

Taking financial risk: A primer on IT infrastructure

Part 4: How managing populations
helps you manage risk



Part 4 contents

- 3 Diving into data
- 4 Population health management checklist
- 4 Intelligent outreach
- 4 Tech supporting the human element
- 5 Seeing the whole picture
- 5 Comparing stats
- 6 Impacting the bottom line
- 6 Hypothetical scenario 1
- 6 Hypothetical scenario 2
- 7 Not easy, but worth it
- 8 About IBM Watson Health

About this white paper

This IBM Watson Health™ white paper is designed to be a four-part exploration of the financial risk healthcare providers face when engaging in payer value-based care contracts — and the role technology can play in the successful management of those risks.

Read the entire series, or click through to individual parts below.

[Part 1: Why it matters →](#)

[Part 2: Which risk is right for you? →](#)

[Part 3: Embrace the bundle →](#)

[Part 4: Managing populations to manage risk →](#)

In financial risk arrangements, population health management (PHM) plays a critical role. By keeping people as healthy as possible and preventing hospital admissions and emergency department (ED) visits, healthcare organizations can maximize their financial upside in risk contracts.

To achieve this goal, providers must manage chronic diseases consistently and encourage their patients to get appropriate preventive care. All of this requires the use of advanced IT to keep track of what is happening with individual patients and populations in near real-time.

Independent practices that are patient-centered medical homes (PCMHs) are not as well positioned as accountable care organizations (ACOs) and healthcare systems to take this journey, because their electronic health records (EHRs) provide only limited support and they usually can't afford third-party PHM software. However, PCMHs can join ACOs or other clinically integrated networks, and many of them are part of healthcare systems. In addition, some payers offer incentives to PCMHs, and Medicare's Comprehensive Primary Care Plus (CPC+) program, as discussed earlier in this series, gives care coordination fees and performance-based payments to practices that follow the PCMH model.

What follows are some key considerations and strategies for healthcare organizations that want to manage population health. A pair of accompanying hypothetical examples show the potential path of organizations pursuing population health management.

Diving into data

Achieving success in PHM — defined as the Triple Aim of higher quality, lower cost and a better patient experience — requires timely, comprehensive clinical and claims data, as well as data on social determinants of health. Ideally, the data should cover the services a patient has received in all settings of care over time. But interoperability among EHRs is still limited, so the clinical data that healthcare organizations receive from other providers is usually incomplete.

Healthcare organizations that undertake PHM should consider building an IT infrastructure based on a “data lake,” an advanced type of data warehouse that uses an ad hoc approach to gather data and run reports. Among the advantages of this big data approach, which is dynamic rather than based on static rules, are flexibility, timeliness and scalability.

A data lake can be the foundation for the integration of clinical, claims and other kinds of data from diverse sources. After the data has been normalized, each bit of information is assigned a metadata tag. The system can integrate this data as needed in reports designed to meet operational goals.

All of the risk arrangements explored in this series require quality improvement and reporting. A data lake can be used as the basis for a comprehensive quality dashboard, or virtual chart, that allows physicians to drill down to an individual patient and find out how the patient met an element of a quality measure and where that data element came from.

The virtual chart also shows the care gaps that need to be filled for that patient to maximize quality scores in the Merit-Based Incentive Payment System and other value-based reimbursement programs.

Population health management checklist

Healthcare organizations must build many core competencies to succeed in PHM. Among other things, their IT infrastructure must:

- ✓ Match patients with their health data and attribute them to providers
- ✓ Use predictive analytics to identify high-risk and rising-risk patients
- ✓ Identify care gaps for the patient population
- ✓ Support care management of high-risk patients
- ✓ Support care coordination, including notification of hospital admissions and discharges
- ✓ Reconcile medications at transitions of care
- ✓ Create processes for chronic disease management and preventive care
- ✓ Provide preventive and chronic care reminders at the point of care and alert patients between visits
- ✓ Engage patients with educational content and community resources
- ✓ Evaluate the performance of the organization and its sites and providers
- ✓ Use financial risk models to measure performance against budgets
- ✓ Identify areas (for example, service lines, care settings, programs) that have high spending and figure out how to reduce waste
- ✓ Calculate payment distributions and track disbursements to providers
- ✓ Provide insights into cost, utilization and out-of-network services

Intelligent outreach

Physician practices can use web-based registries interfaced with their EHRs or with a data lake to compile lists of subpopulations that need particular kinds of preventive and chronic care, such as annual mammograms for women over age 50 or HbA1c tests at particular intervals for diabetic patients.

