

Transforming Patient Care: Engaging Patients Through Access to Information and Amenities

How Northern Westchester Hospital and Allen Technologies are establishing new benchmarks for patient-centered care

Interactive Patient Engagement Solutions

Today's automated world has created new expectations for service, connectivity, and convenience. Airline passengers expect online check-in, in-flight entertainment, and in-air Wi-Fi connectivity. Budget hotel guests expect check-in, check-out, and room-selection options on their tablets while luxury hotel regulars have come to anticipate entire "smart rooms" with the ability to automate everything from temperature control to window curtains.

Is it any surprise that hospital patients expect an interactive, connected experience as well?

This case study demonstrates how Northern Westchester Hospital (NWH) in Mount Kisco, NY, has partnered with Allen Technologies to set new standards for patient-centered care. By deploying Interactive Patient Engagement solutions, NWH has empowered patients with in-room tools to improve their hospital stay and remain active in their own recovery.

An extended hospital stay can be a stressful and confusing experience. At the heart of the problem is an inefficient legacy environment that makes it difficult for patients to communicate their needs to those in charge of their care. Patients often resort to the nurse call button even for the simplest of tasks, such as bed adjustments or placing food orders.

There is also the all-too-real problem of information overload. During the course of a typical hospital stay, patients are presented with a wealth of information in a variety of ways and from a variety of sources: nurses, doctors, technicians, and registered dietitians, just to name a few. Patients are asked to review and make decisions based on information ranging from educational content to staffing changes, medical procedures, medications, menu selections, entertainment options, discharge procedures—the list is simply enormous. For patients and family members it can be a lot to take in, let alone understand. Additionally, the challenge of getting data related to the patient's medical condition has been an ongoing issue.

Poor communication and inefficient processes have a negative impact on patient care and overall patient satisfaction. The Patient Protection and Affordable Care Act introduced a new model of

value-based healthcare that placed financial incentives on providers to demonstrate positive health outcomes and patient satisfaction, transforming "patient-centered care" from a buzzword to a requirement. Meeting patient needs, offering an enhanced patient experience, increasing efficiency and fulfilling requirements of the Affordable Care Act became pieces of the same puzzle. As hospitals and other healthcare institutions seek solutions for those models, it has become apparent that another piece of the puzzle is needed—technology—and with it, the corporate sector.

Innovation in Care Delivery

Northern Westchester Hospital (NWH) has long recognized the need to more fully engage patients during a hospital stay—not only to increase patient satisfaction but to improve the overall quality of care. Widely recognized for its state-of-the-art technology and award-winning care delivery model, NWH has received recognition from such prestigious entities as US News and World Report, Magnet, and The Joint Commission on Accreditation of Healthcare Organizations. In addition, NWH has been recognized as a Designated Planetree Patient-Centered Care Hospital with Distinction, the first hospital in New York State and one of the first five in the country to receive that designation.

Indeed, NWH was the first and only hospital in New York to receive a five-star rating from the Centers for Medicare & Medicaid Services when its patient satisfaction ratings were launched. The hospital stresses patient-centered care, and when its leaders wanted to further improve the patient experience, they began to seek out a high-tech solution. That search brought them together with Allen Technologies.

Founded nearly 40 years ago to meet patient demand for in-room televisions, Allen Technologies has a wealth of experience with healthcare



Hospital patients have come to expect an interactive, connected experience, and thanks to Allen Technologies' interactive patient engagement solution, patients at Northern Westchester Hospital have an experience that meets their expectations.

and technology for meeting patient needs. The Austin, Texas, software company pioneered the concept of the interactive patient system, which allowed patients to access health education videos and other materials through their in-room televisions. As technology evolved, so did Allen's solutions, expanding access to include portable tablets, while integrating with other systems, such as food services, housekeeping, communications, EMR, pre-admission and post-discharge planning, and HVAC.

Allen's patient engagement systems not only improve the patient experience, they improve operational efficiencies for healthcare institutions as well. Allen's solutions help hospitals reduce readmissions, meet meaningful use requirements, improve productivity, improve HCAHPS, and lower operating costs.

