Microsoft HealthVault
Customer Case Study

Cleveland Clinic and Microsoft HealthVault Delivers Connected Continuous Care for Chronic Disease Management

Overview

Country or Region: United States

Industry: Healthcare providers

Customer Profile

Located in Cleveland, Ohio, Cleveland Clinic is a nonprofit, multispecialty academic medical center that integrates clinical and hospital care with research and education. With more than 1,000 beds, 1,8000 physicians and scientists and 3.3 million patient visits per year, Cleveland Clinic is one of the largest and most respected hospitals in the country

Business Situation

Solution

Benefits

"As the prevalence of chronic disease rises at an alarming rate in the United States, the strain on our nation's economy and healthcare system cannot be relieved without the creation of innovative, cost-effective solutions that involve patients in proactively managing their healthcare."

C. Martin Harris, MD, Chief Information Officer, Cleveland Clinic

Over three quarters of the U.S. healthcare spending goes to care of people with chronic conditions, and is expected to continue to rise at an alarming rate throughout the world. Effective chronic disease management requires daily management, self-care and timely interventions from care providers to identify early warning signs of potentially acute problems that could require costly emergency interventions. The current healthcare system is poorly equipped to address these requirements.

Cleveland Clinic, a world-class medical institution and recognized pioneer in health information technology, joined in collaboration with Microsoft Corp. to integrate technology, the patient's lifestyle and the practice of medicine by enabling the delivery of care to patients whether they are in the medical facility, at work, home or on the road. The resulting pilot program provides patient-controlled data exchange between Microsoft® Healthvault™, a Web-based personal health platform; a suite of widely-used digital medical devices; and eCleveland Clinic MyChart®, an electronic personal health record; and an electronic medical record.

This pilot is the first in the U.S. to follow multiple diseases in the clinical setting, allowing doctors to remotely monitor chronically ill patients via commonly used medical devices such as glucometers, heart rate monitors, weight scales and blood pressure monitors. The program is intended as a feasibility study to demonstrate that a connected, continuous care model approach to chronic disease management can empower patients and physicians to better communicate and manage chronic conditions, improve efficiencies and lower costs.

"Technology tools like electronic medical devices and patient-controlled data platforms like Microsoft HealthVault give patients the power to better manage their healthcare and clinicians the ability to provide timely guidance to prevent acute problems. This is the essence of connected health."
C. Martin Harris, MD, Chief Information Officer, Cleveland Clinic

Situation

While the U.S. is currently focusing on the implementation and adoption of electronic medical records to digitize healthcare, Cleveland Clinic is looking ahead at how they can leverage technology to provide a new care paradigm. "I'm thinking about how we will deliver care to patients in the 21st century," said Martin Harris, MD, Cleveland Clinic's chief information officer. Dr. Harris also serves as the chairman of the National Health Information Infrastructure Task Force. "That will mean delivering that care in different venues -- beyond the doctor's office and beyond the hospital bed."

Cleveland Clinic has already implemented an integrated electronic medical record across all care settings, with a computer in every exam and patient room across the enterprise. At the same time, they began delivering an online tool for patients, MyChart, which provides a common infrastructure for data captured within the medical facility. The information technology at Cleveland Clinic currently houses 5.6 million patients and ensures that patient data followed the patient from one care encounter to another, as well as provided a tool for patients to access their own information.

Chronic disease management calls for a combination of patient self-care and timely, coordinated guidance from care givers. Without appropriate interventions, the status of a chronic patient can quickly deteriorate from manageable symptoms into a more serious condition that requires costly emergency interventions.

However, the current model of care tends to support an episodic approach to disease management. For example, clinicians may typically manage blood pressure through doctor visits that occur every six to 12 weeks. The time gap between visits could mask an emerging trend that would illustrate the patients' worsening condition.

"The emergence of personal medical devices offers an opportunity to continuously monitor patients' physiological state in their own environment," says Joe Turk, IT director for Cleveland Clinic. "The challenge is to get the data from those devices into clinical practice and workflow." Connected health requires the ubiquitous flow of data – not just the data captured from encounters within the medical facility, but the ability to provide a continuous flow of data from consumers to care providers.

This data, critical for chronic disease management, is not addressed by either electronic medical records or personal health records that are tied solely to a single system. The development of a new care paradigm for chronic disease management would require a solution that would cost effectively extend care to where the patient lived and worked, and provide a seamless transfer of clinically relevant health data to clinicians.

Solution

Cleveland Clinic launched a pilot in November 2008 that takes their personal health record (PHR) efforts to the next level by bringing patients and physicians together in working with chronic disease management with Microsoft HealthVault, a Web-based patient data storage and sharing platform.

The program supplies at-home medical devices to patients with chronic conditions. Patients take periodic measurements – such as blood pressure, weight or glucose – and then upload their clinically valuable data to a personal HealthVault account. With the patients' consent, the information is shared with Cleveland Clinic's electronic medical record, allowing care providers to continuously track readings and monitor trends which otherwise might only be caught during periodic checkups or when the patient lands in the emergency room.

