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WHEN A GOOD FIT DOESN'T ALWAYS SUCCEED: EXPLORING TELEHEALTH IMPLEMENTATIONS IN THREE NURSING HOMES

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***Abstract:** Video conferencing and related technologies are exploding in popularity as a means to communicate over long distances. Is this a viable way to receive medical treatment? We follow a top administrator of a company that owns many nursing homes, as she explores telehealth implementations in a pilot study in some of the nursing homes. We focus on three nursing homes, across multiple initiatives, and report their mixed success. What are the key differences among the initiatives that lead to success or failure?*

Keywords: Telehealth, Telemedicine, Teaching Case, Case Study, Implementation, Multi-stakeholder, Organizational Routines

A teaching note is available for this case study. Instructors should contact one of the first two authors for a copy.

WHAT IS TELEHEALTH?

In the twentieth century companies like Skype made video conferencing cheap and feasible for much of the population [1]. Not only is internet conferencing taking over more of the voice communication market each year [2], but most software options allow users to communicate by sharing live audio and video feeds. If video conferencing is a sufficient tool for maintaining contact with family or discussing a product with a vendor, is it a sufficient tool for receiving a medical diagnosis from a physician?

In many circumstances, the answer may be yes. Telehealth¹ is defined by Bashhur [3] as, “a system of care that uses telecommunications and computer technology to substitute for face-to-face interaction between patients, physicians, and/or non-physician providers in various combinations.” It is not a new concept, as medical advice and professional opinion have been transmitted via telephone, fax, and computer systems for decades. However, more and more patients are experiencing telehealth directly, which allows them to interact with a medical professional who may be located at a distance.

Using video conferencing software and a secure internet connection, patients in one location are able to connect to medical professionals in a different location for a medical consultation. Physicians, often aided by an on-site nurse or other medical professional that acts as the “presenter” of the patient, are able to see and hear the patient. To aid in the assessment, specialized scopes are available that allow the physician to remotely listen to the patient’s heart and lungs (stethoscope) and see into the ear, nose, or throat of the patient.



Figure 1: Nurse presents patient to a physician via a telehealth consultation

A SHIFTING POPULATION

In 2030, when the last wave of people born in the Post-World War II baby boom² reach age 65, over 20% of the United State’s population will be comprised of adults over 65. In contrast, only 4% of the population was 65 and older in 1900 [4]. Surveys taken in 2000 show Italy is the demographically oldest of the world's major nations, with more than 18 percent of its population already over 65 years of age [5]. Europe will continue to lead the world over the next few decades in high populations of older adults. This dramatic shift in the age distribution is international (summarized in Table 1).

One of the biggest challenges of this demographic change is providing medical care to older adults when the ratio of caregivers to patients is constantly shrinking. Even as nursing homes serve more patients, medical professionals are in shorter supply, especially specialized physicians that can be found locally. This problem is compounded in rural areas with limited medical resources.

¹ Telehealth and telemedicine are used almost interchangeably in the literature. We chose to use telehealth in this case study.

² The demographic of people born between 1945-1965 was much higher than the decades that preceded or followed. In the United States, this generation is often referred to as “the baby boomers” but the high birth rate during those decades was an international phenomenon.

Region	Year	65+ Years (%)
Europe	2015	16.3
	2030	23.1
North America	2015	14.8
	2030	20.3
Asia	2015	7.7
	2030	11.9
Latin America/Caribbean	2015	7.4
	2030	11.6
Near East/North Africa	2015	5.2
	2030	8.1

Table 1: Estimated Percentage of Population of Older Adults by Region [5]

USING TELEMEDICINE IN NURSING HOMES

A seemingly obvious answer to this problem is to use telehealth inside the nursing homes to provide medical consultations. Ms. Simmons is part of the executive team that runs a large group of nursing homes, most of which are in rural areas in the Southeastern United States. She has selected 10 nursing homes to participate in a telehealth pilot project. Each home has a telehealth medical unit installed in the facility and the staff at each home receives technical training on how to use the telehealth unit.

Historically, telehealth has been met with mixed success, and most implementations do not succeed [6]. We present the stories of three nursing homes in Ms. Simmons' pilot project and explore how telehealth is (and is not) currently being used successfully. The patients across all projects have been very receptive to telehealth, but the decision to use the telehealth unit for medical care rests with the medical staff (nursing home staff and medical physicians). Therefore, we focus on the perspective of the decision makers (nursing home staff and physicians).