Working closely with Allen Technologies, NWH has created a care delivery model that emphasizes patient engagement to produce better healthcare outcomes and improve operational efficiency.

Industry Transformation— Have We Reached a Tipping Point?

While Northern Westchester has been on the leading edge of patient-centered care, the industry itself is catching up quickly. Fueled by widespread adoption of interoperable electronic medical record (EMR) systems and sweeping changes in government regulations, the healthcare industry is transforming rapidly.

The focal point for the industry is shifting to patient experience and satisfaction, because these are the variables that have a direct impact on the top and bottom line. NWH President and CEO Joel Seligman sums up the shifts occurring in the healthcare industry:

"This idea that from a healthcare delivery point of view the regional systems will take some responsibility for the health and well being of people is a dramatic difference from where we were just five years ago. We are going to be paid for delivering good quality and good outcomes, and getting people out of hospitals."

Benefits from the patient engagement system are focused in four key areas:

- Give patients direct access to their medical information including labs, medications, care plans and vital signs.
- Streamline operational processes by automating routine tasks that previously required intervention by nurses or other staff
- Enhance the patient experience with a suite of tools designed to make the hospital stay as comfortable and resort-like as possible
- Place customized interactive patient education directly in the hands of the patient, integrated with the hospital's MEDITECH electronic medical record (EMR) system

The Empowerment Path

Patient satisfaction has always been a focal point for NWH, a philosophy that begins at the top and filters down throughout the organization. According to President and CEO Joel Seligman, the path to delivering higher-quality, patient-centered care is not something that happened overnight for NWH. "Many years ago, we had the idea of empowering patients with access to their own medical records using in-room tools, with the ability to communicate directly with staff," he explains. "We wanted to empower patients in the same way that our staff is empowered."

According to Vice President of Patient and Family Advocacy for Northern Westchester Maria Hale, NWH has not been afraid to try new patient-centered programs, even if it meant a complete departure from well-established processes. "We may need to break a few things that have been the paradigm for a long time," she says. "Enlightened leadership means that you are willing to do that—you are willing to break the status quo and try a new direction and be OK with that." Hale believes this is where progressive healthcare is headed, and it is what is required to fundamentally change the system.

Key to this industry transformation is improving access to patient clinical data through integration of technology that leads to system interoperability. Putting information in the hands of the patient

is what will help hospitals measure, refine, and ultimately improve the overall patient experience. "Now, patients are not only a part of the process, they can see the information," Seligman explains. "They can evaluate quality and evaluate cost, and all of that comes together to provide a system that makes a lot more sense and will provide better care."

Searching for Improved Patient Engagement

Approximately five years ago, NWH determined that it wanted to deploy an entertainment system based on modern technology that would allow patients to take advantage of digital entertainment choices, such as video games, on-demand movies and music, and video conferencing. While several potential suppliers were vetted in the initial search, most were unable to offer solutions that could engage patients in the manner in which NWH was hoping for. "Allen Technologies presented itself as one of the advanced companies, so that is why we were attracted to them," Seligman says.

As conversations between NWH and Allen progressed, the primary objective quickly moved beyond in-room entertainment. Allen was already leveraging technology to improve patient interaction and engagement in other areas, so why not expand the focus to include a full-blown patient engagement system? "That is what started us on the journey," Hale says. "It just seemed like it was synergy for the two of us to come together."

Management at NWH was convinced that better engaged patients would be more satisfied with their overall healthcare experience, which would ultimately lead to better outcomes and higher satisfaction scores. Internally, NWH had long been promoting the concept of providing patients with bedside access to their medical records, but there were numerous hurdles that proved difficult to overcome.

For example, much of the information imparted to patients over the course of an extended hospital stay was not necessarily part of the medical record. At the same time, there was a need for a solution that could deliver relevant and requested information directly to patients on their own timeframes, while making that information available in ways that were understandable and easy to digest. Ultimately, NWH needed a way to consolidate

information that might exist in multiple silos and make it available so that patients could absorb it at their convenience.

There also was the issue of taking content designed for disparate purposes and making it usable in other ways. Much of what is available through the EMR, for instance, is technical medical jargon that would make little sense to the patient until it is filtered in some way. "We asked ourselves, 'How do we display this in a way that actually makes sense to the patient so that not only are they reading it and understanding it, but they can actually do something with that knowledge?'" Hale recalls.