"Cleveland Clinic developed extensive infrastructure for our own facilities, but reaching out to each and every patient is difficult and expensive. The real power of a vehicle like HealthVault is a single infrastructure that allows a seamless transfer of patient-controlled information so we can work with any patient, anywhere."
Joe Turk, IT Director, ,Cleveland Clinic

A single pipeline for device data
HealthVault's unique Connection Center supports 50 devices from nine vendors, allowing biometric data from the devices to be uploaded directly to a patient's HealthVault account. This reduces the IT burden on Cleveland Clinic. "A challenge with a remote monitoring program is the potential number of interfaces," says Turk. "The HealthVault Connection Center allows multiple devices to come into a single pipeline without the need to create each interface."

The automation of uploading the at-home medical device data helps address a key barrier to patient adoption of personally controlled health records: the need to manually key in data.

Cleveland Clinic trained patients on the use of the devices, and data upload process to HealthVault. Part of that training includes clearly notifying the patient when a particular reading should prompt a call to their doctor or even 911.

In addition to providing the device and training, the physician prescribes the measurement protocol (e.g., 2x/day, 3x/week, etc.) unique to that individual and the condition they are managing.

Integrating into the physician's workflow
Cleveland Clinic tackled the issue of integrating this new practice and data stream into the physician's workflow. Standalone, siloed programs and data will often receive resistance from physicians.

Because HealthVault is integrated into their core system where physicians practice, it reduces the effort of adding this additional workflow. Physicians receive weekly notices notifying them that their patients' biometric data is ready for review. With one click, physicians can review their patient's data for that past week from within their EMR. This data is then available throughout the enterprise, to any authorized stakeholder and within the patient's MyChart record.

The physician is also alerted immediately to any abnormal result or sudden change that might require further investigation or a change in treatment plan.

Benefits

The pilot program was not designed as a scientific study, but to help transform care delivery for chronic disease from a sporadic care model to a continuous care model. "We were not connecting to our patients as well as we should have," says Martin. "We strive to participate in and help to advance the dialog around a more efficient and effective healthcare system."

Improved care
Using home-based devices, patients may be more apt to track and measure their health, improving compliance and data integrity. Patients in the pilot appreciate the flexibility to take the needed measurements when it is convenient to them and their schedule. Access to patient data allows care providers to more rapidly determine who may be non-compliant in self-managing their chronic illness.

The goal, according to Martin, is to understand "if they can shorten the cycle time of intervention" in order to produce better outcomes by reducing hospital readmissions and/or complications. If all goes as planned, Cleveland Clinic believes that it will be able to use these positive results to request better reimbursement schedules from health plans.

Enhancing clinical efficiency
By combining remote monitoring with traditional in-office visits, Cleveland Clinic is transforming the office visit to be a more engaged and friendly process. Frequent access to patient data can help physicians be more proactive in monitoring patient conditions and allow clinicians to understand more effectively which patients are at risk so they can focus applicable resources to ensure early diagnosis, treatment and reduced cost of disease management.

Empowering consumers

Patients are more interested than ever in taking an active role in healthcare decision-making. "The goal is choice for patients," says Harris. "With HealthVault, patients are no longer a bystander in their care, but an active participant." The pilot program provides patients with increased control of their medical information and an important part to play in the management of their chronic disease.

About HealthVault

Microsoft HealthVault (http://www.healthvault.com/) is a personal health application platform. HealthVault provides a privacy and security-enhanced foundation on which a broad eco-system of providers can build innovative health and wellness solutions such as PHRs, disease management, fitness, weight loss and other Web applications. HealthVault can be used to collect and store health information that would otherwise reside in disparate systems, and transfer the information between a variety of providers' health services and systems. It enables the re-use and free flow of interoperable and transportable personal health information.

About Cleveland Clinic

Cleveland Clinic, www.clevelandclinic.org, located in Cleveland, Ohio, is a not-for-profit multispecialty academic medical center that integrates clinical and hospital care with research and education. Cleveland Clinic was founded in 1921 by four renowned physicians with a vision of providing outstanding patient care based upon the principles of cooperation, compassion and innovation. *U.S. News & World Report* consistently names Cleveland Clinic as one of the nation's best hospitals in its annual "America's Best Hospitals" survey. In 2007, there were 3.5 million outpatient visits to Cleveland Clinic and 50,455 hospital admissions. Patients came for treatment from every state and from more than 80 countries.

About Microsoft in Health

Microsoft is committed to improving health around the world through software innovation. Over the past twelve years Microsoft has steadily increased its investments in health, with a focus on addressing the challenges of health providers, health and social services organizations, payers, consumers and life sciences companies worldwide. Microsoft closely collaborates with a broad ecosystem of partners and develops its own powerful health solutions, such as Amalga and HealthVaul**t**. Together, Microsoft and its industry partners are working to advance a vision of unifying health information and make it more readily available, ensuring the best quality of life and affordable care for everyone.