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Virtua Health, a QliqSOFT customer since 2014, demonstrates the power and versatility of the QliqSOFT platform. QliqSOFT supports Virtua Health's Digital Transformation Office.

The following pages showcase the successful use of chatbots, virtual visits, and secure communication to solve inpatient, ED, urgent care, referral management, and transitions in care management needs with quantifiable results.

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Virtua Health offers lessons in creating a Digital Transformation Office, Part 1

C-suite executives and health IT leaders have much to learn from the East Coast health system's massive digital health overhaul.

BY BILL SIWICKI FEBRUARY 02, 2022

Virtua Health is a nonprofit community health system with five hospitals, seven urgent care centers and 280-plus locations across South New Jersey and Philadelphia. It employs 14,000 people, including more than 2,850 doctors, physician assistants and nurse practitioners, and has more than one million patient encounters per year.

Virtua Health had an early start to digital technology that included the implementation of an integrated electronic health record across its inpatient and ambulatory campuses.

"Fast forward to 2020, the health system experienced what can only be described as a convergence of factors driving deployment of fully remote virtual digital health practices – achieved within days of the onset of the COVID-19 global pandemic," said Dr. Tarun Kapoor, the health system's chief digital transformation officer.

THE PROBLEM

In the summer of 2020, the Virtua Board of Trustees presented a strategic challenge to organize the rapid transformative learnings over the prior months into a structure that was sustainable and scalable.

"As our health system was on the front lines of transformation during the first wave of the coronavirus, our decentralized digital health initiatives were rapidly evolving to the point of a strategic function," Kapoor explained.



Photo: Virtua Health

"Organization-wide, we decided to establish the Digital Transformation Office to consolidate our digital initiatives into a central office and build upon our existing enterprise digital infrastructure.

"Thankfully, Virtua's leaders did not perceive the adoption of digital technologies as an opt-in mechanism, but rightly the springboard for an entirely integrated, digitally enabled approach to healthcare delivery," he continued.

"It was generally understood that deploying digital health tools would propel foundational changes for the caring of our patients wherever they may be in their personal health journey."

The staff also learned then what the virtual care model would look like, whether an in-person visit, a virtual visit or a combination of both.

"Internally, we referred to the DTO as a catalyst to unite our virtual care vision – and while a catalyst can accelerate change, it can't do it in a vacuum. It works with foundational units within Virtua, such as our medical group, IT, etc.," Kapoor said.

"Additionally, Virtua Health's three strategic priorities in 2020 were to transform and improve our delivery system, evolve and align our caring culture, and to orient it to the consumer, which arguably reflected the ubiquitous role of digital transformation in the three working together in harmony."

Many organizations define the meaning of digital transformation differently. While the hot tech buzzword is open to interpretation across the healthcare industry, the term represents an entirely different meaning to the patient, said Danielle Wilson, assistant vice president of digital transformation at Virtua Health.

"Stating that you're 'going digital' does not mean completely avoiding the human," she said. "To humans, digital transformation might mean the channel in which you're engaging your provider is different than picking up a smartphone and dialing 1-800.

"Whether they are aware or not, consumers already are accustomed to digital engagement in other

aspects of their lives,” she continued. “They may not necessarily know that part of their clinical care is normalizing to AI-assisted support.”

Two years ago Virtua Health encountered the following three concerns, which prompted the launching of its Digital Transformation Office and fully remote virtual digital health practice.

RISING EXPECTATIONS AND DEMANDS OF PATIENTS TO USE DIGITAL SERVICES

- Health system leadership directed the implementation of the on-demand digital experience for consumers during the height of the pandemic to present immediate value to the community.
- Username/password issues were impacting call centers, and patient requests for human agents resulted in higher than normal wait times.
- Like many health institutions nationwide, COVID-19 prompted Virtua to launch consumer-facing patient engagement solutions to manage the outbreak more proactively. At the same time, Virtua Health’s leaders realized patients increasingly wanted and expected their healthcare to be delivered with the same convenient, consumer-friendly digital capabilities they’ve become accustomed to in other aspects of their lives. Patients also wanted to engage with their providers online quickly and conveniently.

