PitchBook

PitchBook Data, Inc.

John Gabbert Founder, CEO

Nizar Tarhuni Vice President, Institutional Research and Editorial

Paul Condra Head of Emerging Technology Research

Institutional Research Group

Analysis

Rebecca Springer, Ph.D.
Senior Analyst, Healthcare Lead
rebecca.springer@pitchbook.com

pbinstitutionalresearch@pitchbook.com

Publishing

Designed by **Chloe Ladwig**

Published on July 3, 2023

Contents

INDUSTRY RESEARCH

Anatomy of a Population Health Program

Lessons in value-based care from Lehigh Valley Health Network

PitchBook is a Morningstar company providing the most comprehensive, most accurate, and hard-to-find data for professionals doing business in the private markets.

Key takeaways

- The development of Lehigh Valley Health Network's (LVHN) population health strategy illuminates the challenges and opportunities that health systems face in pursuing value-based care and presents lessons for investors in healthcare IT and provider companies.

- For health systems that have or can hire the necessary talent and want nimble, customizable software, solutions that provide the nuts and bolts of data integration and enrichment may be attractive. Turnkey tech solutions must find other ways to replicate the engagement that build-it-yourself projects can engender among clinical staff.

- It is difficult to understate the importance of change management for organizations undertaking value-based care initiatives—or, for that matter, any significant technology-driven clinical transformation. We believe many healthcare IT startups will live or die based on the quality and scalability of their implementation services.

- Claims and EHR data integration is necessary but not sufficient for good value-based contracting: Provider organizations need payer savvy. LVHN benefited from leaders with deep experience in payer-contracting processes and negotiations, in addition to a robust, data-first approach.

- Health systems pursuing a population health paradigm must walk a financial tightrope; LVHN's success required years of organizational education and alignment work. Investors should be confident in the value-based care transition but cautious in estimating how long it will take.

Introduction

Value-based care (VBC) is one of the secular shifts transforming the healthcare industry today, alongside AI and data integration, consumerization, and site-of-care innovation. We have written extensively about investable opportunities in the value-based care transition, including in technology providers and in physician groups. Investors are generally familiar with the numerous VC- and PE-backed care delivery companies that have sprung up since the mid-2010s with VBC-focused models, from Medicare Advantage (MA)-focused enablers such as agilon, to Medicaid-focused clinic builders such as Cityblock, to chronic-condition specialists such as Monogram. They may have less familiarity with the decades of work done by nonprofit health systems to build patient-centric and financially sustainable population health programs.

For PE and VC investors, understanding how health systems approach population health is critical for several reasons. First, health systems are the key customer group for many technologies and ancillary services. Second, health systems partner with technology companies and provider groups to incubate and pilot new technologies—and may have diverse and complex reasons for choosing with whom to partner and whether to partner at all. Third, many of the challenges faced and solutions identified by health systems in implementing VBC are applicable to other provider types.

Background: Population health at LVHN

This note reviews learnings from Lehigh Valley Health Network's (LVHN) population health program as a case study. LVHN is a midsize, 13-hospital system in eastern Pennsylvania, with its flagship campus in Allentown. The system serves a population of around 1.5 million across 10 counties. In 2014, under a newly appointed CEO, the system committed to a strategic orientation around population health. LVHN leadership recognized that healthcare delivery in the US was shifting inexorably toward value and that the long-term survival of health systems such as LVHN would be tied to that transition. Around the same time, LVHN also created Populytics, a for-profit, wholly owned subsidiary company that manages LVHN's employee health plan and powers LVHN's health data analytics capabilities. Populytics recently began marketing third-party health benefits services, including direct contracting and an employee assistance program, to employers. In addition to Populytics, the LVHN has invested in numerous administrative initiatives, clinical programs, and community partnerships while gradually expanding its value-based contracting with a growing set of payers. Now, around one-third of LVHN's core (repeat) patient population is attributed to value-based contracts, and these contracts have a track record of successful outcomes.