Evidence-based clinical protocols can be used to trigger alerts in these registries. When the registry is linked to an outbound messaging system, patients can be notified by automated telephone, email or text messages to contact their physician for an appointment. This approach has been shown to increase the number of people who receive recommended care¹.

Tech supporting the human element

Care management of high-risk patients is essential to reducing hospital admissions, readmissions and ED visits. These patients can be identified with manual chart reviews, but risk stratification software can do a better job with much less effort. This kind of solution uses risk evaluation algorithms to predict which patients are most likely to get sick or sicker and to have a bad outcome unless they are placed in a care management program.

Cognitive computing, a branch of artificial intelligence (AI) used in clinical decision support, could also play an important role in care management. Cognitive applications could mine clinical, administrative and sociodemographic data and glean personalized insights for more targeted care management².

For example, one cognitive solution enables care managers to ask particular patients the right questions, using preprogrammed content and branching logic. This kind of application, which continuously improves as it learns, can also:

- Show the care gaps of patients and the latest clinical data on them
- Give care managers the tools they need to create a care transition plan after hospital admission and assess patients' risk for readmission
- Automatically generate evidence-based care plans
- Enable care managers to document their interactions with patients
- Allow care managers to search their own and other care team members' notes for relevant information³

Seeing the whole picture

While a focus on high-risk patients can provide an immediate return on investment, it is insufficient for PHM success. The ability to curb overall costs depends on effective chronic disease management and preventive care. So a robust PHM initiative seeks to engage healthy and rising-risk patients in taking better care of themselves⁴.

The keys to meeting these goals are automation and community services. Automated tools such as the patient alerts mentioned earlier and online patient education programs directed at specific subgroups can be used to improve population health. In addition, social determinants of health, such as socioeconomic status, environmental factors and transportation, have a big impact on health⁵.

Healthcare organizations should integrate data on these factors into their systems and care plans — a resource-intensive approach that can benefit from the use of cognitive computing. The ability to enlist community resources, such as transportation for seniors and housing agencies, can also play an important role in improving health outcomes⁶.

Comparing stats

Physicians are the quarterbacks of care redesign. While financial incentives influence physicians, so does performance feedback that compares them with their peers. That's why it is essential for healthcare organizations to keep doctors informed about their performance. This includes not only the quality of their care, but also the costs and utilization of services, which determine profit or loss in risk contracts. Their performance may be compared to that of their group, ACO or national benchmarks for their specialties.

The healthcare organization should also compare care sites to one another and compare the organization's performance as a whole to national benchmarks and its own past performance. The business intelligence applications that they use for this purpose should allow them to drill down into the clinical and financial areas that affected their performance.

Impacting the bottom line

The paramount goal of a risk-taking organization — besides providing high-quality care to its patients — is to reduce spending to a level below the budget or the historical benchmark. Claims data yields the most comprehensive method of tracking costs. But such data may not be available for several weeks or months after the date of service. So organizations need analytic applications that can extract utilization metrics from clinical data to show cost trends. Examples might include the number of ED visits in particular population segments or the number of imaging tests ordered for patients with certain conditions.

To calculate whether particular risk contracts are likely to result in a profit or a loss, organizations

could use an AI application that casts a wider net for patient information than conventional predictive modeling solutions do. Instead of just using demographic and diagnostic data, this kind of solution also incorporates data on a patient's medications, lab results and procedures, as well as their prior costs and utilization across the full longitudinal care process.

From this matrix of data, the organization can derive a risk score for its population in relation to a national benchmark. Then the organization multiplies that risk score times the average cost of caring for a patient and the number of patients to predict what it will spend in the next year. The organization can compare the result with the capitation amount or other value-based payment that the payer is offering.

Hypothetical scenario 1

ACO in Medicare Shared Savings Program, Track 1

Collaborative Healthcare, an ACO, has chosen to participate in track 1 of the Medicare Shared Savings Program (MSSP). It cannot lose money directly in that track. But the ACO's members hope to receive at least enough in shared savings to cover the cost of the infrastructure they've built, including software and care coordinators.

The ACO focuses on high-risk care management to reduce the number of hospital admissions and ED visits. It uses risk stratification and predictive modeling software to forecast which patients are most likely to be high utilizers in the coming year.

