



Partnerships for Quality Education

An RWJF national program

SUMMARY

The goal of *Partnerships for Quality Education* (PQE) was to align training of physicians and nurse practitioners with the demands of 21st century clinical practice.

PQE program goals were to seek improvement in a core set of skills in physicians and nurse practitioners, including interprofessional collaboration, chronic illness management, systems-based care and practice-based quality improvement. See the program's [website](#) for more information.

Key Results of PQE's Four Programs

Over time PQE has consisted of four distinct programs:

- **The Partnerships Program (1999–2001)** prepared primary care medical residents and nurse practitioner students for practice in managed care settings. The program provided support to academic institutions to partner with managed care organizations to develop new curricula, methods and training opportunities for teaching about managing care. See two sidebars on Partnerships programs:
 - [Georgia Southern University](#)
 - [Jamaica Hospital Medical Center](#)

Program office staff reported the following results for the Partnerships Program in 1999–2002 to the Robert Wood Johnson Foundation (RWJF).

- 886 learners participated in the Partnerships Program's 58 projects—582 residents and 304 nurse practitioner students.
- 474 learners received new classroom teaching in managed care and 412 completed either administrative or community rotations in managed care.

Yedidia and the program staff grouped 26 patient care tasks into 22 managed care competencies seen as central to effective practice by medical residency directors and managed care medical directors. Yedidia and Greene reported the following key findings to RWJF in 2003:

- Using pre- and post-tests, evaluators found changes in the numbers of managed care competencies addressed in training. Under the Partnerships Program, the training programs increased on average from 11 to 15 the number of managed care competencies they addressed which had been identified as central to effective practice.
- In a knowledge assessment of four broad managed care competency areas taken by 600 learners in 17 projects, overall scores improved by 8 percent between pre- and post-tests, while scores of a comparison group of learners decreased by 1 percent. The four areas evaluators examined were:
 - Managed care and health care delivery
 - Evidence-based medicine and epidemiology
 - Cost effectiveness, practice profiling and quality improvement
 - Population health, prevention and disease management
- **Collaborative Interprofessional Team Education (CITE) (2000–03)**, supported the development of clinical and educational interventions to teach individuals from medicine, nursing, social work and pharmacy to work collaboratively in teams. See sidebars on two CITE projects:
 - [Case Western Reserve](#)
 - [University of Louisville](#)

According to national program staff:

- CITE was unable to deliver an effective model of teamwork.
- The models created were not strong enough or generalizable enough to work well in other institutions.
- There was no national impact, which was a key goal of CITE.

Elizabeth March, deputy director of PQE, put it this way:

“What was happening was that people were trying to do what was really a small initiative that went against the grain of the institution. There was no structure for medicine and nursing to collaborate. Administrative systems, such as scheduling of appointments, were not supportive of teamwork. Few, if any, faculty practiced in teams, which meant that the trainees had no models to emulate. Their academic years were different. Everything was working against it.”

The evaluation yielded findings on changes in learners' perceptions about teamwork attributable to CITE projects (see [CITE Evaluation Findings](#)). Yedidia and Greene reported the following key findings to RWJF in 2005.

- Attitudes toward other disciplines improved among CITE participants more than among nonparticipants. For example, CITE learners became more comfortable with the amount of authority wielded by colleagues from other disciplines and more confident that their clinical recommendations were given fair consideration by such providers.
- CITE training improved participants' confidence in working with others significantly more than non-CITE participants.
- **Take Care to Learn: Teaching Clinical Care Management (2002–03)**, which supported the development of chronic illness management initiatives in asthma and diabetes to serve as platforms for innovative education in managing care. See [Take Care to Learn](#) for more information. For sidebars on two Take Care to Learn projects, see:
 - [Albert Einstein Healthcare Network](#)
 - [University of California, Davis](#)

Evaluators Yedidia and Green conducted a study of participating learners and a comparison group not enrolled in the program. It showed that TCTL learners reported significantly more improvement than the comparison group in their ability to:

- Mobilize relevant resources for implementing the chronic care model. For example:
 - Consult guidelines during a patient visit.
 - Access detailed information on diabetes-related community programs.

- Get timely input from a pharmacist on a complex medication regimen.
- Support patient self-management of their conditions. For example:
 - Explain diabetes or asthma in a way that patients can understand.
 - Give patients choices about how to manage their diabetes/asthma care.
 - Involve patients in making a plan for their care.
- Address difficult patient care issues in chronic disease management. For example:
 - Address cultural issues in promoting lifestyle changes.
 - Accept patients' preferences for care that differ from those of the medical learners.
 - Promote lifestyle changes in a patient who denies having a chronic illness.

At one project treating asthma sufferers, patient utilization data could be linked to learner providers. There the evaluators Yedidia and Greene found that:

- Participating patients reduced Emergency Department use by 43 percent. Evaluators ruled out the possible influence of other key factors in explaining this difference.

The evaluators also surveyed patients of all Take Care to Learn learners:

- Patients (or parents of child patients) who view health care providers as highly supportive of their self-management efforts reported greater confidence in caring for their (or their child's) conditions.
- Diabetes patients with highly positive assessments of their provider's support, reported engaging in self-management tasks approximately one day more often per week than those with negative views.
- These relationships between patients' confidence in caring for their (or their child's) condition and their view of their physician were significant for patients with either asthma or diabetes and from varied socioeconomic backgrounds.
- **Achieving Competency Today (ACT) (2003–06).** ACT supported multi-disciplinary education in systems-based practice and clinical practice improvement. For more information see the [ACT section](#). For sidebars on two projects, see:
 - [University of Pennsylvania Health System](#)
 - [University of Virginia Health System](#)

In addition, with funding from Pew, PQE developed the FORCE (Future-Oriented Redesign of Clinical Education) program, under which nine grantees developed

detailed curricula in eight managed care competencies. FORCE is not covered in this report.

Evaluation

Michael Yedidia, PhD, at New York University and Jessica Greene, PhD, at the University of Oregon have evaluated the four programs. The first phase of ACT was evaluated by Antoinette S. Peters, PhD, assistant professor, Harvard Medical School, Department of Ambulatory Care and Prevention. Evaluation findings for each program appear in the program's section of this report.

Program Management

PQE is managed by a program office at Harvard Medical School and Harvard Pilgrim Health Care and makes grants directly to organizations to implement projects within the programs.

Funding

PQE was started by the Pew Charitable Trusts in 1996. Its funding moved to RWJF in April 1999 with an authorization of up to \$9 million from its Board of Trustees.

THE PROBLEM PQE ADDRESSED

In the 1990s, managed care became one of the dominant forces in health care. Physicians were expected to know how to manage patients' health, often within a fixed budget. Although more and more care was taking place in outpatient settings, physicians continued to receive most of their training in hospitals rather than in ambulatory care centers. They also received little training in preventive care.

According to Carolyn Asbury, former program officer at Pew Charitable Trusts, leaders of managed care organizations complained that physicians knew little about how to manage care in a cost-effective manner.

Pew Charitable Trust Responds

In 1995, Asbury and her colleagues at Pew conceived a program that would bring together staff from managed care organizations and faculty from academic health centers, where physicians receive their training, to design a curriculum that would teach medical residents the skills they would need to deliver high-quality, cost-effective care within managed care systems.

Pew launched what became *Partnerships for Quality Education* (PQE) in 1996 with an \$8.3 million grant. Between 1996 and 1999, the program supported the creation of 66

partnerships between medical residency programs and managed care organizations and delivery systems. The program focused on incorporating managed care skills into primary care medical resident education.

For example, one of PQE's original partnerships in New York developed a resident rotation at Empire BlueCross BlueShield (a health care insurance company) that exposed residents to the issues and operations of a managed care organization. Medical residents learned about legal and financial issues, the role of an insurance organization in quality improvement, and credentialing.

Another project developed an interactive CD-ROM that illustrates a medical group dealing with difficulties such as contracts, risk sharing, resource allocation and quality improvement.

Gordon Moore, MD, a professor at Harvard Medical School was the program director of PQE. The program first made three-year grants of \$450,000 to six academic institutions to partner with managed care organizations.

Program staff found that the level of change occurring as a result of the partnerships was modest given the significant investment of grant funds. In addition, few of the projects had developed models that could be easily adopted by other institutions.

The programs were challenged by trying to develop partnership agreements at the institutional level (in other words, senior leader to senior leader). This required a more sustained investment of time and energy than most had anticipated. What program office staff observed at site visits was that the greatest enthusiasm for the program was not at the level of senior leadership, but at the level of the residency program director and the managed care medical director.

In an attempt to capture this enthusiasm and to radically increase the number of partnerships across the country, PQE re-focused and offered grants of \$10,000 under which the principal investigator (the person ultimately responsible for the grant) would be a residency program director (the individual responsible for overseeing resident education for the institution) in partnership with a medical director of a managed care organization.

Program staff believed that professionals at this level would have a greater investment in seeing that medical residents learned new skills in managing care. Under this approach, 54 institutions received grants. In 1998, Pew decided to phase out the program because it no longer fit the foundation's objectives. Moore asked RWJF for funding to continue the program.

CONTEXT

RWJF staff was interested but wanted the program to expand from medical residents to include nurse practitioner students. RWJF staff reasoned that both groups of health professionals would have to adapt to changes in health care delivery.

With grant ID# 35720, RWJF funded a one-day meeting in October 1998 of national leaders of medical, nurse practitioner and physician assistant programs and managed care organizations to provide guidance to program staff on a new second phase of PQE.

Objectives of the meeting were to:

- Secure advice on how to successfully integrate NPs and PAs into the current structure of this initiative.
- Gather suggested modifications/enhancements that would strengthen the overall direction of the proposed program.
- Begin to develop a base of support in the nurse practitioner and physician assistant communities for the PQE program.

PQE PROGRAM DESIGN

In April 1999, RWJF's Board of Trustees authorized up to \$9 million to continue the *Partnerships for Quality Education* (PQE) program. The authorization was specifically intended to fund three more years of the Partnerships Program, as well as an initiative to teach residents and advance practice nursing students to work collaboratively in teams. PQE staff decided to drop physician assistants as a focus of the Partnerships Program but to include them in the teamwork initiative.

PQE was grounded in the belief that the measure of success in the health care system of the 21st century will be the ability to deliver superior outcomes within fixed limited budgets. This is the reality for which primary care physicians and nurses need to be prepared. It is already a fact of life for many academic medical centers.

As teaching institutions are forced to assume the financial risks that once belonged to Medicare, Medicaid and insurance companies, they face the challenge of delivering quality care within increasingly limited resources. This shift has profound implications for patient care and for education.

PQE developed the following four programs in rough succession.

- **The Partnerships Program** (1999–2001), which prepared primary care medical residents and nurse practitioner students for practice in managed care settings. The program provided support to directors of residency and advance practice nursing

programs to partner with managed care organizations to develop new curricula, methods and training opportunities for teaching about managing care.

- **Collaborative Interprofessional Team Education (CITE)** (2000–03), which supported the development of clinical and educational interventions to teach primary care residents and advance practice nursing students to work collaboratively in interdisciplinary teams.
- **Take Care to Learn: Teaching Clinical Care Management** (2002–03), which supported the development of chronic illness management initiatives in asthma and diabetes to serve as platforms for innovative education in managing care.
- **Achieving Competency Today (ACT)** (2003–06), which supports multidisciplinary education in systems-based practice and clinical practice improvement.

While PQE's programs evolved to respond to the fast-changing world of health care, they remained fundamentally focused on teaching future clinicians (both physicians and nurse practitioners) the skills they need to deliver high-quality, cost-effective patient care.

PQE sought to bring about change through:

- Its targeted grant programs. PQE makes grants to residency and nurse practitioner programs committed to developing new approaches to education about managing care using systems—and quality improvement-based approaches to care.
- Information sharing and exchange via annual conferences.
- Development of educational materials and resources for the Web.

Through an extension of the Pew Charitable Trusts grant, in 2000 PQE staff funded another program, Future-Oriented Redesign of Clinical Education (FORCE), for residency faculty and consultants to develop standardized curricula in the skills and competencies of managing care.

Program staff developed nine FORCE curricula. Each curriculum included a description of the competency, specific educational goals and objectives, a review of approaches from the literature, benchmarking, a curriculum plan and materials for teaching the competency. They are no longer available on the program's website.

PQE PROGRAM

The program office has continued at Harvard Pilgrim Health Care in Boston, where Moore has continued as the national program director and Elizabeth March as deputy director. Between 1999 and 2003, there were associate directors located at other institutions.

- Colleen Conway-Welch, PhD, CNM, FAAN, Dean, Vanderbilt University

- George Isham, MD, Medical Director and Chief Health Officer, HealthPartners
- Gregory Pawlson, MD, MPH, Executive Vice President, National Committee on Quality Assurance
- David Nash, MD, MBA, FACP, Associate Dean, Professor of Health Policy and Clinical Outcomes, Thomas Jefferson University

Members of a national advisory committee (see [Appendix 1](#) for a list of members) meet with program office staff once a year to help PQE staff think strategically about the PQE programs, develop new ideas and market test them. In addition, they reviewed some grant applications. National advisory committee members, who represented the medical, nursing and health insurance fields, also provide credibility to the PQE program, according to Director Moore.

The program office provided technical assistance to the projects in its four programs through:

- Web-based resources, primarily a site created by Harvard Pilgrim Health Care called the Managed Care Education Clearinghouse or MCEC, which allowed users to search for support materials by topic or by type of resource (including materials contributed by faculty at individual project sites).
- Two meetings a year for faculty and learners from project sites funded under the four programs.
- A newsletter that was published two to three times a year between 2000 and 2002 highlighting the work of project sites within the programs and the availability of its Web-based resources.
- Site visits to institutions in the CITE, Take Care to Learn and ACT initiatives. Program office staff did not conduct site visits to the Partnerships Programs because of the large number of institutions participating.

PQE PROGRAM EVOLUTION

Partnerships for Quality Education underwent several evolutions in response to changes in the health care environment. These changes led RWJF, the program office staff and national advisory committee members to modify existing programs or design new programs to better meet the needs of health care professionals as they sought to find cost-effective ways of delivering quality care in the changing environment.

The Partnership Program

RWJF initially funded two programs: The Partnerships Program and Collaborative Interprofessional Team Education (CITE). Grant applications for the Partnerships

Program dropped significantly from 103 in the first round to eight in the second round of funding.

In 2000, program office staff awarded grants to just six sites although they had intended to fund 54 grants each year for three years. The staff speculated that a backlash against managed care was making training in managed care a low priority for many academic medical centers. Because of the low interest in the Partnerships Program, PQE staff ended the program in June 2002.

Collaborative Interprofessional Team Education (CITE)

The purpose of CITE, the second of the two original programs, was to bring together nurses and doctors to learn how to work in teams. The program initially funded six projects for three years. One project was dropped because of insufficient progress after one year. Program office staff view the program as relatively unsuccessful in developing effective models for teaching collaboration. Despite significant effort and funding, the projects were hampered by:

- An absence of already-functioning faculty teams to model collaboration for the learners.
- Radically different educational and clinical schedules among learners of different disciplines.
- The absence of compelling problems of mutual interest to which the solution of teamwork was to be applied.

In January 2001, the RWJF Board of Trustees authorized the reallocation of \$3.5 million into a new program called Take Care to Learn: Teaching Clinical Care Management (see below).

Take Care to Learn

RWJF staff and PQE staff designed this new program to respond to changes taking place in the health care field. While managed care appeared to be fading in its dominance, insurance industry officials began touting the idea of chronic illness management and population management. Rather than approaching chronic illness as a series of crisis events, chronic illness management is a strategy for proactive management of a group of patients with a common chronic illness in order to achieve better outcomes.

Similarly, population management focuses on a group of patients rather than an individual patient. Health care providers analyze large groups of patients with a common disease to find needs that they can address through system changes, such as improved patient education. According to Program Director Moore, the underlying idea of Take

Care to Learn was to use chronic illness management and improving care for populations of patients as a way to teach the skills and knowledge needed for managing care.

In their design of Take Care of Learn, the PQE staff also drew lessons from the design of the CITE program. Rather than starting with a designated program "solution"—which in the case of CITE was teamwork—and looking for a problem that teams should work on, staff asked the grantees to focus on asthma or diabetes, each of which requires collaboration for successful management. The goal was to develop a clinical program for managing the disease that could serve as a platform for teaching residents and advanced practice nurses to manage the illness.

Achieving Competency Today (ACT)

The most recent, and final, program in *Partnerships for Quality Education* was Achieving Competency Today (ACT). Like the earlier PQE programs, ACT focused on the skills practitioners would need to deliver high-quality, cost-effective care. In this case, the program focused on systems-based practice and quality improvement.

Program office staff initially developed ACT as a response to new accreditation requirements from the Accreditation Council for Graduate Medical Education (ACGME). These mandated that residency programs demonstrate the competence of their residents in systems and practice improvement.

In the ACT model, medical residents and nurse practitioner students participated in a four-module self-directed course that is delivered via the Web. Through a series of structured assignments and activities carried out within their own institution, the course engaged the learners in identifying and developing solutions to system problems.

As part of the course, they developed a quality improvement plan that addressed a problem they identified. The program office funded ACT with monies left over from the Partnerships Program and CITE. The ACT program ran from 2003 to 2006.

PQE PROGRAM EVALUATION

Michael Yedidia, PhD, at New York University and Jessica Greene, PhD, at the University of Oregon have evaluated the Partnerships Program, CITE and Take Care to Learn. Yedidia is also evaluating the second phase of the ACT program, the first round of which was evaluated by Antoinette S. Peters, PhD, assistant professor, Harvard Medical School, Department of Ambulatory Care and Prevention. Evaluation findings for each program appear in the program's section of the report.

For each of the PQE initiatives, the evaluation has been designed to:

- Contribute to development and implementation of the program.

- Assess the impact of the training on relevant outcomes (e.g., knowledge of and attitudes toward care management, preparation for effective teamwork, improved care of patients with diabetes and asthma; systems improvement at the training institutions).
- Advance the field (e.g., establish a consensus among major constituencies regarding essential tasks for effective delivery of managed care, better understand the impact of provider behaviors on promoting patients' capacity for self-management of their conditions).

The evaluation addresses the following questions overall:

- What is the impact of the specific PQE training initiatives on learners' knowledge, mastery of competencies and attitudes about the need for the new skills?
- Does such training have a similar impact on physicians, advanced practice nurses and other learners?
- Are some training strategies more effective than others?
- How do relevant national constituencies view PQE's strategies?
- How do PQE participants assess the relevance of various aspects of its training to their practice?
- What can be learned from the PQE experience to contribute to the broader fields of population health, interdisciplinary collaboration, chronic care management and quality improvement?

In the following sections this report covers in detail each of these programs.

THE PARTNERSHIPS PROGRAM, 1999–2002

PARTNERSHIPS SUMMARY

RWJF and program office staff designed the Partnerships Program to help directors of nurse practitioner and medical residency programs, in partnership with a managed care organization, develop and implement curricula and training in managing care.

Key Results

Program office staff reported the following results for the Partnerships Program in 1999–2002 to RWJF.

- 886 learners participated in the Partnerships Program's 58 projects—582 residents and 304 nurse practitioner students.

- 474 learners received new classroom teaching in managed care and 412 completed either administrative or community rotations in managed care.
- For some projects, the grants did appear helpful in educating faculty in managed care concepts and in giving residents and nurse practitioner students the knowledge and skills needed to practice in a managed care environment.
- Overall, project directors found that incorporating didactic content into existing curricula worked better than trying to create new teaching sessions.
- Many project directors felt that the RWJF grant imprimatur gave their project important visibility in their institution, despite the small size of the grant.

Yedidia and the program staff grouped 26 patient care tasks into 22 managed care competencies seen as central to effective practice by medical residency directors and managed care medical directors. Yedidia and Greene reported the following key findings to RWJF in 2003:

- Using pre- and post-tests, evaluators found changes in the numbers of managed care competencies addressed in training. Under the Partnerships Program, the training programs increased on average from 11 to 15 the number of managed care competencies they addressed which had been identified as central to effective practice.
- In a knowledge assessment of four broad managed care competency areas taken by 600 learners in 17 projects, overall scores improved by 8 percent between pre- and post-tests, while scores of a comparison group of learners decreased by 1 percent. The four areas evaluators examined were:
 - Managed care and health care delivery
 - Evidence-based medicine and epidemiology
 - Cost effectiveness, practice profiling and quality improvement
 - Population health, prevention and disease management

PARTNERSHIPS PROGRAM DESIGN

The academic health centers could partner with an insurance company, community practice, neighborhood health center, managed Medicare practice or any other organization responsible for managing the care of a population within a fixed prospective budget.

Bringing educational leaders at academic health centers together with medical directors from managed care organizations would, it was hoped, benefit both. For the managed care organizations, the link to academic health centers would provide an opportunity to

educate clinicians with whom they—or like organizations—would be working in the future.

For the academic centers, the interaction could bring needed expertise and new resources for teaching students. In 1999, the Partnerships Program appeared well timed as more and more patients were insured by managed care plans.

According to the call for proposals, the Partnerships Program was to provide learners—either nurse practitioner students or medical residents—with:

- Real world experience in managing care within limited resources.
- A foundation in the ethical theory and practice of care within managed care.
- An understanding of the forces driving change in health care delivery.
- A positive outlook toward managing care.
- An understanding of how to achieve improved outcomes for patients and populations.

PARTNERSHIPS PROGRAM

RWJF funded the Partnerships Program to support 54 two-year partnerships each year for three years—for a total of 162 partnerships. They were to be approximately evenly divided between education projects for medical residents and those for nurse practitioner students.

In July 1999, PQE received 103 applications for Partnerships and made 58 grants of \$30,000 each, with slightly more than half going to medical residency programs and the balance to nurse practitioner programs. In April 2000, it received just eight applications and funded five two-year projects. Once the 2000 cohort completed their work in June 2002, PQE discontinued the Partnerships Program with the agreement of RWJF.

The evaluation found that during implementation:

- Almost two-thirds of projects established new collaborative teaching relationships between academic and managed care partners.
- Just 35 percent of academic partners had an existing teaching relationship with their managed care partner institution.
- Three quarters of the projects' managed care partners were nonprofit organizations, a few were group or staff model HMOs, and most were responsible for non-Medicaid populations. The size of their memberships varied substantially.
- About half of the project directors involved had previous experience teaching or directing the teaching of managed care topics.

- For most of the project directors (60 percent), the Partnerships Program award was the first curriculum development grant they had ever received.
- Each program reached 25 learners on average, with residency programs training greater average numbers than nurse practitioner programs (34 versus 14).

As a group the funded projects exhibited a wide range of approaches to teaching about managed care. These included:

- Integrating new materials about managing care into existing core curricula.
- Developing administrative rotations for learners ranging from one day to two weeks in managed care organizations.
- Holding a three-day managed care summit for educators, featuring outside speakers and workshops.
- Developing a one-week intensive seminar series.
- Establishing a clinical rotation in a community managed-care practice.
- Providing a monthly lecture series.
- Providing Web-based teaching modules for educators on topics such as teaching about the principles of managed care and the ethics of managed care.

As used here, the term administrative rotation means work in the administrative office of a managed care organization, insurance company or in an office of a health center that does managed care contracting.

A community rotation means work in a clinical practice that is using the techniques of managed care to care for its patients, e.g., population-based medicine, electronic medical records, disease management.

See two sidebars for details on two sites:

- [Georgia Southern University](#)
- [Jamaica Hospital Medical Center](#)

Program Office Role

In support of the work of Partnership Program projects, the program office held two-day national meetings twice yearly for the project directors in academic institutions and their managed care partners (who were obligated by the terms of the grants to attend) as well as other faculty members interested in teaching and research in managed care. The meetings attracted between 87 and 197 people each. Meetings featured presentations about managed care by nationally known faculty.

Program office staff also held one three-day faculty development institute for project participants during the life of the Partnerships Program. The goal of the institute was to help faculty develop knowledge and teaching strategies in the skills and competencies needed for managed care. At the institute, representatives of each project met in small groups to present, review and critique their project's work.

The program office also developed a program [website](#) and another site (no longer available) to serve as a resource for teaching and learning about managed care. The second site was closed down in 2005 due to declining interest in the materials, which were becoming dated.

In a survey of project site faculty, respondents cited the following as the five most important resources provided during the program:

- Website materials on managed care topics.
- Sharing of curricula among project sites.
- Website materials on how to teach managed care topics.
- Presentations at the national meetings on how to teach.
- Presentations on managed care topics.

PARTNERSHIPS CHALLENGES

Drop-off in Partnerships Program Applications

A number of factors may have precipitated the significant drop in applications to the program between 1999 and 2000, including the challenges described in this section. In addition, according to program office staff, the applicants in 1999 may have been early adopters of managed care education who were already poised to do this training. This group would see grants (even small ones) from a national philanthropy as conferring on them an imprimatur to proceed. Applicants in a later round may have required larger grants to convince them to undertake this type of work; therefore they did not apply for the small grants offered.

Unstable Partnerships

Nurturing partnerships was a challenge for many of the projects. The Partnerships Program started at a period of great flux in managed care and it was difficult for many managed care organizations to focus on activities—such as teaching—that were not central to their business. Although many participating managed care organizations were initially receptive to the Partnerships Program, some of their academic partners reported that they were unable to get adequate time or attention from them.

In addition, the turnover of managed care personnel was high; their staff schedules were difficult to align with Partnership Program needs. Also, teaching was new to many of the managed care staff. Consequently the projects' learners—medical residents and nurse practitioner students—reported frustration.

Despite these challenges, the academic institutions that were able to maintain administrative and clinical rotations in managed care organizations or practices typically found these relationships to be of value. Overall, the students in such partnerships rated favorably the opportunity to interact with administrators at managed care organizations.

A Backlash Against Managed Care

Program staff hoped that the Partnerships Program would address the backlash against managed care that began during the program. They knew that among medical faculty the backlash made training in managed care a low priority for many academic medical centers and made it difficult to sustain partnerships between academia and managed care.

It also was clear from the beginning that many medical residents training in Partnerships Program projects also carried negative attitudes about managed care, which they perhaps had absorbed from the faculty they trained under. Unfortunately, the Partnerships Program did not overcome these attitudes.

“One of the big challenges we had is that you often had faculty who had trained in a different way of working and getting paid [than the managed care model]. The change [in work and payment accounting] was painful and they didn't like it. They were very negative about managed care.”—Elizabeth March, Deputy Director of PQE

The program office staff said that project directors also faced the following challenges:

- Busy learner schedules (particularly for physician residents).
- Already overcrowded curricula for learners.
- Increased pressure on faculty to generate clinical income, which left them less time for teaching. This, combined with the small amount of money available through the grant, made it difficult to "buy" enough faculty time and attention.
- Difficulty among some learners in making a connection between what they learned about managed care in classroom sessions and their clinical work.

PARTNERSHIPS RESULTS

Program office staff reported the following results for the Partnerships Program in 1999–2002 to RWJF. For survey findings regarding changes in managed care competencies at the projects, as well as more on the attitudes of project directors about the Partnerships Program see [Partnerships Evaluation Findings](#).

- **886 learners participated in the Partnerships Program's 58 projects—582 residents and 304 nurse practitioner students.** Projects averaged 24 learners each. Projects for medical residents had, on average, a greater number of individuals (34) than those for nurse practitioner students (14).
- **474 learners received new classroom teaching in managed care and 412 completed either administrative or community rotations in managed care.**
 - For the learners from projects beginning in 1999 (724), a significantly higher percentage of its residents (42.8%) completed administrative rotations than did nurse practitioner students (2.52%). In that year, many more of nurse practitioner students (56.3%) than physician residents (5.35%) completed community rotations in managed care.
 - In the much smaller 2000 "class" (162 participants in total), no learners completed administrative rotations in managed care; 37.5 percent of residents and 12.1 percent of nurse practitioner students completed community rotations.
- **For some projects, the grants did appear helpful in educating faculty in managed care concepts and in giving residents and nurse practitioner students the knowledge and skills needed to practice in a managed care environment.** Most project managers in states that were moving from fee-for-service to managed care Medicaid felt that the grants allowed them to introduce concepts of managing patient care that had been lacking in their curricula. The following assessments are from project directors' final reports to the program office:

“The grant's greatest impact has been in the area of faculty development. Most of the faculty attended one or more of the didactic sessions for the students.... This grant helped highlight for the faculty as well as for students the positive aspects and benefits of managed care for patients, insurers and society.... Many feel that they are more knowledgeable about the value and benefits of practicing in a managed care environment.”—University of California, Irvine

“This project was well received as filling a hole in the residents’ educational experience. They enjoyed the opportunity to talk to the regional medical director of Aetna....It’s difficult to say how much attitudes were altered but in this case many residents commented on the fascinating view of the other side of medicine.”—Cook County Hospital, Chicago

- **Overall, project directors found that incorporating didactic content into existing curricula worked better than trying to create new teaching sessions.** This meant that they were not adding to the learners’ already overcrowded schedules. It also meant that the learners tended not to see managed care as something separate from clinical care. Most project directors stated that they found the curricular resources posted on the PQE website to be helpful.
- **Many project directors felt that the RWJF grant imprimatur gave their project important visibility in their institution, despite the small size of the grant.** According to March at PQE, the grants from RWJF may have helped a number of physician faculty initially opposed to managed care—because they believed it undercut their ability to practice medicine as they saw fit—to reconsider their opposition to it.

