the business case to hospital administrators dampened interest.

NYS-DOH did not recruit all of the adult care facilities it planned to participate in its training program, largely because these organizations are not required to provide staff training and resource problems make it hard for them to spare staff to participate. Long-term care facilities, especially those that are small, appear to be less willing or able than hospitals to take on any "extra" activities, particularly when the incentives or rewards for doing so are long-term or uncertain. The Connecticut Department of Health/Yale New Haven Health System found it very hard to persuade physicians to take its bioterrorism preparedness course, and as a result did not expand the effort to target other groups of professionals or to hospitals and practitioners in other parts of the state as originally intended.

2. Implementation of the Intervention Model/Strategy

Implementation in the RE-AIM framework refers to the fidelity to the core elements of an intervention protocol, that is that they are implemented consistently with the design or model. In this evaluation framework, the question of fidelity is framed as whether the intervention was delivered as intended. While most grantees were successful in this regard, a few encountered problems that required they modify original plans and adapt models.

One of these, the American Medical Association project, had to change its strategy significantly from one that planned to test and compare two models for collecting data from physicians on performance measurement, to a focus on just one of the models. This change occurred after the groups involved in testing the so-called "community model" for collecting data from payers encountered resistance to sharing data on physician quality measures. The project shifted gears to focus exclusively on the "practice model," in which physicians transfer data electronically to a central data repository. In making this change, AMA expanded beyond its original focus to invite a variety of physician practices—a large specialty group, a university-based outpatient group, and a publicly-sponsored ambulatory care network—to test the model and help it learn how different types of electronic health information systems could be adapted to export data for measuring performance against AMA-developed standards.

Also encountering operational constraints, the New York State Department of Health reduced the number of best practices it expected nursing homes and adult care facilities to implement to make it easier for them to participate and increase their ability to train staff in the best practices.

HealthFront also encountered operational problems that challenged the original project concept. Originally hoping to develop a nationally recognized provider performance measurement system, the grantee decided to focus more intensively on supporting purchaser capacity in two markets (Minneapolis and Colorado) after one of the key partners had to withdraw. Key partners in these markets had competing obligations; they supported the work of the grant but couldn't provide the fast response originally assumed. As a result, this project transitioned into a strategy focused more on generating information on how financial incentives to doctors could be aligned and how providers perceived incentives than its original focus on introducing these incentives over the course of the grant.

Use of IT to support quality improvement. While nearly all PFQ projects collected data from target organizations to track progress and evaluate outcomes, three projects (AAP, ISIS,

PMSI) sought to introduce new information technology into facilities or provider practices as a tool for quality improvement or quality measurement. Several others (AMA, Lehigh Valley, ACP, CHCA, VNSNY) collected data from providers and used third parties to deliver timely reports to provider organizations to provide frequent feedback on the success of quality-related efforts.

Most solved the difficulties of incorporating the new technology or data collection and reporting tools into daily workflow. But some ran into problems that slowed their progress or caused them to make significant shifts in strategy. For example, the American Academy of Pediatric's intervention relied on pediatricians' use of a new on-line tool for reporting care processes, called eQIPP. When the PFQ project began, this tool was still new and not completely reliable. The American College of Physicians found that the data coordinating center it used was slow to produce results needed by the participating physician practices to assess changes in their patients' clinical indicators.

Adapting interventions to each participating organization/group. Several projects found it challenging to identify essential elements of their intervention versus those that could be modified to adapt to each organization's culture, IT infrastructure and staffing patterns. For example, RTI's project found that many health care innovations are complex and have multiple elements, but evaluations of their effectiveness do not distinguish between elements that are required or optional. ACNL/CalNOC's project allowed each hospital to select which evidence-based practices to implement to reduce hospital-based falls, but when its results did not show a significant reduction in hospital falls or falls-with-injury, variation in the interventions may explain the lack of impact.

3. Effects on Health Care Delivery Processes and Clinical Outcomes

Of the 17 grants focused on health care quality or patient safety, 12 set measurable goals related to change in clinical practice or outcomes. Of these 12, 8 had preliminary results to report by September 2006.[15] See Appendix Table A.5 for a brief summary of all projects' preliminary outcomes. All but one of the eight detected some improvement in the measures examined, suggesting the majority were at least somewhat successful. However, the magnitude of the changes is not consistent across measures and in some cases, is difficult to assess from the information provided by project staff.

a. The ***American College of Physicians*** examined process of care measures, such as eye and foot exams and flu vaccines, and clinical outcome measures, such as blood pressure, LDL below recommended levels, and so on among patients with type 2 diabetes that were tracked in 35 physician practices participating in the team-oriented, practice-based CME program. Early results from a four-practice pilot program

[15] Among the four projects with clinical practice or outcome goals whose results are not yet known (AAP, AHA-HRET, AMDA, NYS-DOH), one has indicated it expects positive impact, but implementation delays and problems with the other three indicate that they may not have as positive results to report as those in the eight projects with preliminary findings.

showed that 75 percent of patients' blood pressure scores improved from baseline, and an average of 3.6 new patients participated in group sessions each month.

b. ***Association of California Nurse Leaders/CalNOC*** tracked data reported to the California Nurse Outcomes Coalition data repository before and after interventions in about 90 participating medical-surgical units in 32 hospitals to reduce falls and fall-related injuries, compared to 260 non-participating units in the same hospitals. Pre-post data analysis found mean *change* in falls and mean *change* in falls with injury were not significantly different between participating and non-participating units. While the falls per 1,000 patient days in participating units decreased slightly after the intervention, project researchers are trying to determine if the lack of a statistically meaningful difference is due to improved reporting, widespread attention to falls due to a JCAHO focus during the intervention period, or the interventions not having sufficient impact on a relatively rare event.

c. When PFQ began, ***Catholic Healthcare Partners*** already had a system to report quality of care processes for treatment of heart failure patients via MIDAS, a proprietary data warehouse for hospital benchmarking. It collected data on ACE inhibitors prescribed at discharge, left ventricular function assessment, smoking cessation counseling, and appropriate discharge instructions. The PFQ project, called Heart Failure (HF) Guidelines Applied in Practice (GAP), aimed to attain a score for each of the four measures at or above 75 percent of all HF patients or the top 25th percentile in MIDAS, whichever was greater. It also set an organization-wide goal of reducing 30-day all-cause readmission rates for patients with an HF admission. About 18 months after implementing interventions in six hospitals, preliminary results indicate that patients under the care of HF advocates experienced a 41 percent drop in readmissions, and almost a doubling of the period between readmissions.

d. ***Child Health Corporation of America*** (CHCA)'s quality improvement strategies focused on several areas, including hospital patient safety, medication safety and pain management, and initiated many QI projects involving different subsets of CHCA member hospitals. One of the most successful projects involved an effort to reduce adverse drug events (ADEs) related to narcotics. Over an 18-month period, the 18 hospitals participating in this project showed a 49 percent decrease from 39.1 to 17.1 ADEs per 1,000 narcotic doses. Another successful project focused on reducing bloodstream infections by implementing best practices in 29 hospitals. The results showed 57 percent improvement in infection rates for 18 of the 29 hospitals, a drop in bloodstream infections from 6.9 to 4.8 per 1,000 line days for all 29 hospitals, and 88 percent compliance with IHI and CHCA-created "best practice" guidelines.

e. The ***International Severity Information System*** (ISIS), whose PFQ project streamlined nursing facility documentation of patient care processes, tracked operational measures related to interventions and clinical care measures for pressure ulcers. Seven facilities that implemented interventions starting in April 2005 reduced the number of high-risk patients with pressure ulcers by 33 percent. Pressure ulcer prevalence in participating facility units dropped over the project period to 8.7 percent on average, compared to the national average of 14 percent, which remained flat over the life of the project. Facilities that implemented the interventions more completely, such as regularly submitting care process forms and using the reports in

care planning meetings had better results—pressure ulcer prevalence of about 5-6 percent—than those that partially implemented the interventions.

f. ***Lehigh Valley Hospital and Health Network (LVHHN),*** which provided a package of educational interventions to physicians and patients to improve care of type 2 diabetes patients, monitored process of care measures and clinical lab scores for selected patients in participating primary care physician offices at baseline, six months and 12-months post-intervention. About 18 months after the start of the project, it reported improvements in the percent of physicians screening for glycosylated hemoglobin (HBA1c) and lipids (but not micro-albuminuria) in a timely manner relative to ADA guidelines. Patients also showed progress in adherence to recommended practices and statistically significant improvements in blood pressure, lipid levels, cholesterol, triglycerides and hemoglobin.

g. ***Physicians Micro Systems, Inc. (PMSI)/Medical University of South Carolina (MUSC)*** sought to improve adherence to clinical guidelines for more than 70 indicators in eight sets of medical conditions, including heart disease/stroke, diabetes, cancer screening, immunizations, respiratory disease, mental health and substance abuse, nutrition and obesity, and drug prescribing for the elderly. Participating practices all used PMSI's electronic medical record system, which made it easy to extract data and generate quarterly reports. MUSC staff and consultants provided educational services and support to physician practices on clinical guidelines in each area. Preliminary results indicate statistically significant improvements in the summary index measure for the percent of eligible targets met in the 78 indicators, rising from 33 percent at baseline (9/02) to 46 percent three years later. According to the project investigator, the results are not as large as they could have been if the project had focused on a smaller number of practices and fewer quality indicators.

h. ***Visiting Nurse Service of New York*** (VNSNY) worked with eight home health agencies from around the country on its first phase of quality improvement efforts, focused on care for diabetic patients. Each agency submitted monthly data from chart reviews on clinical measures related to glycemic control, foot care, and medication management. The proportion of people with diabetes receiving a comprehensive foot exam by a nurse within 10 days of admission to home care increased more than 50 percentage points over the course of the project. Also, patients with blood pressure in their target range most or all of the time increased 30 percentage points, with similar increases in patients who received and an individualized glycemic control plan, foot care education and a review for medications with possible contraindications. The second phase of the project, which focuses on reducing hospitalization in home care patients, has preliminary data suggesting a drop of 2.5 percentage points for the 70 home health agencies.

4. Effects of Projects Focused on Infrastructure and Learning

Among the 17 projects that were trying to improve clinical quality of care, three that focused on health care providers (AMA, JCAHO, RTI) and two that focused on purchasers (The Leapfrog Group and HealthFront) had goals that could not be measured quantitatively. As mentioned in Chapter III, only two of these five projects—the AMA and The Leapfrog Group—

tried to formally evaluate their success, so we have limited ability to judge the effects of the other three projects.

Of the three provider-based grants focused on infrastructure and learning, two involved major national organizations (AMA and JCAHO). AMA's work to examine electronic transfer of data for performance measurement had, sponsors say, important lessons about the practical issues and challenges to data extracting exporting and validation. With CMS and others calling for the introduction of performance measures for physicians in office-based practice, these findings have the potential to be very important. JCAHO's work involved a survey of hospitals about their perceptions of the value of performance measures, as well as a comparison of self-abstracted data on performance measures with data abstracted by third parties. They found that the self-abstracted and third-party abstracted data is essentially similar, which may help build confidence that hospitals' own data is reliable enough to use in pay-for-performance systems.

Among purchasers, The Leapfrog Group worked with purchasers in six markets to encourage use of quality information in selecting hospitals. Though Leapfrog sought to evaluate the effects of these efforts, only three of its six pilot projects were implemented and evaluation results were available from only one of the pilots for this report. That pilot involved a differential patient co-payment to encourage use of hospitals meeting Leapfrog's quality and patient safety practices. Preliminary results show no effects on choice because physicians' admitting privileges appear to play a stronger role in influencing patients' hospital selection. Leapfrog continues to evaluate these efforts and says that it has gained valuable experience in establishing pay-for- performance programs.

There was no information on impacts of the projects led by RTI and HealthFront, although HealthFront reports that stakeholders in the two markets it targeted have been interested in the results from surveys of providers' perception of incentive and reward programs.

C. OUTCOMES AND FINDINGS FROM BIOTERRORISM AND EMERGENCY PREPAREDNESS PROJECTS

Four of the five projects that aimed to improve the health system's preparedness for bioterrorism events and other emergencies had findings to report from their studies or modeling exercises in time for this evaluation.[16] It is inherently difficult to measure the utility of these findings in the absence of real events or disaster response exercises that show whether and how health care providers and public health officials actually use the information to prepare and implement plans. For this reason, the utility of the findings is based on the perceptions of project staff. The one exception is the Connecticut Department of Public Health project that included a formal study of the effectiveness of the training provided through their PFQ grant.

- ***Altarum Institute***, which used two models to simulate the flow of patients into health care facilities in the event of smallpox and other disease outbreaks, provided information to public health officials in the San Antonio area, which they say helped

[16] The fifth, RTI, did not provide information on findings or results of their bioterrorism preparedness projects.

them accurately estimate the number of smallpox vaccinations and distribution sites needed to control an epidemic. The information was also used to develop a purchasing strategy for bioterrorism preparedness supplies.

- The ***Connecticut Department of Public Health/Yale New Haven Health System*** project's on-line training program for front-line physicians showed that it effectively increased the knowledge of those who took the course; but six months later, their exam scores declined almost to their pre-test scores. Project investigators speculate that since physicians have no opportunity to use the information, it quickly dissipates. Annual training or drills may be needed to retain the information.

- One of two studies conducted by the ***Joint Commission on Accreditation of Healthcare Organizations*** (JCAHO) under the PFQ program focused on the existence and effectiveness of linkages for community-wide bioterrorism preparedness among health care organizations, and public health, public safety and other governmental agencies. According to the article that published the results (Braun, et al., 2006), while the majority of hospitals conducted drills or exercises, had plans to acquire additional supplies or equipment, and were prepared for decontamination needs, only 40 percent had 24-hour access to a live voice at their local health department. The survey's list of 17 elements of an effective emergency preparedness plan is regarded as a useful checklist for hospitals.

- ***Texas A&M University System Health Science Center*** conducted a number of studies on factors affecting bioterrorism and emergency preparedness. A case study of federal bioterrorism funding allocation in the San Antonio area showed the importance of formal and informal communication networks throughout the region. A study of disease surveillance and reporting systems on the U.S.-Mexico and U.S.-Canada borders showed that communication infrastructure at the local level needs to be improved; that funds should be targeted to disease surveillance methods with the greatest potential for mitigating disease burden; and that bi-national organizations are needed to overcome the problems created by the existence of public health bureaucracies in three national governments, dozens of U.S. states, Mexican states, and Canadian provinces, as well as numerous county and local jurisdictions.

D. SUSTAINABILITY AND BROADER DIFFUSION OF PROJECT ACTIVITIES

In the RE-AIM framework, sustainability is called "maintenance," and it means the extent to which a program or innovation becomes institutionalized in organizational policies and practices. Both sustainability and broader diffusion were important goals for the PFQ projects. AHRQ's RFA for the program expected project-initiated improvements in health care security, safety, and quality to be sustained and further disseminated. Sustainability would be shown if PFQ-initiated activities became part of ongoing practice in the targeted health care providers or if these providers "invest[ing] their own resources sufficiently to show commitment and the likelihood of sustained [quality] improvement." (RFA HS-02-010, May 2002). Dissemination could be shown by efforts to diffuse the improvement strategy or model beyond the initial target population or providers.

1. Sustainability Indicators

Although final results are not known for all projects, at least 13 of them have led already to sustainable improvements in health care security, safety or quality if one uses a minimal benchmark—reports that some or most of the target organizations have integrated the improvements initiated by PFQ projects into ongoing or routine practice. Details for each project are shown in Appendix Table A.6. Though some of them will need support from lead agencies or partners to continue these activities, others will continue to build on effective practices without outside support. For example:

- Six of 10 AAP chapters report that they will continue collaborating with physicians on practice-based educational programs to improve their care of patients with ADHD. AAP also gained recognition of the practice-oriented quality improvement CME program it developed for new American Board of Pediatrics "maintenance of certification" requirements.
- Midwest Heart Specialists and the Northwestern University Medical Faculty will continue working with AMA to refine electronic data transfer for performance measurement.
- Five of the six Catholic Healthcare Partners hospitals will continue to employ the Heart Failure Advocates using their own funds, rather than AHRQ's PFQ funds.
- Effective diabetes care interventions reportedly remain in place in: 1) the 10 primary care practices that participated in the Lehigh Valley's program two years after it ended, 2) in many of the practices that were involved in the American College of Physician's project, and 3) in the 8 home health agencies in VNSNY's project.
- A few of The Leapfrog Group's pilot project partners are implementing the reward and incentive programs initiated by the PFQ project without PFQ funding support.
- Lasting changes in workflow, documentation, and care planning processes have been made in all 11 of the nursing facilities that participated in the ISIS-led project.

Cost Savings. Another important indicator of the potential for sustainability is the cost of the interventions, and specifically, any savings that the interventions yield for providers. Lehigh Valley Hospital and Health System, for example, calculated the financial costs of the intervention to physician practices and showed that the patient diabetes education groups with a minimum number of patients could generate enough billable revenue to sustain the program without the PFQ-funded certified diabetes educators. CHCA demonstrated that the adverse drug events prevented saved between $1.7 and $3.1 million. The catheter-associated bloodstream infections avoided by one of CHCA's collaboratives was estimated to save the hospitals almost $1 million. Catholic Healthcare Partners program, however, showed the difficulty of introducing a program that reduces hospital admissions because it lowers hospital revenue.

2. Indicators of Broader Diffusion

Almost all PFQ projects have begun to disseminate the results of their projects to via journal publications and presentations at conferences. This is important to establish the credibility of the project's approach in professional circles, and it may be very useful to project investigators when they seek another AHRQ grant, or funds from other sources. However, this is arguably the most passive approach to dissemination, one that AHRQ was trying to diverge from in the PFQ program. Moreover, its impact on diffusion is difficult to measure.

Twelve projects are making more significant efforts to diffuse the security, quality or patient safety approaches tested in the PFQ project to organizations or providers beyond those targeted. They are using three strategies to accomplish this, listed below from the least to the greatest potential for spread.

a) Making widely available and easily accessible tools/toolkits, resources, or training materials developed by the project, via websites and other media. A slightly greater effort is required to disseminate the materials developed by the projects to wider audiences by making them available on websites. For example, Yale New Haven Health System made available on-line its bioterrorism/emergency preparedness course and reportedly 300 physicians have taken it and the exam for CME credit. Texas A&M University is making available the disaster preparedness training exercises developed in the PFQ project to medical students and rural hospitals in Texas. CHCA plans to use its website and conferences to spread project results and make the NICU trigger tool and other resources available to its members. The ACNL/CalNOC team executed an agreement with the American Nurses Association to use the ANA National Database for Nursing Quality Indicators website to transform live coaching into a self-directed on-line process. While this dissemination strategy is easy and relatively inexpensive, it does not guarantee use and uptake of the resources, if not accompanied by aggressive and ongoing efforts to publicize the availability of the tools and resources, and support for their implementation.

b) Securing commitments and funds from new partners, organizations, providers, and funders to promote and diffuse evidence-based improvements more broadly. Several grantees have already initiated new efforts to spread the quality, safety or security improvement models embodied by their PFQ projects. A few began these diffusion efforts with PFQ grant funds in the latter years of the projects, but most sought and received new funds either from AHRQ, or other sources for this work.

- ***New funds and new target organizations.*** The American College of Physicians obtained funds from a drug manufacturer to conduct two additional team-oriented practice-based CME programs to improve care for patients with diabetes and cardiovascular disease, with 20 physician practices participating in each group. The AMA and Midwest Heart Specialists obtained an AHRQ Health Information Technology grant to spread the MHS model for reporting quality information to six other physician practices, using different EHR systems. AMA also received another grant to work with MHS, Northwestern, and other sites on related activities.

- ***Spread via QIO collaborations.*** Both ISIS and VNSNY decided that the best way to diffuse their quality improvement approaches was to train and work with Quality Improvement Organizations, as part of QIOs' nursing home and home health quality

improvement initiatives. With support from an AHRQ HIT grant, ISIS is now working with six QIOs around the country and 30 nursing facilities to implement "real-time optimal care planning" using digital pen or internal IT systems to streamline documentation. VNSNY obtained funds from the Robert Wood Johnson Foundation to continue working with 10 QIOs and 69 home health agencies on techniques to reduce acute care hospitalization among home care patients. QIOs involved in AMDA's project may use its approach to clinical guideline implementation as part of its nursing home quality improvement work, but AMDA is not actively promoting it like ISIS and VNSNY.

- ***Replication in facilities within health care systems.*** An especially significant by-product of the ISIS project is that a large nursing home chain and a large health system which had one or more of their facilities participate in the project are spreading the model to their systems' other nursing facilities—240 in the large chain. It is not known, however, whether the model is being fully implemented in all facilities in the systems.

- ***Creating new coalitions and adding new partners.*** Catholic Healthcare Partners decided that the best way to expand and spread heart failure quality improvement efforts was to establish a state-based coalition in Ohio with key stakeholders. It is also encouraging the American Heart Association's Heart Failure "Get with the Guidelines" program to use CHP's Heart Failure Advocates as teaching faculty.

c) Developing capacity for future quality improvement projects and institutionalizing that capacity in host organizations. PFQ projects are also trying to diffuse their quality improvement approaches more widely through the creation of infrastructure that can support ongoing and possibly larger QI initiatives.

- ***Adding QI infrastructure.*** Based largely on the successful response to, and outcomes from, their PFQ projects, both the American Academy of Pediatrics and CHCA recently decided to expand their QI departments and staff that were hired to work on PFQ projects. These organizations have committed operational funds for permanent staff, data system infrastructure, and QI support to member providers. AAP is developing additional eQIPP modules to support on-line quality reporting and a measurement system and has recently hired new staff. CHCA is also expanding its staff and quality reporting systems. This enhanced capacity portends well for ongoing national QI support to pediatricians and children's hospitals in the short to medium term. The AMA's AHRQ-funded HIT project is also creating a data warehouse for feedback and benchmarking purposes for physician-directed QI that may become a resource for wider use.

- ***Enhancing QI capacity.*** Other membership associations, including AMDA, ACP, and ACNL report that their experience working with state chapters and members on "real" QI projects through PFQ projects has enhanced their ability and credibility to undertake similar projects in the future.

V. CONTRIBUTION OF AHRQ AND PROGRAM-WIDE INFRASTRUCTURE

The PFQ program structure had elements that sought to contribute to the success of individual grantees and to help the program achieve its overall goals. In this chapter, we assess the role that grantee oversight played, what PFQ's infrastructure within AHRQ contributed, and how effective AHRQCoPs and other cross-grantee elements were in contributing to both grantee efforts and the success of the program overall. Our analysis is based largely on what we learned in our interviews and reflects the perceptions of AHRQ staff and grantees.

A. GRANT OVERSIGHT

1. The Project Officer Role

As with other grants, an AHRQ project officer was assigned to each PFQ grant. Decisions over assignments were made at the beginning of the program by AHRQ's management. The assignments made an attempt to match grantees with AHRQ staff who had expertise in the grant area, though this was not the case for all grantees. In many cases, AHRQ staff from particular centers may already have been involved at the application stage and these relationships continued. PFQ was one of the first AHRQ programs, in addition to TRIP I and II, to draw project officers from diverse centers.

Project Officer Perspectives. In our interviews with AHRQ project officers, we found substantial diversity in how they defined their roles and also in the time they put into overseeing each grant. Traditionally, project officers have been expected to perform in administrative capacities. One project officer depicted grantees as "customers" and said, "My role is to be a facilitator and answer their questions, and I should be able to ask them questions in return." Another described his role as, "You do as much as you can to help people." Project officers often had many grants and spent limited time with any one of them. This was only slightly modified by the fact that PFQ was, as project officers told us, a cooperative agreement and thus included more legally sanctioned interaction than the agency's traditional grantees. For the most part, such project officers saw themselves as facilitating a process, not necessarily as substantively contributing to the work.

Some PFQ project officers were exceptions, with strong substantive interest and authority in areas addressed by particular grants (for example, market forces, home health and long term care, and bioterrorism preparedness). These project officers aimed to leverage their knowledge and relationships to help grantees make connections with other efforts and resources that could help the grantees make progress or spread their impact. Typically, such resources were outside the PFQ program and sometimes they were outside AHRQ itself. While this subset of project officers did not necessarily spend a lot of time with any particular grant, they concentrated their efforts in ways that they hoped might leverage the substantive contributions of that potential grantee. While oriented this way, they also reverted to a more traditional project officer role when overseeing grants in areas outside their expertise, as might happen in PFQ, particularly as some grants had multiple purposes. The project officers also triaged their time by providing more support at points where they viewed grantees needed it (like early in the project when it was being refined).

Grantee Perspectives. Not surprisingly, grantees had different perceptions about how valuable their project officers had been. Those whose project officers were able to help them make substantive connections with others working in similar areas clearly valued the contribution. A grantee said of one such project officer, "___ has added so much to what we've done. Our project officer has made such a difference…. Our project officer is wonderful, gives us fabulous ideas, has a vision for dissemination and hears what people are saying." Another said of a different but similarly focused project officer, "___ has been terrific—our project officer's been broadly involved. Early on, we had weekly leadership calls and our project officer actually participated in several of these." Similarly, others cited help the project officer had provided in making connections elsewhere in AHRQ that ultimately led to related work at DHHS.

Bioterrorism preparedness grantees were particularly grateful for the support of their project officer, the sole AHRQ staffer for that externally funded bioterrorism preparedness work. This project officer had what one grantee characterized as "an encouraging attitude that has been very important to the project team. It gave the team the flexibility to let their work evolve from findings in the field… The team was initially concerned about whether AHRQ would see value in this type of work, but the deeper they got into the project, the team realized that AHRQ couldn't help but see the importance…"

Grantees' also were appreciative when project officers brought other assets to their roles. One said they "loved and adored" their project officer who had been "wonderful and encouraging, always giving good advice and as laid back as possible in the parameters as the project officer could be." Another appreciated that their project officer always responded to reports, questions and thoughts, participated in some calls, came to many meetings, and helped when it was time to renegotiate the budget. Enthusiasm also was valued in a project officer viewed as a "cheerleader" whose role was also to "make sure that we were hitting the mark."

However, almost all grantees' comments were negative when they received little feedback from their project officers. One expressed this by saying, "I got no substantive feedback at any time in response to any of the reports I submitted….Maybe there was nothing to say. After you've worked so hard on reports, however, some acknowledgement and feedback would be good. I never even got an e-mail saying they got the progress reports." Another grantee was disappointed by never being called by the project officer who was the only expert in their area at AHRQ. "Every time we call, we don't get a response….It's always back and forth 20 times." One grantee felt differently: "___ and I have a very good relationship. I don't bother my project officer and my project officer doesn't bother me. I do what I say I'm going to do and my project officer helps out when necessary."

Over time, some project officers were changed due to departures from the agency or problems. One grantee said the first project officer (no longer with the agency) was "very poor, wasn't supportive of our efforts, showed no interest in coming to our conferences, didn't provide any useful feedback on progress reports and was summarily unhelpful." But the replacement was found to be supportive, sending out reminders when things were due and making suggestions for progress reports which the project officer also looked over and commented on.

The principal investigator for this project suggested that AHRQ "needs to figure out what a project officer should provide in terms of support." From its perspective, the grantee said,

"project officers should function as advocates for their projects. To do that, they need to understand the projects better, spend some time with the projects' principal investigators to craft appropriate reports…and maybe provide information on other grant possibilities or presentation opportunities. Furthermore, a project officer should function as a point person for a particular grant and help the grant better integrate with AHRQ and other national groups." They also should not be obstructive, using as an example the actions of the first project officer who, the principal investigator felt, did not understand the project, asked for a lot of extra things that were irrelevant, and was viewed as acting in an adversarial rather than advocacy role.

One PI suggested that AHRQ invest in better training and monitor the role project officers play. But in doing so, we perceive, AHRQ will have to address the personal preferences of its staff in a climate that appears not to value the project officer role or the time and energy demands needed to spend on any one grant. Perhaps AHRQ might invest in training specifically to help project officers identify how they can be most strategic and effective in their support.

2. Grants Management

For the most part, fiscal aspects of grants management within PFQ appear to have operated smoothly, though our ability to assess this is limited by the fact that our evaluation began several years into the program. The main criticism the grants office had was that PFQ, like most other agency programs, worked with a calendar that had renewals at the end of the fiscal year, thus creating imbalances in the workload. Grants staffers indicated that memories of any earlier problems may have been erased by time or personnel reassignments, though they perceived the program to have been fairly ordinary in its experience.

Grants Management Structure. AHRQ's grants management office told us that they typically have about 500 active grants, not including ones that need to be closed out and others on no-cost time extensions. Though their role is administrative rather than programmatic, they see themselves as taking "care of everything from cradle to grave," with broad functions that include helping the agency determine funding mechanism, helping draft RFAs and answer questions from potential applicants, and monitoring awarded grants. PFQ grants were awarded as "cooperative agreements," which the grant office views as appropriate because of the targeted interest. While the grants management function does not change, they said, with cooperative agreements, there is more post award burden as grantees have less flexibility. A good example is the request to use carry-over funds—which under cooperative agreements but not traditional grants—must be supported by a budget, funding memo, and explanation of why the funds were not used.

Cooperative agreements are more closely monitored than grants. PFQ had an additional burden because PFQ decided to require grantees to submit progress reports quarterly, something that is rare with grants but more common under cooperative agreements. PFQ evidently was one of the first AHRQ programs to require quarterly reports, which required the grants management office to establish processes to track receipt. Problems arose when project officers did not forward the quarterly reports to the AHRQ grants management office or when turnover among project officers occurred. The office has subsequently automated the system for tracking progress reports so that submissions are automatically tracked for other AHRQ programs. PFQ reporting is discussed further in the next section on overall program management.

The grants management office at AHRQ uses about 4-5 specialists to help manage programs like PFQ, which has 20-21 grants, assigning a "coordinator" who is responsible for creating consistency across the information specialists provide, for example, standardized grant terms and reporting requirements. The coordinator has participated in some PFQ meetings.

Agency Perspectives. Grants management staff perceives that things went fairly well. There were "a few new grantees that needed a little more hand-holding," but the amount was not inordinate. Grants management and program staff worked well together in addressing the most serious grantee issue that arose in PFQ: the need to terminate a project because data to support the research was unavailable. They also processed the grantee applications and paperwork needed annually within PFQ because grantee funds are awarded annually based on amounts set at the outset of the grants. Grantees seeking to use carry-over funds had to provide additional justification that these funds would be well-used. (Carry-over funds did not diminish the next year's award.) While the office experienced some challenges in getting project officers to be equally diligent in moving funding memos and other issues involved in grant renewal, the problems were not regarded as any different from those typically encountered. Because project officers may not necessarily spend much time in that role, sometimes, the grants management office said, they may not be as aware of the rules as they should be and thus provide grantees poor advice. For example, they might tell a grantee that its grant would follow it to another institution without realizing that this does not happen automatically. The grants office might not learn of this until the grant renewed the next year.

From its perspective, the grants management office perceived that both the PFQ program director and individual grantees were working hard to make the program a success. While staff believed there was some disappointment among grantees because of limited program interest by AHRQ leadership and the program's end, the office also viewed this as a generic problem for grants. At some point, office staff said, you had "to cut the apron strings and the people with good, sustainable initiatives will be able to self-sustain." The office acknowledged that attracting general agency funds for PFQ grantees to build on the work in future efforts might prove difficult given the current agency priorities.

AHRQ's project officers were the primary interface between individual grantees and the grants management office; the program director was mainly involved in setting general policies or problem-solving. AHRQ's PFQ project officers appear to have worked well and closely with the grants management office. The project officers differed on their perspectives on the value of grants versus contracts and which one they preferred. One project officer felt that PFQ was pushing grantees to work almost as contractors because of the commitment to joint meetings, conference calls and tool development. One preferred contracts to the PFQ mechanism because of the additional control the former allows. Another, in contrast, thought quarterly reports did not add much and mainly used the annual reports.

Grantee Perspectives. Grantee perspectives on the grants management process varied. Most said the process went relatively smoothly or "as expected." Some grantees were more negative. More than one investigator said that the grants management office might tell them they never received anything several months after it was sent, and they were annoyed at having to resend it. At the beginning, there seems to have been a problem authorizing funding for several grantees, resulting in a delayed start (nine months for at least one grantee).

Organizations new to the federal-funding process seemed to have more difficulty knowing how to proceed than others. As one said, "This was our first AHRQ grant. It was a nightmare. It was so hard to get answers to questions…it was confusing to figure out the requirements: When things were due, the format they wanted etc—it felt like a black hole." Principal investigators from academic institutions whose grants were held by another organization to meet AHRQ requirements tended to perceive that situation as less than ideal. One noted that because the grantee had never done this kind of thing before, errors in the paperwork were frequently made. Another felt that requiring the non-academic partner to be the lead was a hardship because it required a new infrastructure. While grantees commended AHRQ on its support, they still felt that the agency had made their team go through "contortions."

While the feedback suggests the grants management went relatively smoothly, we believe the findings also suggest that AHRQ may need to think more carefully about how to orient grantees and project officers to AHRQ cooperative agreements. Additional attention to both the burden of reporting requirements and how reports are transferred, stored and used also could be valuable.

B. OVERALL PROGRAM MANAGEMENT

AHRQ uses a variety of models to support its programs, in some cases providing support with an external resource center, in others handling direction internally with limited resources, and sometimes using a mixture of the two to support different functions. For the most part, PFQ program support followed the second model and was funded from existing operational funds. AHRQ's solicitation required grantees to cover, within their budgets, travel to attend an annual PFQ meeting; when twice-yearly meetings were held, AHRQ assumed grantees would re-budget to cover the costs of the additional meetings. AHRQ drew upon the agency's pool of meeting support funds to cover the costs of PFQ meetings and upon its existing staff to oversee the program.

While a fair amount of energy went into thinking about the PFQ program goals and design, less attention appears to have been placed on how the PFQ would be supported within the agency. A former agency official said the agency spent some time discussing program management infrastructure at the inception of the program because it had learned that cooperative agreements require substantial agency staffing. However, actual decisions on PFQ oversight were made after the grants were awarded, which executives said created some confusion at the beginning, though perhaps not an abnormal amount. At AHRQ staff's suggestion, and because it makes sense, our evaluation focuses on assessing the infrastructure that AHRQ eventually built to support the PFQ, rather than the process it took to get there.

1. Program Management Structure

PFQ is directed by a member of the AHRQ staff residing in one of its centers—the Center for Primary Care, Prevention and Clinical Partnerships (CP3). While project officers in other AHRQ centers oversee individual grants, the program director has lead responsibility for program-wide elements. This includes working with the grants office and project officers on decisions that affect all grantees, like reporting requirements. It also includes oversight of program-wide elements like the Council of Partners (AHRQCoPs) and other mechanisms of

communication, like the website. The current director, who has been there since the first year of the program, was not deeply involved in soliciting grantees or structuring the program, but was asked later to take the program director role. She also served as project officer for several PFQ grants. AHRQ management was kept apprised of the program through weekly reports to and quarterly meetings with the CP3 center director.

AHRQ staff, across the board, perceived that PFQ was not very high on the agenda of AHRQ's leadership. The CP3 center director communicates any important news about the PFQ program in regular meetings with the AHRQ Director. Once or twice a year, PFQ is on the AHRQ Director's meeting agenda and PFQ activities are discussed. Because the PFQ program is not big, and "there are new kids on the block that take up…focus (i.e. attention by top agency leadership)," the PFQ program is not closely monitored.

The PFQ program director worked almost full-time on the program in its first 12-18 months. The program director developed the program-wide elements, such as AHRQCoPs and Contracts. She convened weekly meetings with PFQ project officers and other staff during the first several months of the program. Project officer participation in these meetings varied, with some more likely to attend than others. But participation declined over time, particularly when meetings became less predictable due to varied scheduling. To our knowledge, decisions about the overall PFQ infrastructure (for example, role of AHRQCoPs and how often it was convened) were made at the staff level with relatively little input from AHRQ leadership on broad concepts or goals.

PFQ used two strategies to facilitate regular communication among grantees and AHRQ, in addition to AHRQCoPs meetings, which are discussed later in this chapter. The two strategies were:

- ***Grantee Reporting.*** As discussed previously, each grant is required to report quarterly on its progress, with annual reporting that also serves as the application for the next year's funding and request for use of any carry-over funds. Later on in the program, a PFQ progress report checklist was created (and posted on the PFQ website). Grantees were encouraged to fill out and submit in order to make it easier to track the progress and status of projects.

- ***PFQ Website.*** The website was the primary tool PFQ created to facilitate cross-grantee communication and interaction outside of in-person meetings. Grantees were encouraged to use it as a message board and place to store cross-cutting PFQ documents. The site also included an events calendar for AHRQCoPs and its subgroups.

PFQ Staff Perceptions. PFQ staff within AHRQ found it hard to get necessary resources to adequately support the overall program. A good example was the website, which was delayed by difficulties securing resources and whose functionality was limited as a result. In addition, managing a program like PFQ can be difficult for a staff member located in a complex agency. Without stronger links to the other parts of the organization, it was hard to connect all grantees with related activities elsewhere in the agency. The structure of AHRQ also means that program directors must rely on the interest and goodwill of project officers in other centers in helping support the program. While the PFQ uses a matrix management structure, individual AHRQ staff

are evaluated by the center director without input from others. Thus, a program director has little formal authority over who oversees individual grants or their performance. Structurally, this means that the program director's effectiveness depends on an ability to work through the informal system of relationships, and on the cooperation, participation and support he or she gets from project officers.

The absence of strong input from agency leadership also appears to have limited how well project officers understood and supported the PFQ program. Some POs had content expertise but weak administrative skills or little interest in participating in PFQ project officer team meetings. Thus, many decisions and tasks were left to the program director. One project officer believed that PFQ "started out with a bang and ended up with a whimper," with limited attention to partnerships. Several said they perceived the program was not well-thought out and some grants were not appropriate. Another said that project officers did not know what the original goals of the program were and that the concept morphed as it went along.

Grantee Perceptions. Though none of the grantees was enthusiastic about reporting requirements, some seemed to accept them as part of the routine cost of doing work. Grantees with less experience typically found these requirements more demanding as they had to learn how the system worked. Some perhaps took them too literally and created more work than was necessary. Grantees did not use the PFQ website and did not like the reporting requirements of the PFQ program. The majority of grantees we interviewed said they did not use the website, mostly because the site was difficult to navigate and PIs did not have the time to learn its functions. Moreover, since grantees perceived that the website was only used for communicating and delivering documents, most found it easier to perform necessary activities by e-mail and phone call.

Most also said they did not use the progress report checklist, which impeded AHRQ staff from regularly updating the database with project information. The PFQ website was needed to access the checklist, and the fact that PIs found the website difficult to navigate may have been one reason why the checklist remained unused. In addition, some PIs had issues with the design of the checklist. One PI indicated that the terminology for the checklist was ambiguous, and would have benefited from a glossary, and another said the tool's categorical type responses lacked meaning or context. Lastly, PIs did not appear to understand the purpose for the database, given that they were already submitting quarterly reports to update the agency on their projects' progress. Filling out the checklist for the database seemed like a "waste of time," said one grantee. We tried to make use of the database in this evaluation and can confirm that there is no updated information after the initial entries.

C. AHRQ COUNCIL OF PARTNERS

1. Council Structure

With the goal of creating a program-wide focus to encourage cross-fertilization of ideas, PFQ required meetings twice a year of grantees organized into the AHRQ Council of Partners (AHRQCoPs). AHRQ staff indicated that the requirement to come to these semi-annual meetings was not typical of all grant contracts, but the agency felt that the meetings were a necessary component of the program to give people face-to-face interaction, time to exchange ideas, and learn from each other. Moreover, AHRQ saw the cross-project work grantees were

asked to do during these meetings as fulfillment of cooperative agreements signed with the agency.

The intent was that grantees would "own" these meetings, create their agendas, and run them. However, AHRQ appears to have been the driver behind both AHRQCoPs and its structure. The RFA required grantees to budget travel funds to meet annually. AHRQ's general meeting budget was tapped to fund the hotel rental and meals, and other indirect costs of the meetings, all of which were convened in the Washington, D.C. area to make it easier for AHRQ staff to attend.

AHRQ used the first few AHRQCoPs meetings to familiarize grantees with each other's work, and PIs presented their individual projects. However, at the first meeting, AHRQ staffers proposed the infrastructure for the Council, developed by the PFQ program director in consultation with individual grantees. They proposed that the Council ratify a charter, elect a chair and vice chair, and organize itself into subcommittees. The chair turned over several times over the course of the program, more rapidly than originally intended for a variety of reasons (death, change of employment). Four different PIs took on the position of chair over the four years of the program.

AHRQ proposed subcommittees on Implementation, Dissemination, Partnerships, Evaluation, and Sustainability, since these were all areas important to each of the projects. Earlier, AHRQ staff had discussed an alternative that involved forming subgroups by focus areas. However, this was rejected in the interest of working on common concerns related to partnerships. The diversity among grantees was a source of on-going tension within AHRQCoPs as it made finding areas of mutual interest challenging.

By the second meeting, AHRQCoPs had elected a chair. Each of the principal investigators and each of the AHRQ project officers chose one of the subcommittees to participate in. Subsequent COP meetings were convened by the subcommittees and included time for both general sessions and subcommittee work. Each subcommittee organized content for one of the meetings, and often invited an outside speaker to address a topic consistent with the theme. AHRQ staff reported that grantees initially objected to AHRQ's requirement to collaborate on work outside of their individual projects but acquiesced once it was clear the agency was adamant.

Over the course of the PFQ program, there were seven AHRQCoPs meetings. Why and how the schedule shifted from an annual to a semi-annual focus is not clear. Later, meetings—which lasted two days—focused more on the collaborative work the grantees were doing in the subcommittees, and jointly as AHRQCoPs.

2. Perceptions of the AHRQCoPs Meetings

PI Perceptions. According to several PIs, the greatest benefit of the grantee interaction facilitated by the meetings was the opportunity to network and collaborate. The AHRQ Council meetings helped grantees form relationships, learn from each other, help each other, and initiate some independent cross-grantee work. Not surprisingly, the magnitude of this benefit varied among PIs, with some indicating that they benefited a great deal from this interaction and others

finding less benefit, believing that the diversity in funded grants hindered grantee-to-grantee learning.

Some grantees found the meetings useful, some did not. Some grantees found meetings to be "important," "very useful," and "helpful" because they provided learning opportunities (such as outside speakers) that "added depth to grantee insight and expertise," which informed decisions about their individual projects. By contrast, some grantees found the meetings to be "unfocused," "not useful," and "painful," requiring time investments they did not have for activities that did not benefit their individual projects. The grantees that were enthusiastic or interested in the meetings attended regularly and participated; others who found the meetings unhelpful and time-consuming attended infrequently. Some grantees attended regularly simply because they felt they had to, but in some cases they delegated attendance to more junior staff. Over the course of PFQ's history, most principal investigators continued to attend at least a portion of most meetings and some brought several staff. The predominant view appeared to be that the meetings were interesting for general learning but not particularly germane to their project work.

Some grantees believed strongly that there was misalignment between AHRQ's expectations and what grantees thought they had to do at the start of the program. They pointed to the budgetary implications of twice a-year meetings, when they had been asked to budget for one. They also were concerned about the resources they perceived AHRQ expected them to spend on these activities, particularly via subcommittees. They felt these demands competed for attention with what they were supposed to be doing under the grant. Some also expressed concern about the lack of clear guidance on the desired outcome from collective action. Others, typically leaders in the process, strongly disagreed and saw substantial value to cross-grantee work. Additionally, the high turnover in AHRQ Council leadership only amplified this perceived lack of structure.

AHRQ Project Officer Perceptions. The PFQ program director encouraged project officers and other program-related AHRQ staff to attend AHRQCoPs meetings. Some did so regularly, whereas others participated less often. Those who did not said it was because their schedules did not allow it; they had more pressing demands, or had attended but did not find the meetings all that interesting.

Because our evaluation started late, we had limited opportunity to observe the AHRQCoPs meetings. However, based on the two meetings we attended, we concur with those grantees who thought more attention could have been given to setting clearer goals, structuring a tighter agenda, and ensuring a better balance between presentation and discussion time.

3. Subcommittee Work

Nature of Work. A part of each AHRQCoPs meeting, after the first two, was devoted to subcommittee work. Each of the subcommittees also led one of the semi-annual meetings to inform other grantees about their topic, and some chose to bring in guest speakers. The PIs and POs in subcommittees also communicated outside semi-annual meetings through e-mails and scheduled (sometimes monthly) phone calls. Table V.1 provides a summary of who participated in each subcommittee and what the subcommittee produced.

While there appears to be consensus that some subcommittees were more productive than others, PFQ grantees disagreed substantially on the value of the subcommittees and their work. Most, though not all, chairs were enthusiastic about their subcommittees. Subcommittees that were productive seemed to have a higher proportion of positive members; however, the subcommittee also had to function collaboratively to achieve this effect. Thus, while one subcommittee was very well regarded by AHRQ and AHRQCoPs leadership, its members were much more mixed about the process.

Outcomes. Grantees most positive about the subcommittees cited two main accomplishments. First, the selected topics helped "crystallize" the five components of translational work in the context of partnerships. Second, the subcommittees created resources that grantees could use in current and future projects. For example, one grantee said that participation "prompted groups to repetitively think about the five areas [of partnership, implementation, evaluation, sustainability, and dissemination] in terms of their own projects and gave groups the opportunity to see how those areas played out in real-world contexts." Some PIs suggested that the subcommittees gave grantees learning that would inform current and future projects.

In contrast, other grantees found the subcommittee work "painful," believed the five topics were an artificial way to link grantees together, and did not benefit individual projects. "[The subcommittee experience] was like [throwing] a physiologist, a biochemist, and a urologist into the same room and saying work together," said one PI. While several grantees suggested that grouping grants by content, rather than the five selected topics, would have worked better, others believed that the diversity in projects made it impossible to group grantees in any meaningful way.

Early on, many of the subcommittees created tools and surveys, which were intended to be useful to grantees. The implementation subcommittee, for example, developed a survey on barriers to implementation that they fielded and shared with AHRQCoPs (see Table V.1). However, since subcommittee work and individual grantee projects progressed simultaneously, it was difficult for most projects to incorporate resources as they were produced. Some subcommittees produced tools that their members used, but few of the other grantees used them. For example, the evaluation subcommittee created an evaluation tool it had hoped all PIs would apply to their projects, but many of the grantees chose not to use it because they had already planned and budgeted an evaluation component of their own design. However, some grantees believe that the tools and resources produced by the subcommittees will be useful in future work.

