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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

1. **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)

2. **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)

3. **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)

4. **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)

5. **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)

6. **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)

7. **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)

8. **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.