For sidebars on two Partnerships projects, see:

- [Georgia Southern University](#)
- [Jamaica Hospital Medical Center](#)

PARTNERSHIPS EVALUATION

Michael Yedidia, a professor at the New York University Wagner Graduate School, New York, and Jessica Greene, an assistant professor at the University of Oregon, Eugene, conducted an evaluation of the Partnerships Program.

Beginning in 1998—funded initially by the Pew Charitable Trusts then by RWJF—Yedidia conducted a survey of 63 project directors in order to define the specific managed care competencies and related patient care tasks that residence program directors expected residents to learn as a result of the new training. (This initial work did not address itself to nurse practitioner students; however the findings informed the evaluation and curriculum design as it later applied to projects for both medical residents and nurse practitioners.)

Yedidia and the program staff grouped the 26 patient care tasks identified by his survey respondents into 22 managed care competencies seen as central to effective practice by medical residency directors and managed care medical directors. Programs addressed an average of 11 out of 22 of these competencies in their curricula before the Partnerships Program. The competencies are:

- Case management
- Clinical efficiency
- Clinical epidemiology
- Continuous quality improvement
- Cost-effective clinical decision making
- Disease management
- Economics of managed care
- Ethics and managed care
- Evidence-based health care
- Gate-keeping
- Interdisciplinary collaboration
- Managed care and health care delivery
- Managing patients in multiple MCOs
- Patient satisfaction
- Population-based health care
- Practice guidelines
- Practice profiling
- Prevention
- Provider satisfaction and morale
- Referral management
- Time management
- Utilization management

It is interesting that teamwork and collaboration are the focus of only one of the 22 competencies. Gordon Moore, PQE's national program director notes that this list of competencies reflects respondents' sense of priorities during the late 1990s before the managed care industry took a hard look at its need for quality improvement and increased safety.

"At the time that this survey was done," Moore states, "I don't think that there was awareness of the need for teamwork or collaboration compared to the many other things that managed care medical directors were concerned about. I think that if you repeated that survey today, it probably would look quite different."

In 1999, in order to validate the importance of the patient care tasks, Yedidia and colleagues conducted another survey—this time addressing a national sample of residency program directors and managed care medical directors throughout the country, asking their views of the importance of mastery of these tasks to future medical practice.

Managed Care Competencies

Yedidia and his colleagues found a strong overlap between residency directors and managed care organization directors in terms of the managed care competencies they rated most highly. Of the top 10 competencies that residency directors and managed care medical directors valued, nine were the same:

- Time management
- Ethics

- Case management
- Practice guidelines
- Cost-effective clinical decision-making
- Referral management
- Disease management
- Patient satisfaction
- Clinical epidemiology

In 2000, Yedidia and his colleagues published an article in the *Journal of the American Medical Association* that identified the managed care competencies and associated clinical patient care tasks that both residency directors and managed care medical directors felt would be important to patient care in the next five years. See the [Bibliography](#) for more information.

“We wanted to express the competencies as specific patient care tasks that if you were on site you could observe. In the past you couldn't do that. For example, appropriate knowledge of ethics was on everybody's list of patient care competencies. Now we had actual tasks such as reconciling the conflict that may arise when the patient needs a procedure that is not covered by managed care. We asked about their confidence in doing these actual tasks..., to get beyond vague domains and specify actual tasks.”— Michael Yedidia, Ph.D.

For the evaluation of the Partnerships Program, Yedidia and co-evaluator Greene administered surveys that 56 of its 58 project directors completed in 1999 and 2000. They also developed a managed care knowledge assessment that project directors distributed to their learners in 2000; 600 learners at 17 of the projects completed it. The evaluation—surveys and the knowledge assessment—focused on their subjects before and after involvement with the Partnerships Program and measured the change in focus on managed care competencies among medical residency and nurse practitioner education programs and in their learners' knowledge of those competencies.

PARTNERSHIPS EVALUATION FINDINGS

Yedidia co-authored the 2000 article in the *Journal of the American Medical Association* on the ranking of managed care competencies by residency program directors and managed care organization medical directors.

Yedidia and Greene reported the following key findings to RWJF in 2003:

- **Using pre- and post-tests, evaluators found changes in the numbers of managed care competencies addressed in training.** Under the Partnerships Program, the

training programs increased on average from 11 to 15 the number of managed care competencies they addressed which had been identified as central to effective practice.

- After the project ended, 90 percent covered disease management, practice guidelines, prevention, cost-effective clinical decision-making, managed care and health care delivery, continuous quality improvement and interdisciplinary collaboration.
- Teaching of the following education topics increased the most: utilization management, economics of managed care, population-based health care, practice profiling, and managed care and health care delivery. For instance, before the grant, just one-quarter of educational training projects taught utilization management (the process of evaluating the necessity, appropriateness and efficiency of health care services) while after the award almost three-quarters of the projects covered this topic. The table below shows the competencies covered by Partnerships Program participants before the award and after the award.

Competency Area	Before Partnerships	After Partnerships	Percent Difference
Utilization Management	27.3%	72.9%	45.6%
Economics of Managed Care	43.6%	88.2%	44.6%
Population-Based Health Care	48.1%	86.5%	38.4%
Practice Profiling	14.5%	51.1%	36.6%
Managed Care and Health Care Delivery	56.4%	92.5%	36.1%
Continuous Quality Improvement	54.5%	92.2 %	37.7%
Ethics and Managed Care	47.3%	80.4%	33.1%
Cost-Effective Clinical Decision Making	61.8%	93.9%	32.1%
Patient Satisfaction	41.8%	72.9%	31.1%
Case Management	56.4%	83.7%	27.3%
Disease Management	70.9%	96.3%	25.4%
Provider Satisfaction and Morale	20.4%	45.8%	25.4%
Interdisciplinary Collaboration	69.1%	91.8%	22.7%
Evidence-Based Health Care	70.9%	92.9%	22.0%
Time Management	40.0%	61.2%	21.2%
Clinical Efficiency	52.7%	72.5%	19.8%
Referral Management	61.8%	81.6%	19.8%
Gate-Keeping	32.7%	52.2%	19.5%
Practice Guidelines	80.0%	96.4%	16.4%
Managing Patients in Multiple MCOs	7.4%	15.9%	8.5%
Clinical Epidemiology	74.1%	80.8%	6.7%
Prevention	96.4%	96.4%	0%

- **In a knowledge assessment of four broad managed care competency areas taken by 600 learners in 17 projects, overall scores improved by 8 percent between pre- and post-tests, while scores of a comparison group of learners decreased by 1 percent.** The four areas evaluators examined were:
 - Managed care and health care delivery
 - Evidence-based medicine and epidemiology
 - Cost effectiveness, practice profiling and quality improvement
 - Population health, prevention and disease management

See the [Bibliography](#) for the knowledge assessment instruments and guides for scoring them.

- **Project directors reported having strong buy-in for implementing their Partnerships curriculum from top-level administrators and reasonably strong interest in participating from learners.** However, getting faculty to make the training a priority was a substantial challenge for more than half the projects. Approximately a third of the project directors did not feel their faculty had sufficient expertise to teach the curriculum.
- **Project directors reported that the Partnerships Program made useful teaching materials available and that its national meetings were helpful for their project development.** However, a third of the project directors said that there was insufficient funding with which to develop a new curriculum. Three-quarters said it was difficult for them to devote the necessary time to making their Partnerships project a success.
- **Project directors appeared to have generally positive experiences working with their managed care partners.** While the majority (76 percent) strongly or somewhat agreed that their partner was adequately involved in the development of the curriculum and with project implementation, 20 percent strongly disagreed.
- **The majority of projects (82 percent) reported that they planned to continue offering the managed care curriculum after Partnerships Program funding ended.** Half said they planned to continue their partnership with their managed care organization—including 20 projects whose relationship began under Partnerships funding.

PARTNERSHIPS LESSONS LEARNED

1. **Keep your eye on core objectives and be prepared to change your course to meet the changing needs of your customers and the changing climate in which your national program operates.** The program office had originally been funded for three rounds of the Partnerships projects. After the second round received little interest, the program office applied remaining Partnership Program funds to its successor

program, Take Care to Learn, which shared with Partnerships a fundamental focus on the skills and competencies needed for managing care. (Program Office Staff)

2. **The timing of a national program can have much to do with its success.** The individual Partnerships projects began at a time when managed care was taking a beating in the public eye—one from which (in 2005) it has not fully recovered. The program office staff members are not sure they could have successfully countered or avoided effects of this change in climate since the planning and funding of these projects involved long lead times. The shift in climate definitely made it more challenging for many of the projects to develop partnerships and to get their institutions to commit to teaching and to convince their students to learn managing care competencies. (Program Office Staff)
3. **Conduct site visits of projects that are struggling.** Given the large number of funded projects, the program office did not conduct site visits. In retrospect, program office staff members believe they should have visited a limited number to the projects that seemed to be in difficulty. (Program Office Staff)

AFTER PARTNERSHIPS ENDED

The Partnership Program ended in June 2002. The program office went on to administer the other three PQE programs.

Partnership Sidebars

PARTNERSHIPS PROJECT: GEORGIA SOUTHERN UNIVERSITY, STATESBORO, GA., 1999–2001

“One of our goals for this project from the onset was to implement curricular changes that would make managed care classroom content and clinical experiences an ongoing part of our Family Nurse Practitioner Program curriculum. This goal has been realized. Students are much less critical of managed care as the “problem” and have a better understanding of how to improve the system and reasons why difficulties occur. They are much more aware of population-based care and the positive outcomes of good disease management.”—Charlene Hanson, Ed.D., R.N., Project Director

Experts have ranked Georgia Southern University, which focuses on the preparation of nurse practitioners for rural practice, within the top 5 percent of nurse practitioner programs in the nation. For its project the university partnered with Georgia Healthcare Partnership, a managed care affiliate of Memorial Health University Medical Center in Savannah, Ga., and Magnolia Coastlands Area Health Education Center, headquartered in Statesboro, Ga., which serves rural south Georgia.

Results

The project accomplished the following:

- Created and integrated new curricula on systems thinking and redesign for quality improvement into two existing core courses and made managed care clinical practice a part of the required curriculum. The project faculty used Web-based technology and materials to teach both on-site and distance learning students and to draw on the experience of their managed care partners.
- Established a managed care clinical rotation for family nurse practitioner students.
- Implemented three brown-bag discussions between medical residents and family nurse practitioner students. Discussion topics were health care ethics, evidence-based care and working collaboratively.

According to Hanson, project director: "Our managed care partners remained strong in their commitment to the project. Certain areas such as the one-on-one site experiences for students at the Georgia HealthCare Partnership administrative offices were especially good and well received by students. They learned a great deal about health care systems and networks and about billing and reimbursement issues."

Hanson also noted that the project provided nursing faculty an opportunity to learn along with the students, to broaden their perspective on managed care, and helped them to engage faculty drawn from their managed care partners. Overall the project had a positive impact on the school of nursing.

Problems Faced

According to Hanson: "Less successful was the attempt to teach content in an interdisciplinary format with residents at the medical school [the brown bag discussions]. Although the leaderships from both campuses supported it, there was resistance from medical faculty. [Nurse practitioner] students attended but were disappointed in the amount of interaction." She elaborated: "Medicine and nursing as separate professions have lots of baggage and are extremely resistant [to collaborations] in some cases."

She noted also that students had some difficulty planning and completing research projects that were managed care-based.

A further difficulty involved the clinic rotations. "When the original rotations were scheduled there was some resistance to spending time in the Georgia Healthcare Partnerships' offices learning about systems management, appeals, billing, referrals, etc. Students wanted to remain in clinical settings. However, after the experience they wrote very positive evaluations about the experience and felt it was extremely worthwhile.

Students Benefited

Nurse practitioner students in the project had this to say:

- *“My observational experience at Georgia Healthcare Partnerships was eye opening. I never realized how the process for accepting or denying reimbursement for care was carried out.”*
- *“This experience really helped me to understand how to make an appropriate referral.”*
- *“The appeals process is really in the patient's favor. I didn't expect that to be so.”*
- *“Having us do billing and coding and "E and M" (evaluation and management) documentation for each patient we saw will really help me in practice. I feel much more competent to face this task.”*

Hanson concludes that as a result of the project, students are willing to use the knowledge [gained in their managed care rotations] as they moved on to more clinical experiences in direct patient care settings. "As nurses, these learners have often not been on the front line of understanding the financial implications of how care is delivered and this was very important content."

Regarding their coursework: "Overall, I feel our students in this project would rate the changes made in our clinical course to include managed care experience as very important. They also highly valued the didactic content about the evolution of the health care system to one of managed care, and the content about disease management."

Looking Ahead

As a result of this project, the family nurse practitioner project integrated managed care content and Web-based resources into two core courses and planned to make managed care clinical experiences a required part of the training project.

PARTNERSHIPS PROJECT: JAMAICA HOSPITAL MEDICAL CENTER, JAMAICA, N.Y., 1999–2001

“I think it is obvious that our residents have learned the “basic sciences of managed care 101,” enabling them to smooth the transition to an entire Medicaid managed care environment in New York City. I think they have gained the knowledge to practice as an independent family physician in a community that is heavily managed care penetrated.”—Alan Roth, M.D., Project Director, in 2001

This hospital's involvement in the [Partnerships Program](#) coincided with New York State's transition—slow and beset by delays—to mandatory enrollment in managed care for its Medicaid recipients. During the time of the grant, staff of the family practice clinic at Jamaica Hospital increased their percentage of Medicaid billings to managed care plans from zero to 50 percent. By 2002, Roth estimated, their entire Medicaid clientele (80 percent of visits) would be billed to managed care plans. "Our residents have become acclimated to the basic processes of managed care such as referral management, drug formularies, performance improvement and utilization review. This experience has enabled me and our department to educate the rest of our institution and its ambulatory care network in the art and science of being a patient advocate in a new managed care environment."

At Jamaica Hospital Medical Center the Partnerships Program altered customary practice in three areas:

- *Classroom teaching.* The hospital created approximately 24 lectures for faculty and residents on all aspects of managed care. The lectures, which were delivered by experts from their managed care partner (a Manhattan managed care organization) and other institutions, addressed topics such as cost-effective test ordering or prescribing; the quickest way to get patients access to care; expediting care through the managed care system; and documentation, coding and billing issues.
- *Clinical interventions.* Residents worked at a community practice to gain experience with a managed care patient population. They also worked with faculty preceptors trained in practicing under managed care guidelines.
- *Administration rotation.* Residents undertook a one-week administrative rotation at their managed care partner organization, Neighborhood Health Providers, in Manhattan. They participated in committee meetings, performed chart reviews, reviewed and discussed practice patterns, and sat in on case manager/provider/patient discussions.

Problems and Solutions

There were obstacles, according to Roth. "The initial one was showing the residents and faculty that this is an important topic. Receiving the grant enabled us to allocate resources for faculty time, which in turn enabled us to get the faculty to 'buy in' to this project. The entire faculty then stressed the importance of these topics in both the clinical and teaching settings.

"The next hurdle was getting residents to travel to Manhattan and work with the managed care partner organization there. However, after the first several residents returned with extremely positive feedback, continuation of the clinical one-week block was made easy.

"The last and probably most important obstacle was time limitations and fitting this topic, which some felt was not essential, into an already overloaded family practice curriculum. However, after attending physicians and residents started to see the transition to managed care taking place the need for knowledge on this topic greatly increased," Said Roth.

Feedback, primarily from residents, revealed ongoing difficulty accepting project aims. According to Roth:

“Honestly, the topic was not received well and managed care continues to have a negative connotation in our area. Most residents felt the end result was an increased burden on their time associated with decreased income and decreased access for patients. However, it was obvious that the experience and training was extremely helpful in dealing with the inevitable outcome for health care in our community.

“The best response I got from residents was that it enabled them to become a better advocate for their patients while dealing with some of the complexities of this managed care system. Another important learning objective [that the program addressed] was to think more about practicing cost-effective, quality medical care and thinking twice before ordering diagnostic tests or prescribing expensive medications for patients when alternatives are available. Prior to this, cost did not

usually enter the resident's mind when making diagnostic or therapeutic clinical decisions.”

Roth also stated that the project gave residents a better understanding of how and why managed care has come to exist.

Lessons Learned

Roth offered this suggestion for other hospitals/clinics entering a managed care environment:

- "It's important not to teach this subject solely—or even first—in a classroom. Until you're in the [managed care clinic or] office dealing with the bureaucracy—until you 'get over' dealing with that on a daily basis—then I think the classroom is not the place to teach this stuff. The role of the curriculum we put together under Partnerships was helpful. But you need to be out there in the office dealing with the day-to-day phone calls and why this [treatment or drug] was rejected [by an insurer], or why you've been disapproved, or why can't you write [a prescription for] this drug with this company and not with another company. Although it really gets in the way of practicing medicine, and still does, you've got to do it, you have to experience it. "In short, you can't place such an emphasis on talking about it the way we did. I believe, based on our experience, that going straight to a practicum, a practice immersion, is the best way to teach managed care as opposed to the didactic sessions, however brief. They are not the place to start." (Project Director/Roth)
- **"Teach the principles of managed care during routine patient encounters**—that is, involve your students in these questions: which is the most cost-effective test or medication; what is the quickest way to get patient access to care; how do you document, solve coding and billing issues, and expedite [cases] through the managed care system." (Project Director/Roth)
- **Don't let the fact of grant support keep you from adapting any process that works.** "I think we overdid the classroom approach because of this grant. I do think that the grant's basic approach—having some brief didactic sessions on, for example, what is disease management and what is referral, and on formulary issues and a few other things like that—was good. But I think we actually overdid it because commitment to the grant tended to push us to do it." (Project Director/Roth)

Looking Ahead

In 2001, Roth planned to continue the project after grant funding ended through monthly lectures to the residents on managed care topics and a yearly faculty development session on managed care. A one-week clinical experience for residents at Neighborhood Health Providers would continue as well.

THE COLLABORATIVE INTERPROFESSIONAL TEAM EDUCATION PROGRAM (CITE), 2000–03

“Lack of interprofessional teamwork is one of the chasms in delivery of quality health care.”—Crossing the Quality Chasm: A New Health System for the 21st Century, Institute of Medicine, 2001

CITE SUMMARY

RWJF and program staff of PQE designed the Collaborative Interprofessional Team Education Initiative (CITE) to create and test a model of clinical and educational interventions to teach primary care residents, advanced practice nursing students, and others to work collaboratively in interdisciplinary teams. The goals of the CITE initiative were to:

- Develop projects that prepare learners in the medical professions—such as primary care nurse practitioner students and medical residents—to practice collaboratively.
- Teach the knowledge, skills and attitudes needed for team members to deliver care that is demonstrably superior (in measures such as cost, outcomes and patient satisfaction) to that achievable by working alone.
- Develop models for interprofessional training that can begin to pay for themselves either through enhanced revenue or reduced costs for the clinical practice site.

The CITE initiative resulted from RWJF's interest in supporting interprofessional education programs that are achieving improvements in care delivery in managed care settings. In managed care, the health plan attempts to control or coordinate use of health services by its enrolled members in order to contain health expenditures and/or improve quality.

Each CITE partnership included at least one primary care medical residency program and one nurse practitioner program working in partnership with a managed care organization or practice. Most partnerships also included schools of social work and pharmacy.

Key Results

CITE was unable to deliver an effective model of teamwork. This was due to issues with how academic medicine and managed care work—their administrative structures, academic schedules, attitudes of the disciplines toward each other and prejudices about teamwork.

Elizabeth March, deputy director of PQE, put it this way:

“What was happening was that people were trying to do what was really a small initiative that went against the grain of the institution. There was no structure for medicine and nursing to collaborate. Administrative systems, such as scheduling of appointments, were not supportive of teamwork. Few, if any, faculty practiced in teams, which meant that the trainees had no models to emulate. Their academic years were different. Everything was working against it.”

CITE PROGRAM DESIGN

The initiatives had to involve at least two academic primary care teaching programs in working partnership with an organization actively involved in managing care (i.e., one that has a significant portion of its patients covered under a prospective, fixed budget rather than an open-ended fee-for-service arrangement).

Why Team Care?

The Call for Proposals pointed out that while physicians, physician assistants and nurse practitioners work together in many practices to provide care to a panel of patients, they may not work together as a team. Instead, they often work in parallel, each managing one of several aspects of the care of the team's patients independently. The physician usually remains the leader and ultimate decision-maker.

The reason for this lack of teamwork may be that in the United States few medical resident, nurse practitioner or physician assistant programs have taught the skills necessary for interprofessional collaborative practice. These skills include:

- Assessing needs from differing professional perspectives.
- Sharing in problem solving.
- Negotiating roles and responsibilities.
- Team building.
- Joint case planning.
- Shared decision-making.

The concept of interprofessional team care is not new, however. Since the 1970s the health professions literature has described its benefits in community settings and with vulnerable populations such as the elderly and those with chronic diseases.

Extensive research has shown that health care provided by teams can result in decreased hospital admissions, shorter lengths of hospital stay, decreased costs and increased patient compliance and satisfaction. For example, physicians, nurse practitioners and case managers often collaborate to better manage the care of patients with congestive heart failure, diabetes and asthma.

Real collaborative practice works best when:

- Patient care is complex.
- The needs and roles for each provider are clear.
- Each provider clearly adds unique value to the effort.

Goals of CITE

According to the Call for Proposals, the goals for CITE were to:

- Emphasize educating interdisciplinary team members to practice in managed care settings in which there are fixed, limited resources.
- Identify and teach the knowledge, skills and attitudes needed for team members to deliver care that was demonstrably superior (in measures such as cost, outcomes and patient satisfaction) to that achievable by working alone.
- Support programs that accomplished that goal by providing learners and trainees experiences in real work settings with real work groups.
- Develop models for interdisciplinary training that can begin to pay for themselves either through enhanced revenues or reduced costs for the clinical practice site.

CITE PROGRAM

Choosing the Projects

RWJF funded the program office (ID#s 037183 and 039496) to create and manage CITE, with the idea of supporting six three-year \$450,000 grants to institutions (\$150,000 per year for three years).

In March 2000, the program office received 43 applications for CITE. It made six grants in July 2000 to:

- Case Western Reserve University School of Nursing, Nurse Practitioner Program, Cleveland.

- University of Michigan Medical School, Ann Arbor, Mich.
- University of Maryland School of Nursing, Nurse Practitioner Program, Baltimore.
- University of Louisville, Family Medicine Residency Program, Louisville, Ky.
- University of Northern Colorado, Family Nurse Practitioner Program, Greeley, Colo.
- Southwest Permanente Medical Group, Atlanta.

See [Appendix 2](#) for a list of the CITE projects.

According to the program staff, the overall quality of the proposals was low. The program office staff assumed that the institutions that applied were already using teams to deliver care. With CITE funding, they would be able to develop new educational projects to teach learners to work in teams. As it turned out, none of the applicants were using teams to work in collaborative care.

- Two sites (the University of Northern Colorado Family Nurse Practitioner Program, and the University of Louisville Family Medicine Residency Program) received full three-year contracts.
- Four sites (University of Michigan Medical School; Southeast Permanente Medical Group; University of Maryland School of Nursing, Nurse Practitioner Program; and Case Western Reserve University School of Nursing, Nurse Practitioner Program) received one-year planning grants with the option of renewal if they made progress in the planning period.
- All but the Southeast Permanente Medical Group received funding for the full three years. The program office staff determined that the Southeast organization could not complete the work and cancelled its funding contract.
- CITE projects varied considerably in their structure and implementation. For that reason this section on CITE describes two projects in some detail as case studies of project implementation, the considerable range and complexity of their challenges as well as their limited successes.

Project Characteristics

Common to all projects were the following:

- Faculty members fielded teams consisting of learners from more than one discipline that worked together delivering patient care in a clinical setting.
- Teams varied in size but included at least one medical resident and one nurse practitioner student. In some projects, pharmacy residents or social work students also participated in the teams.

- Teams secured the consent of all patients selected for team care (see [Patient Selection Methods](#)).
- Faculty tailored instruction relevant to collaboration and/or individual team members' roles.
- Faculty and/or clinical staff provided oversight of team care in the clinic.
- Staff of a managed care "partner" organization—either a Medicaid managed care plan or university-based health maintenance organization (HMO)—participated.

Most managed care partners were not as active in the projects as program staff hoped. Upheavals in the managed care industry at this time limited their attention to the projects. In most projects, it also limited the timely sharing of patient data for later analysis by faculty and learners, a key program goal. (See [Appendix 2](#) for information on these partnering organizations; see also [CITE Challenges](#).)

See sidebars for studies of projects at:

- [Case Western Reserve University](#)
- [The University of Louisville](#)

Patient Selection Methods

All teams selected a group of patients whom they believed would benefit from team-based care, and obtained their consent for participation in CITE.

- Three projects recruited patients based on their attendance at a clinic during team practice hours or based on their appearing at a specific clinic within a multiple clinic setting (Case Western, Louisville, Michigan).
- Two projects selected patients with "complex medical needs." One focused on children with diseases including asthma, sickle cell anemia and cerebral palsy (Maryland). Another focused on "medically complex" adult patients defined as those with diabetes, hypertension and/or congestive heart failure.
- One project assigned learners from different disciplines to patients depending on the degree of complexity of patients' needs (Southeast Permanente Medical Group).

PQE Program Office Role

The program staff of PQE met twice a year with the leadership teams from the projects. These encounters took place once in the fall at the annual PQE meeting and once in the spring at a meeting exclusively for CITE leadership teams and program staff.

At the meetings, PQE staff provided each project team a conference room where members could gather. According to the program staff, this turned out to be helpful as it was difficult for the teams to carve out adequate meeting time at their home institutions.

In addition, the PQE staff contracted with a consultant who specialized in communications and teamwork and ran a day and a half workshop for the CITE leadership teams. The program staff held regular conference calls with the project directors, made site visits and responded to the project teams' progress reports with detailed comments.

Mini-Grants

The program office also provided small grants (up to \$5,000) to the University of Louisville, Case Western, and the University of Northern Colorado to help these projects fund needed activities.

The organizations used the funding to:

- Hire consultants to train team members in conducting group appointments.
- Support faculty members attendance at Stanford University's program in chronic illness patient self-management.
- Collect and evaluate project data.

Communications

CITE's nurse practitioner advisor, Maryjoan Ladden, co-authored a monograph on educating health professionals for collaborative interprofessional team practice (see the [Bibliography](#) for details).

Ladden also delivered remarks about CITE at several conferences or meetings, including:

- Annual conferences of the National Organization of Nurse Practitioner Faculty, held in Minneapolis (2001) and San Diego (2004).
- A meeting of the Association of Academic Health Centers Advisory Group, convened in Washington in 2002.
- The Second ICN International Nurse Practitioner Network Conference, held in Adelaide, Australia, in 2002.

CITE CHALLENGES

Project directors were trying to create an initiative that went against the grain of their institutions. These institutions had no shared structure for their programs in medicine and nursing to collaborate. The programs' academic years were different. Administrative systems, such as scheduling of appointments, were not supportive of teamwork. Clinics' exam rooms could not accommodate multiple learners. And their reimbursement mechanisms were not designed to bill for work done collaboratively. People were trying to work around these rigid structures. Few, if any faculty practiced in teams, which meant that the learners had no models to emulate. Everything was working against the practice of teamwork.—PQE Deputy Director, Elizabeth March

According to the program staff, CITE projects made only limited progress toward the goals established for the program (see the [Summary](#) for CITE program goals).