Later in the program, AHRQ and the subcommittee chairs decided that each subcommittee would write an article on its respective topic that would be published together in a journal supplement. We believe their interest was spurred first by a paper on partnerships that the chair of one subcommittee developed, by some of their own interests, and by the desire to leave some program legacy both to their former deceased chair (Mark Young) and to the program as a whole, which they perceived to be under-recognized. The journal supplement would be a way to disseminate grantee experiences and learning under PFQ. The articles have been an important focus of AHRQCoPs' last two meetings. Though many PIs consider the supplement to be a worthy effort, several grantees have not completed their data collection and have found the push to develop the journal supplement and the seemingly unrealistic time frame frustrating. Another

TABLE V.1

AHRQ COUNCIL OF PARTNERS SUBCOMMITTEES

Subcommittees	Principal Investigators and Partner Members (Grantee Affiliation)	Resources Produced
Science of Partnerships	*Principal Investigators:* Lucy Savitz (Chair, RTI) Josie Williams (TAMU) Steve Ornstein (MUSC& Physicians Micro Systems, Inc) Jerod Loeb (JCAHO) *Partners:* Rasa Salinas (TAMU) *AHRQ Staff :* Margaret Coopey Denise Burgess	Draft of a journal article on partnerships to be published in the journal supplement
Implementation	*Principal Investigators:* Louise Dembry (former Chair, Connecticut State DPH) Paul Shark (CHCA) Karen Kmetik (AMA) Vincenza Snow (ACP) *Partners:* Dave Knutson (current Chair, HealthFront) Mark Antman (AMA) *AHRQ Staff:* Charlotte Mullican Cynthia Palmer	Survey tool to collect information from the PFQ grantees on barriers encountered in the implementation of their respective partnership initiatives White paper summarizing survey results, analysis, and recommendations Draft of a journal article to be published in the journal supplement
Dissemination and Impact	*Principal Investigators:* Mike Callahan (Chair, HealthFront) Carole Lannon (PICHC) John Combes (AHA/HRET) Suzanne Broderick (New York State DOH) *Partners:* Irma Megane-Sims (JCAHO) Ann Watt (JCAHO) *AHRQ Staff:* Sally Phillips Ron Rabbu Ronda Hughes Joanne Alexandre	Dissemination Planning Tool, 2004

Table V.1 *(continued)*

Subcommittees	Principal Investigators and Partner Members (Grantee Affiliation)	Resources Produced
Sustainability	*Principal Investigators:* Penny Feldman (Chair, VNSNY) Don Casey (CHP) David Polakoff (AMDA) Ken Coburn (Lehigh Valley) *Partners:* Jinnet Fowles (HealthFront) Laurie Reische (AHA/HRET) Glenn Stern (Lehigh Valley) Barbara Calabrese (AMDA) *AHRQ Staff:* William Spector Judy Sangl	Sustainability Element Checklist Developed a workable/working definition of sustainability that takes into account the range of partnership goals (part of stated goals, not sure if completed) Develop a framework that identifies the key dimensions of sustainability and the factors affecting sustainability (part of stated goals, not sure if completed) Identify useful strategies, lessons, and tips for promoting sustainability (part of stated goals, not sure if completed)
Evaluation	*Principal Investigators:* Nancy Donaldson (Chair, ACNL) Susan Horn (ISIS) George Miller (Altarum) Suzanne Delbanco (Leapfrog) *Partners :* Greg Belden (Leapfrog) *AHRQ Staff:* Michael Hagan	Draft of a journal article on "Evaluating Partnerships to Improve Clinical Quality" to be published in the journal supplement

criticism has been that while they may be successful grantees, they are not necessarily experts on each of the areas of knowledge that were the focus of their subcommittees.

Perceptions on Subcommittees. The primary frustration expressed by grantees about the subcommittees was that they were not aware at the outset that the subcommittee work was part of AHRQ's expectations. As one said, "To some extent, this was seen as an unbudgeted, un-reimbursed mandate." Many PIs, including the ones that found the subcommittees beneficial, saw the activities as an unexpected add-on to their grant work. If the subcommittees had been envisioned in advance and budgeted for by the grantees, maybe the PIs could have done more with them, they said. Grantees also were frustrated by the lack of initial focus. One grantee indicated that because AHRQ did not clearly state their goals early on, the PIs "spent a lot of time muddling through the whole process." She continued, "Had it been clear from the outset [what the agency wanted], it would have released a lot of angst." However, even without a coherent framework explaining how these subcommittees fit together and what they were supposed to accomplish, some grantees thought the subcommittees managed to create some interesting resources.

A substantive concern we heard from several grantees was that the focus on the subcommittee work took a lot of time and effort that, according to some grantees, may have been better spent becoming familiar with each other's work and helping each other on individual projects. Several PIs and POs indicated that the downside of focusing on subcommittee work was that people never developed a sense of where the individual projects were going and what they were doing. One PI indicated that the AHRQCoPs meetings would have been more helpful had they included more feedback and problem-solving from AHRQ on individual projects.

Because AHRQCoPs was the most visible part of PFQ to AHRQ PFQ staff and leadership, we believe that for some of them AHRQCoPs and its work *became* the PFQ rather than merely an adjunct, however important, to the grantees' own work. To the extent this is true, it is unfortunate because PFQ's resources were mainly devoted to the work funded through grants and, as we have described before, grantees typically worked on their projects, some achieving notable successes.

D. CROSS-GRANTEE COLLABORATION

An important goal behind regular meetings of PFQ grantees was the hope that such meetings would encourage grantees to learn from one another and build collaborations and partnerships independent of AHRQ. In general, such collaboration did not develop on a widespread basis. However, there were some notable successes as PFQ grantees were able to form collaborations with each other that were useful for their individual projects.

For example, Texas A&M and Altarum (two bio-terrorism grantees) formed a working partnership; researchers at Texas A&M provided information from the field that was used to provide input data to Altarum's simulation model, and Altarum gave Texas A&M contacts in Michigan to assist in its surveillance work on the Canadian border. The two organizations have had regular face-to-face meetings outside PFQ activities and were very positive about the collaboration based on shared interests.

Another example of cross-grantee collaboration is reflected in the help Catholic Healthcare Partners gave to other grantees in connecting them with people or organizations within or affiliated with the CHP system that were relevant to their work. Two CHP long-term care facilities participated in the ISIS project, and CHP identified a cardiology group to collaborate with the AMA for a project named Cardio-HIT, which builds on PFQ work and is funded by AHRQ.

PFQ generated other efforts by grantees with common interests to explore issues of mutual concern. For example, two major national provider organization grantees talked to a provider group grantee about pursing a common initiative, but the endeavor failed to proceed when one withdrew because of lack of funds. Two grantees focused on pediatric care talked with each other to see what they might learn. While most grantees did not build formal collaborations with each other, several PIs indicated that the meetings and subcommittee work led to informal conversations that were useful for exchanging ideas, brain-storming on how to handle various situations, and providing feedback on individual project work.

While PFQ led to increases in communication, these typically were relatively limited in scope and appear to be similar to what one might expect from any meeting opportunities for

networking. Even when collaboration occurred, it is difficult to determine how many go beyond what would normally have happened in any environment where people come together to discuss research versus what was made possible because of the PFQ structure and its emphasis on partnerships. Some grantees expressed disappointment that PFQ did not include more grantees with similar foci to their own.

Whether a different structure for AHRQCoPs and its subcommittee work might have facilitated great sharing is unclear. Some grantees indicated that they might have collaborated more with others had there not already been a huge time commitment to work on subcommittees and produce tools and papers. Others, however, indicated that the projects were so different that cross-fertilization and collaboration were not possible, and that this "artificial sense of community" did not make it any more possible.

VI. CONTRIBUTION OF PARTNERSHIPS AND OTHER KEY FACTORS TO PROJECT SUCCESS AND SUSTAINABILITY

Partnerships are promoted to address health problems because they can often achieve what no organization can do on its own. Diverse partners, with different strengths and networks, can increase resources to address a problem, broaden the reach of interventions, and persuade others to adopt innovations. The power of partnerships comes not just from combining resources, but capitalizing on each partner's strengths, capacities, and influence with different audiences to create synergy (Lasker, et al., 2001). They can help create the tipping point that leads to widespread adoption of innovations and ideas (Gladwell, 2000).

The assumption behind the PFQ program, which we built into the evaluation framework, was that the relationships among the lead grantee organizations, key collaborators and target organizations or providers would be critical for achieving buy-in to evidence-based changes for improving health care quality, safety, and security. Strong support from each project's key collaborators and target organizations, as framed in the rationale for the PFQ program, was key to the implementation and sustainability of health care improvements.

This chapter examines the composition and structure of the partnerships created in the 20 PFQ grant projects, assesses the elements of effective partnerships, and discusses other important factors that contributed to the projects' success and sustainability. It concludes with a set of lessons for AHRQ about how to structure effective partnerships to translate research into practice on a large scale.

A. VARIATION IN PARTNERSHIP STRUCTURE AND COMPOSITION

AHRQ provided relatively little guidance in the RFA on the structure of the partnerships, or who should be involved. The agency recognized that the diversity of organizations targeted to achieve improvements, and the specific types of changes proposed to translate evidence-based research into practice, required flexibility in selecting the most appropriate partners and deciding how they would work as a group.

Partnership structure and composition differed across the projects first and foremost by their grant focus, as shown in Box 3. The bioterrorism and emergency preparedness projects generally formed partnerships with target organizations that were looser and more informal than those focused on clinical quality or safety improvements. This may reflect the fact that the first set of projects sought to assess needs and develop tools, whereas the second set was more likely to seek change within the targeted organizations.

BOX 3

PFQ PROJECT PARTNERSHIP MODELS

<table>
<tr>
<td rowspan="2">Partnerships with Provider Organizations & Practitioners

<u>Direct Relationship between Leadership Team and Target Providers</u>
American College of Physicians
American Medical Association
American Medical Directors Assn.
Assn of California Nurse Leaders/CalNOC
Catholic Healthcare Partners
Child Health Corp of America
International Severity Info Systems
Lehigh Valley Hospital & Health Network
New York State Dept. of Health/RDHHAR
Physician Micro Systems, Inc./MUSC
Research Triangle Institute
VNSNY (Phase I diabetes collaborative)

<u>Intermediaries heavily involved in work with Target Providers</u>
American Academy of Pediatrics
American Hosp Assn/HRET
VNSNY (Phase II acute care hospitalization reduction)</td>
<td>Partnerships with Health Care Purchaser, using target organizations as study participants

HealthFront
The Leapfrog Group</td>
</tr>
<tr>
<td>Partnerships using Target Organizations as Advisors or Study Participants

Altarum Institute
Texas A&M Univ.
JCAHO
CT Dept of Health/Yale New Haven Health System</td>
</tr>
</table>

For example, the bioterrorism preparedness projects led by JCAHO and Connecticut Department of Health/Yale New Haven Health System used target organizations as participants and subjects in studies and training courses. Target organizations also provided information, data, and lessons for studies on bioterrorism preparedness, or participated in modeling exercises and case studies, conducted by Altarum Institute and Texas A&M University, and on the value of performance measurement for JCAHO's other study.

Partnerships formed around the two purchaser-led projects also reflected the role that payers play in the health system. Both HealthFront and The Leapfrog Group worked closely with local coalitions of employers, large health plans, and large companies. While their ultimate quality improvement targets were physicians and hospitals, respectively, the two project teams had little communication or collaboration with providers, other than as survey participants. When they wished to communicate with providers, the most common model was to use them in a convening role. For instance, HealthFront, Altarum Institute, and Texas A&M University organized and held seminars with target organizations to present their preliminary or final results, and discuss how the results could be used in practice.

Partnership structure differed in the 14 projects that focused on clinical quality and safety improvements, usually seeking close working relationships with target organizations. Project leadership teams worked directly with provider organizations or practitioners in the design, implementation, and assessment of the effects of interventions to translate research into quality

improvements, though the strength of the relationship differed. These projects typically had three partnership components, which varied in the regularity of their communication:

1. ***The Leadership Team,*** consisting of PIs, co-PIs, and project directors or managers, who communicated at least weekly, and sometimes daily during certain periods, on tasks as diverse as grant management and reporting, provider training, advisory group consultations, research design, data collection and analysis, and target organization relations,

2. ***Structured Relationships between the Leadership Team and Target Organizations***, through such mechanisms as annual or semi-annual training workshops, learning collaborative sessions, site visits, and conference calls with leadership team members and other intermediaries and support organizations;

3. ***Ancillary Support through Linkages between the Leadership Team and Advisors,*** whose support could be organized into formal advisory groups that met at the start of the project, and occasionally after that, or as an informal group, with advisors providing expertise and input into the design of the intervention as needed.

For these projects, the relationships with target audiences were critical to changing behavior. While all of these grantees partnered with the target groups, they differed in how heavily they relied on intermediary partners to support the targets. Twelve projects had direct relationships between grantee leadership teams (PIs, co-PIs, and other key collaborators) and target organizations, and used other individuals or organizations to provide training and technical assistance. These projects typically targeted fewer provider organizations, with the exception of PMSI/MUSC, which targeted over 100 primary care practices, but conducted site visits and conference calls with a smaller subset.

In the other strategy—used by AAP and AHA/HRET plus VNSNY in the second phase of its project—intermediary organizations played a stronger role in the partnership in order to: 1) increase the amount of training and support to a larger number of providers, and 2) build capacity to support and train providers independent of the lead grantee.

For example, AAP worked with more than 180 pediatric practices. To do so, it involved state AAP chapters in recruiting pediatricians, organizing training workshops, and providing on-going training and technical assistance. AHA-HRET's palliative care unit expansion strategy used partnerships with six exemplary palliative care programs, which served as learning labs for 60-70 hospital teams that made site visits and provided some post-site visit support to those teams. VNSNY described its project evolution as a switch from a "retail" strategy in its first learning collaborative project on diabetes care, where it worked directly with home health agencies, to a "wholesale" strategy in its second collaborative project, where it is working with 10 collaborating QIOs in order to reach almost 70 home health agencies to reduce acute care hospitalization among home health patients. In all three projects, a secondary but key goal was

to build capacity of the intermediaries to carry on the work on their own, as part of a strategy to assure sustainability.[17]

B. FACTORS BEHIND SUCCESSFUL PARTNERSHIPS

Certain characteristics and processes appear to contribute to effective partnerships in PFQ projects, based on themes that emerged from interviews with project PIs and their partners. This analysis primarily concerns the 15 projects that tested quality interventions. It excludes those that used partnerships primarily to produce knowledge—the bioterrorism preparedness projects and the quality improvement study projects led by RTI and JCAHO.

1. Position of Lead Organizations and Intermediaries

AHRQ expected lead organizations to be well-situated and capable of influencing directly the target organizations that were the focus of quality improvement efforts. Most grantee agencies, or others in the leadership team, were well-positioned to influence target organizations by virtue of being national or state associations representing the target organizations. According to one PI, "Having the credibility of the [national association] behind our work was helpful." In two cases, grantees were health systems that owned or were affiliated with the target providers (CHP and Lehigh Valley). VNSNY is a recognized leader in the home health field, giving it credibility among its peers. One of the home health agency staff in its project said, "Because of the size of [VNSNY] and the work they've done, agencies are very proud that it's one of our agencies that really spearheaded this . . . there's a sense of credibility to that."

In one instance, the lead organization had existing regulatory relationships with the organizations targeted for project interventions. This held certain advantages. It made it easier to recruit target organizations because they felt that they could not refuse. "When [they] ask something of us, it's not a good idea to say no," said one participating organization. It also gave the lead organization a chance to turn their historically adversarial relationship with providers to a more helpful one. The downside is that regulators still wield power over the target organizations, so the latter felt obligated to take on more than they could handle. Had the target organizations felt comfortable enough expressing this to the project leadership team early on, the project design could have been modified to improve the intervention's success and sustainability.

2. Experience and Skill in Managing Partnerships

Despite having strong potential for influencing target organizations, not all grantee agencies or leadership team partners had experience or skills in managing partnerships. Several national association PIs admitted that this was their first attempt to create working relationships on quality improvement activities with members, and considered it a great success just to show they could implement the partnership. But implementation is not the same as effective management,

[17] ISIS is pursuing a similar strategy in its work with six QIOs to replicate the "real-time", computerized care process documentation system in 30 more nursing homes, using digital pens or facility IT systems. This work is supported by a separate AHRQ Health Information Technology grant.

and some were better than others at building consensus, defining structures and processes for work to progress, developing leadership and joint ownership of the project, resolving conflicts, and finding ways to maximize each partner's strengths and contributions.

Partnership management takes time. The projects with more partners, more partnership groups, and more intense levels of collaboration with providers or target organizations had to spend more time managing the interactions and communication among all the partners. Sometimes, there was not enough time to do all the partnership management that some believed necessary to make the project work better. According to one PI, "I might have tried to do more one-on-one with everyone in the group [to gain consensus and work through problems] to supplement the monthly calls." Another project ran into similar problems in creating a partnership at the national level. According to one PI, "National partnerships need a lot of care and feeding, constant reminders and tasks. You need to keep up the momentum, [and] I think this project probably caught on to that a little late." One project limited the demands of partnership management by delegating responsibility and money to partnerships at the local level. The grantee organization communicated with local pilot projects to get progress reports, and assess their need for technical assistance; but the pilots rather than the national organization assumed most of the partnership management function. These experiences suggest the need for projects involving partnerships to build in adequate time for partnership management, and to consider the costs and benefits of creating partnerships at different levels.

3. Partners' Prior History in Working Together

Some projects had the advantage of starting with an existing partnership to which they could add new quality improvement targets or approaches. Projects led by The Leapfrog Group, the American Academy of Pediatrics, Lehigh Valley, CHCA, California Nurse Outcomes Coalition, and Catholic Healthcare Partners had distinct advantages in this regard. Their intended target organizations or intermediary partners were already organizational members or affiliated providers, making both the task of recruiting them easier and minimizing the need to start from scratch in defining common goals. According to one respondent, the project leadership team "has been together for so long. We are all equal in the design process, and having an effective team that has been together for so long has been invaluable."

The 14 CHCA members who had worked together under the "Child Health Accountability Initiative" banner had some experience and success in joint quality improvement projects before they began the PFQ project, and therefore had a head start in working together. Based on their early successes, the rest of the CHCA members wanted to join their efforts. But integrating into the project was challenging. Even though the new partners were already members of CHCA, they had not previously been exposed to the QI concepts and approaches or data collection requirements of the project. Getting them up-to-speed on the core partners' values and mode of operation took almost a year, slowing down the project's momentum. However, the PI believes that in the long-run, the time invested to integrate these organizations into their quality improvement efforts will have a large pay-off in expanding the number of children's hospitals involved in more rigorous and measurable QI activities.

Other projects began with little or no history of partnerships between the lead agencies and the target organizations, so they had to spend time building trust and a common vision to be successful. For example, the AMDA Foundation had prior relationships with the medical

directors of nursing homes, but not with the staff most responsible for quality improvement in these facilities – directors of nursing. AMDA Foundation staff therefore had to build relationships with these individuals. VNSNY and ISIS also had to quickly establish partnerships with provider groups; they did so by holding semi-annual meetings and regular conference calls, which rapidly created group cohesion and facilitated an open exchange of ideas and lessons.

4. Involvement of Target Organization Administrators and Staff in Decision Making

According to emerging health care organization theory on partnerships, partners' roles in decision making and partnership governance are critical factors in partnership effectiveness. (Mitchell and Shortell, 2000; Shortell, et al., 2002, Bolda, et al. 2006). The experience of the PFQ projects provides some support for this theory. Partnerships that involved partners in making collective decisions on the project's intervention were more successful in gaining buy-in and long-term commitment to the intervention. Partnerships that used partners to advise and legitimize the efforts of the lead organization seemed to have less success in gaining target organizations' commitment to adopt or sustain the intervention.

Involving administrators from participating organizations is critical, according to some of the PFQ project partners. "You've got to have administrative buy-in to support this," according to one PI. Even in a large health system such as Catholic Health Partners, there are limits to the "command and control" approach. "The HF advocates that have been very successful have had complete buy-in from [their managers] . . . this just shows that if you are starting something like this, you have to have commitment from administration." While involving target organizations in project decision making may take more time to achieve consensus on goals, strategies, or tactics, it may create stronger buy-in in the end and appears to result in greater commitment of resources and long-term organizational change.

Some of the most successful projects involved people at all levels of the target organizations deciding how to adapt the intervention to their organizations, which helped produce tangible improvements and fostered better teamwork. ISIS and VNSNY, for example, not only involved administrators and nursing directors, but also nursing assistants and home health aides. ACP invited teams of physicians, nurses and office managers to their practice-based, team-oriented training programs on diabetes care improvement. According to one of the partners, "What's remarkable is that, in terms of process, the office administrators are saying [the ACP training] is helping them feel like they're more part of the care process, and now they understand how they can fundamentally improve care. This has opened up dialogue between physicians and staff in how they can improve quality and makes the practice feel like they have social value."

Meetings among staff from the participating organizations to share and learn from each other were also important factors in success. According to one respondent, "The interactions we had with other facilities [in the study] were great. Our meetings with [them] helped us to develop best practices." In another project that had prior relationships but had not met in person before the PFQ project, one respondent said, "My partners' involvement contributed to the project's progress. The ability to meet with the partners through in-person interactions in a concentrated, focused way has led to interesting work, and I've learned a lot." Another interviewee claimed that, "Creating a learning network has helped us move forward. Everyone having the opportunity to say, 'here's what I learned this week, here's what's working and here's what's not working,' that's an enabler."

5. Partners who Can Promote Sustainability and Broader Diffusion

In several PFQ projects, partners changed over the life of the project, depending on their strengths and connections. Some partners are better suited to test an approach, while others are needed to take an intervention to scale. The Leapfrog Group, for example, selected a small group of regional purchasers from its membership to test different approaches to quality incentive programs in the six pilot projects. But for broader diffusion, Leapfrog is working with a larger number of its employer coalition members for its "regional roll-out" initiative. Similarly, VNSNY worked with a small group of eight agencies willing to test the use of the IHI rapid cycle quality improvement learning collaboratives in the home health setting. But for its wider diffusion efforts, VNSNY (and ISIS in a follow-on project) are involving quality improvement organizations (QIOs) in different parts of the country to take their approaches to scale. To the extent that VNSNY can build capacity in QIOs to carry on rapid-cycle quality improvement in the home health care setting, it will expand this approach to a larger group of home health agencies than it could in the first phase of the project.

C. ROLE OF OTHER KEY FACTORS IN PROJECT SUCCESS/ SUSTAINABILITY

While the PFQ projects all used some form of partnership to accelerate the translation of research into improved health care quality, safety, and security, they faced many challenges to changing professional and organizational behavior. Below are the most significant factors that appear to have enabled or hindered progress in the PFQ projects, and how they tried to overcome these challenges.

1. PI Leadership

Many of the partners interviewed for this evaluation stressed the contribution of the leadership by the principal investigators (PIs) and others in the leadership team as a key factor in their perceived success in implementation and diffusion. The particular qualities of leadership differed from person to person, but they all functioned as champions in one way or another. Some partners mentioned the PIs' energy and enthusiasm for the project as a key factor in the success of the project, while others cited his or her expertise in the subject matter. Several partners credited their projects' successes to the support and ideas provided by the lead organization staff, their willingness to work collaboratively with providers, and their flexibility in dealing with problems that emerged. In contrast, one project partner mentioned the PI's lack of organization as a detriment to greater success, another said turnover in leadership slowed the project's progress, and a third said that one of the partners didn't really play a strong leadership role, leading to failure to launch a pilot project in one site.

However, to succeed, PIs need more than a stellar record of research published in peer-reviewed journals. As the previous section stressed, PIs and their leadership teams must have experience in partnership management to structure and use them effectively. PIs that had these skills, or could invest the time to develop them, appeared to be more effective in harnessing their partners' contributions towards the attainment of project goals.

2. Good Timing and a Supportive Environment

Some projects benefited from external developments and forces that lent their efforts greater relevance or urgency with the target organizations. The bioterrorism preparedness projects had an initial advantage in this regard, since memories of terrorist and anthrax attacks in September and October 2001 were still fresh when the PFQ projects began in September 2002. The Katrina and Rita hurricanes in the fall of 2005 represented important reminders of the need for the health care system to be prepared to deal with emergencies, and increased interest by partners in working with Altarum Institute's and Texas A&M University's projects.

As the drive to implement pay-for-performance and electronic health record systems gained momentum, driven by CMS and the Office of the National Coordinator for Health Information Technology, as well as large national health plans and employer purchaser groups, the PFQ projects that worked with providers to help them measure and report their performance against national standards also gained relevance. One PI said, "Our timing for the project was also right because the grant started just before pay-for-performance got big, and we had it up in time before the P4P angst started. At that time, our [physician] members were tired of the talking-head learning experience and were ready to do something in their practices." Another PI affirmed this sentiment: "People are cognizant of the IOM studies and realize that we're not doing as good a job as we should be, but then people don't know how they should be doing things differently. This project came in and offered to show the physicians how to do it." Increased expectations for physicians to use electronic medical records had the same constructive effect. "It also helped that the practice sites knew that EMR was where all the big groups were headed. It helped to have a mix of a few small sites and few big organizations because that reinforced to the small sites that rather than being just another academic exercise, this was where the industry was going." Such forces help to overcome resistance to change, though they do not always succeed. Hospitals' resistance to being held accountable for performance outcomes blocked progress in several of the Leapfrog Group's pilot projects, for example.

Several projects' experiences reinforce the importance of picking the right health condition for focus. AAP was glad it decided to focus on ADHD because "it was an easy sell - the interest was very high . . . the topic had a lot to do with it, so we did not have much of a problem with recruitment." The long-term care projects' focus on pressure ulcers in LTC facilities, and primary care practices' focus on diabetes care benefited because these are conditions on which providers are more likely to be measured and reported in current or emerging public reporting systems.

3. Ability to Overcome Provider Resource Constraints

To secure provider participation, and successfully implement their interventions, all projects needed to overcome common barriers confronting providers. Most health care organizations face the pressure of limited funds, time, staff, and other resources needed to test new approaches to quality improvement, patient safety, and emergency preparedness. Even if they recognize its potential value, natural resistance to behavior change and uncertainty about the benefits of new ways of working can be powerful deterrents to adopting new practices. And even when change begins to take hold, staff turnover at all levels can affect the pace of progress. As the following quotes show, these issues presented enormous problems in nearly every project:

- ***Time and Competing Priorities.*** "Lack of time and money and an overwhelmed environment were the challenges that most hindered our progress... the practicing physicians are incredibly overwhelmed. People do not want to take on this kind of [work] because it will increase the workload..." "The competing priorities of the organizations were a huge barrier to trying to get anything done. They've got so many things people are telling them they've got to get done..." "Practices are just so busy, and even the highly motivated practices see this as an add-on to their daily routine." "To some facilities, this just seemed like "another project" that would take a lot of time without being certain it would improve their quality measures." "At the end of the day, when someone is volunteering and there are multiple demands on their time, we can't dictate the progress they make. That's our biggest stumbling block - that we don't have a command and control scenario."

- ***Funding.*** "[Although] the program was 'free' it required them to devote staff time to something that didn't have a guaranteed reward or positive outcome." "The business case is very difficult... there are many hospitals where even if they wanted to do this, they can't afford to do it upfront." "While the pot of money at the top [for bioterrorism preparedness] looks big, by the time it gets to the states and the states divvy the money up to their regions, there isn't much left."

- ***Turnover:*** "An inhibiting factor is turnover at the senior leadership level. If you get turnover at the chief nursing officer or nurse manager level, you potentially have to start over, so that hinders us at the longitudinal level." "The turnovers are tough. The turnover at the _____ plan caused us to lose momentum, and even though [a project collaborator's move to another organization] was a blessing in disguise, the project lost time because of it." "In some cases, we would get all ramped up but then go back a month later and the person was gone." "At one hospital, the CEO left and a new person took over who didn't buy into the [program]..."

- ***Speed and willingness to change.*** "One of the challenges for all agencies . . . was getting the nurses to change what we wanted them to change at the speed that we wanted them to - having to continually get people to buy-in. ". . . different doctors went through the stages of change differently. Some went through the stages easily and other took much longer. Some doctors tested us by giving us the toughest patients first so they could see what we did with them. Eventually, when they saw that we dealt with those patients well, they were persuaded to engage more."

Successful efforts to overcome provider resistance required flexibility and smart use of available resources. For example, some projects modified their interventions to reduce barriers to participation, or gave providers the ability to adapt the intervention to their organizational culture or practice. By design, some projects sought to provide more support than others, especially when their interventions required more significant change in organization policies or operations. While most projects overcame the challenges associated with recruitment, they varied in their ability to provide sufficient flexibility and support to providers, which may have affected the degree of success in achieving project goals.

While some projects provided intensive training and support to target organizations to implement new quality measurement and improvement tools and techniques, other projects

intentionally limited the amount of support they offered to providers after an initial training course, believing that more intensive follow-up support would not be sustainable after AHRQ grant funds ran out. Examples of the latter model included projects run by NYSDOH and AHA/HRET, which provided target organizations with brief training courses or site visits, but had minimal follow-up, except for collecting data for evaluation purposes. Preliminary results suggest that the first strategy—intensive follow-up support—was more successful in making or sustaining changes. It may be that such support enabled participants to realize the benefits of the intervention more quickly, generating greater commitment. However, as final results are not yet known, this warrants further investigation.

Since staff turnover is inevitable, it is important to learn from those projects that found ways to minimize its impact on their interventions. The most successful projects appeared to be those that worked with teams from organizations, rather than with one person. That way, even if one of the team members left, the others were already on board and could train new staff.

4. Effective Use of IT for Quality Measurement and Provider Feedback

Projects that made effective use of information technology to measure and motivate care process improvements had more measurable, and possibly better, progress in improving adherence to clinical guidelines or yielding higher scores on clinical outcome indicators. Eight projects (AAP, ACP, AMA, CHP, ISIS, Lehigh Valley, Physician Micro Systems/MUSC, and VNSNY) used IT-based measurement systems to give practitioners the measures and the tools to compare their own performance with others.

When the IT systems were working well, the ability to provide feedback on an immediate and regular basis gave providers "actionable information" that they could use in their day-to-day patient care and practice management, as well as strong motivation to improve if their scores were below national standards or those of their peers. When combined with a rapid cycle quality improvement approach, such as IHI's learning collaboratives, projects could use the data to accelerate the testing and refinement of quality improvement methods. For example, according to one interviewee, "there needs to be an IT system in place for data collection... You need to be able to do real-time data collection that will show you whether you are doing the right thing for patients." A physician participating in one of the projects said that success was largely attributable to "the report that we receive quarterly 100-page pamphlets with all of the graphs." Projects that worked with EMR vendors, such as the PMSI/MUSC project, had an advantage in this regard, "Because of the way we've developed this network and they all use electronic records, there's no work to get the data...."

Having available IT tools was not enough though, unless grantees could make effective use of them. Logistical issues still present hurdles as the AMA project discovered. "Physician practices had difficulty getting their data into an HL-7 format to get it transferred. That was a lesson on needing standards for data transfer..." Other projects found that just making tools available on a website doesn't guarantee people will access or use them, suggesting the importance of making web-based tools more interactive and a part of the learning/quality improvement cycle.

5. Effective Leverage of Grant Resources

The fact that all projects were grant-funded sometimes worked for, and sometimes against, efforts to make progress. On the positive side, the grant funds obviously provided financial support for many activities and infrastructure development that could not have been achieved without the grant. "We definitely would not have been able to pay for or support the coaches . . . or the hierarchical analysis without the AHRQ grant [and it] provided us with support to establish some things that we'll be able to continue," said one interviewee. Another said, "By giving the chapters some money, we were providing them with a lot of infrastructure support."

Many PIs and their partners also said that the external deadlines and deliverables associated with the grant had a salutary effect. Several of them said that providers and partners, especially those participating in learning communities, had more incentive to implement quality strategies, if only to be able to report their progress at the next meeting or teleconference. For example, said one PI, "Anytime you have a deadline, that's helpful. You had an element of peer pressure there as well [as motivation] to get things done in relation to this project." One of their partners affirmed that "Having ___ hold you accountable with the conference calls [was a motivation to do the work]. We had other meetings and conference calls that were held internally . . .which [also] helped the individual practices stay in line." Having deadlines, said another PI, "made us report back and provide data and say what we're doing at a level of scrutiny that pushed us forward... the external deadlines we had... [made us] continually focus."

On the negative side, the amount of grant funds needed to make large-scale change was limited in relation to the overall goal. Projects funded for clinical quality improvement projects had between $300,000 and $400,000 for each of the four years, while those conducting bioterrorism preparedness projects had just $100,000 for each of the four years, so it was unrealistic to expect the 20 projects to reach millions of people as the AHRQ RFA envisioned.

In addition, the requirement to evaluate the project's impact led grantees to spend funds on research and data collection activities that reduced the amount available for project infrastructure or partnership management. Several PIs complained about the need to prepare and obtain Institutional Review Board approval for their data collection activities.[18] For example, one said, "Dealing with IRBs was an enormous problem...in quality improvement work, we're being asked to adhere to standards of research, but we're not really doing research. This needs to be looked at in a big way." Others ran into resistance from providers in submitting data needed for the evaluation. "The data collection was always a big problem. . . [it was a burden for practices and we haven't figured out how to make it easier," said one PI.

This suggests the need to revisit how best to document the impact of QI interventions while not running afoul of patient rights. Whether or not grantees could have designed their work to avoid these problems is something AHRQ may want to consider in formulating future projects of this type.

[18] It is unclear whether IRB approval was required by AHRQ or by the sponsoring institution for many of the PFQ grant projects.

D. LESSONS ON ELEMENTS OF AN EFFECTIVE PARTNERSHIP FOR QUALITY

If one is planning to use a partnership to accelerate the translation of evidence-based research into health care practice on a wide scale, there are a few things that appear to be necessary to the success of such an endeavor, with implications for other AHRQ efforts to fund projects involving partnerships.

- ***Partnership structure.*** The composition, size, and form a partnership takes should fit the goals and scale of the project. If the goal is to make large-scale change, projects should seek intermediaries to help with provider recruitment, training, and ongoing support for quality improvement; and efforts should be made to build capacity of these intermediaries to continue this work on their own over the long-term. Partnerships should try to recruit participants who are committed to the project and are well-connected to their peers.

- ***Leadership.*** National organizations and project directors that have strong credibility with, and influence on the target, should take the lead in partnerships. This affirms the importance of taking the PI's reputation and track record into account when reviewing grant applications. It also supports AHRQ's practice of allowing PFQ projects to travel with the PIs when they switch employers, or transfer to different sponsoring organizations. In the context of partnerships, though, leadership does not equate solely with a record of scholarship and peer-reviewed journal articles; it also means having the enthusiasm for this sort of work, as well as commitment to, and flexibility in working collaboratively with partners.

- ***Partnership management skills.*** Leaders need skills and experience in partnership management, and make a commitment to spend time on forging consensus, fostering regular communication, sharing lessons, and resolving problems at all partnership levels. Partnerships that involve all partners in decision making and staff at all levels in the target organizations in tailoring the intervention to their own organization may be more successful in building commitment and sustaining activities in the long-run.

- ***Strategies to overcome provider constraints.*** Partnerships should anticipate and prepare tools and strategies to address the needs and constraints of providers. They should also decide in advance how much room to allow providers to adapt the intervention so that it fits each organization's culture, and can be adjusted to each provider's pace of change.

- ***Effective use of data and IT.*** Partnerships to improve quality should consider seriously how best to make effective use of IT and data collection to measure and motivate providers to make care process improvements in "real-time".

- ***Regular interaction.*** Partnerships should organize regular opportunities for organizations and providers to talk or meet with each other, since the need to report progress, share successes, and learn what works and what does not appears to accelerate providers' progress.

- ***Timing.*** If at all possible, the initiative should be timed to take advantage of external demands on providers that make the intervention more relevant and responsive to those demands.

This list mirrors most of the criteria that AHRQ set out in the RFA for applicants to the PFQ program, affirming to a large extent the assumptions and thinking that went into the program's initial development. When one looks at the qualifications and proposals of the grantees that were originally funded in 2002, most met the majority of these criteria.

Projects that met the PFQ applicant criteria closely *and* put into practice these elements of effective partnerships appear to be most successful in achieving their goals or those of the overall program. Projects that did not meet the criteria as well, or were not able to apply these elements of effectiveness, appear less successful. As a new program for AHRQ, PFQ represented a form of venture capital, and as with all such investments, one can expect a certain number of failures. Despite the fact that some projects did not succeed as much as program architects may have hoped, they too have the potential to shed insight into the challenges of doing this type of work.

VII. HOW SIGNIFICANT OVERALL WAS PFQ IN CONTRIBUTING TO AHRQ'S BROADER STRATEGIC GOALS?

A. PFQ'S ACCOMPLISHMENTS AND LIMITATIONS

From our perspective, PFQ was reasonably successful as a grant program taking into account the varied objectives of the diverse grantees that were funded. Most grantees did what they said they would, although the overall impact of all 20 projects was not as fully realized as AHRQ program initiators had hoped.

PFQ had a core set of 12 grants focused on directly changing clinical practice and outcomes, at least 8 of which already have some evidence of positive outcomes. Most of these efforts produced sustainable changes in day-to-day practice that will enable and foster regular quality monitoring and continuous quality improvement in nursing homes, primary care physician offices, hospitals and home health agencies. While five other projects had goals that also focused on improving clinical quality and outcomes but stopped short of trying to directly change practice, they did generate valuable lessons about how to provide an infrastructure and set of financial incentives for such efforts. The bioterrorism preparedness grants, whose goals were to improve the health system's ability to respond to emergencies, also appear to have generated valuable knowledge.

For a pioneering program, these accomplishments are impressive. They provide a foundation of learning that AHRQ can build on for improving the safety, quality and effectiveness of health care delivery. The partnerships created have leveraged resources from national and community-based organizations for promoting improvement, and forged stronger linkages between researchers and those on the front line of health care delivery.

While relatively successful on these metrics, PFQ had some shortcomings. First, a few of the grants probably were not, with the benefit of hindsight, well-conceived originally, despite their best intentions. Second, PFQ grantees did not have the scale of impact originally expected by AHRQ's program developers, or promised in the RFA and the program announcement.[19] While the grantees' interventions reached a meaningful number of providers, they clearly reached fewer than one would expect solely by the membership of major organizations involved with PFQ (e.g. AMA, AHA etc). However, those initial expectations on the part of AHRQ were probably unrealistic, given the nature of the grants funded and the scale of the projects' goals. Third, this evaluation suggests that PFQ's efforts to promote collaboration and mutual learning across PFQ grantees through AHRQCoPs and other cross-grantee work was not very successful in supporting grantees, though it may generate some useful publications.

[19] *Partnerships for Quality*. Fact Sheet. AHRQ Publication No. 04-P004, March 2004. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/qual/partqual.htm

B. FUTURE OPPORTUNITIES AND LESSONS

Particularly because PFQ was an early initiative to support one of AHRQ's current priorities—transforming research into practice—the formal ending of the PFQ program provides an important opportunity to harvest lessons that may be valuable to AHRQ for the future. While AHRQ could expect some failures in a program that aimed to encourage innovation, AHRQ can learn from its experience on how it managed the PFQ program and apply the lessons to current and future initiatives designed to translate research into practice, and to use partnerships to extend the reach of its quality, safety, and security improvement efforts.

To date, little has been done to extract the lessons about what worked well and take advantage of the opportunities they present. The lessons learned about what did not work are equally useful. The initial lessons and findings presented in this report can help AHRQ achieve many of its goals. We review here four of the most significant lessons and insights from PFQ, and offer several avenues for AHRQ to apply the lessons to its current priorities.

1. Elements of Effective Partnerships for Translating Research into Practice

PFQ grantee experiences and lessons can help AHRQ create more effective partnerships for bringing to scale and speeding up the translation of research into practice. Critical elements of effective partnerships, listed at the conclusion of Chapter VI, include: national organizations and individual leaders with expertise and well-regarded reputations in the health care issue or topic of focus, selection of well-connected partners at all levels—grantees, intermediaries and target organizations—and strategic use of each one's resources and connections; skills and experience in partnership management; and the ability to overcome provider barriers to change.

Partnerships, and how to promote them, are important to many AHRQ programs. For example, the concepts have immediate relevance to the ACTION program, AHRQ's latest effort to use "field partnerships" to translate research into practice. In fact, several PFQ grantees are participating in ACTION networks, offering an opportunity for them to share their own lessons in partnership building with the collaborators in each network. But other ACTION grantees also would benefit from knowing more about the collective experience and lessons from the PFQ projects to gain insight in fostering teamwork and partnerships. Other AHRQ programs involving partnerships, such as the 17 projects funded by the Partnerships in Implementing Patient Safety (PIPS), may also benefit from learning more about the PFQ experience and lessons.

AHRQ managers and staff also participate in a wide variety of partnerships with other federal agencies and private health care organizations, from work on CAHPS to leadership of the AQA-HQA efforts to develop standardized performance and quality measures. Lessons about effective partnerships are potentially applicable to AHRQ's work in these other efforts as well. A work group within the agency might be created to distill the lessons on effective partnership management from these initiatives, and determine how they could be applied to strengthen AHRQ's existing and future partnerships and programs.

2. Leveraging AHRQ's Internal Resources to Help Translate Research into Practice

The PFQ program provides good examples of the way an effective project officer can help leverage the work of grantees. Specifically, those AHRQ project officers that brought with them connections and deep knowledge of particular issue areas took the initiative to connect principal investigators and their partners to other public and private quality improvement initiatives in their specific fields. With AHRQ's focus on portfolios, such support for grantees creates potential synergies across programs and connections between similarly focused grants that may be conducted under diverse auspices. Although not all project officers have such skills, it may be valuable to encourage AHRQ staff to think more creatively about how best to use the knowledge and enthusiasm they bring to help leverage the work of individual grantees.

AHRQ also may benefit from a more careful review of findings in particular topic areas, with a view towards forming tighter connections with other AHRQ initiatives and efforts in the same areas. For example, the results of the three PFQ projects that focused on long-term care could be examined to determine how their results could be leveraged with current quality initiatives in the long-term care field. AHRQ staff with expertise in diabetes prevention and control could examine the results of the five PFQ projects that focused on control of diabetes in primary care or home health settings to assess opportunities for spreading effective approaches more broadly. They might also help the PIs of those projects connect with leaders in the diabetes prevention and control field. The experience of the purchaser-led grants similarly provides important input on the factors that promote or inhibit purchasers from leveraging their influence to promote change in quality incentives and care within communities.

AHRQ could widely share the synthesis of findings and lessons in this evaluation, supplemented by final results from PFQ grantees that will be produced by September 2007. Aside from this report and publications by individual grantees, there are currently no other ways to easily obtain information on what the PFQ program was and what grantees accomplished. The program remains relatively invisible, a belief shared by grantees and many of those directly associated with the program at AHRQ. AHRQ staff in various parts of the organizations should consider how best to translate the results of the most promising projects to relevant providers and professionals in the field.

3. Appropriate Use of Quality Improvement Tools and Techniques for Translating Research into Practice

Several PFQ projects made important advances in testing and demonstrating the effectiveness of new tools and techniques for helping providers adopt or more fully implement clinical care guidelines. They include the effective use of appropriately scaled information technology, the development of practice-based CME, the integration of performance measures into electronic health records, and the design of quality reward and incentive programs by purchasers. National and local quality improvement leaders wishing to replicate these strategies on a bigger scale can draw on the lessons of the PFQ projects. While some PFQ principal investigators have already begun to translate their success into lessons in these other fields, AHRQ staff can provide further support for these efforts.

To take one example, several PFQ projects made important advances in introducing information technology to health care facilities or to individual physician practices to aid in

tracking adherence to clinical guidelines or to performance standards. The ISIS-sponsored PFQ project is a featured case study in the AHRQ National Resource Center on Health Information Technology[20] and leveraged its success in the PFQ project to obtain new funding under AHRQ's Transforming Healthcare Quality through Information Technology (THQIT) Implementation Grants. Other PFQ projects have had some success as well, but efforts are needed to bring them to the attention of experts in the HIT field, so their lessons or implications for IT development in particular settings can be more carefully assessed. Assessment of the PFQ project results might also be performed to determine if they should be included in AHRQ's new Innovations Clearinghouse.

4. Future Design of Programs for Translating Research into Practice

PFQ provides valuable insights about the importance of agency leadership and program structure to the successful transition to new approaches to funding and translation work. From our review of the PFQ experience, we suggest several lessons important to the success of future programs seeking to translate research to practice.

- PFQ highlights the importance of senior leadership guidance on refining program strategy over time, not just when new programs are being conceived.
- The selection and placement of program directors is important. AHRQ can do a better job of considering explicitly the structural constraints associated with the program director's role in order to pick and position individuals to increase their effectiveness in working with staff across the agency, and in communicating with top leadership. AHRQ's current structure makes the role of program director in a cross-center program like PFQ very challenging. Since center directors are not held accountable for the program's success, responsibility rests with the program director to marshal the necessary resources, guide and motivate project officers to oversee grantees, and maintain commitment to the program's vision and goals through staff turnover and changing center and agency-wide priorities. The challenges are similar for project officers who get little support for actively supporting grantees in a cross-center program. Consideration might be given to adjusting staff workloads and incentive structures to reward staff for this type of grant oversight work.
- Agency managers need to think through more clearly their expectations for cross-grantee work. While some PIs valued the AHRQCoPs meetings and subcommittee work, the majority of them expressed frustration with the meetings, because they took away valuable funding, time and attention from their own projects and were not well-structured to foster synergy among the projects. AHRQCoPs and its subcommittees are producing a set of articles on partnership functions and lessons, to be published in a forthcoming special journal supplement. However, these activities and any learning they produced were linked only tangentially to the grantees' work and hence provided limited benefits to most of their projects. If AHRQ expects grantees in a program to

[20] "Long-Term Care Facilities Embrace Health Information Technology", located on the AHRQ HIT National Resource Center website: http://healthit.ahrq.gov; click on AHRQ-Funded Projects, and then on Case Studies.

work collaboratively, the final products should be more clearly defined and communicated to applicants in advance, and the agency should make clear to prospective grantees the amount of time and effort this activity will require.

