

Grant Outcomes Report

Using Telemedicine to Diagnose and Treat Patients in Rural Upstate New York

I. Executive Summary

Patients who live in rural areas may be unable to get timely, high-quality medical care when they experience an acute medical crisis. The goal of this project was to explore and develop the use of telemedicine across Bassett Healthcare's (Bassett) system of care in central upstate New York. In partnership with the New York State Department of Health (NYSDOH), Bassett developed a Telestroke initiative to enable suspected stroke patients in rural areas distant from the Stroke Center at Bassett's central facility in Cooperstown to receive specialty consultation without having to be brought there. Under a grant from the New York State Health Foundation (NYSHealth), Bassett built upon its Telestroke initiative and explored treatment of other acute, emergency uses of the remote technology it had purchased and installed as part of the Telestroke endeavor. The technology proved to be workable only for stroke patients—Bassett found that the intended additional acute uses of remote technology would not work using telemedicine. Bassett is now working toward instituting use of telemedicine with non-acute medical interventions.

II. The Problem

The American Heart Association has issued guidelines on the treatment of strokes, most recently in 2007. Following these guidelines, treating physicians have only two hours to decide what type of stroke a patient has suffered (whether caused by a bleed or a blood clot), and which treatment to apply. While the right diagnosis and treatment can lead to improved outcomes for the patient, the wrong choice can make matters worse. Patients living in rural areas may lack timely access to specialty care and diagnostic procedures in times of medical crisis, such as stroke. Web-based telemedicine—the use of information and telecommunications technologies to provide and support health care when distance separates the participants—offers the potential to provide services to patients and communities that do not have ready access to specialty care.

To address this problem, NYSDOH initiated a Telestroke initiative early in the 2000s. According to NYSDOH, “[t]elemedicine offers great promise for the practice of medicine. Its potential for addressing access to information, providing expert advice readily, offering standards of quality, and assembling

KEY INFORMATION:

GRANTEE

Bassett Healthcare

GRANT TITLE

Expanding Access to Specialty Care in Rural Hospitals through Telemedicine

DATES

January 2007 to July 2009

GRANT AMOUNT

\$977,586

comprehensive patient databases are among the type of innovations yet to be realized...” The practice of telemedicine includes the following characteristics:

- the geographic separation between two or more participants and/or entities engaged in health care;
- the use of telecommunication and related technology to gather, store, and disseminate health-related information; and
- the use of electronic interactive technologies to assess, diagnose, and/or treat medical conditions.

At the outset of the Telestroke initiative, the number of certified stroke centers was low in rural areas of New York State. NYSDOH sought partnerships with hospitals and hospital systems to take on a Telemedicine Stroke Program modeled after a program in Georgia (REACH, Remote Evaluation of Acute Ischemic Stroke—the name of the program and the technology that was developed as part of the overall program) that would allow New York’s rural hospitals access to stroke and neurology services through telemedicine. Bassett, with grant support from NYSHealth, entered into a Telestroke partnership with NYSDOH.

III. Grant Strategy

Under this grant, Bassett explored the use of telemedicine across its rural system of care in central upstate New York by building on the Telestroke initiative and attempting to use the technology for other acute, emergent medical conditions. A rural health delivery system comprising a central hospital and four affiliated hospitals at the time the project began (five hospitals in 2010)—with nearly 250 salaried physicians, 23 regional clinic sites, and 13 school-based pediatric clinics—Bassett seemed to be the ideal place to implement a telemedicine system aimed at expanding access to emergency specialty care.