Interactive Patient Engagement System

NWH worked closely with Allen Technologies in the development of a series of robust patient engagement features, which are now being used

by both patients and hospital staff. The two companies became involved in an ongoing consultative process, which is a major part of the overall value that Allen provides to NWH.

In late 2012, NWH rolled out its first solution co-developed with Allen Technologies, an entertainment and education solution that offered access to hospital information, education, entertainment, and relaxation content. The initial system was designed to run on the in-room television, although NWH and Allen shared a long-term vision, which included a tablet-based solution.

Above all, NWH and Allen set goals to design a solution that was simple to use so as not to overwhelm patients and clinical staff. In order to limit disruption to existing work processes and to lessen the amount of training and education required, NWH and Allen took a phased approach when it came to the type of content and interactive applications made available to patients through the initial system. By utilizing this incremental approach, NWH allowed its staff to get comfortable with the system and its capabilities before expanding into new applications.

As of today, a variety of features have been rolled out as part of the patient engagement system (see sidebar). NWH now offers an interactive TV solution, a tablet-based solution, and a swing-arm version of the solution that is used in multi-patient rooms where additional privacy is important.

Patient Activation Tablet

The in-room tablet device, which NWH calls the Patient Activation Tablet (PAT) provides patients with a single point of access to health information, nurse call, entertainment, concierge services, food services, education, and other components, all linked directly to the individual electronic health



The Patient Activation Tablet (PAT) home screen. NWH teamed up with Allen Technologies to consolidate information that might exist in multiple silos and make it available so that patients could absorb it at their convenience.

record. Interestingly, NWH has elected to deliver certain types of content only to the tablet.

For example, streaming of religious services is only available on the interactive tablet solution, although it could easily have been offered on the TV, or through both. Likewise, NWH opted to have personal medical information delivered and displayed only through the tablet solution. The reasons behind these decisions are simple: NWH believes the tablet device fosters faster and deeper engagement, especially if the patient and family are introduced to PAT at the quickest point possible.

PAT is not a one-way tool designed only to push content to patients. Instead, it is a fully interactive patient engagement system that converts the tablet into a bedside communication tool. With PAT, patients feel more in control of certain aspects of their hospital stay. Patients and family members can even make requests for any number of hospital services, such as housekeeping, advance directives, maintenance, pastoral visits, or provide real-time feedback about their care. Northern Westchester even lets the patient choose the artwork for their room via PAT.

In order to deliver customized content, PAT is integrated with all hospital subsystems through the MEDITECH EMR, rather than pulling data directly from each disparate system. Data is sent to the information portal and then reported back to the

Features of Northern Westchester's Patient Engagement System

NWH has partnered with Allen Technologies to develop a patient engagement system that supports a broad range of features and capabilities, all designed to drive interaction and involve the patient more directly in his or her own health-care. Features include:

- Patient education with a customized patient inbox
- Access to a patient's health information
- Vitals and lab results information
- Discharge instructions
- Information about the patient's care team (nurse and doctor bios/photos)
- Medications and interactions information
- Ability to review imaging results with their doctor
- Noise reduction feature
- Real-time patient feedback
- Real-time patient requests
- Special diets information

MEDITECH EMR, with the hospital's internal systems basically becoming the central repository for data.

Additionally, PAT pulls data from more than just the hospital's internal systems. One of the primary benefits of the Allen Technologies solution is the ability to aggregate data from a variety of sources and present it to the patient as part of a cohesive structure. For the NWH solution, data is pulled from systems including the MEDITECH EMR system, the CBORD food system, and even external websites. Because the solution is cloud-based, interoperability between systems is seamless and easy to reconfigure. Allen Technologies can integrate with, pull from, and write to virtually any type of educational content provider.

How PAT Drives Patient Interaction

Northern Westchester's goal is to introduce the interactive tablet solution to the patient as soon as the patient arrives on the floor. The intent is to get the patient and family engaged with the platform as quickly as possible to increase comfort level and drive interaction.