Below, we describe key elements of LVHN's value-based care journey and offer takeaways for investors in VBC healthcare IT and provider companies.

Technology and care coordination foundations

Building a successful population health program requires considerable upfront investment to measure, predict, and improve clinical outcomes. A key capability is population risk stratification and predictive analytics. Populytics built capabilities including:

- Service-line specific dashboards to help specialty providers manage and measure compliance to optimal inpatient and ambulatory care.
- Contract-specific dashboards, both financial and clinical.
- Care management registries to identify and direct care management resources toward specific patients to prevent higher acuity care episodes.
- Evidence-based inpatient and ambulatory clinical pathways and defined care episodes. (Populytics contributed to the development of these care pathways using value-based data and metrics.)
- Clinical indicators such as ED visits, admissions, and care gap closures to measure.
- Operational indicators such as care alignment (i.e., patients receiving care outside of LVHN's network).
- Financial indicators such as patient spend (for predicting and measuring VBC contract performance).

Populytics custom-built its own dashboards and visualizations using Tableau. These sit atop a data mart that integrates LVHN's electronic health record (EHR) data and claims data, with Optum performance analytics and risk-scoring applications used for data enrichment. Other back-end functions, such as hardware, cloud architecture, and disaster recovery, are also outsourced, and Populytics also uses other third-party analytics tools. Patients are stratified by risk (including low, high, or rising) as well as projected care cost. Recently, Populytics has focused on building increasingly sophisticated predictive capabilities. For example, a novel capability predicts an elevated risk of developing ketoacidosis, a life-threatening complication of diabetes, in advance. Another near-term goal is the ability to stratify patients not only by risk but also by specific value-based performance impacts in order to strategically direct resources and improve contract performance.

Populytics gradually built these data analytics capabilities as more and larger value-based contracts were negotiated, bringing in additional data types and expanding population visibility. Recently, Populytics evaluated social determinants of health (SDOH) data vendors and explored adding social screening surveys to capture additional patient demographic, social, and health history data at intake.

In addition to significant data integration and analytics build-out, a successful population health program must leverage those data resources to deploy robust care coordination and transition-of-care support. LVHN built an Integrated Care Coordination department that provides services for specific populations based on risk and contract attribution, such as:

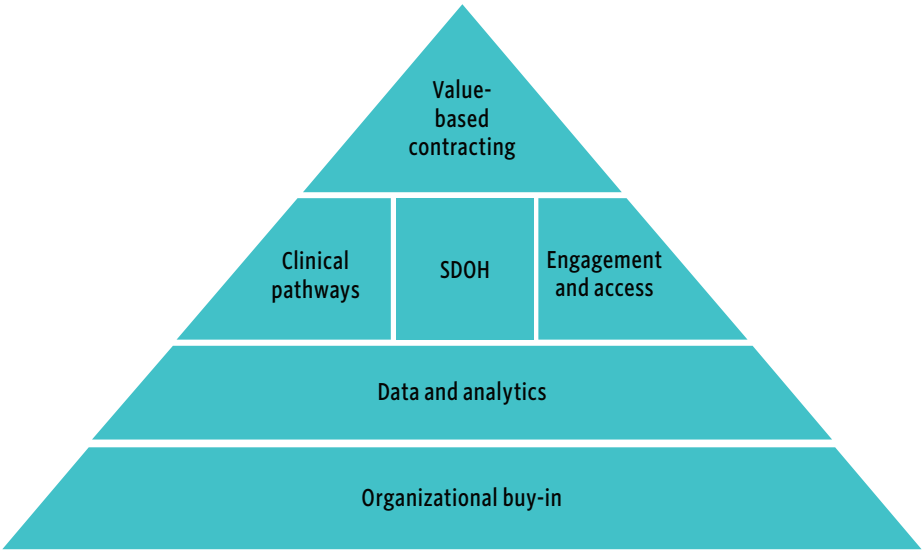
- Community care teams—comprising an RN case manager, a pharmacist, a behavioral health specialist, and a social worker—and high-risk transition teams, both of which help patients access prescriptions, behavioral healthcare, and social services.
- A transition-of-care call center, which reaches out to patients after hospital discharge.
- Surgery navigation teams, which provide transportation to and from appointments for specific patients, coordinate durable medical equipment, and offer other services to aid post-surgery healing.
- A prescription assistance program, which helps patients access manufacturer financial assistance programs for specialty medications.