- AHRQ needs to better match grantee selection criteria to the goals of cross-grantee work. The PFQ grantees were too heterogeneous to foster significant collaboration, particularly without a strong content or focus that was relevant to all their needs. Programs like PFQ that seek to attract well-connected national and regional organizations whose base is outside of research also need to appreciate better the demands on the time of these individuals, which may mean limiting reporting requirements and collaboration work to the essential core.

In sum, PFQ generated capacity and knowledge that can support broader AHRQ's efforts to translate research into practice. Harvesting its potential will further leverage AHRQ's $20 million investment in PFQ and enhance the strategic value of this program as an early pioneer whose experience and lessons can inform attempts to translate research to practice on a broad scale.

REFERENCES

Berwick, Donald M. "Disseminating Innovations in Health Care." *Journal of the American Medical Association* 289(15):1969-1975, April 16, 2003.

Bolda, E, et al., 2006. "Governance and management Structures for Community Partnerships: Experiences from the RWJF Community Partnerships for Older Adults Program," The Gerontologist, 46(3): 391-397.

Braun BI. Wineman NV. Finn NL. Barbera JA. Schmaltz SP. Loeb JM. **"**Integrating hospitals into community emergency preparedness planning," *Annals of Internal Medicine.* 144(11):799-811, 2006 Jun 6.

Clancy, Carolyn M. "AHRQ's FY2005 Budget Request: New Mission, New Vision." *Health Services Research* 39(3):xi-xviii, 2004

Gladwell, Malcolm. The Tipping Point: How Little Things Can Make a Big Difference. Little, Brown and Company, 2000.

Glasgow RE, Vogt TM, Boles SM, 1999. "Evaluating the Public Health Impact of Health Promotion Interventions: The RE-AIM Framework," *American Journal of Public Health*, 89(9):1322-1327.

Gray, Bradford H., Michael K. Gusmano, and Sara R. Collins. "AHCPR and the Changing Politics of Health Services Research." Health Affairs Web Exclusive @3-283-307, June 25, 2003.

Greenhalgh, Trisha, Glen Robert, Fraser McFarlane, Paul Bate, and Olivia Kyriakidou. "Diffusion of Innovation in Service Organizations: Systematic Review and Recommendations." *The Milbank Quarterly* 82(4):581-630, 2004.

Lasker, R.D., Weiss. ES., Miller, R., 2001. "Partnership Synergy: A Practical Framework for Studying and Strengthening the Collaborative Advantage," The Milbank Quarterly, 79(2):1790-205.

Mitchell and Shortell, 2000., "The governance and management of effective community health partnerships; A typology for research, policy and practice, Milbank Quarterly, 78:241-289

Shortell, et al., 2002. "Evaluating Partnerships for Community Health Improvement: Tracking the Footprints, Journal of Health Politics, Policy and Law 27(1):49-92

APPENDIX A

ADDITIONAL TABLES

TABLE A.1

FOCUS AND TARGETS OF PFQ GRANTS

Grantee Organization & Principal Investigator	Health Conditions	Health Issues	Priority Populations	Health Care Entities
Altarum Institute PI: George J. Miller		Bioterrorism & Emergency Preparedness		1 rural hospital; large urban public health district
American Academy of Pediatrics PI: Carole M. Lannon	Behavior - ADHD		Children	160-180 pediatric practices in 10 states
American College of Physicians PI: Vincenza T. Snow	Diabetes			35 physician practices in 2 states
American Medical Association PI: Karen S. Kmetik	Diabetes, Heart Disease (CAD), Major Depression		Individuals needing chronic care	Physician practices in Pittsburgh & Chicago; large cardiology practice and ambulatory clinic network in Chicago
American Medical Directors Association PI: David F. Polakoff	Pain management, Pressure ulcers	Long-term care		50-60 nursing facilities in 6 states
American Hospital Association-HRET PI: John R Combes			People at the end-of-life	100 Hospitals
Association of California Nurse Leaders PI: Nancy E. Donaldson (UCSF)	Falls and falls with injury	Hospital patient safety		32 hospitals in California
Catholic Healthcare Partners PI: Donald E. Casey	Congestive heart failure			6 hospitals in the Midwest system's 9 regions
Child Health Corporation of America PI: Paul J. Sharek	Pain management	Hospital patient safety and medication safety	Children	14 (later 42) children's hospitals in the U.S.
Connecticut State Department of Public Health PI: Louise Dembry		Bioterrorism & Emergency Preparedness		Physicians and other health professionals in Connecticut
HealthFront PI: Michael Callahan		Value purchasing/pay-for-performance		2 Employer coalitions and health plans (Minn-St Paul & Colorado)
International Severity Info Systems, Inc. PI: Susan Horn	Pressure ulcers	Long-term care		12 nursing facilities in 10 states

Table A.1 *(continued)*

Grantee Organization & Principal Investigator	Health Conditions	Health Issues	Priority Populations	Health Care Entities
Joint Commission for Accreditation of Healthcare Organizations (JCAHO) PI: Jerod M. Loeb	Acute Myocardial infarction, Heart Failure, Community-acquired pneumonia, Pregnancy & related conditions.	Bioterrorism & Emergency Preparedness		Hospitals and community health clinics; community emergency preparedness systems
Leapfrog Group PI: Suzanne F. Delbanco		Hospital patient safety and value-based purchasing		Employers, employer coalitions, and health plans; hospitals in 6 target markets
Lehigh Valley Hospital and Health Network PI: Mark Young (decreased), followed by Kenneth Coburn	Diabetes (type 2)		Individuals in need of chronic care	10 physician practices in SE Pennsylvania
Pacific Business Group[a] on Health David Hopkins		Quality measurement and performance reporting		Physicians
Physicians Micro Systems, Inc. (vendor) PI: Steven M Ornstein (MCSC)	Heart disease/stroke; Diabetes; Cancer prevention; immunizations; resp/infectious disease; MH/SA; nutrition and obesity; Rx for the elderly			100+ participating practices from 35+ states; practices range in size from solo practitioners to 10+ clinicians
Research Triangle Institute PI: Lucy A. Savitz	Broader adoption of QI methods for a variety of conditions & care processes	Bioterrorism and emergency preparedness; and general quality improvement		4 (later 5) large health systems in selected regions
New York State Dept Of Health PI: Suzanne M Broderick	Falls, weight loss, incontinence	Long-term care and avoidance of acute hospitalization		45 nursing homes and 14 adult care facilities throughout NY State
Texas A&M University Health Sciences Center PI: Josie R Williams		Bioterrorism and emergency preparedness		Texas Department of Health, Region 8; 12 small rural hospitals in TX (part of TX A & M/RCHI network)
Visiting Nurse Service of New York PI: Penny H Feldman	Diabetes	Home health care and avoidance of acute hospitalization	Elderly	8 home health agencies in 7 states:

[a]The grant with PBGH was dropped after 15 months.

TABLE A. 2

PFQ GRANT PROJECTS – PARTNER ORGANIZATIONS

Grantee Organization & Principal Investigator (PI)	Research Organizations	National/State Provider & Professional Associations	Health Care Organizations and Practitioners	State/Local Government Agencies	Other
1. Altarum Institute PI: George J. Miller	Altarum		Smithville Regional Hospital, Balstrop County TX	San Antonio Metropolitan Health District; Texas Dept. of Health (**unit?)**	University of Texas Health Science Center; University of Michigan Medical Center Dept. of Emergency Medicine; Michigan Center for Biological Information
2. American Academy of Pediatrics (AAP) PI : Carole M. Lannon, Center for Health Care Quality, Cincinnati Children's Hospital Medical Center	Center for Children's Healthcare Quality (CCHQ) (formerly National Inst. for Child Healthcare Quality)	American Academy of Pediatrics and 10 state AAP chapters	160-180 pediatric practices in the 10 states		American Board of Pediatrics
3. American College of Physicians (ACP) PI:Vincenza Snow	Northwestern University	American College of Physicians	Pilot: 4 PA and IL practices Trial: 31 physician practices in Philadelphia (in Abington Health System) & Chicago		Advisory Board: IHI, ICIC, AMA, AHIP, ANA, ADA, and others
4. American Hospital Association (AHA) Health Research and Education Trust (originally, grantee was Hospital and Healthcare Systems of Pennsylvania - HAP) PI : John R Combes	AHA, Health Resesarch and Education Trust (HRET)		7 palliative care "Centers of Excellence" around the country 60-70 hospital –based teams		

TABLE A.2 *(continued)*

Grantee Organization & Principal Investigator (PI)	Research Organizations	National/State Provider & Professional Associations	Health Care Organizations and Practitioners	State/Local Government Agencies	Other
5. American Medical Association (AMA) PI: Karen S. Kmetik	RAND (project evaluation contractor) Co-PI based at University of Pittsburgh	American Medical Association, Physician Consortium for Performance Improvement	Northwestern University General Internal Medicine/Northwestern Medical Faculty Fdn; Midwest Heart Specialists; Ambualtory and Community Health Network/Cook County Board of Health Services		Iowa Foundation for Medical Care (QIO); United Healthcare/Ingenix; Pittsburgh Regional Healthcare Initiative; Midwest Business Group on Health; BCBSA; and CMS
6. American Medical Directors Association (AMDA) PI: David F. Polakoff		American Medical Directors Association (AMDA) & AMDA Foundation; American Health Care Association, AAHSA, AHQA & other national orgs	50-60 nursing facilities in 6 states (CA, FL, IN, OH, PA, TX)		Quality Partners of Rhode Island (QPRI) (co-PI formerly worked there)
7. Association of California Nurse Leaders PI: Nancy Donaldson, CalNOC & UCSF School of Nursing	CalNOC; UCSF School of Nursing; Cedars-Sinai Research Institute; CA State University Fullerton	Association of California Nurse Leaders and ANA-California	32 California hospitals participating in the California Nurse Outcomes Coalition (CalNOC), 91 med-surg units from those hospitals		VA NOD; Moore Foundation; AHRQ; MilNOD American Nurses Association;
8. Catholic Healthcare Partners (CHP) PI: Donald E. Casey	Xavier University (project evaluator)	American Heart Association National Heart Failure Training Program at Case Western University	Catholic Healthcare Partners; six regional health systems within CHP and affiliated hospitals and cardiologists		"Observers": Other large Catholic health systems; Greater Cincinnati Health Council Clinical experts at Ohio State University and North Ohio Heart Center

TABLE A.2 *(continued)*

Grantee Organization & Principal Investigator (PI)	Research Organizations	National/State Provider & Professional Associations	Health Care Organizations and Practitioners	State/Local Government Agencies	Other
9. Child Health Corporation of America (CHCA) PI: Paul J. Sharek, Stanford University School of Medicine & L Packard Children's Hospital		Child Health Corporaton of America	Lucile Packard Children's Hospital at Stanford and 13 other CHCA member hospitals, in the Child Health Accountability Initiative (CHAI); later expanded to all 42 CHCA hospitals;		Vermont Oxford Neonatal Network; Institute for Health Improvement (IHI); National Association of Children's Hospitals & Related Institutions; National Inst.for Children's Healthcare Quality
10. Connecticut Department of Public Health PI : Louise Dembry Yale-New Haven Health System	Yale University School of Medicine, Dept. of Epidemiology and Public Health		Yale/New Haven Health System, Office of Emergency Preparedness	Connecticut Department of Public Health	
11. HealthFront PI: Michael Callahan	Park Nicollet Institute				Health Front 2 business coalitions (MN and CO)
12. International Severity Info Systems, Inc. PI: Susan Horn	International Severity Info Systems, Inc.	American Association of Homes and Services for the Aging), Institute for the Future of Aging Services	11 nursing homes in 10 states, including: Good Samaritan (1) Mercy Health Partners (4) Christina Home (1)		6 QIOs in CA, MD, WA, TX, etc.
13. Joint Commission for Accreditation of Healthcare Organizations (JCAHO) PI: Jerod M. Loeb	JCAHO, Division of Research				Consultant in emergency preparedness; advisory committee members

TABLE A.2 *(continued)*

Grantee Organization & Principal Investigator (PI)	Research Organizations	National/State Provider & Professional Associations	Health Care Organizations and Practitioners	State/Local Government Agencies	Other
14. The Leapfrog Group PI: Suzanne Delbanco	Evaluators from Penn State University (Scanlon), University of MN (John Christianson); and Tulane (Eric Ford)	The Leapfrog Group	Hospitals in the six target markets participating in the pilots		6 purchaser or payor-led groups: 3 employer coalitions in ME, MN & TN); 2 groups of large employers; and 1 health plan (Blue Shield of CA) Consultants from Medstat, Towers Perrin, and Ropes & Gray
15. Lehigh Valley Hospital and Health Network PI: Mark Young (later Kenneth D. Coburn)	Lehigh Valley Hospital and Health Network, Community Health Studies Penn State Univ.College of Medicine, Health Eval. Sciences		Lehigh Valley Hospital and Health Network, Helwig Diabetes Center 10 primary care practices in SE Pennsylvania		
16. New York State Dept Of Health, Division of Community-Based Care PI: Suzanne Broderick & Beth Dichter	Research Division of Hebrew Home for the Aged at Riverdale (RDHHAR)	American Health Care Association; Institute for the Future of Aging Services; Associaiton of Health Facility Survey Agencies	45 nursing homes and 14 adult care facilities throughout NY State	NYS DOH, Division of Community-Based Care Health Research Inc. (affiliated with NYSDOH)	Columbia University Stroud Center; The Commonwealth Fund
17. Physicians Micro Systems, Inc. PI: Steven M Ornstein, Medical University of South Carolina	Medical University of South Carolina (MUSC)		100+ participating practices from 35+ states; practices range in size from solo nurse practitioners to 10+ clinicians		Physician Micro Systems, Inc., (an electronic medical records vendor) and Practice Partner Research Network (PPRNet), a consortium of primary care doctors, PMSI & MUSC

TABLE A.2 *(continued)*

Grantee Organization & Principal Investigator (PI)	Research Organizations	National/State Provider & Professional Associations	Health Care Organizations and Practitioners	State/Local Government Agencies	Other
18. Research Triangle Institute PI: Lucy A Savitz	RTI		5 large health systems: University of Pittsburgh Medical Center (UPMC) Health System; Providence Health System; Intermountain Health Care; UNC Health Care; and Baylor Health System		
19. Texas A&M University Health Sciences Center, Rural and Community Health Institute (RCHI) PI: Josie R Williams	Texas A & M University Health Sciences Center: 1) Rural & Community Health Institute (RCHI), and 2) Healthcare Evaluation Inst.		Texas Department of Health, Region 8 12 small rural hospitals in TX (part of TX A & M/RCHI network)	Texas Dept of Health, State Epidemiology Office Michigan Department of Public Health	US Air Force, Texas Center for Medicald Strategy Training and Readiness (TC-Medstar)
20. Visiting Nurse Service of New York, Center for Home Care Policy and Research PI: Penny H Feldman	VNSNY, Center for Home Care Policy and Research		8 home health agencies in 7 states for the diabetes collaborative 69 home health agencies for the ReACH collaborative		10 QIOs for the ReACH collaborative

TABLE A. 3

PFQ PROJECT EVALUATION APPROACHES AND MEASURES

Grantee Organization and Principal Investigator (PI)	Evaluation Approach	Measures
1. Altarum Institute PI: George J. Miller	Evaluation of the tool by partners via assessment of the face validity and utility of the model's structure, clinical protocols, and outputs. Project was evaluating alternatives for responding to bioterrorist events by simulating these alternatives in the model.	
2. American Academy of Pediatrics (AAP) PI : Carole M. Lannon, Center for Health Care Quality, Cincinnati Children's Hospital Medical Center	Quantitative measures of ADHD disease management processes, comparing treatment group (eQIPP-enrolled and participating in AAP training/support) with controls (enrolled only in eQIPP) at baseline and follow-up points Comparison of QI activities in treatment and control practices Qualitative study of factors contributing to AAP chapters' ability to develop and sustain QI	% of charts demonstrating target level of care for 7 ADHD dx and rx components Frequency and participation in QI activities for the two types of practices
3. American College of Physicians (ACP) PI:Vincenza Snow	Pseudo-randomized trial comparing pre-and post measures or indicators from experimental practices (those receiving practice-based, team-oriented CME training) to control practices (same training but at a later time) Qualitative evaluation to elicit experiences of the practice teams and determine most useful aspects of the program.	Patient outcome and practice patterns: process of care and clinical indicators from 15 enrolled diabetes patients in each practice at baseline, during intervention and post-intervention Patient satisfaction, pre-post levels Practice team experiences: pre-post levels of team collaboration

Table A.3 *(continued)*

Grantee Organization and Principal Investigator (PI)	**Evaluation Approach**	**Measures**
4. American Hospital Association (AHA), Health Research and Education Trust PI : John R Combes	Compare baseline data from 3 initial learning labs to post-program data from 6 learning labs on length-of-stay, patient and family satsifaction, and financial measures # of new hospital-based palliative care units created or enhancements to existing units as a result of visits to learning labs Hospitals participating in visits to learning labs surveyed before and after their visits on the range of palliative care services offered, and on whether learning objectives for the visit were met.	Baseline clinical and financial information Patient/family satisfaction measures with palliative care were not collected 6-month post visit reports of value of training, lessons learned, and new or enhanced services developed
5. American Medical Association (AMA) PI: Karen S. Kmetik	Process evaluation to assess project progress, and impact, of the two models for electronic data transfer of physician care practicese; success of the rollout and sustainability on a large scale over time; and generalizability of the models to other chronic conditions.	Changes in AMA-developed process of care performance measures for diabetes, CAD and major depressive disorder in participating physician practices
6. American Medical Directors Association (AMDA) PI: David F. Polakoff	Compare process of care and clinical measures at baseline with those at 9 and 15 months post-intervention; randomized each participating NF to one of the two clincial practice guidelines to serve as cross-controls ("nested") Clinical practice guideline implementation experiences of participants	Process of care and clinical outcomes for pain management and pressure ulcers in nursing facilities that participated # of staff and amount of staff time spent on implementation, participation in each component of implementation process
7. Association of California Nurse Leaders PI: Nancy Donaldson, CalNOC & UCSF School of Nursing	Compare baseline and post-intervention patient outcome measures in participating med-surg units in the 35 intervention hospitals to non-participating units in the same hospitals. Qualitative assessment of implementation progress.	Falls per 1000 patient days Falls with injury/1000 patient days Coaching processes milestones, linker and learner feedback.

Table A.3 *(continued)*

Grantee Organization and Principal Investigator (PI)	Evaluation Approach	Measures
8. Catholic Healthcare Partners (CHP) PI: Donald E. Casey	Quasi-experimental design: tracked pre- and post-intervention process of care measures for patients with heart failure, and compare these measures in participating and non-participating hospitals in 6 CHP regions. Track intervention implementation progress in participating hospitals and assess effectiveness of HF GAP Clinical Advocates in influencing the measures. Assess effectiveness of the CHP HF GAP Partnerships (system-wide and regional)—I.e. synergy, level of involvement, etc. using tool created by PFQ subcommittee on evaluation	4 HF inpatient performance measures: ACE inhibitor prescribed at discharge, LVEF assessment, smoking cessation counseling and appropriate discharge instructions 30 day "all cause" readmission rates for patients with an index admission for DRG 127 Appropriate use and dosage of beta-blockers & ACE inhibitors prescribed in outpatient settings Appropriate identification & referral of chronic HF patients to palliative or hospice care at or near the end of life Participation rates by cardiologists and primary care MDs in office-based QI activities Successful negotiation of P4P incentives on above
9. Child Health Corporation of America (CHCA) PI: Paul J. Sharek, Stanford University School of Medicine & L Packard Children's Hospital	Monitor process of care measures for targeted pediatric conditions in participating hospitals, and compare measures of compliance against AHRQ Hospital Patient Safety Best Practices	
10. Connecticut Department of Public Health PI : Louise Dembry, Yale-New Haven Health System & Yale School of Medicine	Quasi-experimental design comparing short and long-term knowledge of bioterrorism preparedness among physicians taking the course (N=41) and a control group (those eligible to take the course at a later time) (N=51)	Measures of knowledge of course content before the course, immediately after (only for those taking the course), and 6-months after the course was administered.
11. HealthFront PI: Michael Callahan	Assess the degree of "horizontal alignment" among purchasers, plans and government agencies within a region in their use of payment incentives, e.g. P4P, tiered networks to accelerate adoption of best practices	Proportion of total insured population that is subject to "aligned incentives" in the plans that use them.
12. International Severity Info Systems, Inc. PI: Susan Horn	Assessment of baseline and follow-up data on clinical, utilization and operational measures in participating nursing facilities, as well as staff-related measures Qualitative assessment via focus groups and interviews of how the intervention supports use of best practice protocols in study units, integrates into daily workflow, achieves process efficiencies & gains user acceptance.	Pressure ulcer incidence acquired in and out of the facility; hospital admissions, ER visits, # of forms used before and after intervention, annual turnover rates, staff satisfaction.

Table A.3 *(continued)*

Grantee Organization and Principal Investigator (PI)	Evaluation Approach	Measures
13. Joint Commission for Accreditation of Healthcare Organizations (JCAHO) PI: Jerod M. Loeb	Project's outcomes were not the subject of its evaluation; it planned to evaluate the success of the project by comparing the goals and objectives accomplished against those outlined in the proposal.	
14. The Leapfrog Group PI: Suzanne Delbanco	Measure the impact of payer use of incentives to promote the use of higher quality hospitals on employees' choice of hospitals and hospital adoption of recommended patient safety practices; one of the 6 sites measured employees use of hospitals pre and post incentive program, comparing employees subject to the incentives with those not affected	- Employee admissions to hospitals that do or do not meet Leapfrog patient safety standards. - Hopsitals applying for and meeting standards in the pilot communities
15. Lehigh Valley Hospital and Health Network PI: Mark Young, later Kenneth D. Coburn	Monitor diabetes process-of-care measures and selected patients' clinical lab scores in participating physician practices at baseline, 6 months and 12 months post intervention. Six-month reports to each practice included their own process performance data and the latest ABC benchmarks for all practices.	Process: % of MDs screening for HbA1c, lipids and micro-albuminariuria Clinical: blood pressure, lipid levels, cholesterol, triglycerides, hemoglobin
16. New York State Dept Of Health PI: Suzanne Broderick/Beth Dichter	Quasi-experimental design with 2 intervention groups and 1 control group, comparing pre-post measures for all 3 groups. One intervention group had only provider staff trained; the other had both provider staff and surveyors trained.	-Implementation: % of residents receiving the interventions; other measures of the degree to which facilities and staff implemented the interventions -Clinical measures: falls, hospitalizations, weight loss and incontinence
17. Physicians Micro Systems, Inc. PI: Steven M Ornstein, Medical University of South Carolina	Monitor changes in physician adherence to clinical practice guidelines for 73 clinical indicators grouped into 8 areas among the 100 practices participating in the project, and track change in physician practices participating. Will also conduct in-depth case studies of 10 practices	Summary Quality Index: % of processes and outcomes that are up-to-date or under control for a given patient or practice; and a Diabetes Care Summary Quality Index
18. Research Triangle Institute PI: Lucy A Savitz	Assess partnership strength and synergy created by the partnership in diffusing evidence-based practice	
19. Texas A&M University Health Sciences Center, Rural and Community Health Institute (RCHI) PI: Josie R Williams	Project outcomes were not evaluated, other than its progress in improving hospital and public health systems' ability to respond to bioterrorism events and disasters.	

Table A.3 *(continued)*

Grantee Organization and Principal Investigator (PI)	Evaluation Approach	Measures
20. Visiting Nurse Service of New York, Center for Home Care Policy and Research PI: Peny H Feldman	Process evaluation to assess the progress and success of initial collaborative and its feasibility as a vehicle for quality improvement. CEO & staff surveys of implementation experiences, perceptions of value, etc. Monthly chart review tracking of clinical measures for diabetes care and control and hospitalization rates for participants in the ReACH project.	CEO & team perceptions of value; Org. implementation measures Indicators of spread beyond pilot group and sustainability Clinical measures for glycemic control, foot care & medication management Average agency-wide hospitalization rates

APPENDIX A.4

PFQ GRANTS - REACH: TARGET POPULATION/ORGANIZATIONS AND NUMBER PARTICIPATING IN PFQ PROJECT

	Target Population		Participating Organization, Providers & Patients		
Grantee Organization and Principal Investigator	Number	Type	Number Planned	Number Actual	Type
1. Altarum Institute			300,000	Not specified	Patients in the simulation
PI: George J. Miller			500		Practitioners in the simulation
			6		Hospitals
2. American Academy of Pediatrics (AAP)	3,100,000	children with ADHD	160-180	186	Pediatric practices
			10	10	AAP state chapters (59 total)
PI : Carole M. Lannon, Center for Health Care Quality, Cincinnati Children's Hospital Medical Center			2000	Not specified	Pediatricians
3. American College of Physicians (ACP)			384	Not specified	Patients
PI:Vincenza Snow			36	35	Physician practices
			352	Not specified	Physicians
			180	Not specified	Nurses
4. American Hospital Association (AHA), Health Research and Education Trust PI : John R Combes			100	60-70	Hospitals
5. American Medical Association (AMA)			200		Patients in pilot
PI: Karen S. Kmetik			10	9 + 3 more large practices in test	Physician practices in pilots
			4		Health plans
6. American Medical Directors Association (AMDA)			50	54	Nursing Facilities (14 dropped out)
PI: David F. Polakoff	500,000	NF patients	5000	Not specified	NF patients
			500-1000	Not specified	Practitioners in pilots

TABLE A.4 *(continued)*

Grantee Organization and Principal Investigator	Target Population		Participating Organization, Providers & Patients		
	Number	Type	Number Planned	Number Actual	Type
7. Association of California Nurse Leaders			30-35	35	Hospitals
PI: Nancy Donaldson, CalNOC & UCSF School of Nursing			100	91	Med-surg acute care units
8. Catholic Healthcare Partners (CHP)			4	6	Hospitals in participating regions (31 total in system)
PI: Donald E. Casey			33,492		FTEs in affiliated hospitals
			8,926		Affiliated MDs
9. Child Health Corporation of America (CHCA)			14	33	Children's hospitals—33 of 42 participated in at least one QI project
PI: Paul J. Sharek, Stanford Univ. School of Medicine & L Packard Children's Hospital					
10. Connecticut Department of Public Health			4	1	Hospital and its affiliated physicians
PI: Louise Dembry, Yale-New Haven Health System & Yale School of Medicine			Not specified	91	Clinicians
11. HealthFront			2	2	State/regional employer coalitions
PI: Michael Callahan			2	2	Physicians in the regional health care markets
12. International Severity Info Systems, Inc.			>8	12	Nursing facilities (1 dropped out)
PI: Susan Horn					
13. Joint Commission for Accreditation of Healthcare Organizations (JCAHO)			285	575	Hospitals responding to survey
PI: Jerod M. Loeb			90	490	CHCs responding to survey
14. The Leapfrog Group			6	6	Purchaser groups in 6 markets
PI: Suzanne Delbanco			100	Not specified	Hospitals

TABLE A.4 *(continued)*

	Target Population		Participating Organization, Providers & Patients		
Grantee Organization and Principal Investigator	Number	Type	Number Planned	Number Actual	Type
15. Lehigh Valley Hospital and Health Network			3000		Patients with diabetes
PI: Mark Young, later Kenneth D. Coburn			8	10	Primary care practices
			18		Primary care physicians
16. New York State Dept Of Health			2,700	Not specified	Nursing home residents
PI: Suzanne Broderick/Beth Dichter			740 – 2,600	Not specified	Adult Care Facility residents
			45	45	Nursing homes[a]
			30-105	21	Adultcare facilities[a]
17. Physicians Micro Systems, Inc.	up to 1,000,000	patients in participating practices	100	125 total (but 99 >1 year)	Primary care practices
PI: Steven M Ornstein, Medical University of South Carolina	847,073	patients in participating practices	300-500	600	Primary care practitioners
18. Research Triangle Institute			4	5	Health systems
PI: Lucy A Savitz			14,000		Clinicians
19. Texas A&M University Health Sciences Center, Rural and Community Health Institute (RCHI) PI: Josie R Williams			2	2	Regional health district offices
20. Visiting Nurse Service of New York, Center for Home Care Policy and Research PI: Penny H Feldman			8	8	Home health agencies

[a]Some of the planned and actual participating facilities included those in control groups

APPENDIX A.5

PFQ GRANT OUTCOMES

Grantee Organization and Principal Investigator (PI)	Reported Changes in Care Delivery Processes or Provider Practices	Reported Changes in Patient Outcomes (clinical indicators, functional status or health status)	Other Reported Outcomes
1. Altarum Institute PI: George J. Miller	NA	NA	Provided information useful to public health officials in planning for, and reducing demand for medical care in the event of a smallpox outbreak. Also validated the use of a model for estimating casualties and disease spread during outbreaks.
2. American Academy of Pediatrics (AAP) PI : Carole M. Lannon, Center for Health Care Quality, Cincinnati Children's Hospital Medical Center	*Results not yet available as of 8/06 for the following measures:* *- % of charts demonstrating target level of care for 7 ADHD dx and rx components*	Not measured; previous research established effectiveness of providing care in accordance with ADHD guidelines on better outcomes	*Results not yet available as of 8/06 for the following measures* *- Frequency and participation in QI activities for the two types of practices*
3. American College of Physicians (ACP) PI:Vincenza Snow	*Results not yet available as of 8/06 for the following measures:* *- process of care indicators, e.g. eye and foot exams, flu vaccines, from 15 enrolled diabetes patients in each practice at baseline, during intervention and post-intervention*	*Results not yet available as of 8/06 for the following measures:* *- clinical indicators, e.g. blood pressure, % patients with LDL < 100 mg/dL, etc. from 15 enrolled diabetes patients in each practice at baseline, during intervention and post-intervention* Early pilot program with 4 practices showed 75% of patients' blood pressure levels improved from baseline, and 50% achieved their target BP goal.	85% of experimental practices participated in entire training program Training improved team collaboration by helping non-physician practice staff become more integrated in care process Program spurred workflow changes (e.g. new forms and databases) to improve care of diabetes patients Experience prompted AMA and ANA to award CME credit for participating in practice-based training

TABLE A.5 *(continued)*

Grantee Organization and Principal Investigator (PI)	Reported Changes in Care Delivery Processes or Provider Practices	Reported Changes in Patient Outcomes (clinical indicators, functional status or health status)	Other Reported Outcomes
4. American Hospital Association (AHA), Health Research and Education Trust PI : John R Combes	*Results not yet available as of 8/06 for the following measures:* *- length-of-stay and financial/cost information for 3 initial learning labs' palliative care units*	NA	60-70 hospitals visited learning labs over the course of the project – *but not yet known how many established newpalliative care units or enhanced existing units.*
5. American Medical Association (AMA) PI: Karen S. Kmetik	NA	NA	Lessons on integrating perfomance measures into different types of electronic health record systems used in ambulatory care practices and data export issues/challenges
6. American Medical Directors Association (AMDA) PI: David F. Polakoff	*Results not yet available as of 8/06 for the following measures:* *- Process of care indicators for pain management and pressure ulcers in nursing facilities that participated*	*Results not yet available as of 8/06 for the following measures:* *- clinical outcomes for pain management and pressure ulcers in nursing facilities that participated*	*Results not yet available as of 8/06 for the following measures* *- # of staff and amount of time spent on implementation, participation in each component of implementation process*
7. Association of California Nurse Leaders PI: Nancy Donaldson, CalNOC & UCSF School of Nursing	NA	Preliminary analysis indicates no significant change in mean falls and falls with injury/1000 patient days between the pre and post period for participating units, nor were the changes significantly different between participating and non-participating units. But falls/1000 patient days in participating units were "trending" (downward).	3-year period needed to implement interventions may be too long in view of most hospitals' single-year budget horizon.

TABLE A.5 *(continued)*

Grantee Organization and Principal Investigator (PI)	Reported Changes in Care Delivery Processes or Provider Practices	Reported Changes in Patient Outcomes (clinical indicators, functional status or health status)	Other Reported Outcomes
8. Catholic Healthcare Partners (CHP) PI: Donald E. Casey	Preliminary data indicates that patients under care of HF Advocates have fewer hospital re-admissions, lower 30-day all-cause readmission rate, and longer time between re-admissions than those not under care of HF Advocates. Performance in 4 HF core measures have improved over the 4-year project period; CHP composite score = 95%. Final data not yet available as of 8/06.	NA	Increased referrals to palliative care and hospice. Improved document and coding by 20%.
9. Child Health Corporation of America (CHCA) PI: Paul J. Sharek, Stanford University School of Medicine & L Packard Children's Hospital (member of CHCA)	Results from preliminary data analysis of the hospitals that participated in the project to reduce adverse drug events (ADE) related to narcotics showed a decrease from 39.1 to 17.1 ADEs per 1000 narcotic doses, a 49% reduction. 12 sites that implemented measures to improve communication during transfers the ER and inpatient units improved pediatric patient safety as manifested by fewer duplicate or missed medications & lab tests, and incorrect or absent infection control information.	Preliminary data shows lower infection rates in several sites; overall bloodstream infection (BSI) rate for all 29 participating hospitals decreased from 6.9 to 4.8 per 1000 line days, a 31% drop (statistically significant); 11 hospitals decreased catheter-associated bloodstream infection (CABSI) rates more than 50% and an estimated 112 CABSIs were avoided.	The CHCA pediatric trigger tool identified 22 times more adverse drug events than traditional reporting mechanisms (i.e. incident reports). Savings from the ADE collaborative, in which 662 ADEs were prevented, was between $1.7 and $3.1 million depending on the whether these ADEs were "not preventable ($1.7 million) or "preventable" ($3.1 million) using the cost data provided by Bates et al. 1997.

TABLE A.5 *(continued)*

Grantee Organization and Principal Investigator (PI)	Reported Changes in Care Delivery Processes or Provider Practices	Reported Changes in Patient Outcomes (clinical indicators, functional status or health status)	Other Reported Outcomes
10. Connecticut Department of Public Health PI : Louise Dembry, Yale-New Haven Health System & Yale School of Medicine	NA	NA	Physicicans taking the bioterrorism preparedness course had a statistically significant increase in knowledge from pre-test to immediate post-test mean exam scores (67.4 to 77.2) , while those of the control group did not significantly change (56.6 to 55.6). However, long-term FU scores among MDs taking the course declined almost to the baseline score mean (64.4).
11. HealthFront PI: Michael Callahan	NA	NA	Survey of medical groups and physician practices to understand their acceptance of and response to quality incentives showed that physicians are uncertain and wary of them.
12. International Severity Info Systems, Inc. PI: Susan Horn	*Results not yet available as of 8/06 for the following measures:* *- hospital admission and ER visits*	Preliminary findings showed reduction in pressure ulcer incidence for all patients and for high-risk patients in all participating facilities; six of 11 facilities were below the national average – which did not decline over the project period.	# of forms used in each facility for documenting patient status has declined in all facilities; data for QI is now available in "real-time" and reviewed at least weekly.
13. Joint Commission for Accreditation of Healthcare Organizations (JCAHO) PI: Jerod M. Loeb	NA	NA	**Performance measurement**: Hospitals' self-abstracted data on performance measures are statistically similar to third-party abstracts, rendering self-reports accurate enough for P4P purposes. Preliminary results show statistically signficant correlation between perceptions of the value of core measures, QI actions taken and performance, but may not be clinically meaningful. **Bioterrorism preparedness**: The majority of hospitals responding to the survey conduct "basic readiness" drills and planning, but are not well linked to public health and community health care entitites.

TABLE A.5 *(continued)*

Grantee Organization and Principal Investigator (PI)	Reported Changes in Care Delivery Processes or Provider Practices	Reported Changes in Patient Outcomes (clinical indicators, functional status or health status)	Other Reported Outcomes
14. The Leapfrog Group PI: Suzanne Delbanco	NA	NA	In one pilot site (Boeing) rigorously evaluated, program did not have any significant effect on consumer choice of hospitals; physician referral proved to be a stronger determinant. Overall, project increased knowledge and tools for creating successful incentive and reward programs.
15. Lehigh Valley Hospital and Health Network PI: Mark Young, later Kenneth D. Coburn	Preliminary data showed increases in % of MDs screening for all appropriate tests and lower-performing MDs showed improved scores on ABCs	Patient lab scores showed statistically signficant improvement in all core clinical measures "corrected for regression to the mean"	Financial feasibility study of group visits found that 12-15 patients/group provides income comparable to routine office visits.
16. New York State Dept Of Health PI: Suzanne Broderick/Beth Dichter	NA	*Results not yet available as of 8/06 for the following measures: falls, hospitalizations, weight loss and incontinence*	Preliminary data indicates that many of the experimental facilities did not implement the interventions, despite having received training to do so.
17. Physicians Micro Systems, Inc. PI: Steven M Ornstein, Medical University of South Carolina	Preliminary mid-project results show the Summary Index Measure (% of eligible targets met for all 78 indicators, adjusted for patient complexity) rose from 33% at baseline (9/02) to 46% 3 and ½ yrs later ($p<.0001$); 6 condition-specific indices also had statistically significant improvements.	NA	Regression analysis suggests the practices attending a 2-day network meeting had greater improvements in the diabetes summary measures than those that did not.
18. Research Triangle Institute PI: Lucy A Savitz	NA	NA	Lessons and findings for strategies to support knowledge transfer within and across health systems.

TABLE A.5 *(continued)*

Grantee Organization and Principal Investigator (PI)	Reported Changes in Care Delivery Processes or Provider Practices	Reported Changes in Patient Outcomes (clinical indicators, functional status or health status)	Other Reported Outcomes
19. Texas A&M University Health Sciences Center, Rural and Community Health Institute (RCHI) PI: Josie R Williams	NA	NA	Findings from studies regarding: 1) use of bioterrorism funding on response readiness, 2) disease surveillance at the US-Mexican and US-Canadian borders and 3) rural hospitals' use of planning exercises and drills for emergencies.
20. Visiting Nurse Service of New York, Center for Home Care Policy and Research PI: Penny H Feldman	Clinical measures for diabetes care and control: chart review data showed improvement in the proportion of persons with diabetes receiving a comprehensive foot exam within 10 days of admission to home care, an increase of over 50 percentage points during the course of the project. Increases of over 30 percentage points, were also demonstrated for % of patients with an individualized glycemic control plan, % receiving education about foot care, and % whose medications reviewed for contraindications. Preliminary data suggests acute care hospitalization reduction of 2.5 percentage points agency-wide (31.5% to 29%)	30 percentage point increase in % of patients with blood glucose in target range most or all of the time 40 percentage point increase in % of patients testing their blood glucose according to their care plan most or all of the time	Majority of CEOs & clinical managers said that their agency's participation led them to revise they way they approach QI initiatives, and helped to identify changes that they intended to spread across the entire organization.

Note: Results that are expected, but not available as of 9/06 are in italics.

APPENDIX A.6

PFQ GRANT PROJECTS – SUSTAINABILITY AND DIFFUSION OF PROJECT INTERVENTIONS

Grantee Organization and Principal Investigator (PI)	Project Activities and/or Partnership will continue in Target Organizations	Further Diffusion of Project Interventions or Products
1. Altarum Institute PI: George J. Miller	Results integrated into one large community's emergency preparedness plans	NA
2. American Academy of Pediatrics (AAP) PI : Carole M. Lannon, Center for Health Care Quality, Cincinnati Children's Hospital Medical Center	6 of 10 AAP state chapters will continue collaborations with pediatricians on ADHD care improvement; 5 of 10 chapters will continue other QI projects of this type, some with new funding.	AAP hired full time staff to continue working with state chapters on quality improvement initiatives; AAP developing additional eQIPP modules.
3. American College of Physicians (ACP) PI:Vincenza Snow	Diabetes care process changes have become routine in some participating physician practices	ACP received funds to conduct 2 additional team-oriented practice-basd CME programs on diabetes and CVD
4. American Hospital Association (AHA), Health Research and Education Trust PI : John R Combes	Some of the teaching hopsital-based palliative care programs ("learning labs") may host scaled down site visits	NA
5. American Medical Association (AMA) PI: Karen S. Kmetik	Midwest Heart Specialists (MHS) and Northwestern University Medical Faculty Foundation will continue activities and participate in follow-on projects as well.	AMA and MHS launched a follow-on 3-year project, "Cardio-Health Information Technology" funded by AHRQ to spread the MHS model to 6 other physician practice sites in 4 regions using different EMR systems, and set up a data warehouse to create feedback reports and benchmarking on other performance measures for physician-directed QI. With another grant, AMA will work with MHS, Northwestern and 4 more sites with different EMR systems.
6. American Medical Directors Association (AMDA) PI: David F. Polakoff	NA	Not yet known
7. Association of California Nurse Leaders PI: Nancy Donaldson, CalNOC & UCSF School of Nursing	NA	Project team executed an agreement with the American Nurses Association to use the ANA National Database for Nursing Quality Indicators website to transform "live" coaching at sites into a self-directed on-line process through the NDNQI website

Table A.6 *(continued)*

Grantee Organization and Principal Investigator (PI)	Project Activities and/or Partnership will continue in Target Organizations	Further Diffusion of Project Interventions or Products
8. Catholic Healthcare Partners (CHP) PI: Donald E. Casey	5 of 6 participating CHP hospitals will continue funding the HF Advocate positions on their own	Formed the Ohio Heart Failure Coalition (OHFC) 9/05 to gain support and participation of more organizations in HF quality improvement activities in Ohio based on CHP HF GAP; HF Advocates are presenting at regional and national AHA "Get With the Guidelines" HF workshops.
9. Child Health Corporation of America (CHCA) PI: Paul J. Sharek, Stanford University School of Medicine & L Packard Children's Hospital	Expanded participation in CHCA performance improvement activities (from 14 to aall 42 members) will continue and be funded from regular CHCA revenues	CHCA website and conferences will be used to spread project results by making widely available the tools and resources created under the PFQ project
10. Connecticut Department of Public Health PI : Louise Dembry, Yale-New Haven Health System & Yale School of Medicine	NA	Bioterrorism preparedness course developed by the project is available on the YNHHS website; about 300 MDs have taken the course since 1/06, after the PFQ project ended
11. HealthFront PI: Michael Callahan	NA	Not yet known
12. International Severity Info Systems, Inc. PI: Susan Horn	Lasting care monitoring and planning documentation and workflow changes in all 11 participating facilities. Also, 7 of 11 participating facilities joined a new ISIS-led, AHRQ-funded Health Information Technology.	1 large NH chain and 1 large health system that had facilities participating in the project spread the new documentation model to other facilities (240 more NHs in the chain). New AHRQ HIT grant funding work with 6 QIOs and 30 nursing facilities to implement IT-based care planning tools.
13. Joint Commission for Accreditation of Healthcare Organizations (JCAHO) PI: Jerod M. Loeb	Bioterrorism/emergency preparedness survey instrument may be used as a "checklist" for hospital planning	NA
14. The Leapfrog Group PI: Suzanne Delbanco	All 6 pilot leaders will continue as members of Thee Leapfrog Group and participate in its Regional Roll-Out program, working with local stakeholders to implement the Leapfrog action plan in their region	Leapfrog used lessons from the pilot projects to refine the design of its Hospital Rewards Program.

Table A.6 *(continued)*

Grantee Organization and Principal Investigator (PI)	Project Activities and/or Partnership will continue in Target Organizations	Further Diffusion of Project Interventions or Products
15. Lehigh Valley Hospital and Health Network PI: Mark Young, later Kenneth D. Coburn	Diabetes care iinterventions remain in the 10 primary care practices that participated.	NA
16. New York State Dept Of Health PI: Suzanne Broderick/Beth Dichter	Some facilities say they integrated new practices learned in the training into standard practice.	NA
17. Physicians Micro Systems, Inc. PI: Steven M Ornstein, Medical University of South Carolina	PPRNet received additional grants, focusing on alcohol and cancer, to continue some performance measurement and QI activities. PMSI & MUSC jointly seek funds from participating practices to continue performance measurement activities.	PPRNet's goal is to grow by 25-50 practices per year; 4 related studies grew out of the project.
18. Research Triangle Institute PI: Lucy A Savitz	All 5 health systems participate in a new AHRQ-funded, RTI-led ACTION (applied research) project and some of the 5 participate in another AHRQ-funded, RTI-led DEcIDE project	NA
19. Texas A&M University Health Sciences Center, Rural and Community Health Institute (RCHI) PI: Josie R Williams	NA	Disaster preparedness training exercises used to train medical students and rural hospitals in TX
20. Visiting Nurse Service of New York, Center for Home Care Policy and Research PI: Penny H Feldman	Diabetes Collaborative appeared to have long-lasting effects on QI activities in the 8 participating home health agencies; 7 of the 8 continued in the ReACH collaborative	ReACH (Reducing Acute Care Hospitalization) Collaborative will continue until 8/07, under a grant from RWJF, involving 10 QIOs and 69 home health agencies around the US in implementing evidence-based home care practices to reduce hospitalizations.

Contract No.: 233-02-0086
MPR Reference No.: 6182-400

MATHEMATICA
Policy Research, Inc.

Evaluation of AHRQ's Partnerships for Quality Program

Appendix B

Final Report

December 20, 2006

Marsha Gold
Debra Lipson
Melanie Au
Katherine Gruene Segersten

Submitted to:

Department of Health & Human Services
Agency for Healthcare Research and Quality
Redland Technology Center, 1st Floor
540 Gaither Road
Rockville, MD 20850

Project Officer:
Charlotte Mullican

Submitted by:

Mathematica Policy Research, Inc.
600 Maryland Ave. S.W., Suite 550
Washington, DC 20024-2512
Telephone: (202) 484-9220
Facsimile: (202) 863-1763

Project Director:
Marsha Gold

APPENDIX B

SUMMARIES OF PFQ GRANTEE ACTIVITIES

Important Note

Content for grant summaries was drawn from a variety of sources, including: 1) grantee proposals, progress reports, and other grant-related documents; 2) information obtained in interviews with grant principal investigators and project partners, 3) updates on progress, outcomes, findings, and products provided by grant project leaders. Where grantee-produced documents clearly stated goals, activities, or outcomes, we used that text for the summaries. All grantee PIs or their staff had an opportunity to review the drafts of these summaries, and modify the text to ensure that it described their projects accurately.