Among the reasons they cited were:

- **None of the institutions that submitted proposals were already using interprofessional teams to deliver care in their clinics.** This meant that the organizations funded to do CITE projects faced two challenges:
 - Developing a team-based delivery system.
 - Developing an educational program to teach about team care.
- **Simultaneously developing clinic teams and educational projects was especially challenging for project directors who did not have administrative control over their clinics.** The project directors were the directors of the residency or training program. They were not in charge of the clinics where the teamwork was supposed to take place. That made it difficult to ensure that teamwork took place in the clinics, especially when the residents and nurse practitioner students rotated through for a limited amount of time.
- **Defining teamwork was difficult.** A crucial issue that arose early on was that the projects' faculties, learners and clinical staffs had difficulty defining what they meant by teamwork and how they intended to work together. Specifically, projects struggled with issues such as:

- Team composition.
- Team decision-making processes.
- Team member roles.

If teams could not agree on what teamwork meant, it was impossible to determine whether teamwork was actually occurring. According to Elizabeth March, PQE deputy director:

“We worked very hard with the project faculty in particular to develop a shared definition of team, but they were completely unable to develop one. They got hung up on issues of leadership, communication, etc. We eventually developed something called the interdisciplinary care plan (ICP) that tried to establish in writing how the team came together around a particular patient.”

Each team modified the model ICP for its own project's needs, then used it to document their diagnosis and to develop care plans for their patients.

- **The project initially focused on teamwork as an ends rather than a means.** According to the Call for Proposals, CITE was to be an initiative to teach learners to work in interdisciplinary teams. That meant that in practice projects started out with the solution—teamwork—rather than a problem for which teamwork might be part of the solution. Only as projects evolved did some project directors begin using teams as a tool to solve a particular problem.
- **"Turf" issues often stood in the way of effective teamwork.** Projects encountered the effects of an ingrained turf battle between doctors and nurses—and to a lesser extent between other disciplines as well—about who is responsible for what aspects of patient care, and whether each group feels respected by the other. Friction was especially likely between nurse practitioner students and residents whose roles and competencies in practice sometimes overlap. The challenge within teams was to overcome a history within various disciplines that inhibited their working collaboratively.
- **A radical shift in managed care occurred during the life of CITE.** Each project had a managed care partner. Most of them agreed to provide data that could be used to identify patients for teamwork—and then to track the costs and benefits associated with teamwork. Soon after CITE grants were awarded, the managed care industry experienced significant shakeouts—changes in the size, number and makeup of individual members in the industry—brought about by economic forces. This resulted

in many of the managed care partners being unable to contribute as expected to the projects. The recruitment of patients became a simple matter of taking those at hand (e.g., patients who showed up on a given afternoon in the clinic when the trainees were there). The costs and benefits associated with teamwork were not tracked.

- **A common schedule among disciplines was lacking.** Each of the projects was trying to bring together learners from different disciplines (medicine, nursing and social work or pharmacy). Each discipline has a different academic calendar and different rotation schedules. On the project level, it was difficult to form collaborations when the project directors could not get the various team members in the same room at the same time. The issue of scheduling not only took up tremendous time and energy that could have been better spent on other areas, but often meant that it was almost impossible to achieve any results even with a great deal of effort.
- **It was difficult to recruit patients.** Three of the five projects had trouble recruiting patients. Most primary care physicians were reluctant to give up their patients to the team and could not see sufficient value in the team intervention. In addition, the criteria for patient selection were never as clear as they needed to be in order to identify a sufficient number of appropriate patients. Recruitment problems were exacerbated by the failure of many patients to show up for appointments where they could be recruited, or to appointments once they were recruited.

CITE RESULTS

According to the PQE program staff there were some results at individual projects. However, the results were limited, and the models created were not strong enough or generalizable enough to work well in other institutions. Thus, there was no national impact, which was a key goal of CITE.

Program staff reported the following data on learners' participation for all implemented projects:

- **Across the five sites, 118 medical residents, 74 nurse practitioner students, 44 social work students and 62 pharmacy students participated in CITE projects.** Learners participated, for the most part, during academic years beginning in 2001 and in 2002.

Each team selected a group of patients who they believed would benefit from team-based care. Many teams focused on patients with chronic illnesses, such as asthma or diabetes. Other teams focused on patients who they felt were overusing the health care system.

Specifically, team members worked on some or all of the following avenues in collaborative care:

- Participated in teaching sessions on basic concepts of team care, chronic illness care, counseling skills for behavioral change, interpersonal communication skills, and role-playing exercises on typical cases.
- Set up procedures to identify patients who might be appropriate for collaborative practice.
- Scheduled home visits to learn about the patient's environment and barriers to achieving compliance in health care.
- Met as a team either on a regular or as-needed basis to discuss making an interdisciplinary care plan. This plan was an attempt to establish in writing how the team would work with patients.
- Shared that plan with the patient.
- Put that plan into action.
- Evaluated results.
- Followed up on results if possible.
- **Learners cared for—on average—3.5 patients during clinical rotations in the various CITE projects.** This figure is based on a post-training survey of 188 individuals who participated in the projects' training (see [CITE Evaluation](#) below).
- **Learners received an average 4.5 hours of teaching about teamwork during their projects' training.** This is according to the post-training survey.

See sidebars for studies of projects at:

- [Case Western Reserve University](#)
- [The University of Louisville](#)

CITE EVALUATION

Yedidia and Greene evaluation of CITE took place between September 2001 and May 2002. The evaluation did not focus on specific outcomes having to do with the effectiveness or impact of the CITE projects' team care because:

- No project provided uniform data on patients' clinical status or utilization that could be linked to a clinical team.
- Most of the projects were unable to identify adequate patient comparison groups.
- Most did not involve a sufficient number of learners for outcome evaluations to exhibit adequate statistical power.

In addition, Yedidia and Green note that the overall impact of CITE training may have been limited by its apparent low level of intensity: on average, learners cared for only 3.5 patients during their participation in the project (see [CITE Results](#)).

Instead, Yedidia and Greene's evaluation sought to assess the impact of CITE participation on learners' attitudes, pre- and post-intervention, about collaborative teamwork.

Evaluation Methodology

Yedidia and Greene sent survey questions to trainees before the beginning of the training and at the end. They also sent questions to a comparison group of trainees who were similar but not enrolled—primary care residents, graduate nurses, pharmacy residents and social workers. In all, 130 CITE trainees and 167 non-CITE trainees completed the surveys before and after the project.

The self-perception surveys looked at four factors:

- Perceptions of the value and cost of teamwork.
- Comfort with collaborative interactions.
- Confidence in teamwork processes.
- Knowledge of the capabilities of providers from other disciplines.

CITE EVALUATION FINDINGS

Yedidia and Greene reported the following key findings to RWJF in 2005.

- **Attitudes toward other disciplines improved among CITE participants more than among nonparticipants.** CITE learners became:
 - More comfortable with the amount of authority wielded by colleagues from other disciplines.
 - More confident that their clinical recommendations were given fair consideration by such providers.
 - More convinced that they had gained the respect of such colleagues. Evaluators asked learners to respond to a question about their amount of comfort with the degree of authority wielded by colleagues in other disciplines.
 - Among CITE learners, the percentage of respondents who felt nurse practitioners exert more authority than they should declined from 36 percent to 28 percent, while discomfort among comparison group learners increased from 35.5 percent to 39.5 percent.

- Those who felt pharmacists expected to be more involved in drug selection than is appropriate declined markedly among CITE learners from 27 percent to 15.5 percent, while among nonparticipants it increased from 23 percent to 31 percent.
- **CITE training improved participants' confidence in working with others significantly more than non-CITE participants.**
 - CITE participants became more confident in being accountable to a patient for a decision made by a colleague from another discipline. The percentage of respondents who felt confident in this way increased from 47 percent before the intervention to 71 percent after the intervention. Non-CITE participants showed no increase in confidence in this area.
 - CITE participants also became more confident about approaching providers from other disciplines—should it be necessary—about their belief that the other providers had overstepped their roles. Thirty-seven percent were confident about this scenario before the intervention and 61 percent felt confident after the intervention. By contrast, there was no improvement among non-CITE learners before and after the intervention.
- **While CITE learners were no more positive than nonparticipants about the costs and benefits of teamwork (in both pre- and post-training surveys), both groups became similarly more comfortable during the year with teamwork functions.** Examples of teamwork functions include:
 - Trusting other team members to inform you of changes in the status of patients.
 - Understanding terminology from other disciplines.
 - Negotiating patient care responsibilities with providers from other disciplines.

For example, around 65 percent of CITE and non-CITE learners reported comfort in negotiating patient care with providers from other disciplines before the intervention; about 85 percent reported comfort in this area after the intervention.
- **Some 71 percent of CITE trainees would recommend the training project to others.** Other indicators of enthusiasm for such training were more mixed.
 - While there was an increase from 10 to 20 percent in the number of CITE participants who believed that their training placed too little emphasis on teamwork, there was a decrease from 49 to 30 percent in the proportion who were interested in further teamwork training.
 - Evaluator Yedidia speculated that the CITE program satisfied the need of several trainees who initially expressed an interest in teamwork training.

CITE LESSONS LEARNED

1. **Start with a problem not a solution.** As described in [CITE Challenges](#), the project started with the solution of teamwork rather than with a complex problem (such as the management of chronic illness) for which teamwork might be part of the solution. Start with something that requires interdisciplinary collaboration—that *compels* teamwork. (PQE Program Staff, Evaluator)
4. **Weigh the difficulties in scheduling and getting people together versus what you want to accomplish.** CITE project leadership grouped faculty and learners from various disciplines to learn teamwork by experiencing it in the delivery of clinical care, and through related classroom or didactic sessions. Achieving this was a challenging task that required complex schedule coordination. Some of this work might have been done through other means such as telephone conferencing, individual patient care plans, or e-communication. (See also [CITE Challenges](#).) (PQE Program Staff, Evaluator)
5. **There has to be a business case for teamwork.** Instituting team care doesn't make sense for providers unless this teamwork brings tangible results for patients. According to program director Moore:

“The insurance business isn't really asking for teamwork. They are asking for results and will pay for results. The key ingredient here is the degree to which results and payment puts pressure on providers—or potential providers—of teams. Right now, there is little evidence that shows that teamwork is an important component of quality care.”

6. **Be prepared to address the challenges that come with getting disciplines to work collaboratively.** According to Program Director Moore:

“Since the first nurses and first doctors began working in modern health care in 1900, nurses have felt that doctors treated them as their handmaids to do the dirty work and take orders. As the nurses aspired to do more, they took routes that encroached on what doctors considered to be their territory. Doctors rejected this, nurses got angry. And that conflict remains alive today.”

(See also [CITE Challenges](#).)

7. **It may be that teams work with least friction when they comprise clinicians with few overlaps of practice scope.** Evaluator Jessica Greene:

“In some of the projects, learners working together on teams came from disciplines more overlapping in practice scope than complementary. That seemed to lead to turf issues. For example, family medical residents [battled with] family nurse practitioner students over what cases were appropriate for whom to take on.... There were fewer turf issues when the disciplines represented on a team were quite different—for example, pharmacy residents, social work students and residents.”

8. **Learners benefit most when their efforts are embedded in real work.** When—as in CITE—the subject for learners is teamwork, lectures about teamwork cannot compare to participating in the *experience* of teamwork. If it's not applied, it's not powerful. (Program Office Staff)

9. **Try to create a common language for team members from different disciplines.**

“The underlying issue is that ... people talk [only] in terms of what they understand, and [they] make assumptions about what the other person understands. It leads to a lot of severe misunderstandings. To begin to overcome this, we had a consultant help participants understand what tools one can use to communicate effectively.”—Program Director, Moore

“The consultant's workshop created a shared language about how people communicate and mis-communicate, particularly as they cross professional boundaries. It gave participants a way to talk about why some things they were attempting as a team were difficult, for example, communicating clearly to patients.”—Deputy Director, March

10. **Try to create a shared definition of interprofessional teamwork.**

“There is no shared definition ... that has been successfully put in operation across a range of ambulatory clinical settings. The term "teamwork" is a bit like apple pie. It sounds so appealing that it's hard to argue with. [But] the lack of a definition makes it hard to evaluate whether programs are using teamwork effectively or simply doing a better job at coordinating and communicating.”—Program Director/Moore

(See also CITE Challenges.)

11. Train more participants if you want an evaluation of your team approach to have sufficient "power."

“For projects to develop an intervention around a major theme and do the best work they can (while being creative in responding to their environment) has a lot of appeal. But from an evaluation perspective when each intervention is small, you don't have large enough samples to compare and contrast different approaches.”—Evaluator/Yedidia

12. Targeted feedback from the organization that oversees initiatives is critically important. PQE program staff communicated regularly with the project directors, addressing questions or concerns as they arose and providing timely feedback on their reports. This helped them keep on track in terms of CITE goals. (PQE Program Staff)

AFTER CITE ENDED

The CITE project ended in June 2003. The PQE program staff moved on to administer the final two programs under PQE.

According to Moore:

“We got smarter [from the CITE experience]. You can learn from your failures. This project really made us, in the subsequent [program] designs, be more specific, more targeted and particular about teamwork.... Trainees at this level only learn when it is embedded in real work situations. If it's artificial, it's not powerful.

“Interdisciplinary teamwork is likely to bog down when hierarchical issues are embedded in the process from the get go. Doctors feel superior and in control. Nurses feel unvalued and angry. You have to take that into account and find a mechanism to sidestep that. The design of ACT deliberately put trainees together where neither one has much background and no prior hierarchy.”

CITE Sidebars

CITE PROJECT: CASE WESTERN RESERVE, 2000–03

Case Western Reserve University's [CITE project](#) (entitled Catalyst for Kids) partnered its Bolton School of Nursing; its medical school's departments of pediatrics and pharmacy; and MetroHealth System, a managed care organization. Both schools and the managed care organization are located in Cleveland.

The goal of Catalyst for Kids was to implement and evaluate a model educational experience in which learners (Case Western Reserve's pediatric residents, nurse practitioner students and pharmacy residents), medical faculty and clinic staff learned to work as teams of six to eight individuals to provide and improve the care of children. The project engaged learners in two separate roles:

- Patient-level care (developing collaborative patient plans of care).
- System-level care (process improvement of clinical systems).

Initially the teams' system-level work focused on decreasing emergency room utilization through the improvement of care for pediatric asthma patients.

Pediatric patient care took place in the pediatric outpatient clinics of the MetroHealth system at six locations in downtown Cleveland. These are urban clinics serving a predominantly lower socioeconomic Medicaid insured population. All of the Medicaid contracts at these clinics were managed care with a fixed amount of funds available to cover all health costs.

Project learners provided care in the mornings at the clinics. This intervention group consisted of 30 individuals: 19 residents, 10 advanced practice nurse students and one pharmacy resident. A control group of similar learners worked afternoons at the clinics.

Faculty initiated a pilot phase of the project for five months (January through May 2001) at one morning clinic in the MetroHealth outpatient area. Then in September 2001, they rolled it out to the system's five morning pediatric outpatient clinics (Monday through Friday), occurring at two locations within the system. The project learners worked together as teams at these clinics during that academic year and continued working together the following academic year.

Project faculty gathered data on patients' emergency department asthma visits for a year prior to the project and for a year during the project. They also gathered pre- and post-project data on learners' teamworking attitudes and skills.

Structure of the Model

At the beginning of the project, learners joined their team in a six-hour workshop taught by participating faculty on the basic concepts and methods in:

- Collaborative team care.
- Improving the system of care in the clinic.

The workshop included a short teaching session on basic aspects of managed care developed with help from the MetroHealth staff. Over the next eight months, these teams of eight to 10 individuals spent four hours each week in an assigned clinic together providing care; often only three to four were present at any one patient assessment.

Physician, nurse practitioner and pharmacist faculty supervised the interactions of these faculty/student teams.

All team members and supervising faculty also participated in a half-day "reflection retreat" at the midpoint and at completion of the eight-month experience.

Each week, the team's activities began with a 75-minute pre-clinic meeting led by faculty. During this meeting, 45 minutes were dedicated to systems-level process improvement work to enhance the care of pediatric patients with asthma.

Faculty provided team members with data about the pediatric asthma patients to use as a basis and rationale for change.

Each interdisciplinary clinic team designed and implemented a series of improvement initiatives.

The remaining 30 minutes of the pre-clinic meeting were dedicated to discussions of patients: those who received teamwork care the previous week and those to be seen that day in the clinic. The latter were reviewed and the need for teamwork anticipated.

During clinical work that followed the meeting, each student clinician had his/her own schedule of patients. Once a clinician (usually a resident or nurse practitioner student) identified a patient who would benefit from teamwork, other team members—those who were in the vicinity seeing other patients—were notified.

The three to four team members present then each reviewed the existing plan of care, if any, and made a patient assessment. When these steps were completed, they huddled for a brief discussion of the patient. These individuals agreed on a problem list, identified needs and formulated an ICP, under faculty guidance.

The initiating clinician then returned to the patient to share with him or her the recommendations and finalize a plan. The initiating clinician also was responsible for summarizing the care plan in the electronic medical record. This visit-based collaboration took about 20 minutes.

Learners participated in a core curriculum that consisted of instructional modules addressing particular components of interdisciplinary collaborative team care for pediatric patients in managed care environments.

The modules were presented on a project Web site; some were optional and others were required. The four required modules were:

- Microsystems in health care.
- Conflict management.
- Psychology of change.
- A managed care case study.

Results

- **Project learners developed better teamwork skills when compared with a control group.** Faculty found statistically significant differences between the intervention and control groups on measures of team skills and the use of authority in teamwork. They found no differences, however, on measures of attitudes toward teamwork or interdisciplinary collaboration.
- **Faculty found that patients treated by the intervention group had slightly fewer visits to the emergency department—but this difference was not statistically significant.**
- **Case Western incorporated the project model, Catalyst for Kids, as a permanent part of resident training at MetroHealth.** In the project's third year (2003) learners in the project's control group, practicing in the afternoon clinics five days a week, also began using the project model—thus extending the team model to all 10 MetroHealth pediatric outpatient clinics (mornings and afternoon clinics, five days a week). The change affected all Case Western's pediatric residents, all its advance practice nursing students and those pharmacy residents who trained at MetroHealth. According to the project director:

“By incorporating this training model into the existing pediatric resident continuity clinics, we assisted all of our learners to achieve the recently required ACGME competencies in practice-based improvement and systems-based practice in a cost-neutral training experience.”

(ACGME is the Accreditation Council for Graduate Medical Education, a nonprofit council that evaluates and accredits medical residency programs in the United States.)

During 2002–04, project faculty presented three papers on the project at national meetings, including the December 2002 14th National Forum on Quality Improvement in Health Care. Faculty also presented information about the projects at four poster sessions at national gatherings held during 2003–04.

Project Strengths

According to the PQE program staff, the Case Western project was the most successful of the CITE projects in developing a model for teamwork. While it was not as effective (in terms of either patient or learner outcomes) as faculty there had hoped, it had enough success to warrant continued investment by MetroHealth.

PQE program staff concluded that the success likely was due to a number of factors, including:

- The faculty's previous experience with team-based interventions.
- The collegial nature of the faculty's personal relationships.
- The fact that faculty were able very early to focus their attention on a model that appeared to make sense to the learners.

In addition, according to PQE program staff, because the learners who participated in the intervention were already working in the clinic, they had somewhat fewer scheduling challenges than did those at other CITE projects for whom faculty created new training slots in the clinic.

Challenges Faced

The problems faced by the Case Western team were not atypical of other CITE projects. These included difficulties in:

- Scheduling meetings of the faculty leadership.
- Having all the disciplines represented at all times in the clinic.
- Having enough depth of membership in the faculty leadership to deal with inevitable changes in team membership.
- Rolling out the team care model to all MetroHealth clinics as quickly as they had expected. It took more time than project staff expected to develop adequate faculty leadership for all teams at each clinic. Staff members found the sustained engagement of faculty required a significant investment of time.

Stories in Team Care

Clinical Improvement

A 10-year-old female presented with severe persistent asthma that included nightly symptoms and exercise intolerance. Her past medical history included one urgent care visit and two hospitalizations in the previous two years, multiple missed appointments and many social issues.

The medical resident and nurse practitioner examined the patient and then met with the medical faculty and pharmacist. The team agreed on a collaborative plan, and the patient's clinician discussed the plan with the family.

A social worker assisted with social issues, and the pharmacist provided medication education and therapeutic recommendations on key issues that contributed to problems in the prior care plan.

The patient returned for a follow-up visit two weeks later. At the return visit, her asthma severity had decreased to mild persistent, the patient was tolerating gym class well and the social issues were being addressed.

The patient had no further hospitalizations and had only one emergency department visit approximately 18 months after the intervention. Two years after the intervention, the patient manages her asthma.

Process Improvement

One of the patients with mild persistent asthma was selected to participate in a process improvement project. After her caregiver completed the pre-intervention survey, team members learned that she had been using her rescue inhaler up to 100 times in one month.

Clearly, the patient and caregiver did not understand the use of daily medications vs. the rescue inhaler for asthma attacks.

The team treating her made a small alteration to clinical process. During a clinic visit, the team educated the patient and her caregiver about all her asthma medications and gave them a plastic card and refrigerator magnet with pictures of her medications and doses on it.

As a result, in a post-intervention survey about six weeks later, the patient's use of the rescue inhaler had decreased dramatically, to about 10 times in a month. She also used the daily medications more than in the past.

The caregiver provided positive feedback about the value of the plastic card and magnet as a reference.

Improvements for Clinician Learners

A clinic nurse who participated in a Catalyst for Kids team said that since being involved she felt more comfortable approaching providers with issues in the clinic and that her recommendations were welcomed. She also gained an expanded network of members from other disciplines whom she could contact about clinic issues.

A resident physician—a reluctant participant—was involved in a Process Improvement (PI) project with the goal of teaching children with mild persistent asthma and their caregivers the difference between their daily regimen of medications and those only for emergency use.

The resident used several PI tools in this project. After graduating from residency training and accepting a position in a group practice, he contacted two of the remaining team members to get additional information about PI tools. He said that he had come to value the experience he had in the team even more when he got out into practice and was asked to work on improving the care of his patients.

According to the project director at Case Western, "learners reported that the two-pronged project of learning new skills in both process improvement and collaborative interdisciplinary clinical problem solving complemented each other and produced a synergy that would not have been achieved had only one of the training elements been included."

Lessons Learned

- It is important to start slowly in a new project. Faculty found controlled application of its model to be useful in:
 - Working out the "bugs" in one team's process before applying the model to several teams.
 - Maintaining the support of faculty preceptors and administrators.
 - Facilitating an oversight group to keep the project on track regarding organizational needs and changes.
 - Helping refine early on those techniques that proved to be important to the model—for example, requiring individual learners to undertake process improvement projects.

For the future, faculty suggested "staging" the model's clinical teamwork component before the introduction of the quality improvement effort. The latter is far more complex and time-consuming, and can overshadow the clinical learning.

- **Team "facilitators" are critical to this work.** The project's facilitators—faculty from each of the involved disciplines—were important in keeping the teams directed and moving forward, while also learning to reflect on the care the teams provided and on their processes in providing it.
- **Try to defuse preconceived attitudes about teamwork on the part of project participants.** Faculty did not anticipate the impact of the learners' prior experience with teamwork. It had engendered a lot of negative perceptions and prejudices, especially among the medical residents. To dispel this negativity, faculty found it useful to engage learners in exercises that defined the unique expertise, contributions and philosophy of each team member's discipline. It helped learners become more aware of and sympathetic to the clinical approach of team members from "other" disciplines.

Looking Ahead

In a March 2006 interview, former faculty member Shirley Moore, R.N., Ph.D., of Case Western's Bolton School of Nursing noted:

“We still try to place nursing students with the residents in the pediatric clinics for their training. They still give

collaborative care using our model. I would say that there is less emphasis now on improving the quality of care together as part of the training of the nurses and residents, than in our original experiment.”

CITE PROJECT: UNIVERSITY OF LOUISVILLE FAMILY MEDICINE RESIDENCY PROGRAM, 2000–03

The University of Louisville's [CITE project](#) brought together three schools at the University of Louisville—the School of Family and Community Medicine, the School of Nursing and the Kent School of Social Work/Marriage & Family Therapy—with a Medicaid managed care company, Passport Health Plan (PHP) of Louisville, Ky.

Project faculty named their CITE initiative "Sharing a Team Approach to Resource Utilization: Interprofessional Education & Patient Care," or the "STAR Utilization Project."

Teams and Patients

Project faculty sought to create an interdisciplinary experience for a number of clinical/educational teams that, in a cost-effective way, improved the care of a population of Medicaid managed care patients.

Each team consisted of a family medicine resident, a nurse practitioner student and a student in social work. Faculty members from the schools of medicine, nursing and social work supervised them. Teams also included a case manager from the Medicaid managed care partner and clinic support staff.

Patient care took place in three clinics in the greater Louisville area, sites in which residents of the school of medicine already carried out clinical rotations in family medicine. These clinics served inner-city, indigent and neighborhood clients. Project teamwork began at two of the clinics in the summer of 2001 and lasted over the succeeding academic year. It began at the third clinic in the summer of 2002.

Data Collection

Staff of Passport Health Plan originally planned to track data—patient satisfaction, functional status, team-designated clinical outcomes and resource use—for patients receiving team care and a control group of similar patients not experiencing team care.

However, as project faculty noted, "the situation of most patients treated—their lifestyle, self-care and method of accessing health care—compromised the ability of the teams to interact a sufficient number of times with patients to evaluate long-term clinical impact of team care."

Project faculty did secure pre- and post-project data on attitudes and skills of team learners compared with control groups of similar non-team learners, as well as learners at all five projects participating in the CITE program. (See CITE Results and CITE Evaluation Findings in the *Partnerships for Quality Education Program Results*.)

Communications

In 2001, faculty created a Web site (no longer available). The site described the project, its partners and the parent RWJF program (*Partnership in Quality Education*).

Structure of the Model

At the beginning of the academic year, participating medical residents, nurse practitioner students and social work students met with faculty in a five-hour project orientation.

The orientation provided general project information and described each of the disciplines participating in the team, including their training and licensure requirements, and ways in which differences in their language use contributed to the challenges of interprofessional work.

During the academic year, project faculty led monthly didactic "Core Sessions" in a number of topics relevant to teams' clinical work—for example, medical knowledge needed for the team management of patients with chronic illnesses.

Teams' care of patients began in the second semester of the academic year at the family medicine clinics. In total, learners participated in at least three hours' of clinic teamwork one afternoon per week for 14 weeks.

Team members and faculty began their work with a meeting over lunch to review the charts of patients scheduled for that afternoon, and to discuss patients previously seen. The teams used predetermined criteria to select a patient for team care—if the patient arrived and agreed to participate.

Teams at first chose patients who used a lot of health care resources (they had higher than average emergency room use, hospitalizations, pharmaceutical costs and/or office visits). Later—because this netted the project too few patients—teams selected patients who appeared at the clinic, preferably those with a chronic illnesses.

During the rest of the afternoon, learners worked as teams under supervision of faculty to meet patient needs. According to project faculty, teams used "variable protocols as deemed appropriate for optimal flow and quality of patient care."

For example, learners met with patients singly or in combinations, as appropriate. A team's social work student (and at times a nurse practitioner student) conducted a home visit if the team believed it was necessary for the patient's care.

After each team member had met at least once with the patient, the team met to create the interdisciplinary care plan or ICP. Team members discussed individual patients by telephone or in face-to-face meetings, and care decisions and observations were recorded on the ICP.

Changes to the Model

Project faculty made several changes to the model based on a trial semester of care. In the project's second year of team care, project faculty:

- Scheduled teams' clinic hours only on Wednesday afternoons. All team members' schedules coincided during those hours. During the first year, learners' clinic hours had differed to the extent that sometimes various team members had not seen a patient before the patient's care plan was to be written.
- Changed the subjects for monthly "Core Conference Sessions" from managed care issues to interdisciplinary chronic illnesses care issues. This change reflected a change in patients typically seen.
- Changed the recruitment of patients from "high resource users" (patients using above average amounts of medical care) to patients who had appointments in the clinics on Wednesdays, when teams practiced.

Faculty had found it difficult to recruit and keep enough patients who were high resource users for reasons perhaps related to their characteristic high consumption of medical care: they frequently missed appointments, changed residences or switched clinics. Teams focused instead on Wednesday patients and, increasingly, those with chronic illnesses.