REDUCE PATIENTS’ RISK OF EXPOSURE TO COVID-19 AND OTHER DISEASES

- Virtua Health’s leaders aimed to reduce a patient’s in-person exposure to at-risk infectious environments. The health system’s hospitals experienced an influx of patients of all ages with diverse medical conditions and inoculation statuses combating the virus.



- For example, patients with cancer during the pandemic needed continued care management.
- Legacy technology alone is inadequate
- Legacy technology did not support the increasing labor shortage and overwhelmed clinicians and staff suffering burnout related to COVID-related workforce issues.
 - Virtua Health needed new clinical digital technologies to augment the in-person experience in managing the rising volumes of patients in inpatient and ED settings.
 - The previous telehealth technology was app-based and cumbersome to download and use for both clinicians and patients. Patients were deterred by an app download and multiple clicks.
 - Clinical and IT teams advocated for a supplemental platform after deeming Virtua’s EHR was not always optimized to deploy in certain rapidly evolving clinical scenarios.

PROPOSAL

Virtua Health’s DTO formed an advisory committee, comprising medical professionals, legal, IT and other healthcare department representatives to select the right digital technologies and to safeguard sharing of health information.

“The virtual tool also gives our staff the opportunity to immediately reach out to that patient if we notice they are struggling during initial engagement.”

– Dr. Angela Skrzynski, Virtua Health

“Realizing the importance of having the consumer’s perspective represented, we invited an employee from the marketing department to join the team,” Wilson recalled. “The employee played the role of a non-tech-savvy consumer who delved deep in their mindset to ensure the engagement was beneficial for both the patient and Virtua Health and that the user experience was smooth and quick to digest.

“The employee was given full voting governance and made part of the technology decision-making process,” she continued. “Our IT folks, along with our doctors, were thrilled to have a team member representing the patient community.”

The advisory committee quickly embraced the idea of “Get human, and get there quickly,” a concept describing expanding access to consumer-friendly care through immediate bidirectional interaction between patients and their care teams.

“Our solution to support this concept was to extend our initial secure messaging contract with vendor QliqSOFT to build a new web-based collaboration platform,” Kapoor explained. “The AI-powered platform engages patients, staff and clinicians through a chatbot designed with 100% remote care capabilities.

“Leveraging patient feedback to posting the request for proposal to the solution selection process, Virtua went from build to complete to initial implementation within six weeks,” he added. “Multidisciplinary project teams advanced digital patient access via SMS-delivered conversational chatbots and video-based telehealth.”

New programs for remote patient monitoring were implemented and helped escalate patients online to appropriate clinicians when needed.

“Engagement with a chatbot begins with a staff-originated secure link delivered via SMS text message or email,” he said. “The chatbot initiates by connecting patients or their caregivers with a predetermined conversation promoted by workflows that intuitively guides them through different clinical use case interactions.

“This conversation can take the form of a scripted routine encounter that can be escalated quickly to a live text-based or video interaction with a healthcare professional to reach the appropriate outcome.”

Staff also applied Agile development methodology practices to the chatbot solution to improve the effectiveness of responding proactively to the changing demands of patients and clinicians.



“Whether they are aware or not, consumers already are accustomed to digital engagement in other aspects of their lives,” she continued. “They may not necessarily know that part of their clinical care is normalizing to AI-assisted support.”

– Danielle Wilson, Virtua Health

“By addressing the needs of patients and multidisciplinary clinicians situated in different departments and care settings, Agile helps Virtua Health achieve substantial change by helping our patients and employees embrace these iterative changes and engage with the new digital solutions quickly,” Kapoor said.

A significant feature at Virtua Health is that the virtual care tools are built upon a purely browser-based platform and not within an app-based platform, which usually has multiple and sometimes complex touchpoints. This web-based platform has been transformational in expanding the health system’s patient engagement capabilities, including ease of use and accessibility.

“The web-based platform’s benefits are continually validated by patients and also through positive, real-time feedback, such as a short internal 2021 survey of patient users,” said Dr. Angela Skrzynski, clinical lead for the urgent care telehealth, COVID remote patient monitoring and care after COVID programs at Virtua Health. “We learned that meeting patients when, where and how they want to receive care is the foundation of quality virtual care, especially the use of chatbots.”