In addition, the ACO's financial risk management software helps its leaders get a handle on overall utilization and how it can be better controlled. The ACO provides feedback to physicians on their cost and utilization to incentivize improvement.

Hypothetical scenario 2

ACO in Medicare Shared Savings Program, Track 2

Another ACO, which has been in track 1 of the MSSP for several years, recently decided to take on downside risk in track 2. To be prepared for that, the ACO's leaders felt they needed not only claims data but also integrated clinical data from their members, including the local hospital and practices with multiple EHRs. So, with financial help from the hospital, they invested in a data lake that came with analytics designed for population health management.

Now they have the ability to risk-stratify patients, find care gaps and reach out to them automatically or place them in care management. They have another application that supports their care managers so they can personalize their interactions with patients, monitor their progress and generate new care plans. A clinical decision support tool helps physicians tailor their treatment plans to individual patients, using data on the outcomes of similar patients who were treated in various ways. The physicians are also able to determine which community services might be able to help a particular patient based on data about his or her social determinants of health.

Not easy, but worth it

PHM is complex, encompassing not only the health of a healthcare organization's patients, but also its financial risk management. Unless the organization learns how to manage within a budget while providing high-quality care, it may lose money in risk contracts.

To optimize patient outcomes in the most efficient way, the organization needs many forms of health IT — including AI — that can integrate data across care settings, analyze health risks and care gaps, and generate insights for robust financial management.

For more on this topic, read the rest of this series, *Risk: A primer on IT infrastructure*.

Part 1: Why it matters →

Part 2: Which risk is right for you? →

Part 3: Embrace the bundle →

Part 4: Managing populations to manage risk →

Notes

¹ Ashok Rai, Paul Prichard, Richard Hodach and Ted Courtemanche, "Using Physician-Led Automated Communications to Improve Patient Health," *Journal of Population Health Management*, Vol. 14, 00, 2011. doi:10.1089/pop.2010.0033.

² Richard Hodach, Paul Grundy, Anil Jain and Michael Weiner, *Provider-Led Population Health Management: Key Strategies for Healthcare in the Cognitive Era, Second Edition*, 219. Indianapolis: John Wiley & Sons, 2016.

³ IBM, "IBM Watson Care Manager Product Overview," https://www.ibm.com/support/knowledgecenter/en/SSRMV7/com.ibm.iwcm.doc/care/c_cp_product_overview.html.

⁴ Institute for Health Technology Transformation, "Population Health Management: A Roadmap for Provider-Based Automation in a New Era of Healthcare," 12, http://www.exerciseismedicine.org/assets/page_documents/PHM%20Roadmap%20HL.pdf.

⁵ Edward Blatt, Eloise O'Riordan, Ljubisav Matejevic and Martin Duggan, "Addressing social determinants and their impact on healthcare," IBM Cúram Research Institute, February 2013, accessed at https://www.longwoods.com/articles/images/SocialHealth_IBM.pdf.

⁶ Ken Terry, "Why physicians must step up, address social determinants of health," *Medical Economics*, February 25, 2017, <http://medicaleconomics.modernmedicine.com/medical-economics/news/why-physicians-must-step-address-social-determinants-health>.

About IBM Watson Health

Each day, professionals throughout the health ecosystem make powerful progress toward a healthier future. At IBM Watson Health, we help them remove obstacles, optimize efforts and reveal new insights to support the people they serve. Working across the landscape, from payers and providers to governments and life sciences, we bring together deep health expertise; proven innovation; and the power of artificial intelligence to enable our customers to uncover, connect and act — as they work to solve health challenges for people everywhere.

For more information on IBM Watson Health, visit ibm.com/watsonhealth.

© Copyright IBM Corporation 2018

IBM Corporation
Software Group
Route 100
Somers, NY 10589

Produced in the United States of America
March 2018

IBM, the IBM logo, ibm.com and Watson Health are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies.

A current list of IBM trademarks is available on the web at "Copyright and trademark information" at: ibm.com/legal/copytrade.shtml.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

The information in this document is provided "as is" without any warranty, express or implied, including without any warranties of merchantability, fitness for a particular purpose and any warranty or condition of non-infringement.

IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

Statement of Good Security Practices: IT system security involves protecting systems and information through prevention, detection and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed or misappropriated or can result in damage to or misuse of your systems, including to attack others.

No IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products or services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.