ARCADIA NURSING HOME³

Ms. Dhillon has been the director of nursing at Arcadia for many years and understands the needs of the special population. Transporting older patients is always problematic. In an emergency, a call to 911 (emergency services) sends an ambulance to pick-up a patient and take him to the closest emergency room, which may be 30 miles (48 km) or more away. Inside a local emergency room, the patient may or may not receive access to the appropriate specialist they need. For example, many rural hospitals do not have dialysis equipment, yet patients with known kidney issues are still initially sent to the local emergency room for evaluation and are then forwarded on to a facility that has the appropriate staffing and equipment to address the problem. If the patient needs to see a specialist (example: dermatologist,

³ All names of physicians, nursing home employees, and nursing home facilities have been changed to protect their identities.

cardiologist, psychiatrist, etc.) then transportation is even more complicated. Non-emergency transports can be arranged, but these vans with specialized equipment to transport the elderly must be reserved several days in advance. The vans take many patients to many different locations during their route, so even if a specialist is only an hour away and the appointment is only expected to take 15 minutes, a patient might be on the van for 3-6 hours that day. Pressure ulcers, exhaustion, bruising, and risk of injury from falling or being dropped are all escalated during transportation. However, in Arcadia's case, things are even more complicated. About 90% of Arcadia's patients have been diagnosed with some form of mental disorder. This means many patient incidents are caused by or complicated by psychiatric episodes, and the local facilities and transportation methods are not equipped to handle a patient with a psychiatric disorder.

Emergency Consultations

The parent company put telehealth into Arcadia and explained it could be used for a variety of medical consults. The primary focus at the time was to decrease emergency transports by encouraging Arcadia to connect via telehealth to physicians in a distant urban hospital for a consultation before sending a patient to a local hospital. The idea was that in many situations a transport was unnecessary, and these remote emergency room physicians could recommend treatments that could be provided inside the nursing home. By receiving the diagnosis and treatment advice via telehealth the patient would avoid a risky and expensive trip. The large urban hospital has 79 doctors on staff, and none has a formal relationship⁴ with Arcadia.



Figure 2: Emergency vehicle in front of a nursing home

Ms. Dhillon recalls her first thoughts upon seeing the system, “I was awed by it, because we’d already seen it on science fiction, with people talking to each other on the screen and we were speechless. And I

⁴ In the Southeastern state of the United States, where the nursing homes are, physicians must go through a process of “credentialing” with the nursing home before being allowed to directly prescribe medications and medical treatments to a patient. Without being credentialed, the emergency room doctors are only making suggestions to the home that have to be approved by the patient’s primary physician.

guess we thought ‘gee, this is a lot to learn.’ But it’s not a lot to learn. You just have to know how to work the computer and it’s there. It’s right there.”

The telehealth unit was placed in a large, multi-purpose room inside Arcadia. Using it is voluntary, and while technical training was provided, no guidelines were given to Arcadia about what types of situations to use their new telehealth system.

Each nursing home has a local physician that serves as the home’s medical director. Traditionally, the medical director is also the primary physician to the majority of the patients in the nursing home. Arcadia’s medical director, Dr. Smith, lives and works nearly 40 miles (65 km) away from the nursing home, yet is still one of the closest physicians available due to Arcadia’s rural location. Serving as the primary physician to most patients in the nursing home, Dr. Smith visits the home twice a month. He is contacted by phone in the case of a medical incident by the nursing home, and is often the person responsible for recommending emergency room treatment for a patient. He is also responsible for approving the use of telehealth for a patient. However, Dr. Smith developed strong opinions against using telehealth to connect to the urban hospital almost immediately.

“I don’t think they can make any better decision than I can on whether my patient needs to go to the emergency room or not,” states Dr. Smith. He continues to explain that he can decide on their medical treatment, or if they need to go to an emergency room, by a simple description of the patient taken as a note, by his assistant, over the phone. Further, he feels that he knows his patients so well that his decision (even based on a note) would be better than what a physician in the urban hospital can decide via a telehealth consultation. Without Dr. Smith’s agreement to authorize any telehealth consultations for emergency situations, Arcadia was not able to utilize the new telehealth technology and it remained untouched for months.