EXPECTED OUTCOMES

BASSETT HOPED TO EFFECT A TRANSFORMATIVE CHANGE IN THE DELIVERY OF HEALTH CARE IN MUCH OF NEW YORK STATE THROUGH THIS PROJECT. SPECIFICALLY, THE PROJECT TEAM PROPOSED THE FOLLOWING OUTCOMES AS A RESULT OF ITS WORK:

- ▶ implement the Telestroke initiative at its four affiliated hospitals;
- ▶ expand the telemedicine capabilities to incorporate cardiac evaluations and assessment of trauma and other cases in emergency rooms in the four affiliated hospitals;
- ▶ use Web-based home evaluations of cardiac patients with congestive heart failure to expand the continuum of care;
- ▶ expand the stroke, cardiac, and trauma telemedicine to two additional hospitals by the end of 2007; and
- ▶ expand clinical consultative services in the inpatient unit, intensive care unit, and other sites by mid-2008 in affiliated hospitals.

The need for expert specialty consultation in rural parts of New York State extends beyond stroke management to trauma, cardiac care, and other emergencies. Bassett attempted to use several different telemedicine technologies to meet the needs of all three kinds of patients. As proposed, the project initially included a rigorously designed assessment process to guide health policy in this field.

Bassett foresaw a hub-and-spoke arrangement with its main hospital in Cooperstown—the “hub”—providing specialty teleconsulting services for patients at its affiliates—the “spokes”—O’Connor Hospital in Delhi, Cobleskill Regional Hospital, Little Falls Hospital, and Tri-Town Regional Hospital in Sydney. Bassett implemented the Telestroke initiative in partnership with the NYSDOH.

IV. Grant Activities

Once underway, Bassett’s project team realized that its original plans required considerable modification—the team encountered many challenges that limited its ability to fully implement a telemedicine system.

First, Bassett sought to build on a 1990s effort to introduce telemedicine to its far-flung clinicians and patients. That experience, which relied on technology that was primitive by current standards, was a negative one for doctors and nurses, leading to resistance to the current endeavor, according to the project director.

Second, because the initial plan was to use telemedicine to manage remote patients presenting with acute emergencies, buy-in from cardiologists and trauma specialists at the spoke hospitals was essential. However, both groups of specialists found that it was better to send these patients immediately to Bassett in Cooperstown, rather than to interact with the hub hospital remotely. Early in the course of this activity, both emergency physicians and cardiologists reviewed the literature and concluded that telemedicine was not appropriate for these acute clinical problems.

Third, telemedicine proved to have limited potential for emergency care. The REACH system was not built to interact with other technologies, and Bassett found REACH to be technically inadequate for any application other than stroke. To consult with physicians at Cooperstown on other acute problems, such as broken bones, required additional or different equipment. Another constraint proved to be the State’s emergency medical services system: emergency personnel are required to take stroke patients to the nearest stroke center. These hospitals have neurologists, a CAT scan, and pharmacy services, which are beyond the capacity of the smaller spoke hospitals. Although NYSDOH was Bassett’s partner in the telemedicine project, NYSDOH rules limited Bassett’s ability to fully implement the initiative.

Finally, additional State regulations introduced another challenge: New York State does not allow a hospital to transfer its credentialing approval to any of its affiliates. For each physician to deliver teleservices, a separate credentialing process is required at each of the affiliate sites. The credentialing process includes review of educational degrees and completed training, but also a separate assessment of the individual’s performance at that site, which must be approved by the hospital board and renewed on a regular basis. These requirements severely constrain the possibilities for remote consultation on

severe, acute conditions. If there is no neurologist available to assess a stroke patient and no cardiologist available to assess a heart patient, treating these patients at the smaller hospitals is a potential violation of the State's regulations.

Therefore, the project went from one with a definite plan of using the REACH telemedicine technology for stroke, cardiac, and other emergent traumas to a more opportunistic plan where the team searched for other potential uses, such as evaluation of chronic conditions. The project's aims switched to the following:

- implement the Telestroke initiative at four affiliated hospitals and one unaffiliated hospital in the region;
- establish and maintain Telestroke capabilities at each of these sites through regular drills and periodic educational efforts;
- explore other potential applications of the REACH Telestroke system;
- explore and purchase alternative and more suitable telemedicine systems;
- identify the needs of affiliated sites for telemedicine services;
- gauge the interest and capabilities of Bassett clinicians regarding provision of services via telemedicine;
- define the financial implications of teleconsultations for individual practitioners and the overall system;
- build the telemedicine infrastructure and procedures within Bassett to support delivery of teleservices and eventually evaluate this process;
- market selected teleservices to physicians and nurses at affiliated sites; and
- expand telehealth services available for chronic care in the region via home care applications.