The chatbots are short, sweet and to the point, Wilson added.

“The virtual tool also gives our staff the opportunity to immediately reach out to that patient if we notice they are struggling during

initial engagement,” she explained. “The chatbot is designed like a hybrid model where patients don’t feel deserted on an island because they are in a feedback loop.

“Though patients participate in AI conversations, we are literally a fingertip away,” she continued. “We can quickly assist, whether they’re filling out paperwork and have questions, or if they need help along the way accessing the right clinicians, information and resources relevant to their medical condition.”

An example of the necessity of digital care tools is happening right now in the Omicron wave of the pandemic, Kapoor noted.

“Typically, we’d received up to 60 on-demand patient encounters during a non-surge,” he said. “At the turn of the 2022 new year, 600 people per day were attempting to reach us through our digital health platform’s virtual care programs: Urgent Care Telehealth, Care After COVID, COVID Emergency Department Remote Patient Monitoring and COVID Inpatient Discharge Remote Patient Monitoring.

“While we weren’t clinically able to see all 600 people concurrently per day, we are able to connect, engage with and touch them digitally – including long-haulers – to some extent,” he stressed. “That would have never happened with a telephone, right? Patients’ requests for care would automatically go to voicemail.”

Also, touching the patient digitally likely wouldn’t have happened with text messaging, either, Wilson said.

“A text message would require some sort of overlay technology to circle back with a response,” she said, “where with a chatbot, we can customize what you want to say to the individual based off their message and information found in Q&A responses brought into the chatbot.”

Since switching over to the web-based platform model from a fully on-demand app model, the wait times are much more palatable to patients.

“They communicate anecdotally their satisfaction within the virtual care tools,” Skrzynski said. “Moreover, a large contributor to their satisfaction is the fact that patients can wait in the comfort of their homes for a call or text when the clinician is ready to see them. We also realized the change in their demeanor in our real-time survey’s polled feedback and in our NRC scores, which is our feedback platform as well.”

Nobody wants to download an additional on-demand app, Wilson contended.

“They either want to access our virtual services within text messaging from us or through a web browser featuring the look and feel of an app,” she said. “Our host of virtual tools provides that easy tech touch, not only for the patient, but also for front-desk administrators and clinicians.

“Over the last two years, we’ve realized this web platform can be used for multiple other use cases, such as a scheduling platform, instead of an on-demand platform during COVID-19 surges.”

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Virtua Health offers lessons in creating a Digital Transformation Office, Part 2

THE HEALTH SYSTEM GEARS UP WITH SIX TELEHEALTH PROGRAMS AND REPORTS POSITIVE RESULTS FOR ITS EFFORTS. ADDITIONALLY, ITS EXPERTS OFFER HELPFUL ADVICE.

BY BILL SIWICKI FEBRUARY 03, 2022

MEETING THE CHALLENGE

Virtua Health's successful "get human fast" online engagement platform propelled patients to interact with staff and clinicians expanded to virtual consultations, chatbots and RPM. The enterprise health system created six distinct service lines supported by the Centers for Disease Control and Prevention.

The six virtual care programs are as follows.

FIRST, URGENT CARE TELEHEALTH.

"UCTH treats a range of conditions with extended hours 365 days a year via browser-based video visits," said Dr. Angela Skrzynski, clinical lead for urgent care telehealth for COVID-19 remote patient monitoring and care after COVID-19 programs at Virtua Health.

"Conditions treated include COVID/URI symptoms, rashes, UTI, ear and eye complaints, musculoskeletal injuries and so much more. The program began with COVID-only evaluations in March 2020, and quickly expanded to providing a wider range of telehealth services under UCTH in July 2020."

Virtua Health kicked off the UCTH services specific to COVID-19 in early March 2020, and now it's an inherent part of the business, said Dr. Tarun Kapoor, the health system's chief digital transformation officer.