- Phased-in patient contact for nurse practitioner students and social work students. After the project's first year, faculty recognized that these two groups of learners were having difficulties functioning well in their clinic environments, an environment already familiar to the residents.
 - Faculty required nurse practitioner students to complete a health promotion practicum and orientation sessions at the clinics.
 - New requirements for social work students included training in assessing medications for underinsured patients, and study of the functioning of clinics.

- Faculty implemented this revised scheme in the second half of the second year (permitting the first half to be used for training learners in teamwork skills and clinic orientation).

Results

Project faculty reported the following to PQE program staff:

- **Some 67 learners (family medicine residents, nurse practitioner students and social work students) delivered team care to 176 patients in three Louisville clinics over a two-year period.**
 - During the project's second year—no patient team care occurred during its first year—35 learners delivered care to 45 patients at two clinics.
 - During the third year, 32 learners delivered care to 131 patients at three clinics. Ten faculty and 20 clinic staff participated as faculty, preceptors and support staff each year.
- **The project increased learners' knowledge, patients' comfort with team care and clinic staff's acceptance of team practices.** According to project faculty:
 - “Participants obtained new knowledge about the culture, skills and stresses of the participating professions. This will help them to reduce fragmentation, avoid duplication of care and match the patients' needs with the providers who have the appropriate skills. Use of interprofessional teams gave team members a broader repertoire of potential interventions.”
 - Faculty also noted that "while patients were initially cautious, most learned to value team care."
 - Anecdotally, team members reported patients more willing to keep appointments and comply with health regimens such as losing weight.
 - Finally, faculty noted that "allied staff [of the managed care partner] learned to value teams as they saw patient care improve."
- **In the academic year 2002–03, project leadership used teamwork to meet Accreditation Council for Graduate Medical Education objectives in three areas.** The areas were:
 - Practice-based learning and improvement.
 - Systems-based practice.
 - Interpersonal and communication skills.

The project's change in its selection criteria for patients—from high users of medical resources toward patients with chronic illness—allowed for much more, and more

consistent, learner contact with patients since these patients typically required interdisciplinary and coordinated care and repeat visits with their caregivers.

In an unpublished paper, "Interprofessional Ambulatory Primary Care Practice-Based Educational Program," which examined attitudes and skills of this project's participants, faculty concluded the following:

- **Participation in the "STAR" project led to improvements in learners' attitudes toward interprofessional teamwork.** Compared to a control group of similar learners at Louisville who did not experience team care, STAR learners:
 - Developed an increased awareness of the limits of their own discipline's approach to team care.
 - Showed greater respect for team participants from other disciplines.
 - More often perceived the level of involvement of each discipline in team care as appropriate.
- **Between the end of year two and the end of year three, this project's learners' attitudes concerning the value of their own project improved more than the combined attitudes of learners at all the projects.** Faculty determined this change by comparing attitudes of Louisville learners to those of all learners based on portions of a 25-question survey (the "CITE Survey Instrument") administered after year two and again after year three to learners in all five CITE programs.
- **Learners showed improvements in their self-perceived teamwork skills.** This improvement was shown in a self-evaluation instrument administered to learners before and after the project's third year.
- **Learners acknowledged that their confidence in doing interdisciplinary tasks did not improve.** This finding is also based on the self-evaluation instrument.
- **Learners felt that didactic sessions about managed care, which were held during the second year, did not result in improved knowledge of managed care.**
- **By contrast, team learners gave a high rating to year three sessions on aspects of medical knowledge related to diabetic care, mental health care, obesity, chronic pain, substance use and asthma.** Many patients seen by teams during year three had one or more of these chronic illnesses.
- **Project faculty presented results of this project at a half-dozen national meetings during 2001–02.** Audiences included those attending the National Organization of Nurse Practitioner Faculties (NONPF) annual meeting, and the Faculty Practice Conference of the American Association of Colleges of Nursing. They also participated in five poster sessions at national meetings in this period.

A Story of Teamwork

The project director recounted the following example of project teamwork:

A family practice medical resident, family nurse practitioner student and a social work student were practicing as a team in a busy family practice primary care clinic. Faculty advisors were present, or available by phone. During a noon team meeting, the team identified a patient, Mrs. L, who had asthma, as a potential patient for their care.

After the noon meeting, the resident met with the patient. She was experiencing an acute exacerbation of her asthma. She had not made changes in medication that the resident had previously ordered. She did not understand her medications nor did she know how to measure her peak flows.

In collaboration with the faculty, the team decided that the nurse practitioner student would meet with the patient to review the purpose of the medications and to teach the patient how to measure and evaluate peak flow rate.

The team also decided that if the patient were willing, the nurse practitioner student would develop a long-term plan to teach the patient how to self-manage her asthma symptoms.

In an effort not to overwhelm the patient, the team also decided that the social work student would briefly meet the patient to establish a beginning relationship and have more intense follow-up on the other issues later.

After successful treatment of her acute symptoms, which calmed her anxiety, and a brief review of the purpose and use of each medication (summarized in writing), Mrs. L met with the nurse practitioner student.

The student learned that while Mrs. L did not smoke, both her husband and son smoked in the house. Mrs. L had never asked them to smoke outside. With her consent, the nurse practitioner student sent a note home explaining why it was important that others did not smoke in the home.

The social work student also met with the patient and learned that she was having difficulty paying for her medications, and arranged to call her in a couple of days.

Mrs. L completed patient satisfaction and functional status questionnaires.

At the end of the clinical day, the team reviewed her visit, set desired clinical outcomes, future interventions, the team member who would be responsible and dates for evaluation.

Two weeks later, Mrs. L returned for a follow-up visit. The team learned that the husband and son had stopped smoking in the home and appreciated the note. The nurse practitioner student evaluated Mrs. L's pulmonary (breathing) function and completed the planned patient education. The resident met with the patient and refilled her asthma medications.

In the interim between the two visits, the social work student had helped the family obtain Passport Health Plan (Medicaid) benefits. In this visit, the social worker learned that the husband had become unemployed and the son was doing poorly in school. The patient agreed to a home visit in which the social work student would help the family find resources and cope with the stresses.

In the follow-up home visit, the social work student began counseling the family on how to cope with their stresses. While there, she also determined that the patient was following the prescribed medication and "peak flow" recording regime. She arranged a second home visit to continue helping the family develop effective coping skills.

Throughout the semester, the team reviewed Mrs. L's case and communicated by telephone between meetings if needs arose. Mrs. L had no further acute exacerbations of her asthma and did not seek help from an emergency room. Prior to team care, Mrs. L had sought help from the emergency room twice. She stated that she was happy with team care and felt better than she had in years.

Problems and Solutions

The challenges faced by the Louisville team were the usual ones: scheduling, faculty development, time required for the interdisciplinary care plan and role clarification, according to the PQE program staff. In particular, they struggled with the issues listed below.

- **Lengthy process of getting patients together with learners.** During the first year of the intervention, the learners' schedules seldom permitted them to be in the clinic together. This meant that each of them had to find a separate time to meet with the patient, which was inefficient and time-consuming.
- **Trouble scheduling team members to work together.** Team members were generally only together for the purposes of team meetings. This made it difficult for them to feel that they were a team. Sometimes, due to scheduling difficulties, some of the learners had not even met the patients by the time the team met to write patients' interdisciplinary care plans (ICP). (See [Changes to the Model](#) for how faculty addressed this.)
- **Difficulty enrolling enough patients.** Identifying an adequate number of patients for the intervention was challenging. Originally the managed care partner, Passport Health Plan, was to provide patients, collect data on utilization and track costs and resource utilization over the period of team care. All the patients in the intervention were poor, and they frequently moved or changed their phone numbers. Passport was unable to collect, run and provide data on patients to the team in less than three months. By that time, a significant percentage of the patients were no longer covered by Passport.

Ultimately, the project director decided to select patients who were scheduled for Wednesday afternoon (when the team was scheduled in clinic), who may or may not

have been appropriate for team care. This made it even harder for the learners to see the benefits of team care. (See also Changes to the Model.)

- **Faculty ability to teach team practices.** Concerning the ability of current clinicians to introduce the concept of teamwork to students, Kay Roberts, Ed.D, M.S.N., a project faculty member from the school of nursing noted in a report to program staff:

“Faculty from the three disciplines are little prepared to teach collaborative interprofessional practice.”

- **Difficulty developing an interdisciplinary care plan (ICP) document.** The project's interdisciplinary care plan document proved to be too cumbersome for team members. Dan Wulff, Ph.D, a project faculty member from the school of social work noted:

“Ideally, paperwork is an outgrowth of the team's need for it, rather than a requirement mandated from above. When teams request ICPs or other documentation, it is successful. When it is not often requested or desired, it is rarely useful.”

Eric Davis of the managed care partner similarly observed:

“Many learners [in this project] viewed the ICP as ‘extra paperwork’ or ‘another form’ to fill in. As an observer, the important part of team care has been the face-to-face interaction and sharing of each disciplines' knowledge of the patient [and it is this] that has created a holistic picture.”

Project faculty later simplified the ICP to help make it easier for learners to use. By the project's end, some teams found ICPs useful with complex patients. These teams wanted somewhere to record what each member was doing, and "resurrected" the use of the ICP. Other teams were still struggling with how to work together and had not found a need for an ICP.

- **Too much time focused on research rather than clinical care.** The project's faculty had difficulty dealing with institutional review board and control group issues, according to PQE program staff. This made them less flexible about making changes in the clinical intervention. The project's research aims also meant that data to be extracted from the ICP hindered a needed simplification of this functional document.

- **Difficulty with role identification.** Because the ICP required only that teams assign patient care tasks and responsibilities to their individual members, role assignment was subject to wide variation. The project director noted:

“Some [teams] were not assigning roles at all, some were spending too much time on role selection and some had moved through team role identification very easily.”

In addition, team members also found that they came to the project with different views about teams and teamwork, which made it challenging even to come to a common definition of "team." On the other hand, as one learner put it:

“Whenever [team members experienced] increased awareness of how one team member's actions potentially impacted other professions, this resulted in greater commitment to collaborative decision-making.”

- **Team "self-identification."** When, in the projects' first year of actual care, team members were only together for team meetings, it was difficult for them to feel that they were a team. Commenting on how teams "fit" in the field of clinical practices, the project director had this to say:

“Neither the health care nor academic system is structured to accommodate teams. Reimbursement systems [often based on "units" of care delivered by individual clinicians] discourage teams. While professional education advances knowledge, this specialization limits one's perspective and creates language barriers.”

- **Lack of a shared language.** Members of the care teams found that the three disciplines they collectively represented used very different languages. It took them a long time to feel that they really understood one another. While they had worked together before it was on a far more informal basis. Their work under the CITE grant was much more challenging. They also found that they came to the CITE project with different views about teams and teamwork, which made it challenging to come to a common definition of these terms. Because of the team's common response to this difficulty, project learners created and hung a poster, "Search for a Common Language."

- **Inability to secure funding from the social work department.** The University of Louisville's Kent School of Social Work/Marriage & Family Therapy was unable to fund its continued project participation.

Program Director Gordon Moore concluded that:

“The leadership team of the University of Louisville project worked very hard to make this project work. Ultimately, however, like most of the CITE projects, the team failed to make substantial progress in developing an effective team model of care.

“Moving in the direction of focusing their teamwork on chronically ill patients makes sense [because current treatment models for chronic illness already often involve multiple specialties and disciplines.] However, it is unlikely to solve many of the fundamental, underlying challenges that they face: limited time in the clinic for team members, faculty with limited experience in teamwork, and the lack of a clear model for teamwork.”

Lessons Learned

Project Director Karen Newton offered the following practical lessons:

- **For teamwork to be practiced effectively, it must take place in a situation in which learners view it as desirable.** It appears that when learners are challenged to improve chronic illness care or to improve preventive care, teamwork becomes a desirable and useful method of meeting those challenges.
- **Team members need to be trained in how to hand off patients from the doctor to other team members.** Doctors are typically the single source of care. The ability to communicate confidence and enthusiasm to patients as they are being engaged in team care appears to be a skill that needs to be taught, modeled and expected by faculty from all three professions (physicians, nurses and social workers). In team practices, nurse practitioners and social workers are not "helping" the doctor. Rather they are expanding the patients' access to care that will assist the patients in managing their own illness.
- **Primary care offices should shift their culture regarding chronic illnesses from physician-centered care to one promoting team care; they should "brag" that**

this care is available. The patients, for their part, would then see that the extra time required for team care is a benefit.

Looking Ahead

In 2005, project faculty continued to test and refine their interdisciplinary team approach at a family practice clinic in Louisville, working with medically "challenging" patients such as those with chronic illness.

According to the project director, the CITE project stimulated faculty at the University of Louisville Medical School to develop team cases for use by its Standardized Patient Program (a teaching program in which actors simulate patients in a variety of challenging clinical situations or medical problems).

The University of Louisville's Department of Family and Geriatric Medicine in 2005 became one of 22 academic health centers in the country participating in the Association of American Medical Colleges' Chronic Care Collaborative. This program was established in 2004 with help from RWJF (ID# 055278). It supports medical centers that encourage patients with chronic diseases to become actively engaged in their own treatment—a model that typically involves the patient with more than one clinician. In 2005, two project faculty members published an article in *American Family Physician*, "Supporting Self-management in Patients with Chronic Illness."

Finally, Family Medicine Centers and Geriatric Clinics at the University of Louisville are focusing on managing chronic illness by establishing:

- Patient registries at four primary care sites (registries are databases of information about patients with the same chronic illness).
- Group appointments for chronic conditions facilitated by teams in collaboration with Passport Health Plan.
- A treatment based on the community-based Stanford model for Chronic Disease Self-Management Programs. The Chronic Disease Self-Management Program is a workshop that people with chronic diseases attend together. It teaches the skills needed in the day-to-day management of treatment and to maintain and/or increase life's activities.

TAKE CARE TO LEARN: TEACHING CLINICAL CARE MANAGEMENT PROGRAM, 2002–2003

The underlying idea of Take Care to Learn (TCLC) was to use chronic illness management and improving care for populations of patients as a way to teach the skills and knowledge needed for managed care.

—PQE Program Director Gordon Moore

TAKE CARE TO LEARN SUMMARY

The Take Care To Learn (TCTL) program supported efforts at nine institutions to develop or refine chronic illness management programs in diabetes or asthma that would serve as platforms for teaching medical learners about managing chronic illness. It operated from November 2001 through December 2003.

Some 509 medical learners participated in TCTL over a period of two years. These included resident physicians, nurse practitioner students as well as social work, pharmacy and physician assistant students.

Key Findings

Evaluators Yedidia and Green conducted a study of participating learners and a comparison group not enrolled in the program. It showed that TCTL learners reported significantly more improvement than the comparison group in their ability to:

- Mobilize relevant resources for implementing the chronic care model. For example:
 - Consult guidelines during a patient visit.
 - Access detailed information on diabetes-related community programs.
 - Get timely input from a pharmacist on a complex medication regimen.
- Support patient self-management of their conditions. For example:
 - Explain diabetes or asthma in a way that patients can understand.
 - Give patients choices about how to manage their diabetes/asthma care.
 - Involve patients in making a plan for their care.
- Address difficult patient care issues in chronic disease management. For example:
 - Address cultural issues in promoting lifestyle changes.
 - Accept patients' preferences for care that differ from those of the medical learners.
 - Promote lifestyle changes in a patient who denies having a chronic illness.

At one project treating asthma sufferers, patient utilization data could be linked to learner providers. There the evaluators Yedidia and Greene found that:

- Participating patients reduced Emergency Department use by 43 percent. Evaluators ruled out the possible influence of other key factors in explaining this difference.

The evaluators also surveyed patients of all Take Care to Learn learners:

- Patients (or parents of child patients) who view health care providers as highly supportive of their self-management efforts reported greater confidence in caring for their (or their child's) conditions.
- Diabetes patients with highly positive assessments of their provider's support, reported engaging in self-management tasks approximately one day more often per week than those with negative views.
- These relationships between patients' confidence in caring for their (or their child's) condition and their view of their physician were significant for patients with either asthma or diabetes and from varied socioeconomic backgrounds.

For detailed findings, see [Take Care To Learn Evaluation](#). For an overview of project difficulties and successes implementing Take Care to Learn, see [Take Care to Learn Challenges](#).

For sidebars on two Take Care to Learn projects, see:

- [Albert Einstein Healthcare Network](#)
- [University of California, Davis](#)

TAKE CARE TO LEARN PROGRAM DESIGN

Program Goals

The program staff created Take Care to Learn to demonstrate the validity of the following hypotheses:

- Academic primary care delivery sites can implement chronic illness management programs that improve care for at-risk patient populations while reducing costs.
- Chronic illness programs can successfully incorporate learners as participant providers. That is, nurses and doctors in training can participate in the care of individuals or groups of patients and learn about how to design structures and supports to make that care optimal.
- By participating in the design, development and delivery of chronic illness management programs, learners acquire the knowledge, skills and attitudes they need to implement chronic illness management programs in other settings.

- Incorporating relatively low-cost learners into a chronic illness management program can deliver high-quality care at a lower cost. This should generate savings that offset the cost of teaching and help make education financially sustainable.

The program also responded to interest within the medical and insurance industries in:

- Cost-saving techniques of chronic illness management as applied to populations of patients.
- Systems approaches to chronic illness management (these include the [Chronic Care Model](#) developed by Edward Wagner at the MacColl Institute in Seattle, with support from RWJF, which informs program efforts at the nine participating institutions.) See [Underlying Care Model](#) section for more details.

According to the Call for Proposals, participating institutions were to:

- Incorporate a teaching practice setting for [chronic illness management](#) in which at least 50 percent of the patients were covered under managed Medicaid or Medicare, free care or other fixed-price contracts.
- Identify diabetic or asthmatic populations for whom measures of care could be collected and tracked over time. Examples of such measures include:
 - Number of office visits and hospitalizations
 - Other process measures of care, such as the amount of instruction given to individuals or groups in illness self-management
 - Disease state markers
 - Patient satisfaction
 - Costs
 - Clinical outcomes, such as reduced hospital emergency department visits.

Program staff required all project teams to create a patient [registry](#) to facilitate this data collection, or to employ an existing one.

- Develop and implement (or enhance) a chronic illness management program that incorporates both [population management](#) and individual patient approaches.
- Develop and implement a plan for educational activities that advances the state of the art in clinically based teaching about chronic illness management.
- Involve at least 12 primary care residents and/or nurse practitioner students per year. It was assumed that the chronic illness management program might involve professionals from other disciplines such as social work and pharmacy.
- Ensure that learners have direct experience in all elements of the program, including direct patient care.

- Develop an educational product (i.e. curriculum, Web-based module, or case studies) for dissemination and use by other educational programs.
- Develop an internal evaluation plan that measures the program's achievement of planned clinical objectives (clinical outcomes, satisfaction, costs).

Focusing on Two Chronic Illnesses

TCTL focused on asthma and diabetes because patients with both diseases are frequent patients in primary care settings. In addition, in 2000 they were two diseases where the field of chronic illness management was most advanced.

But program staff emphasized that the project was not about managing asthma or diabetes. It was about using these two diseases to understand the process of chronic illness management.

In their design of TCTL, the program staff drew lessons from the CITE program (see [CITE Lessons Learned](#)). Rather than starting with a designated program "solution"—which in the case of CITE was teamwork, and then looking for a problem that teams should work on—staff asked the project faculty to focus on asthma or diabetes, both of which require collaboration for successful management.

Underlying Care Model

In designing TCTL, the program staff drew on the [chronic care model](#), developed by Edward Wagner and colleagues at Seattle's W.A. MacColl Institute for Healthcare Innovation, with funding from RWJF in its [Improving Chronic Illness Care](#) program. The model places emphasis on has six elements of a health care system, which can be engaged to support high-quality [chronic illness management](#).

Program staff encouraged project teams to use the model as a guide in developing and implementing their work. The model's six elements are:

- Community resources and policies.
- The health system.
- [Patient self-management](#) support.
- Delivery system design.
- Provider decision support.
- Clinical information systems.

For more information on this model, visit the [MacColl Institute's Chronic Care Model](#).

TAKE CARE TO LEARN PROGRAM

RWJF funded the PQE program office (ID#s 036994 and 048142) to create and manage TCTL with the idea of supporting 10 two-year grants of up to \$300,000 per institution (up to \$150,000 per year for two years). Each institution was expected to contribute an additional 30 percent of the grant amount each year in direct or indirect support towards the cost of planning and implementation.

Take Care to Learn Grantees

In June 2001, the program office received 140 applications for TCTL. It made grants in November 2001 to nine qualifying institutions:

- Access Community Health Network
Department of Family Practice
Chicago
- University of Washington
Department of Medicine
Seattle
- University of California, Davis
Department of Family and Community Medicine
Sacramento, Calif.
- Albuquerque VA/University of New Mexico
Department of General Internal Medicine
Albuquerque, N.M.
- University of Virginia Health System
Department of Internal Medicine
Charlottesville, Va.
- University of California, San Francisco
Department of Medicine, Center for Collaborative Primary Care
San Francisco
- Duke University Medical Center
Department of Community and Family Medicine
Durham, N.C.
- MaineHealth / Maine Medical Center
Department of Pediatrics

Portland, Maine

- Albert Einstein Healthcare Network
Einstein Practice Plan, Inc.
Philadelphia, Pa.

These institutions included primary care residencies and nurse practitioner programs. Social work, physician assistant and pharmacy programs also participated in the TCTL projects.

Take Care to Learn Projects

“We thought a lot about how to support our patients in managing their disease. How could we help them understand their disease and its triggers better? How could we teach them the skills involved in monitoring their health? How could we help them understand how to control asthma rather than be controlled by it?”—Albert Einstein Project Manager Wendy Nickel

Three projects (at Duke University, MaineHealth / Maine Medical Center and Albert Einstein Healthcare Network) focused on asthma; the rest focused on diabetes.

Few of the TCTL projects had any **chronic illness management** programs in place at the time of their funding. This meant, according to PQE program office staff, that most were faced with the challenge of simultaneously developing a clinical program and developing a teaching intervention.

Projects at participating institutions varied widely in their program structure and implementation, and some modifications of design characterized most projects after their startup. According to reports to PQE program office staff, the TCTL projects as a group conducted some or all of the following activities:

- Instituted a required four-week diabetes or asthma rotation for learners.
- Fielded interdisciplinary teams to see patients.
- Developed new **patient self-management** approaches and classes.
- Taught learners how to encourage patients to manage their illness through such techniques as **motivational interviewing**.
- Created teaching sessions and Web-based modules on chronic illness management care.

- Taught residents on a one-on-one basis about chronic illness management.
- Compiled [registries](#) to track patients.
- Conducted home visits to help learners get a better feel for the challenges patients face in managing their diseases.
- Scheduled classes and group visits to help patients manage their diseases.
- Increased faculty development time to help them prepare to teach chronic illness management.

For sidebars on two Take Care to Learn projects, see:

- [Albert Einstein Healthcare Network](#)
- [University of California, Davis](#)

Program Office Role

The PQE program office staff sponsored two-day meetings for the key staff of all TCTL projects each fall and spring. About 100 participants attended each of these meetings.

The fall meeting was also open to others interested in this work. It focused on larger issues related to [chronic illness management](#) (e.g., managed Medicaid).

Each spring, the PQE program office held "grantee only" conferences where they facilitated the exchange of information, project-to-project, and fielded detailed "how to" questions.

The program office also provided projects with technical assistance, including:

- Phone conversations when needed.
- Site visits (program staff visited each project twice—once in the final stages of grantee selection and once midcourse in the project).
- Detailed written responses to periodic narrative reports from project teams—to which teams then were required to respond.
- Conference calls for projects' staffs about specific requested subjects (for example, [registry](#) development, [motivational interviewing](#) and [patient self-management](#)).
- Programmatic resources developed by *Improving Chronic Illness Care*, whose developers created the [chronic care model](#) as a systems approach to chronic illness management. See [Take Care To Learn Program Design](#).

TAKE CARE TO LEARN CHALLENGES

*“All this is not to say that the Take Care to Learn grantees failed to make progress in implementing chronic illness management programs. With few exceptions, they did make headway. It's just that the changes were more modest than we might have hoped given the tremendous time and energy invested by the [project directors].”—
PQE Program Director Moore*

In a report to RWJF in 2004, PQE program staff assessed progress toward TCTL's four program goals:

Goal 1: Academic primary care delivery sites can implement chronic illness management programs that improve care for at-risk patient populations while reducing costs.

- **Eight of the nine projects made substantial progress toward meeting this goal, but only one or two came close to full implementation.** Project staff found that implementing **chronic illness management** programs in academic health centers is difficult:
 - The clinical operation of these sites has evolved for the delivery of acute care. This is different from that required for chronic illness care programs. For example, an institution does not need a **registry** to manage acute episodes of asthma. It does, however, need a registry to manage asthma as a chronic illness. But there are limited incentives to create registries and other structures.
 - Payment systems are structured to reimburse acute care, which is often costly, but not prevention or planned care that can prevent the acute episodes (hospitalization for asthma; kidney failure or limb amputation for diabetics).
 - The idea of systems of care, which are required for chronic illness management, runs against the grain of medical training that emphasizes individually focused care.
 - Few of the projects had the systems tools in place at the beginning of the project that they needed to manage chronic illness such as a registry, reminder systems, clinical support tools, etc.

Despite these challenges, the project teams changed some elements of care delivery in ways that supported more effective management of chronic illness. Most of the project teams overcame obstacles and created a registry for diabetes or asthma (a program requirement). Almost all recognized how important a registry was to the process of managing chronic illness.

Goal 2: Chronic illness programs can successfully incorporate learners as participant providers. That is, nurses and physicians in training can participate in the care of individuals or groups of patients and learn about how to design structures and supports to make that care optimal.

- **The projects incorporated learners as participant providers in spite of several obstacles.** Some of the obstacles were structural and could not be overcome in the current training model. For example:

- The fragmented schedules of the learners created a significant barrier to incorporating them as effective providers in the ambulatory system. In fact, because learners need to cover inpatient services, they often had limited time working in an office-based clinic.

To overcome this, projects worked on a range of ways to improve the care the learners provided. Some engaged learners in teaching the chronically ill **patient self-management**. Others involved their learners in home visits, and others worked on having the learners work in teams to provide care.

- It was even more challenging to incorporate faculty who were not directly involved in the project. Primary care faculty members are under increasing pressure to generate clinical income and so have less time for teaching. Training them to provide care in new ways so that they could teach the learners proved challenging for most projects.

Most projects made some progress in bringing faculty on board. Some faculty members were pulled into learning new approaches by learners who were excited about what they were learning. Others began to see changes to clinic operations that made their work easier.

Goal 3: By participating in the design, development, and delivery of chronic illness management programs, learners acquire the knowledge, skills and attitudes needed to implement chronic illness management programs in other settings.

- **Only one project involved learners fully in the design process.** For most, it was not part of the agenda. Most of the initiatives were not robust enough (clear enough in their conception, adequately integrated into the life of the clinic, etc.) for the learners to gain a deep understanding of the concept of chronic illness management.

Nevertheless, most of the participating learners achieved a working level of understanding about the basics of chronic illness management.

The projects that showed the greatest results were those that carved out more time for the education of residents and used multiple settings to teach about chronic illness management (for example, noon conferences, didactics, clinic precepting, etc.)

Goal 4: Incorporating relatively low-cost learners into a chronic illness management program can deliver high-quality care at a lower cost. This should generate savings that offset the cost of teaching and help make the education financially sustainable.

- **Given the relatively short term of the project, the measurement of cost savings and how these savings could offset teaching costs was beyond the scope of all the projects.**

Greater efficiency probably would have required that learners be scheduled in a way that would allow them to carry more responsibility for accessibility, continuity and coordination of care. However, none of the projects directly addressed the issue of the learners' fragmented attendance in the clinics that were the sites for the chronic illness care interventions.

TAKE CARE TO LEARN RESULTS

PQE program office staff reported the following participant head count to RWJF in 2004, following the program's conclusion:

- **509 learners participated in Take Care to Learn's nine projects.** This comprised 386 residents, 44 nurse practitioner students, 65 pharmacy students and 14 physician assistant students. An average of 57 learners participated at each project.

TAKE CARE TO LEARN EVALUATION

Michael Yedidia, a professor at the New York University Wagner Graduate School, New York City, and Jessica Greene, an assistant professor at the University of Oregon, Eugene, conducted an evaluation of Take Care to Learn during 2002–04.