Psychiatry

For years, a government funded program provided counseling and psychiatry professionals to patients with mental disorders in nursing homes. Arcadia was a heavy consumer of this service in order to receive the necessary care for their high percentage of patients with mental disorders. In 2009, funding for the program was removed and Arcadia was without any local psychiatric support. They turned to their new telehealth technology for the answer.

Dr. Tong, a psychiatrist practicing 100 miles (160 km) away, agreed to see their patients with mental disorders via telehealth consultations. One of Ms. Dhillon’s employees describes the new solution as, “He is a comfort. It’s a security to know that you have him there when you’re dealing with the type of patients that we have.”

He visited Arcadia at the beginning of the arrangement, and still visits his patients, in-person, approximately once every 6 months. All other visits are conducted over the telehealth unit. Ms. Dhillon explains, “I think what has happened is that Dr. Tong has formed this relationship. And they know him, they see him on TV, he jokes, they smile, they talk. And it’s just another way of communicating. They’re seeing him again...and they have a relationship. I think it sort of eases things because even patients you think won’t respond-to him - they’re smiling. And he’s saying things like, Look at me. I’m the man in the TV.”

Dr. Smith agrees that the telehealth medium seems to work well for psychiatry and defers to Dr. Tong’s opinions on mental health diagnoses. Dr. Tong can also prescribe to patients at Arcadia directly. He is available to Ms. Dhillon in situations where a mental disorder creates an emergency. Although the patient visit is conducted via the telehealth unit, Ms. Dhillon and her nursing staff can directly schedule all appointments with Dr. Tong via phone calls to his office, on an as-needed basis.

Current Situation: Arcadia continues to use their telehealth unit on a regular basis, but only to provide psychiatric support to their specialized population via consultations with Dr. Tong.

BALDWIN NURSING HOME

A telehealth unit was placed at Baldwin about the same time as in Arcadia. Like Arcadia, it could be used in a variety of medical consultations, but the same emphasis was placed on using it to connect to the urban hospital for medical consultations before sending patients to the local emergency room. Baldwin had several consultations with the urban hospital immediately after the unit was installed.

Emergency Consultations

Shortly after the unit was installed the staff at Baldwin reported many positive experiences. Dr. Arnold, the primary physician at Baldwin, thought using it was generally a good idea. He rarely suggested using telehealth himself, but the nursing home found him agreeable most of the time if they suggested it to him. He authorized each consultation before Baldwin connected to the urban hospital. Baldwin's nursing staff reported that they were always connected to an emergency room physician at the urban hospital within about 5 minutes of requesting the consultation and the physicians there were very polite. Ms. Thomas, their director of nursing, explains, "I would rather use [urban hospital's] consults because it's easy to get on with them and you don't have to schedule around anything. If I need it now, usually, 9 times out of 10, I can call and set it up, where with Dr. Arnold's services, you do have to work around his schedule and the patient's."

Although Baldwin is considered to be in a rural location, it happens to be next door to the local hospital. Even in close proximity to this emergency room, Baldwin felt using the urban hospital and avoiding transportation to the emergency room would result in fewer pressure ulcers.

"For me, it's about reducing unnecessary ER trips. Keeping people that have pressure ulcers from having to be transferred to an ER to sit there... I think the work that we've tried to do to prevent pressure ulcers and to heal them sooner is probably what got fire lit under us. This was just the next step. This was one more thing that we could do to work on that project as well as reduce unnecessary hospitalizations," Ms. Thomas explains. Pressure ulcers (also known as bed sores) form when pressure against the skin causes tissue to die from reduced blood supply. Older adults are especially prone to them. Nursing home staff is trained to turn patients every few hours and to position them to avoid pressure ulcers, but emergency room doctors and nurses are not attuned to this.

Psychiatry

Baldwin also utilized the government funded program to provide counseling and psychiatry support to some of their patients. While Baldwin has fewer patients with mental diagnoses than Arcadia, psychiatric care is still necessary for many of their patients. However, when the government program lost funding, Baldwin did not turn to telehealth. Ms. Thomas explains that there was already a psychiatrist that visited the facility once a month. Patients that were previously being serviced by the counselors in the government program now use this psychiatrist to provide their medical care.