Bassett explored a number of issues in pursuit of a smoothly functioning telemedicine system:

TELESTROKE: At each of the targeted spoke hospitals, a Bassett neurologist trained the medical and nursing staff on the proper management of early stroke and the use of thrombolytic (blood clot dissolving) agents. Project staff developed detailed policies and procedures for use of the REACH Telestroke system at each site. Bassett enhanced coordination with radiology and emergency departments. A spoke site was considered "established" once it had completed four consecutive flawless drills of how to handle mock stroke patients using the REACH system.

EQUIPMENT: According to John May, M.D., Scientific Director of the Bassett Research Institute, the REACH system works well, but only with stroke patients, in part because it does not provide needed interconnectivity with other telemedicine systems (e.g., Polycom or Tandberg, both video conferencing technologies). Therefore, project staff decided to invest in Polycom and Tandberg systems to bolster the REACH system's utility at Bassett.

CARDIAC AND TRAUMA APPLICATIONS: Although the hospital had invested in the newer, more adaptive technology, initial working groups with both emergency physicians and cardiologists determined that immediate transport to Cooperstown was preferable to the delays inherent in pausing at a regional site to evaluate either acute trauma or cardiac patients via telemedicine.

NEEDS ASSESSMENT: Once it was clear that cardiac and trauma care specialists found the technology insufficient for their purposes, the project team began searching for another area of medicine where physicians would be receptive to using telemedicine to treat their patients. In a number of focus group discussions, conferences, and individual interviews, doctors and nurses at the affiliate sites provided information on the needs they believed telemedicine could best address at their sites.

HOME CARE APPLICATIONS: Bassett collaborated with At Home Care (AHCare) in nearby Oneonta, NY (an affiliate of Bassett Healthcare, serving patients in Otsego, Delaware, Chenango and Herkimer Counties), to explore opportunities for managing home care patients with chronic conditions.

POLICIES AND/PROCEDURES: Project staff found that to build an infrastructure that would enable teleconsultations, numerous procedures and agreements must be worked out with ward clerks, social workers, and nursing staff at each individual site. This was not something project staff had anticipated.

INTERNAL MARKETING: Project staff held several meetings with Bassett clinicians and clinical chiefs seeking support and commitment for telemedicine services. The project team sought additional input regarding anticipated barriers and additional applications of telemedicine.

FINANCIAL BARRIERS: The project established a work group within the Bassett Finance Department to examine reimbursement challenges. This work group initiated discussions with several third-party payers to explore the likelihood of appropriate reimbursement for teleservices.

EVALUATION: The team spent considerable time early in the project defining key data to be collected as part of the planned evaluation. The evaluation was meant to assess the functionality of the telemedicine system once it was in place, for both doctors and patients. The evaluation was meant to measure whether the initiative changed the plan of care, led to more admissions, and the number, type, and technical quality of tele-interactions.

FUNDING AND RATIONALE

This 2007 request for proposals sought to have impact on a limited number of strategic problem areas facing the New York health system through coordinated, targeted grantmaking initiatives. NYSHealth invited organizations from around the State to request support for initiatives to address any topic related to the Foundation's three broad mission areas:

- ▶ expanding health insurance coverage to State residents who cannot afford to purchase their own coverage or whose coverage is inadequate;
- ▶ increasing access to high-quality health care services for underserved people; and
- ▶ improving public and community health by educating New Yorkers about health issues and empowering communities to address them.

This project addressed the second of the three mission areas.

V. Challenges

In their efforts to garner input from staff at all levels, project staff found that some consultations required input from medical directors, pharmacy committees, and other affected committees and individuals at affiliated hospitals. Pursuing this input delayed Bassett's progress on implementation, which in turn led to considerable frustration with regard to acute care applications in the telemedicine initiative. According to Bassett's final report to NYSHealth, "the process of introducing this technology into common practice has moved at a glacial rate."

