VH WHITE PAPER

IN PURSUIT OF THE 360 DEGREE PATIENT VIEW

VIRTUALHEALTH

SEAMLESS INTELLIGENCE

SUMMARY

A discussion of the importance of creating an interactive 360 degree view of the patient through a cloud-based platform, an overview of the associated technical and operational challenges in implementing such a solution, and an exploration of how leading healthcare organizations are harnessing this technology to realize key benefits.

The past decade has seen a tremendous shift in how information technology is leveraged within healthcare. The use of electronic health record systems has progressed from optional to best practice to regulatory requirement.

Rapid improvements in communication and big data tools have made possible telehealth and health analytics. Advancements in technology standards have enabled secure health information exchange. However, this rapid accumulation of available solutions coupled with regional, operational, and management differences among healthcare organizations and providers has also resulted in a highly fragmented information landscape. In such an environment, patient data frequently resides across a range of landlocked IT systems, making it either impossible or impractical to assemble a single longitudinal view and enable meaningful interdisciplinary collaboration.

A fully integrated and seamless 360 degree view of the patient has never been more important. From a clinical standpoint, transparency regarding a patient's past medical history and current lifestyle enhances decision-making, supports optimal treatment, reduces avoidable errors, and improves outcomes. From an organizational standpoint, as more and more organizations shift toward capitation and shared risk, the 360 degree view makes it possible to identify care gaps and address high-risk situations. In turn, this supports proactive rather than reactive care, resulting in reductions in costs and readmissions alongside higher quality of care and better quality of life.

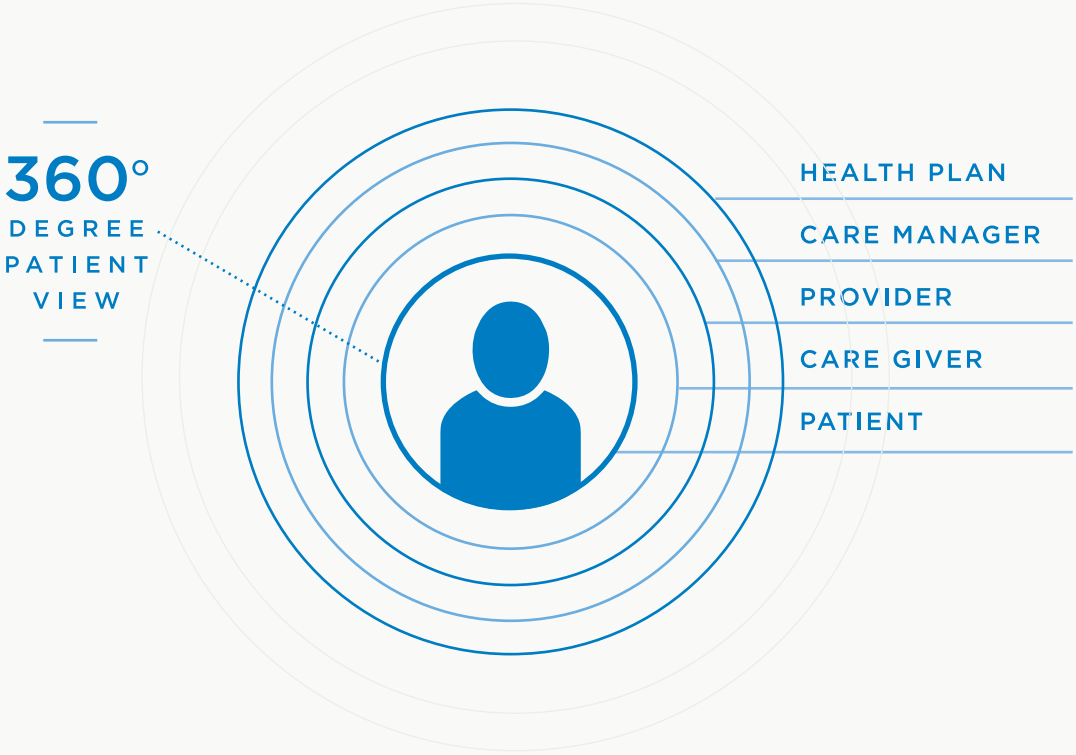
While the 360 degree view of the patient is both a valuable and timely goal, the question is how can it be effectively attained given the disjointed environment of disparate systems and data silos that presently characterize healthcare? In simplest terms, the challenge may be viewed as two-dimensional. The first dimension has to do with creating a single, consistent data set describing each patient while the second dimension has to do with creating tools for working with that data collaboratively by members of interdisciplinary care teams. Until now, there has not been a comprehensive, practical technology solution for either dimension, as each contains its own unique and extensive technical challenges.