CONTENTS

ALTARUM INSTITUTE B-5

AMERICAN ACADEMY OF PEDIATRICS B-11

AMERICAN COLLEGE OF PHYSICIANS B-17

AMERICAN HOSPITAL ASSOCIATION (AHA), HEALTH RESEARCH AND EDUCATIONAL TRUST B-23

AMERICAN MEDICAL ASSOCIATION B-27

AMERICAN MEDICAL DIRECTORS ASSOCIATION FOUNDATION B-33

ASSOCIATION OF CALIFORNIA NURSE LEADERS AND CALIFORNIA NURSING OUTCOMES COALITION B-37

CATHOLIC HEALTHCARE PARTNERS B-43

CHILD HEALTH CORPORATION OF AMERICA B-49

CONNECTICUT DEPARTMENT OF PUBLIC HEALTH (DPH) B-55

HEALTHFRONT B-59

INTERNATIONAL SEVERITY INFORMATION SYSTEMS, INC. B-65

JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS B-69

THE LEAPFROG GROUP B-75

LEHIGH VALLEY HOSPITAL AND HEALTH NETWORK B-81

NEW YORK STATE DEPARTMENT OF HEALTH B-85

PHYSICIAN MICRO SYSTEMS, INC. B-91

RESEARCH TRIANGLE INSTITUTE B-95

TEXAS A&M UNIVERSITY SYSTEM B-101

VISITING NURSE SERVICE OF NEW YORK B-105

PFQ GRANT SUMMARY
IMPROVING HEALTH CARE RESPONSES TO BIOTERRORIST EVENTS

Lead Organization:	Altarum Institute
Partner Team:	Altarum Institute, Michigan Center for Biological Information (MCBI), University of Michigan Department of Emergency Medicine; Texas Community Emergency Health Care Initiative (CEHI), University of Texas Health Science Center, Texas A&M University, US Army Medical Department Board, National Pharmaceutical Stockpile of the Centers for Disease Control and Prevention, various organizations within the two target communities.
Title:	Improving Health Care Responses to Bioterrorist Events
Topic Area:	Bioterrorism and emergency preparedness
Principal Investigators:	George Miller, PhD
AHRQ Project Officer:	Sally Phillips
Total Cumulative Award:	$397,835:
Funding Period:	9/2002–9/2006
Project Status:	Completed 9/29/2006

1. Project Description

Goals. The project planned to employ the Healthcare Complex Model (HCM), a simulation modeling tool, to plan for the care that victims would need from the acute medical delivery system following a bioterrorist attack. The project proposed testing the utility and validity of HCM in supporting bioterrorism readiness planning in both a rural and an urban health care network by estimating the demand for care by medical facilities.

Project goals expanded to include the development of another model, the casualty prediction model (CPM), which, using alternative assumptions about the public health response, would estimate the spread of disease following an attack. Both models were intended to assist community efforts to plan for medical care and public health responses, including such issues as staffing, supplies, and patient flow, in the event of bioterrorism attacks or other emergency, such as naturally occurring influenza outbreaks.

Activities and Progress

Year 1. Work on the grant did not begin until March 2003, halfway through the first project year, because of delays in AHRQ's release of funds to PFQ grantees. The project convened a series of meetings with partners to discuss HCM's capabilities and solicit their input on setting up and analyzing the rural scenario in which to deploy HCM. The project decided to model pneumonic plague for the first application and chose Smithville Hospital, a rural hospital in Bastrop County, Texas, as the setting. The project obtained and prepared population, clinical, and facility data (input data) for the rural scenario through its partnership with the Texas CEHI and with the cooperation of the Smithville Hospital staff.

The project used the data to create several model cases that investigated alternative response strategies for dealing with a plague outbreak. Such responses included augmenting the existing medical infrastructure with volunteers and state and federal assets, for example. The analysis of the first application of HCM activity showed that, even in a rural setting with a very small number of initially infected victims, early detection of an attack and subsequent aggressive response could result both in saving a significant number of lives and in significantly reducing the demand for scarce resources needed

to treat primary and secondary victims. The model and data that were developed for the rural setting in phase 1 could be easily extended to address issues of interest to planners in a specific community or to further general planning for rural hospital preparedness.

The HCM benefited from enhancements made in response to its use in the rural scenario. In particular, the project developed the CPM to serve as an input to the HCM and generate a patient/casualty stream that would impose demands on the acute care system in the model. Enhancements to HCM, including the addition of the CPM, were carried over to the second application of HCM in an urban setting in the second project year.

Year 2. For the second application of HCM, the project chose the San Antonio, Texas, area as the urban setting in which to simulate a terrorist-produced smallpox outbreak. It developed various options for the public health system to use to reduce the number of victims and for the acute care system to use to improve patient outcomes. The CPM and HCM were used to study several scenarios designed to determine the effects of early and aggressive attempts to immunize the population (mass vaccination) versus more deliberate and time-consuming tracing and immunization (ring vaccination). The project sought to closely integrate the functions of the CPM with those of the HCM so that they could improve their representation of the interrelationship between public health activities and the provision of acute care.

The project presented to public health and hospital officials in the San Antonio area what had been learned from the CPM model about the impacts of varying public health responses to a smallpox attack (including alternative vaccination programs, various actions to reduce the frequency of contacts between infective and susceptible individuals, and isolation of infective victims) on the magnitude of the patient stream arriving for treatment at medical facilities. One finding suggested that a policy of mass vaccination results in many fewer victims and a lower chance of an epidemic than does tracing and immunization alone. The HCM modeled the daily number of victims presenting for medical care, cumulative mortality, and demand for health care resources (e.g., demand for ICU beds) after a smallpox outbreak, given varying public health response measures. The model found that daily victims, mortality, and demand for healthcare resources tended to be lowest with the use of a mixture of public health measures rather than extensive use of a single measure. However, unless the attack was very small, these measures were unlikely to prevent a surge in demand for acute care that would require community-wide coordination of resources, a definitive patient triage policy, and temporary treatment practices.

Year 3. Activities in the third project year included a quantitative investigation of the benefits of improved surveillance on the ability to react to a smallpox attack; an analysis of the use of quarantine in response to a smallpox attack; and a validation study of the CPM. Early on, the project had established a partnership with Texas A&M, another PFQ grantee that was also doing bioterror work, and that partnership helped in gathering the input data for the study. The results suggested that early detection and response reduced the number of eventual victims, as mass vaccination reaches a larger percentage of the population before exposure. They also confirmed that initiating smallpox vaccination less than six days after the event had essentially no additional benefit, but that pursuing detection and response early enough to benefit the second generation of possible infections was necessary. In addition, the model found that a voluntary quarantine program as an adjunct to a ring vaccination program might dramatically decrease the total number of smallpox victims. The project also validated the CPM by configuring it to represent influenza and then showing it capable of producing values that are consistent with empirical data collected during epidemiology studies of populations experiencing an influenza outbreak.

Year 4. Since the project had already configured the CPM to represent influenza for the validation study, the project decided to modify the CPM to allow investigation of the impact of targeted vaccinations of public health workers and other first responders in the event of an influenza outbreak. Texas A&M University again assisted the project by providing input data. Results from the analysis showed the

importance of establishing a sufficient level of immunity in the first responder and health care worker subpopulations because of their high risk of contact with infective victims. Immunity in these subpopulations is important since the analysis showed that infection among them will adversely affect the ability of the community to respond to the epidemic. The project also cast doubt on the argument to establish immunity within these subpopulations prior to the epidemic, principally since small numbers of first responders and health care workers are involved. An ongoing effort involves investigating the effectiveness of other specific strategies to combat an influenza epidemic in San Antonio.

2. Partnership Structure/Function

Many of the people and organizations listed as partners in the project were consultants or advisors, lending their subject expertise in the development of the models (see table below). Communication between Altarum and these experts occurred as needed, increasing in frequency when models were being refined. Other partners listed, including CEHI, Texas A&M, and some of the target organizations, were actively involved in obtaining the data necessary to run the various simulations. Communication between Altarum and the two communities that served as the simulation settings—San Antonio and rural Bastrop County near Austin—were not regularly scheduled, but communication did increase while project was gathering information. The project also scheduled seminars and briefings in the San Antonio area to keep the community abreast of the project's work.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	The Altarum Institute	• Led the project, providing knowledge and expertise based on the company's history working with advanced informatics systems solutions and knowledge tools.
Key Collaborators	Texas Community Emergency Healthcare Initiative (CEHI)	• Helped to identify the setting and obtain input data for the rural scenario to be used in HCM • Served as a functional expert in reviewing model output
	Texas A&M University	• Provided input data for the influenza model and the representation of surveillance in the third and fourth project years
	Consultants: Michigan Center for Biological Information (MCBI) University of Michigan Medical Center Department of Emergency Medicine University of Texas (UT) Health Science Center U.S. Army Medical Department Board Centers for Disease Control and Prevention, National Pharmaceutical Stockpile	• MCBI served as functional expert on bioinformatics, biological warfare, and terrorism • University of Michigan served as functional experts in selecting the diseases to be investigated, identifying needed data, reviewing results for validity, and inferring useful observations • UT provided subject matter expertise to help develop the models and validate the models' assumptions; also provided public health contacts in the community • The Army Medical Department Board reviewed results and assisted with other contacts within the Department of Defense medical community. • Representatives of the National Pharmaceutical Stockpile provided a critique of the HCM.
Target Organizations	Two Communities: San Antonio - including representatives of Region 8 of the Texas Dept. of State Health Services, San Antonio Metropolitan Health District, Greater San Antonio Hospital Council, Southwest Texas Regional Advisory Council, Brooke Army Medical Center, and Wilford Hall Medical Center Smithville Hospital in Bastrop County, TX (near Austin)	• Provided settings and assisted in identifying associated data and assumptions for model simulations

3. Project Evaluation and Outcomes/Results

Altarum had been working with the HCM model prior to the AHRQ grant, using it for simulations in other contexts, including flow of patients in health systems, facilities planning, staffing, and telemedicine. The PFQ grant provided Altarum with an opportunity to continue this work and to test its utility for other simulation exercises.

The project successfully used its two models to provide information for bioterrorism planning in public health and in health care systems at the community level. One piece of information provided to the public health system in San Antonio was especially useful—that vaccinating 40,000 people a day (rather than the 270,000 the system had intended) in the event of a smallpox outbreak would be enough to control the epidemic. According to one respondent, this information helped the public health authority in San Antonio determine the number of vaccine distribution sites needed, and the correct number of sites is now in its plans. Other information provided by the smallpox simulation changed the public health authority's purchasing strategy for bioterror preparedness supplies. The authority decided to prioritize buying certain supplies (e.g., ventilators, isolations rooms, etc.) in hospitals and coordinated and standardized the equipment purchased at those hospitals. Beyond these two examples, it is unclear how much the communities that served as the locations for the simulations used the information from the study to make other practice or policy changes. However, the models and data that were developed for both the rural and urban settings can be extended to address issues of interest to planners in a specific community or to further planning for hospital and public health system preparedness. The project also validated the use of CPM for other disease outbreaks.

4. Major Products

- Miller, G., S. Randolph, and D. Gower. "Simulating the Response of a Rural Acute Health-Care Delivery System to a Bioterrorist Attack." *International Journal of Disaster Medicine*, vol. 2, 2004, pp. 24-32.
- Miller, G., S. Randolph, and J.E. Patterson. "Responding to Bioterrorist Smallpox in San Antonio." To appear in *Interfaces*, November-December 2006.
- Testimony at a Joint Meeting of the Senate Judiciary and House Veterans Affairs/Homeland Security Committees of the Michigan Legislature, October 2003.
- Presentations to the University of Texas Health Science Center, December 2003 and January 2005.
- Seminar at Case Western Reserve University, March 2004.
- Presentations at national meetings of the Institute for Operations Research and the Management Sciences, October 2004 and November 2005.
- "Modeling Public Health and Medical Treatment Responses to Smallpox and Influenza Outbreaks." Paper presented at the San Antonio and Austin Life Sciences Association Biodefense Summit, April 21, 2006.
- "Responding to Bioterrorist Smallpox in San Antonio." Paper presented as part of the Colloquium Series of the Management Science and Statistics Department, College of Business, University of Texas at San Antonio, April 25, 2006.
- Presentation at the U.S. Army Force Health Protection Conference, August 2006.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

After the grant ends, Altarum will continue working with both the HCM and CPM. The principal investigator hopes eventually to use the models to study a health system network representation of the spread of disease. The project's most recent work under the grant on targeted vaccinations is a step in this direction. Though the San Antonio community expressed interest, it has not committed any funds to continue the modeling work. Altarum believes that the U.S. Department of Defense (DoD), which has more resources to devote to planning for community disaster assistance, is a more likely source of funding for follow-up work, and it has initiated discussions with DoD agencies.

PFQ GRANT SUMMARY
PARTNERSHIP TO IMPROVE CHILDREN'S HEALTH CARE QUALITY

Lead Organization:	American Academy of Pediatrics (AAP)/ Center for Health Care Quality at Cincinnati Children's Hospital Medical Center (CCHMC) [Note: Grant shifted from the National Initiative for Children's Healthcare Quality (NICHQ) to AAP in June 2004.]
Partner Team:	AAP and CCHMC with an advisory board comprising American Board of Pediatrics (ABP), Children and Adults with Attention Deficit Disorder (CHADD), etc.; also 10 AAP state chapters and 186 local pediatric practices
Title:	Partnership to Improve Children's Health Care Quality
Topic Area:	Improve care for children with attention deficit hyperactivity disorder (ADHD)
Principal Investigator:	Dr. Carole Lannon, MD, MPH, Center for Health Care Quality, CCHMC
AHRQ Project Officer:	Charlotte Mullican
Total Cumulative Award:	$1,298,266
Funding Period:	9/02–9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. This project sought to improve care for children with ADHD by teaching physicians to use an interactive web-based Continuing Medical Education (CME) quality improvement tool called Education in Quality Improvement for Pediatric Practice (eQIPP). It did so drawing on the combined resources of a partnership among the CCHMC, AAP, ABP, and an advisory board of experts and related organizations, as well as state AAP chapters and pediatric practices. The project was designed to 1) improve pediatricians' adherence to evidence-based care guidelines for children with ADHD through a training program that taught physicians to measure their processes of care with an on-line tool; and 2) develop the capacity of local chapters of professional medical organizations to support members' improvement activities. AAP also wanted to gain recognition of this measurement-based CME program as qualifying for new ABP "maintenance of certification" requirements. If successful, the model would be used to address other health issues of children. Finally, the participating organizations hoped to learn more about the use of professional organizations to facilitate improvement at the practice level.

Activities and Progress. Year 1 of the project was spent on planning and development activities. Project staff established an advisory board, recruited and selected AAP chapters to participate in the first year of the intervention, finalized an evaluation plan and measures of success, and developed recruitment and training materials for AAP chapters and practices.

Prior to receiving the PFQ grant, the AAP developed an ADHD eQIPP module. An interactive tool for pediatricians that is available on-line eQIPP incorporates specific content education and teaches QI principles as applied to the content area. For this project, eQIPP helps physicians to assess their practices by having them answer 5-10 questions based on a review of at least 10 patient charts, and then provides feedback that allows them to evaluate their performance against relevant comparison measures and benchmarks. Physicians using eQIPP get CME credit and opportunities to track progress and monitor changes in practice over time.

In year 2, the project team (AAP/CCHMC) began technical assistance and ongoing support to the four selected AAP chapters. (Initially, the project team selected five AAP chapters but one chapter

deferred participation until the following year.) Each selected chapter was given $13,000 to use for additional staff, program costs, or other infrastructure needs. AAP chapters were responsible for recruiting pediatric practices to participate in this project. Once the practices agreed to participate, the AAP chapters helped them to enroll in eQIPP and work through the ADHD module to complete a "prework" assignment prior to a six-hour training workshop held by their AAP chapter. The participating practices used eQIPP to collect baseline performance measurements on their care for children with ADHD.

At the training workshop, the participants learned to 1) apply key change concepts in caring for children with ADHD; 2) identify essential components of a staged implementation plan for providing optimal care for this chronic condition; 3) plan strategies for difficult cases; 4) develop partnerships with parents, educators, and behavioral health providers and community groups; and 5) provide education and support for parents and families. The AAP/CCHMC project team provided guidance for each chapter's workshop preparation and led the quality improvement and measurement sessions at each workshop.

In year 3, the project team recruited an additional five AAP chapters and began the same series of training work with them (as well as with the chapter from year 2 that deferred participation). The project team also continued technical assistance to the original four AAP chapters and participating practices. In August 2005, the project held a one-day conference for AAP chapter presidents, just prior to the AAP Annual Leadership Forum, to highlight and share what chapters had learned about initiating local improvement efforts and supporting practices to improve care.

In year 4, the project team focused on completing the ADHD improvement efforts with the 10 AAP chapters. The team also refined its plans for evaluation and completed data collection efforts. In August 2006, the project team held a chapter leader workshop, bringing together 18 chapter teams, composed of AAP chapter leadership (executive director and physician champion) as well as local public health agency partners (such as state maternal and child health departments or Medicaid directors), in order to share lessons on how to build interest in QI, integrate QI into CME programs, and support the QI change process in practices. Public health agencies were invited because project directors believe that chapters were most successful in sustaining activities following the initial workshop when they partnered with such organizations.

2. Partnership Structure/Function

The principal investigator (PI) is located at CCHMC, although the grantee is the AAP[1]. The two organizations jointly comprise the core project team and together manage the project. They hold monthly conference calls and have worked as partners to coach the AAP chapters to recruit practice teams, prepare practice teams for the improvement workshops, plan and conduct the workshops, manage eQIPP enrollment and data collection, and support the development of the chapters' improvement infrastructure.

The CCHMC-AAP project team was divided into three subgroups: 1) improvement partnerships, to develop an ongoing improvement infrastructure and support AAP chapters in sustaining improvement work after the PFQ project, 2) curriculum development, to assess the ADHD workshop curriculum and review the ADHD toolkit and eQIPP modules, and 3) evaluation, to develop the measurement strategy, data collection tools, and workshop evaluations as well as to collect and compile monthly data from the

[1] The PFQ grant was originally awarded to the National Initiative for Children's Healthcare Quality (NICHQ), but shifted to the American Academy of Pediatrics in 2004, when the PI's center left that organization. The PI is currently located at CCHMC.

chapters and eQIPP data from the practices. Monthly conference calls are held between the advisory board and project team subgroups.

Monthly conference calls are also held between the CCHMC-AAP project team and the AAP chapters. These calls serve to coach chapter leaders in the recruitment of practices, help pediatricians with preworkshop preparation, plan the workshops, and coordinate with expert faculty.

Regular calls take place between the CCHMC-AAP project team, the AAP chapters, and the participating practices. For example, the CCHMC-AAP project team held calls in early 2006 to discuss topics of interest to the practices, such as CHAAD parent-to-parent training and mimickers of ADHD. In addition, the project team, chapters, and practices communicate with each other via the project's electronic listserv. Weekly, the CCHMC-AAP project team send a case study to the listserv and practices respond, ask questions, and/or share their experiences.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	American Academy of Pediatrics (AAP)/Center for Health Care Quality, Cincinnati Children's Hospital Medical Center (CCHMC) [Note: Original grant recipient was the National Initiative for Children's Healthcare Quality (NICHQ), but this shifted to AAP in 2004. The PI is based at CCHMC.]	• Provides overall leadership; coordinates communication between partner sites, and manages the project timeline • Coaches the AAP chapters to recruit practice teams, prepares practice teams for the improvement workshops, plans/conducts the workshops, manages eQIPP enrollment and data collection, and supports the development of the chapters' improvement infrastructure
Key Collaborators	Advisory board [Members include: AAP, American Board of Pediatrics (ABP), Children and Adults with Attention Deficit Disorder (CHADD), and the American Board of Medical Specialties (ABMS)]	• Provides counsel regarding challenges with implementation and facilitating communication, of project activities through various partnership channels.
Target Organizations	10 AAP state chapters (yr. 2: IN, MS, NM, VA; yr. 3: CT [deferred from yr. 2], FL, MD, OK, UT, WV)	• Recruit primary care practices to participate in project; organize and sponsor training workshops; offer technical assistance and training to practices
	186 pediatric care practices in the 10 states with participating AAP chapters	• Attend workshop, implement practice changes, and collect/report data using eQIPP

3. Project Evaluation and Outcomes/Results

The evaluation will address three major research questions: 1) Does the frequency and participation in improvement activities differ between practices enrolled in eQIPP alone and those enrolled in eQIPP with an AAP chapter support program? 2) Will appropriate disease management for ADHD improve across time for the treatment group? 3) What factors contribute to or inhibit a chapter's ability to improve and to sustain improvement?

The evaluation will not assess the impact of the program on patient outcomes because the link between the improved process of care delivery to children and better outcomes for children with ADHD has already been established.

As of March 31, 2006, 115 individuals had entered 1304 chart reviews (612 from year 2 and 692 from year 3) into unit 1 of the eQIPP program as part of the prework for the AAP chapter workshop. Final aggregate reports are being prepared. These reports will show the proportion of charts demonstrating the

target level of care for the seven components of diagnosis and treatment for ADHD by all participating practices and by participating practices in each chapter. A manuscript describing the findings based on this data is in progress (listed under publications).

As of March 31, 2006, 45 individuals had entered follow-up data from 498 chart reviews (299 from year 2 and 199 from year 3) into unit 4 of the eQIPP program. Final aggregate reports showing follow-up data will be provided to the chapter teams that reached the 50-chart minimum instituted by the AAP.

Interviews have been conducted with team members from all 10 participating chapters. The interview data will be used in the overall evaluation to measure progress toward project aims and will also help the AAP in planning future chapter supports for quality improvement efforts. A manuscript describing the results of the interviews is in progress (listed under publications). Interviews of AAP leaders will also be conducted in the final year of the program.

All participating physicians were surveyed about their experiences with the project and the eQIPP program. The survey was initially distributed electronically and then followed up with two mailings. Analysis of responses is under way.

4. Major Products

- Resource toolkit (more than 75 pages), based on evaluation results for AAP chapter leaders, containing guidance on getting started and making presentations, as well as information on basic QI methods, successful improvement activities from AAP chapters, and workshop materials (currently in development). Two copies of each toolkit will be provided to each chapter. In addition, the guide will be available on the AAP's website and updated regularly.
- Team members led a workshop, "From National to Local Improvement: A Multi-Faceted Intervention to Improve Care for Children with ADHD" at the NICHQ 5th Annual Forum for Improving Children's Healthcare in Orlando, FL, in March 2006.
- Two posters were presented at the Pediatric Academic Societies Annual Meeting in San Francisco, CA, in April, 2006***:*** "Partnership for Quality: Structured Support to Improve Care for Children with ADHD" and "Measuring Performance in Practice for the Care of Children with ADHD."
- An article entitled "Chapter-Based Collaborations Improving Care for Children" will be published in the *AAP News* in June 2005.
- At least four manuscripts are anticipated:
  - Lazorick, Suzanne, Virginia L.H. Crowe, Judith C. Dolins, and Carole M. Lannon. "All Improvement is Local: Evaluating the Use of an Innovative, Multi-Faceted Intervention by a National Professional Organization to Translate its Guidelines into Practice." Based on poster sessions at the Academy Health Annual Research Meeting and Child Health interest group, Boston, MA, June 27, 2005 and the NRSA Fellows meeting, Boston, MA, June 28, 2005; and a presentation at the AHRQ Translating Research Into Practice meeting, Washington DC, July 17, 2005.
  - Lannon, Carole M., Suzanne Lazorick, Judith Dolins, and Thaddeus Anderson. "Measuring Performance in Practice for the Care of Children with ADHD."
  - Lannon, Carole, Judy Dolins, Suzanne Lazorick, and Virginia L.H. Crowe. (manuscript in preparation for journal supplement, *Joint Commission Journal on Quality and Safety*, spring 2007).
  - Manuscript on practice changes in disease management as a result of participation in PFQ.

- Dr. Lannon discussed the PFQ project at three workshops at the AAP SuperCME meeting in Orlando, FL, April 29-30, 2004. In addition, Dr. Lannon outlined how the PFQ project can help residency-training programs meet the requirements of the ACGME competencies at the Association of Pediatric Program Directors meeting and at the Continuity Clinic Special Interest Group at the Ambulatory Pediatric Association.
- Dr. Lannon used multiple examples from PFQ in presentations to the AAP Annual Leadership Forum in August 2004 and the AAP Board of Directors, October 2004.
- At the AAP National Conference and Exhibition, November 1-5, 2003, Dr. Lannon presented a workshop: "Think Globally, Act Locally: Working with Chapters to Improve Quality of Care."

5. Potential for Sustainability/Expansion after PFQ Grant Ends

It is likely that this program will continue after the end of the grant. AAP has hired a full-time staff person whose responsibility is to continue working with the state chapters on quality improvement initiatives. Plans are under way to develop additional eQIPP modules. At the August 2006 meeting, planning for an ongoing learning network for chapters was begun.

Also, the AAP chapters participating in PFQ have continued and expanded work begun in the PFQ project. Three of these chapters are continuing with the ADHD project and four have formed new partnerships to improve care for children with ADHD. Six chapters have gone on to design or implement other quality improvement projects. Three of these have secured additional funding and five have developed new partnerships to conduct quality improvement projects. As a result of participation in the PFQ project, six chapters have made other specific changes to promote a quality improvement focus. For example, the New Mexico AAP chapter received other grant funds to develop a quality improvement program focusing on obesity prevention, in partnership with the University of New Mexico's Department of Pediatrics and the New Mexico Human Services Department.

PFQ GRANT SUMMARY
CLOSING THE GAP: PARTNERING FOR CHANGE

Lead Organization:	American College of Physicians (ACP)
Partner Team:	Northwestern University, Abington Memorial Hospital
Title:	Closing the Gap: Partnering for Change
Topic Area:	Process Continuing Medical Education to Improve Quality of Care
Principal Investigator:	Vincenza Snow, MD
AHRQ Project Officer:	Charlotte Mullican
Total Cumulative Award:	$848,736
Funding Period:	9/02 – 9/05 (project funds not released until February 2003)
Project Status:	Completed 9/29/06

1. Project Description

Goals. The aim of this project was to (1) develop and test a team-oriented, practice-based continuing medical education (CME) strategy that trains teams of doctors, nurses, and office administrators in how to improve quality of care and outcomes for patients with chronic diseases, and (2) design a business case that would help spread the adoption of team-oriented, practice-based CME by the ACP and other professional societies. The project team hoped to show that the new team-oriented, practice-based approach to learning would be a better way to promote physician adoption of clinical practice guidelines and improve quality of care for patients. The team also intended to establish this type of CME as a viable alternative to traditional CME, which is physician centered and based on passive learning. For this trial, the prototype CME learning strategy focused on educating physician practices on type 2 diabetes care.

Activities and Progress. In the first funding year (September 2002-September 2003), despite problems gaining IRB approval that delayed grant work by about six months, the project team established partnerships with key national stakeholders to create a project advisory board (see table for members). This group helped to design the education program and develop a training manual on learning collaboratives and a team-oriented toolkit for diabetes. Together, the training materials are called "Closing the Gap Diabetes Modules."

The project also recruited four ACP practices in Pennsylvania and Illinois to participate in the pilot test of the practice-based learning model for diabetes. The pilot test began in October of the second funding year (October 2003-September 2004). Each practice that participated in the pilot project chose a team composed of one doctor, one nurse, and one administrator to attend three training sessions over a six- to nine-month period. One session was held on each of the following: performance improvement, the Plan-Do-Study-Act (PDSA) cycle, and the fundamentals of the Chronic Care Model. During this time period, the teams returned to their practices to train other staff and implement the team-oriented diabetes toolkit, which included clinical, administrative, and patient tools intended to redesign practice workflow. In between the three training sessions, the primary program trainer, Dr. Kevin Weiss of Northwestern University, held two conference calls lasting two hours with the practices to keep them on track and guide them through operational changes. Information from the pilot practices' learning experiences, responses to barriers, and perceptions on how the team functioned differently informed revisions that the research team made to the trial intervention.

Following the pilot study, during the third funding year (October 2004-September 2005), the research team began to implement the pseudo-randomized trial intervention. The team successfully

identified and recruited 25 practices in Philadelphia (randomized into 13 intervention practices and 12 control practices) and 6 practices in Chicago (randomized into 3 intervention and 3 control practices) to participate in the study. Rather than conduct a true randomized trial, in which control practices would not receive training, the study design was changed to allow the control practices to receive the intervention as soon as the experimental practices completed the training program. This change was prompted by the insistence of one hospital system that had volunteered 25 internal medicine and family practices to the study and wanted all of them to benefit from it.

The first training session occurred in October 2004, and the intervention proceeded as it had in the pilot, except that the three full-day training sessions were reduced to one full-day and two half-day training sessions, and the training materials were revised to include only the most relevant and useful ones. The research team designed an evaluation to measure three sets of outcomes: (1) patient outcomes and practice patterns, (2) patient satisfaction, and (3) practice teams' perceptions of the program. To collect patient outcomes and practice pattern data, each practice (both experimental and control) enrolled 15 patients with diabetes and extracted data on HbA1C levels, blood pressure levels, blood glucose, and lipid control from patient charts three times during the study. The practices sent this data to the Data Coordinating Center at Northwestern, where it was cleaned, analyzed, and used to create reports for each practice on its patients' status at baseline, during the intervention, and afterward.

Data collection in the trial study was delayed by the slow pace of recruiting patients and extracting data from charts. By June 2006, however, the research team received all three rounds of data from the Philadelphia practices and about 80 percent from the Chicago practices. To collect patient satisfaction data, practices helped recruit patients with diabetes to participate in a telephone survey, which staff at Northwestern had planned to conduct three times during the study: before, during, and after intervention. However, because of problems enrolling patients in some practices, and errors in sending the correct consent forms to control groups in Philadelphia, the interviews were delayed. As of June 2006, the patient surveys were complete and researchers were analyzing the results.

2. Partnership Structure/Function

There were three levels of partnership in this project. The first involved ACP and Northwestern University, whose staff formed the core research team, including a project principal investigator from ACP and a co-investigator from Northwestern. This team spoke regularly and together designed the pilot test, the trial intervention, and the teaching materials. They also provided the training and support to practices, and collected and analyzed the data. The second partnership involved the ACP-Northwestern research team and the physician practices that participated in the pilot study and the trial intervention training programs. Practices had regular contact with Dr. Weiss at Northwestern, who provided them with ongoing technical support.

The third level of partnership involved the ACP-Northwestern research team and members of an advisory group, who provided input to the project's design and teaching tools (Institute for Heathcare Improvement [IHI], Institute of Chronic Illness Care [ICIC]), offered avenues to disseminate outputs from the project, and facilitated participation of practice-based health providers (American Medical Association [AMA], AHIP, American Nurse Association [ANA]). In the first year, the project had one in-person advisory board meeting at which members could cement relationships and reach agreement on a conceptual model of the team-oriented, practice-based diabetes prototype. The project also created working groups – one on the business case and another on implementation and barriers -- composed of advisory board members and other key partners. The project held mini-strategic planning teleconference calls with the working groups to develop different modules of the training program.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	American College of Physicians PI: Vincenza Snow, MD	• Provided overall leadership and direction to program; guided the design of CME intervention and training materials; developed and implemented training programs and developed evaluation plan on project impact; assessed opportunities for expansion and sustainability of project outcomes
Key Collaborators	Northwestern University Co-PI: Kevin Weiss, MD	• Guided design of CME intervention and training materials; provided training and technical assistance to participating practices; collected and analyzed data for pilot test and randomized control trial
	Institute for Healthcare Improvement Institute of Chronic Illness Care	• Participated in advisory board; assisted in developing training materials for practices (training manual on learning collaboratives – IHI; toolkit for diabetes – IHI and ICIC)
	American Medical Association and American Association of Health Plans	• Participated in advisory board; assisted in identifying opportunities for dissemination of project outcomes and sustainability of project activities
	American Diabetes Association and American Nurse Association	• Participated in advisory board; assisted in gaining participation from nurses by providing CE credit (ANA)
Target Organizations	Four practices from Pennsylvania and Illinois for pilot test (one was a Lehigh Valley practice in PA identified through another PFQ project) 31 practices (experimental and control); 25 in Philadelphia and 6 in Chicago for trial intervention	• Participated in team-oriented, practice-based diabetes CME prototype; attended training sessions; participated in conference calls; implemented changes to practice workflow based on training; performed data extractions and sent data to the Data Coordinating Center; recruited patients for patient satisfaction survey

3. Project Evaluation and Outcomes/Results

The project successfully created a set of diabetes training modules for practice-based teams; pilot tested the module with 4 practices; recruited 35 practices (4 for the pilot and 31 for the trial) and patients from those practices to participate in the randomized control trial intervention; and gathered clinical trial data. While the research team did not have information at the time this summary was written (September 2006) on the impact of the program on patient clinical outcomes or patient satisfaction, it did complete the qualitative evaluation of the practice teams' program experience and level of collaboration. The results showed that practices were willing to attend training in, learn from, and participate in the project's team-based learning model, in spite of the cost involved in sending three employees to training sessions. The trial intervention had about an 85 percent participation rate from the experimental group, with 15 percent (about one to two practices) showing inconsistent participation.

The research team evaluated the practice teams' experience and the level of team collaboration with a pre- and postintervention survey of the practices. Despite the intensity of this program, participants rated it highly, while at the same time complaining of the high intensity. Over the three training sessions, 94 percent of participants rated the program as "very good" or "excellent." But "very good" to "excellent" ratings dropped from 96.7 percent of participants for sessions 1 and 2 to 88.2 percent for session 3, possibly reflecting fatigue. When asked what was the most "eye-opening experience" for them,

participants rated "working as a team" as the highest followed by "interacting with the other teams," "learning improvement strategies," and "reviewing their charts." The first two relate to the in-person meetings, but the team interactions were also part of the conference calls and could be accomplished via an on-line community. Program participants rated the binder contents as most useful to learning, and within these, the care models, patient tools, and chart tools were of greatest value. They also rated the conference calls highly as a learning experience. Participants rated measuring their practice, progress reports on the conference calls, and patient satisfaction data as having the greatest impact on their ability to improve practice, followed by the binder materials and the learning sessions.

The project was found to be helpful to nurses and office managers. These practice staff indicated that the learning model helped to integrate them into the care process by opening up dialogue between physicians and staff. One physician practice noted that staff members felt a renewed sense of purpose because the project gave them tools for comanaging patients. Office managers often played a key role in the project at the practice level by keeping track of patients in the project.

The project established "face validity" for the learning model with physicians. Feedback and testimony from physicians were positive; some practices indicated that the program changed the way they practice by showing them the benefits of incorporating program tools, such as new forms and databases, into everyday workflow. For example, one practice introduced a scorecard that the nurse fills out with information on patient health status, diabetes care status, and instructions for self-care. The practice gives a copy of the scorecard to the patient and keeps a copy from which to enter patient data into its computer registry to track performance over time. Other practices made changes in office procedures, such as having nurses help patients take off their shoes as a reminder to physicians to check their feet, or instituted new patient education initiatives.

ACP and other organizations like the AMA and the American Board of Internal Medicine (ABIM) had positive reactions to the new CME model. Partly due to the success of the ACP project, which was part of an AMA pilot to test practice-based CME, the AMA decided to award 20 category 1 CME credits to physicians participating in practice-based programs like ACP's Closing the Gap, and ACP is now accredited to provide practice-based CME. In addition, ABIM now accepts participation in ACP's Closing the Gap as fulfilling part 4 of its requirements for Maintenance of Certification. The program was featured at an ABIM Quality Summit as a "premier project for the ACP in helping members achieve higher levels of quality care and become eligible for pay for performance projects" (ACP, Mid-Year Progress Report to AHRQ, June 2006). The ABIM considers Closing the Gap as the "gold standard" against which all other practice-based CME programs are measured. ANA also approved CE credit for nurses involved in the program. Finally, many ACP state and local chapters, which were initially hesitant to participate in the study, are now anxious to do so.

4. Major Products

- Closing the Gap Diabetes Modules, including a Manual on Learning Collaboratives for the practice teams, and a toolkit for diabetes care
- Summary report on the pilot test experiences and barriers
- Presentation of the project's experiences at the ACP's annual session in 2005
- News articles in ACP newsletters and electronic newsletters, distributed to 70,000 ACP members (see www.acponline.org/journals/news/may06/quality.htm)
- Patient data registries, scorecards, and other tools that practices created to track diabetic patients.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

ACP's Closing the Gap project led to larger projects that are further testing the team-oriented, practice-based learning model through follow-up pilots. The project has received funding from two pharmaceutical companies to conduct two more rounds of Closing the Gap training programs, one in diabetes (funded by Novo Nordisk for $9 million) and one in cardiovascular disease, with 20 practices in each group. Several physicians who received training in the initial study have become faculty for the new Closing the Gap programs and will teach the training sessions for new practices.

The research team is working to develop a sustainable business case and financing for the program. The two biggest costs to practices are those related first to measurement and workflow changes, and second to the time staff spends being trained. For ACP to expand this program, it also needs to find external funding. One option involves ACP's charging fees for the program, supplemented by contributions from local and state partners of ACP chapters. ACP is also considering ways to build the program into its internal budget and create its own data coordinating center, but this would also require external funding. Finally, researchers are considering the development of a web-based version of the program that would be less costly and time-consuming for physicians-- a "Closing the Gap 101" to teach the PDSA cycle – as a way to disseminate it more broadly. The more intensive training in this program would be the next step, a "Closing the Gap 102" that would concentrate on the practice improvement and measurement components.

PFQ GRANT SUMMARY
IMPROVING CARE FOR THE DYING: TRANSFORMING PATIENTS' WISHES INTO THE REALITY OF HIGH-QUALITY PALLIATIVE CARE

Lead Organization:	American Hospital Association (AHA), Health Research and Educational Trust
Partner Team:	Three Pennsylvania-based hospitals/hospital systems and four hospitals/hospital systems based outside Pennsylvania (national)
Title:	Improving Care for the Dying: Transforming Patients' Wishes into the Reality of High-Quality Palliative Care
Topic Area:	Palliative Care
Principal Investigators:	John Richard Combes, President and Chief Operating Officer, Center for Healthcare Governance, AHA
AHRQ Project Officer:	Ronda Hughes
Total Cumulative Award:	$1,282,703
Funding Period:	9/02–9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. This project sought to promote the establishment of hospital-based palliative care by creating centers of learning for other hospitals, and to accelerate the translation of research findings into improved quality and delivery of end-of-life care. In phase I, the project planned to establish three palliative care learning centers at Pennsylvania-based hospitals to host site visits by other hospitals interested in planning and developing similar palliative care units. In phase II, the project planned to expand the number of learning centers to hospital-based palliative care centers in other parts of the country, selected from among recipients of the AHA's Circle of Life Award.

Activities and Progress. The first six months were devoted to planning and developing the core curriculum of the site visits with the initial three learning centers in Pennsylvania: Geisinger Health System, Danville; Center for Palliative Care in Thomas Jefferson University's Department of Family Medicine and the Jefferson Health System, Philadelphia; and the University of Pittsburgh Medical Center.

Phase I began during the second half of year 1 and expanded into year 2. The project aimed for each of the three facilities to accommodate five site visits the first year and eight site visits per year for years 2 through 4, for a total of 29 site visits at each. During year 2, phase II began with the establishment of four national learning centers (Connecticut Hospice in Branford, CT; Detroit Receiving Hospital in Detroit, MI; Palo Alto VA in Palo Alto, CA; and St. John's Regional Health Center in Springfield, MO). The four were chosen among AHA Circle of Life Award winners and finalists, and represented different types of settings for palliative care (i.e., VA hospital, safety net hospital, Catholic hospital, and hospices).

The lead organization (initially Hospital and Health System Association of Pennsylvania) recruited hospitals or hospital systems to participate in site visits and matched up visitors with the learning centers. The learning centers contacted the hospitals to schedule the site visit and to conduct a preliminary needs assessment, in which staff members were interviewed to assess their unique clinical and community situation, areas of interest, and palliative care goals. During the visit, discussion was guided by the data gathered during these pre-site interviews. The learning centers tailored the site visit curriculum and schedule to the visitors' identified needs. After the site visits, the lead organization followed up with the

visiting hospitals to assess the effectiveness of the site visit and provide ongoing support and technical assistance.

As of early October 2006, approximately 60-70 site visits had been conducted. Site visits lasted a full day and were hosted by a team of professionals, including physicians, a palliative care project coordinator, nurse clinicians, hospital administrators, clergy, social service professionals, and volunteer coordinators. Members of the host organization team provided tours of the facility, supplemented by formal and interactive presentations. Each site visit included a presentation on how the research collected during the developmental stages in regard to challenges and successes was translated into improved palliative care services and procedures. The host team encouraged visitors to share their research findings and solicit approaches to translating them into successful practices. Discussions focused on how to ensure that systemic change, including policy change, occurred, and on how to create a supportive environment so that established palliative care services could be sustained. Host organizations shared data used for benchmarking, internal and external marketing strategies, reimbursement and funding challenges, outcome measurements, evaluation process, and views of how systemic change holistically influenced the delivery of health care within their organization.

2. Partnership Structure/Function

During the initial planning phase, the three Pennsylvania-based hospitals/hospital systems spoke with the principal investigator (PI) by phone every other week and in person once per quarter to build the site visit curriculum. The PI, project director, and seven learning centers (called "learning labs") did planning via conference calls held approximately every six weeks. These conversations provided the team with the opportunity to evaluate the effectiveness of the program process, brainstorm on continued marketing and training strategies, and continue group discussion and work on collaborative projects such as survey development and refinement of curriculum and site visits. In addition, member listserves, the Hospital-Based Palliative Care Consortium Hospital-Based Palliative Care Consortium website, and conference calls facilitated communication between the lead organization, participating hospitals, and learning labs.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Health Research and Educational Trust, AHA	• To provide overall project leadership • To identify and recruit learning labs • To develop core curriculum for the site visits and companion toolkit • To recruit participating hospitals (through websites, electronic newsletters, learning lab institution publications, and various meetings and conferences) • To develop assessment tools to evaluate the usefulness of the learning labs for the visiting/participating hospitals
Key Collaborators	Phases I and II: Palliative care programs in 3 PA-based hospitals and hospital systems [Note: By the end of the grant, one of the PA-based learning labs had dropped out of the program.]	• To assist in developing the core curriculum for the site visits and companion toolkit (Phase I hospitals/hospital systems only) • To conduct and assess pre-site-visit surveys filled out by the visiting hospitals/hospital systems • To coordinate and host site visits

Table 1 *(continued)*

	Organization	Role in Project
Key Collaborators *(continued)*	Phase II: Palliative care programs based at 4 hospitals and hospital systems (national)	• To respond to follow-up questions/inquiries from visiting hospitals
Target Organizations	Hospitals and hospital systems throughout the U.S.	• To complete pre-site-visit assessment • To visit learning labs and adapt evidence-based models of change to incorporate palliative care services into hospitals/hospital systems

3. Project Evaluation and Outcomes/Results

The program planned to evaluate its success according to the number of new hospital-based palliative care programs created in targeted hospitals,[2] and the number of enhancements made to current programs as a result of the training program. About 60-70 site visits had been completed at the time this summary was written (October 2006). Initially, the evaluation intended to measure outcomes such as reduced length of stay, patient and family satisfaction, and the financial effects of instituting hospital-based palliative care services. However, the learning labs were concerned about measuring patient satisfaction. Specifically, they felt that while those patients and families who participated in the palliative care program would report positive effects, patients and families who did not receive palliative care services might skew the results. As a result, the three Pennsylvania pilot hospitals serving as learning labs provided only baseline clinical and financial data prior to the initiation of phase I. During phase II, AHA-HRET staff surveyed state and national learning labs to evaluate the impact of the palliative care programs on these outcomes. These data will be compared to the baseline data collected from the three Pennsylvania-based learning labs prior to phase I.

In addition, AHA-HRET staff conducted followup with visitors approximately six months to one year after the site visit to explore whether expectations were met, what was learned from the visit, what new services were developed as a result, how services were functioning, etc. Project staff planed to analyze this information at the end of summer 2006 (as of October 2006, we were unsure if this was completed as scheduled).

The project has also produced less tangible but nonetheless important lessons. For example, many hospitals have been reluctant to adopt the program because revenues are reduced if people spend less time in the hospital, even though use and cost of inappropriate services are also decreased. One of the learning labs taught visitors how to capture allowable charges. The project also found that each set of stakeholders – hospital CEOs, CFOs, physicians, and nursing staff – have different concerns that need to be addressed to gain their support for a palliative care program.

4. Major Products

- "Back to School: A Unique Education Program Provides Hands-On Experience with Palliative Care." *Hospitals and Health Networks,* November 2004.

[2] A similar program, the Center to Advance Palliative Care (CAPC) at Mt. Sinai Hospital in New York, funded by the Robert Wood Johnson Foundation, used a similar approach to promote hospital-based palliative care programs. It targeted larger hospital systems and university-based hospitals, however, whereas this AHA-HRET program targeted smaller community hospitals, VA hospitals, and safety net hospitals. Also, CAPC charged hospitals to participate in its learning programs, while AHA-HRET did not.

- Implementation of Hospital-Based End-of-Life and Palliative Care. Poster presented at AHRQ's 2004 TRIP Conference, July 12-14, 2004.
- Recruiting-oriented presentations: American Academy of Medical Administrators, Boston, MA, November 2002; Partners for Quality, Rockville, MD, March 2003; Medical Advisory Board Lehigh Valley Hospice and Home Health, Allentown, PA, April 2003.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

While there is no funding in place for sustaining this project, it is possible that some learning labs will continue to host scaled-down versions of the site visits, if approached by hospitals/hospital systems. It is also possible that something may arise from AHA policy leaders', concerns about the disproportionate amount spent on end-of-life care, AHA leadership have discussed support for palliative care as a way to reduce that spending but have not taken any steps towards this, other than the Circle of Life Awards.