The system also works with community partners to provide medication-assisted treatment to individuals in underserved communities who have opioid addictions. In February, LVHN announced a partnership with UHS to build a new behavioral health hospital to enhance its ability to care for mental health patients in the most appropriate setting.[1]

In-house tech development

Health systems pursuing population health can select from a growing universe of healthcare IT and digital health solutions. However, LVHN found value in building its own analytics capabilities in-house via Populytics for several reasons. First, the company can be nimble in creating bespoke solutions as needs arise. Second, Populytics was able to hire the right technical talent, including data engineers and full-stack web developers. Third, and most importantly, Populytics' leaders worked directly

Components of a population health program



with LVHN providers to develop a clear understanding of exactly what information they would need to see, and how they would want to see it, in order to orient their practice toward population health. They then worked backward from the clinicians' needs to build bespoke data solutions. Leadership determined that the ability to fully control data presentation was worth the effort of building front-end tools from scratch. Moreover, the process of building dashboards in consultation with clinicians helped to increase provider buy-in.

Health systems regularly incubate technology companies that go on to raise VC funding and offer third-party services to other systems. Recent examples include Inbound Health, a hospital-at-home startup that raised $20.0 million from Flare Capital Partners and McKesson Ventures as a spinout from Allina Health in December 2022, and CodaMetrix, a coding automation tool developed at Mass General Brigham

1: "Lehigh Valley Health Network and Universal Health Services Announce Plans to Build New Behavioral Health Hospital," UHS, February 13, 2023.

Leadership determined that the ability to fully control data presentation was worth the effort of building front-end tools from scratch. Moreover, the process of building dashboards in consultation with clinicians helped to increase provider buy-in.

that raised $57.4 million in a SignalFire-led round in February 2023. LVHN initially explored a Populytics spinout before deciding that the company's greatest value (for the time being) would be in focusing on enabling LVHN's mission-critical population health transformation. Populytics' recent expansion of third-party employer services represents a new growth opportunity based on the success of LVHN's own population health program.

Key takeaways for investors

Healthcare IT vendors sometimes bemoan health systems' propensity to build technology capabilities in-house rather than purchasing third-party solutions. The factors that drove LVHN's decision to buy rather than build are instructive. For health systems that have or can hire the necessary talent and want software with customizability and nimbleness, solutions that provide the nuts and bolts of data integration and enrichment, such as Health Gorilla and Zus, may be attractive. Additionally, turnkey tech solutions must find other ways to replicate the engagement that build-it-yourself projects can engender among clinical staff. If physicians are not involved in the actual creation of the product, what other ways can they be included in the implementation process in order to ensure buy-in?

LVHN's experience with Populytics also highlights challenges for investors that seek to spin out companies based on solutions developed in-house by health systems. While there are certainly successful examples of this model, in-house solutions may rely heavily on internal IP and organizational buy-in that are difficult to replicate. More importantly, the health system that developed the solution may be more interested in either directing resources inward or disseminating them through other means, such as by open-sourcing code or by expanding its own network, as with Kaiser Permanente's creation of Risant Health.

Creating clinician alignment

Physician buy-in undergirds all successful population health programs because practicing collaborative, data-driven, prevention-focused care often requires modifications to workflows and treatment patterns. For providers already operating within staffing constraints and shouldering significant EHR documentation burdens, change can feel disruptive and burdensome if not underpinned by a conviction that new approaches will improve patient outcomes and provider experiences.