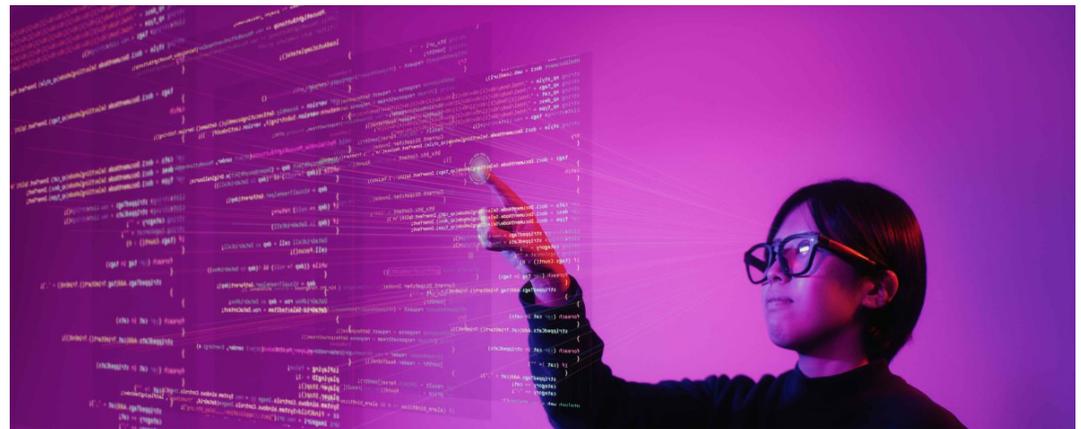


Photo: maginima/Getty Images

"Design-wise, the UCTH services were not set up as pages upon pages of questionnaires," he noted. "Adopting the 'Get human fast' concept, Virtua Health created virtual interactions with patients. What we soon discovered is that those first minutes resonated immensely with some of our target population."

SECOND, COVID INPATIENT REMOTE PATIENT MONITORING, OR IPRPM.

"Under the IPRPM program, adult inpatients with COVID can be discharged home to the inpatient COVID RPM program with a pulse oximeter device," Skrzynski explained. "Once home, they are supported by Virtua Health's nurses, who manage population healthcare outreach, as well as physician-led telehealth visits over the course of two weeks to help guide the patient on the road to wellness."

"At first, staff and clinicians inven-

tively created a specialty kit comprising a Bluetooth-enabled tablet, blood pressure cuff, weight scale and pulse oximeter device to communicate virtually with these patients," she continued. "As the number of kits decreased, Virtua Health quickly discovered that the program was equally successful utilizing its video visit technology platform supported by a basic pulse oximeter only."

This modified platform allowed staff to reserve kits for patients with conditions such as chronic obstructive pulmonary disease and chronic heart failure who needed access to blood pressure cuffs and weight scales.

THIRD, COVID EMERGENCY DEPARTMENT REMOTE PATIENT MONITORING, OR EDRPM.

"Under EDRPM, patients with COVID diagnoses who are deemed appropriate can be discharged from the emergency department

and transitioned to the EDRPM program for COVID," Skrzynski said. "Patients are provided with a fingertip pulse oximeter device and one to three scheduled telehealth visits with a physician to ensure illness improvement."

FOURTH, CARE AFTER COVID, OR LONG HAULERS PROGRAM.

"Care After COVID is an integrated and comprehensive care program for patients experiencing increasing COVID symptoms over 30 days," Skrzynski explained. "Common symptoms include, but are not limited to, shortness of breath, fatigue, brain fog, palpitations, hair loss, muscular deconditioning and more."

"Patients complete questionnaires online and are seen for a lengthy initial evaluation via video consults," she continued. "Follow-up visits are scheduled as needed, and the patient is released from the program when improved."



“This month, Virtua Health will launch its sixth telehealth program, Inpatient Warm Handoff to Outpatient Social Worker, a state-mandated, quality-based payer reimbursement program for behavioral health and pregnant patients discharged from the inpatient setting.”

– Dr. Angela Skrzynski, Virtua Health

FIFTH, CARDIOTHORACIC PRE-OPERATIVE INTRODUCTION.

“Through virtual consultations, patients meet with their surgeon as a ‘meet and greet’ for pre-surgical evaluation, care plan education and instruction covering the intra-hospital transfers prior to the surgery,” Skrzynski explained.