Evaluation Methodology

The evaluators sent surveys to all TCTL learners at the beginning of the projects in the summer of 2002 and at the end in the summer of 2003. At the same time, they sent the same surveys to a comparison group whose members were similar to the TCTL learners but not engaged in TCTL projects. In all, 207 TCTL learners from nine projects completed both surveys, as did 85 learners from the comparison group.

To assess learners' confidence in their ability to deliver effective chronic care, the survey included sets of questions measuring each of three outcomes:

- Ability to mobilize resources for implementing the **chronic care model** (a 6-item scale).
- Ability to perform tasks that supported **patients' self-management** of their disease (a 7-item scale).

- Ability to address challenging patient care issues in **chronic illness management** (a 9-item scale).

TAKE CARE TO LEARN EVALUATION FINDINGS

In 2006, Yedidia and Greene reported the following findings to the author of this report. The first set of findings is about learners; the second set about patients:

Findings About TCTL Learners

- **Ability to mobilize relevant resources for implementing the chronic care model: Take Care to Learn (TCTL) learners reported significantly more improvement than their counterparts in the comparison group.** For example:
 - Consult guidelines during a patient visit.
 - Access detailed information on diabetes-related community programs.
 - Get timely input from a pharmacist on a complex medication regimen.

See the following table for more detail. The pre-test measure is from the initial survey in the summer of 2002; the post-test from the final survey in the summer of 2003.

Ability to mobilize essential resources for implementing the chronic care model				
In treating your patients with diabetes/asthma, how easy or difficult is it for you at your continuity clinic to...				
	PERCENT RESPONDING EASY			
	TCTL Intervention Learners		Comparison Learners	
	Pre-Test (n=207)	Post-Test (n=207)	Pre-Test (n=85)	Post-Test (n=85)
a. Consult guidelines for diagnosis and treatment of diabetes/asthma before or during a patient visit.	55.6	82.1	61.2	70.6*
b. Access detailed information on diabetes/asthma-related community programs.	22.3	47.6	28.2	29.4*
c. Discuss with a medical specialist a complicated patient for whom usual treatment options have been exhausted.	59.4	80.3	61.2	69.4
d. Get timely input from a pharmacist on a complex medication regimen that is associated with debilitating side effects.	52.7	78.4	63.5	57.6*
e. Have access to a patient's medical record during a telephone consultation.	61.8	71.2	60.0	72.9
f. Have someone advocate for a patient to overcome a barrier to access, like insurance or transportation.	44.6	55.0	39.0	53.2

* Indicates statistically significant differences in improvement from pre- to post-training among intervention and comparison groups.

- **Ability to support patient self-management of their conditions: TCTL learners reported more improvement than the comparison group.** For example:

- Explaining diabetes or asthma in a way that patients can understand.
- Giving patients choices about how to manage their diabetes/asthma care.
- Involving patients in making a plan for their care.

See the following table for more detail.

Ability to perform tasks supporting patients' self-management of their conditions				
In caring for patients with diabetes/asthma, how successful do you feel you are in performing each task? Use a scale from 1 (not very successful) to 5 (very successful).				
	PERCENT RESPONDING "4" or "5"			
	TCTL Intervention Learners		Comparison Learners	
	Pre-Test (n=166)	Post-Test (n=166)	Pre-Test (n=77)	Post-Test (n=77)
a. Explain diabetes/asthma care in a way that patients can understand.	66.3	91.5	70.1	78.7
b. Give patients choices about how to manage their diabetes/asthma care.	43.4	71.8	50.6	67.1
c. Convey respect for what patients have to say about their diabetes/asthma.	81.9	93.2	84.4	94.7
d. Involve patients in making a plan for their care.	64.5	81.7	62.3	72.4
e. Get patients to tell you when they don't want to do a self-care task you recommend.	28.7	46.6	31.2	48.7
f. Assist patients in solving problems they encounter in diabetes/asthma self-management.	41.6	67.7	39.0	48.7*
g. Teach patients to make changes in treatment regimens based on results of self-monitoring.	27.0	53.3	25.0	31.6*

**Indicates a statistically significant difference in improvement from pre- to post-training among intervention and comparison groups.*

- **Ability to address challenging patient care issues in chronic disease management: TCTL learners reported more improvement than the comparison group.** For example:

- Address cultural issues in promoting lifestyle changes.
- Accept patients' preferences for care that differ from theirs.
- Promote lifestyle changes in a patient who denies having a chronic illness).

See the following table for more detail.

Ability to address challenging patient care issues in chronic disease management				
In caring for your current patients with diabetes/asthma, how successful do you feel you are in performing each of the following tasks?				
	PERCENT RESPONDING "4" or "5"			
	TCTL Intervention Learners		Comparison Learners	
	Pre-Test (n=166)	Post-Test (n=166)	Pre-Test (n=77)	Post-Test (n=77)
a. Address cultural issues in promoting lifestyle changes.	20.8	40.5	15.8	24.7*
b. Accept patients' preferences for care that differ from yours.	49.7	71.4	44.7	57.1
c. Assist patients in accepting that they have a chronic illness.	46.0	68.5	51.3	58.4*
d. Deal with a patient who is depressed about having diabetes/asthma.	35.2	58.1	38.7	40.3*
e. Promote lifestyle changes in a patient who denies having a chronic illness.	19.3	39.8	22.7	18.4*
f. Encourage an unmotivated patient to engage in self-monitoring and self-care activities.	20.4	36.3	22.4	28.6*
g. Help patients reduce the stress associated with having diabetes/asthma.	23.6	38.0	25.0	35.3
h. Encourage patients to learn about diabetes/asthma.	51.2	65.6	46.8	43.4*
i. Make patients feel they can take care of their diabetes/asthma.	50.6	68.9	63.6	52.6*

** Indicates statistically significant differences in improvement from pre- to post-training among intervention and comparison groups.*

At one asthma site (MaineHealth / Maine Medical Center in Portland, Maine) where patient utilization data could be linked to learner-providers, analysis of the impact of the TCTL program on utilization of the hospital emergency department (ED) by asthma patients showed the following:

- **TCTL study patients reduced ED use by 43 percent while there was a slight increase in asthma ED use for other patients.** Evaluators ruled out the possible influence of other key factors in explaining this difference.
- **The reduction in ED use that could be attributed to the TCTL program conserved hospital resources (amounting to approximately \$45,000 in reduced billings).** This reduction also suggested that these patients had achieved better control of their asthma.

(To arrive at these findings, the evaluators documented the use of services by 442 asthma patients treated by Take Care to Learn residents—186 pediatric and 256 adult patients—during the year prior to the beginning of the training project and during one year of project implementation. Evaluators compared the change in asthma-related

ED use for these patients over this period with the use by all other asthma patients at the site during the same time.)

Findings About Patients

The evaluators also surveyed patients of TCTL learners at all projects in late 2002 and early 2003 to elicit their perceptions of provider support for self-management, a key element of the chronic care model. Surveys were completed by an ethnically diverse, primarily low-income sample of 956 patients (or parents of pediatric patients) with diabetes or asthma. There was no comparison group.

Greene and Yedidia reported the following in the *Journal of Health Care for the Poor and Uninsured* in 2005 (see the [Bibliography](#)):

- **Patients (or parents of child patients) who view health care providers as highly supportive of their self-management efforts reported greater confidence in caring for their (or their child's) conditions.**
- **Diabetes patients with highly positive assessments of their provider's support reported engaging in illness self-management approximately one day more per week than those who held negative views.**
- **These relationships between patients' confidence in caring for their (or their child's) condition and their view of their physician were significant for patients with either asthma or diabetes and from varied socioeconomic backgrounds.**

According to Yedidia, these findings from the patients provide evidence of the validity of the measure of provider support, its broader relevance to underserved populations, and its usefulness for evaluating quality of care and assessing training programs such as those initiated by PQE.

TAKE CARE TO LEARN LESSONS LEARNED

1. **Keep the grantee organizations focused on the core goals and activities of the grant.** The PQE program staff's experience was that these interventions are difficult to implement in the complex institutional context of an academic medical center. (PQE Program Staff)

“It is easy for grantees to get lost in the details of the operations and lose sight of the overarching goal. The program staff's job was to remind them to make sure that they clearly communicated to their constituency (faculty and learners) what the intervention was about. It was not about managing asthma or diabetes. It was about using

these two disease states to understand the process of chronic illness management.”—PQE Program Director Moore

13. **Make sure, after you have worked with project teams, that they put in writing their understanding of what they need to do.** The PQE program staff provided teams at the nine institutions implementing TCTL with written responses to all of their reports and asked that they submit written response to the staff's inquiries. The staff found that this helped both parties to be clear about expectations and about the work that was going on. (PQE Program Staff)
14. **Put a human face on the program office.** Project teams need to know that there is always someone there who can try to answer the questions they have. The PQE program staff's assistant did an excellent job at this. He was quick to pick up the phone, rather than e-mail, and was effective in developing friendships with the projects' faculty, their learners and their staff. This went a long way towards creating a sense of camaraderie among the groups and a sense that working together was an enjoyable process. (PQE Program Staff)
15. **When working with dispersed teams, create a common language on an important issue.** The PQE program office staff chose communication as the important issue because they thought it was vital to making any changes. They hired a consultant to run a day-and-a-half seminar prior to one of the annual meetings. It not only brought the project leaders together to learn something new (which can itself be a bonding experience), but it taught them a shared language about how people communicate and mis-communicate including those in different professions. (PQE Program Staff)
16. **Expect a lot but be prepared for more modest results.** Projects in academic medical centers face many hurdles, progress is slow in coming and accomplishments more modest than one might like. Prepare to identify one to three things that you want all project teams to do if they do nothing else. In TCTL, the program staff emphasized the development of a [registry](#), since they felt that registries were vital to [chronic illness management](#). (PQE Program Staff)
17. **Be unflinchingly supportive, but also keep the pressure on highly motivated leaders to deliver.** In pursuit of results, PQE program office staff gave frequent support to directors of individual projects in the form of detailed written responses to progress reports, phone meetings and site visits. Yet they found it necessary with project leaders to be very clear about timelines and deadlines for delivering products. (PQE Program Staff)

AFTER TAKE CARE TO LEARN ENDED

The Take Care to Learn program ended in December 2003. Its program staff at Harvard Pilgrim Healthcare went on to administer the fourth RWJF-funded program in PQE, called Achieving Competence Today (ACT).

Take Care to Learn Sidebars

TAKE CARE TO LEARN PROJECT: ALBERT EINSTEIN HEALTHCARE NETWORK, PHILADELPHIA, 2002–03

“Our patients and families don't always understand all we have to offer in terms of education, and how much they can affect their own health. The single biggest turning point for patients is when they really understand our relationship with them and their relationship with their chronic condition.”—Co-Project Director Allan Arbeter, M.D.

A project team of eight faculty and senior staff introduced a number of changes enhancing asthma care at the Pediatric and Adolescent Ambulatory Center of the Albert Einstein Medical Center. Allan Arbeter, M.D., and Jerry Maliot, M.D., served as project co-directors during the time described here.

The Project Setting

Einstein's pediatric center serves a mostly low-income urban population and has 18,000 visits a year. Prior to TCTL, in 1997, the clinic had launched its first chronic illness management¹ program—called "STAR" (Support Team for Asthma Relief) to manage asthma among some of the center's children and adolescents. In its first year of operation, the STAR program produced statistically significant reductions in emergency room visits and hospitalizations.

Center staff had intended to use STAR as a training vehicle for residents, but never did. With the TCTL project, leadership took this step, applying STAR throughout the primary care clinic and involving all pediatric residents in it.

¹ Chronic illness management: The use of a strategy or strategies to manage an individual's chronic illness to achieve a better outcome. Often the term is used in the context of managing a group of patients over time who share a common chronic illness.

The TCTL Project

In the project's 18 months, faculty engaged 64 pediatric residents in TCTL, the majority of residents participating for six months, but a substantial minority (22) participating for 12 months.

Like others in the program, this project's faculty used the chronic care model² to guide teamwork in the treatment of asthma. The center already employed a patient registry³. Its plan comprised these clinical and educational goals:

Clinical Goals

- Use of evidence-based treatment guidelines.
- Use of a team approach involving the resident, a nurse care manager and a health educator, with a formal action plan, a written workbook for patients and check sheets for physicians.
- Residents' assessment of patients using a "biosocial" model (this considers the patient's health and social environment and values, especially as these may affect the patient's perception of his or her ability to take control of an illness).
- Visits to patients' homes by residents.
- Patient follow up that would include additional office visits and telephone calls.

² Chronic Care Model: A systems approach to chronic illness management for health care providers. It identifies six essential elements of a health care system to be engaged to encourage high-quality chronic disease care:

- The community.
- The health system.
- Patient self-management support.
- Delivery system design.
- Decision support.
- Clinical information systems.

Implementation of the model relies on a focus on these six elements, as well as the development of productive interactions between patients who take an active part in their care and providers backed up by resources and expertise. It can be applied over a variety of chronic illnesses, health care settings, and target populations. Edward Wagner, M.D., M.P.H., director of Seattle's W.A. MacColl Institute for Healthcare Innovation, Group Health Cooperative of Puget Sound, and colleagues developed the model with RWJF funding.

³ Registry: An electronic record of patients with the same chronic illness such as asthma or diabetes. Frequently part of a clinical information system, it usually contains a variety of patient data in addition to patient names. Providers can use a registry in chronic illness management to monitor the progress and care provision of individual patients, or of groups of patients (population management), and check on progress toward care targets set for providers, such as the provision of foot checks for diabetic patients.

Educational Goals

- Several asthma-related grand rounds.
- Clinic conferences dedicated to asthma management.
- Participation in the project by the hospital's managed care manager.
- Regular meetings to discuss patients.
- Patient education activities for use in the patients' homes and schools (for child patients) as well as teaching about asthma by residents during clinic hours.

According to PQE program office staff, as the project developed over time its participants focused most significantly on two aspects of the chronic care model:

- Their support of patient self-management⁴ of their asthma.
- The center's care delivery system (with a primary focus on facilitating productive interactions between physicians and patients).

The latter was driven by a low rate of kept appointments at the center, which could not be improved, hovering throughout the project at around 50 percent. Faculty also began using a more interactive, hands-on style of teaching with a focus on using pre-clinic conferences as the primary education tool.

Results

According to its directors, the project team:

- **Decreased the frequency of patients' asthma visits (visits to physicians due to asthma), inpatient hospitalizations, physician visits for other reasons and emergency room visits.** The following data represent health outcomes for 48 Medicaid managed-risk children or adolescents with asthma who participated in the TCTL/STAR project:

Patient Indicator (use of services)	2002 (pre-project)	2003 (post-project)	Percent Change
Asthma Visits	88	67	24 percent reduction
Inpatient hospitalizations	127	85	33 percent reduction
Physician visits	762	428	44 percent reduction
ER Visits	160	128	20 percent reduction

⁴ **Patient self-management.** The patient's learning and effective use of skills needed to manage his or her own health conditions (such as blood sugar monitoring, use of inhalers for asthma) and includes the adoption of health enhancing behaviors. Health providers use the term particularly with patients who have chronic diseases. Patient self-management is often taught as one component of chronic illness management.

- **Increased the percentage of asthma patients with clinician-written asthma action plans.** A review of all patient charts done prior to the project, in 2002, showed no clinician's asthma action plans in charts for patients with asthma. By 2003, the number had increased to 22 percent of charts for these patients.
- **Introduced residents to a new curriculum on asthma management.** Over time, faculty moved away from an emphasis on traditional clinical case studies, noon conferences and grand rounds. Based on feedback from residents, faculty retooled the curriculum to provide a more hands on, practical dimension. Faculty:
 - Made pre-clinic conferences (meetings taking place just before residents saw their patients) a primary education delivery vehicle. At these meetings, faculty and residents discussed patient cases in relation to the chronic care model, specifically how to better care for patients with chronic conditions. In these meetings, residents also had the opportunity to discuss any patients with whom they were experiencing care management concerns.
 - Responded to residents' requests for more educational information—for example, on how to use peak flow meters and nebulizers so that they could better educate their patients. (A peak flow meter measures breathing function. A nebulizer delivers asthma medication as a mist that patients can breathe.)
 - Introduced creative avenues, such as one-on-one resident education, role-playing and newsletters, in order to meet the needs of residents who had rotations at multiple sites. These avenues reflect methods used in adult learning theory that suggests adults attain more knowledge through participatory, as opposed to didactic, education.
- **Instituted assessments of patients' homes.** Many residents participated in these home visits, which sought to identify environmental asthma triggers.

“This component of the curriculum was extremely valuable, as it provided residents with a real-life understanding of the challenges facing their patients. For example, while the residents encouraged patients to avoid triggers such as smoking, the home visits shed light on how difficult it can be to avoid secondhand smoke in the home.”—Co-Project Director Arbeter

- **Altered the relationships between clinicians and patients and their families.** According to project faculty, residents, attending physicians and clinic staff over time began to "create closer relationships with both our patient and [their] family members." The project team:

- Held monthly asthma group meetings for patients. These met the needs of patients and family members who wanted to ask specific questions about asthma but did not want to go through the process of seeing a physician.
- Employed a health educator in the clinic four days a week to answer patient questions and provide patient education resources.
- **Organized quarterly "asthma parties" for clinicians and patients and their families to promote techniques of patient self-care.** The patient registry was key in establishing a guest list. The asthma parties also led to the development of group visits for asthma patients noted above.

“The residents talked informally with families about asthma triggers and management, and conducted a survey among families about asthma care and concerns.”—Co-Project Director Arbeter

Clinic-Wide Changes

In a 2004 report to program staff, the project directors noted the following changes made to their treatment system as a result of work on TCTL. Though not part of stated project goals at the outset, they termed these among their "most significant successes:"

- **The development of a multidisciplinary work environment.** Prior to the TCTL project, disciplines within the Pediatric and Adolescent Ambulatory Center acted as separate entities with little communication among them. In early 2003, the team recognized the same dynamic among disciplines within the project, hampering its progress. In addition, many individuals who were integral to the project were not members of the project team.

To address this problem, the project team established a clinic committee that included representatives from nursing staff, medical assistants and residents. Its purpose was to extend the reach of project decision-making beyond faculty to other disciplines. In the end, the committee gave direction not only to the Take Care to Learn project but also facilitated process improvements in the Pediatric and Adolescent Ambulatory Center itself.

According to the project directors, the committee hadn't ameliorated "turf" issues, but residents know more about systems in health care and how to improve them.

- **Improved systems within the pediatric and adolescent ambulatory center.** The project team used the chronic care model and improvements in resident education, patient care and operational systems (especially patient information and billing systems) to increase the center's productivity. They:

- Convinced the center to provide clinicians with patient lists on an ongoing basis. Prior to 2002, for example, residents were unable to obtain lists of patients being seen on a given day in the clinic. Because the project team insisted on having these lists, the residents overnight had a clearer picture of the population they were to manage.
- Posted photos of clinicians in the center, which helped patients remember the clinician they had seen last. This allowed for improved continuity of care for the patient.
- Improved resident "succession planning" so that patients were handed on to the most appropriate providers for care when residents completed their residency program.
- Created business cards and voicemail for residents so that patients and residents could communicate more easily.

Challenges

In their 2004 report to program staff, project directors cited two obstacles to the full achievement of project goals:

- **Securing faculty buy-in.** For the first year and a half of the two-year project, according to the project director, it was clear that the team had not secured faculty support. Despite faculty education, discussion in staff meetings and project leadership by the chair of the department, the faculty did not seem to be actively engaged in the project's chronic care concepts or adopt them in their everyday practice. The project director lists the following reasons for this:

- Competing priorities and demands on faculty made it difficult to gain their attention or interest.

In 2001 and 2002, the department of pediatrics lost several attending physicians and support staff. Remaining staff were stretched, which limited their time for teaching and, according to the project directors, left faculty less open to new ways of doing things.

- The project team itself struggled with how to implement the chronic care model, making the project somewhat directionless.

Faculty eventually became more involved in the project, according to the project director, as a result of the following:

- Residents became increasingly educated in the chronic care model and influenced attending physicians to change their behavior.

- The project team formed the multidisciplinary clinic committee (see [Clinic-Wide Changes](#)) to include faculty, residents, medical assistants and nurses in decision-making about both the direction of this project and of the center.
- The faculty saw the changes and progress that took place in the center as a result of the implementation of the chronic care model.
- **Having sufficient time to implement all aspects of the chronic care model of treatment.** At the outset, the project team believed that in 18 months they might have the chronic care model fully implemented at the clinic. In fact, the project team concluded that it can take years to overcome three significant structural impediments:
 - Physicians' traditional acute care mindset, which hampers chronic illness management.
 - An academic setting's competing priorities and obstacles.
 - Lack of a long-term commitment to the model from hospital leadership, which is needed if the model's use is to ride out "difficult" or financially stressed times. Ironically hospital income can suffer as patient health improves, because of a drop off in asthma visits, inpatient hospitalizations or emergency room visits.

While project faculty did not accomplish everything they hoped to, they felt that their efforts in supporting patients' self-management helped patients to deal with their asthma.

Lessons Learned

The project directors in 2003 offered this advice to others implementing a chronic illness management project:

- **Engage all interested parties early in the project.** It is difficult to bring new staff members into the fold unless they are active and engaged participants from the start. (Project Directors)
- **Work hard to secure faculty buy-in.** Said Project Co-Director, Arbeter:

“Residents are led by example. It was very difficult to encourage the residents to adopt behaviors associated with the chronic care model when point-of-care teaching by faculty [who had not bought in] may send different messages.”
- **Visit with institutions that have practical experience you can use.** Staff of hospitals or medical centers that have taught or implemented chronic illness management programs can offer practical guidance. Similarly, it would be helpful to

attend a conference or other relevant hands-on educational activity. As it was, this project team planned and implemented its initiatives on the fly. (Project Directors)

- **Clearly identify roles for all project participants.** The project team struggled early on with clarifying roles for its members. As the project unfolded, it was important for members to have specific tasks suited to their talents, for which they were individually responsible. (Project Directors)
- **Give residents who show the most interest in project activities the most responsibility.** This project elicited a mixed response from residents. Most found it difficult to transition to a chronic care mindset. However, some became true believers, outspoken and participatory. These residents were instrumental in developing a patient outreach brochure and staffing the monthly asthma group visits. (Project Directors)
- **Use a multiple disease approach in teaching chronic care.** Project Co-Director Arbeter said:

“Knowing what we know now, we would not have focused so heavily on asthma. Our learners said that they were overwhelmed with asthma in the curriculum, and this took away from other subjects they were interested in.”

It also may have been difficult for the learners to grasp that the chronic care concepts taught through the asthma education modules could be applied to other chronic diseases.

- **Take on one chronic care model component at a time.** The project faculty found that implementing all the components while trying to teach them simultaneously to the learners was overwhelming. (Project Directors)
- **Do not give up on creating change or become overwhelmed.** Despite a nagging suspicion that this project was "behind" others in the Take Care To Learn program, the project team learned at all-grantee meetings and through the grapevine that other grantee also had made progress in some areas and not in others. Each achieved in some areas.

Looking Ahead

In 2006, the project director reported:

- The asthma care management project continues (no longer called STAR).
- It is the beneficiary of the Albert Einstein Medical Center's annual Small Miracles golf tournament and another private funder, which will support the project until March 2007.

- New team members include a social worker to coordinate asthma care management, and a pulmonologist to provide yearly evaluation to all pediatric patients who are on daily inhalant steroids.
- The clinic committee still meets regularly to address systems improvement issues around patient flow, registration, medical records, patient assignment to a physician and other issues.

TAKE CARE TO LEARN PROJECT: UNIVERSITY OF CALIFORNIA, DAVIS, 2002–03

“As our team was introduced to and began to employ the chronic care model⁵, our understanding of its power grew and served as a foundation for all our subsequent clinical and educational endeavors. It truly represented a paradigm shift in our understanding that cannot be underestimated.”—Project Director Jim Nuovo, M.D., in a report to RWJF.

Faculty and residents at this large family practice center sought to improve the quality of care for diabetes patients while also educating its residents in how to provide quality, cost-effective care for patients with chronic illnesses.

⁵ Chronic Care Model: A systems approach to chronic illness management for health care providers. It identifies six essential elements of a health care system to be engaged to encourage high-quality chronic disease care:

- The community.
- The health system.
- Patient self-management support.
- Delivery system design.
- Decision support.
- Clinical information systems.

Implementation of the model relies on a focus on these six elements, as well as the development of productive interactions between patients who take an active part in their care and providers backed up by resources and expertise. It can be applied over a variety of chronic illnesses, health care settings, and target populations. Edward Wagner, M.D., M.P.H., director of Seattle's W.A. MacColl Institute for Healthcare Innovation, Group Health Cooperative of Puget Sound, and colleagues developed the model with RWJF funding.

The Project Setting

The University of California, Davis Family Practice Center is located in Sacramento, Calif., and is part of the University of California, Davis Health System. The center and its associated hospital (the University of California, Davis Medical Center) are located in an urban area designated by the state, in 2000–01, as an "area of unmet need for primary care physicians."

At the time of the project, the hospital complex provided care through approximately 28,000 patient visits each year. The patient population was diverse: approximately 45 percent White, which included a very large number of non-English speaking Russian immigrants; 25 percent Hispanic; 20 percent African American; 5 percent southeast Asian; and 5 percent "other." Nearly 20 percent of its patients required the use of an interpreter for patient visits.

In this period, the highly competitive managed care market in which the medical complex operates created system-wide pressure to increase the cost-effectiveness of its care delivery.

Staff responded with the introduction of a number of evidence-based, planned care programs, including individual specialty clinics offered for patients with a particular diagnosis such as congestive heart failure or pediatric asthma.

In 2001, for example, the medical center's department of family and community medicine began work under a federal Health Resources and Services Administration (HRSA) grant to restructure the way in which its staff provided chronic illness care.

Under this grant, they began to create a computerized clinical database and to develop locally appropriate evidence-based clinical practice guidelines.

Project Implementation

The family practice center saw its TCTL project as a way to build on these changes and specifically to implement a broader, more comprehensive diabetes program. Some 85 family medicine residents participated in this project at the family practice center during two academic years, 2002–03 and 2003–04.

During its planning phase, the project's faculty collaborated with staff of Western Health Advantage, a managed care organization serving the single largest group of diabetes patients in the family practice center.

During its implementation phase, faculty created:

- **A new Chronic Illness Management⁶ rotation for second- and third-year residents.** As part of this required four-week rotation, residents participated with an interdisciplinary diabetes team (a family physician preceptor, a clinical psychologist, a certified diabetes educator and, on occasion, other specialists such as podiatrists, ophthalmologists, pharmacists and nutritionists). They saw patients in two types of settings:
 - During "high risk clinic" (for patients who are at high risk for a particular disease, in this case, diabetes).
 - As part of group visits. Patients with diabetes were invited to the clinic together. Prior to their visit, they received a summary of their medical history drawn from the diabetes registry. Resident/providers also received printouts prior to the visit summarizing each patient's relevant medical information, including lab results.

Residents were actively involved in designing and planning some of these sessions.

- **Family practice longitudinal "block time" sessions.** Every Tuesday afternoon, second- and third-year family practice residents returned from other rotations for presentations on topics of interest in family medicine. Project faculty used these sessions to address chronic care-related topics including treatment guideline development, population management⁷ of diabetes, how to use the project's patient registry⁸, patient self-management⁹, motivational interviewing¹⁰ techniques and diabetes care updates. First-year residents also received some tailored sessions on diabetes during two-week family practice instruction blocks held twice a year.

⁶ Chronic illness management: The use of a strategy or strategies to manage an individual's chronic illness to achieve a better outcome. Often the term is used in the context of managing a group of patients over time who share a common chronic illness.

⁷ Population management: Focuses on the illness management of a group of patients rather than an individual patient. Typically, providers analyze groups of patients that share a common disease to find needs that they can address through system changes, such as improved patient education, scheduled foot exams (for diabetics) or other patient group meetings.

⁸ Registry: An electronic record of patients with the same chronic illness such as asthma or diabetes. Frequently part of a clinical information system, it usually contains a variety of patient data in addition to patient names. Providers can use a registry in chronic illness management to monitor the progress and care provision of individual patients, or of groups of patients (population management), and check on progress toward care targets set for providers, such as the provision of foot checks for diabetic patients.