PFQ GRANT SUMMARIES
EFFECTING CHANGE IN CHRONIC CARE: THE TIPPING POINT

Lead Organization:	American Medical Association (AMA)
Partner Team:	Iowa Foundation for Medical Care (IFMC), Northwestern University, Cook County Bureau of Health Services, United Healthcare Group (UHC), Midwest Heart Specialists (MHS), Pittsburgh Regional Healthcare Initiative (PRHI) and others
Title:	Effecting Change in Chronic Care: The Tipping Point
Topic Area:	Improving care processes and outcomes for chronic conditions
Principal Investigators:	Karen Kmetik, PhD
AHRQ Project Officer:	Cynthia Palmer
Total Cumulative Award:	$1,211,074
Funding Period:	9/02–9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. The goal of this project was to achieve a "tipping point" in quality improvement in caring for patients with chronic illness—specifically adult diabetes, coronary artery disease (CAD), and major depressive disorder (MDD)—by advancing the widespread use of physician performance measures in various settings. The primary interventions/tools for the project are measures developed by the Physician Consortium for Performance Improvement, which is convened by the American Medical Association (AMA), and the National Diabetes Quality Improvement Alliance.

The project originally aimed to test two approaches to collecting data on physician performance. One would establish a regional data warehouse for pooling payer claims data (United, Blue Cross, and CMS) in the Pittsburgh area and allow physicians to retrieve the data to assess their own performance (the "Community Model"). The other involved the electronic transfer of data from physician offices and laboratories to a central data repository in the Midwest (the "Practice Model"). The project planned to examine the impact of the two models on improved care processes and outcomes, identify implementation issues and challenges, and determine what would be necessary both to roll out the models nationwide and sustain participation by key partners.

Activities and Progress

Year 1. In the first year, the project standardized the performance measures and tools for diabetes, CAD, and MDD, and began to pilot test two different models that could be used to provide physicians with performance measurement data at the point of care. The Pittsburgh Regional Healthcare Initiative (PRHI), one of the project partners, began to test the Community Model, which would compile data from health plans, laboratories, and a QIO to "pre-populate" a community data registry for physician retrieval. The Iowa Foundation for Medical Care (IFMC), another project partner, began to test the Practice Model, in which physician practices would generate data and send the information to a QIO or health plan for quality oversight purposes. Both models used the agreed-upon standardized performance measures.

PRHI secured the commitment of five primary care physician practices with a total of 111 physicians providing care to more than 250,000 patients to participate in the pilot test. PRHI met with practicing physicians, health plans, and laboratories to identify data capabilities and then secured preliminary agreements from some payers for integrating data from multiple sources into a regional community

database called the Pittsburgh Health Information Network (PHIN) overseen by the Pennsylvania QIO. Physicians would be able to access patient data stored in the registry in standardized reports.

IFMC secured the participation of four cardiology practices, a family medicine practice, and an internal medicine clinic; 79 physicians from the cardiology practices agreed to collect data for the CAD measures and 22 family practitioners, and 2 PAs and 3 internists agreed to collect data for the MDD measures. An assessment of the practices' current data capabilities found that the practices were at various stages of implementing electronic health record systems (EHRS). The four cardiology practices collected baseline data and initiated ongoing collection of patient data.

Year 2. In the second year, IFMC's arm of the project progressed; the practices that used EHRS successfully integrated the CAD performance measures into their systems. The paper-based practice sites struggled to integrate data collection into routine care, highlighting the significant advantage afforded to EHRS users in entering and retrieving treatment data, and in managing the care of patients. Based on this experience, the project decided to focus exclusively on the collection and reporting of data electronically, either using a data registry or the EHRS.

Year 3. Problems in implementing the PRHI community model that emerged in year 2 caused this component to be discontinued in the third project year. Project leaders failed to secure the participation of the University of Pittsburgh Medical Center Health Plan and CMS to contribute to the data warehouse because of legal concerns about data privacy. Without these vital sources of clinical data for the registry, the PHIN was not likely to be widely used in the community. In addition, the project did not have enough financial resources to build the health information network, technical problems emerged in its design, and doubt arose about the usability of the system by physicians.

While work on the Community Model ended, the project realized that expansion of the Practice Model would be needed to truly reach a "tipping point" in improving the care of patients with chronic illness. Thus, the project expanded its activities to (1) include more practice sites (e.g., community clinics) with different EHR systems, (2) demonstrate the validity of physician performance data collected, and (3) provide concrete examples of both the data extraction process from physician offices' EHRS and the exportation of the data to other private and public users.

Two new partners were brought on board to allow for this expansion in the project work. The project partnered with Cook County Bureau of Health Services to conduct a disease registry pilot to show how quality measures could be integrated into a commercial electronic disease registry system (DocSite) that would allow for data collection, monitoring and improvement of patient care, and provision of population-based feedback reports to participating physicians and clinics. Northwestern University came on as a partner to work on a data validity pilot to implement and validate heart failure (HF) measures for an existing commercial EHRS (EPIC). Midwest Heart Specialists (MHS), a large cardiology practice that was already involved in the project, worked with IFMC and United Healthcare (UHC) to begin a data export pilot that involved extracting data from an EHRS and exporting it to IFMC and UHC, using the HL7 file format which has been endorsed by HHS and CMS as the federal messaging standard.

Year 4. The final project year focused on publication of results from the performance measures testing, validation work, and other implementation efforts, as well as meetings to discuss the significance of the work and how it could be sustained through, for example, the AMA's Cardio-Health Information Technology (HIT) project.

2. Partnership Structure/Function

AMA served as the leader or convener for this partnership, which involved many different organizations over the course of the four-year project. Partners included payers (United Healthcare, CMS, and BCBSA), physician groups, a QIO, a community health care coalition, an employer health coalition, and a county-based system of ambulatory care clinics. AMA organized the partners' resources into one or more of the project components and contracted with some partners to support the work. AMA also convened all-partner meetings via monthly phone calls as well as annual in-person meetings to share progress reports and lessons learned. As the project progressed, all-partner phone calls continued to occur at least quarterly but have begun to taper off as project activities began to wind down and partners became involved in spin-off projects.

Of the initial project partners, PRHI and MBGH ended their involvement in the project either because their part of the work came to an end or the organization's priorities changed. United Healthcare, Northwestern University, and Cook County's Bureau of Healthcare Services came on as partners in later years of the project as work expanded.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	American Medical Association (AMA)	• Lead and coordinate the project, provide the evidence-based performance tools and interventions
Key Collaborators	Pittsburgh Regional Healthcare Initiative (PRHI) - ended participation when the Pittsburgh Health Information Network failed to become operational	• Regional partner that served as the lead for testing the Community Model; identified and recruited physician practices to participate in pilot testing
	Iowa Foundation for Medical Care (IFMC) (QIO for Iowa and other states)	• Regional partner served as the lead for testing the Practice Model; tested information tools for CAD and MDD; identified and recruited physicians practices to participate in pilot test; involved in data export pilot with MHS and UHC
	United Healthcare/Ingenix	• Involved in data export pilot with IFMC and UHC
	CMS and Blue Cross and Blue Shield Association	• "Connectors" to other organizations to promote dissemination grantee efforts
Target Organizations	3 ambulatory care practices or networks in the Chicago region: Midwest Heart Specialists (MHS); Northwestern University General Internal Medicine/Medical Faculty Foundation; Ambulatory and Community Health Network/Cook County Bureau of Health Services	• Participate in the pilot tests of information technology and tools to assess adherence to performance measures for chronic diseases

3. Project Evaluation and Outcomes/Results

The project learned through the Practice Model that getting physicians to use performance measures to improve care worked best in practices that had an existing EHRS. According to the RAND evaluation report after the third project year, AMA came to recognize that achieving a "tipping point" in advancing widespread use of physician performance measures requires (1) involving more practice sites in collecting data through different types of electronic health record systems, (2) demonstrating the validity of physician performance data that are collected, and (3) showing how the data extracted from physician office EHRS can be easily exported to a wide array of public and private users.

The interim RAND evaluation report, however, stated that the project's experience has not addressed some challenges faced by physician practices that want to take advantage of current technologies to measure their performance against AMA quality standards: (1) how to incorporate the Consortium's measures in physician office-based EHRS so that data on the measures can be generated by the system, and (2) exporting the data to a health plan or other party in a useable fashion. The evaluation indicated that the experiences of the three pilots—disease registry, data validation pilot, and data export pilot—are inconclusive on both these issues. However, physician offices and clinics using the Consortium's measures in EHRS and disease registries report that they have seen, at least to some degree, process improvements and positive patient outcomes. While these results cannot be definitively attributed to use of the Consortium's measures, the RAND evaluation concluded that it is reasonable to believe the measures had at least some positive marginal impact.

Individual results from the three pilot studies include:

- Data export pilot—After experiencing difficulty with the data format, MHS successfully transferred a data file with "dummy" clinical performance data. One of the organizations receiving the data viewed the pilot project as successful since it demonstrated the ability to export clinical performance data from an EHRS to a QIO. However, the other organization that received the data did not view the pilot project as positively due to the problems it encountered with the format of the data that was transferred, which made it less useful to them.
- MHS successfully integrated Consortium measures into home-grown EHRS and has begun to provide tracking reports from data collected on Consortium measures to practice physicians. Validity testing for the Consortium measures was ongoing and a manuscript of results was in development as of June 2006.
- Data validation pilot—The Northwestern team has been able to integrate Consortium measures into its commercial EHRS and generate performance data using HF measures and CAD measures. Northwestern has been focused on educating their physicians on how to document and enter patient information into the system and are working on process and workflow redesign. Eventually, they hope to provide physicians with performance reports. Northwestern's validation work has helped the AMA refine its sets of HF and CAD measures. Two papers on the results of the validation pilot have been written and submitted for publication.
- Disease registry pilot—Cook County has integrated the Consortium's asthma and the Alliance's diabetes measures in a commercial electronic disease registry. Participating ambulatory clinics have begun to use the measures to do population-based care management. While the measures have been fully integrated in the disease registry, inputting necessary data into the system remains a work in progress. The RAND evaluation indicated that the measures have positively impacted physicians in the nine participating primary care clinics. Many of the physicians report that the registry has helped them provide higher level of care, as evident in improving performance measures, decreasing number of patients in the high-risk group and increasing number of patients in the low-risk group. Cook County is working to link its disease registry in its ambulatory setting to its commercial EHRS in its inpatient setting.

Another important result of the project was a June 2006 meeting convened by AMA with 25 electronic medical record vendors, CMS, and a Northwestern co-investigator to discuss improvements that could be made to electronic health record systems and products, which would make it easier for physician practice use.

4. Major Products

- O'Toole MF, Kmetik KS, Bossley H, et. al. Electronic health record systems: the vehicle for implementing performance measures. *Am Heart Hosp J*. 2005; 3:88-93.
- Two papers written by Northwestern that have been submitted for publication
- A paper being written by MHS
- A paper being written by Cook County RAND's third-year evaluation of the project

5. Potential for Sustainability/Expansion after PFQ Grant Ends

The success of MHS in implementing the Consortium's CAD measures in an EHRS launched a follow-on project called "Cardio-HIT—Physicians Advancing HIT to Improve Care", which was also funded by AHRQ and led by the AMA and MHS. The three-year project plans to spread the MHS model to six other physician practice sites in four different regions, using different EHRS systems. The project hopes to establish a data warehouse to enable feedback reports and benchmarking to support physician-directed quality improvement. The seven practices will also work to integrate other Consortium measures into their systems. AMA also recently received a two-year grant from the Physicians Foundation for Health Systems Excellence, to continue working with MHS and Northwestern and add four more sites, each with different electronic record systems. Thus, the partnerships established between the AMA, Midwest Heart Specialists, and Northwestern will continue with these two projects.

PFQ GRANT SUMMARY
LONG TERM CARE QUALITY IMPROVEMENT PARTNERSHIP

Lead Organization:	American Medical Directors Association Foundation (AMDA-F)
Partner Team:	Quality Partners of Rhode Island; 20 national organizations represented in the National LTC Quality Coalition, and state or local chapters
Title:	Long Term Care Quality Improvement Partnership
Topic Area:	Improve implementation of AMDA Clinical Practice Guidelines for pain management and pressure ulcer reduction in long-term care (LTC) nursing facilities
Principal Investigators:	David Polakoff, MD, MSc, CMD, Senior Vice President and Chief Medical Officer, Genesis HealthCare Corporation. Co-PI is David Gifford, MD, MPH, formerly with Quality Partners of Rhode Island, the QIO support center for CMS' nursing home quality improvement initiative, and currently Director, Rhode Island Department of Health
AHRQ Project Officer:	Judy Sangl, ScD
Total Cumulative Award:	$1,299,164
Funding Period:	9/02 – 9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. This project sought to determine the effectiveness of an approach for training nursing home staff to implement clinical practice guidelines developed by the American Medical Directors Association (AMDA), and to evaluate nursing homes' experiences and lessons learned in using implementation toolkits. The specific goals of the project were to (1) develop a Long-Term Care Quality Improvement (LTC-QI) partnership that will enhance the quality of care and quality of life for nursing facility residents; (2) create national and local partnerships with LTC professional organizations, Quality Improvement Organizations (QIOs), long-term care facilities, and a national research network of more than 200 nursing facility medical directors to disseminate toolkits that translate AMDA clinical practice guidelines (CPGs) into practice; (3) identify and train interdisciplinary educators and mentors in six states to provide onsite CPG and CPG toolkit implementation training for 5 to 10 nursing facilities in each state (50 total); (4) collect and/or analyze data on both process and clinical indicators in the participating facilities to determine the effectiveness of the CPG implementation model and identify how it can be replicated independently in nursing homes; and (5) disseminate the model and refined toolkits in both online and print versions.

Activities and Progress. During the first year, the project created the National Quality Coalition, consisting of 15 partners, including representatives of nursing home associations (AHCA and AAHSA), the national QIO association (AHQA), AMDA members, and other key stakeholders. The Coalition advised the project on criteria for nursing homes participating in the project, strategies to recruit nursing facilities, which states to target, and other key design and implementation issues. Six states were selected for the project: California, Florida, Indiana, Ohio, Pennsylvania, and Texas.

The project leadership team (the PI and Co-PI, AMDA Foundation staff, and Quality Partners of Rhode Island) selected two CPGs—pain management and pressure ulcer reduction—as the focuses for CPG implementation. These clinical topics had been targeted for nursing home improvement nationally by CMS and were publicly reported on CMS' Nursing Home Compare website. Quality Partners helped to develop a plan for project implementation, specified indicators of CPG implementation, selected data

elements for program evaluation, and created a "readiness matrix" to select participating nursing facilities.

In the second year, facility recruitment began, and the selected long-term care facilities designated project teams consisting of the nursing home administrator, medical director, director of nursing, a data liaison, and others. These teams participated in short (one day or less) training programs, run by state nurse consultants who were themselves trained by the AMDA Foundation Project Coordinator and Quality Partners staff. Training consisted of review of the two guidelines, and guidance on how to initiate and manage organizational changes to promote adherence. AMDA developed CPG implementation toolkits that included sample letters/memoranda to staff. The implementation training program was piloted during the 2004 AMDA symposium, and the implementation program and CPG toolkits were piloted with six facilities in Pennsylvania. In the pilot state of Pennsylvania, CPG implementation training was provided jointly to all participating teams, but in other states, nurse coordinators provided (to the extent possible) facility-specific training sessions for staff teams.

The project team encountered unexpected problems and delays in recruiting facilities, which led to the loosening of some participation criteria, extension of recruitment areas to entire states rather than metropolitan regions, and allowing "rolling" enrollment. The project developed a web-based data reporting system and began collecting baseline data from participating facilities. Data on the CPG implementation process were to be collected at 11- and 18-weeks post-training, whereas data on clinical measures were to be collected at baseline, and at 9- and 15-months post-training.

Program staff and partners in the National Quality Coalition made efforts to marshal support from state and local chapters of the national organizations to assist change in participating facilities, but generally were not successful due to limited capacity on the part of state and local chapters. By the beginning of the fourth year (October 2005), 54 facilities had been recruited, but some dropped out before receiving training or submitting baseline data, and others withdrew from the study due to changes in management or failure to submit follow-up data. In April 2006, 40 facilities were formally enrolled in the project and are expected to submit data for the evaluation.

2. Partnership Structure/Function

The project leadership team included AMDA, AMDA Foundation and its Research Network, and Quality Partners. The team held frequent conference calls and meetings. The National Quality Coalition had annual meetings and, in the first year or two, quarterly conference calls, during which they provided input to the Leadership Team on project design issues. On a more informal basis, they communicated with state chapters and affiliates about the project, identified individuals in the selected states to serve as trainers; and provided forums at their national or state meetings to educate members about the project and recruit facilities for participation. The national partners also disseminated information about project activities through publications, websites, and listservs. The original plan called for the identification of existing state and local coalitions to assist with recruitment of facilities and support dissemination of the toolkits and CPGs once the study was complete. Existing coalitions (or 'ready' coalitions) were to be identified in each of the six states, and were to play an active role in each phase of the study. Instead, only a few isolated local chapters of the national organizations in some of the states offered assistance to the participating facilities and teams.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	AMDA Foundation (Janet Pailet, Project Director)	• Overall grant management; coordinate implementation of activities at the local level, including CPG implementation; create communication and dissemination plan
Key Collaborators	AMDA	• Provide clinical and executive leadership; work with CPG Steering Committee to create toolkits for pain and pressure ulcers; foster local partnerships
	AMDA Foundation Research Network	• Support for evaluation component (implementation and data collection at facilities)
	American Health Quality Association	• Liaison to QIOs – provide info about project and facilitates participation; holds forums for training and disseminating info
	Quality Partners of Rhode Island	• Subcontract for Technical Assistance; oversee evaluation and analysis of implementation in participating facilities
	National LTC Coalition (15 partners)	• Advise the project on criteria for nursing homes participating in the project, strategies to recruit nursing facilities, which states to target, and other key design and implementation issues
Target Organizations	40-50 nursing homes in 6 states (CA, FL, IN, TX, OH, and PA)	• Receive CPG implementation training and submit data to evaluate changes in processes of care and outcomes, as well as resource utilization

3. Project Evaluation and Outcomes/Results

The project collects process of care data through a web-based system and examines clinical outcomes. A separate, non-web based data collection effort gathers information about the CPG implementation process, including the amount of staff time spent on different tasks, the number of staff on the implementation team, compliance with each phase or component of the implementation process, and usefulness of the toolkit elements. No preliminary results were available when this summary was written (October 2006).

4. Major Products

A manuscript, "Strategies for overcoming barriers to recruitment and enrollment of nursing homes in a national clinical practice guideline (CPG) implementation study" is in final preparation, and plans include manuscript development after data analysis is completed. Articles about the project and the pilot states appeared in state LTC association newsletters, trade journals and newsletters, and a few local newspapers. Project staff also wrote and issued a monthly e-mail newsletter, distributed to about 35 individuals and organizations, including those on the National LTC Quality Coalition.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

The CPG implementation process is designed to be sustainable, in that the intervention involves only a modest amount of initial training and consultation by the state nurse coordinators. For facilities that wish to implement CPGs, AMDA sells an implementation manual, which is available to any nursing facility at a modest price. But the motivation for using the CPG implementation manual and toolkits depends on evidence showing that their use contributes to tangible improvements in quality of care measures. Those who received training to be CPG implementation trainers also may be resources for the state QIO or other nursing homes that wish to utilize their expertise. Those QIOs that were involved in the project in the six states are more likely to promote this approach as part of their overall nursing home quality improvement activities.

The National Quality Coalition established by the project involves organizations whose mission includes promoting quality of care improvements in long-term care facilities. Although the coalition itself may or may not last beyond the end of the project, communication and coordination among the members are likely to continue regarding related activities. At the end of the AHRQ grant period, the project was testing the feasibility of transitioning the NQC to a Research Advisory Board for the AMDA-Foundation Research Network.

PFQ GRANT SUMMARY
CALNOC PARTNERS FOR QUALITY TRIP TO REDUCE PATIENT FALLS

Lead Organization:	Association of California Nurse Leaders and California Nursing Outcomes Coalition (CalNOC)
Partner Team:	UCSF, Cedars-Sinai Research Institute, American Nurses Association\California, California State University at Fullerton
Title:	CalNOC Partners for Quality TRIP to Reduce Patient Falls Project
Topic Area:	Reduction of patient falls in hospitals
Principal Investigators:	Nancy E. Donaldson, DNSc
AHRQ Project Officer:	Denise Burgess (formerly Marge Keyes)
Total Cumulative Award:	$1,160,856
Funding Period:	10/02 – 9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. The aim of the four-year project was to use evidence on effective practices and data from the California Nursing Outcomes Coalition (CalNOC) statewide data repository to support interventions to reduce the incidence of patient falls and the severity of fall-related injuries in California hospitals. The project builds on CalNOC's efforts to engage acute care hospitals in voluntarily reporting standardized data for nurse staffing, patient falls, and fall-related injuries based on American Nursing Association (ANA) quality indicators. This project was designed to advance CalNOC's efforts to use its quality benchmarking infrastructure to expedite the transfer of evidence-based knowledge into practice and so improve patient care quality and safety.

The project planned to recruit hospitals from CalNOC's membership network and help them set an agenda for reducing patient falls. Rather than select a standard intervention for all participating hospitals, the project helped each facility choose an intervention for decreasing patient falls that fit with its organizational strategic priorities. To support these interventions, the project would pair a "Coach" from the Project Team with a "Linker" in each hospital. The project also assisted hospital nursing staff in accessing research-based evidence to support their strategic falls reduction efforts.

Activities and Progress

Year 1. The project held a strategic planning retreat with the Project Team—a core research group of individuals/organizations—and 20 statewide stakeholders to discuss strategic planning and designate subgroups to implement its plan. The project staff aggregated falls-related data from CalNOC's data repository and synthesized information to identify opportunities for improvement in falls risk assessment, prevention, and injury reduction. The Project Team issued a call to CalNOC's member hospitals to participate, received interest from 32 of them, and began collecting baseline data from these hospitals, which they planned to use to compare indicators from participating and non-participating units. The Project Team developed role descriptions for Coaches and Linkers, with key competencies and expectations, project orientation content and strategies, and coaching documentation tools. Project staff provided coaching for the hospital Linkers by six Coaches from the Project Team of investigators, and a staff coaching coordinator for the state's southern region.

Year 2. The project recruited 92 medical/surgical patient care units in 32 CalNOC hospitals to participate in the three-year demonstration (the total was 91 after one unit dropped out later). The medical/surgical units conducted self-assessments on patient falls, and the Project Team engaged sites in

a comprehensive review of the CalNOC falls data. The project initiated its telephone-based educational and supportive coaching intervention by identifying Linkers in each hospital and pairing them with one of the project's Coaches. The Coaches scheduled telephone meetings with their Linkers about once a month to discuss each hospital's strategic plans, follow their progress, and discuss Linkers' needs. The roles of the Linkers and the hospitals' strategic plans varied to match individual organizational needs, since some hospitals already had strategic initiatives for patient falls in place and others did not. Telephone contacts were complemented by site visits when requested, and evolved to included multi-site conference calls for regional networking.

The project funds also partially supported the creation of the CalNOC website, which went live in August 2003. It provides general information about CalNOC member hospitals and representatives and contact information for CalNOC's committee members. It also has tools specifically designed for members involved in the falls reduction project, such as a bulletin board for posting questions and responses, and an eReserve library that posts curriculum materials.

Year 3. The project Coaches continued to support Linkers' efforts to implement evidence-based interventions for reducing the incidence and injury associated with patient falls in medical-surgical units. Hospitals set their own agendas and areas of focus; some hospitals developed general strategies, while others focused on one or two focal areas for improvement. The project provided hospitals with self-assessment tools in Years 1 and 4 to document their progress.

The six project Coaches and the coaching consultant, Dr. Kristin Geiser, held monthly conference calls to learn from each other and optimize the effectiveness of individual and collective efforts. The Falls Medication Assessment Fact Sheet emerged from one of these conference calls, and was distributed to Linkers to help them integrate emerging concepts related to medication assessment into their fall risk assessment activities. Dr. Patricia Quigley RN, PhD, an expert in falls based at the VA Tampa, joined the team as a consultant and participated in calls with the coaches to discuss the impact of medication assessment on falls risk assessment/prevention. Coaches documented the monthly contacts with Linkers using a coaching documentation worksheet, which will inform the descriptive analysis of the Coaching intervention.

Year 4. The last year of the PFQ grant focused on completing a formative evaluation of the project, with pre- and post-analyses comparing data from participating and non-participating units in participating hospitals. The project also sought evaluation feedback from Chief Nursing Officers at these hospitals. The project uses the CalNOC website to provide ongoing updated "drill down" reports to assist sites in using their own performance as the basis for guiding ongoing efforts. The project began exploring ways to disseminate its work through a web-based version of the intervention via ANA's NDNQI website.

2. Partnership Structure/Function

The PFQ project was spearheaded by CalNOC, a coalition of nursing organizations in California, founded in 1995 by the Association of California Nurse Leaders (ACNL)—which serves as the PFQ grantee—and the American Nurses Association of California (ANA\C). CalNOC was formed to develop clinical outcome quality indicators for hospital-based nursing processes and conduct research on efforts to improve them. The PFQ project structure was built around the existing CalNOC governance and committee structure and had three levels of partnerships. The first level of partnership is between the core Project Team, comprised of the individuals in CalNOC's Operations and Research teams[3] and outside

[3] The **CalNOC Operations Team** consists of staff from the UCSF Center for Research and Innovation in Patient Care, the Association of California Nurse Leaders (ACNL), the Cedars-Sinai Research Institute, and representatives of the CalNOC User Members. Key CalNOC personnel (Dr. Donaldson at UCSF, Dr. Aydin at

consultants brought in for their expertise. The second partnership occurs between the project and the 32 participating hospitals. A third level of partnership exists between the Project Team and the national experts and stakeholders that make up the Advisory Council, which helps to shape the project's methods, measures, and strategies.

For the core Project Team, frequent meetings were held between Principal Investigator Dr. Donaldson with UCSF and the grant recipient ACNL's Executive Director, Patricia McFarland, to discuss grants administration, since this was ACNL's first federal grant. The core Project Team, led by the PI and her two co-investigators at Cedars Sinai Research Institute and California State University at Fullerton, had weekly phone calls and met in person about five times a year. Strategy meetings with other project collaborators—including the investigative and coaching teams—occurred every four to six weeks via conference calls during the implementation of the Coaching/Linker intervention. These meetings continued after the intervention was underway, although less frequently.

At the hospital-project team partnership level, the Linkers at hospitals spoke with their Coaches about once a month to discuss strategic plans, update Coaches on hospital activities, and seek guidance. The larger group of Coaches and Linkers convened meetings every four to six months to promote cross-facility learning.

The core Project Team and the project Advisory Council attended a Strategic Planning Retreat in January 2003 to plan and launch the project's partnership activities. The retreat led to the development of working groups that continue to operationalize the strategic plan. The PI, Dr. Donaldson, maintains ongoing collaborative contact with co-investigators and working groups.

Table 1. Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Association of California Nurse Leaders (ACNL)	• Refine processes and procedure to assure compliance and efficient administration of the business aspects of the project; manage sub-contracts • Recruit and retain hospitals for the project
Key Collaborators	Project Team in addition to ACNL: University of California, San Francisco (UCSF) Cedars-Sinai Research Institute California State University Fullerton (CSUF)	• The PI, Nancy Donaldson from UCSF, and two co-investigators lead project activities • The core Project Team works on strategic planning and evaluation for the project and are Coaches to Linkers in hospital sites to facilitate implementation • Cedars-Sinai oversees data management for the data received from participating hospitals • The consultant from CSUF, Dana Rutledge, is the only member of the Project Team who also is not part of the CalNOC's Operations and Research teams; Dr. Rutledge developed the role of the Linker and has worked to keep Linkers engaged

(continued)

Cedars-Sinai Research Institute, and Ms. McFarland with ACNL) coordinate and manage the work of CalNOC with the policy direction and advice of the Governance and Advisory Council. The **CalNOC Research Team**, under the leadership of Co-Principal Investigators Drs. Donaldson and Brown, is accountable for the integrity of CalNOC methods, studies, and reports. The **CalNOC Governance and Advisory Council** engages CalNOC stakeholders as strategic partners in shaping CalNOC methods, measures, and strategies.

Table 1 *(continued)*

	Organization	Role in Project
Key Collaborators *(continued)*	CalNOC Advisory Council—All organizations above (except CSUF) and: ANA National Database for Nursing Quality Indicators (NDNQI), VA NOD, MilNOD, Gorden and Betty Moore Foundation AHRQ	• Provide advice on methods, measures, and strategies • ANA's NDNQI may help to implement the Coach-Linker intervention nationwide
Target Organizations	91 medical-surgical patient care units in 32 participating CalNOC hospitals statewide	• Implement falls risk assessment on admission; patients at-risk receive prevention interventions; provide feedback on effective improvement strategies and barriers faced

3. Project Evaluation and Outcomes/Results

The evaluation of the project consisted of tracking and analyzing the project's effect on falls-related outcomes indicators, e.g., falls per 1000 patient days and injury falls per 1000 patient day. It compared falls-related outcomes in the 91 participating units (called TRIP or Translating Research into Practice units) in the 32 hospitals before and after the intervention, and with non-participating units (non-TRIP units) in the same hospitals. The project collected monthly data on these indicators for each participating medical-surgical unit. Pre-intervention data came from the period 2001 to the first quarter of 2003, and post-intervention data was from 2005. The analysis examined data from all the units with pre- and post-data available – 89 TRIP and 260 non-TRIP units.

The analysis found that the mean changes in falls and falls with injury were not significantly different between the pre- and post-data period for TRIP/participating units. In addition, the mean changes in falls and falls with injury were not significantly different for TRIP versus non-TRIP units. Despite the lack of statistically significant change, the project did find that falls per 1000 patient days for TRIP units were trending in the right direction – decreasing slightly between pre and post periods. The lack of a statistically significant drop in falls in the TRIP hospitals was attributed to convergent impact of JCAHO's 2004 focus on falls rates and the resulting range of organizational and clinical activities to reduce falls implemented in participating hospitals. In addition, the fact that the outcome variable (falls) is relatively rare and annual rates are highly variable may have affected the power of the interventions to achieve results. The statistically significant *increase* in injury falls in the TRIP units from the pre to post time period may be due to improved reporting. The coaching team was exploring further the reasons for these findings at the time this summary was prepared.

Other outcomes include informal learning about the process of implementing evidence-based interventions in hospitals. For example, the three-year time horizon for this project may be too long in view of hospitals' single-year budgeting cycles, suggesting that the improvement process may need to adopt the rapid cycle model. In addition, the sustainability of the interventions can be compromised by the turnover of Linkers – nurse champions in each hospital – and Chief Nursing Officers, who are the principal administrative sponsors of the programs.

4. Major Products

- Presentations at 2002, 2004, and 2006 CalNOC conferences; 2003 National Association of Healthcare Quality Meeting; 2004, 2005, and 2006 ANCL conferences; 2004 ANA Convention; VA Tampa 2004; and 2005 Patient Safety Conferences.

- Donaldson, Rutledge, and Ashley ”Outcomes of Adoption: Measuring Evidence Uptake by Individuals and Organizations.*”* *Worldviews on Evidence-Based Practice Journal* (Suppl; Sept. 2004).
- Expanded CalNOC website to include information for sites with bulletin board, library, and project-specific drill-down reports available to participating hospitals on an ongoing basis.
- Self-Assessment Tools (Organizational and Unit Level); Fact Sheet; Miles Stone is Falls Improvement; Falls Rater-to-Standard Training Tutorial.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

The Project Team has executed an agreement with the American Nurses Association to use the ANA NDNQI website for transforming “live” coaching at sites into a self-directed online process; this could help to sustain this activity. CalNOC received a follow-up grant from the Gordon and Betty Moore Foundation, which supported CalNOC in continuing some of this work as part of the foundation’s efforts to evaluate the impact of its multifaceted $110 million nursing initiative in the San Francisco Bay Area, designed to improve nursing-related quality and safety in acute care hospitals. This partnership with the Gordon and Betty Moore Foundation also has supported increased collaboration between CalNOC, ANA, and NDNQI.

PFQ GRANT SUMMARY
CHP HEART FAILURE GAP (GUIDELINES APPLIED IN PRACTICE)

Lead Organization:	Catholic Healthcare Partners (CHP)
Partner Team:	CHP HF GAP Partnership, Ohio State University, Case Western University, National Heart Failure Training Program, American Heart Association, and others
Title:	CHP's Closing the "GAP" for Heart Failure (GAP=Guidelines Applied in Practice)
Topic Area:	Quality improvement for patients with chronic congestive heart failure
Principal Investigator:	Donald Casey, Jr., MD (was Chief Medical Officer at CHP but remained PI after his move to Atlantic Health System, NJ in 2005)
AHRQ Project Officer:	Margaret Coopey
Total Cumulative Award:	$1,278,719
Funding Period:	9/02-9/06
Project Status:	Request for no-cost extension through September, 29, 2007 under review

1. Project Description

Goals. The purpose of this project was to improve health outcomes for patients with heart failure (HF) by promoting the consistent use of evidence-based guidelines in the treatment of such patients, i.e., narrowing the gap between clinical evidence and clinical practice. It sought to motivate quality improvements for such patients throughout Catholic Healthcare Partners (CHP), a large health system comprised of 31 hospitals and other health care facilities located in 9 regional health systems in 5 states. The project tried to develop and demonstrate CHP's ability to improve chronic illness care for patients with HF through the effective use of standardized quality measurement systems for the treatment of HF patients. These improvements were designed so that all hospitals in the CHP system could sustain effective, broad-based national and local partnerships to support and sustain this work on an ongoing basis after the end of the grant period.

Activities and Progress. The project initially planned to adapt evidence-based heart failure interventions and develop standardized HF "tools" for all 31 CHP hospitals. However, after an initial planning period, project leadership decided instead to encourage CHP hospitals to adopt nationally endorsed quality interventions through explicit alignment with the health care system organizational structure, culture, and capacity. The project selected six community hospitals in six of the nine regional CHP systems to participate in the project and convinced hospital CEOs to support or adopt existing HF quality improvement interventions and tools that were evidence-based and met their system's needs.

In 2003, 21CHP hospitals chose to report nationally developed quality measurement for HF to CMS and JCAHO as a part of the Hospital Quality Alliance (HQA): (1) ACE inhibitor prescribed at discharge, (2) left ventricular function (LVEF) assessment, (3) smoking cessation counseling, and (4) appropriate discharge instructions. The CHP hospitals regularly collected data for these measures through the MIDAS system, a national proprietary data warehouse with patient outcomes and treatment information that permits comparisons among hospitals using benchmarks set by top performing hospitals. CHP initially set a goal of achieving a minimum score for each measure at or above 75 percent of all HF patients, or in the top 25th percentile in the MIDAS system, whichever was greater. During this time, CHP also developed an organizational goal of reducing the system's 30-day all-cause readmission rates for patients with an index admission for HF. To create strong incentives for CHP regional health systems to improve HF care quality, CHP evaluated performance for all CHP home office staff, regional CEOs, and other senior management, contingent on successful achievement of these performance targets for

chronic HF. Moreover, CHP added an HF readmission metric to the evaluation of regional health systems by the CHP national and regional boards.

The project encouraged all CHP regional systems to select evidence-based HF quality improvement tools and plans that best fit their needs. The project team also decided to develop one common intervention for six specially selected hospitals. They created a staff position called the "Heart Failure Advocate" (HFA) to facilitate the implementation of quality improvement tools and plans. The project recruited and trained HFAs, all of whom were nurses, from each of these six hospitals in the second project year. The HFA job was designed to manage and coordinate care more effectively for HF patients at high risk for readmission or death, and also to implement broader quality improvement initiatives for HF within each of the six hospitals. The HFAs also conducted intensive followup for the high-risk patients after discharge. The HFAs generally spent 50 percent of their time managing individual HF patients and 50 percent improving the system of HF care. The project funded the HFA position salaries in the first year with the understanding that the hospitals would transition to providing 50 percent salary support and eventually would fully cover the cost of the staff positions. At the end of the project, one of the participating hospitals decided not to continue to fund its HFA position, but additional HFA positions were created for implementation in four other CHP hospitals.

The HFAs participated in several types of training to cover a variety of critical skills identified for the project, such as communication, management, and technical and clinical expertise. They also attended a two-day training session provided by the National Heart Failure Training Program (N-HeFT) to further develop and refine their skills. They were encouraged to attend individual sessions throughout the project period to refine improvement strategies for achieving highest performance on the HF quality measures, as well as to enhance their abilities to better provide care coordination, medication management, and patient/provider education. To build organizational support for quality improvement, the HFAs also recruited physician champions to support the project. These physicians accompanied the HFAs to a special training session provided by N-HeFT and The Ohio State University that focused on disease management strategies, effective communication between nurses and physicians, developing strategies for setting up an effective HF program, and managing change.

To diffuse the adoption of evidence-based guidelines for the treatment of patients with HF in the community, the project provided HF education to physicians, nurses, and other clinicians in the CHP system, as well as other personnel from organizations external to CHP. To accomplish this, the project created CME-accredited HF education programs for community physicians and hospital staff. These were presented through several teleconferences at participating hospitals to explain the project and its progress to the larger HF community and other large "observer" health systems.

2. Partnership Structure/Function

The CHP project was run by a core project team led by Dr. Donald Casey and other CHP staff, as well as some members of non-CHP partner organizations (see table below). The core project team included seven co-investigators and their respective teams. National HF experts Dr. Abraham (Ohio State University) and Dr. Piña (Case Western University and N-HeFT) were involved directly in the project, providing training to HFAs and developing and personally presenting education sessions for community physicians at several HFA hospitals. Other co-investigators provided strategic advice and promoted physician participation in project activities. Although the project included monthly conference calls between co-investigators, HFAs, and supervisors, some co-investigators communicated more frequently.

The project established four sets of partnerships: (1) between CHP and the individuals or organizations that comprised the core project/research team; (2) between the project team and the CHP HF GAP Partnership, comprised of local and national expert cardiologists, advanced practice cardiac care nurses, regional CEOs, and advisors from outside of CHP, who provided multidisciplinary expertise, helped convene/recruit local participants, disseminated the model, and provided feedback on project

results; (3) among the project team, HFAs, and the hospitals/regional health systems they represented; (4) between the project team and the "observer" organizations that the project hoped would adopt or endorse the model, (e.g., other large Catholic health systems such as Catholic Health Initiatives, Catholic Healthcare East, or Trinity Health), and the Greater Cincinnati Health Council.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Catholic Healthcare Partners	• Provided the quality improvement leadership and oversaw the project's activities
Key Collaborators	**Core Project/Research Team**: Ohio State University Case Western Reserve University N-HeFT Xavier University North Ohio Heart Center Applied Health Services	• William Abraham MD, from Ohio State University (co-PI), one of the HF GAP major clinical expert leaders, provided advice for program design/execution and design of program assessment • Ileana Piña MD, from Case Western and N-HeFT (co-PI), another major clinical expert leader, provided training and technical support to Advocates and advice for program design and assessment • John Schaeffer MD, from North Ohio Heart Center, a clinical expert, provided advice for program design/execution and program assessment • Liu Guo, PhD, from Xavier University conducted the program's evaluation • Rick Snow, DO from Applied Health Services
	CHP HP GAP Partnership: Cardiologists from CHP regions, CHP Regional HF Experts, American Heart Association HF GAP Observers: Catholic Healthcare East, St Joseph Health System, Catholic Health Initiatives, Greater Cincinnati Health Council	• Provided multidisciplinary expertise • Helped convene/recruit local participants • Evaluated and provided feedback on project results • Participated in communication/dissemination (particularly AHA) by including the Advocates in its new 'Get With The Guidelines' program
Target Organizations	Six CHP regional health systems, with one hospital from each system hosting an advocate	• Heart Failure Advocates managed high-risk patients and implemented quality improvement interventions; hospital executives monitored and managed QI improvements

3. Project Evaluation and Outcomes/Results

Project Evaluation. The evaluation of the project will assess (1) the CHP HF GAP Partnership, based on eight dimensions, such as partnership synergy, partnership involvement, and others; (2) the degree of implementation of HF care interventions; (3) improvement in the process of care delivery; and (4) the impact of improved practices on clinical and cost outcomes. The performance measures include:

1. Four national HF inpatient performance measures collected for JCAHO and CMS (ACE inhibitor prescribed at discharge, LVEF assessment, smoking cessation counseling, and appropriate discharge instructions)
2. 30-day all-cause (not just for HF) readmission rates for patients with an index admission for DRG 127

3. Appropriate identification and referral of chronic HF patients to palliative or hospice care at or near the end of life
4. Effectiveness of CHP HF Advocates in influencing the above measures
5. Effectiveness of the CHP HF GAP Partnerships (system-wide and regional)
6. Financial impacts of the initiative, with special attention to the effects of pay-for-performance and other monetary and non-monetary incentives on all of the above

Data for these measures will be derived primarily from existing data already collected by regional CHP organizations, e.g., through the MIDAS system. The methodology uses a quasi-experimental study, comparing patients with versus without interventions, and comparing the same cohort of patients between the pre- and post-intervention periods.

To determine the effect of interventions, such as training, on HFAs, a survey or focus group will be conducted to determine if the partnership met their needs, how it could better address their needs, and which non-partnership interventions were implemented that affected HFA performance. The project intends to use the tool created by the Partnership Subcommittee in AHRQCoPs to measure the success of its Partnership.

Outcomes/Results. Although final data analysis was not complete at the time this summary was written in October 2006, initial analysis of the evaluation data showed that patients under the care of the HFAs have experienced fewer readmissions and a longer time between readmissions than those patients not enrolled in the program (i.e., those with "usual care"). Further analysis indicates that patients experienced a 66 percent reduction of hospitalizations after they were enrolled in the HFA program. Their 30-day readmissions were reduced by 41 percent in the post-enrollment period. Their days elapsing without readmissions were doubled in the post-enrollment period (469 days), compared to the pre-enrollment period (211 days). Early results also show that 30-day all-cause readmission rate for HF patients cared for by the HFAs consistently ranged from 1 percent to 10 percent on a quarterly basis, compared to the CHP hospitals' average readmission rates. HF readmission rates for the 21 CHP hospitals decreased to 18.3 percent in the third quarter of 2005 from 22.0 percent in the same quarter of 2003. The CHP system as a whole also has been highly successful in improving its performance on the four national HF quality measures, all of which have improved since 2002. For example, the LVEF assessment measure rose from 77 percent in the third quarter of 2002 to 95 percent in the second quarter of 2006. The most recently available composite score of 95 percent for the four HF quality measures put CHP as a single entity in the top decile of performance within the CMS-Premier Hospital Quality Incentive Demonstration Program.

One lesson learned from the project is that organizational goals and incentives based on standardized quality measures (e.g., the HF measures developed by the American College of Cardiology and the American Heart Association) are more important motivators of quality improvement than standardized tools. The project's experience also highlights the difficulty of motivating hospitals to adopt a program that is not profitable, since reducing hospital readmissions may lower total revenue. We were told by some interviewees that while the individual HFAs have been effective change agents, a larger number of HFAs would make a bigger difference in reducing global hospital readmission rates for patients with HF.

4. Major Products

- HFA training program developed by N-HeFT
- Special video-DVD recording from April, 2005 highlighting the key elements of the CHP HF GAP initiative, presented to CHP Governance Academy, Tucson, AZ.
- Publications (see last page)

- Presentations at meetings of the Heart Failure Society of America, American Heart Association, and American College of Cardiology.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Five of the six participating CHP hospitals have made a commitment to continue funding the Advocate positions on their own. One of the hospitals found the HF Advocate position so useful that they are interested in creating an Advocate position for diabetes as well**.** Moreover, two new HF Advocates began in May 2006 in Cincinnati, Ohio as part of a pilot to see if the Advocates role can be adopted in other CHP hospitals. A hospital in New Jersey and one in Pennsylvania have also expressed interest in setting up an HF advocate position.

In 2005-06, the CHP HF GAP Partnership began efforts to create a broad coalition of stakeholders committed to improving HF care in Ohio. The Ohio Heart Failure Coalition (OHFC) was formed in September 2005, made up of organizations such as the national and regional offices of the American Heart Association, the Ohio Department of Health, the Ohio Hospital Association, several large health systems (CHP, University Hospitals of Cleveland, Ohio State, and Christ Hospital in Cincinnati), Ohio KePRO (the QIO in the region), and third party payers, notably Anthem Blue Cross of Ohio. The OHFC will attempt to gain the support and participation of more organizations for HF quality improvement activities based on the CHP HF GAP initiative. The mission of the OHFC is "to achieve transformational change across the continuum of heart failure care through an innovative collaborative dedicated to sharing best practices and resources."

The CHP HF GAP also is trying to disseminate its approach by collaborating with the American Heart Association's "Get With the Guidelines" project for HF, a quality improvement program available for purchase by hospitals that supplies a data collection tool and materials, including a full patient education program, methods for communicating with physicians, and patient education materials. CHP's HFAs are presenting at regional and national AHA workshops. It was during one such workshop that one of the organizations now involved with the OHFC heard about the HF GAP program, prompting its participation in the OHFC. One grant partner indicated that some people who attended the AHA workshop were impressed by the HFA's message and have taken their "lessons learned" back to their own hospitals.

6. Publication References

Guo L, Chung ES, Casey DE, Snow R. Redefining Hospital Readmissions to Better Reflect Clinical Course of Care for Heart Failure Patients. *American Journal of Medical Quality*. Accepted for publication in an upcoming issue in 2006.

Snow R, Guo L, Barrow L, Grossbart S, Miller K, Chung E, Casey D. The Effect of Heart Failure Trained Advocates on 30 and 60 Day Readmissions. To be presented at the American Heart Association Scientific Sessions 2006, Chicago, Illinois, November 12-15, 2006 and subsequently referenced in *Circulation*.

Guo L, Chung ES, Snow R, Miller KL, Grossbart S, Casey D. Redefining Readmissions to Better Reflect the Clinical Course of Heart Failure Patients. To be presented at the American Heart Association Scientific Sessions 2006, Chicago, Illinois, November 12-15, 2006 and subsequently referenced in *Circulation*.