“The Cardiothoracic Pre-Operative Introduction telehealth program’s workflow involves a sequence of steps to complete the virtual consult,” she continued. “In short, immediately following a cardiac catheterization that has abnormalities warranting cardiothoracic surgical evaluation, the patient is given an opportunity to speak with a cardiothoracic surgeon in real time via an audiovisual encounter.”

Family members and other caretakers can also be added to the encounter, and this, in turn, allows real-time feedback from the operating surgeon to assist in the patient’s medical decision-making regarding proceeding with surgery.

“To that effect, digital interaction with patients allows cardiothoracic surgeons who are stationed at other sites within the Virtua Health enterprise to communicate with patients on demand without transportation delays,” she added.

AND SIXTH, INPATIENT WARM HANDOFF TO OUTPATIENT SOCIAL WORKER.

“This month, Virtua Health will

launch its sixth telehealth program, Inpatient Warm Handoff to Outpatient Social Worker, a state-mandated, quality-based payer reimbursement program for behavioral health and pregnant patients discharged from the inpatient setting,” Skrzynski explained.

“Oftentimes, patients have a difficult time following up with outpatient social workers post-discharge if they leave the hospital without instruction on how to maintain contact,” she continued. “By engaging with the patient in a warm handoff via a chatbot prior to discharge as part of the discharge process, the social worker is able to identify and address any barriers to follow-up.

As a result, staff anticipate realizing higher quality of care outcomes in these two patient populations.

RESULTS

Virtua Health has had positive Net Promoter Score results.

Three combined telehealth programs – the COVID Emergency Department Remote Patient Monitoring, COVID Inpatient Remote Patient Monitoring, and Care After COVID (Long Haulers Program) netted an NPS of approximately 75%.

In other words, this customer research metric captured 75% of Virtua Health patients’ loyalty and satisfaction, rating the telehealth programs as likely to refer people.

Virtua Health’s digital health tools earned an NPS score of 80 in high

patient satisfaction.

An internal survey of staff users and patients conducted in July 2021 found:

- 63% of Virtua Health’s colleagues are aware that the Urgent Care Telehealth program exists.
- Most respondents feel that a reasonable wait time from login to connection with a clinician (aka live agent) is five to 10 minutes.
- Surveyed patients cite the web-based digital solutions easier to use and more accessible for engagement compared to apps with multiple, complex touchpoints.
- A 400% increase in patient usage of digital tools.

Then there is the throughput and impact on staff capacity and managing patients before and post implementation.

“Our clinical and administrative staff manages all patient communications,” Skrzynski said. “Staff who use the chatbot can quickly redirect patients to the appropriate services within our larger healthcare community, resulting in more streamlined service offerings for both patients and staff.

“Additionally, the virtual care platform enables video consults and traditional telephone calls directly with the patient,” she continued. “We best utilize chatbots by augmenting the technologies in use by our live agents. Whereas a traditional telephone call permits handling only

one patient at a time, our platform empowers staff to toggle four or more patients simultaneously.”

The Digital Transformation Office also impacted staff shortages. Virtua Health found that because the digital technology is intuitive, the training of staff and clinicians is seamless. Following a 20-minute training video, new employees are immediately ready to use the digital tools.

Outcomes for the telehealth programs also were positive.

FIRST, URGENT CARE TELEHEALTH:

Of the patients seen in urgent care, about 15% make return visits. Volumes have increased steadily since the start of 2021, with an uptick after April 2021, the go-live month for the chatbot.

Virtua Health experienced a significant increase in patient volumes in the Urgent Care Telehealth program throughout 2021. For the month of December 2021, more than 1,200 patient encounters were documented.

Urgent care visits from non-COVID-19-related conditions continue to increase, as well. This surge is attributed to increased consumer awareness from informational campaigns, word of mouth and ease of use of the telehealth program.

SECOND, COVID INPATIENT REMOTE PATIENT MONITORING:

Virtua Health reported a 32%

relative reduction in hospital readmissions; 97% of patients felt more comfortable knowing a nurse was checking on them; and 92% would recommend to others.