Once in the patients' hands, there is an inherent desire to explore and discover. The ability to immediately see personal information, such as vitals, medications, and discharge process is key to getting the patient engaged quickly. Simplicity is also important, as Maria Hale explains:

"When something is more complex, or if the patient has to make multiple clicks to get there, then it is less interesting to them. They are looking for more immediate interaction."

Northern Westchester hopes to move as much educational and informational content to the interactive tablet solution as possible. While it has embarked on a systematic rollout, the long-term goal is to have PAT in every room.

- In just the first six months of 2015 alone, nearly 2,900 NWH patients used the Allen interactive tablet solution.
- Northern Westchester has installed PATs in 161 hospital rooms.

System integration is an important part of any effective patient engagement system. By centralizing the data, Allen Technologies reduced the amount of up-front integration work required. Other competitive patient engagement solutions require duplicate functionality because existing hospital systems are often replaced with proprietary systems. By partnering with Allen, NWH was able to augment existing functionality rather than replace it.

PAT Deployment

One of the challenges NWH experienced was simply getting patients to understand that the interactive tablet device is intended for their own use. "Patients are not used to coming in and having a tablet at their bedside that they can pick up and use at their discretion," Hale says. Not every hospital you visit today hands you a personalized tablet to connect you to your healthcare. Helping each patient to understand that PAT is for their use while at NWH is an important goal.

Equally important is ensuring NWH nurses, doctors, and technicians know they can leverage PAT to explain procedures, help patients better understand their care, and how patients can help in their own recovery. "It is not universal in terms of how we incorporate something like this into our education," says Hale. "These are all things we are working on to create greater adoption and facilitate comfort with both patients and staff."

According to Lauraine Szekely, RN, senior vice president, patient care services, and chief nursing officer at Northern Westchester, management solicited feedback through one of its shared governance councils to help establish best practices for implementing the tablet technology. Their goal: identify specific use cases that would be beneficial to medical staff and patients as part of their day-to-day care. The team identified three areas: entertainment, food service, and medication management. In addition, the team determined that elderly patients would benefit from the ability to use the interactive tablet as a large-scale remote control for operating the in-room TV. "That was an easy win," Szekely says.

It is easy to see how PAT could bring clarity to the process of ordering meals. Patients at NWH have access to full room-service capabilities commensurate with their dietary restrictions. The patient's dietary

How PAT Increases Patient Literacy

The transition of care has become a top-level issue for hospitals due to the need to improve patient literacy and reduce readmissions. Northern Westchester is using the Patient Activation Tablet specifically to help with medication management, which is an important part of the discharge process and integral to ensuring that patients can care for themselves.

Lauraine Szekely, senior vice president of patient care services at Northern Westchester, explains:

"We really use PAT with nursing, pharmacy, and physician assistants to educate the patients on medication management."

Through instructional videos and content designed to improve patient literacy, NWH can more fully educate patients before they leave the hospital, significantly reducing the chances of readmission within a 30-day period. In less than two years, NWH has achieved significant milestones related to patient literacy:

- More than 9,900 educational and information videos viewed, with completions written back to the patient medical record.
- According to analysis of federal data, NWH has reduced readmission rates steadily over the period.

restrictions are loaded into the CBORD food services system, which are then retrieved by PAT. Hospital dining menus are accessible through PAT so that patients can easily review all patient-specific menu options appropriate for their diet and care plan.

The tablet-based patient engagement solution also complements the way that physicians interact with patients. According to Marla Karoly, M.D., chief medical officer and senior vice president for medical affairs at NWH, access to data is key to enabling medical staff to drive better patient outcomes. "There are so many opportunities to improve healthcare through technology, and one is just improving access to information," she

How PAT Becomes Part of the Recovery Process

Northern Westchester is using the interactive tablet solution to combine education and entertainment. Patients have expressed enthusiasm for games that can be used in a therapeutic way and as part of the recovery process.