Markward BA, Glesser RR, Kaiser D, Baird T, Reinhardt S, Zite G, Piña II, Casey DE, Hitch JA, Blum K. Development and Evaluation of the Heart Failure Advocate Role in the Care of Patients with Chronic Heart Failure. *Journal of Cardiac Failure*, August 2006 (Vol. 12, Issue 6 (Supplement), page S123).

Guo L, Chung ES, Snow R, Miller KL, Grossbart S, Casey D. Redefining Readmissions to Better Reflect the Clinical Course of Heart Failure Patients. *Journal of Cardiac Failure*, August 2006 (Vol. 12, Issue 6 (Supplement), page S110).

Snow R, Guo L, Barrow L, Grossbart S, Miller K, Chung E, Casey D. The Effect of Heart Failure Trained Advocates on 30 and 60 Day Readmissions. *Journal of Cardiac Failure*, August 2006 (Vol. 12, Issue 6 (Supplement), page S98).

Casey DE, Abraham W, Barrow L, Namie M, Piña I, Schaeffer J, Snow R. Catholic Healthcare Partners' Closing the GAP for heart failure initiative: A large multi-state system takes on the challenge to improve care. *JACC* 47 (4-Supplement A): 267A; 2006.

Casey DE, Namie MW, Barrow L, Mostajabi R. Catholic Healthcare Partners' "Closing the Gap for Heart Failure" Initiative: A Large Multi-state Health System Takes on the Challenge to Improve Quality of Care. *Circulation* 2005; 111 (20): page 126.

Casey DE, Namie M, Creason H, Barrow L, Abraham WT. Closing the GAP for heart failure quality of care. *Journal of Cardiac Failure*, October 2003 (Vol. 9, Issue 5 (Supplement 1), page S87).

PFQ GRANT SUMMARY
IMPLEMENTING PEDIATRIC PATIENT SAFETY PRACTICES

Lead Organization:	Child Health Corporation of America (CHCA), Child Health Accountability Initiative (CHAI)
Partner Team:	Lucile Packard Children's Hospital at Stanford; 14 CHAI member hospitals, and later expanded to all 42 CHCA hospitals; Vermont Oxford Neonatal Network; IHI; and others
Title:	Implementing Pediatric Patient Safety Practices
Topic Area:	Quality improvement in pediatric inpatient care
Principal Investigators:	Paul Sharek, MD, MPH, Medical Director, Child Health Accountability Initiative (CHAI) and Medical Director Quality Management, Lucile Packard Children's Hospital at Stanford University
AHRQ Project Officer:	Denise Burgess (formerly Marge Keyes**)**
Total Cumulative Award:	**$**1,144,950
Funding Period:	9/02–9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. The project sought to improve the healthcare of America's children by integrating evidence-based practices on pain management, medication safety, and patient safety into selected CHCA member hospitals. The project planned to work with the 14 CHCA member hospitals participating in CHCA's quality improvement group, the Children's Health Accountability Initiative, but later expanded the project to work with all 42 CHCA member hospitals. Finally, the project planned to develop collaborative relationships with national pediatric organizations to disseminate its work more widely.

Activities and Progress. The Child Health Accountability Initiative (CHAI) was the clinical performance improvement arm of CHCA until 2004 when it expanded from 14 founding members to include all 42 member hospitals and internal CHCA staff. This collaborative, formed in 1997 continues to work to improve the quality of hospital care provided to children. The grant funds provided infrastructure support to enhance and accelerate CHAI's efforts.

Year 1. CHAI devoted the first year to planning activities and infrastructure building. They developed a process for the collaborative to select quality improvement projects and a method of reviewing project plans under the three priority areas—patient safety, pain management, and medication safety. In addition to its regular national bi-annual meetings, CHAI organized an annual meeting to review and re-prioritize pending and potential projects. The grant funds also allowed CHAI to hire research and administrative staff to support the project, and funded the travel of 1-2 members of each CHAI hospital.

In the area of patient safety, CHAI established five "focus groups" to create and test toolkits for implementing patient safety best practices in hospitals. The groups focused on five best practices selected from AHRQ's *Making Health Care Safer: A Critical Analysis of Patient Safety Practices* publication: (1) central venous catheter-related bloodstream infections, (2) surgical site infections, (3) medication errors and adverse drug event, (4) use of corollary orders to reduce potential adverse drug events, and (5) adverse events due to transportation of critically ill patients between health care facilities. The groups recruited CHAI hospital sites to help create implementation toolkits, implement the best practice interventions, and conduct data collection to examine the effectiveness of interventions. Toolkits

included audit sheets, best practice lists, supporting literature, implementation tips, information on barriers and ways to overcome them, and presentations on best practice site implementation.

In the area of pain management, CHAI established a collaborative to implement best practices for post-operative pain management in the neonatal ICU (NICU) population. Eleven of the CHAI hospital sites chose to participate and collect baseline data, which were analyzed to determine pain assessment compliance, select areas for improvement, and identify potential best practices. Once best practices were identified, the participating hospitals would implement them and collect post-intervention data to examine effectiveness.

In the area of medication error reduction, CHAI evaluated a previously developed pediatric-focused "trigger tool" for identifying inpatient adverse drug events. Before the PFQ project, CHAI had tested the tool in 12 CHAI hospitals for sensitivity and positive prediction value, redesigned the tool for a pediatric population, and re-tested the tool. The results showed that the trigger tool identifies very different adverse drug event rates for different patient populations (newborn vs. adolescent) and different units in the hospital (PICU vs. Hematology-Oncology units). Given this finding, under the PFQ project, CHAI embarked on refining the trigger tool for subgroups and hospital units and worked to develop site-specific automation of the trigger tool in hospitals' CPOE systems.

Year 2. In the area of patient safety, the group working on central venous catheter-related bloodstream infections completed its time series data collection. Three of the seven participating hospital sites had substantially improved central line associated infection rates, and none of the remaining sites had worsening infection rates. CHAI statistician began an in-depth analysis of the data for further conclusions. The focus group working on use of corollary orders to reduce potential adverse drug events, which had four participating CHAI hospital sites, and the group working on adverse events due to transportation of critically ill patients between health care facilities, which had seven participating CHAI hospital sites, collected baseline data from participating hospital sites and implemented best practices.

Also in the area of patient safety, the project began a collaborative to improve communication during transfers from the emergency department to inpatient med-surg units through the use of a standardized checklist at the time of transfer.

In the area of post-operative pain management for the NICU population, each of the eleven participating hospital sites selected best practices, incorporated the interventions, and began collecting post-intervention data.

In the area of medication errors, further work on the trigger tool involved a joint venture between CHAI, Vermont Oxford Neonatal Network (VON), and the AHRQ funded "Center for Neonatal Patient Safety". This group created, pilot tested, refined, and analyzed a NICU based trigger tool to identify adverse events in this high-risk population. VON maintains the largest database of NICU patient information in the world, including 75% of all newborns with birthweight of 1500 grams and under in the U.S. and the partnership connected CHAI to VON's expertise and database.

Year 3. From the end of 2004 to early 2005, CHAI significantly expanded the project from the 14 CHAI hospitals to include all 42 CHCA hospitals. This massive expansion was undertaken in part because it became apparent to non-participating sites that the CHAI interventions were so effective that they should not be limited to the 14 hospitals. CHAI learned from its experience with the five focus groups that their QI approach needed more rigor and more accountability. This coincided with member hospital CEOs coming to realize that QI was not just something for the quality department; rather that "quality was the business they were in."

For these reasons, CHAI decided to shift its strategy to incorporate the Institute for Healthcare Improvement (IHI) "breakthrough" improvement model, which includes the rapid cycle "plan-do-study-act" approach to QI, as it expanded to include all 42 CHCA hospitals. CHAI's quality improvement efforts with all CHCA hospitals centered on two rapid cycle breakthrough projects: (1) reducing catheter-associated bloodstream infections in children by 50 percent, in which 29) hospitals participated and (2) reducing adverse drug events related to narcotics in children by 50 percent, in which 20 sites participated. Of the 42 CHCA hospitals, 33 participated in at least one of these two projects, with 18 sites participating in both. Participating hospitals attended a series of learning sessions, reported data monthly and received intensive coaching on change implementation in conference calls between sessions.

Efforts to improve communication during transfer from ED to inpatient units were completed in February 2005. The 11 hospitals that implemented best practices related to NICU post-operative pain management also finished their work and submitted site-specific data for analysis. Based on the findings and lessons learned from this project, CHCA plans to embark on a NICU based project for all CHCA member hospitals.

In the third year, CHAI completed its pilot test of the NICU trigger tool, using 42 charts from 4 pilot site volunteer hospitals. The project revised the trigger tool based on the analysis of the pilot data and expanded it to 15 participating hospital sites including 6 CHCA hospitals and 9 VON hospitals (several are in both groups). Each hospital contributed 50 charts for the full NICU trigger tool trial to identify adverse events. The review found 505 unique adverse events; of which 58 percent were determined to be preventable. The most frequent adverse events were nosocomial infections, catheter infiltrations, intracranial bleeds, and accidental extubations. These findings helped NICUs better target their patient safety efforts. The project intends to refine the trigger tool based on results and analysis of the full trigger trial.

Year 4. The group working to reduce bloodstream infections completed intermediate data collection and implemented multiple best practices at the 29 participating hospital sites. The project entered into a "sustaining phase," which emphasized the spread of project lessons to new units at participating sites and to CHCA members unable to previously participate. For example, CHCA teamed with National Association of Children's Hospitals and Related Institutions (NACHRI) and National Initiative for Children's Healthcare Quality (NICHQ) to sponsor a series of web casts aligned with IHI's 100,000 Lives Campaign that will be open to any hospital, not just CHCA hospitals during which the ADE and CABSI project and data were discussed.

In the area of medication errors, CHAI refined and improved the NICU trigger tool based on results from the full trial, guidance and feedback from content experts and IHI recommendations. Based on the success of the NICU trigger tool, CHCA has begun to develop and test a pediatric ICU trigger tool and recruited 22 hospitals to participate. Efforts to reduce adverse drug events (ADE) related to narcotics, involving 20 CHCA hospitals, included implementation of best practices, coaching of hospitals by project staff, and feedback reporting to hospitals, and data analysis. Future efforts will focus on sustaining these improvements.

2. Partnership Structure/Function

The Child Health Corporation of America, a collection of 42 free-standing children's hospitals in the U.S. and Canada, was initially formed in 1997 as a purchasing collaborative. In 2001, a subset of the member hospitals began working together in the area of quality improvement and established the Child Health Accountability Initiative (CHAI) under the umbrella of CHCA. CHCA partnered with Dr Paul Sharek the medical director of CHAI and the medical director of quality improvement at Lucile Packard Children's Hospital at Stanford University (a CHAI hospital) to serve as the PFQ project's principal investigator.

The project's four levels of partnership included: one between CHCA's staff and the PI, Dr. Sharek; a second among the 14 hospitals in CHAI; a third between CHCA and all its hospital members; and a fourth between CHCA and other pediatric care associations for dissemination purposes. The grant funds provided infrastructure support—hiring a project manager, data analyst, statistician, and 2 quality improvement experts—that allowed these existing partnerships to work better collaboratively and provide more rigor to the quality improvement work already begun. The grant also helped pay for each of the 14 hospitals to send representatives to CHCA's semi-annual national meetings and the annual CHAI meeting, which were components of the larger semi-annual CHCA meetings, to discuss the project selection and progress. Though Dr. Sharek guided the process of project selection, the selection of projects occurred democratically with input from all 14 CHAI members based primarily on the availability of evidence-based interventions and the individual and collective priorities of the 14 member hospitals.

In 2004, the performance improvement department of CHCA ("CHAI") expanded to include the entire 42 members in CHCA. The first 2 major pediatric patient safety projects overseen by the CHCA performance improvement department after this expansion were "Decreasing catheter associated blood stream infections" and "Decreasing adverse drug events related to narcotics in pediatric patients". These two large collaborative projects utilized the Institute for Healthcare Improvement (IHI) model for collaborative quality improvement, which included the following implementation strategies: pediatric content expert-development of a "bundle" of evidence based best practices to be implemented, monthly group conference calls with all the participating sites, monthly progress reports to the sites' senior leaders that included site-specific feedback and prescriptive recommendations. It also established an active project-focused list-serve, and made it possible to submit data to CHCA staff through an extranet website.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Child Health Corporation of American (CHCA), Child Health Accountability Initiative (CHAI), the collaborative clinical performance improvement arm of CHCA (from 1997-2004; performance improvement department expanded to include all 42 members in 2004).	• Overall leadership and selection/implementation of projects.
Key Collaborators	Lucile Packard Children's Hospital, Stanford University	• The project PI, Dr. Paul Sharek oversaw project implementation, decision-making regarding publication focus, and development of relationships with other collaborators. He also prepared all grant related reports, attended AHRQ sponsored grant conferences, and presented the project and outcomes at numerous venues.
	14 CHAI hospitals	• CHAI hospitals participated in various focus group QI projects
	Vermont Oxford Neonatal Network (VON) and the Center for Neonatal Patient Safety (an AHRQ funded center)	• VON helped create a new neonatal trigger tool for the project to identify adverse events (AEs) in the Neonatal Intensive Care Unit (NICU). Additionally, the VON partnership has extended to include a focus on NICU based quality improvement in years 2006 onward for CHCA
	Consultants: Institute for Healthcare Improvement (IHI) and David Classen, MD	• Consultants provided expert opinion for the project's development and implementation, and provide space on the IHI website to disseminate toolkits and findings
	National Association of Children's Hospitals and Related Institutions (NACHRI) and National Initiative for Children's Healthcare Quality (NICHQ)	• NACHRI and NICHQ helped with broader dissemination of project results, via multiple national conference presentations by CHCA

Table 1 *(continued)*

	Organization	Role in Project
Target Organizations	Initially 14 CHAI participating hospitals and organizations; later expanded to all 42 CHCA hospitals	• Participated in various QI projects by providing data and implementing best practices

3. Project Evaluation and Outcomes/Results

Pain management

- Results from the 9 sites participating in the pain management project (of the original 11) included: (1) Numeric pain assessment performed by MDs or NNPs may be more effective than those assessments solely used/documented by RNs; (2) a numeric pain scale should be used on day 1 and day 2 post-op; (3) a central method for documentation is most effective; and (4) hospitals should adopt a standardized tool for pain assessment and use it consistently.

Medication safety

- The CHCA Adverse Drug Event pediatric trigger tool identified 22 times more adverse drug events than traditional reporting mechanisms (i.e. incident reports). The project plans to place the final trigger tool on the IHI website for general use.
- Data analysis of the 18 CHCA hospitals that participated in the 18 month collaborative project to reduce adverse drug events (ADE) related to narcotics showed a collaborative-wide decrease from 39.1 to 17.1 ADEs per 1000 narcotic doses, a 49 percent reduction for the entire collaborative. Savings from this collaborative, in which 662 ADEs were prevented, was between $1.7 and $3.1 million depending on the whether these ADEs were "not preventable ($1.7 million) or "preventable" ($3.1 million) using the cost data provided by Bates et all in the medical literature (JAMA 1997).

Patient safety

- Twelve CHAI sites that implemented measures to improve communication during transfers the ER and inpatient units improved pediatric patient safety as manifested by decreased duplicate or missed medications, duplicate or missed lab tests, and incorrect or absent infection control information to minimize iatrogenic inpatient infections.
- Final data analysis showed improvements in infection rates for 18 of 29 participant sites (57% reduction in these 18 sites), and a collaborative wide reduction for all 29 participating hospitals from 6.9 to 4.8 per 1000 line days, a 31 percent reduction, and those in this collaborative achieved over 88% compliance to the IHI and CHCA-built "best practice" maintenance bundle. Eleven hospital sites decreased catheter-associated bloodstream infection (CABSI) rates more than 50 percent. Overall, 112 CABSIs were avoided, resulting in a net savings of $960,549 based on the actual costs established by the CHCA database.

4. Major Products

- Neonatal ICU trigger tool, and toolkit, available on the CHCA website as well as soon to be available on the Vermont Oxford Network and Institute for Healthcare Improvement (IHI) websites
- Taylor B., et al., Assessing Postoperative Pain in Neonates: A Multicenter Observational Study, *Pediatrics* (in press).

- Sharek PJ., Horbar JD, Mason W, et al. Adverse Events in the Neonatal Intensive Care Unit: Development, Testing, and Findings of an NICU-Focused Trigger Tool to Identify Harm in North American NICUs." *Pediatrics* October 2006;118(4):1332-40.
- Presentations by Dr. Sharek and other project representatives at several national conferences: panel on Patient Safety across Settings and Populations: Children's Care at AHRQ's 2005 Annual Patient Safety and Health IT Conference, June 2005; VON Performance Improvement 2005 conference, September 2005, Nashville, TN; "Improving Safety in Children's Hospitals through Collaboration," National Institute for Children's Healthcare Quality Forum, March 2006, Orlando FL; European Forum on Quality Improvement in Health Care: April 27, 2006; all CHCA semi-annual meetings.
- Two new toolkits available on CHCA website: (1) Catheter Associated Blood Steam Infections in Pediatrics and (2) Adverse Drug Events in Narcotics.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

The evolution of the project's target organizations, from the 14 CHCA member hospitals participating in CHAI to all 42 CHCA members hospitals represents a significant expansion in the number of children's hospitals actively participating in quality improvement activities. This was made possible in part by the AHRQ grant funds that supported the creation of additional infrastructure, data analysis and research support at CHCA, lending more rigor to CHAI work, which in turn led to more CHCA site participation, more publishable work, and increased likelihood of sustainability of activities in sites and dissemination outside of CHCA.

Quality improvement work will be continued at CHCA with other support once AHRQ funding ends. CHCA will provide financial support for future quality improvement collaboratives, including those just beginning in September 2006 (Decreasing Surgical Site Infection Rates, and Decreasing wait times in the Emergency Department). CHCA regards this work as contributing to its overall mission and will dedicate funds from the revenues generated through its group purchasing activities. Additionally, at times, there will be a fee for each site to participate in future collaboratives. This fee, of $23,000 for one or both collaboratives, has not decreased the participation of members in the collaboratives; over 30 members are participating.

CHCA has built into its organization a mechanism for what they call "spread" that relies on its website to provide learning opportunities, resources, tools, etc., from all CHCA performance improvement projects. In addition, CHCA and VON are discussing a CHCA NICU performance improvement project that will leverage the best practice recommendations set forth by the recently completed NICU post-operative pain management project.

PFQ GRANT SUMMARY
TRAINING FOR IMPROVED PROVIDER RESPONSE TO BIOTERRORISM

Lead Organization:	Connecticut Department of Health (DPH)
Partner Team:	Connecticut DPH; Yale New Haven Health System (YNHHS), Center for Emergency Preparedness and Disaster Response
Title:	Training for Improved Provider Response to Bioterrorism
Topic Area:	Bioterrorism Continuing Medical Education for physicians
Principal Investigators:	Louise Dembry, MD (Yale-New Haven Health System) and Michael Hoffman, Ph.D (Connecticut DPH-retired) and Lloyd Mueller, Ph.D (Connecticut DPH)
AHRQ Project Officer:	Sally Phillips
Total Cumulative Award:	$299,999
Funding Period:	10/02–9/05
Project Status:	Completed September 2005

1. Project Description

Goals. The aim of this project was to identify and/or develop a web-based bioterrorism training program for front-line physicians, and evaluate its effectiveness. The Connecticut Department of Public Health (DPH), the primary grant institution, receives funding from CDC and HRSA to provide bioterrorism education and training for the state's public health and health care delivery systems. This work, however, does not address the educational content and methods of delivery most appropriate for and effective with different health care professionals, a gap this project was designed to fill. The project proposed a two-phase approach—a planning phase that would select or develop bioterrorism teaching tools/programs, and a second phase to test and evaluate their effectiveness.

Activities and Progress. During the first planning year, project staff conducted literature reviews on effective educational methods and tools for physicians, as well as emergency preparedness and bioterrorism training programs. Information from these reviews led project staff to create a 30-minute Power Point presentation on basic principles of emergency management called "Emergency Management 101." Staff also created a tool for comparing courses in emergency/disaster preparedness based on three sets of criteria developed by the (1) American College of Emergency Physicians, (2) Centers for Disease Control and Prevention, and (3) OSHA/U.S. Army Biological Defense Command/National Fire Protection Administration. The tool was used to examine training programs that had competency standards developed by researchers at Columbia University and St. Louis University.

To inform the selection of an emergency/disaster preparedness training program, the project created and conducted a pilot survey of clinicians on information needs and preferred learning modalities for continuing medical education (CME). Project staff distributed the survey to 2,075 physicians at three Yale New Haven Health System hospitals (Yale-New Haven Hospital, Bridgeport Hospital, and Greenwich Hospital). A total of 811 surveys were returned. Analysis of the survey results showed that physicians were more interested in their roles in emergency or bioterrorism events, and how they should respond, rather than the clinical aspects of disease detection, which was the focus of training modules developed by Columbia University and St. Louis University. This mismatch led the project team to develop a new training course to better meet physicians' needs.

During the second year, project staff created the training program, "Bioterrorism Preparedness for Clinicians - EM 201," a 50-minute web-based program on basic principles of emergency management that emphasized (1) bioterrorism-related syndrome identification, (2) immediate precautions to protect

health care workers and prevent person-to-person transmission, and (3) the reportable disease process in Connecticut and chain of communication for suspicious syndromes/events. Web-based sources of additional information on specific diseases also were provided. The grantee obtained approval from the Bridgeport Hospital Department of Medical Education for one CME credit for the training program. The project pilot-tested the new training course with a small group of physicians at Yale-New Haven Hospital/Yale University School of Medicine.

During the third year (Phase II), physicians who responded to the original survey and said they would be willing to test the new training course were asked to participate. Actually getting physicians to take the course proved more difficult than expected, partly because physicians are very busy and free CME credits were not sufficient inducement. In addition, volunteers were not guaranteed that they could take the course right away, as some would be randomly assigned to a control group. Project staff secured enough participation by allowing those in the control group to take the course after the study period, and by offering a prize drawing. Study participants took a pre-test of competency related to bioterrorism, participated in the web-based training, and were tested on their knowledge immediately after taking the course, as well as four to six months later, to measure longer-term knowledge retention. Control group physicians were given the pre-test, and a test four to six months later.

Statistical analysis of the intervention and control group test results showed that physicians taking the bioterrorism preparedness course experienced a significant increase in knowledge as seen in the differences between pre-test and immediate post-test mean examination scores (60.6 to 77.2), while control group scores did not change (56.2 to 56.60). Unfortunately, longer term follow-up scores among the physicians taking the course showed a marked decrease to a mean of 64.4, close to their baseline measure of knowledge. This could be due to lack of opportunity to actually use the knowledge gained during the course.

Although the original proposal planned to adapt the course for other types of health professionals, such as nurses and physician assistants, and to test the course among health professionals in the northern part of the state, the need to develop a new training course and problems enrolling physicians in the first study produced delays and caused funds to run out before the project could expand to additional test groups/sites.

2. Partnership Structure/Function

Project staff from the two lead organizations, the Connecticut DPH and the Yale New Haven Health System, held meetings on at least a monthly basis during critical periods to coordinate tasks involved in planning, implementing, and evaluating project activities. Those attending the meetings included the Co-Principal Investigators (Louise Dembry, MD from YNHHS and Lloyd Mueller, Ph.D, CT DPH); the Director of Office of Emergency Preparedness at YNHHS (Christopher Cannon), the project's clinical Education and Research Coordinator (David Burich), and the project's consultant (Kari Hartwig, Ph.D., Yale University).

Additional experts were consulted to provide advice on clinical and public health epidemiology and surveillance, the development and evaluation of competency assessment tools and educational modules, and statistical analysis of survey results. Experts were drawn from Yale University School of Medicine, Department of Epidemiology and Public Health; Columbia University; and St. Louis University.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Connecticut Department of Public Health (DPH)	• Grant recipient/fiduciary; assisted in coordinating project activities and outcomes for bioterrorism education and training activities funded through HRSA and CDC grants, and with public health community; DPH also provided technical assistance on study research design and analysis, and on coordination with other emergency preparedness education and training
Key Collaborators	Yale New Haven Health System (YNHHS), Center for Emergency Preparedness and Disaster Response	• Project Investigator is Associate Medical Director of this Center at YNHHS, which carried out the work of the project: evaluated existing competency assessment tools for physicians, surveyed physicians on learning needs and preferences, developed training tools and modules, and surveyed course participants and controls
	Columbia University, Mailman School of Public Health and St. Louis University, School of Public Health	• Shared competency evaluation tools and educational modules, as well as interactive tools for training, communication, and improvement of surveillance and threat assessment. Modules and tools were intended to be used to deliver training through distance learning modalities, but later this mode was determined not to match physician needs
Target Organizations	Practicing physicians from various work settings	• More than 2000 YNHHS physicians for needs assessment; 41 hospital-based clinicians in 3 Yale-New Haven hospitals, and physicians in community settings in the Southern Tier of Connecticut for course testing; also 51 control group physicians from the same settings/area • Planned to expand study group to additional types of health professionals and to the northern tier of the state, but delays prevented this

3. Project Evaluation and Outcomes/Results

This project was designed to evaluate the effect of a training program on physician knowledge of bioterrorism preparedness and response. Like most training programs, it had an initial, significantly large impact on increasing participants' knowledge, but long-term knowledge retention was poor. Based on analyses of responses that were answered correctly or incorrectly by most test-takers, and an evaluation of the course content by those in the intervention group, modifications were made to the course content. The project team planned to make further course content changes based on evaluations by those in the control group (i.e., those allowed to take the course after the study period). The course also was posted on the website of the YNHHS Office of Emergency Preparedness after changes were made to remove the Connecticut-specific information and substitute more generic information about public health agencies. The training now can be accessed by physicians in any state; "meta-tags" were added to permit common Internet search engines to locate the courses.

4. Major Products

- Survey instrument on learning modalities for CME and topics related to bioterrorism
- "Emergency Management 101"—30-minute Power Point presentation on basic principles of emergency management
- "Bioterrorism Preparedness - Emergency Management 201 training module, available on the Yale New Haven Center for Emergency Preparedness and Disaster Responses website

5. Potential for Sustainability/Expansion after PFQ Grant Ends

The course developed for this project is now available on the Yale New Haven Center for Emergency Preparedness and Disaster Responses website http://ynhhs.emergencyeducation.org/. Project staff report that since its official launch in January 2006, after the end of the project, about 300 physicians have taken the course, which is eligible for CME credit. There is a state mandate for documentation of CME (approximately 30 hours/year) but it does not yet include a requirement that any of the CME be related to emergency preparedness.

PFQ GRANT SUMMARY
A NATIONAL CENTER FOR VALUE PURCHASING

Lead Organization:	HealthFront
Partner Team:	Park Nicollet Institute; National Institute of Health Policy; Colorado Business Group on Health; Buyers Health Care Action Group
Title:	A National Center for Value Purchasing Models
Topic Area:	Performance Incentives
Principal Investigators:	Michael Callahan, former Executive Director at HealthFront
AHRQ Project Officer:	Michael Hagan
Total Cumulative Award:	$1,281,576
Funding Period:	9/02 – 9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. The grant had two initial aims: (1) to develop a nationally recognized provider performance measurement, analysis, and award program, supported by purchasers; and (2) to develop the analytical capacity needed to support purchaser decisions on health care value purchasing. The grantee, HealthFront is a non-profit spin-off of the Minnesota-based Buyers Healthcare Action Group, with a board consisting of employer purchasers, health care consumers, and providers. When another organization that was supposed to work on the first aim withdrew from the project, the grantee focused solely on the second aim. Specifically, its goal was to evaluate methods for accelerating the adoption of "best practice" payment incentive systems by all major purchasers in selected communities by: (a) informing purchasers about the current use of incentives in pay-for-performance (P4P), public reporting, and tiered network strategies; (b) educating them about how to use incentive strategies; and (c) helping health plans align their respective incentives for P4P and public reporting.

Activities and Progress. Early in the first year after the project decided to focus on demonstrating how value purchasing could be supported and improved, the research team, comprised of researchers and staff from HealthFront, the National Institute of Health Policy, and Park Nicollet Institute, chose the Minnesota market for its initial test. The project partnered with the National Institute of Health Policy, led by former Senator David Durenberger and based at the University of St. Thomas (MN), and the Buyers Health Care Action Group (BHCAG), a group of major employers in the Minneapolis-St. Paul region that gave the project access to local purchasers and health plans. In the first year, the project conducted interviews with about 65 health plans and provider organization representatives regarding their current use of incentives and measures for P4P and public reporting. Results from these interviews indicated that there were vast differences among plans in their P4P activities and in the measures they used. The project team reported this information to purchasers to prompt discussions between them and the health plans about creating greater consistency in P4P and public reporting.

Due to other priorities, BHCAG did not follow up, but they have remained active with the Smart Buy Purchasing Alliance (a group of state and private health care purchasers). The core membership of the Alliance consists of a group of purchasers originally brought together by the grantee to discuss alignment of incentives. Both BHCAG and HealthFront representatives serve on the Smart Buy Alliance. The Alliance recently made its first Bridges to Excellence physician bonus awards. Also, because of the state's involvement with the Alliance, the Minnesota Department of Human Services is pursuing incentive payment reforms for Medicaid hospital services based on advice from the project team.

In the second year, the project work expanded into the Colorado market. The project partnered with the Colorado Business Group on Health (CBGH), which served as the conduit to employer purchasers in that community, and again conducted an assessment on the current status of P4P and public reporting in the market through interviews with local health plans and providers. The grantee presented the results of the assessment to purchasers, health plans, and other stakeholders. Although interesting to stakeholders, the findings did not spark extensive dialogue between purchasers and health plans, nor did it lead to quantifiable action to align performance incentives. However, the CBGH credits the project with setting the groundwork for the community's entrance into Bridges to Excellence, a non-profit organization that recognizes and rewards health care providers for delivering quality health care.

In the third year, after the community assessments in Minnesota and Colorado were completed, the grantee brought together an expert panel via the Internet to discuss the role of incentives in improving preventive and chronic illness care, and the clinical capacity to manage care for better outcomes (e.g., registries, IT). Providers and purchasers from the two communities also participated in the discussion. In October 2004, the project conducted a one-day in-person, retreat at the request of several of the panel members.

The panel, which included such experts in the area of quality effects of incentives as Robert Berenson, Lawrence Casalino, and Judith Hibbard, participated in the discussions, as well as small group exercises that identified the best ways for purchasers to provide incentives to providers. These results were presented to purchasers in Minnesota and Colorado.

One of the findings from the expert panel discussions was that communication was poor between medical practice leadership and rank and file physicians regarding P4P practices and public reporting. Since physician response to incentives determines the effectiveness of P4P, the grantee and partners, at the request of the purchasers, decided to obtain more information about what physicians know or think about P4P, public reporting, the use of incentives, and how they would respond to incentives. Thus, in the third year, the project developed a survey for medical group managers in Minnesota to assess their perceptions of P4P, public reporting, and quality incentives in general. Analysis of the survey results focused on responses from the managers of 78 unique medical groups representing 6,964 physicians in primary care practice in Minnesota.

In the fourth year, results from the survey were presented to purchasers and plans in the state, which generated substantial interest. One of the findings was that a large number of physicians were uncertain about P4P and public reporting, either because they had a wait-and-see attitude or because they did not know much about it. This suggested the need to educate physicians. The research team wishes to contact the physicians in Minnesota again to see if there have been any changes in plan activities (e.g., education activities for physicians) as a result of the findings.

At the time this summary was prepared, the research team was fielding the physician survey in Colorado. Because practices in Colorado are smaller than those in Minnesota, the survey was revised to focus on the individual physician level rather than the group level. Once the survey and the data analysis are complete, the project will present findings to the Colorado Medical Society at its annual meeting. The survey was supported by the local leaders of Colorado Medical Society, the Colorado Academy of Family Medicine, the American Academy of Pediatrics, and the American College of Physicians.

2. Partnership Structure/Function

Project staff at HealthFront formed a core research team with two other groups: (1) health services researchers from Park Nicollet Institute, which is associated with a large multi-specialty medical group; and (2) the National Institute for Health Policy (NIHP), which is affiliated with the University of Minnesota and the University of St. Thomas. (The former Executive Director of NIHP is now at the University of St. Thomas Center for Business Excellence but remains a key research partner in the

project.) Researchers from the three organizations held weekly meetings to develop and implement the surveys, conduct community assessments, analyze survey results, and plan for the dissemination of findings to community stakeholders.

The core partners also formed partnerships with CBGH and BHCAG to gain access to purchasers in the community. The two purchaser coalitions hosted in-person meetings for the project team to present findings from the assessment of community activities in P4P, public reporting, and tiered network strategies. The team formed a close relationship with CBGH in Colorado, and the director of the purchaser coalition was actively involved in interviewing community stakeholders and analyzing the data. Relations with BHCAG in Minnesota were not as close because the organization was more focused on national issues.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	HealthFront	• Responsible for project administration, coordination, research support, and employer liaison • Assessed current state of P4P, public reporting, and tiered networks in Minnesota and Colorado through interviews with health plans and purchasers • Reported on information from physician survey in Minnesota to purchasers and health plans to solicit stakeholder reactions and feedback
Key Collaborators	Park Nicollet Institute (PNI), Director, Health Systems Studies David Knutson	• Health care services research center conducted research and survey design, financial analysis, and economic research, and was liaison with CMS and national research community • Developed physician surveys, fielded surveys, and analyzed findings • Participated in meetings to present findings from survey to stakeholders in MN
	National Institute of Health Policy (NIHP), Exec. Dir. Daniel McLaughlin	• University-based health policy research center (affiliated with University of St. Thomas, MN) provided liaison with CMS, health plans, Medicaid programs, policy, and educational institutions • Helped gain access to health plans and other stakeholders for interviews to assess the status of P4P, public reporting, and tiering in Minnesota • Hosted expert panel meetings to discuss findings and future steps for research; helped to analyze findings
	Colorado Business Group on Health (CBGH)	• Helped access stakeholders in the market, including health plans, purchasers, and physicians • Participated in interviews with stakeholders and helped to analyze findings • Hosted the meetings to present information from assessment to CO community
	Buyers Health Care Action Group (BHCAG)	• Hosted the meetings to present information from assessment to MN purchaser community

Table 1 *(continued)*

	Organization	Role in Project
Target Organizations	Purchasers, health plans, physicians in the Minnesota health care market (in 2 areas: Minneapolis/St. Paul and rural western Minnesota) Purchasers, health plans, and physicians in the Colorado health care market (Denver)	• Purchasers, plans, and physicians were interviewed by project staff to assess the community incentive environment in these markets • Received information from the project's assessment of incentive environments • Physician groups were surveyed for their perceptions on the use of incentives

3. Project Evaluation Outcomes/Results

Information from the community assessments was presented to purchasers and plans in each market. However, the information did not prompt discussions about value-based purchasing between purchasers and plans. Although health plans in both communities are now working to achieve more consistency in measures used for P4P, public reporting, and tiered strategies, the work is not the direct result of the project findings. In both Colorado and Minnesota, purchaser groups decided to work through the Bridges to Excellence program, rather than directly with health plans. In Colorado, however, project partners believe that grant activities contributed to the community dialogue that led to its decision to participate in the Bridges to Excellence program.

Researchers believe that information from the physician surveys on how they respond to payment incentives has the potential to affect purchaser behavior regarding value-based purchasing. Particularly in Colorado, where the implementation of incentive programs was less advanced, the fact that employers are now engaged in an active dialogue with the medical community regarding value-based purchasing is directly attributable to the project. This dialogue, in turn, creates employer demand for such programs to be introduced by insurers and the discussion facilitates and informs implementation of these programs by educating the providers. The plan is to follow up to determine to what extent purchaser or health plan activities can be attributed to survey information. The Colorado physician survey was completed by August 2006 and the results were presented in September 2006 at a meeting of the Colorado Business Group on Health, and at the Annual Meeting of the Colorado Medical Society. Both the employer members of the CBGH and, the leadership of the Colorado Medical Society in particular found the results of the survey enlightening. Researchers are drafting papers for submission to a peer-reviewed journal to include discussion of (1) the purchaser response to information on value purchasing, (2) results of the medical group manager and physician surveys, and (3) an exploration of the relationships between market penetration, alignment of incentive programs, and provider perceptions of them.

4. Major Products

- Medical group manager survey tool
- Physician survey tool
- Research findings regarding the responses of large and small medical groups to quality incentives, and recommendations from the provider community about desirable and actionable design features of quality incentives
- Summary of an expert panel discussion that identified the best ways for purchasers to provide incentives to providers, and potential unintended consequences that plans and purchasers policymakers need to guard against
- Presentation of physician survey results to Colorado Medical Society, September 16, 2006

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Purchasers in Minnesota, including the Buyers Health Care Action Group, have expressed interest in having the researchers conduct a second round of the physician survey. The National Business Coalition on Health, a national non-profit membership organization of employer-based health coalitions, has expressed interest in working with the project's researchers to disseminate information to support its member coalitions in trying to improve quality through P4P, public reporting, and tiered network strategies. The Colorado Medical Society has asked the team to write articles for its member publications and is interested in working with the researchers and the CBGH to continue the dialogue with physicians. The project team plans to conduct mini-case studies of local markets, how purchasers are using incentives, and how providers respond to them. The team is developing an online course on pay-for-performance directed toward an audience of physicians and medical group managers to be offered by the University of St. Thomas. This online course builds on the team's experience with the online expert discussion panel sponsored by the University in 2004.

PFQ GRANT SUMMARY
REAL-TIME OPTIMAL CARE PLANS FOR NURSING HOME QUALITY IMPROVEMENT

Lead Organization:	International Severity Information Systems, Inc. (ISIS)
Partner Team:	IFAS/AAHSA, AHQA, Catholic Health Partners, Good Samaritan Society, National Church Residences, Christian Home and Rehabilitation, Sugar Creek Rest, Marywood Nursing Center, Ozanam Hall, Memorial Hermann Spring Shadow Pines
Title:	Real-time Optimal Care Plans for Nursing Home QI
Topic Area:	Improve prevention of pressure ulcers in nursing homes
Principal Investigators:	Susan Horn, VP for Research at ISIS and Senior Scientist, Institute for Clinical Outcomes Research (ICOR is a division of ISIS). Co-Investigator is Robyn Stone, Exec. Director of the Institute for the Future of Aging Services/AAHSA in Washington DC.
AHRQ Project Officer:	William Spector (originally Thomas Shaffer)
Total Cumulative Award:	$1,297,577
Funding Period:	10/02–10/06
Project Status:	Received a no-cost extension to March 2007

1. Project Description

Goals. This project incorporated research findings from the National Pressure Ulcer Long-term Care Study (NPULS) (1996) into routine, evidence-based best practice in long-term care (LTC) facilities. The project standardized front-line documentation and used this information to produce weekly reports to support clinical decision-making and care planning. Through a staged approach, the project facilitated clinical process and workflow redesign, introduced technology tools that assisted providers in identifying high-risk residents, and empowered front-line staff to take appropriate and timely prevention or treatment actions. Ultimately, the project aimed to redesign clinical workflow—instead of concentrating on improving existing processes only—to reduce the incidence of pressure ulcers among LTC residents in nursing homes.

Activities and Progress. The project leadership team was led by ISIS; the co-PI at IFAS/AAHSA was involved in overall project assessment and promotion of project activities. The American Health Quality Association (AHQA) provided assistance with dissemination of information regarding project activities, including presentations at AHQA national meetings and contact with the editor of the Provider publication.

In the first year, the project selected a pilot site, Memorial Hermann Spring Shadow Pines in Houston, TX, which formerly had worked with ISIS on the NPULS project. Project staff designed scannable, comprehensive documentation forms for Certified Nursing Assistants (CNAs) and tested them at one nursing unit in the pilot site. AAHSA's Institute for the Future of Aging Services took the lead in recruiting and screening additional nursing homes for participation in the project, and ISIS used various networks to recruit study participants, including some affiliated with a PFQ grant recipient in Ohio. By April 2003, five additional nursing homes in four states had been selected and had agreed to participate. By May 2004 (the second year of the project), 20 units in 12 nursing homes from 10 states had been selected to participate. The project began instituting systems to streamline documentation for CNAs and nurses. For CNAs, multiple logbooks, clipboards, and notebooks were consolidated into a single documentation instrument that included meal and fluid intake, weight, bowel and bladder incontinence, and behavior observations. Nurses consolidated information into a CareGiver Guide that included pressure ulcer risk factors, medications, nutritional

supplements, and fluid intake. ISIS assisted with facility-requested customization of the standardized forms. Clinicians used optical character recognition (OCR) forms, which allowed facility staff to use the familiar method of documenting on paper, and faxed them to ISIS where software exported the data to a database. ISIS generated weekly facility-specific reports and provided help with report interpretation to follow clinical best-practice guidelines at each facility. It also collected baseline data for evaluation, and began developing plans to sustain the process at the facility and unit levels.

In the third year, the project held its second and third project meetings (November 2004 and April 2005); most participating facilities sent one or more representatives to share progress, challenges, and outcomes. Many facilities expanded the use of CNA documentation forms to additional units, and some used the forms facility-wide. Completeness rates varied; some facilities were very high (rates of more than 95%) and others were lower (50 to 60 percent). Facilities shared experiences with comprehensive documentation and gradually decided to use the same documentation forms, so that standardization was achieved. The standardized CNA form replaced other forms and became part of the resident's medical record at each facility. Most facilities began to incorporate data from the six ISIS-generated reports on resident status into daily or weekly resident care planning, which allowed staff to identify triggers for specific protocol steps to reduce the risk of pressure ulcers.

During the last year of the project, the focus shifted to sustaining project activities in participating facilities. ISIS helped facilities to explore ways of managing/sustaining process improvements without ISIS support, as for example through electronic medical records or digital pen technology. (See below, under Potential for Sustainability/Expansion.)

2. Partnership Structure/Function

The project formed an Advisory Committee to provide input and guidance on standardized documentation, implementation approaches, and analysis of results. Members included representatives from AMDA (medical directors of LTC facilities), academic researchers, a foundation representative, and the executive of a health care IT company. In addition, the project organized a Working Group, comprised of representatives of participating nursing home sites, and including some combination of the facility's medical director, Director of Nursing, administrator, and MDS coordinator. According to a grantee report: "Another layer of partnerships exists within each facility. Each facility convened a QI team that is multi-disciplinary and includes all members of the care team, i.e., administrators, nurses, nursing assistants, social workers, MDS coordinators, dieticians, etc. This representation of all, especially front-line workers, is an atypical approach to QI efforts." The first project meeting included Advisory Committee members and facility representatives.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	International Severity Information Systems (ISIS)	• Project management; convening Advisory Board and Working Groups of participating facilities • Support to each participating facility to develop and process forms for each resident, generate reports, work with staff at all levels on implementation of facility-specific work plans • Lead effort to sustain project activities
Key Collaborators	Institute for the Future of Aging Services/ AAHSA	• Project guidance and support for establishing partnerships with project sites; recruit and screen project sites

Table 1 *(continued)*

	Organization	Role in Project
Key Collaborators *(continued)*	American Health Quality Association	• Provided assistance with dissemination and outreach for project activities, including presentations at AHQA national meetings and contact with editor of the Provider publication; also was a conduit to key leaders of nursing home trade associations
Target Organizations	8-12 nursing homes and, in some cases, their corporate organizations	• 11 nursing homes in 7 states implemented the intervention: developed/ used OCR forms on resident functioning/risk factors for pressure ulcers, incorporated timely report information, and began to use or explore technology options to sustain project activities • Catholic Health Partners had 4 Ohio nursing homes participating in the project – provided a 'learning-lab' to examine how experiences of 4 facilities could serve as a model to standardize processes across an organization and to disseminate tools to other facilities

3. Project Evaluation and Outcomes/Results

The project's evaluation design involved the collection of baseline and follow-up data on (1) clinical measures (pressure ulcer incidence acquired in or out of the facility); (2) utilization measures (hospital admissions and ER visits); (3) operational measures, e.g., number of forms used prior to intervention; and (4) annual turnover rates and staff satisfaction measures.

The combined average for 7 facilities that implemented project processes starting in April 2004 shows an overall reduction of 33% in the [CMS] quality measure (QM) of high-risk residents with pressure ulcer from pre-implementation to initial post-implementation time periods (through Quarter 3, 2005). Individual patterns for each facility show reduction in the pressure ulcer QM and percentage of high-risk residents with pressure ulcers. Pressure ulcer prevalence in participating facility units dropped to about 8.7% on average, compared to the national average of 14%, which remained flat over the life of this project. However, this may not be statistically significant because it is a small sample. Facilities that implemented the intervention more fully (e.g., regularly submitting forms, using the reports in regular care planning meetings) had better results—PU prevalence in the 5 to 6% range—than those that partially implemented the intervention.

These early findings were updated with Quarter 4, 2005 data to summarize overall impact to date (by facility) on CMS QMs related to pressure ulcers. It is important to note that the CMS QM for high-risk pressure ulcer includes in-house and externally acquired, as well as existing pressure ulcers, and is a measure for the entire facility. While this differs from the project's primary clinical outcome measure (in-house acquired pressure ulcers on participating units), the project team hypothesized that participating facilities focused improvement efforts on the unit(s) with highest risk residents; therefore, the interventions would impact the CMS QM for high-risk residents. Individual patterns for most facilities show reduction in the pressure ulcer QM percentage of high-risk residents. During Quarter 3, 2003, only two facilities were below the national average. For Quarter 4, 2005, six facilities were below the national average. All project facilities that have prevalence rates equal to or greater than the national average have decreased their prevalence from Quarter 3, 2003 by an average of 38%.

In addition to decreased pressure ulcer development, the project reduced the number of documentation forms that CNAs fill out at each facility, which reduces paperwork burden and provides more time for hands-on care to residents. Information about residents is now available in "real-time"; quality improvement has shifted from reviewing data quarterly on a retrospective basis to using weekly clinical reports for timely resident care planning by all members of the care team. Communication among

the care team reportedly has improved and collaboration across team members has increased. Data needed for CMS and state survey reports are captured more easily and are readily available.