LVHN took a thoughtful approach to culturally aligning providers with its population health transformation, starting with leadership and organizational decisions. LVHN shifted away from the academic model of health system organization—discrete, hierarchical departments organized by specialization—to operate under five broader service lines that promote interdisciplinary collaboration: acute care, specialty care, women's health, psychiatric and community health, and primary care. Five institutes (oncology, orthopedics, neurology, cardiology, and surgery) and the system's pediatric hospital are carved out from these service lines. Institutes are overseen by Physicians-in-Chief, while service lines are overseen by Chief Medical Executives. These leaders work in partnership not only with SVP- or VP-operations leaders but with two physician leaders, a Chief Quality and Patient Safety Officer, responsible for driving quality, and a Chief Value and Ambulatory Care Officer, responsible for driving value. This structure

facilitates alignment around shared VBC key performance indicators. It also ensures that physician (rather than nonphysician) leaders are designing and presenting data to other physicians to highlight problem areas and rationalize changes, which helps increase trust. LVHN has seen high physician engagement with Populytics dashboards and visualizations as a result, with physicians proactively studying and raising questions about the data.

Compensation has also been an important tool in building clinician alignment at LVHN. The system now compensates all employed primary care providers using value-based performance incentives rather than relative-value-unit-based incentives. Achieving the organizational buy-in to implement this program required years of education and foundational work. This augments work that the Leghigh Valley Physician Hospital Organization has undertaken over decades to educate and incentivize its members (both employed and independent) to improve performance in quality and value-based contract arrangements. In addition to compensation, LVHN provided medical scribes to ease clinicians' administrative burden while implementing new value-based care workflows.

Key takeaways for investors

It is difficult to understate the importance of change management for organizations undertaking value-based care initiatives—or, for that matter, any significant technology-driven clinical transformation. We believe many healthcare IT startups will live or die based on the quality and scalability of their implementation services. Simply offering training and troubleshooting support is often not enough. Is the value proposition for the changes being proposed—not just to the bottom line, but to patient experiences, population-level outcomes, and provider work satisfaction—clearly supported by data? Is that data presented in a way that is intelligible to clinicians? Does the technology or project align with provider incentives—both compensation and work/life balance?

It is difficult to understate the importance of change management for organizations undertaking value-based care initiatives—or, for that matter, any significant technology-driven clinical transformation. We believe many healthcare IT startups will live or die based on the quality and scalability of their implementation services.

No data, no deal

In setting up value-based contracts that would position its population health program for clinical and financial success, LVHN benefited from leaders with deep experience in payer-contracting processes and negotiations, in addition to a robust, data-first approach. The contract negotiating team takes a "no data, no deal" stance, insisting that payers share historical claims data to facilitate a two-sided discussion regarding risk adjustment. This demanded a team that was equipped to work with claims data on the Populytics side and required that payer claims data be kept solely within Populytics' database architecture to avoid broader exposure of proprietary data within LVHN. (Populytics is currently evaluating technical and payer requirements for moving its data storage processes to LVHN.) The Populytics team examines payers' own assigned risk scores and compares their patient population to that of peers for commercial plans or calculates historical medical loss ratios for MA plans. For negotiations with MA plans, they also delve into the payer's bid process with the Centers for Medicare & Medicaid Services.

Even for an experienced population health program, predicting outcomes in shared risk contracts is difficult. LVHN has a rigorous quality measurement program and has been able to consistently hit contract quality targets. Total-cost-of-care measures in shared risk contracts are more difficult to predict because circumstances outside the system's visibility or control can shift population health dynamics year to year. COVID-19 is the obvious example, but the phenomenon is not limited to pandemic-scale events. Recognizing this inherent uncertainty, Populytics runs Monte Carlo simulations to understand potential outcome scenarios and sets conservative projections for the purposes of financial planning. LVHN has performed extremely well in some contracts and has had mixed results in others; in the latter case, Populytics' capabilities allow leaders to pinpoint and address drivers of underperformance.