In a specific example, a Northern Westchester patient had experienced a minor stroke and was dealing with hand dexterity issues. Playing a game called “Balloon Busters” helped with hand-eye coordination and allowed the patient to receive interactive therapy in a fun and non-threatening way. According to Maria Hale, this is a perfect example of how patient engagement systems can improve the health care experience:

“That was an important takeaway for us—how do we use technology to make education fun? Because that is what you remember instead of the information that is presented in a very didactic fashion.”

explains. “Medicine has become so complex; there are thousands of medicines, hundreds of procedures, and it is all changing every minute of every day. It is not humanly impossible for a nurse, physician, or pharmacist to keep up with it all. Technology can put that information at our fingertips at the point of care, with decision support coming right at you as you are taking care of the patient.”

Karoly says that physicians need to be aware that patients using PAT will have more questions, simply because they are being presented with more useful information. Patients will have a list of their medications, vital signs, and lab results, and in many cases they will see these results before the physician does. Physicians are alerted to check patient records for changes and updates before making rounds to ensure they are prepared for questions that might be asked. One process that physicians appreciate is the ability to access radiology images and review those with the patient using the interactive tablet device. Additionally, having access to medical information should reduce the number of questions to clinical team members about the raw data and increase the

questions about how best to move forward with treatment. By being better informed, patients and their families can make better decisions with their caregivers.

Patient Feedback Drives Process Improvement

Northern Westchester has received valuable feedback from patients regarding the Allen interactive tablet system. “Our patients were cautious about it,” Hale says. Part of the challenge is the mere fact that patients are now presented with so much information at their fingertips that they may be unsure what it means or how to use it. When queried as to what information patients would like to see made available through PAT, the response was interesting. The top request was simply to know more about their care team—who is taking care of them, what are their names and background, where did they go to school, what training have they completed, what are their hobbies?

This was a bit of an eye opener for the staff at NWH, but it did not come as a complete surprise. Patients have long expressed frustration with changes that occur throughout the day within hospital care teams. Hale says patients want a richer relationship with the people who are caring for them. “That is great feedback and it is the beauty of having this kind of tablet because it gives you direct insight into what is most important to the patients,” she adds. Based on this feedback, NWH is able to provide patients with a comprehensive profile for each individual caregiver, complete with photos.

Patients also expressed desire for more and better information regarding their medications and labs. This is not at all surprising given the general confusion that surrounds these issues. Patients often have detailed questions regarding changes to medications and how those changes impact previous

prescriptions. More importantly, patients want to know why the medication is being prescribed and the potential side effects. With PAT, Northern Westchester patients are able to have more meaningful dialogue with the physician or nurse about those issues.

Technology Makes Education Meaningful and Fun

One of the most important aspects of any patient engagement system is the ability to deliver information in meaningful ways. Patients at NWH



Patients at NWH specifically asked that lab results not be presented in the traditional way on PAT. Rather, they requested a graphical representation, with a stoplight to indicate what various numbers mean: green is go, yellow is borderline, and red is stop.

specifically asked that lab results not be presented in the traditional way, with complex numbers and graphs showing highs and lows. According to Hale, figures presented in this way often create anxiety for the patient. There was also the request to limit information to only those labs that will need to be monitored after leaving the hospital—labs that will contribute to wellness and prevention.

One of the more interesting items that came out of the patient discussions was the request to present lab results in a graphical way, with a stoplight to indicate what various numbers mean: green is go, yellow is borderline (slow down), and red is stop. This way, patients could more easily understand the meaning of certain results to determine if and when they should have a conversation with the physician. “It is all about creating a better dialogue

with their care team versus replacing the previous dialogue,” Hale explains.

NWH also wanted to ensure that patients did not view the interactive tablet solution as a replacement for direct interaction with medical staff. “We did not want patients to think, ‘here is a device so now you are on your own,’” Hale says. “The device should help you think about questions that you should be talking about with the doctor to generate a better dialog.”

Northern Westchester’s interactive patient engagement system is also designed to involve patient families. “We want the family involved with the ability to access the information because they are the other set of eyes and ears to this process,” Hale explains. “They really set the road map for us and continue to do it through the feedback we receive.” Indeed, it is the adaptable nature of PAT and the underlying technology that makes it such a practical solution. Hale points to the relationship with Allen Technologies as key to the system’s flexibility, which is critical in order to address evolving patient needs. “It cannot be a cookie-cutter solution because the patients are really developing this into something that is important to them in terms of how they see it as a value,” she says.