4. Major Products

The workflow change process of using standardized documentation and timely feedback reports for improved care planning has been presented at many national conferences, including the 2004 and 2005 Annual Research Meetings of AcademyHealth, the Spring 2004 and 2005 AAHSA Future of Aging conferences, the 2005 AAHSA Annual Meeting, AHRQ's Translating Research into Practice meetings in July 2005 and 2006, and the Gerontological Society of America annual conferences in November 2005 and 2006.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Among the 11 facilities that participated in the project, four will not be involved in future spin-off projects, primarily because of turnover in the Directors of Nursing, who are key decision makers in nursing homes. The remaining facilities are joining ISIS in a new Health Information Technology (HIT) project to continue the standardized documentation and reporting processes begun in this project; HIT is funded by AHRQ.

Half of the participating facilities were part of larger systems or corporate chains. This allowed corporate leaders to watch 'the experiment' and decide if it was worth adopting corporate wide. The Good Samaritan Society (GSS) was impressed enough to adopt the tools; according to the PI, 240 GSS facilities in 25 states are now using the same approach to documentation. Mercy Health Partners, which had four facilities participating in the project, is rolling it out to more of their long-term care facilities. In addition, standardized comprehensive documentation by front-line staff, followed by timely reporting, has changed facility workflow. While designed around pressure ulcer prevention, it is applicable and helpful across clinical areas. It is being used to facilitate improved resident care and better responsiveness to federal reporting requirements.

Towards the end of the project's third year, ISIS had discussions with the Arizona QIO and initiated calls with QIOs in California, MD-VA-DC (Delmarva), Ohio, Texas, North Carolina, Idaho, Washington, and Rhode Island to explore their interest in replicating the model through the QIOs' nursing home quality improvement activities. These discussions led ISIS to submit a separate contract proposal to launch this new approach to replication. AHRQ funded the contract, which began in September 2005. ISIS is working with California (Lumetra), Idaho (Qualis), Texas, Maryland (Delmarva), North Carolina, and Arizona QIOs. The QIOs identified about 30 long-term care facilities; ISIS trains facility and QIO staff to help them implement the 'Real-Time' process using Digital Pen Systems or internal facility IT systems.

In the final grant year, the project intensified its efforts to disseminate project activities to other long-term care facilities. It will evaluate results and develop a plan for ongoing initiatives to continue expanding the number of participating sites, evidence-based medicine content, and data collection and reporting improvements. To accomplish this, the ISIS project team is working in partnership with the AHRQ-funded contract to Delmarva Foundation for Medical Care, contract #290-04-0009, 'Real-Time Prevention of Pressure Ulcers,' which was funded in May 2006.

PFQ GRANT SUMMARY
MEASURING PERFORMANCE AND BIOTERRORISM PREPAREDNESS: AN IMPACT STUDY

Lead Organization:	Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
Partner Team:	Technical Expert Panels; hospitals, community health centers, and other health care organizations
Title:	Measuring Performance and Bioterrorism Preparedness: An Impact Study
Topic Area:	Core Performance Measurement/Quality Improvement and Emergency Preparedness
Principal Investigators:	Jerod M. Loeb, PhD, Executive Vice President, Division of Research
AHRQ Project Officer:	Sally Phillips, PhD, RN
Total Cumulative Award:	$1,181,351
Funding Period:	9/02 – 9/06
Project Status:	Bioterrorism Preparedness: complete, pending submission of final report; Performance Measurement - data analysis continues; Received no- cost extension until September 2007

1. Project Description

Goals. This project had two distinct components. The first sought to **evaluate the impact of evidence-based performance measurement on perceptions about and the perceived value of quality improvement efforts.** For this component, the project examined evidence-based process-of-care practices for five core performance measure sets: acute myocardial infarction, heart failure, pneumonia, pregnancy and related conditions, and surgical infection prevention. It analyzed relationships between core performance measure data and perceptions about their value, actions taken, and the impact of interventions. The second project sought to assess the **existence of linkages for emergency preparedness** between health care organizations and community responders and other stakeholders, including public health, public safety, and governmental administrative agencies. This component planned to compare these linkages in communities that had experienced a disaster with those that had not, and identify exemplary practices.

Activities and Progress

Performance Measurement Project. In Year 1, to determine the accuracy, completeness, and reliability of core measures records abstraction, JCAHO project staff re-abstracted up to 30 medical records at 30 randomly selected test hospitals for JCAHO core measure sets in acute myocardial infarction (AMI), heart failure (HF), community-acquired pneumonia (PN), and pregnancy and related conditions (PR). Project staff compared results of the re-abstractions, data element by data element, to the original hospital data abstraction. Following this, 90 hospitals conducted their own re-abstraction of the core measure data. In Years 1 and 2, project staff analyzed the data and conducted interviews with hospital staff to discuss discrepancies and identify systemic issues with the data collection process.

During Years 1 and 2, surveys were sent to approximately 1,971 hospitals to investigate staff perceptions of quality improvement efforts and the value of core performance measurement and actions taken in response to the measurement process. The results were compared to hospitals' performance measure data. Project staff conducted site visits to 40 of the hospitals that completed the survey (36 on-site and 4 teleconference visits). During Year 3, invitations to participate in an online survey were sent to the same hospitals. In Years 3/4, in-person interviews were conducted at 29 hospitals, representing a mix of those with high perception/high performance and those with low perception/low performance. The in-

person interviews were extensions of the surveys, providing more detail about factors influencing perceptions and performance. Data analysis is ongoing and will be completed during the one-year no cost extension.

Bioterrorism Preparedness Project. In Year 1, the project assembled a Technical Expert Panel (TEP) comprised of nine panel members representing a range of organizations and professions, including hospital administrators, emergency response personnel, local and state public health officials, and law enforcement, and engaged a project consultant. The grantee, with assistance from the TEP, developed a framework of seven major topic areas to be used in assessing the existence of linkages among health care organizations, community responders, and stakeholders, and to identify exemplary practices.

In Year 2, based on the TEP's recommendations, the grantee developed a questionnaire to be sent to a randomly selected sample of U.S. accredited and unaccredited medical/surgical hospitals from the American Hospital Association database. Prior to implementation, the questionnaire was pilot-tested. The project team invited 1,750 hospital CEOs to participate in the study, and the final questionnaire was mailed to the CEO-designated contact person for the 678 hospitals that agreed to participate. Representatives of 575 hospitals returned completed questionnaires. The project team analyzed the data to determine the prevalence and breadth of hospital and community linkages related to emergency preparedness. The aggregate results were sent to participating hospitals when they agreed to participate in the study.

In Year 3, project staff continued to analyze the data from the hospital questionnaires and developed and submitted a manuscript describing the results of the hospital analyses. Project staff also identified potentially innovative practices for inclusion in the Joint Commission publication, *Standing Together: An Emergency Planning Guide for America's Communities*.

Also in Year 2, the grantee assembled a new Technical Expert Panel subgroup for assessing community emergency preparedness linkages in health centers. The eight-member panel drew on both existing TEP members and referrals from the TEP, including an expert from the Health Resources and Services Administration (HRSA) to lead the subgroup. This new subgroup examined the hospital questionnaires and provided feedback and suggested revisions for the resulting 60-item questionnaire to be implemented in federally funded health centers. In Year 3, the grantee mailed the health center questionnaires to the executive directors of 890 federally funded CHCs, of which 307 responded. The project staff worked with the TEP subgroup for health centers to develop a strategy for analyzing data. The remainder of Year 3 was used to conduct an initial health center data analysis, to convene the health center TEP subgroup for a discussion of aggregate findings, and to develop and disseminate these findings.

A request for a six-month no-cost extension (to March 2006) of the bioterrorism component of the grant was requested following the scheduled project-end date of September 30, 2005; this allowed completion of (1) multivariate analysis of health center data, (2) identification of innovative health center practices, (3) manuscript preparation (health center results), (4) dissemination of innovative health center practices, (5) continued preparation and finalization of project report, and (6) presentation of findings.

2. Partnership Structure/Function

JCAHO was the primary leader and actor for both studies funded under this grant. The JCAHO project team did not have any partners for the performance measurement project, although it viewed the grant funding as an opportunity to get feedback from hospitals on JCAHO's required performance measures, and how they might be improved for use in quality improvement activities. For the bioterrorism preparedness project, the grantee convened an advisory TEP and TEP subgroup. The TEPs met with the JCAHO project staff approximately every six months.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Joint Commission on Accreditation of Healthcare Organizations (JCAHO)	• Developed questionnaires, conducted and provided general oversight for the studies • Wrote reports and disseminated results
Key Collaborators	Bioterrorism Project: Technical Expert Panel (TEP) - Hospitals Technical Expert Panel Sub-Group – health centers	• Advisory group included AHA; helped to construct hospital questionnaire and guide analysis • Advisory group of health center representatives, including DHHS/HRSA's Bureau of Primary Health Care; helped to construct health center questionnaire and guide analysis
Target Organizations	Performance Measurement Project: Nearly 1500 hospitals participated in the 2 surveys; 69 hospitals participated in the in-person interviews Bioterrorism Project: 1,750 (random sample) Joint Commission accredited and unaccredited hospitals; 890 (population) federally funded health centers	• Conducted data abstraction and re-abstraction; completed surveys and submitted them to project staff; identified participants for the in-person interviews. (The 29 interviews in the second round of in-person interviews each took approximately 2 hours to complete.) • Completed questionnaire and submitted results to JCAHO project staff

3. Project Evaluation and Outcomes/Results

Performance Measurement Project. The baseline level of data reliability appears to be acceptable for measures used to assess and improve hospital performance. Twenty of 21 performance measures examined showed no statistically significant differences when comparing originally abstracted with re-abstracted data using the Chi-Square test statistic for rate-based measures and the Wilcoxon test statistic for continuous variable measures. The one statistically different measure reflected higher performance measure rates when derived from the originally abstracted data ($p < 0.05$). The mean data element agreement rate for the 61 data elements evaluated was 91.9 percent and the mean kappa statistic for binary data elements was 0.68. Preliminary findings indicate that overall data element agreement rates varied among measure sets and, in general, JCAHO independent abstractors identified more data element discrepancies than did the self-re-abstractors; in other words, it was found that hospital self-abstracted data was fairly accurate and reliable, although it was better when a third party conducted the re-abstraction. This information is important to those considering payment tied to performance measures.

For the first survey, project staff received approximately 1,141 completed surveys from 851 hospitals. From these respondents, a sample of 40 hospitals was recruited to participate in 36 in-person and 4 teleconference interviews. For the second survey, nearly 600 hundred hospitals responded and 29 in-person interviews were completed. Preliminary results suggest relationships between the perceived value of core measure sets and a variety of quality improvement actions. Further analysis will attempt to evaluate the relationships between improvement actions measure rates, as well as assessment of qualitative data obtained during the in-person interviews.

Bioterrorism Preparedness Project. Of the 678 hospitals that received questionnaires, 575 submitted completed surveys. The study found deficient linkages between hospitals, public health, and other critical response entities. The abstract of the article, published in *Annals in Internal Medicine*, June 2006 reported:

> "In a weighted analysis, most hospitals (88.2%) engaged in community-wide drills and exercises, and most (82.2%) conducted a collaborative threat and vulnerability analysis with community responders. Of all respondents, 57.3% reported that their community plans addressed the hospital's need for additional supplies and equipment, and 73.0% reported that decontamination capacity needs were addressed. Fewer reported a direct link to the Health Alert Network (54.4%) and around-the-clock access to a live voice from a public health department (40.0%). Performance on many of 17 basic elements was better in large and urban hospitals and was associated with a high number of perceived hazards, previous national security event preparation, and experience in actual response."

Of the 890 health centers that received questionnaires, 307 returned the survey. While 80 percent reported that their communities had a group or committee responsible for emergency preparedness or response planning, only 54 percent reported being represented in the group by either a staff member (46 percent) or by the Primary Care Association or network/consortium (8 percent). About half (54 percent) of health centers reported that the community had established a role for all (22 percent) or some (32 percent) sites in the event of an emergency. Thirty percent reported that their role had been documented in the local/county emergency operations plan. Twenty-seven percent had completed a collaboration threat and vulnerability analysis with community responders for all or some sites. Twenty-four percent of health centers reported that all (5 percent) or some (19 percent) sites had participated in community-wide drills/exercises since 2001. Thirty percent of responding health centers reported having responded to an actual public health emergency or disaster, while an additional 11 percent reported having responded to a potential or suspected emergency.

Stepwise logistic regression analysis also was performed. The main outcome variable for this analysis was a composite measure of the strength of community linkages. Having the highest cumulative linkages indicator score was associated with 7 items: health centers that had an emergency operations plan that was developed collaboratively with the community emergency management agency, and those that had participated in community-wide training, were 3.4 and 3.6 times more likely to have the highest summary indicator score, respectively. Those whose staff had seen the community emergency plan were nearly 3 times more likely to have the highest indicator score, and those who had staff who were involved in community planning were more than twice as likely to have the highest score. Health centers whose community plan addressed their health need for additional supplies and equipment were 3 times more likely to have the highest summary indicator scores. Health centers that reported having a community emergency management agency with the ability to reach a health center contact around the clock, and those that reported staff as present or being represented at the community emergency operations center during a response, were approximately 2.3 times more likely to have the highest summary indicator score.

4. Major Products

Performance Measures Project:

- Mebane-Sims IL, Williams SC, Schmaltz SP, Koss RG and Loeb JM. "Influence of Perceptions About Performance Measurement on Actions Taken to Improve the Quality of Patient Care." Paper presented at the Annual Research Meeting 2006, Seattle, WA, June 25, 2006.
- Williams SC, Watt A, Schmaltz S, Koss RG, Loeb, JM. "Assessing the Reliability of Standardized Performance Measures: Self versus Independent Reabstraction." *Int J Quality Health Care.* 2006;18:246-255.

- Williams SC, Watt A, Schmaltz S, Koss RG, Loeb, JM. "Reliability of Standardized Performance Measures: Self versus Independent Reabstraction." Paper presented at the American Health Quality Association 2006 meeting, January 2006.
- Williams S, "Assessing the Reliability of Standardized Health Care Quality Indicators Implemented Across the United States." Paper presented at the International Society for Quality in Health Care, Indicator Summit, Dallas, TX, November 2, 2003.
- Watt A Williams S, Lee K, Robertson J, Koss RG and Loeb JM, "Keen Eye on Core Measures." *Journal of the American Health Information Management Association*, 2003, 74(10): 21-25.
- Watt A, "A Reliability Assessment of Performance Measure Data." Poster presentation at the Academy Health 2004 Annual Research Meeting, San Diego, CA, June 2004.

Bioterrorism Preparedness Project:

- Loeb JM, Braun BI, Wineman NV and Schmaltz SP. "Emergency Preparedness Planning and Exercises: Comparing Hospital and Health Center Community Integration." To be presented at the American Public Health Association Annual Meeting, Boston, MA, November 2006.
- Wineman NV, Braun BI, Barbera JB, Schmaltz SP and Loeb JM. "The Integration of Health Centers into Community Emergency Preparedness Planning: An Assessment of Linkages." Presented at Academy Health Annual Research Meeting, Seattle, WA, June 2006.
- Braun BI, Wineman NV, Finn NL, Barbera JA, Schmaltz SP and Loeb JM. **"**Integrating Hospitals into Community Emergency Preparedness Planning." *Annals of Internal Medicine.* 144(11):799-811, 2006 Jun 6.
- Wineman NV, Braun BI, Finn NL, Schmaltz SP and Loeb JM. "The Integration of Healthcare Organizations into Community Emergency Preparedness Planning: A National Baseline Assessment." Poster presented at the American Public Health Association Annual Meeting, December 2005, Philadelphia, PA.
- Finn N, Braun BI and Wineman NV. "The Integration of Hospitals into Community Emergency Preparedness Planning and Response: A Baseline Assessment." Poster presented at the Academy Health Annual Research Meeting, June 2005, Boston, MA.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Research findings from these projects could generate new research opportunities following the end of the grant period. Some of the findings may be useful in developing research questions to evaluate relationships between core performance measures data and clinical outcomes, and in evaluating and designing pay-for-performance systems. Some say the survey instrument for the bioterrorism component is a useful checklist for hospital emergency preparedness measures. An examination of the depth of community linkages also could be undertaken.

PFQ GRANT SUMMARY
USING INCENTIVES TO DRIVE LEAPS IN PATIENT SAFETY

Lead Organization:	The Leapfrog Group
Partner Team:	Purchaser (employer) and payer (health plan) groups in 6 different markets; Evaluators/researchers from 3 universities; Consultants from Medstat, Towers Perrin, and Ropes & Gray
Title:	Using Incentives to Drive Leaps in Patient Safety—Implementation Phase
Topic Area:	Incentive and reward programs to motivate providers to improve quality
	Principal Investigators: Suzanne Delbanco (Leapfrog)
AHRQ Project Officer:	Michael Hagan
Total Cumulative Award:	$1,295,537
Funding Period:	10/02–9/06
Project Status:	Received no-cost extension until September 2007

1. Project Description

Goals. This project began with a one-year "planning grant," which developed and recruited payer and purchaser groups to pilot-test financial incentive and reward programs targeting hospitals and consumers, in order to speed the adoption of The Leapfrog Group's recommended hospital patient safety practices. On behalf of the millions of Americans for whom many of the nation's largest corporations and public agencies buy health benefits, The Leapfrog Group aims to use its members' collective leverage to initiate breakthrough improvements in the safety, quality, and affordability of health care.

The goal of the subsequent three-year "implementation grant" was to implement these pilot projects in at least six health care markets around the country and evaluate their effectiveness. Specific aims were to (1) document and understand payers' and purchasers' interest in incentive and reward programs, and identify organizational and market characteristics related to integrating such programs into their purchasing decisions; (2) document and understand the decision making processes purchasers and payers use to design and implement interventions aimed at improving hospital quality and safety; and (3) measure the impact of their interventions on employees' choice of hospitals and hospitals' adoption of Leapfrog's recommended quality and patient safety practices.

Activities and Progress

Phase I pilots:

- ***GE, Verizon, and Hannaford Brothers Collaborative/Albany-Schenectady market.*** These three large employers collaborated in designing and implementing a bonus program for hospitals and financial incentives for consumers to use hospitals meeting Leapfrog hospital patient safety standards. The group chose to use Leapfrog's Hospital Rewards Program quality and efficiency measures in five clinical areas. Hospitals would be eligible for rewards based on how they performed in each of the areas. Leapfrog provided and arranged for technical assistance to this group, including hosting webcasts for local hospitals and health plans about the program, and conducting outreach to hospitals to solicit their participation. The pilot has not yet been implemented (it was on hold as of June 2006) because of hospitals' reluctance to participate due to uncertainty about the availability of bonus funds, and because the data vendor has not yet agreed to release the data necessary to compile the measures. The evaluation team has monitored the pilot's progress and had

planned to conduct a survey of hospitals regarding their willingness/unwillingness to participate, but this survey also is on hold.

- ***Healthcare 21 (HC21) Business Coalition/Eastern and Central Tennessee.*** This pilot worked to implement a "tier and steer" incentive program to direct patients to high performing hospitals. Leapfrog helped with measure development and legal assistance. HC21 constructed a consumer guide on selecting hospitals based on Leapfrog's recommended patient safety practices (aka "leaps"), and has been working with a few employers on new benefit designs to encourage employees to use higher performing hospitals. The majority of employers, however, were wary of proceeding with any benefit plan changes because health plans in the state also are designing new benefit packages along these lines, a role that employers believe health plans are better suited to fill, and the project has stalled.
- ***Boeing Company/Seattle, Wichita, Kansas and Portland, Oregon.*** This pilot adopted a benefit differential to encourage certain members of its PPO to use hospitals that met Leapfrog's quality and patient safety practices. Under an arrangement negotiated with two unions representing certain Boeing employees, the Hospital Safety Incentive allowed PPO-enrolled employees to obtain 100% coverage after the deductible for services in a "Leapfrog-compliant" hospital, versus 95% coverage in a non-compliant hospital. Boeing does not plan to continue the benefit design, but machinists with the benefit in their current contracts will retain the design for three more years. Boeing worked with Leapfrog, Medstat, and its plan administrator to identify which hospitals met Leapfrog's standards. The evaluation team used a pre- and post-measurement design of employees affected and unaffected by the program. Boeing currently is examining the post-measurement results.
- ***Maine Health Management Coalition (MHMC)/Maine.*** This pilot created a bonus pool of about $1 million for high performing hospitals. Hospitals could receive bonus funds by meeting certain performance standards. The 10 participating hospitals and 9 participating purchasers contributed to the bonus pool; the funds from hospitals are redistributed from lower to higher performing hospitals with purchasers contributing some "new money." Hospitals can lose their contribution if they do not meet certain performance thresholds, or gain a bonus for exceeding them. Medstat collected data to calculate a score based on patient satisfaction, patient safety, clinical measures, and efficiency. Leapfrog assisted with incentive and reward methodology and administration. Intended to begin in July 2005, the pilot's implementation was delayed until 2006 when 2005 performance results were reported; Medstat issued the rewards in the summer of 2006. The evaluator tracked the pilot's methodology and results, and conducted a survey of employers and hospitals involved in the pilot to determine their concerns.

Phase 2 pilots:

- ***Blue Shield of California.*** This pilot built on a hospital tiering program (Network Choice), which was developed using Leapfrog's hospital patient safety measures. Blue Shield used the grant resources to develop a complementary "Physician Informational Tiering Project" to build awareness among physicians and Blue Shield plan members about the cost and quality differences between hospitals and ambulatory care facilities, and influence their choice of hospitals and ambulatory surgery centers. The project surveyed physician and member attitudes about the hospital tiering program to shape its design in the future. Despite a monetary incentive, Blue Shield has struggled to get physicians to participate in the survey.
- ***Buyers Health Care Action Group (BHCAG)/Minnesota.*** This pilot aimed to (1) measure and publicly disseminate market-, employer-, and plan-specific Opportunity Rate scores (the rate of admittance to Leapfrog compliant hospitals per opportunity), and (2) increase health

plan participation in efforts to improve hospital quality by linking the plans' Opportunity Rate scores to the "buy" decision. (Health plans would be tracked using the National Business Coalition on Health's eValue8 tool, which health plans use to submit information to purchasers about their clinical quality and administrative efficiency.) The pilot is based on other research showing that, even when hospital patient volume shifts do not occur as a result of incentives or quality information, measurement and public dissemination of performance data creates a competitive environment. Leapfrog provided ongoing assistance with updates and applications of the Leapfrog algorithm to calculate Opportunity Rates, as well as qualitative analysis and cataloguing of health plan and employer practices. The pilot is currently on hold because of turnover at Watson Wyatt, who is assisting BHCAG.

2. Partnership Structure/Function

The partnership consisted of the lead organization, The Leapfrog Group, founded in 2000 by The Business Roundtable to mobilize employer purchasing power to improve health care quality by recognizing and rewarding providers that take "big leaps" in advancing quality, patient safety, and affordability. Leapfrog recruited six groups from among its membership to conduct pilot projects; those selected included major employers (Boeing and the GE/Verizon/Hannaford Brothers group); three employer health coalitions (in Maine, Minnesota, and Tennessee) and one health plan (Blue Shield of California). Leapfrog arranged for technical assistance to the pilot projects by three groups of consultants: Towers Perrin (actuarial services), Medstat (data analysis), and Ropes and Gray (legal counsel).

Each pilot functions separately, but Leapfrog conducts monthly calls with the entire group, including external evaluators and some of the TA contractors. Leapfrog held in-person meetings with grant participants in February 2005 and January 2006 to discuss lessons learned and key takeaways. Leapfrog also wrote and distributed a newsletter in which they reported on the pilots' progress and included links to tools and resources for the pilots.

In addition, Leapfrog engaged a group of three evaluators to conduct individualized process and outcome evaluations of each of the pilots. The evaluators communicated weekly with Leapfrog. With some of the pilots, the evaluators acted both as consultants and evaluators. In Maine, for example, the evaluators attended meetings and participated in teleconferences to provide formative feedback. For the GE pilot, the evaluators also acted as consultants and held discussions with them, attended meetings, and provided feedback. Other pilots, such as BHCAG and HC21, did not ask evaluators for assistance.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	The Leapfrog Group	• Lead and coordinate grant activities; provide TA to pilot sites and oversee other TA and the evaluation team
Key Collaborators	Pilot Groups: 2 large employers, 3 business coalitions, and 1 health plan) in CA, KS, ME, MN, NY, OR, TN, WA	• Implement hospital incentive and reward programs in their respective markets
	Evaluators	• Evaluate pilots; develop case studies: Dennis Scanlon (Penn State), John Christianson (U. Minnesota), Eric Ford (Tulane-Texas Tech)
	Consultants	• Help Leapfrog provide TA through actuarial help (Towers Perrin); data analysis (Medstat Group), and legal assistance (Ropes and Gray)
Target Organizations	Hospitals and selected other providers in the 6 health care markets	• Report data on performance measures selected by each purchaser group; adopt Leapfrog or other hospital quality and patient safety standards

3. Project Evaluation and Outcomes/Results

Only two of the projects (Boeing and MHMC) have reached implementation stage and have been fully evaluated; the evaluation of a third pilot project (Blue Shield of CA) is not yet complete. However, all six of the pilots provided insights or lessons as to the challenges of implementing incentive and reward programs through multi-stakeholder efforts. The evaluators found the following results:

- ***Boeing:*** Leapfrog expected the Boeing pilot to produce the most rigorous empirical findings about the impact of incentives on behavior in the health system, because the evaluation compared the program's effects on employees in the PPO with modified hospital benefit to those in Boeing's regular PPO. However, the evaluation did not find that the program had any effect on consumer choice of hospital, primarily because employees' physicians did not refer or admit them to the higher performing hospitals. Employees would not use hospitals where their physicians did not practice, regardless of the extra cost. In addition, only a few hospitals in the three Boeing markets qualified for the bonuses, so there were not enough options for consumers or physicians. These findings may be useful to other organizations seeking to alter health benefit designs so as to shift market share to better performing hospitals.
- ***MHMC:*** Interviews with program participants (hospitals and employers) revealed satisfaction with the pilot's leadership and its structure, including the choice of measures, weighting of the measures, and funding. There was uncertainty among participants about whether the pilot should continue, with many citing the need for information about the pilot's outcomes. The interviews provided insight into reasons such a pilot may be unsustainable, including: insurance companies developing similar programs; administrative burden/costs being too high; performance measures being publicized and misinterpreted by the public; and the need for new bonus money not being sustainable. Many respondents felt the pilot was valuable in that it sent a signal to health plans about the interest in having transparent and standardized measures and receiving rewards based on those metrics. Without involving the health plans, however, many felt the program would not be sustained. These findings from the interviews offer lessons to similar incentive programs, particularly the need to involve hospitals, purchasers, *and* health plans.
- ***Blue Shield of CA:*** When completed, the physician survey will provide lessons on physicians' awareness of the variation in hospital quality and safety and offer input into the design of an insurance product that gives physicians incentives to steer patients to higher performing hospitals.

Although the three other pilots have stalled, they do offer lessons regarding the barriers that such purchaser-led efforts face. For example, leadership constraints can impede progress, particularly if those negotiating with hospitals and health plans lack the authority to make decisions and enforce them in their organizations and benefit plans. In addition, purchaser-led efforts to establish performance standards may run into stakeholder opposition; at least one of the pilots encountered resistance from hospitals regarding participation in the program. Strong leadership may help with participation, but resistance is still likely. One pilot found it more difficult than originally anticipated to align standards and monetary incentives for providers. As the evaluators learned, hospital administrators do not think that current performance measures are accurate, so they are unlikely to support reimbursement models that put significant money at risk until measurement is more sophisticated. Further, employers are unlikely to sustain incentive programs without a positive return on investment.

4. Major Products

The following publications are planned but not yet complete:

- Boeing Pre- and Post-Survey Analysis (estimated completion date Summer 2006; we had not heard as of October 2006 if this was completed)
- MHMC Pilot Case Study (estimated completion date Fall 2006)
- A Multi-Purchaser Incentive and Reward Program: Challenges and Barriers to Achieving Results (from GE, Verizon, Hannaford Brothers pilot – estimated completion date September 2006; we had not heard as of October 2006 if this was completed)
- Assessing Doctors' Potential Use of Comparative Patient Safety, Cost, and Quality Reporting in California Surgery Centers (from Blue Shield pilot – estimated completion date November 2006)
- Promise and Problems with Supply Chain Management Approaches to Health Care Purchasing (from GE, Verizon, Hannaford Brothers pilot – completion date TBD)
- The documents below were presented at Leapfrog's Incentives and Rewards Workshop in July 2006:
- "Incentives and Rewards Best Practices Primer: Lessons Learned from Early Pilots," The Leapfrog Group (lessons based on the 6 PFQ pilots and 7 in RWJF Rewarding Results program)
- "The Leapfrog Group's Incentive and Reward Pilots: Key Lessons Learned."

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Leapfrog will not be sustaining the program, but some of the individual pilots will likely continue. Leapfrog's idea for the program was to start new projects and learn what it could from them. Since the pilots began, the movement for incentives has taken off and Leapfrog feels there is no need to continue them. They have used the lessons from the pilots to refine the design of the Leapfrog Hospital Rewards Program so, in that sense, the program is continuing. Furthermore, all of the pilots will continue their relationship with Leapfrog, since they are also members of Leapfrog's Regional Roll-Out program, in which Leapfrog employer members work with other local employers, as well as local hospitals, health plans, physicians, unions, consumer groups, and others, to implement the Leapfrog action plan in their region.

MHMC will meet in August 2006 to decide whether to sustain its program, and if so, how best to involve the major health plans in Maine and additional employers. Blue Shield of California is using the survey feedback to support its ongoing pay-for-performance agenda. Boeing's benefit design is in place for certain employees for three additional years, but the company does not plan to continue or expand the design for other employees.

PFQ GRANT SUMMARY
PARTNERING FOR IMPROVED PRIMARY CARE DIABETES MANAGEMENT

Lead Organization:	Lehigh Valley Hospital and Health Network (LVHHN)
Partner Team:	LVHHN, Helwig Diabetes Center at LVHHN
Title:	Partnering for Improved Primary Care Diabetes Management
Topic Area:	Improve diabetes care in the primary care setting through intensive physician and patient education and consultations with specialists
Principal Investigators:	Originally Dr. Mark Young, chair of Community Health & Health Studies at LVHHN & professor of Health Evaluation Sciences, Penn State University, College of Medicine ***(died April 2004)***; replaced by Dr. Kenneth D. Coburn, CEO of Health Quality Partners
AHRQ Project Officer:	Margaret Coopey
Total Cumulative Award:	$294,841
Funding Period:	10/02–12/04
Project Status[1]:	Terminated after 2 years

1. Project Description

Goals. The project had two major goals: (1) to provide a packaged educational intervention to improve primary care physicians' (PCP) management of their diabetic patients in order to improve patient health status and (2) to devise a cost-efficient model of intensive intervention that could be delivered in primary care physician practices, which is where the majority of diabetes patients receive care. The project aimed to design, implement, and evaluate a diabetes management model that would deliver to diabetes patients (Type 2 only, excluding the very highest-risk patients) in primary care practices the same type of support (via referral to the regional diabetes center) received by high-risk diabetic patients.[4]

Activities and Progress. In the first year, diabetes educators from the Helwig Diabetes Center at LVHHN provided intensive team-based education with primary care physicians in four practices in two phases. In the first phase, called "intensive education," which lasted for three to six months, a Certified Diabetes Educator (CDE), nutritionist, and diabetes physician specialist conducted an initial assessment of the practice; recommended practice-specific process improvements; provided structured education for clinicians, other staff, and patients; and conducted biweekly case review. The CDE worked on site 16 to 24 hours per week. In the phase called "education reinforcement," the CDE was on site for eight hours per week for the next six to nine months, providing patient-specific problem solving and episodic consultation with an endocrinologist. Patient group visits, delivered by a team consisting of an educator, dietician, and support staff, were initiated in the four practices with 10 to 15 patients in each group.

In the second year, the project introduced the same model in another six primary care practices but with a "refined model" that used Achievable Benchmarks of Care (ABC$^{TM)}$) to motivate improved

[4] The projected was terminated shortly after the end of the second year of the grant, eight months after the principal investigator died. Had the project continued into the third and fourth years of the grant (after December 2004), it would have addressed several additional goals: (1) to evaluate the sustainability of models of care for improving primary care diabetes management, (2) to disseminate the model to other systems in southeastern Pennsylvania (16 practices and over 3,000 individuals in conjunction with the LVHHN Physician Hospital Organization), and (3) to disseminate the lessons learned to a national audience.

physician clinical performance and patient health outcomes. ABC sets a benchmark for care based on best practices of local or regional peers and, to motivate physicians, provides them with reports on how they compare to their peers. ABC reports, prepared by a Penn State College of Medicine biostatistician, were distributed to the six PCP practices, which received ongoing feedback on their progress.

2. Partnership Structure/Function

A project advisory committee was established to review project successes, barriers, data, and general operations and budget. Members included the principal investigator, co-investigator, medical director of the Helwig Diabetes Center (Dr. Merkle), project director and project coordinator from Helwig, medical director of the Lehigh Valley Physician Hospital Organization, and two advisors from Penn State University: Pamela Short, Department of Health Policy Research, and Robert Gabbay, MD, College of Medicine. LVHHN's relationship to the primary care practices was primarily limited to providing technical assistance and clinical practice support. Neither PCPs nor patients appeared to have any input into program design, assessment, or modification.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Lehigh Valley Hospital and Health Network	• Project management, planning/development, and leadership; chair of Advisory Committee. When Dr. Young died, Dr. Kenneth Coburn of Health Quality Partners assumed the administrative and leadership roles for the project, but for only four months.
Key Collaborators	Helwig Regional Diabetes Center at LVHHN	• Project director and project coordinator based at Helwig Diabetes Center staffed and coordinated delivery of diabetes interventions in PCPs, monitored progress, and helped collect data for evaluation.
	Dr. Larry Merkle, Medical Director	• Medical director and his staff provided endocrinologist consultation to PCPs.
Target Organizations	Primary care practices in southeastern Pennsylvania	• Ten primary care practices in southeastern Pennsylvania participated in the first two years; had the project continued, another eight PCPs were supposed to be added in years 3 and 4, and plans would have called for rolling out the project region-wide through the Physician Hospital Organization (PHO) affiliated with LVHHN.
	St. Luke's Health System and Sacred Heart Health Network	• Two other major hospital systems in southeastern Pennsylvania were to have been involved in the regional roll-out in years 3 and 4 had the project continued.

3. Project Evaluation and Outcomes/Results

Structure/Process of Care. In February 2004 the project submitted data to the Agency for Healthcare Research and Quality showing promising improvements in the percent of physicians in the first four practices who were screening for glycosylated hemoglobin (HbA1c) and lipids, but not for micro-albuminiuria, per the time line set forth by the American Diabetes Association guidelines. On the Achievable Benchmarks of Care scores, physicians in the top-performing groups remained near the top while those in lower-performing groups showed improved scores. An initial assessment of the financial feasibility of providing group visits in private practice settings indicated that 12 patients per group provide income comparable to routine office visits, demonstrating that "a replicable and sustainable financial model has been developed."

Outcomes of Care. Data on HbAlC levels, lipids, and blood pressure were monitored at baseline and then at 6 and 12 months after the intensive education phase of activities in the primary care practices. In February 2004, the data showed an increase in patient adherence to guidelines and statistically significant improvement in all the core clinical measures: blood pressure, lipid levels, cholesterol, triglycerides, and hemoglobin. In the absence of a control group, the project "corrected for the regression to the mean."

4. Major Products

- Presentation on the project delivered at the American College of Physicians, spring 2005.
- Najarian et al., Improving Outcomes for Diabetic Patients Undergoing Vascular Surgery. *Diabetes Spectrum*, 18:53-60, 2005.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Project representatives report that the intervention remains in place in the 10 participating primary care practices. The project's financial sustainability study showed that group visits by patients to receive diabetes education are billable services and can generate enough revenue that primary care practices can sustain the model. The project demonstrated a model of providing chronic care to diabetes patients that could be replicated by other specialty diabetes centers working in conjunction with primary care practices; however, project representatives were not aware of any other centers that had done so.

PFQ GRANT SUMMARY
DIFFERENT APPROACHES TO INFORMATION DISSEMINATION

Lead Organizations:	New York State Department of Health (NYSDOH) (through Health Research Inc.)
Partner Team:	Research Division of the Hebrew Home for the Aged at Riverdale (RDHHAR), Columbia University Stroud Center, New York State Psychiatric Institute, American Health Care Association (AHCA), Association of Health Facilities Survey Agencies (AHFSA), Institute for the Future of Aging Services, and The Commonwealth Fund
Title:	Different Approaches to Information Dissemination
Topic Area:	Implementation of evidence-based long-term care practices in nursing homes and adult care facilities in New York State
Principal Investigators:	Beth Dichter, PhD, NYSDOH (formerly Suzanne Broderick); with co-principal investigators from RDHHAR: Douglas Holmes, PhD, and Jeanne Teresi, EdD, PhD
AHRQ Project Officer:	Margaret Coopey
Total Cumulative Award:	$1,161,932
Funding Period:	9/02–9/06
Project Status[1]**:**	Grantee has a no-cost extension through September 29, 2007, to conduct and complete data analysis

1. Project Description

Goals. The project aims to evaluate two methods for disseminating best practices to nursing homes and adult care facilities. The research design is quasi-experimental with two intervention groups and a comparison group. Each group includes 15 nursing homes and 7 adult care facilities (ACFs), for a total of 45 nursing homes and 21 ACFs. The first intervention group received special training modules provided to facility in-service educators. The second intervention group received the same special training modules while the state surveyors responsible for quality assurance in the facilities also underwent training on the modules. The comparison group conducted its own training as required by state regulations, on topics selected by each facility. The project will make pre- and post-training comparisons of staff knowledge of accident/fall prevention and conditions (e.g., vision disorder, affective and behavioral states) that may increase the risk of accidents/ falls as well as comparisons between control and experimental groups (see below).

Researchers hypothesized that training modules provided to nursing homes and ACFs in the experimental groups, as compared to the control group, would enhance quality of life for residents as measured by the reduction in indicators such as accidents/falls and by secondary quality indicators, including behavior and affect. The primary outcome was reduction in accidents/falls.

Activities and Progress

Year 1. Delays in the release of AHRQ grant funds delayed the start of project activities by about six months. By March 2003, the project had convened an Advisory Group comprising representatives of project partners and other stakeholder organizations. Project staff conducted an exhaustive search for evidence-based best practices in long-term care. Through careful screening and scoring on criteria such as cost, whether the module was indeed evidence-based (as determined by results reported in peer-reviewed journals, at conferences and meetings, and so forth), relevance to nursing home and ACF residents, and so forth, the project identified several possible candidate best practices for the evaluation. The Advisory Group further reviewed and scored the training modules and recommended a subset for use

in the project. Initially, the project intended to implement six to eight evidence-based best practices in the experimental nursing homes and ACFs. During a meeting on September 10, 2003, convened by NYSDOH, the Advisory Group recommended limiting the number of practices to two for each facility; the group believed that nursing homes and ACFs would not be able to implement more than two practices successfully at one time. After selection of the modules, project staff finalized the outcome measures for evaluating the effectiveness of the interventions. The project randomly selected samples of nursing homes and ACFs from three regions in New York State and began recruiting facilities to participate in the study.

Year 2. With guidance from the Advisory Group as described above, project staff selected three evidence-based best practices with associated training modules and worked with the developers of the modules to adapt the materials and training process to meet the specific needs of New York State facilities. The three training programs were (1) Bathing without a Battle, which focused on person-centered bathing of individuals with dementia; (2) Vision Awareness, which promoted a low-cost intervention that increases staff knowledge of visual impairments; and (3) Staff Training in Assisted Living Residences (STAR), which helped staff understand and deal more effectively with difficult behavior problems among residents with dementia. Bathing without a Battle and Vision Awareness were selected for nursing homes and Vision Awareness and STAR for ACFs based on appropriateness for the target populations.

The project then recruited facilities: 15 nursing homes and 7 ACFs for each of the training programs. Training sessions for nursing homes and ACFs in the two experimental groups on all three modules began in the second year. For experimental group one, the project trained one or two staff members of the facility. In nursing homes, the trainee was usually the nurse educator. In ACFs, the trainee was usually the administrator or case manager. All trainees then returned to their facilities and trained other facility staff. For experimental group two, the project also trained the state surveyors responsible for quality assurance. Research staff collected baseline data on ACF residents by using a version of the Comprehensive Assessment and Referral Evaluation (CARE) and the Extended Interview, both of which are comprehensive assessment tools used extensively by RDHHAR in studies of comparable populations. As locally collected Minimum Data Set (MDS) data were to be used for nursing home residents, raw data collection for nursing home residents was not necessary. The first wave of data collection in ACFs, which also included interviews with staff and administrators and an environmental assessment, was completed for the control group and began for the experimental groups.

Year 3. Training continued for both nursing homes and ACFs. Implementation forms were collected from participating facilities to monitor their progress with training and implementation. The project completed the first wave of data collection at ACFs in the experimental groups early in the grant year and began follow-up data collection at the facilities that had implemented training modules earlier in the year and at ACFs in the control group toward the end of the grant year.

Year 4. During the fourth year, the project continued to provide training and implementation consultation to facilities. Due to staff turnover, 10 facilities experienced difficulty in continuing staff training such that the project had to deliver new "train-the-trainer" sessions. Retraining was conducted by the developer of the Vision module but not for STAR or Bathing without a Battle because of limited resources and the lack of available trainers.

As of the last project report, which covers the period from September 30, 2005, through September 29, 2006, the project completed collection of follow-up data for ACFs (using the RDHHAR tools) and was in the process of extracting MDS data for the nursing homes. Preliminary data analysis has begun, and final data analysis will begin once all data are compiled.

2. Partnership Structure/Function

NYSDOH/Health Research Inc. contracted with the Research Division at the Hebrew Home for the Aged at Riverdale to serve as the research partner for the project. RDHHAR developed and implemented the project's research design, collected resident data from ACFs, and provided support to participating facilities in completing implementation tracking logs and other data collection forms. Project staff from NYSDOH and RDHHAR met or held conference calls at least monthly throughout the project. The two organizations consulted with experts at Columbia University and Advisory Group members to identify proven or effective evidence-based long-term care practices. They also identified ways in which the training should be delivered or adapted to meet the needs of staff in nursing homes and adult care facilities or to comply with New York State rules and regulations.

The expectation is that the three national organizations (AHCA, AAHSA, and AHFSA) represented on the Advisory Group will help disseminate and promote adoption of the evidence-based practice programs and training approaches through their national conferences and education vehicles. Project staff also sent updates to at least 40 "interested parties"–educators, researchers, trade association representatives, and regulators who offered to provide occasional advice or assistance.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	New York State Department of Health, Division of Home and Community-Based Care (through Health Research Inc., an affiliated private organization)	• Manage and coordinate project activities. Convene and obtain input from Advisory Group. Develop facility sample and recruit facilities to participate in project. Ensure participation from surveyors. Provide consultation to facilities as they trained staff and implemented best practices. Extract MDS data and provide them to RDHHAR.
Key Collaborators	Research Division of the Hebrew Home for the Aged at Riverdale	• Co-principal investigators (Douglas Holmes and Jeanne Teresi) responsible for performing evidence-based review of potential modules, evaluation design, data collection, technical assistance to participating facilities, and analysis of project outcomes.
	Consultants and Advisory Group members	• Identify and recommend evidence-based training programs, packages, or modules; review training approaches to ensure nursing facilities and ACFs can effectively implement them; and help disseminate or promote use of the training programs more broadly: • American Association of Homes and Services for the Aging (AAHSA)--Institute for the Future of Aging Services • American Health Care Association (AHCA) • Association of Health Facility Survey Agencies (AHFSA) • Columbia University Stroud Center • New York State Psychiatric Institute • The Commonwealth Fund
Target Organizations	45 nursing homes and 21 adult care facilities in three regions in New York State	• Those assigned to the experimental groups participated in special training programs offered by the state, trained other staff in their facilities in evidence-based practices, and provided data on implementation of the practices. Those assigned to the control groups provided their usual training programs.

3. Project Evaluation and Outcomes/Results

The project will evaluate process data collected with respect to each module. To determine impact at the staff level, the project intends to look at the number of facility staff trained in the target facilities, assess how thoroughly best practices have been implemented, and compare pre- and post- training knowledge among staff. The project will also make resident-level comparisons between control and experimental groups. The project will analyze the impact and significance of the project once all the data have been compiled and will include the analysis in a final report.

After training was completed at the experimental sites, the project asked each facility to submit implementation forms that reported the number of staff trained as well as the fidelity of the particular intervention in that facility, i.e., how many vision logs were completed by those trained to assess vision, or how many "ABC" cards were filled out by those trained to address behavioral problems of patients with dementia. As of June 2006, among the nursing home sample, 10 of 15 facilities in the first experimental group trained staff in at least one of the modules; in the second experimental group (with surveyor training in addition to staff training), 14 of 15 facilities completed training in at least one of the modules. It is expected that the latter two numbers may increase somewhat after facilities are contacted and revisited in order to obtain final implementation data. Among ACFs, 6 of 7 in each of the two experimental arms completed one or both training modules. In total, staff from 28 facilities received vision training, staff from 6 facilities received STAR training, and staff from 22 facilities received bathing training. Several nursing homes and ACFs have neither trained staff nor implemented the modules. The two primary reasons facility administrators provided for inaction were (1) the need to address higher-priority issues and (2) attrition in staff trained at initial train-the-trainer sessions.

Some facilities participating in the experimental groups found the training to be useful. For example, some administrators say that, as a result of the bathing training, they have made some structural changes in the facility to improve residents' bathing experience. One of the facilities' interviewed indicated that it uses the training it received through the project in nurse aide classes, and another interviewee mentioned that the facility has integrated some practices into its standard procedures. Some facilities, however, mentioned that the time needed for training and/or completion of implementation monitoring logs and quality assurance forms was a significant burden. Others noted that turnover in directors of nursing often meant the loss of support for training programs while turnover in aides meant that the training had to be provided to all new aides if it were to be integrated into ongoing practice.

With insufficient funding, the project was not designed to assess directly via interview the impact of training on state nursing facility surveyors' attitudes or understanding about what qualifies as an avoidable adverse outcome. However, the project will analyze staff training and implementation and resident indicators for the two experimental groups (one of which included state surveyors in the training program) to see if there were any differences in outcomes.