Reimbursement proved to be a serious challenge, as insurance payments went to the site to which patients were ultimately transferred rather than to the spoke hospitals, which might have administered a thrombolytic agent as part of the Telestroke process. This created a strong disincentive for spoke hospitals to participate in telemedicine. In addition, according to the project director, New York State does not require third-party payers (e.g., health insurers) to reimburse for teleconsultations, further discouraging interest in telemedicine at spoke hospitals. The inability to reap reimbursement for remote consultations meant that doctors at the spoke hospitals had no financial incentives to participate in the initiative.

VI. Key Findings

The net result is that Bassett shifted from an acute stroke, cardiac, and trauma focus to use of telemedicine to manage chronic conditions. While the jury is still out on whether telemedicine can work to manage these other conditions, Bassett continues to work on the best application of telemedicine in its system. It is also continuing its work on the Telestroke initiative.

In detail, Bassett achieved the following:

1. Four affiliates (Delhi, Sidney, Cobleskill, and Little Falls) and an independent regional hospital (Community Memorial) were qualified to participate in the Telestroke initiative, meeting the project's revised objective. As of 2009, each site had a system of monthly drills and periodic educational opportunities in place. However, the number of consultations—15 in total throughout the Bassett system through June 2009—was lower than hoped, because of state regulatory requirements that Emergency Medical Services (EMS) transport stroke patients to the nearest Stroke Center. The spoke hospitals were able to provide Telestroke services to the 15 patients because sometimes EMS does not recognize stroke as the likely diagnosis, according to the project director, and some patients get to the closest hospital on their own.
2. Bassett placed portable video conferencing carts from Polycom at several locations in Bassett's Cooperstown facility, and at each of the affiliates, to facilitate access to consulting physicians in the emergency room, inpatient areas, and the outpatient clinic. It subsequently added Tandberg equipment to enhance equipment compatibility. This will allow Bassett to expand beyond stroke in its remote treatment of patients.



3. The project placed 17 Phillips home monitoring units with Bassett's affiliated home care service, AHCare. AHCare clinicians remotely visit patients seven days per week and identify symptoms of deteriorating health status. According to a report to NYSHealth, the principal diagnoses sensitive to telehealth monitoring are: heart failure; Chronic Obstructive Pulmonary Disease; uncontrolled diabetes; and hypo/hypertension. At Home Care's data on congestive heart failure patients monitored with these systems document hospital readmission rates that are roughly half of the national average.
4. The infrastructure necessary to support teleconsultations, built on procedures developed with ward clerks, social workers, and nursing staff, was completed at Cobleskill Regional Hospital.
5. The project director reports holding numerous meetings with Bassett clinicians and clinical chiefs seeking support and commitment for telemedicine services. The project consistently sought additional input regarding anticipated barriers and additional applications.

A telemedicine work group from Bassett's Finance Department surveyed leading third-party payers and determined that reimbursement from most private sources was unlikely in the current New York State regulatory environment. Members of the Bassett telemedicine team had several discussions with the New York Office of Rural Health Policy, where there was recognition that lack of reimbursement is a significant barrier to the use of telemedicine. However, Medicare and Blue Cross of Rochester have been notable exceptions to this problem; both reimburse for teleconsultations.

As a result of its needs assessment, the project team revealed far greater interest in non-acute, non-emergent uses of telemedicine, such as for dermatology, psychiatry, and wound care.

Because the system has not yet been fully implemented, the evaluation has been set aside. However, the project team plans to collect qualitative data in randomly selected telephone follow-up interviews with both clinicians and patients.