THIRD, EMERGENCY DEPARTMENT REMOTE PATIENT MONITORING (EDRPM):

In 2021, there were 1,100 patients enrolled in the EDRPM program. Of that number, patients experienced a 43% relative reduction in 14-day ED return visits.

COVID-19 patients diagnosed and stabilized in the ED went home with a pulse oximeter, a device that slips onto a person's fingertip to measure blood oxygen levels and monitors their clinical status at home through blood oxygen levels.

FOURTH, CARDIOTHORACIC PRE-OPERATIVE INTRODUCTION:

The cardio thoracic surgery virtual consultation services give Virtua Health the opportunity to reduce leakage by about 20 to 25 cases per quarter. Leakage and other financial analysis data drove the staff to create this program.

ADVICE FOR OTHERS

"Whenever we share outcomes with the organization, we do our absolute best to speak in numbers and not in anecdotal evidence," Kapoor advised. "To quote professor Aswath Damodaram of New York University Stern School of Business, 'Without data, all we have is fairytales.'"

"For example, if we're discussing change management, every one of our reports has a data point," he explained. "We also trend our data findings. That is a huge leveling up in prioritizing data analysis, thanks especially to Danielle and her team. For every digital project kickoff, the dashboard is up and running for us to observe and assess what's working and what's not."

It's easy for an organization to have a "set it and forget it" mentality,



“Waiting 10 years because we negotiated a decade-long contract does little to help solve the rapidly changing nature of healthcare. So internally, we’re performing shorter iterations of technology assessments that enable us to foresee a road map ahead.”

– Danielle Wilson, Virtua Health

said Danielle Wilson, assistant vice president of digital transformation at Virtua Health.

"You implement a solution and it could be best-of-breed at the time," she said. "But, waiting 10 years because we negotiated a decade-long contract does little to help solve the rapidly changing nature of healthcare. So internally, we're performing shorter iterations of technology assessments that enable us to foresee a road map ahead."

Staff can gauge a better sense of timing about whether to engage "big box" vendors as opposed to working with a boutique vendor that can expand Virtua Health's digital ecosystem and drive a much better patient experience, she added.

"A four- to six-week project life cycle is how we think in terms of planning and scaling digital technologies to iterate upon our health system's virtual health environment," Kapoor advised. "For instance, what enhanced patient engagement innovations can we accomplish in six weeks? A digital health solution has to be safe. It has to be solid. And, it has to have quality, obviously."

"But the solution doesn't have to be perfect," he added. "Perfect doesn't get us anywhere fast. That type of atypical thinking is a shift in traditional organizational behav-

ior common amongst traditional healthcare providers. When doctors like Angela and myself are involved, the ability to accelerate rapid virtual care adoption to create sustained change in quality care becomes the standard."

Many organizations strive to do things that get to 99%, Wilson stated.

"So many people have been ingrained with this 'MBA Six Sigma' mentality," she observed. "The reality is that for healthcare, the solution has to be good enough and it has to be safe and medically sound. But if you get 80% of automation, or 80% of patients taking on the self-service themselves, you're essentially allowing your workforce to take care of the complex patient or the information that is highly complicated to schedule or engage with the patient."

"We're automating that 80/20 rule by allowing for some pieces that don't fit the box, yet have the human-connection fit, while possibly requiring additional support," she concluded. "It's simply a different way of thinking about technology implementations."

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QliqSOFT has helped the healthcare industry deliver HIPAA-compliant, reliable, and real-time communication between doctors, nurses, caregivers, and patients for more than a decade. With modular solutions and easy integration, QliqSOFT's cloud-based digital platform is designed to adapt quickly to meet the industry's most complex patient engagement and clinical collaboration needs.

Over 1,000 healthcare organizations have trusted QliqSOFT to deliver seamlessly connected, flexible communication workflow solutions, from health systems and acute care to ambulatory surgery centers and life sciences. QliqSOFT is proud to provide Customer-Rated, KLAS-Reviewed™ superior customer support for easy, effective solutions that scale from simple to highly complex.

Built for healthcare, our solutions are trusted across every corner of the industry, including hospitals and health systems, post-acute and remote care, ambulatory surgical centers, and pharma and life sciences.