4. Major Products

- Presentation at the Gerontological Society of America Annual Meeting 2005--AHRQ Partnerships for Quality: Different Approaches to Information Dissemination
- Planned preparation of a manuscript outlining the process used to determine the strength of the evidence base of available off-the-shelf training modules

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Some facilities indicated that a few project activities will continue in the future. For example, some aspects of the training will be provided to new staff, and some best practices have been integrated into standard procedures, e.g., asking new residents, upon admission, about their bathing preferences. The continued use of training programs depends on the availability of a trained "trainer" and the availability of

off-the-shelf and easy-to-implement training modules, as facility education staff otherwise have difficulty in providing the training.

The New York State Department of Health plans to use the project results to decide which types of training programs to support with the recurring funds available through its Dementia Grants Program. Pending the project's favorable outcome, the department may also require or recommend the inclusion of elements of evidence-based training programs in state-mandated certified nurse aide training.

PFQ GRANT SUMMARY
ACCELERATING TRIP IN A PRACTICE-BASED RESEARCH NETWORK

Lead Organization:	Physician Micro Systems, Inc. (PMSI)
Partner Team:	Practice Partner Research Network (PPRNet), Medical University of South Carolina (MUSC)
Topic Area:	Improved primary care physician adherence to practice guidelines in eight clinical areas
Principal Investigator:	Steven M. Ornstein, MD, Associate Professor, Family Medicine, MUSC
AHRQ Project Officer:	Margaret F. Coopey
Total Cumulative Award:	$1,294,555
Funding Period:	9/02–9/06
Project Status:	Received no-cost extension until March 2007 (This information was provided by an AHRQ Grants Management Office report, October 23, 2006. If there was a discrepancy between information provided by the principal investigator (PI) and the report, we presented the end-date provided by the Grants Management report.)

1. Project Description

Goals. This project sought to improve guideline adherence for 70+ indicators in eight clinical areas (heart disease and stroke, diabetes mellitus, cancer screening, immunizations, respiratory disease/infectious disease, mental health and substance abuse, nutrition and obesity, and drug prescribing for the elderly) by using an electronic medical record (EMR) in 100+ community-based primary care practices across the United States and by expanding PPRNet's multimethod approach to quality improvement. Over the four-year project period, the project planned to 1) expand the number of practices participating in PPRNet from 40 to 100; 2) increase the number and diversity of clinical practice guidelines tracked in the PPRNet practice reports from 22 to 73; and 3) disseminate the PPRNet-TRIP (Translating Research into Practice) model of quality improvement through performance reports, site visits, and network meetings. (This last effort was funded by a previous AHRQ TRIP II grant.)

Activities and Progress. PPRNet, a national consortium of primary health care providers and academic researchers from three universities, was formed in 1995 as a joint effort between PMSI, MUSC, and interested primary care practices. Each PPRNet practice is equipped with Practice Partner Patient Records, the EMR computerized system. Practices collect data on clinical guidelines outlined by PPRNet. Data are extracted quarterly from each practice and sent to PMSI electronically or on diskettes, and PPRNet staff generate the quarterly reports. Prior to receiving the PFQ grant, PPRNet produced quarterly performance reports on 22 clinical indicators for their 40 members. With PFQ funding, PPRNet expanded activities to include site visits in which MUSC staff and/or consultants from University of Southern California (USC) or University of Virginia (UVA) work with practices to improve guideline adherence, and annual network meetings where PPRNet members meet in person to discuss best practices and share lessons learned.

In year 1, PPRNet membership increased from 40 primary care practices to 70 practices. PPRNet held its first annual network meeting in Seattle; 22 of the participating practices attended this meeting. In year 2, PPRNet membership increased to 78 participating primary care practices, 30 of which attended the annual network meeting in Seattle. In addition, the number of clinical practice guidelines tracked through the EMR increased from the initial 22 to 75, exceeding the project's goal. Site visits also began in year 2 of the program. In typical site visits, PPRNet staff or consultants visited practices and met with the entire practice team in a large group session for approximately half a day. Focusing on the practices' quarterly

report results, these sessions highlighted successful practice improvements and explored opportunities for future improvements. The PI and team conducted 68 site visits throughout the second year of the grant.

In year 3, PPRNet membership increased to 101 primary care practices, exceeding this project's recruitment goal. Forty-five primary care practices attended the annual network meeting in Seattle. The project increased the number of clinical guidelines tracked to 84 and added three summary performance indicators. Site visits continued in years 3 and 4; project staff conducted an additional 79 site visits during the third year of the grant. All site visits were expected to be completed by July 1, 2006, but information on year 4 performance was not yet available when this summary was written.

2. Partnership Structure/Function

The lead on project activities for this grant is MUSC, where the PI and his staff, who provide overall leadership on this project, are located. The grantee, however, is PMSI, the EMR software company. PMSI's primary role is to administer grant money and to provide technical assistance to the participating practices. PMSI also provides PPRNet with the names of new clients to use for their recruitment efforts. The partners' roles are summarized in Table 1.

MUSC staff recruit new practices to participate in PPRNet activities, generate quarterly performance reports for practices, conduct site visits, and hold annual meetings for PPRNet members. Consultants from USC and UVA assist MUSC in designing, implementing, and evaluating projects, as well as in conducting site visits at participating practices.

The PPRNet participating practices are responsible for collecting and submitting clinical data on indicators to PPRNet. Practices participating in PPRNet receive quarterly performance reports, host site visits, and attend annual meetings.

A listserv connects the PI and members of PPRNet. The PI and PPRNet members share via email information and/or ideas on practice improvements, data access and reporting methods,,EMR changes, etc. For computer and/or software issues, the PPRNet members contact PMSI representatives directly for assistance. Once a year, PPRNet holds an annual in-person meeting to discuss lessons learned and share best practices.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Physician Micro Systems, Inc.	• Administers grant money • Develops, maintains, and updates the software program that extracts the data, and coordinates data extraction from participating sites • Provides TA for practices that have problems with the software program • Provides names of new clients to PPRNet for recruitment into program • Maintains electronic discussion list and website for user support • Helps host annual network meetings in conjunction with user group meetings

Table 1 *(continued)*

	Organization	Role in Project
Lead Organization *(continued)*	PPRNet (MUSC, location of PI Steven Ornstein)	• Provides overall project leadership • Generates reports for participating practices • Conducts site visits • Leads annual meetings • Recruits new practices into PPRNet • Designs, implements, and evaluates projects
Key Collaborators	Consultants at USC Keck School of Medicine and UVA College of Medicine	• Work with MUSC staff to design, implement, and evaluate projects • Conduct site visits
Target Organizations	100+ participating practices from 35+ states; practices range in size from solo nurse practitioners to 10+ clinicians	• Collect data on indicators • Submit data to PPRNet • Participate in PPRNet activities (practice reports, site visits, annual meetings)

3. Project Evaluation and Outcomes/Results

To examine the overall impact of the intervention, PPRNet developed a summary measure incorporating data from each patient within each practice. Called the Summary Quality Index (SQUID™), this measure calculates the percentage of processes and outcomes that are up to date or under control for a given patient and/or for a given practice. Across all practices, the summary measure rose from 25.0 percent at the beginning of the intervention (September 2002) to 30.3 percent at the end of year 2 (September 2004), a finding that is clinically and statistically significant.

In addition, the project implemented a summary indicator for diabetes care, termed the Diabetes Summary Quality Index (DM-SQUID™). As of January 1, 2004, the mean DM-SQUID among 72 practices with a total of 22,219 patients was 50.2 percent; as of August 1, 2005, the mean DM-SQUID among 68 practices with a total of 24,429 patients was 58.3 percent. Among the 66 practices with complete data at both time periods, the mean change in the DM-SQUID was 7.8 percent. Significant improvements occurred for 12 of the 13 individual measures. In a mixed linear regression model, practices having a higher proportion of male patients had higher DM-SQUID scores, and practices that attended the two-day 2004 PPRNet network meeting had greater improvements in the DM-SQUID than those that did not; previous experience with PPRNet TRIP research, the hosting of practice site visits, and specialty and practice size were not associated with extent of improvement.

PPRNet conducted a more complete analysis at the end of the program (June 30, 2006). Preliminary analysis suggests approximately 10 percent improvement in performance indicators. The evaluation component of the project will also include an in-depth case study of 10 PPRNet practices, a compendium of specific improvement approaches adopted by participating practices, and a final survey of all participating practices regarding the value of the project and its affect on the way they organized and ran their practices.

4. Major Products

- Presentations about the project at the 2003, 2004, and 2005 North American Primary Care Research group meetings; 2004 World Conference of Family Doctors; 2004 AHRQ conference, "Advancing Excellence from Discovery to Delivery"; and two 2005 Medical Records Institute meetings.

- Miller, P.M., S.M. Ornstein, P.J. Nietert, and R.F. Anton, "Self-Report and Biomarker Alcohol Screening by Primary Care Physicians: The Need to Translate Research into Guidelines and Practice." *Alcohol and Alcoholism,* vol. 39, no. 4, 2004, pp. 325-28.
- White, M. "Taking it Slow: Implementing an EMR." *Washington Family Physician*, vol. 32, no. 2, 2005, p. 20.
- Nietert P.J., A.M. Wessell, C. Feifer, and S.M. Ornstein. "The Effect of Terminal Digit Preference on Blood Pressure Measurement and Treatment in Primary Care," *American Journal of Hypertension*, vol. 19, 2006, pp.147–152.
- C. Feifer, S.M. Ornstein, R.G. Jenkins, A. Wessell, S.T. Corley, L.S. Nemeth, L. Roylance, P.J. Nietert, H. Liszka. "The Logic Behind an Intervention to Improve Adherence to Clinical Practice Guidelines in a Nationwide Network of Primary Care Practices," *Evaluation and the Health Professions*, vol. 29, no. 1, 2006, pp. 65-88.
- Six additional manuscripts currently being developed.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

PPRNet has received additional grants (focusing on alcohol and cancer) to continue some of its activities. PPRNet will likely continue to generate reports for practices that continue to participate in its research activities. Practices that choose not to participate in the research aspect of PPRNet may need to pay to continue to receive the quarterly performance reports. PPRNet plans to continue to expand its network of primary care practices. Its goal is to grow by 25-50 practices per year. At least four additional related activities have developed from this project:

- Dr. Peter Miller and Dr. Raymond Anton, nationally recognized alcohol researchers at MUSC, have worked with project investigators to extend the alcohol research component of the project. During the summer of 2003, they conducted a survey of PPRNet primary care physicians about their alcohol and biomarker screening practices. The results from this project have been published. Drs. Miller, Anton, Ornstein, and Nietert also have been awarded a grant from the National Institute on Alcohol Abuse and Alcoholism to conduct a clinical trial to improve alcohol detection and treatment among hypertensive patients, by applying the PPRNet quality improvement model to a subset of practices participating in the Partnerships project. This project began in September 2004 and will continue for three years.
- A researcher at the Medical College of Georgia, Andria Thomas, PhD, joined the project team as a consultant to study adoption of obesity treatment guidelines in PPRNet practices. She completed a survey of project clinicians about their knowledge of and attitudes toward obesity treatment guidelines, and she conducted interviews with clinicians among practices that have excellent performance in achieving weight loss among obese patients. She is developing a manuscript summarizing the results of these studies and is collaborating with other project investigators to develop an intervention method that can be tested in PPRNet practices.
- Dr. Matthew White, a project physician from Lakewood, WA, is working with his independent practice association and others in Washington State to share how he has implemented his EMR and reorganized his practice to improve clinical care. He is making statewide presentations on this subject and has published a brief paper about it.
- Dr. James Wilson, a project physician from Fort Walton Beach, FL, has been contacted by the Institute of Medicine-Board on Health Care Services to present as a case study for performance measurement in a physician practice his work with the project. His presentation will provide background for an Institute of Medicine report, "Redesigning Health Insurance Benefits, Payments, and Performance Improvement Programs."

PFQ GRANT SUMMARY
PARTNERSHIP FOR ADVANCING QUALITY TOGETHER

Lead Organization:	Research Triangle Institute (RTI)
Partner Team:	Five integrated delivery systems: UPMC Health System, Providence Health System (PHS), Intermountain Healthcare (IH), UNC Health Care, and Baylor Health Care System
Title:	Partnership for Advancing Quality Together (PAQT)
Topic Area:	Health care quality improvement, safety, and preparedness
Principal Investigators:	Formerly Lucy Savitz, PhD, at RTI. After she left in September 2006, Shulamit L. Bernard, PhD, director of the Health Care Quality and Outcomes Program, became RTI's principal investigator. Each health system subcontractor has a co-principal investigator as well.
AHRQ Project Officer:	Sally Phillips, PhD, RN
Total Cumulative Award:	$994,796
Funding Period:	9/02–9/05
Project Status:	Received two no-cost extensions extending period of performance to September 2007

1. Project Description

Goals. In 2000, RTI received funding from AHRQ through the Agency's Integrated Delivery System Research Network (IDSRN) initiative. The IDSRN initiative linked researchers with health care systems to conduct research on cutting-edge issues on an accelerated timetable. As an IDSRN partner, RTI has collaborated with health care systems to conduct various research initiatives, including projects focused on health care quality improvement (QI), safety, and preparedness.

When RTI applied for a PFQ grant, collaborators aimed to strengthen their existing IDSRN network and build on their IDSRN partnership work to influence the **spread** of the evidence base for quality improvement. Other goals included (1) exploring factors that impede and facilitate inter- and intra-organizational sharing of knowledge; (2) extending the breadth and depth of the evidence base for innovative, sustainable QI and bioterrorism preparedness programs; (3) providing a mechanism to test the transportability of clinical process innovations; and (4) accelerating the rate at which knowledge utilization occurs. In addition, each partnering organization was to participate in at least one patient safety or bioterrorism preparedness project. RTI later added goals aimed at advancing an understanding of partnership science and sharing such learning at the AHRQ program level.

Activities and Progress. An eight-month delay in the release of funds from AHRQ delayed work during the project's first year. During that first year, however, RTI conducted a systematic literature search and applied the findings to (1) the development of a guiding framework for using partnerships to stimulate change and (2) the development of a companion partnership synergy survey. The survey assesses partnership strength and monitors continuous quality improvement among health care organizations. It addresses topics such as leadership and management, individual empowerment, synergy, and research transfer measures.

In subsequent years of the project, grant funds enabled RTI's IDSRN partners to meet twice a year at the various partner health systems and to study the diffusion of effective health care interventions in 15 applied research projects pursued by partners under the IDSRN initiative (see Table 1). Project examples included medication information transfer across the care continuum, validation of AHRQ's patient safety indicators, development of technology-based training for hospital preparedness, development and

implementation of prospective patient injury detection systems, and development of a tool for estimating the financial impact of and opportunities to reduce the cost of waste or poor quality. Of the 15 applied research projects, 10 have concluded and 5 are in progress. The PFQ grant aimed to share knowledge of innovation to leverage the spread of selected IDSRN interventions within and across the health systems in the partnership.

Table 1. Partner Participation in IDSRN Initiatives

Project Title	Baylor	IH	PHS	UNC	UPMS
Validating AHRQ Quality Indicators		X	X		X
Assessing the IT Infrastructure in IDSs		X	X	X	X
Validating AHRQ's Patient Safety Indicators		X			
Assessing IDS Solutions for Medication Information Transfer		X	X	X	
AHRQ-Sponsored Workbook for Regional Preparedness		X			X
Estimating Risk Reduction and Cost-Enhancing Medication Information across Patient Care Settings			X		
Facilitating Knowledge Transfer and Utilization via Hospital Patient Safety Indicator Online Query Tool		X			
Facilitating Knowledge Transfer and Utilization of a Regional Bioterrorism Preparedness Workbook			X		X
Exploring the Special Needs and Potential Role of Nursing Homes in Surge Capacity for Bioterrorism and Other Public Health Emergencies		X	X	X	X
Cost of Poor Quality or Waste in IDS Settings I	X	X	X	X	X
Cost of Poor Quality or Waste in IDS Settings II		X	X	X	
Developing a Targeted Injury Detection System	X	X			
Medical Emergency Team Learning Opportunity					X
Implementing a Targeted Injury Detection System to Reduce Inpatient Injuries			X	X	
Improving the Quality of Early Cancer Care		X			

The in-person meetings of the RTI partnership group brought together senior management and operations staff who could identify their respective organization's needs and help shape further research projects. The meetings provided partners with a forum for presenting and discussing the outcomes of completed IDSRN projects and examining partners' uptake of those projects. RTI served as a conduit for the spread of innovation that led to new IDSRN projects and other diffusion-oriented grants.

To track the spread of information among its partnership members, RTI compiled correspondence, meeting minutes, and archival records that documented uptake. RTI asked partners to inform staff when their projects were completed and when there were outcomes to report. Based on the partner members' health systems experience, RTI and the partner organizations developed a generalized approach to dissemination and implementation for bioterrorism preparedness and QI interventions that is based on the following six steps:

1. Pilot innovation in a credible place by a credible clinical champion with an engaged team that is empowered with resources

2. Create a toolkit or manual that serves as a conduit with an audit tool for performance monitoring and feedback to involved staff

3. Encourage review by an adopting organization and/or unit by linking an agent/clinical champion and his or her team
4. Allow adaptation by an adopting organization/unit over time
5. Provide for phased implementation by seeding the innovation on a small scale to support minimal adaptation and demonstrated value
6. Ultimately, spread organization-wide diffusion of intervention as appropriate

RTI also provided leadership and allocated a portion of its grant funds to support preparation of a supplemental issue of the *Joint Commission Journal on Quality and Patient Safety* to report on AHRQ learning from the Partnership Program. The supplement is currently scheduled for publication in spring 2007.

2. Partnership Structure/Function

RTI is the "facilitator" of the partnership, which involves several health systems. Under RTI's innovation and implementation work as an IDSRN contractor with AHRQ, the partnership already existed before the launch of the PFQ program. The four initial partner health care systems were Intermountain Healthcare (IH), Providence Health System (PHS), University of North Carolina (UNC) Health Care, and University of Pittsburgh Medical Center (UPMC) Health System. After careful deliberation among RTI's partners, Baylor Health Care System in Texas joined the partnership in 2004 and rapidly became a vital member of the team. The five partners offer a diversity of patient populations (including populations of priority interest to AHRQ); a strategic cross-section of the health care industry with respect to innovation, experience, and health information technology infrastructure; and health care settings appropriate for applied research. Organizational liaisons at each of the partner health systems are senior executives with sufficient standing to mobilize health system experts and actively engage them in the research process. These leaders have remained relatively constant throughout the grant period.

The partners all participated in the in-person meetings held biannually at different partner locations. The partners also communicated regularly through conference calls and e-mail. RTI established a confidential Web site for the partners to support their adoption of, communication about, and dissemination of shared learning.

Table 2. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	RTI	• Serves as broker and facilitator in bringing partners together to conduct collaborative research and promote shared learning. • Provides technical and administrative support in the research process.
Key Collaborators	UPMC Health System Providence Health System Intermountain Healthcare UNC Health Care Baylor Health Care System	• Participate in biannual meetings and conference calls. • Assist other collaborators by serving as models for interventions or by translating interventions. • Work with RTI staff to translate innovative findings into manuscripts.

3. Project Evaluation and Outcomes/Results

RTI's project focused on the spread of interventions developed within and across the partner health systems. RTI researchers also have provided support for broader intellectual development on concepts related to partnerships, including the development of several products and tools (e.g., the partnership framework, the survey tool to monitor partnerships, the six-step implementation strategy, the book chapter on synergies, presentations, and so forth).

The project has produced several important findings and strategies for supporting knowledge transfer: (1) organizational modeling by credible organizations can accelerate knowledge transfer; (2) the primary evidence base (peer-reviewed literature) is limited to the extent that many innovations are not reported, and there is a bias toward reporting only successful efforts even though failed attempts often offer just as much insight; and (3) innovations in health care delivery are often complex interventions with several elements that go unreported and with essential versus adaptable elements of interventions that are not clearly delineated.

The PFQ grant enabled RTI to learn how to manage and sustain a partnership. The partnership has since evolved into a "learning laboratory" with many ideas flowing from the shared learning experience. The ideas have led to proposals for the IDSRN and other AHRQ initiatives. The partners were exposed to cutting-edge initiatives at the meetings, and their interactions with each other presented new learning opportunities. The partnership also offered the partners credibility within their organizations when they presented new ideas.

RTI used its partnership strength assessment tool for evaluation, thereby indicating continued, active involvement of partnership organizations. Given its partnership framework and monitoring tool, RTI has attracted international interest, with health systems in Canada and Sweden participating in some meetings.

4. Major Products

- Framework and companion survey tool for assessing partnership strength
- Compendium CD with copies of selected partnership science literature and tools
- Presentations at AcademyHealth 2004 Annual Research Meeting, "Demand Driven Research: The RTI Integrated Delivery System Research Network," and at the AHRQ Translating Research into Practice meeting, July 2004 (by Dr. Lucy Savitz)
- Supplemental issue of the *Joint Commission Journal on Quality and Patient Safety* reporting on AHRQ learning from the Partnership Program

5. Potential for Sustainability/Expansion after PFQ Grant Ends

Given that RTI has received an award through the ACTION program (Accelerating Changes and Transformation in Organizations and Networks), which is AHRQ's new program that builds on the IDSRN, project activities will continue. The ACTION Master Task Order continues the relationship between RTI and its partner health systems, which will function as an applied research network to identify best practices and, for example, develop and test targeted injury detection systems, develop a system to redeploy unused health care resources, and create a prototype national patient tracking/locator model for use in times of disaster. RTI's partner health systems will extend the network's capacity by engaging local partners such as the Utah Department of Health; the Salt Lake Informatics, Decision Enhancement, and Surveillance Center (IDEAS); and the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill.

The partnership strength model developed by RTI demonstrates that, to see value in a partnership, partners must perceive that they are actively participating in research activities. To meet the needs of all

partners, RTI is continually and actively seeking out research opportunities for them. To this end, RTI has engaged some of the partners in a separate Master Task Order entitled Developing Evidence to Inform Decisions about Effectiveness (DEcIDE), which was awarded to RTI through AHRQ's Effective Healthcare Program. Local partners of the partnering health systems were subcontractors on the first project awarded as part of the Master Task Order.

It is uncertain whether in-person meetings, which are dependent on funding, will continue after the PFQ grant ends. Yet, regular communication and collaboration with most of the partners will certainly continue as a function of the partners' ongoing involvement in important projects that are in progress at RTI.

PFQ GRANT SUMMARY
STRIVING TOGETHER, IMPROVING HEALTHCARE

Lead Organization:	Texas A&M University System (TAMUS), Health Science Center
Partner Team:	Texas A& M Rural and Community Health Institute, Texas A&M Health Science Center Office of Homeland Security, Altarum Research Institute, Inc., Air Force Texas Center for Medical Strategy Training and Readiness (first year only)
Title:	Striving Together, Improving Healthcare
Topic Area:	Bioterrorism/Emergency Preparedness
Principal Investigators:	Josie R. Williams, director of Rural and Community Health Institute, Texas A&M University System Health Science Center; co-principal investigator Janine C. Edwards, research professor, TAMUS
AHRQ Project Officer:	Sally Phillips
Total Cumulative Award:	$399,816
Funding Period:	9/02–9/06
Project Status:	Completed 9/29/06

1. Project Description

Goals. The project had two original aims: (1) to improve type 2 diabetes care in partner hospitals, clinics, and other organizations by implementing a care management intervention and (2) to conduct a case study of the management of bioterrorism (BT) funding on the readiness of public health and acute care systems in selected Texas Department of Health regions to respond effectively to BT threats. When the first component on diabetes care was not funded, the grantee changed its project to focus solely on the bioterrorism component. It revised its goal as "the formation of partnerships that will facilitate the study of important factors related to preparedness for bioterrorism and natural disaster."

Activities and Progress. During the first year, the project formed an Advisory Council to guide the study of selected regions' use of U.S. Centers for Disease Control bioterrorism preparedness funding and conducted and completed case studies of Public Health Region 8 (the San Antonio metropolitan area and 21 surrounding counties) and Region 2/3 (Dallas/Fort Worth metropolitan area). It found that (1) a regional strategy for resource allocation can be more effective in providing essential epidemiology services to small rural counties than a strict per capita allocation to each county; (2) regular disease surveillance systems can be used for bioterrorism incidents; (3) clear lines of authority and cooperation across those lines of authority are needed; (4) personal relationships and trust are critical to building relationships for preparedness, with such relationships developed through regular communication and the fulfillment of promises in allocating funds; and (5) continual and clear communication is necessary to achieve bioterrorism preparedness among an established network of people. The study found that Region 8 had one of the best emergency preparedness plans in the country, as confirmed by its subsequent response to Hurricanes Katrina and Rita.

The case study also found that public health officials experienced difficulty in obtaining the cooperation of physicians in all public health matters, even in state-required reporting of infectious disease cases. Therefore, the research team developed a learning exercise about Avian flu for medical students, which it taught to second-year students at the Texas A&M College of Medicine. The exercise emphasized the importance of reporting requirements and cooperation among all sectors for both emergency preparedness and day-to-day use.

Given that disease surveillance is such an important component of an effective disaster preparedness system, the project decided in its second year to study how disease surveillance methods in Texas and Mexico could affect the delivery of health care services in the event of bioterrorism or natural disaster along the U.S.-Mexico border. The project team conducted interviews with public health officers, emergency managers, the director of the U.S. Air Force surveillance agency, two health officers for the Mexican border town of Acuna, and the Texas state epidemiologist. The study found that information flows rely on a mix of statutory and informal networks; that public health officers working in the field often have no formal training in public health; that many doctors and hospitals do not routinely report on reportable diseases; and that obstacles prevent information sharing about disease surveillance on the Texas-Mexico border. It recommended improved information infrastructure at the local public health level and between U.S. and Mexican public health officials.

In the third year, the project team used the findings from the study of U.S.-Mexico border disease surveillance issues to help the Altarum Research Institute, another grantee and partner in the program, develop a causality prediction model to estimate the effects of early detection strategies for smallpox and influenza. It found, for example, that the effect of restricting casual contacts by infected individuals was greatest for the first couple of contacts, suggesting that absolute quarantines would not be necessary or cost-effective. This finding prompted the project team to expand its study of disease surveillance at international borders to the U.S.-Canada border.

Through Altarum's contacts, the study team formed an informal partnership with Michigan public health officials to undertake research on areas of similar and dissimilar concern about infectious disease surveillance at both the northern and southern U.S. borders. The research identified four issues that should receive priority: (1) robust bi-national health organizations that overcome jurisdictional obstacles to public health; (2) funding for border health security; (3) local-regional public health agencies able to function relatively independently during disaster; and (4) mechanisms to identify and properly manage emerging health disparities at both borders. At the state and federal levels in the United States, Canada, and Mexico, the findings recommended efforts to develop formal communication channels at the federal level among all three governments and to resolve differences in diagnostic standards and reporting requirements for communicable diseases. It also recommended creating and funding a bi-national border organization between the United States and Canada and providing adequate funding for existing U.S.-Mexico bi-national organizations. Finally, the research recommended planning and exercising effective preparedness for all types of disasters across the international borders.

In the final year of the project, the team had two goals. It planned to complete its analysis of disease surveillance communication patterns and problems on both U.S. borders and to conduct disaster-training exercises in small rural hospitals that belong to a network of Texas A&M's Rural and Community Health Institute. The training exercises or drills focus on Avian flu to enable small, rural hospitals to approximate the preparedness achieved by urban hospitals with more extensive resources and training opportunities. The exercise used an AHRQ-developed tool called Evaluation of Hospital Disaster Drills: A Module-Based Approach.

2. Partnership Structure/Function

The project investigators created an Advisory Council that met on a quarterly basis to provide input into and feedback on the project and its findings. In addition to staff at Texas A&M Health Sciences Center, the Advisory Council included the director of Texas Public Health Region 8, the School of Rural Public Health, and the head of the Texas Department of Health's State Epidemiology Office. The Texas Department of Public Health's Region 8 was more the subject of the project's first case study than a partner in carrying out the research. The lead organization, TAMUS, also developed a partnership with the Altarum Research Institute during the first six months of the project after learning that both it and Altarum had a mutual interest in disaster preparedness.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	Texas A&M University Systems (TAMUS) Health Science Center, Rural & Community Health Institute (RCHI)	• Co-principal investigator responsible for communicating with partners; deciding on research design, regions to be studied, staff Advisory Council; leads and directs all data collection and analyses and reports. • Directed by principal investigator, provides platform for disseminating lessons learned to hospitals in RCHI network.
Key Collaborators	Altarum Research Institute, Inc.	• Collaborator in conducting studies of disease surveillance using its electronic model for healthcare.
Target Organizations		• Medical students to test training program involving an Avian flu exercise. • Conducted Avian flu disaster drills in 15 rural hospitals.

3. Project Evaluation and Outcomes/Results

The project engaged an independent qualitative evaluator who reviewed the case study and wrote a report of the first year's work. Project outcomes consisted of (1) reports (see below) and publications whose findings have lessons and potential applicability elsewhere and (2) disaster preparedness training exercises for medical students and rural hospitals. Medical students provided feedback on the Avian flu training exercise, and independent public health officials observed and wrote reports for each participating hospital on the rural hospital training exercise.

The case studies produced several important recommendations for policy and practice. One recommendation is for state and national public health officials to develop policies that target funds to disease surveillance methods that produce the greatest impact in mitigating disease burden in BT and natural disasters, particularly in U.S. border areas, which are widely acknowledged to pose risks to homeland security. However, the existence of 50 state systems impedes rapid communication with Canadian and Mexican authorities, which operate centralized disease surveillance reporting systems. Additional policy recommendations include the need for robust bi-national health organizations to overcome jurisdictional obstacles to public health; the need for local-regional public health agencies that function relatively independently during disasters; and the need to understand and properly manage emerging health disparities at both borders.

4. Major Products

- Akins, R. et al. "The Role of Public Health Nurses in Bioterrorism Preparedness." *Disaster Management and Response Journal. Disaster Management & Response*: DMR. Vol. 3, No. 4, pp. 98-105.
- Edwards, J. et al. "Lessons Learned from a Regional Strategy for Resource Allocation." *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*. 2005. Vol. 3, No. 2, pp. 113-118.
- Silenas, R. et al. "Influenza Pandemic: A Disaster Preparedness Exercise for Medical Students." Submitted to *Teaching and Learning in Medicine*, March 2006.
- Silenas, R. et al. Presentation at Academy Health Conference in Boston, June 2005, on "Closing the Gap between Biological Agent Detection and Response."
- Silenas, R. et al. Presentation at TRIP Conference in Washington, DC, July 2005 on "Improving Disparities in Healthcare through Disease Surveillance at the Field Level."

- Silenas, R. et al. "Syndromic Surveillance: Potential Meets Reality." Proceedings of the National BTR 2005 Conference. University of New Mexico.
- Williams, J. et al. "A Case Study of Surveillance in Texas Department of State Health Services, Region 8." Technical Report. Rural and Community Health Institute, Health Science Center, Texas A&M University System, October 2004.
- Williams, J. et al. "Study of Disease Surveillance Policy Issues across the International Borders of the United States." Technical Report. Rural and Community Health Institute, Health Science Center, The Texas A&M University System, April 2006.

5. Potential for Sustainability/Expansion after PFQ Grant Ends

The hospital exercises conducted in March 2006 merged the Rural and Community Health Institute (RCHI) network with the work of this project, which holds potential for sustainability of disaster preparedness work in small, rural Texas hospitals. For example, three hospitals that did not participate in the March training program have asked the team to conduct the exercise again. The RCHI network offers the potential for sustaining disaster preparedness activities. The team also plans to pursue funding for continued work with Altarum, the delivery of training exercises for rural hospitals, and additional studies of U.S. border disease surveillance systems.

PFQ GRANTEE SUMMARY
PARTNERSHIP FOR ACHIEVING QUALITY HOMECARE

Lead Organization:	Visiting Nurse Service of New York (VNSNY)
Partner Team:	VNSNY with 8 home health agencies, and starting in year 3, Delmarva and other QIOs
Title:	Partnership for Achieving Quality Homecare (PAQH)
Topic Area:	Better use of evidence-based quality improvement approaches by home care agencies serving the elderly
Principal Investigators:	Penny Hollander Feldman, Director, Center for Home Care Policy and Research, VNSNY
AHRQ Project Officer:	Judy Sangl
Total Cumulative Award:	$913,667
Funding Period:	10/02–09/06
Project Status:	Received a no cost extension through September 2007

1. Project Description

Goals. This project sought to improve home care for elderly individuals by creating a learning collaborative—the Partnership for Achieving Quality Homecare (PAQH)—through which selected home care agencies throughout the nation could (1) identify and prioritize improvement goals and (2) gain access to methods, tools, and materials that would enable them to conduct more sophisticated, evidence-based quality improvement activities than they could individually. The project originally planned to focus on one clinical condition prevalent in the home care population. Over the four-year project period, however, it considered the possibility of expanding either by adding partners and/or target conditions. The project also planned to develop a "toolkit" of materials and techniques that could be disseminated to home care agencies for use in translating research findings into daily practice.

Activities and Progress. The first year was devoted primarily to planning and setting the foundation for the project. The lead agency, VNSNY, established a partnership steering committee, which selected diabetes as the clinical focus for the project. The project invited home health agencies to join the improvement initiative if they had a reputation for innovation and the capacity to participate, i.e., interested staff, information systems, ability to pay for participants' trips, etc.

The eight agencies selected were dispersed geographically, were a mixture of nonprofit and for-profit entities, and varied in size. The agencies formed three-person QI teams, collected baseline performance data according to the instruments developed by VNSNY, and participated in a collaborative learning model, which was based on the Institute for Healthcare Improvement (IHI) Breakthrough Series. Agencies participated in three face-to-face meetings, with the first meeting highlighting the Model for Improvement. The collaborative adopted the rapid cycle "Plan-Do-Study-Act" (PDSA) approach to quality improvement in order to test and implement clinical practice guidelines developed by the American Diabetes Association.

During the second year, collaborative agencies worked on three common targets for diabetes quality improvement—glycemic control, foot care, and medication management—and on two other areas of their choosing (e.g. hypertension, lipid control, lifestyle changes). Each agency assessed the gap between current and desired performance targets and worked to achieve the targets with support via phone (coaching) calls with the VNSNY staff and consultants, and from each other at two subsequent meetings. Using chart review data submitted by each agency on diabetes patients, VNSNY prepared monthly feedback reports containing data on outcomes and processes of care, including data from the

supplemental Outcome and Assessment Information Set (OASIS) collected at two points in time. VNSNY also established a listserv for informal communication among collaborative members.

In the third year, VNSNY evaluated the results and lessons from the diabetes learning collaborative and created a strategic expansion plan, which involved not only adding new partners to extend the reach of QI activities, but also a new clinical focus—reduction of acute care hospitalization among home health recipients. Seven of the eight PAQH home health agency members agreed to participate in the second collaborative. With help from the project's AHRQ program officer, VNSNY secured a commitment from the Delmarva Foundation, the QIO for Maryland and DC and the QIO Support Center for home health improvement for all QIOs at the time, to help recruit several QIOs from around the country, and a few additional home health agencies, to participate in the new collaborative. VNSNY planned to use a different learning collaborative model, relying on web-based technology to hold training and on seminars to hold down costs while sustaining the core elements of the learning collaborative. VNSNY developed pilot training materials and outcome measures for this acute care hospitalization collaborative.

In the fourth year, to extend the reach of home health QI initiatives, VNSNY began working with 10 QIO representatives from around the country on a strategy to develop a "wholesale" model for disseminating evidence-based strategies for home care practice tailored to the needs and issues unique to home health care agencies working with decentralized staff and led by nurses. The focus is on Reducing Acute Care Hospitalization, hence the name "ReACH." The lead QIO changed to Quality Insights of PA, which helps recruit and support communication with participating QIOs. VNSNY also developed a system for collecting measures on acute care hospitalization, which is in the OASIS data set submitted to CMS. The ReACH Collaborative was implemented in two overlapping waves over two years. The 1st wave ends in December 2006, while the second wave began in September 2006 and will end in August 2007. Participating home health care agency teams attended three Learning Sessions hosted by their respective QIOs to hear and share best practices for improvements in the multiple content areas. At each session, teams reported on the activities, methods, and results surrounding their improvement efforts. With the expansion of the partnership, VNSNY utilized distance-learning technology (WebEX, teleconference) to allow simultaneous learning and sharing while minimizing project costs to expand access to a wide audience of participating home health agencies.

2. Partnership Structure/Function

The Diabetes Collaborative had a partnership steering committee made up of CEOs and other management-level representatives from the participating organizations who were a critical part of the planning process. They provided the human and financial resources needed to implement the project and supported the cross-agency learning process and evaluation.

The ReACH Collaborative also has an advisory group, which was more involved than the first collaborative's steering committee in project design. Those on the advisory group include QIO representatives, the QIOSC, Quality Insights of PA, and ReACH Collaborative faculty. In the early part of this initiative, VNSNY had weekly or biweekly calls with the QIOs to support project design and initiation. Currently, the advisory group conducts monthly conference calls with QIOs. In addition, the ReACH Collaborative has engaged a partners group that includes key stakeholders such as CMS, Visiting Nurse Associations of America, and other leaders from the home care industry and professional organizations. This group is convened quarterly to assess the project design, implementation, and opportunities for expansion and additional support.

Table 1. Major Partner Organizations and Roles in the Project

	Organization	Role in Project
Lead Organization (grant recipient)	VNSNY PI: Penny Hollander Feldman, PhD	• Provide overall leadership and direction to the Collaboratives; create and staff expert panels and steering committees to guide project development and content; develop and implement evaluation plans and activities on project impact; provide training and technical assistance to participating home health agencies and QIOs; assess opportunities for expansion and sustainability of project outcomes
Key Collaborators	Delmarva Foundation (the QIO for MD & DC). In year 3, switched to Quality Insights of PA—the QIO support center for HH quality improvement	• To recruit QIOs and home health agencies from the acute hospitalization pilot test as participants for the second ReACH Collaborative
	10 QIOs, beginning in year 3	• QIOs recruit and work with participating agencies to actively support the implementation and spread of the initiative throughout the project period; QIOs host participating agencies for each learning session and provide direct coaching and technical assistance to the teams to support their improvement efforts during the action periods
Target Organizations	8 home health agencies located throughout the country	• Commitment to achieving explicit goals in selected common areas of collaborative; involvement of three team members in both collaborative learning sessions and bi-monthly conference calls; willingness to share outcomes and assessment information set and other data on achievement of process and outcomes goals; commitment to providing their change results in a timely manner; willingness to have a site visit
	69 home health agencies participating in REACH National Demonstration Collaborative	• Home health agencies designate a senior leader, or "spread sponsor," for the initiative to support the necessary systems redesign, staff training, and practice improvements across the agency to reduce avoidable hospitalizations; agency participants designate a 3- to 5-member team to participate in the full implementation of the collaborative; agency teams test and implement key changes to meet the Collaborative aims, report monthly data on process measures, and share key lessons learned within and across Collaborative teams; agencies are expected to participate in each wave of the Collaborative to support spread of successful changes throughout the agency

3. Project Evaluation and Outcomes / Results

The evaluation of the first learning collaborative found that all eight teams integrated change into systems or standard operative procedures. Many accomplished this by redesigning agency-wide forms and documentation, while some worked more closely with their diabetes nurse specialists or revamped the orientation for new staff. All of the teams also codified change into their training manuals and other systems by, for example, adding new competencies around the core topics for their nursing staff or creating standards of care for diabetes patients to be used throughout the agency. Five of the eight teams had used or were planning to use the PDSA model for other quality improvement initiatives, and six teams had integrated or intended to integrate the improvement process into their other improvement initiatives.

The main domains and measures/research questions used for the evaluation of the first diabetes learning collaborative, which were very comprehensive, included (1) collaborative reach in numbers of patients affected; (2) leadership experience, engagement, and satisfaction, including perceived value of participation in the Collaborative and its impact on each organization's strategic objectives, (3) team/staff experience, expectations, engagement, and satisfaction, (4) success in implementing the improvement model, and in collecting and submitting data; team use of data to make changes in clinical care practices, (5) spread beyond pilot group and use for other quality initiatives, and sustainability of change via integration into existing systems and processes, training manuals, and other systems or through commitment from leadership for continuation and integration of the QI process with other initiatives; (6) clinical improvement (discussed below); and (7) cost of the Collaborative's direct costs.

A complete review of the outcomes is beyond the scope of this summary, but some examples suggest that the outcomes were very positive. In terms of leadership's perceived value of the project, a majority of home health agency CEOs and clinical managers surveyed after the diabetes collaborative ended agreed or strongly agreed that their agency's participation led them to revise their approach QI initiatives and helped to identify changes that they intended to spread to the entire organization. Over 70 percent of the CEO/managers strongly agreed that their agency's participation in the Collaborative was likely to lead to lasting improvement in care provided to patients with diabetes.

Agencies were required to submit monthly data on the following clinical measures:

Glycemic Control

1. Patients with an individualized glycemic control plan ("target" blood sugar range)
2. Patients testing their blood glucose according to their plan most or all of the time (among patients with a control plan)
3. Patients whose blood glucose is in their target range most or all of the time

Foot Care

1. Patients who received a comprehensive foot exam (visual inspection, vascular assessment and testing for sensation) within 10 days of home care admission
2. Patients (and/or their caregivers) who received education about foot care
3. Patients who did not develop a new foot ulcer during home care

Medication Management

1. Patients (or their caregiver) who can return-demonstrate administration of their insulin (among patients who are taking insulin)
2. Patients taking their diabetes medications as prescribed most or all of the time (among patients taking one or more diabetes medications)
3. Patients whose prescribed medications have been reviewed for possible drug interactions or contraindicated medications

In terms of clinical outcomes, chart review data from monthly reports submitted by participating agencies showed that the greatest improvement, Collaborative-wide, was in the proportion of persons with diabetes who received a comprehensive foot exam within 10 days of their admission to home care, with an increase of over 50 percentage points during the course of the Collaborative. Increases of over 30 percentage points, Collaborative-wide, were also demonstrate for 1) percent of patients with an individualized glycemic control plan, 2) percent of patients testing their blood glucose according to plan most or all of the time, 3) percent receiving education about foot care, and 4) percent whose medications were reviewed for contraindications. These results should be interpreted with caution because there was no control group, but the clinical change data suggest that performance on eight of the nine clinical measures increased over the course of the collaborative and for three months after it ended. The one

exception was in "no new foot ulcer," which did not change substantially, as it was already quite good at the start.

VNSNY developed an evaluation plan to assess the implementation and impact of the ReACH National Demonstration Collaborative. The primary objective is to evaluate the effectiveness of the Collaborative in reducing acute care hospitalization rates among participating home care agencies. The four key components of the evaluation plan include: 1) assess the improvement work of participating home care agencies (monthly performance data); 2) document the strategies employed to reduce acute care hospitalizations at participating home care agencies; 3) assess QIO supports to facilitate the improvement work of participating home care agencies; and 4) determine the effectiveness of the virtual Collaborative Learning Model approach to reduce avoidable hospitalizations. Data will be collected in interviews with key home health agency staff from a random sample of participating home care agencies, surveys of participating QIO staff, online evaluations of learning sessions, and monthly performance data of key clinical indicators. Project staff will assess the change in performance on each of 5 clinical indicators, comparing results from a baseline study period with results from a post-implementation study period. These data will be assessed for each Wave of the Collaborative (Jan-Dec 2006; Nov-Aug 2007).

4. Major Products

- Acute Care Hospitalization Toolkit
- Diabetes Toolkit and Dissemination Document (for each collaborative)
- ReACH Project Website (paqh.org/ReACH). PAQH engaged IANet technology partners to support development of a project website to serve as the core infrastructure for the national virtual Learning Collaborative. The ReACH project website is a resource for participating agencies to submit data, view agency-specific and national performance, and download or link to valuable tools and resources to support improvement efforts aimed at reducing acute care hospitalizations. All registered users are automatically enrolled on the agency listserv to support communication and sharing of information with peers across the country.
- Presentations: (1) October 2002, Deans from the Rutgers, Yale, U Penn, NYU, Columbia, Hunter, and Pace nursing schools; (2) January 2003, New England Health Care Summit in Boston; (3) September 2003, "A National Quality Agenda and Experiences from the Field" at the National Association for Healthcare Quality's Annual Education Conference; and (4) July 2006, Translating Research Into Practice Meeting in Washington, DC.. Collaborative participants also presented about the project to state departments of health and agency boards.
- Organized a national meeting in July 2003, "Charting the Course for Home Health Quality: Action Steps for Achieving Sustainable Improvement," New York City, June 30-July 1, 2003. The proceedings were published in *Home Healthcare Nurse*, December 2004. An interview with the PI (and the commissioned papers from this meeting) was published in the May/June 2004 edition of the *Journal for Healthcare Quality (JHQ)*.
- Organized the national meeting, "Advancing the Agenda for Home Healthcare Quality," held on March 31-April 1, 2005. Proceedings were published in *Home Healthcare Nurse*, May 2006, and the commissioned papers were published in JHQ, Jan/Feb 2006.
- "The Importance of Screening for Depression in Home Care Patients," *Caring*, November 2003.
- "Improving the Delivery of Care for Diabetes Patients with a Collaborative Model," *Home Healthcare Nurse*, 23(3): 177-182, March 2005.

5. Potential for Sustainability/Expansion After PFQ Grant Ends

As noted, the Diabetes Collaborative appeared to have long-lasting effects on quality improvement initiatives within the eight participating home health agencies. Seven of the eight that decided to continue with the ReACH collaborative have demonstrated their interest in and commitment to continuing QI activities, at least in an advisory capacity.

The Reducing Acute Care Hospitalization Collaborative will continue until August 2007 with additional funding obtained from the Robert Wood Johnson Foundation. Additionally, the project received a no cost extension until September 2007. VNSNY hired a business consultant to help them develop a strategic sustainability plan. The plan included research and interviews with current and prospective partners, clients and key stakeholders. Initial findings of the plan have revealed opportunities to extend the Partnership and serve a key role with a variety of local and national stakeholders to support translation of evidence-based strategies to frontline home care practice. The plan will be finalized by the end of Project Year 5.