Key takeaways for investors

Many provider startups and PE-backed groups seek to take on value-based contracts as a key part of their business model or value proposition. These groups cannot be successful unless they have a robust understanding of how payers approach network and plan construction and underwriting and can mirror payers' own actuarial capabilities. On the technology side, this requires the ability to integrate claims with EHR data. Healthcare IT vendors that enable this integration, such as Cedar Gate and Arcadia, should continue to see strong demand.

Claims and EHR data integration is necessary but not sufficient for good value-based contracting: Provider organizations need payer savvy. In building its value-based care capabilities, LVHN hired payer-experienced population health experts to help build its applications. Care delivery startups should consider hiring leaders who have spent significant portions of their careers in relevant roles on the payer side. We also believe that contract enablement—not just in terms of technology, but actual negotiation—is one of the key "moats" for value-based care enablement companies in the agilon model.

Claims and EHR data integration is necessary but not sufficient for good value-based contracting: Provider organizations need payer savvy.

The financial tightrope

Health systems pursuing a population health paradigm must walk a financial tightrope. On one hand, these systems invest heavily in data analytics, care coordination, and SDOH-related initiatives to improve outcomes across their patient census. This results in some increased primary care utilization—but primary care is a low-margin specialty, accounting for a minute fraction of a system's revenue. At the same time, successful population health efforts can actually decrease utilization of high-revenue fee-for-service (FFS) service lines, such as orthopedics and oncology, because preventative care and appropriate screenings reduce high-acuity episodes and slow disease progression. Winning back that missed revenue through value-based contracts is difficult because the system must progress slowly into greater risk, adding payers one at a time and building out new capabilities as it goes. Early on, population-level outcome improvements may be financially rewarded in contracts representing only a small fraction of the system's revenue. Health systems must enable a total financial strategy to ensure that the overall system margin is not compromised by the impact of population health efforts. The financial difficulties that hospitals have faced in the post-pandemic period exacerbate this tension.

LVHN took a balanced approach to this challenge. Early on in its population health transition, the system invested in improvements to its oncology, cardiology, and surgical institutes, which represent high-revenue, primarily FFS service lines. This provided additional revenue to undergird investments in preventative care and cushion the resulting reduced utilization. Another important revenue lever was care alignment. Populytics data revealed that members attributed to LVHN primary care providers were receiving 40% of their care outside the system. The team brought care alignment to nearly best-in-class levels by addressing not only physician referral habits, but scheduling and access issues to ensure that patients could receive timely specialist care within LVHN. The system also identified operational efficiencies to trim costs without sacrificing care quality.

Support for population health throughout the organization has also been critical. Populytics leaders recall frank conversations with department chairs in which both parties acknowledged they were working together to miss budgeted utilization targets. The balancing act has proved successful: LVHN reported a 2% operating margin in 2022,[2] compared with the national median hospital operating margin of 0.8% in the same period.[3]

Key takeaways for investors

In evaluating value-based care transition as an investing theme, investors must hold two realities in tension. First, many, if not most, health systems in the US must ultimately make a value-based care transition if they are to survive. Healthcare cost inflation and population aging have made the fee-for-service paradigm unsustainable; payers and/or regulators will force costs out of the system, gradually shortening the financial lifeline on which most systems rely. Second, it is a herculean task for a health system to move significant portions of its patient population into value-based care. LVHN's success required years of organizational education and alignment work, which no third-party IT solution can replace. This means that progress will be piecemeal, driven by leadership teams with high conviction as well as by M&A and enabler networks. We believe investors should be confident in the value-based care transition but cautious in estimating how long it will take.

We believe investors should be confident in the value-based care transition but cautious in estimating how long it will take.

2: "2022 Annual Report: Combined Financial Statements," Lehigh Valley Health Network, June 30, 2022.
3: "National Hospital Flash Report," Kaufman, Hall & Associates, May 2023.