⁹ Patient self-management: The patient's learning and effective use of skills needed to manage his or her own health conditions (such as blood sugar monitoring, use of inhalers for asthma) and includes the adoption of health enhancing behaviors. Health providers use the term particularly with patients who have chronic diseases. Patient self-management is often taught as one component of chronic illness management.

¹⁰ Motivational interviewing: A strategy for assisting patients in making a commitment to behavioral change. Providers may use motivational interviewing with patients who are ambivalent about making changes that could help them manage their chronic illnesses, or who feel overwhelmed about how to control their disease.

- **New Grand Rounds.** Faculty made several Grand Rounds presentations each year on disease management-related topics, including the chronic care model and use of a patient registry, as well as patient baseline and follow-up data on the diabetes care being provided in the center.
- **"Diabetes Day."** Twice a year, the project team held a day-long mandatory session for all residents, called "Diabetes Day." The day consisted of a morning session with educational content and afternoon clinical sessions where the residents could immediately apply the educational concepts and information presented in the morning.

Results at U.C. Davis

According to Nuovo, the project team:

- **Improved laboratory indicators of health for a group of 684 patients listed in the diabetes patient registry.** The results shown in the table below are for all patients seen in the family practice center during two time periods (January 1, 2003–June 30, 2003, and July 1, 2003–November 3, 2003). Note that not all patients seen were given lab tests.

Indicator	Period 1		Period 2	
HbA1C	1/1/2003-6/30/2003		7/1/2003-11/3/2003	
	Number	Percent	Number	Percent
Patients tested	357	52.2%	317	46.3%
Avg HbA1C	8.3		7.9	
under 7.0	90	25.2%	112	35.3%
10+	69	19.3%	40	12.6%
8.0 or more	172	48.2%	119	37.5%
LDL test	1/1/2003-6/30/2003		7/1/2003-11/3/2003	
	Number	Percent	Number	Percent
Patients tested	230	33.6%	174	25.4%
Average LDL	121.8		107.6	
> 100	61	26.5%	80	46%
130 or more	87	37.8%	48	27.6%
Micro-albumin	1/1/2003-6/30/2003		7/1/2003-11/3/2003	
	Number	Percent	Number	Percent
Patients tested	140	20.5%	88	12.9%
Under 1.5	63	45.0%	46	52.3%
Over 2.5	60	42.9%	34	38.6%

- **Developed a computerized patient registry.** At the beginning of the project, the Davis health system did not have a functioning electronic medical record so the team

built its own diabetes registry. In 2003, the registry included data on 837 patients going back to 2000. Some 80 percent of these were enrolled in Medicare or Medi-Cal (California's Medicaid program).

“We came to fully appreciate that to effectively teach about care management depended on an accurate and up-to-date registry.”—Project Director Nuovo

With the registry, for the first time residents could:

- Identify and group their own patients and evaluate the patients' current level of control of their diabetes.
- Get up-to-the-minute patient summaries at the point of care, drawn from registry data.
- Undertake care-improvement projects, if they wished, using a population-based approach, then monitor various measures of patient care.

The registry produced highly useful information on patients, which attracted the attention of the health system leaders. For example, some 29 percent of all family practice clinic diabetics, it was shown, had no identifiable provider.

- **Increased resident knowledge and interest in chronic care.** As clinic procedures expanded beyond an acute care model of patient care, residents' attitudes and that of some faculty changed. However:

“Shifting from the old to a new paradigm of chronic illness management was no easy task for the family practice clinic.

“Under the old model of practice, physicians see patients with multiple medial problems but only have time to take care of whatever today's acute issue is. The old paradigm means not having enough time for patient education, not having a system to ensure good quality care and feeling frustrated a good deal of the time.”—Project Director Nuovo

In particular, the yearly "Diabetes Day" initiative proved to be so popular with residents that the project team developed similar workshops on other chronic conditions.

While adopting some changed attitudes themselves, project faculty:

- Taught residents techniques of effective chronic illness management. Notably, these include patient education and patient self-management.
- Taught residents the use of interdisciplinary team care in which the team works in partnership with patients to manage their condition.
- Mentored residents in organizing and co-leading group visits in which patients met with a diabetes educator.
- Taught the use of the center's patient registry and other center resources to manage their patients.

In each year of the project, approximately 75 percent of third-year residents were enthusiastic about the project, with the majority falling into the "moderately" receptive category.

In 2003, faculty noted that they were still learning about the most effective ways to teach the new curriculum.

- **Increased faculty knowledge and interest in chronic illness care.**

- This project built on work done under the 2001 HRSA grant to develop a new curriculum for chronic illness care. Over time, family practice center faculty as a whole increasingly raised issues of chronic illness management and patient self-management while they were teaching residents in both the inpatient and outpatient settings.

“Over the past two years, we have seen a gradual shifting in our faculty's understanding and approach to chronic illness care that extends beyond the core faculty who participated in this grant and beyond our focus on diabetes.”—Project Director Nuovo

- Other faculty began to experiment with patient registries (for an elderly "falls" clinic) and with group visits (for frail elders who are frequent users of medical care and for patients with hypertension).
- The medical school faculty continued to develop a new chronic illness care curriculum for medical students with additional funding of \$528,310 from another HSRA grant (for July 2003 to June 2006).

Nuovo has authored an article in Disease Management and a textbook, Chronic Disease Management. Both relate his thoughts and experience with this project. See the [National Program Bibliography](#) for additional details.

Challenges

Nuovo cited the following difficulties encountered by the project team:

- **The patient registry that the project team created was not as interactive and accessible for residents as hoped.** It also took a tremendous amount of time and effort for the faculty and staff to develop it, and this slowed the team's ability to work on other educational approaches.
- **Full patient acceptance of the project did not materialize as hoped.** Team members felt frustrated by lack of attendance by patients at education classes and group visits.

This was especially demoralizing for team members who often spent much time planning and organizing these events. Because of this, the team began to try and find ways to better involve patients, for example, through motivational interviewing.

- **There was little project support from the clinic administration.** The administration at first encouraged project initiatives, but that support waned as clinic administrators continued to be evaluated by measures of effectiveness and efficiency—apt for measuring acute patient care—that did not take into account some of the changes the team was implementing to enhance chronic care.

The acute care measures include how quickly patients are able to secure appointments, the length of time patients spend in a waiting room and how many patients a clinic providers sees in a day. None of these measures take into account the potential effectiveness of the chronic care model.

- **Scheduling difficulties appeared to affect resident "buy-in."** At the University of California, Davis, there was no simple solution for this difficulty:

“Other programs participating in the [national] Take Care To Learn initiative that developed a multidisciplinary team that met at regular times over an extended period of time appeared to have achieved a greater impact on their residents.

“[At UC Davis] the majority of family practice residents' training was structured by ACGE [the Accreditation Council for Graduate Medical Education] guidelines and took place outside of the department on other clinical services. Thus it was difficult for us to carve out similar

blocks of time short of restructuring the entire curriculum.—Project Director Nuovo

Lessons Learned

- **Include patient registries when implementing a chronic illness management project.** They are vital. Accurate and valid information provided by the patient drives the whole shift to this approach to chronic care. (Project Director/Nuovo)
- **Understand the chronic care model as a whole and not just pieces of it.** Looking back to the original application of the chronic care model, we saw that our team addressed many of its components but did not conceptually fit them together. Once we understood the model and how much more powerful it was as a whole, this understanding drove our efforts. (Project Director/Nuovo)
- **Include patient self-management as a key to improving outcomes.** This was an area that was relatively new to the team and by the end of the grant they were still exploring what it meant, how to involve patients and how to establish collaborative relationships with them. (Project Director/Nuovo)
- **Involve clinic administrators and support staff when developing changes in the care delivery system.** They become barriers or key allies depending on whether you involve them. More specifically:
 - Your ability to get buy-in from your clinical setting or institution is directly related to the degree that chronic illness is perceived by the setting or institutional leadership as an issue and burden, in terms of access to care, financial costs, etc.
 - Leadership must have cultural buy-in to the project, with incentives for participation identified for all levels. For example, give all providers—including nurses and front office staff—more money for improving quality measures, such as increasing the number of diabetes patients who receive eye or foot exams. (Project Director/Nuovo)
- Quickly test ideas that have the potential to yield large gains; this goes a long way in implementing change. It is also important to understand that some midcourse corrections are to be expected.
- Tailor educational interventions to the developmental level of your residents. First-year residents are not yet ready to understand and integrate more advanced concepts such as the chronic care model and patient self-management when these residents are focused on basic clinical care issues.
- Third-year residents respond most enthusiastically to the project; these residents are developmentally more open and willing to evaluate a new approach to care. They have acquired the necessary clinical knowledge and skills to care for their patients with diabetes and have gained sufficient clinical experience to recognize that the

traditional approach to care for these patients does not always work well. As they approach the end of their formal residency training, they are also beginning to focus much more on "real-life" experiences and what they want to take into their future practices. (Project Director/Nuovo)

- Maintain project momentum by whatever organizational means! "In shorthand paraphrasing, we learned to 'look for low-hanging fruit,' 'look for the 80 percent solution,' and 'if you encounter a barrier, go around it.' We learned the powerful message that some midcourse corrections are to be expected, and that this allowed us to face reality well. We [also] learned that having an enthusiastic, informed and cohesive group is essential to introducing change into a complex organization. But these characteristics must be tempered so as not to be perceived as divisive or risk having one's efforts marginalized." (Project Director/Nuovo)

Looking Ahead

In March 2006, Nuovo (since 2004 assistant dean for graduate medical education at UC Davis School of Medicine) noted that:

- **Educational interventions developed for this project continue in the family practice residency program.** Those include:
 - Use of a patient registry (now integrated into the health system's newly created electronic medical record).
 - The chronic illness management resident rotation and clinics.
 - The project's interdisciplinary team and its various forms of teaching sessions in all three years of training.

According to Nuovo, work in the area of patient activation and motivational interviewing has emerged as a focus of emphasis.

- **Faculty are addressing strategies to increase patient self-management for those with chronic illness** under a National Institutes of Health grant for \$2.3 million. The grant runs from July 2003 to December 2007.
- **Faculty and staff are rolling out the project intervention to UC Davis' 12 satellite primary care clinics.** Each clinic has a multidisciplinary team to take on a chronic problem or disease, set up a registry, change the process of care and attempt to improve patient outcomes. As of March 2006, they had implemented the intervention in eight of the clinics.

“Once our residents leave our family practice center setting, their exposure in other clinical settings still follows the more traditional reactive approach to health

*care. By working at a [UC Davis Health] system level, our goal is to influence change at a broader level.”—
Project Director Nuovo*

- **One satellite primary care clinic will employ the chronic care model as a two-year demonstration.** All learners there, not just a subset of learners, will focus on one chronic disease. The site will share its lessons learned with other primary care satellites.
- **In 2006, a clinic physician is coordinating patient education activities for chronic disease management in asthma, heart failure and diabetes.** Working across the UC Davis health system the educator:
 - Assures that patients are receiving the same education throughout the system.
 - Provides continuing education for nurses and support staff on how they can help patients manage chronic diseases.

Nuovo received a grant from the PQE program office to direct its [Achieving Competence Today \(ACT\)](#) project at UC Davis. ACT is also a PQE program. The project ran from October 2004 to July 2005.

ACHIEVING COMPETENCE TODAY (ACT), 2003–06

“I saw the purpose of ACT as making it very, very easy for program directors with young doctors or nurses in training to teach about systems, quality, practice improvement and safety in a way that was easy for them to have an effect on students. It was a method of education that was prepackaged but could be locally used in a student-directed and exciting way.”—PQE Program Director Gordon T. Moore, MD, MPH

ACT SUMMARY

Achieving Competence Today (ACT) tested the use of a Web-based curriculum by medical residents and graduate nursing students at more than 20 schools as a means for them to identify problems in patient care quality and collaboratively use systems-based approaches to improving care. RWJF funded it from May 2003 through September 2008.

Key Results

According to *Partnerships for Quality Education (PQE)* national program office staff:

- A total of 364 learners (medical residents or graduate nursing students) representing 25 institutions and 22 specialties, participated in ACT. Teams of learners implemented more than 100 quality improvement projects at their institutions.
- Program staff distributed approximately 5,500 CDs of the curriculum in a non-copyrighted, copyable and modifiable form to educators in the fields of medicine and nursing, as of October 2007. Distribution continues.

For detailed results, including excerpted interviews with selected ACT learners and leaders see [ACT Program Results](#).

Key Evaluation Findings

Achieving Competence Today (ACT) evaluators Michael Yedidia, PhD, and Colleen Gillespie, PhD, at Rutgers University, in a report on ACT submitted to the Robert Wood Johnson Foundation (RWJF) in January 2007 reported the following:

- Learners (medical residents or graduate nursing students) commended the ACT training overall. Some 80 to 89 percent of ACT learners "strongly agreed" or "somewhat agreed" that they would recommend the initiative to others.
- Among key elements of ACT training, learners most highly rated the development of a quality improvement project. Content areas most frequently chosen by learners for their projects were:
 - Effectiveness of care-providing appropriate care to those who could benefit and avoiding unnecessary care.
 - Timeliness-reducing patient wait times and potentially harmful delays.
 - Patient safety.
- ACT leaders (medical education or quality improvement directors, ACT preceptors and teachers) concurred with learners in their assessment of the value of learners' quality improvement projects to their institutions. More than 88 percent of leaders and learners felt they were of moderate or great value.
- Interdisciplinary collaboration was viewed, generally, as very important to the work of quality improvement, with 65 percent of leaders and 69 percent of learners holding this view. Learners, regardless of discipline, credited their ACT training with improving their outlook on two key dimensions of interdisciplinary work:
 - Developing trust among collaborators.
 - Becoming more aware of the limits of a single-disciplinary approach to care.

When asked what most facilitated collaboration, learners' most prominent response was "the necessity of getting the job done."

- Five of 23 ACT leaders responsible for such decisions reported that they would pay \$10,000 to continue participation in ACT-if RWJF sponsorship and services of the national program were available in the following year.

For more on this see [ACT Evaluation Findings](#). For sidebars on two ACT sites, see:

- [University of Pennsylvania Health System](#)
- [University of Virginia Health System](#)

ACT PROGRAM DESIGN

*“We put it together. It was like building an electronic workbook with instructor reading materials, assignments and deliverables and making it available on the Web.”—
PQE Program Director Moore*

The ACT Model

PQE staff developed a model for ACT that stressed case-based learning as well as the use of the Web to actively engage learners. It consisted of two instructional components:

- A four-week Web-based [course](#). This included readings, action steps, teaching and curriculum redesign suggestions—with a common focus on quality improvement through [systems-based practice](#) and [practice-based learning and improvement](#).
- A year-long learning process for teams of learners in the area of practice or institutional quality improvement. Until late 2004 this process focused on curriculum redesign. After that teams worked to implement quality improvement projects for their institutions. Whether doing curriculum redesign or quality improvement projects, learner teams paced and self-directed their work using the Web-based course.

Leaders of residency and nursing education programs were free to shorten or adapt the course for their institutions. Faculty either printed course materials from the website, or simply directed their learners to these materials.

A Curriculum that is "Off the Shelf"

A prominent feature of ACT was that ACT leaders or faculty did not have to have extensive knowledge of the subject. All of the information a resident (and ACT leader) needed was contained in the Web-based four-week course, which included separate operating guides for residency directors and faculty.

Modular Design

Its developers made ease of use a key design element of the ACT course. ACT supplied ready-to-use teaching modules—to be viewed online by learners and their teachers, or handed out in printed form.

The modules lent themselves to learning that was individually paced and to content that could be abridged and modified at the convenience of the school using them. For more on individual modules, see [The ACT Course](#).

Meeting Accreditation Needs

Program office staff initially developed ACT as a response to new accreditation requirements for medical schools from the [Accreditation Council for Graduate Medical Education](#) (ACGME), which the council promulgated in 1999—and as a response to the Institute of Medicine's (IOM) high-profile critique of quality of patient care in this country, *Crossing the Quality Chasm*, published in 2000.

ACGME's two new accreditation requirements mandated that residency programs demonstrate the competence of their residents in these areas:

- **Systems-based practice.** Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to call on system resources that are of optimal value.
- **Practice-based learning and improvement.** Residents must be able to investigate and evaluate their patient care practices and appraise and assimilate scientific evidence to improve their patient care practices.

(See [Appendix 3](#) for more on these competencies, including links to ACGME pages about them.)

In 1999, both competencies were unfamiliar to most residency program directors, and most felt underqualified to teach them, according to an internal evaluation by the national program office (Kimura J, Moore GT, Pierre-Jacques M and Peters AS. *Is an Intensive Exposure to Quality Improvement Acceptable to Residents?* Unpublished).

Prior to ACT, tools for implementing these competences were limited to lists of learning objectives, general suggestions of teaching activities and assessment tools, according to Program Director Moore. ACGME provided basic materials of this sort.

ACT PROGRAM

Duration of ACT

The Achieving Competence Today (ACT) Program began in May 2003. RWJF transferred the management of ACT to the University of Virginia (UVA) in November 2006 in an effort to provide additional time for six of the most effective sites to build capacity. UVA is overseeing the *ACT Collaborative* of these sites and continuing to update the educational materials. RWJF has funded the *ACT Collaborative* through September 2008.

This report covers the program during the period May 2003 through September 2006. For more on program-related goals and activities after that, see [After the ACT Program](#).

Governance of ACT

The *Partnerships for Quality Education* national program staff provided governance of Achieving Competence Today. Located at Harvard Medical School and Harvard Pilgrim Health Care, PQE staff included Program Director [Gordon T. Moore](#), MD, MPH, Co-Director [Maryjoan D. Ladden](#), PhD, RN, CS, and Deputy Director [Elizabeth L. March](#), MCP.

Program Office Role

The national program office:

- Developed the concept, a business plan and curriculum for ACT and presented the curriculum on a password-protected website it created.
- Organized and facilitated annual meetings for ACT participants, both learners and ACT leaders and faculty, at participating institutions.
- Held conference calls for participants.
- Made visits to all sites yearly to provide technical assistance and assess progress.

The ACT Course

The four-week ACT curriculum as initially set out in 2002 and subsequently-but not essentially-modified consisted of the following modules:

- **Week 1: The health care system and how it affects the care you deliver.**
 - **The Content.** The content provided an overview of the U.S. health care delivery system. Readings described the development of the U.S. health care system and introduced quality improvement methodology.
 - **Activities and deliverables.** Patient interview. Residents identified one of their patients that they believed was experiencing an issue emblematic of a quality improvement problem at the hospital. Through that process, residents identified a system improvement opportunity and summarized how their patient's experience exemplified the system issue.
- **Week 2: Who pays for care and why it matters.**
 - **The Content.** The content focused on the macro-system of care. Readings explored health care financing and organization and how these relate to the quality of patient care.
 - **Activities and deliverables.** Health care system map and root cause analysis. Residents interviewed local health insurance and hospital system administrators to ground their learning about the business of health as it related to their local hospital and clinic experience.

They summarized the complex relationships among various parts of the delivery system in a map of the local health system. They also conducted an analysis of the root causes of the system issue they identified in the first week.
- **Week 3: Improving the care of individuals, populations and practices.**
 - **The Content.** Content focused on quality improvement. The readings focused on tools for changing the management in clinical management practices.
 - **Activities and deliverables.** Residents completed a business plan for a quality improvement proposal. They justified their choice of the quality improvement

topic and described the risks and rewards of the project for the different stakeholders in the system.

- **Week 4: Reinforcement of learning and preparation to teach.**
 - **The Content.** The content reiterated and consolidated prior learning through reflection and preparation to teach. Readings related specifically to the ACGME competency expectations and teaching.
 - **Activities and deliverables.** After guided reflection on the ACT curriculum, residents developed a lesson plan to teach a session on systems-based learning and practice-based learning and improvement for their peers.

In this initial curriculum for ACT, by the end of the four-week course residents were expected to have developed a curriculum that they could then teach their peers—and that would meet the ACGME guidelines for systems-based learning and practice-based learning and improvement. Their teaching would take place over the next year of their residency programs.

Residents typically carried out the teaching in existing activities, such as morning report, journal clubs and noon conferences.

Modifications

In the first year of ACT, residents developed a plan for a quality improvement project, but did not implement the plan. Their focus, instead, was on curriculum development.

After year one of ACT, learners were not expected by faculty to teach to the new ACGME guidelines. Instead, they worked to implement practice or systems quality improvement projects at their institutions.

Yearly ACT Conference

Participants—learners and ACT leaders and faculty—attended yearly ACT national conferences to share their experiences. Program staff added informational sessions on systems-based care and practice-based learning and improvement, as well as other relevant topics, to the conferences.

EVOLUTION OF ACT

Achieving Competence Today unfolded over three phases—ACT I, ACT II and ACT III—as national program office staff, RWJF staff and participants tested and refined ACT and its curriculum. A significant refinement to ACT occurred in the academic year 2004–05 (ACT II) when it first included nursing students as ACT learners.

ACT I (May 2003–June 2005)

Nineteen internal medicine residency programs tested a resident-led model for teaching and curriculum change around the two new ACGME competencies. The ACT I residency activities occurred in the academic year September 2003 to June 2004 and September 2004 to June 2005.

Site Selection

The national program office asked medical faculty across the nation to help them identify 50 top internal medicine training programs at teaching hospitals, sent e-mails to the directors of those programs about ACT in October 2002 and received 20 applications. The criteria for a program's selection included:

- Status of the residency program director as a national influence and thought leader.
- Possession of an environment supportive for the project.
- Commitment and interest of the residency program director.
- The existence of identifiable insurers and managed care organizations in the area.
- Availability of faculty to mentor residents.
- Geographical disbursement.

The *Partnerships for Quality Education* national advisory committee approved, and the national program office selected, 20 applications in December 2003 (one program, at the University of Oregon, later dropped out).

Each residency program received \$20,000 to participate in ACT I and to participate in an internal evaluation.

See [Appendix 4](#) for list of participating residency programs.

Implementation

Each residency program implemented ACT for two years, with a new team of residents participating in the second year.

The residency program director oversaw the implementation of ACT, including recruiting residents, assisting in setting up interviews and finding faculty members to work with the residents.

ACT I Teams

At each institution, typically two second- or third-year residents in primary care or internal medicine participated as a team in ACT as an elective.

The national program office encouraged residency program directors to recruit as team members residents who had expressed interest in quality of care and system change. Program office staff also urged directors to look for residents whom they had in mind for chief residents so they would later have a leadership role in teaching other residents about these issues.

An Expanded Version of ACT: ACT II (October 2004–July 2005)

Although originally planning a two-year test at the 19 sites, national program staff after 12 months launched an expanded version of ACT, called ACT II. Five of 19 ACT I sites initiated ACT II for the academic year 2004–05 and seven new sites adopted it for the first time for a total of 12.

ACT II embraced nurses as learners alongside residents for the first time and made other changes to its objectives and curriculum based on practice experience with of ACT I.

While its chief objective remained to enhance participants' knowledge, skills and attitudes about health care systems and quality and practice improvement, program staff expanded the ACT model in two ways:

- Its learners would include, in addition to primary care and internal medicine residents, the following:
 - Nurse practitioner students.
 - Residents in other medical specialties.
 - Other health professionals.

Program staff intended this change to test whether the ACT model could be used to mobilize interprofessional learning-and specifically to offer participants a teamwork experience reaching across professional boundaries as they worked on their ACT II systems improvement projects together.

- Its interdisciplinary teams would attempt to implement, not just propose, a quality improvement project at their institutions.

This would link the learners' quality improvement projects to the performance improvement initiatives of the hospital's leadership. In ACT II, learners worked with officials on the quality improvement team at their hospital, ideally to test the quality improvement projects they had identified.

This emphasis on implementation would, staff hoped, support a needed bottom-up approach to creating a culture of improvement in teaching hospitals.

In addition to these two changes, ACT II unfolded over a shortened time frame-nine months, compared to two years for ACT I (see [ACT Challenges](#) for more on difficulties this created).

Site Selection

Program staff sent out calls for proposals in July 2004 to the 19 ACT I institutions plus a number of additional ones.

In recruiting additional institutions, program staff collaborated with staff at the [Association of American Medical Colleges \(AAMC\)](#) and the [American Association of Colleges of Nursing \(AACN\)](#). Both organizations actively recruited their member institutions for ACT.

National program staff received 19 applications and chose 12 of them (five from ACT I and seven education programs new to ACT). See [Appendix 4](#) for list of participating institutions.

Each education program received \$25,000 to participate. They received more funding than the institutions participating in ACT I because of the complexity of bringing together different medical specialties and nursing.

Why Nurses?

Susan Hassmiller, RN, PhD, the senior program officer at RWJF in charge of *Partnerships for Quality Education*, said that it was critical to include nurses in ACT. She said, "Unless we added nurses and made the teams more interdisciplinary in general the foundation would not fund the next iteration of ACT. I knew, and other program staff at RWJF knew, that nurses have everything to do with improving quality at health care organizations-and if they were not included in this training that the overall program would be less effective."

Maryjoan Ladden, PhD, RN, FAAN, co-director of ACT, echoed Hassmiller:

“No health care professional can do it alone. We need the collaboration and to share our knowledge. If we don't learn how to do it in educational settings where are we going to learn how to do it?”

In ACT II, program staff stipulated that applying institutions identify and receive commitments to participate from a minimum of two medical residency programs (for example, surgery and medicine) and one nursing education program.

Anticipating accreditation changes for nurses

While the nursing field had not yet adopted the same required competencies as the medical field, they were moving in that direction, according to Moore.

Since the release of the 2001 IOM report, *Crossing the Quality Chasm*, there had been a growing consensus from nursing that the ACGME competencies (including the recently promulgated systems-based practice and practice-based learning and improvement that ACT focused on) were critical for nursing as well as resident training.

“In its ideal form [ACT] gets nurses thinking at the system level. If you only think about your patient at the bedside you can't be as effective as a nurse in advocating for changes in the system.”—Tobie Olsan, PhD, RN, University of Rochester School of Nursing

Inclusion of nurses on teams: making it work this time

According to the national program office, ACT's approach to teamwork was more natural than the earlier attempts in programs in PQE.

The *Partnerships program*, for example, had supported the creation of ad hoc interdisciplinary teams for patient care, and had included nurses. However, at times this occurred without a shared problem to solve, and teams often struggled with certain institutional "baggage" associated with different status levels within medical facilities.

In the view of program staff, since learners from all disciplines involved in ACT II started with equally rudimentary sets of skills in systems-based practice and practice-based learning and improvement, learners brought no preconceived status or authority to the project.

By working together to identify and solve real systems problems during their formative educational years, learners from different disciplines would develop collaborative skills and attitudes that would enable them to seek out and use each other during their careers, national program office staff believed.

See two sidebars for descriptions of two ACT projects:

- [University of Pennsylvania Health System](#)
- [University of Virginia Health System](#)

ACT III (September 2005–May 2006)

The purpose of ACT III was to provide enough data on the effectiveness of the ACT model to determine whether it had the potential to spread and what it would take for a financially self-sustaining movement to emerge.

Site Selection and Implementation

The national program office invited active and past ACT institutions to apply. Staff selected 12 institutions.

- Nine institutions from ACT II were given one-year grants of \$2,500 to participate in the formal evaluation.
- Three institutions that had participated in ACT I but not in ACT II started "new" ACT initiatives and were given 12-month grants of \$10,000 to participate.

See [Appendix 4](#) for list of participating institutions.

Program staff gave more funding to the institutions with new ACT initiatives because these institutions had to cover ground ACT II "veterans" had already covered, gain experience with learners' working together interprofessionally, recruit students from nursing and medical specialties in addition to internal medicine and conduct faculty development in nursing and the additional medical specialties.

Can This Model Spread?

In addition to testing its programmatic changes, ACT III sought to answer questions of sustainability raised by RWJF and program staff:

- How likely was it that ACT would be taken up by other medical schools or academic health centers?
- Was it feasible to charge institutions to cover the costs of ACT and thus can ACT be self-sustaining financially?

ACT III Curtailed

A few months into the implementation of ACT III, in early 2006, RWJF program staff changed its thinking. Despite interest shown in ACT by the medical education establishment of this country, RWJF staff felt that financial constraints within academic health centers posed too great a barrier to widespread adoption of the ACT model.

In place of efforts to determine the financial self-sustainability of the ACT model, RWJF provided additional funding to ACT III institutions to launch a dissemination of the model to academic health centers throughout the United States.