Current Situation: Despite favorable opinions of the potential of the unit, the telehealth unit is generally unused at Baldwin. A follow-up phone call with the nursing home administrator confirms that the ER consults have not been popular. She explains, "You know, I can't quite put my finger on why, but we're not using the ER consults. I'm not a nurse, but they're just not comfortable with it. Once it's been determined that the patient needs to go [to the emergency room] they're not comfortable with calling up [the urban hospital]."

CALDWELL NURSING HOME

Nearly a year after the telehealth units were placed at Arcadia and Baldwin, Ms. Simmons placed a telehealth unit in Caldwell to continue the pilot project. However, the recommended focus of how to use the telehealth unit had changed, and several initiatives were immediately recommended to Mr. Cahill, the nursing home director.

Emergency Consultations

While connecting to the urban hospital is still a possibility, it was not emphasized as a use of Mr. Cahill's new telehealth unit. In fact, the medical director of Caldwell, like Dr. Smith of Arcadia, said he is not interested in using the unit for emergency room consultations. Mr. Cahill talked to one of the physicians at the urban hospital they would remotely connect to about the emergency consultation use and recalls, "[the physician at the urban hospital] says 60% of the time he's going to tell the nurse to send them to the emergency room. So I mean, if 60% of the time they're going to send them out anyway, I mean that's just...extra work they did when they're just going to send them out [anyway]."

Psychiatry

Like the other nursing homes, Caldwell also suffered the loss of the psychiatry and counseling services provided by the government program that was discontinued. Having seen the successful model in nursing homes like Arcadia, the parent company recommended the telehealth solution to Mr. Cahill and put him into contact with Dr. Jones, a psychiatrist that implemented a situation similar to Dr. Tong's at Arcadia. Mr. Cahill explains that the psychiatry solution is working well and efficiently, "[Dr. Jones] will see like maybe six or eight at a time [as a telehealth consultation] and then we'll schedule another time for him to do another six or eight."

Wound Care

A common medical condition in elderly populations is a wound that has trouble healing. As such, wound care is a specialty that is in high demand in nursing homes and the number of active wounds is a quality health metric that is carefully monitored. Ms. Simmons' parent company of the nursing home realized that they needed a better wound care solution in Caldwell, so they came to an agreement with Dr. Harris, a wound care physician that lives 100 miles (160 km) from the Caldwell nursing home. Dr. Harris wanted to use telehealth from her home to provide medical consultations to elderly patients, so the parent company of the nursing home arranged for her to service several of their nursing homes. Caldwell was one of them.

Mr. Cahill explains that Dr. Harris visits the site in person one day a month, but every week she sees all open wound care cases via a routine Friday afternoon telehealth consultation. Happy with the results, Mr. Cahill believes the arrangement is working well because his patients receive the physician's attention and the appropriate documentation. In traditional medical consultations, where the patient travels to see a specialist, it can take weeks for the nursing home to receive the medical treatment advice and necessary documentation.

Caldwell's wound care nurse echoes this positive sentiment by saying, "It's better because see she looks at them every week. So if anything happens she'll catch it weekly." Scheduling is easy because Caldwell has a standing appointment with Dr. Harris every Friday afternoon. The wound care nurse also explains that she learns something almost every week about how to take care of the wounds from Dr. Harris and enjoys being able to talk to the specialist directly instead of communicating via notes in the patient's file.

Current Situation: Although Caldwell has had the telehealth unit the least amount of time, they are using it more, on a monthly basis, than nearly any other nursing home. Both psychology and wound care via telehealth are now part of Caldwell's medical care routines. Caldwell has also successfully used the

telehealth unit for a dermatology consultation. Caldwell is willing to expand their use of specialty consults via telehealth.

CONCLUSION

Ms. Simmons considers the pilot project to be a work in progress, and is hopeful about continued growth in telehealth use. As the company will add telehealth units to additional rural nursing homes, Ms. Simmons tries to understand the factors that have led to success and failure across the various telemedicine initiatives and across nursing homes. Eager to get the most out of the investments, the company hopes to learn from these pilot implementations so that it can replicate successes to other nursing homes.

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