"The Virtual Health analytics engine makes it possible to overlay the full spectrum of algorithms and statistical computations over any facet of the platform's data warehouse."

After years of research and development work, the team at Virtual Health has been able to create a technology platform that operates in a comprehensive manner along both dimensions. On the data side, the platform is able to interface with the full range of healthcare information and telehealth systems, taking in data via the source system's format and transmission method, then parsing and normalizing this data to a common view. On the tools side, the platform is able to provide highly customizable tools to the full range of professional roles and organizations that participate in the healthcare continuum. These tools empower the real-time usage, modification, and analysis of 360 degree data across individuals and, on an aggregate basis, across populations, in a multidisciplinary, collaborative online environment.

In order to build such a solution, a number of significant technical and operational challenges had to be solved. This included building highly flexible and scalable data schema, creating a secure environment with adjustable role-based access controls, building out modular functionality across dozens of separate operational silos, creating highly intuitive user experiences in the context of highly complex systems and data streams, and creating a platform that had the power of enterprise SaaS but the agility of a custom built solution.

A SINGLE SCALABLE ECOSYSTEM



The development of the solution was sufficiently innovative that at the beginning of the project, there was no term to properly describe the technology that was being built. The platform encapsulated functionality across health information exchange (HIE), electronic medical record (EMR), radiology information system (RIS), laboratory information system (LIS), interface engine, case management, billing, claims, enrollment, telehealth, messaging, and practice and content management. Ironically, by its nature, the design of such a solution was only made possible by breaking down rather than adhering to traditional technology silo distinctions. In the current context of the industry, the platform represents the most comprehensive available population management and care management solution. Such commercial applicability is predicated to a great extent on the platform's capability to generate a 360 degree view of the patient.

At present, the solution is utilized by government, not-for-profit, and for-profit organizations to support tens of thousands of lives across multiple geographic and regulatory regions. Supported patient groups include seniors and persons with disabilities, low income adults and children with chronic and acute illnesses, and individuals with behavioral and developmental disabilities. The teams responsible for providing care coordination and supportive services to these at risk populations have embraced the holistic approach made available by the Virtual Health platform.

Organizations utilizing the solution – from NextLevel, a large-scale Accountable & Coordinated Care Entity in Chicago, to SUS, a major human services agency in New York to the municipal government of North Hempstead, a city of 250,000 residents – have been able to improve health outcomes for patients and quality of life for their households and communities; to enhance collaboration and interdisciplinary partnerships among care teams; to streamline clinical workflows, improving quality and managing costs; and to break down information and service silos.

By way of example, NextLevel's cross-functional team of nurses, care managers and epidemiologists leveraged and tailored the platform's tools, algorithms, dashboards, and business rules, allowing for innovations in risk stratification, workflow management, and use of data analytics to provide a 360 degree view of its members. As a result, NextLevel has been able to actionably engage with more than 50 percent of its many thousands of members in less than four months, a statistic that is a far outlier among care coordination entities in Chicago given the transient nature of their member populations. At the same time, the platform's capability to exchange data with state agencies created an immediate point of differentiation and enabled NextLevel to exceed its original enrollment target by a remarkable 833 percent within the first six months of operation.

The 360 degree view of the patient is the ultimate upshot of effectively leveraging the state-of-the-art in technology to address the shortfalls in the existing healthcare information technology landscape. Virtual Health's comprehensive solution is important from both academic and industry standpoints: academically, it provides one possible answer to a complex and important problem and, industry-specific, it offers healthcare organizations managing diverse patient populations an opportunity to provide better service with greater efficiency and gain insights never before possible.

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