Their reasoning was borne out in a spring/summer 2006 survey of leaders from participating institutions: the institutions' financial constraints were mentioned as decisive to most of the leaders who would not pay for continued participation.

For more detail on this survey finding, see [ACT Evaluation Findings](#). For more on the launch of the dissemination effort, see [After the ACT Program](#).

Communications

During ACT III, national program staff published three articles about ACT in professional journals and distributed approximately 5,000 CDs of the ACT curriculum to medical educators. See the [Bibliography](#) for details of publications. The ACT curriculum may be requested [online](#).

Program staff also spoke about ACT at conferences and meetings from 2003 onward. They distributed printed versions of the curriculum and user instructions at conferences, and other printed materials about ACT, at meetings and upon request.

ACT CHALLENGES

In 2007, the national program office reported to RWJF a number of difficulties in implementing ACT. These included:

- **There was not enough time to test and then finalize the design of the ACT curriculum on its first iteration.** Staff created the curriculum during the early summer of 2003. They launched it in Web-based form in July 2003 for the subsequent academic year. Given this timing, they could not field test the curriculum then integrate needed feedback before launching it.

However, during year one, staff did gather feedback via conference calls, site visits, site reports and the ACT annual conference and used it as the basis for revising the curriculum for the academic year 2004–05. To address later learner and faculty concerns they made modest revisions to the curriculum each succeeding year, as well.

- **There were difficulties determining the appropriate role for the national program office in the use of the curriculum.** ACT is not a traditional distance learning initiative and national program staff members were clear that their role was not as faculty for the initiative. Still, they needed to know how the learners were doing and how the curriculum performed.

In year one, staff asked learners to submit course deliverables to them as well as to their preceptors. They reviewed these deliverables to see how effective the ACT curriculum was in teaching the content of the course but did not give feedback to the learners. In each following year they took a more distanced stance, reducing the number of deliverables to be sent to the program office.

- The program office staff had to cope with a continuing mismatch of the resident academic year and the nursing academic year. Resident schedules are set in March for the July academic year. Nursing schedules are set in late spring for the academic year beginning in September.

This mismatch of schedules likely affected the number of learners who were able to participate.

- **The sites had difficulties coordinating the activities of multiple departments.** ACT I was a relatively simple intervention compared with ACT II and ACT III. The latter two involved many more learners, multiple departments, several schools and leaders who had no institutional authority to hold the participants accountable for their work on a project.

National program staff suggested strategies to deal with this complexity during their annual site visits and revised the curriculum and requirements when they thought it would be helpful. But there was not much they could do to address this challenge, according to Moore.

ACT PROGRAM RESULTS

“The key results are that you can teach about systems and practice improvement in a way that is exciting to learners. And you can get around the problem of a lack of this expertise... [at] places that don't have enough experience to invent the teaching and do the teaching. That becomes a big barrier to training the 30,000 to 40,000 trainees [needed nationally] each year....”—Program Director Moore

- **A total of 364 learners-medical residents or nursing students-representing 25 institutions and 22 specialties participated in ACT.** Learners' specialties included internal medicine, family medicine, nurse practitioner, dermatology, nephrology, psychiatry, surgery, anesthesiology and emergency medicine. For a full list of institutions participating in ACT see [Appendix 4](#).
- Learners, acting as teams, implemented more than 100 quality improvement projects at their institutions.
- For a closer look at two sites that program staff consider successful in implementing ACT, see sidebars on the ACT projects at the [University of Pennsylvania Health System](#) and the [University of Virginia Health System](#).

According to national program staff, the [Mayo Clinic](#) was so impressed with the impact of its ACT initiative that they now require all third year internal medicine residents take the four-week course and develop a quality improvement project.

Likewise, national program staff noted that leadership at several of the residency programs credit ACT with prompting a "culture change" in which residents are now enthusiastic and invested in changing the system.

- **Anecdotal evidence shows that participants gained a lot from ACT.** From informal surveys of ACT learners and ACT leaders at participating institutions—conducted primarily at annual meetings and site visits—national program staff provided participants' comments to RWJF staff:

“For me, the most interesting thing is that [the ACT learning] is a statement on physician leadership. You hear a lot of blame on doctors-letting things go, or personally reaping rewards but not caring about the overall direction of the system. Now, we are taking responsibility for reforming the system to make it better. It is time for us to take care and take initiative.”—An ACT resident

“ACT was the first time that the residents have really been included in curricular change. It was inspiring. ACT was inspiring. Usually people dictate what we learn. This is a model for change that incorporates the insight of many people and results in better outcomes.... This type of process should be integrated whenever the ACGME thinks about change.”—A resident participating in ACT

“ACT has completely changed my approach to meeting the ACGME requirements. Prior to May 2003, my concept of teaching residents in these areas was a very limited one and, even so, rather vague. I now feel much more knowledgeable about performance improvement, at least, and much more confident that residents can be interested in and integrated into these activities. I am also more comfortable with the concept and reality of letting

residents take the lead in teaching other residents.”—An ACT residency program director

In an interview for this report, a director of nursing education cited her use of ACT as a capstone project for nursing students:

“It was one of the most phenomenal experiences in more than 20 years of health care to see front-line people learn how systems work and speak with such confidence to the administration. If we could find a way to consistently unleash this power, health care would be a different system.”—An ACT nursing program director

Communications

- **Program staff distributed 5,000 CDs of the ACT curriculum to medical and nursing educators in May 2006.** The CDs contained the curriculum in a non-copyrighted form that can be copied and modified, giving recipients the flexibility to legally adapt the curriculum to their institutional needs. CDs were accompanied by a user instructional brochure.

Program staff had filled approximately 100 more requests for the curriculum on CD as of June 2007. They also distributed printed versions of the curriculum and user instructions at national conferences, meetings and upon request.

The ACT curriculum may be requested [online](#).

- **Staff published two articles about ACT in journals:**
 - "Educating Interprofessional Learners for Quality, Safety and Systems Improvement," in the *Journal of Interprofessional Care* in 2006. The abstract is available [online](#).
 - "Interdisciplinary Medical, Nursing, and Administrator Education in Practice: The Johns Hopkins Experience," in *Academic Medicine* in 2006. The abstract is available [online](#).

See the [Bibliography](#) for details of publications.

- **Staff made presentations about ACT at three conferences and exhibited at meetings of residency program directors.**

ACT EVALUATIONS

The Yedidia and Gillespie Evaluation

In 2005, RWJF funded evaluators Michael Yedidia, PhD, and Colleen Gillespie, PhD, to carry out an evaluation of ACT through a post-training survey of ACT II learners, and pre- and post-training study of ACT III learners and leaders.

The evaluators sought answers in four areas:

- How did learners assess the value of participating in the quality improvement process in the context of their training?
- What was the nature of the quality improvement projects conducted as part of ACT training? How were the projects valued by learners and leaders? How did they assess the contribution of ACT to quality improvement at their institutions?
- To what extent did learners collaborate with peers or staff from different disciplines in developing improvement projects? How did learners and leaders assess the quality of the collaborative experience? What were the factors that either facilitated or impeded effective interdisciplinary collaboration?
- What factors appeared to differentiate those health professions education programs prepared to pay \$10,000 to continue participation in ACT from those that didn't?

The evaluators presented findings to RWJF and to the national program staff in an unpublished report in January 2007.

Program Office Use of Formative Evaluation Data

Program staff used some data gathered by evaluators in a yearly formative assessment of sites. According to Moore, this helped sites as well as national program staff to chart sites' progress.

In the fall of 2006 the evaluators brought preliminary findings of their study to the national program staff along with suggestions for midcourse improvements to the curriculum. At that time they also gave site-specific feedback to staff at participating sites.

Other Studies of ACT for the National Program Office

In smaller studies, faculty at Harvard Pilgrim Health Care, where the national program office was located, surveyed ACT learners and faculty preceptors between 2003 and 2005.

See [Appendix 5](#) for the evaluation methodologies.

ACT EVALUATION FINDINGS

The Yedidia and Gillespie Evaluation

In January 2007, Yedidia and Gillespie submitted a report to RWJF conveying the findings of their evaluation of ACT. The findings were based on a post-training survey of ACT II learners, and pre- and post-training study of ACT III learners and leaders. For this evaluation's methodology, see [Appendix 5](#). The report organized evaluation findings in four areas:

1. Educational Value of ACT Training

- **Learners' evaluations of ACT training overall were positive among two cohorts studied (ACT II and ACT III).** Eighty percent of 2005 trainees and 89 percent of 2006 trainees "strongly agreed" or "somewhat agreed" that they would recommend ACT to others.
- **Learners rated the educational aspect of ACT training highly.**
 - The most popular learning task was developing a quality improvement project. Ninety-seven percent of learners were either very or somewhat satisfied.
 - Least popular among learners were the passive learning experiences. Completing the ACT Web exercises garnered 59 percent approval.
- **Learners' confidence in their performance in five quality improvement competencies increased significantly over the course of their ACT training.** In a comparison of pre- and post-training responses of learners, the two competencies with the greatest increases in confidence among learners—collaborating in analyzing the causes of system problems and developing and refining interventions to address them—were also the same competencies in which leaders hoped for the most improvement among their ACT learners.
- **Between a quarter and a fifth of ACT leaders surveyed felt that all their expectations for ACT were fulfilled.** Responding to an open-ended question asking in what specific ways ACT met their expectations, 24 percent of ACT leaders (directors of education or quality improvement, ACT preceptors and teachers) in 2005 and 22 percent in 2006 volunteered that all of their expectations were fulfilled.
- **Leaders felt there were some shortcomings in the ACT initiative.** Shortcomings volunteered by leaders included:
 - Logistical issues in mounting the initiative (for example, problems in scheduling learners).
 - Curricular concerns (for example, deficiencies in the website).

- Organizational constraints (for example, insufficient faculty and administrators' time and difficulties in engaging multiple departments).

2. The Nature of the Learners' Quality Improvement Projects and their Value to the Institution

- **Content areas of quality improvement projects undertaken by the ACT teams, in descending order of frequency, were:**
 - Effectiveness of care-providing appropriate care to those who could benefit and avoiding unnecessary care.
 - Timeliness-reducing patient wait times and potentially harmful delays.
 - Patient safety.

Quality Improvement Projects' Content Areas		
<i>Quality Improvement Category</i>	<i>Description/Example</i>	<i>Percent of Quality Improvement Projects (n=71)</i>
<i>Effectiveness</i>	Providing appropriate care to those who could benefit and avoiding unnecessary care	28%
<i>Timeliness</i>	Reducing waits and potentially harmful delays	25%
<i>Safety</i>	Avoiding injuries to patients	20%
<i>Efficiency</i>	Avoiding waste of human and material resources	18%
<i>Equity/Access to Care</i>	Providing care that does not vary in quality because of irrelevant considerations	3%
<i>Other</i>	Standardizing reporting Improving chart collection	6%
Source: post-training surveys of learners in ACT II (2005) and ACT III (2006)		

- **Leaders and learners in both cohorts concurred in their assessment of the benefits of quality improvement projects to their institutions.** When asked, 86 to 93 percent of learners and 95 to 100 percent of leaders said the projects were of moderate or great value.
- **Between 85 to 100 percent of both groups of participants (ACT II and ACT III) assessed performance of the eight phases required of all quality improvement projects as either "adequate" or "exemplary."** Leaders consistently assessed the adequacy of these phases more favorably than did learners. Learners and leaders agreed on the three weakest phases of the improvement projects:
 - Creating measures for assessing improvement.

- Presenting a business case for implementation.
- Using a "plan-do-act-study" cycle to refine the intervention.

- **Learners' assessment of the availability of resources, including their own, for developing their quality improvement projects was generally favorable.**

Resources considered most adequate were:

- Teamwork skills.
- Management expertise.
- Access to leaders.

More than 82 percent of learners assessed these three resources as adequate or very adequate.

Assessed as least adequate were:

- Access to financial resources for conducting the projects (58.9 percent "adequate" or "very adequate").
- Awareness of other quality improvement efforts at the institution (59.7 percent).
- Prior preparation (67.1 percent).

- **Leaders and learners concurred in their strong endorsement of the idea that trainees as front-line providers can have a unique, positive impact on the delivery of quality care at their institutions.** Between 91 and 100 percent of these two groups "somewhat agreed" or "strongly agreed" with this idea.

For both cohorts, leaders agreed slightly more with this idea than learners.

Learners and leader responses to an open-ended question asking why they held that view coalesced around:

- Learners' distinctive view of the system from the front line.

“We are there ‘in the trenches’ every day, taking care of some of the most complicated patients, and learning to make changes within our health care system is very valuable.”—An ACT learner

- Learners' perspectives as students.

“Trainees are unbiased and fresh to the system. They often rotate from one institution to another allowing

insight into the strengths and weaknesses of one system as compared to another.”—An ACT learner

- The generally positive response of staff to students.

“Learners frequently can look through distinctive lenses at a situation and, in their role [as trainees], are less threatening to individuals in the system”—An ACT leader

- Learners' motivation to address problems that they experience in their daily work lives.

“As trainees, we are living through the issues and problems within the health system, which serves as a great motivator to [make us] want to fight for changes that can improve an inefficient system that hinders our ability to perform our best in our jobs.”—An ACT learner

Another commonly occurring theme was the importance of leadership support and access to power in the organization if the potential impact of learners is to be realized. Learners lack power:

“As front-line providers, we witness many of the gaps in quality of care. However, this front-line position is often accompanied by lack of power to change things.”—An ACT learner

3. The Extent and Value of Interdisciplinary Collaboration

- Learners in both cohorts regarded interdisciplinary collaboration as central to accomplishing all phases of the quality improvement project.

Learners: Importance of Interdisciplinary Collaboration to Accomplishing Quality Improvement Project Phases					
	<i>Not at All Important</i> 1	<i>A Little Important</i> 2	<i>Somewhat Important</i> 3	<i>Very Important</i> 4	<i>Not Applicable</i>
<i>Implementing the QI project</i>	6%	0%	15%	69%	11%
<i>Developing an intervention</i>	5%	4%	32%	58%	2%
<i>Planning to assess the impact of the intervention</i>	5%	4%	18%	68%	5%

<i>Identifying the causes of the problem</i>	7%	4%	21%	67%	2%
<i>Identifying the problem</i>	11%	7%	19%	61%	2%

Some totals are greater than 100 percent because of rounding up.

- **Leaders viewed interdisciplinary collaboration as very important to the contribution of ACT quality improvement projects to:**
 - Systems improvement at their institutions (65%).
 - The educational value of ACT training (75%).
- **Learners in both cohorts credited ACT training with improving their outlook on two key dimensions of effective interdisciplinary work:**
 - Developing trust among collaborators.
 - Becoming more aware of the limits of a single-disciplinary approach to care.
- **Learners, when asked in an open-ended question to identify factors that promote interdisciplinary collaboration, most frequently mentioned:**
 - Necessity for getting the job done.
 - Having respectful and motivated peers.
 - Organizational aspects of the initiative (for example, setting aside time in their schedules for team meetings).
- **Factors promoting interdisciplinary collaboration most frequently volunteered by leaders—their teachers and directors—were:**
 - Strong support from academic leadership.
 - Endorsement from hospital leaders.
 - Realization among learners that collaboration is essential to getting the job done.
- **Factors impeding collaboration, most frequently cited by both groups (ACT II and III):**
 - Challenges in coordinating schedules among learners.
 - Insufficient time to get the disciplines together.

In addition, learners often mentioned—as an impediment to collaboration—competing patient-care responsibilities.
- **Learners' confidence in performing important collaborative tasks improved significantly over the course of ACT training.** Pre-training, the percentage of

learners "somewhat confident" or "very confident" in four collaborative skill categories ranged from 61.8 to 80 percent. Post-training, confidence levels ranged from 85.7 to 94.6 percent.

4. *The Likelihood of Sustaining ACT Beyond RWJF Funding*

- **Five of 23 ACT leaders surveyed (23%), who had power to make such decisions, said they would pay \$10,000 to continue their institution's participation in ACT if RWJF sponsorship and the services of the national program staff were available in the following year.** An additional three leaders said that they *might* pay to participate.
- **Twelve of these 23 leaders surveyed (52%) said they would not pay to participate.** Nine of these 12 negative responses cited financial constraints as a major reason. Leaders at four sites believed that their education programs had sufficient expertise to continue quality improvement training on their own.

Answers for both questions posed to these 23 leaders did not appear to differ whether the respondent was an academic or quality improvement leader.

- **Speculating on those aspects of ACT that their institutions would continue without *Partnerships for Quality Education* support:**
 - **Ninety percent** of respondents anticipated a fair or great degree of emphasis on activities associated with development of a quality improvement project.
 - **Forty-five percent** of respondents reported a similar degree of attention to facilitating interdisciplinary collaboration.

One respondent, in reporting that her institution would not pay \$10,000 to participate, noted:

“I personally would invest the money, as it has big payoff for learning and quality QI [quality improvement]; but organizational leaders are not interested at this time due to the teaching content. Completely lost will be the experience in interdisciplinary collaboration that is essential to ACT.”

—An ACT leader

- **Among responding leaders, their intent to retain an emphasis on interdisciplinary collaboration-if continuing without external support-was associated with two factors:**

- Leaders' assessment of the adequacy of the quality improvement projects in obtaining necessary administrative support.
- Leaders' belief in the unique potential of learners to improve quality of care at their institutions.

Two Studies by Faculty at Harvard Pilgrim Health Care

Faculty at Harvard Medical School who practice at Harvard Pilgrim Health Care, where the national program office was located, conducted surveys of ACT learners and leaders (medical education or quality improvement directors, ACT faculty and preceptors) between 2003 and 2005 at participating institutions.

A Survey of Learners

In an unpublished 2007 paper, *Is an Intensive Exposure to Quality Improvement Acceptable to Residents?* faculty offered findings from their study of ACT I medical residents between 2003 and 2005. See [Appendix 5](#) for this study's methodology. For the report's authors see the [Bibliography](#).

The paper presented the following findings:

- **At the conclusion of their work on the initiative, ACT residents demonstrated significant gains in knowledge and self-assessed competency.** They also reported more positive attitudes toward the two new ACGME competencies, learning systems-based practice and practice-based learning and improvement.
- **In a follow-up survey at two years, residents were about evenly distributed among those who felt that ACT had a highly positive, moderately positive and low positive impact on their later practice.** One resident was highly positive:

“I think it fundamentally changes my approach, particularly to errors in the ICU, but also health care delivery in general. I think that I've been a very strong advocate for having care pathways in place, for having protocols in place that are designed to limit the potential for individual error so that there is a system in place with checks and balances so errors are not made, [by seeing that] the system is set up in such a way that it prevents common errors.

“I think even this month there's been three or four examples where we are pushing through protocols in the

ICU, and I'm playing a role in that because I recognize what's happening in the ICU as the result of a systemic problem rather than an individual problem. I think that the course did have an influence on my overall approach to medicine.”—A resident and ACT learner

Other participants described their day-to-day work and career goals with little to no reference to systems-based practice and practice-based learning and improvement. When asked directly, respondents gave noticeably vague or general descriptions.

“I guess it influences my day-to-day because it's part of my education so I think of stuff but I don't specifically think of ACT.”—A resident and ACT learner

A Survey of Leaders

Faculty at Harvard Medical School who practice at Harvard Pilgrim Health Care also surveyed participating faculty acting as ACT I preceptors. In *A Self-Instructional Model to Teach Systems-Based Practice and Practice-Based Learning and Improvement*, accepted for publication in the *Journal of Internal Medicine* in 2008, faculty described their survey of residency directors. For authors of this study see the [Bibliography](#).

The article presented the following findings:

- **ACT faculty found a ready-to-use curriculum effective.** They rated seven of eight ACT components as effective methods to enhance residents' learning, with mean ratings for these components of 7.0 or higher on a 10-point scale.
- **Faculty's attitudes became significantly more positive toward their residents' learning in the two domains of systems-based practice and practice-based learning and improvement.** A majority of faculty believed that a lack of faculty expertise in the two domains had been an important barrier to curricular change.
- **Faculty's own changes in knowledge and self-assessed competency were moderate and did not change significantly by the end of ACT.**
- **Individual faculty varied widely over which aspects of ACT they felt worked best for their residents.** For example, some considered precepting to be the most effective factor in promoting learning, while others considered it the least effective.

In open-ended comments, faculty reported that almost all residents found the overall ACT initiative valuable, but that some residents felt that activities amounting to academic exercises (for example, planning but not carrying out a quality improvement project) were frustrating.

CONCLUSIONS FROM ACT

In a 2006 report to RWJF, program staff summarized a number of conclusions derived from their experience with ACT and its uptake by medical residency and nursing education program directors:

- **Institutions will use a prepackaged curriculum to teach about systems and practice improvement.**
- **The ACT curriculum can be used to increase learner knowledge and self-assessment of skills in systems and practice improvement.**
- **The effects of ACT seem to last and impact learners' career choices and daily work.**
- **It is possible to engage learners in interprofessional, collaborative work.**
- **Few institutions are prepared to pay for interventions in their systems of medical and nursing education—even breakthrough-type improvements.** Program staff and participants had varying views on the reasons that few institutions would pay for interventions of this type.

— Gordon Moore, the national program director, said that the reluctance by institutions to pay for such an intervention was rational. Institutions decided that the Accreditation Council for Graduate Medical Education (ACGME) was not taking the new objectives seriously because it had created no serious consequences for not following them, he said. In time, he believed, the ACGME and residency review committees would forget these objectives, schools believed.

In addition, a project like ACT requires a lot of staff time to implement and residency program offices have few resources or staff to carry out such a project in the absence of any consequences from an organization like the ACGME, Moore said.

- Program Co-Director Maryjoan Ladden said that few schools said they were willing to pay for ACT had little to do with the value they placed on the project. Instead she said that other organizations, such as the federal Agency for Healthcare Research and Quality (AHRQ) and the RWJF-funded *Improving Chronic Illness Care* were developing similar tools that are available for free on the Web.
- Evaluator Michael Yedidia said that responses concerning the willingness of institutions to pay for interventions like these are more ambiguous than it first appeared. For example, leaders from four sites who stated that they would not pay for ACT indicated that they now had sufficient expertise to continue trainings like ACT on their own. Multiple leaders from the same program often differed in their responses. For the nine programs having a leader who responded negatively, four of these sites had at least one leader who responded positively.

Striking a more general note about this country's medical education, program staff concluded:

“Despite all the talk about the need for, and the requirements of, education in systems and practice improvement, the drive to actually make progress in this area is limited.

Unless the Accreditation Council for Graduate Medical Education (ACGME) and nursing accreditation organizations put teeth in their requirements about teaching systems and practice improvement, or payers get serious about paying for performance (such as actual systems quality improvement) and hospitals realize the need for clinicians who can improve performance, the uptake on ACT and other efforts to teach these competencies is likely to be limited.”

ACT LESSONS LEARNED

1. **If a medical institution wants to make educational changes, staff must be prepared to spend a lot of time upfront with the learners persuading them that what they are to learn is important.** For ACT, this is no small task. Essentially, this means creating for learners the context of the whole health care system that all caregivers—learners and faculty—are working in. (National Program Director/Moore)
2. **If you do want to make educational changes, do not do it on the cheap.** A classic mistake for educators is to try to do a session or two on a topic during lunch. It's a waste of time and students have not learned anything. Give learners an in-depth educational experience that is meaningful and relevant to their work. (National Program Director/Moore)
3. **To get professionals from different disciplines to work collaboratively, make sure the focus of quality improvement is a problem of *joint* interest.** One of the major lessons from ACT and the *Partnerships for Quality Education* program overall, is that different disciplines must have a reason to work together for collaborations to be successful. (National Program Director/Moore and Deputy Director/March)
4. **Do whatever you can to bring your different learners together.** Health profession learners from different disciplines rarely have shared, formal educational experiences. Even though they may be side-by-side on the hospital unit and share the same safety

concerns, their educations remain in disciplinary silos. Do not shy from creative methods to overcome logistical barriers that block learner-to-learner interactions. (Ladden, et. al)

5. **Let your learners—residents and nursing students—take the lead.** Ask them to tell the experience in medical care they had yesterday. They will come up with dozens of examples of bad care, hand-offs that make their work harder. (National Program Director/Moore)

Educators do not have to know everything about systems and practice-based improvement to facilitate courses in these areas. They can learn along with their students and let students take much of the lead in charting the areas to explore. As front-line workers, they know better than anyone the problems in the health care system. If learners take charge they will learn more and be much more invested in the projects. (National Program Director/Moore)

6. **Engage faculty from all disciplines as educational resources and role models of collaboration.** Strong clinical faculty role models are critical in learning about systems improvement and collaboration. But achieving this is not easy. The majority of physicians and nurses in practice and in clinical faculty roles do not have the knowledge and skills to participate effectively in—and teach about—systems improvement. In addition, medical faculty and nursing faculty rarely get to know each other. (Ladden, et. al)
7. **Put four or more learners on each project team, if possible.** ACT's evaluators found that putting fewer than four learners on a project resulted in less successful projects. Putting four or more on a team gives projects more and different viewpoints coming from more disciplines, and the person power needed to do the project. Also, limiting the overall number of projects this way may induce more support from hospital administrations. (Program Evaluator/ Yedidia)
8. **Consider recruiting as mentors the personnel who staff the hospital's existing quality improvement efforts.** This may result in more realistic project selection, and projects may have a greater chance of support from the institution's leadership. (Program Evaluator/Yedidia)
9. **Ask project teams-in selecting their project-to consider how they will achieve their goal of organizational change.** ACT's evaluator:

“You want the benefits of the projects to spread through the organization. How do you diffuse change in an organization? What sort of leadership do you need? From whom do you need support? If a team is going to institute a whole different way of doing something, even if it's

minute, its learners have to have a sense of how to mobilize the support for it.”—Program Evaluator/Yedidia

10. **Pay attention to team-building and especially to the potential for conflict between disciplines within a team.** Different disciplines in health care have different views and some disciplines feel underappreciated. While ACT stimulated a high quality of interdisciplinary collaboration, the teams could have benefited from more faculty mentoring or an increase in their quality of precepting to deal with conflicts involving interdisciplinary work. (Program Evaluator/Yedidia)
11. **Encourage teams to reflect the priorities of the hospital wherever possible as they select projects.** A helpful approach is to integrate projects with ongoing quality improvement efforts of the hospital. To have a high-quality project but no commitment by the institution to implement it will not achieve much. (Program Evaluator/Yedidia)

AFTER THE ACT PROGRAM

In October 2006, RWJF authorized an additional two years for ACT for up to \$600,000 to allow some ACT sites to undertake a dissemination of the ACT model. The program is called *Achieving Competence Today (ACT) Collaborative: Disseminating an Action-Based Interprofessional Curriculum That Incorporates Quality Improvement*.

The Achieving Competence Today Collaborative

Six of the top performing ACT III sites received an additional \$100,000 each from this funding to form a collaborative, led by John D. Voss, MD, who led the ACT project at the University of Virginia Medical Center. Members of this collaborative are:

- Beth Israel Deaconess Medical Center, Boston
- Christiana Care Health System, Newark, Del.
- University of Cincinnati College of Medicine
- Hospital of the University of Pennsylvania, Philadelphia
- University of Missouri-Columbia
- The Johns Hopkins Hospital, Baltimore

The principal goal of the collaborative is dissemination of the ACT model to other U.S. institutions of medical education. Leaders at collaborative member institutions, while continuing their institutions' participation in ACT, are expected to:

- Serve as advisory committee members to staff of the ACT initiative at the University of Virginia, who are updating and maintaining the ACT curriculum and [website](#).

- Serve as mentors within their own systems and to others throughout the nation who are interested in ACT implementation.
- Speak at conferences and write papers to spur national momentum for the University of Virginia's work on the ACT curriculum and website.
- Work with professional societies to disseminate ACT.

Voss said that he and his colleagues will work to make ACT "self-instructing"—that is, in the past the ACT curriculum required that learners such as medical residents and nursing students have faculty to guide them. Voss hopes to modify the curriculum so that students can implement it with little faculty supervision.

He noted that the six participating schools have customized ACT for their own needs. Such customization, which may lead to a much different looking ACT program from its original, is probably necessary for the curriculum to take hold at other schools, Voss said.

Piloting an ACT Initiative for Nurses

As of August 2007, Maryjoan Ladden was assisting staff at [Christiana Care Health System](#), a nonprofit privately-owned health care provider based in Wilmington, Del., to revise the ACT curriculum for more relevance to nurses and other in-hospital managers, and to pilot the revised form in that organization.