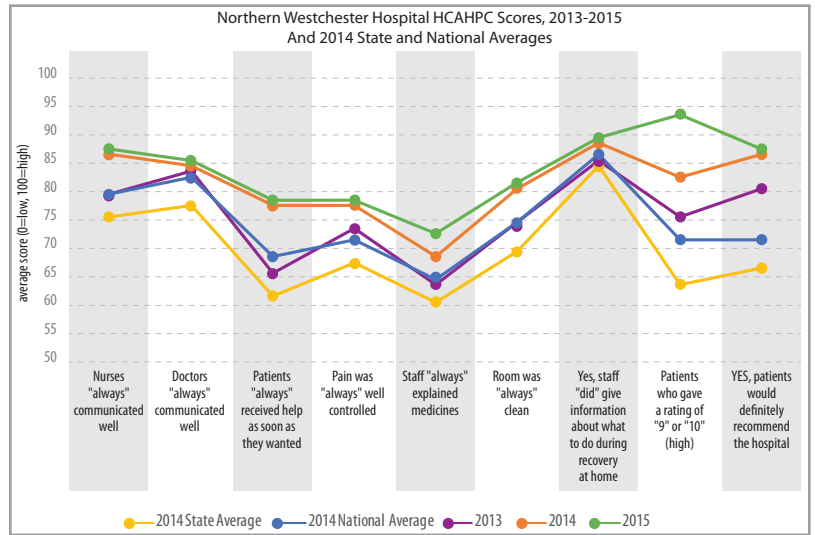
Measuring Patient Value

Maria Hale likes to use the word “value” when talking about opportunities to improve the quality of health care. “What is value to one patient may not be the same as it is to the patient in the room next door,” she explains. By inviting patients into the process and involving them in their own healthcare decisions, NWH receives constant feedback from patients on a daily basis. This feedback is an important part of the overall process because it allows NWH to constantly tailor solutions based on real patient experiences.

When it comes to measuring patient value, care received during the hospital stay is only one part of

the equation. Just as important is providing patients with the information needed so that they are more empowered and active in their own recovery. “As a patient, I want to make sure that I’m armed with the right information to keep myself out of the hospital and get back to a healthier state,” Hale explains.

“That is value to the patient. So, when we look at how we design our systems, it always has to be with that lens in mind.” This is also a crucial measuring stick for NWH, because reducing readmission rates and improving patient satisfaction scores has a direct impact on the hospital’s bottom line. NWH has seen marked improvements in patient outcomes and overall patient satisfaction, with steadily improving HCAHPS showing a clear upward trend in patient satisfaction, and performance scores exceeding that of state and national benchmarks (see chart).



NWH’s HCAHPS scores have improved steadily over the years, and have consistently exceeded state and national benchmarks. Source: Centers for Medicare & Medicaid Services.

NWH has proven that patient-centered care can be delivered successfully and profitably. As a pioneer in the field, NWH stresses family, emotional support, and a focus on the patient’s personal needs as fundamental to its basic mission—putting the patient first as opposed to the physician or the procedure. By partnering with Allen Technologies to develop its interactive patient engagement system, Northern Westchester has deployed a solution that will expand its capabilities to improve patient satisfaction, improve outcomes and maximize efficiencies.

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About Allen Technologies

Allen Technologies, the pioneer of interactive patient solutions for nearly 40 years, transforms the way hospitals engage, educate and entertain patients. Allen Technologies helps hospitals impact patient outcomes, improve patient satisfaction and achieve operational efficiencies. Allen’s multiplatform interactive patient engagement system, delivered via television, tablet and bedside monitor, is a robust patient-centric portal for customized patient education, in-room comfort control, and entertainment. Allen is the leader in interactive patient engagement solutions for smart TVs. Allen’s E3 Patient Engagement Solution integrates seamlessly with electronic medical records and system platforms including HVAC, housekeeping and food service systems. Learn more at www.engagewithallen.com, [www.twitter.com/allen_IPS](https://twitter.com/allen_IPS) or www.facebook.com/allentechnologies.

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