VII. Lessons Learned

TECHNOLOGY USED FOR TELEMEDICINE MUST BE FLEXIBLE ENOUGH TO MEET THE DEMANDS OF THE PLANNED USES. Had Bassett wanted to use the REACH system only for stroke, it might have worked in New York State, just as it does in Georgia. However, the REACH technology works only for stroke, and Bassett's plans were more far-reaching. Therefore, Bassett found that it had invested in an expensive technology that would not allow it to work with cardiac patients or others presenting with acute emergencies.

Providing telemedicine services, particularly across different institutions, involves considerably more than the placement of equipment. The project team encountered a level of detail and variety of unanticipated obstacles it characterized as "mind-numbing."

INDIVIDUAL AND INSTITUTIONAL INERTIA IS CONSIDERABLE.

Regardless of interest among numerous physicians, it is essential to identify “champions” who will make inclusion of telemedicine in their practice a top priority. The project team exerted great effort to enlist such physician champions, but was unable to recruit many. Skepticism and lack of commitment were particularly evident among physicians. The nursing staff manifested more creativity and initiative than the physician staff in understanding and pursuing the potential benefits of telemedicine. The project director concluded that the team should have involved some of the key members of the medical staff from the beginning of the project, rather than trying to recruit them late in the process.



SUPPLY AND DEMAND MATTER. The areas for telemedicine consultations most requested by the participating external sites were overwhelmingly psychiatry and dermatology. Unfortunately, these are among the areas of greatest demand in the Cooperstown hub as well. These clinicians saw little benefit in taking on Telemedicine consultative responsibilities at a time when they were already clinically oversubscribed. In addition, leaders in both the psychiatry and dermatology groups exhibited a general skepticism regarding the remote delivery of their services.

MARKETING TELEMEDICINE IS ESSENTIAL. According to the project director, “we assumed that the emergency services application would be a ‘slam dunk’ without recognizing the loss of control perceived by the current Emergency Department midlevel staff. We generally assumed that because there was a good sensible application that people would change their behavior to adopt it. Clearly we should have been marketing better.”

VIII. The Future

Bassett is actively exploring providing skin and wound care services via telemedicine to Cobleskill Hospital and to Valley Health Services, an affiliated skilled nursing facility in Herkimer, New York. The possibility of conducting remote sleep apnea evaluations and other pulmonary services is under discussion. The endocrine team is working with Little Falls Hospital on providing diabetes support; administrators are reviewing using telemedicine for patient diabetes education. Plastic surgery and dermatology have shifted to a site several miles from the main campus, and a new affiliate 25 miles away recently joined the Bassett network; the project team therefore anticipates additional need for teleconsultations. Telelinkage with the Little Falls dialysis unit will become active when the unit opens in late 2010. The project team is also considering using telemedicine for psychiatry, post-operative interactions between surgeons and patients, and pediatric asthma. Last, the team is exploring using telemedicine with migrant health clinics elsewhere in upstate New York.

Bassett continues to encourage applications from all care providers regardless of their department. It has a small budget for this purpose via the Bassett Research Institute, and is exploring the best long-term administrative home for telemedicine within the Bassett system.

BACKGROUND INFORMATION:

ABOUT THE GRANTEE

Bassett Healthcare and affiliates is a system of physicians, providers, hospitals, and community health centers in eight counties, covering 5,000 square miles with a mission of patient care, teaching, and research. Mary Imogene Bassett Hospital, the foundation for the Bassett network, is a 180-bed, acute care inpatient teaching facility in Cooperstown, New York. The hospital maintains an affiliation with Columbia-Presbyterian Medical Center. The Bassett Clinic is located on the same campus as the main hospital and provides outpatient primary and specialty care. The affiliated Bassett Research Institute pursues epidemiologic and population-based studies, including a longitudinal health census of the region conducted in 1989 and 1999.

Bassett Healthcare provides acute inpatient care at its affiliated sites: O'Connor Hospital in Delhi, Cobleskill Regional Hospital, and Little Falls Hospital. Another Bassett affiliate, Tri-Town Regional Hospital in Sidney, offers around-the-clock emergency care. Bassett specialists provide outpatient specialty care throughout the region at many of the health centers and Bassett-affiliated sites.

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