ACT Sidebars

ACT PROJECT: UNIVERSITY OF PENNSYLVANIA HEALTH SYSTEM, PHILADELPHIA, 2003–06

“ACT is about the education of the next generation of providers....

“[It's about] making the move from people working in health care viewing themselves as the center and core—and everything else revolving around them—to being acutely aware that they are part of a larger system.

“It's hugely important. It's the first step in changing the health care system.—David Horowitz, M.D., Director,

Clinical Effectiveness and Quality Improvement at the University of Pennsylvania Health System

The University of Pennsylvania Health System participated in all three phases of ACT at its center located at the University of Pennsylvania School of Medicine in Philadelphia.

In the years just prior to 2003, when ACT was developed, the University of Pennsylvania Health System had experienced significant financial difficulties. Health System leaders were seeking ways to become more efficient, according to Horowitz. Each department in the health system had yearly quality improvement, safety and cost savings goals.

In 2003, according to Horowitz, when the health system received ACT funding, educational leaders in its department of internal medicine were ready for ACT. They favored curriculum expansion to meet the goals of quality improvement and cost savings.

ACT I (Academic Year 2003–04)

ACT at the health system initially focused on curriculum development and was overseen by the head of graduate medical education. Four residents participated in ACT I. However, according to Horowitz, after implementing ACT its leaders were unable to find a way to sustain it.

ACT II (Academic Year 2004–05)

A New Start

Horowitz, the health system's director of clinical effectiveness and quality improvement, and Patrick J. Brennan, M.D., then its chief of health care quality and safety, took over the initiative. According to Horowitz, he and other faculty saw ACT as a way to expand the types of learning initiatives they were already working on with both residents and nursing students. This they would do, in part, by using ACT's core curriculum as an academic elective.

*“If you look at what ACT does, it brings together traditionally disparate groups of individuals with traditionally disparate interests to work in the system in a collaborative way to solve problems. This is really the direction we wanted to head in quality at Penn.”—
Director Horowitz*

In ACT II, four residents and four nursing students participated.

Customizing ACT

Like other site leaders in ACT, health system faculty tweaked the ACT course so that it would fit the needs of their institutions and learners. Instead of requiring that participants finish ACT in one month, project directors created "virtual" months for this elective to accommodate the needs of students from different disciplines and to help facilitate the development of quality improvement projects over a longer period of time.

The virtual month could be an actual month, a weeklong experience or spread out over an academic year.

Leaders did not adhere to the pedagogical idea of residents and nursing students, each year, identifying a problem or issue in quality of care that stemmed from an actual patient to define or illustrate a quality improvement project. Instead, directors asked learners to select a quality improvement project that related to the health system's already-established improvement objectives.

ACT III (Academic Year 2005–06)

In ACT III, the site expanded its learner base by 70 percent. They enrolled three nursing students and seven residents (three from internal medicine, one from anesthesia, two from rehabilitation and one from the emergency department).

Results

ACT leaders at the University of Pennsylvania Health System reported the following results:

- **Twenty-two residents and nursing students participated over the course of the ACT initiative.** Learners worked on eight multidisciplinary projects addressing quality and safety issues in the health system. The health system linked the projects to its program for clinical effectiveness and quality improvement. Among the projects were:
 - **Identification of patients with difficult-to-intubate airways.** An anesthesiology resident had a difficult experience intubating (putting a breathing tube into) an obese patient who had recently received bariatric surgery (surgery on the stomach and/or intestines to help the extremely obese patient lose weight.) What the hospital staff needed was a predictive model of patients who might need special equipment to be intubated.

After researching the problem the resident successfully created a model that would identify patients likely to have difficult-to-intubate airways and a system to follow them throughout their hospital stay. Patient records now specify that such patients wear a "difficult airway" wrist band—similar to an allergy band—that

alerts all care personnel. The hospital has also reconfigured equipment on the floors to accommodate the special needs of these patients.

- **Rapid Response Team Initiative.** A team of ACT learners worked on a project to better predict which patients might become unstable, stop breathing and need to be revived. When patients stop breathing and a rapid response team is called in to provide treatment, the survival rate is low.

A resident and nurse practitioner assembled past patient information to help staff on the floor recognize "triggers" in patients that might portend a crisis in a few hours when the patient could stop breathing. Among the triggers they found are having a high pulse, low potassium and an uneasy feeling in experienced hospital staff about how a patient looks.

A recognition of these triggers now means that the staff can call the rapid response team before a patient "codes" (in hospital parlance when a patient codes she or he stops breathing and the heart stops functioning).

Lessons Learned

- **Buy-in from your institution's executive leadership and its residency directors and nursing leadership is essential to gaining interest and dedicated time for the learners.** If you can sell it to the executive leadership-both educational and administrative-they will make sure it has a place in students' schedules. (Project Director/Horowitz)
- **Organize ACT teams and the ACT quality improvement projects as early in the academic year as possible.** Teams need an early start on their work, especially to build a sense of interdisciplinary collegiality. At the University of Pennsylvania, teams started work soon after they were formed. They were able to do this in part because they decided not to wait for a patient whose case exemplified a potential system problem, but agreeing on a problem area instead. (Project Director/Horowitz)
- **It is essential that ACT leaders address the difficulties of the potential of mismatched schedules for nurses and residents.** Scheduling conflicts affect team attendance and hence the level and nature of interdisciplinary learning that takes place on teams. (Project Director/Horowitz)
- **Consider having ACT learners travel to other health systems that are participating in ACT.** This would give learners an overview of another system, a very useful perspective, early on in their careers, and perhaps add depth and scope to their sense of nationally occurring quality of care issues. It could also help promote future collaboration across health systems. (Project Director/Horowitz)
- **Consider creating a standing appointment of an ACT learner on one or more quality committees at your institution.** The University of Pennsylvania project staff

had already found it useful to integrate residents and allied health professionals into their multiple quality committees. (Project Director/Horowitz)

Looking Ahead

In 2006, the University of Pennsylvania Health System received \$100,000 from *Partners in Quality Education* to help make ACT a permanent part of the institution's curriculum and quality improvement work, and to collaborate with five other ACT sites in disseminating its educative model nationwide. For more on this collaborative effort to disseminate ACT see Afterward in the [Program Results](#).

At the Health System, Project Director Horowitz planned to use this funding to expand ACT-like training to all of its residents and a select group of nurses or nurse practitioners and administrators in training programs.

He and others there plan to set out four tiers of ACT training (representing different workloads and mastery required) for learners.

In all, the University of Pennsylvania offers 61 training programs. The project director envisions that all resident physicians will complete some level of ACT training, involving online tutorials and competency assessment linked to faculty.

ACT PROJECT: UNIVERSITY OF VIRGINIA HEALTH SYSTEM, CHARLOTTESVILLE, VA., 2003–06

“Our take from the beginning was to let the learner pick the project. The best experience we had was when we had graduate nursing students, who were also staff nurses, work with residents. They [staff nurses] have a perspective that nobody else has.”—John Voss, M.D., ACT director at Virginia

Faculty at the [University of Virginia Health System](#), a teaching hospital for the University of Virginia School of Medicine, participated in a previous initiative of Partnerships for Quality Education. In that initiative, called Take Care to Learn faculty developed, during 2002–03, a learning model to teach residents, pharmacy students and faculty about quality improvement in the treatment of diabetes.

As the national program staff developed ACT during 2003, those involved with Take Care to Learn felt it was a natural fit for their faculty and staff, according to Voss. At the

time site faculty and staff were formulating ways to teach quality improvement—sparked, in part, by work undertaken through Take Care to Learn.

As a result, staff applied and were accepted into ACT. In mid-2003 as ACT was launched, staff there were reorganizing their quality improvement system and the ACT initiative also served as a catalyst to this, Voss said.

The University of Virginia Health System participated in all three phases of ACT.

ACT I (Academic Year 2003–04)

The Virginia site staff made ACT an elective for second or third year residents in family medicine and internal medicine. The residency program faculty already taught a mandatory curriculum on systems improvement and practice-based learning that all residents took. ACT was treated as an advanced elective for students interested in these areas.

"We made it special," Voss said. "You had to be accepted."

The first phase of ACT was more of a theoretical learning exercise for residents, according to Voss. Residents took the four-week course, interviewed managed care representatives and others and designed a quality improvement project that was not implemented (which was in line with the design of ACT).

Faculty and residents made changes to the ACT curriculum to fit their needs. For example, the curriculum called for participants to interview managed care directors and insurers to get an understanding of their decision-making and pressures.

When learners did not find those interviews useful, the project director asked learners instead to focus on investigating quality problems. "That's where the real learning took place," according to Voss.

Learners thus chose the quality issues that they felt were the most important to focus on. By contrast, at other ACT institutions, faculty gave learners a menu of quality improvement areas to choose from—and on which the health system was already working.

“Our practice at UVA is to give the learners very rough guidelines for the [quality improvement project] and then have them pick something they feel passionate about. This is risky in that they may not pick something UVA leadership or faculty feel is a critical topic but it allows UVA to get some insight into what kinds of problems

learners at the institution see. We have not had learners ever pick a 'bad' problem-if anything they pick ones that go right at problems the institution hasn't figured out how to tackle.”—Director Voss in a report to RWJF

Six residents at the Virginia site participated in ACT I.

ACT II (Academic year 2004–05)

During ACT II, the project director included graduate nursing students as well as family medicine and internal medicine residents. ACT project staff recruited nursing students from the University of Virginia School of Nursing Health Systems Management master's degree program. Learners worked in mixed teams of medical residents and graduate nursing students.

Bonnie Jerome-D'emilia, Ph.D., M.P.H., R.N., coordinator of health systems management and distance learning at the school of nursing, agreed that her nursing students would benefit from ACT. Many of her students were already on staff at the hospital as nurses while they earned a master's degree in health systems management.

Jerome-D'emilia recruited students, eliminated some aspects of the ACT curriculum that did not apply to nurses and worked with Voss to find ways to bring together medical residents, who undertook ACT as a four-week elective, with nursing students, who enrolled in it as a course over a semester.

Jerome-D'emilia said that she and Voss both felt that some residents needed to be more aware of the roles of nurses and the importance that they play in the health system. In one instance, those differences caused tension on a team with the result that the nurses did much of the work.

*“One of the challenges for the first group and even for the faculty was the interprofessional collaboration and communication. I guess we didn't realize from the start how much they [nurses and residents] need to work on an even playing field. That was a challenge, [for residents] to overcome biases they had...The residents weren't always aware what nurses do and what they know.”—
Jerome-D'emilia, Ph.D., M.P.H., R.N.*

During ACT II, learners began working with the medical center's quality improvement group or department to identify, develop and help implement real care delivery improvements.

In ACT II, 19 learners participated (15 residents and four graduate nursing students).

ACT III (Academic Year 2005–06)

Voss and Jerome-D'emilia continued to work with internal medicine and graduate nursing students. There were no family medicine residents. That specialty's program director decided not to participate in order to concentrate on preparing for a pending residency review committee visit.

The leaders led one large group of eight learners, including a graduate nursing student who was a long-distance learner. They conducted twice weekly precepting sessions plus daily e-mail feedback with the group starting one to two weeks before the course began.

In ACT III, four residents and four graduate nursing students participated.

Challenges and Solutions

Recruiting

According to Voss, recruiting nursing students was a challenge because while some of the nursing faculty endorsed the concepts it was difficult to find room for ACT in the nursing curricula.

Follow-up to Projects

Jerome-D'emilia said another challenge was how to follow-up on the quality improvement projects and associated teaching once the residents left after their month-long course ended. While the course was designed to continue all year with the participants implementing quality improvement projects and residents teaching fellow residents, in most cases the residents moved on to a new rotation after a month.

The nursing students had more time in their semester course to follow-up, but it was not always clear if they were supposed to continue working with the quality improvement department and whether their projects fit in with hospital priorities.

“How do you take something from outsiders and make it not look like a threat? There were new people [in the quality improvement department] who didn't see the benefit of what we were doing. We had to constantly educate hospital administration about the benefit.”

“The nurses tried to continue the projects. They would have some meetings. [But] they were on their own. They were disheartened. They weren't getting any help from the quality improvement department.”—Jerome-D'emilia

Institutionalizing the Change

According to Jerome-D'emilia, one of the problems was how to institutionalize the ACT process within the hospital's administration, assuring that staff values this agent for change and sees in it a benefit. In the end, Jerome-D'emilia said she and her colleagues were unable to do that.

Voss and Jerome-D'emilia agreed that it was also difficult to find enough medical and nursing faculty with time to precept residents.

A related challenge was to get residents and nurses to see that quality and systems improvement work is important. According to Voss, most residents and nurses typically view quality and systems improvement as of less immediate relevance than direct patient care.

Results

According to a 2006 final report from the Virginia site and interviews with site leaders in 2007, the following were the key results from ACT at the University of Virginia Health Systems, 2003–06:

- **A total of 33 residents and nursing students participated in ACT I, II and III.**
- **ACT led to systems change that improved care at the site in three instances:**
 - In ACT I, a resident had an interest in deep vein thrombosis (blood clots) that can develop when patients are in the hospital. For her senior project she collected data that showed that the hospital was not good at providing preventive anti-coagulants to patients most at risk for blood clots. As a result, the hospital implemented a system that is integrated into the computer order entry system that alerts nurses and others to consider anti-coagulants for their at-risk patients.
 - ACT participants were concerned that patient blood for testing could not be drawn at night because of lack of staffing in the lab. When blood draws are not taken at night, there can be a backup in treating and discharging patients the next morning. As a result of the ACT participants' work, the hospital hired more staff to carry out blood draws at night.

- ACT sparked a variety of creative efforts in teaching and influenced patient care as faculty developed a curriculum complementary to ACT in patient safety, health economics and chronic illness care for the internal medicine residency program.
- **The medical school and the nursing school developed a closer collaboration.** According to the site report, "Without ACT, collaboration with the nursing school seems doubtful because of all the cultural barriers to that type of collaboration. ACT, as neutral in that aspect and formally requiring collaboration, is useful and would be missed." Two quotes from the report illustrate this point:
 - *At a recent house staff council meeting, a resident expressed the belief that the solution to an issue before the group would not be solved by adding more staff but would benefit from fixing the underlying process in cooperation with the nursing staff.*
 - *Voss added, 'When I'm precepting a resident and a patient is late, the comment used to be that the nurses can't get the patient back on time. Now it's the system can't get the patient back on time.'*
- **Two nurses changed their jobs within University of Virginia Health Systems to take quality improvement positions.** According to Jerome-D'emilia their choices were a result of their experience with, and participation in, ACT.

Lessons Learned

- **If you pick examples relevant to a medical resident's work, even the most jaded resident can be motivated to learn about systems-based care and practice-based learning and improvement.** (Project Director/Voss)
- **With learners, you need to communicate repeatedly what the required competencies are and remind learners why faculty are teaching these.** ACT was structured to do this. A learning system, it taught "to" competencies in two areas that the Accreditation Council for Graduate Medical Education (ACGME) promulgated: systems-based practice and practice-based learning and improvement. (Project Director/Voss)
- **Learn the value of and methods to obtain institutional and departmental support for education in the new competencies.** This knowledge may come differently for different institutions. But it has proved to be a vital element in the successful implementation of ACT. (Project Director/Voss)
- **Bring faculty along in terms of educational development as you engage learners so that they can master and/or apply the curriculum.** It seems to work to engage in faculty development and resident education simultaneously as long as there are a few key faculty members with the skills and support to teach both residents and other faculty. (Project Director/Voss)

- **Start talking to the learners four to eight weeks ahead of an elective that is as demanding as ACT.** They need to know exactly what to do starting the first day of their elective. They need to meet with faculty at least twice a week. (Project Director/Voss)
- **Use small groups (four or so members) as a learning setting and require accountability from all participants.** In larger groups with joint deliverables, it is easier for some members to shirk their responsibility. In addition, make sure that all participants understand the expectations of such a course before they sign on. (Project Director/Voss)
- **Make initiatives like this mandatory for students.** You have to have buy-in from residency and nursing program directors and deans that this is integral to the curricula of their schools. When it is an elective, students may take it less seriously. Some residents at the University of Virginia Health Systems appeared to see this as an easy month in their rotation, because it was offered as a pass/fail elective, while the nurses were taking the class for a grade, so had to take it seriously. (Project Director/Jerome-D'emilia)
- **Be flexible in how a curriculum like this can fit into your educational program.** For instance, offer independent study or use a practicum opportunity. Give students an experience that is a little different than what they would normally undertake. (Project Director/Jerome-D'emilia.)

Looking Ahead

With funding from Partners in Quality Education, staff at the University of Virginia Health System are disseminating the ACT model in collaboration with six other ACT sites (for more on this collaboration, see Afterward in [Program Results](#)).

In 2007, Voss and other ACT faculty worked together in opening a Center for Quality and Safety at the University of Virginia Health System. Sponsored by the dean of the school of medicine, the center emphasizes research and education that identifies, develops and disseminates "best clinical practices" to meet the unique needs of the academic medical center.

Learners in the center include graduate nursing students, resident physicians, pharmacy students and graduate systems engineering students with faculty drawn from those disciplines, including ACT faculty. ACT will serve as one of the core teaching experiences for learners participating in the work of the center, according to Voss.

Faculty at the University of Virginia Health System are also engaged in planning an initiative that will combine the best features of ACT with the department of medicine's existing curriculum in systems and practice-based learning and safety to create an

institutional curriculum for systems and practice-based learning for more than 600 residents and fellows within the health system.

A long-range goal for ACT at the health system is to create a formal learning management system for medical competencies education.

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Reviewed by: James Wood and Molly McKaughan

Program Officer: Susan B. Hassmiller

Grant ID: PQE

APPENDIX 1

National Advisory Committee

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Janis P. Bellack, PhD, RN, FAAN
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Karen M. Ignagni
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Executive Vice President and Chief Medical
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Northwestern University Medical School

APPENDIX 2

Project Directors and Grantee Organizations in the Collaborative Interprofessional Team Education (CITE) Program

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

Shirley Moore, RN, PhD
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Nursing
Nurse Practitioner Program

Internal Medicine Residency Program
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Mark Richard, MD (deceased)
MetroHealth Center—Case Western Reserve
University
Pediatric Medical Residency Program
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APPENDIX 3

Glossary

Chronic Care Model. A systems approach to [chronic illness management](#) for health care providers. It identifies six essential elements of a health care system to be engaged to encourage high-quality chronic disease care:

- The community.
- The health system.
- Patient self-management support.
- Delivery system design.
- Decision support.
- Clinical information systems (see [Registry](#)).

Implementation of the model relies on a focus on these six elements, as well as the development of productive interactions between patients who take an active part in their care and providers backed up by resources and expertise. It can be applied over a variety of chronic illnesses, health care settings, and target populations. Edward Wagner, MD, MPH, director of Seattle's W.A. MacColl Institute for Healthcare Innovation, Group Health Cooperative of Puget Sound, and colleagues developed the model with RWJF funding.

Chronic illness management. The use of a strategy or strategies to manage an individual's chronic illness to achieve a better outcome. Often the term is used in the context of managing a group of patients over time who share a common chronic illness (see also [Population management](#)).

Motivational interviewing. A strategy for assisting patients in making a commitment to behavioral change. Providers may use motivational interviewing with patients who are ambivalent about making changes that could help them manage their chronic illnesses (see [Patient self-management](#)), or who feel overwhelmed about how to control their disease. (See also [Chronic illness management](#).)

Patient self-management. The patient's learning and effective use of skills needed to manage his or her own health conditions (such as blood sugar monitoring, use of inhalers

for asthma) and includes the adoption of health enhancing behaviors. Health providers use the term particularly with patients who have chronic diseases. Patient self-management is often taught as one component of [chronic illness management](#).

Population management. Focuses on the illness management of a group of patients rather than an individual patient. Typically, providers analyze groups of patients that share a common disease to find needs that they can address through system changes, such as improved patient education, scheduled foot exams (for diabetics) or other patient group meetings.

Practice-Based Learning and Improvement. One of two recent competencies for medical residents promulgated in 1999 by the [Accreditation Council for Graduate Medical Education](#) (ACGME).

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence and improve their patient care practices. Residents are expected to:

- Analyze practice experience and perform practice-based improvement activities using a systematic methodology.
- Locate, appraise and assimilate evidence from scientific studies related to their patients' health problems.
- Obtain and use information about their own population of patients and the larger population from which their patients are drawn.
- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.
- Use information technology to manage information, access online medical information and support their own education.
- Facilitate the learning of students and other health care professionals.

Registry. An electronic record of patients with the same chronic illness such as asthma or diabetes. Frequently part of a clinical information system, it usually contains a variety of patient data in addition to patient names. Providers can use a registry in [chronic illness management](#) to monitor the progress and care provision of individual patients, or of groups of patients ([population management](#)), and check on progress toward care targets set for providers, such as the provision of foot checks for diabetic patients.

Systems-Based Practice. One of two recent competencies for medical residents promulgated in 1999 by the [Accreditation Council for Graduate Medical Education](#) (ACGME).

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. Residents are expected to:

- Understand how their patient care and other professional practices affect other health care professionals, the health care organization and the larger society and how these elements of the system affect their own practice.
- Know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources.
- Practice cost-effective health care and resource allocation that does not compromise quality of care.
- Advocate for quality patient care and assist patients in dealing with system complexities.
- Know how to partner with health care managers and health care providers to assess, coordinate and improve health care and know how these activities can affect system performance.

APPENDIX 4

Achieving Competence Today (ACT) Participant Organizations and Project Directors

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

ACT I (May 2003 to June 2005)

Beth Israel Deaconess Medical Center
Boston, Mass.
Carol Bates, MD

Jacobi Medical Center
Bronx, N.Y.
Steve C. Martin, MD

Johns Hopkins Bayview Medical Center
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Roy C. Ziegelstein, MD

Lenox Hill Hospital
New York, N.Y.
Robin Dibner, MD

Mayo Clinic
Rochester, Minn.
Joseph C. Kolars, MD

**Queens Hospital Center-Mount Sinai
School of Medicine**
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Debra J. Brennessel, MD

SUNY Downstate Medical Center
Brooklyn, N.Y.
Jeanne Macrae, MD

Temple University Hospital
Philadelphia, Pa.
Darilyn V. Moyer, MD

Tulane University Health Sciences Center
New Orleans, La.
Jeffery Wiess, MD

University of California, Davis-Davis Health System
Davis, Calif.
Jim Nuovo, MD

University of California, San Francisco School of Medicine
San Francisco, Calif.
Katherine Julian, MD

University of Colorado School of Medicine
Denver, Colo.
Suzanne Brandenburg, MD

University of New Mexico Health Science Center
Albuquerque, N.M.
Gregory G. Fotieo, MD

University of Pennsylvania Health System
Philadelphia, Pa.
Lisa Bellini, MD

University of Rochester Medical Center
Rochester, N.Y.
Donald R. Bordley, MD

University of Virginia Health System
Charlottesville, Va.
Mohan Nadkarni, MD

Wake Forest University Baptist Medical Center
Winston-Salem, N.C.
Peter R. Lichstein, MD

Washington University School of Medicine
St. Louis, Mo.
David Beck, MD
Daniel Goodenberger, MD

West Virginia University-Robert C. Byrd Health Sciences Center
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Karen Clark-Gerbo, MD

ACT II (October 2004 to July 2005)

Christiana Care Health System
Newark, Del.
Keith R. Doram, MD, MBA, FACP

Fletcher Allen Health Care
Burlington, Vt.
Anna Noonan, RN

Johns Hopkins University School of Medicine
Baltimore, Md.
Steven J. Kravet, MD, MBA, FACP

Mayo Clinic
Rochester, Minn.
Prathibha Varkey, MD, MPH
Michael J. Osborn, MD

University of California, Davis-Davis Health System
Davis, Calif.
James Nuovo, MD

University of Cincinnati Academic Health Center
Cincinnati Ohio
Gregory W. Rouan, MD

University of Minnesota Academic Health Center
Minneapolis, Minn.
Kathleen Watson, MD
Susan Noaker, PhD, LP

University of Missouri-Columbia School of Medicine
Columbia, Mo.
Leslie Hall, MD, FACP

University of Pennsylvania Health System
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Patrick J. Brennan, MD

University of Rochester Medical Center
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Robert J. Panzer, MD

University of Virginia Health System

Charlottesville, Va.
Mohan Nadkarni, MD
Thomas A. Massaro, MD, PhD, MS

Vanderbilt University Hospital

Nashville, Tenn.
F. Drew Gaffney, MD

ACT III (September 2005 to May 2006)**Beth Israel Deaconess Medical Center**

Boston, Mass.
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Christiana Care Health System

Newark, Del.
Brian W. Little, MD, PhD

Fletcher Allen Health Care

Burlington, Vt.
Anna Noonan, RN

Johns Hopkins University School of Medicine

Baltimore, Md.
Steven J. Kravet, MD, MBA

Temple University School of Medicine

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APPENDIX 5**Methodologies Used in the ACT Evaluations**

(Current as of the time of the grant; provided by the grantee organization; not verified by RWJF.)

PQE evaluators Michael Yedidia, PhD, and Colleen Gillespie, PhD, as well as faculty at Harvard Pilgrim Health Care evaluated the Achieving Competence Today initiative through surveys of its participants. Methodologies for their studies follow.

The Yedidia and Gillespie Evaluation, 2005–06: Evaluation Methodology

To carry out the evaluation, Yedidia and Gillespie conducted:

- A post-training survey of the ACT II cohort of learners to elicit their assessments of the ACT training and their experience with and evaluation of quality improvement projects.

Evaluators surveyed 173 ACT learners in the spring and summer of 2005 with a 57 percent response rate (99 learners).

- A survey of leaders of the ACT initiatives to assess:
 - Their valuation of the learning experience.
 - Their appraisal of the contribution of the projects to quality improvement at their institutions.
 - Their estimation of the centrality of interprofessional collaboration to the ACT initiatives.

Respondents included at least one academic and one quality improvement leader at each site. Evaluators surveyed 65 ACT leaders in the spring and summer of 2005 with an 82 percent response rate (53 leaders).

- A pre-training survey of ACT III learners conducted to assess baseline outlooks of learners at the beginning of ACT training. Evaluators surveyed 134 learners in the fall of 2005 with 67 percent response rate (90 learners).
- A post-training survey of ACT III learners to assess their experiences. Evaluators conducted the survey in the spring and summer of 2006. They surveyed 81 learners who had completed the pre-training survey with a 70 percent response rate (57 learners).
- A survey of ACT III leaders (faculty preceptors, medical education or quality improvement directors) to yield data for analyzing determinants of their decisions as to whether or not to continue participation with no funding. That survey was conducted in the spring and summer of 2006, with 23 leaders responding.

Two Studies by Faculty at Harvard Pilgrim Health Care, 2002–03:

Learners' Survey Evaluation Methodology

Evaluators analyzed the difference between participating residents' responses to three online surveys prior to their four-week ACT course and at the end of their academic year. (Responding were 78 residents at 18 internal medicine residency programs for the two cohorts studied; their academic years ending in 2003 and 2004.) Evaluators also surveyed a control group of 68 peer residents in the same education programs.

Evaluators also conducted telephone surveys to gather data on work and career goals from the first cohort of ACT residents two years after completing ACT (fall 2005).

In the pre-initiative phase, 90 percent of ACT residents completed attitude and self-assessed competence surveys, and 80 percent completed a knowledge test; 90 percent of the control group completed the attitude survey.

In the post-intervention phase, 80 percent of the ACT residents completed the attitude and self-assessed competency surveys and 60 percent completed the knowledge survey.

Residency Program Directors' Survey Evaluation Methodology

Evaluators analyzed the responses of 42 faculty at 18 internal medicine residency programs who were acting as preceptors in ACT to four online surveys in 2003, prior to the four-week ACT course, and again at the end of their precepting activities.

Researchers also asked survey respondents to identify aspects of ACT that they felt were most and least effective.

In the pre-initiative phase, 83 percent of faculty completed attitude and self-assessed competence surveys, and 88 percent completed a knowledge test.

In the post-intervention phase, 43 percent of faculty completed the attitude and self-assessed competency surveys and 69 percent completed the knowledge survey.

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www.actcurriculum.org. A password-protected website of the Achieving Competence Today (ACT) initiative, it describes the ACT curriculum and its context in United States health care and, for registered users, it provides a non-copyright, downloadable and revisable ACT curriculum.