Leveraging High-Volume Data to Improve Population Health

MARKET TRENDS REPORT

Introduction

Data is the lifeblood of healthcare and the foundation for population health management (PHM) initiatives. Data integrated from an expanding array of sources – electronic health records, insurance claims, pharmacy records, IoT, AI and emerging areas in genomic sequencing and social determinants of health – brings new opportunities to prevent and treat chronic conditions, and to provide cost savings for healthcare providers and their patients.

But this massive amount of data also presents complex challenges. Many of today's healthcare technologies are unable to manage the vast amount of information that new data sets provide, and the difficulties of maintaining security around personal health information persist.

Proper data handling is particularly important to improving the health of not just an individual patient, but a larger population. Population health management is a holistic discipline focused on managing the clinical and financial risk of a defined group of patients, with the goal of improving clinical outcomes and reducing cost of care for that population. Aggregating and analyzing data from multiple related sources allows PHM specialists to identify, risk stratify, protect and treat patients while simultaneously controlling costs and ensuring reimbursement.

But harnessing this data requires a flexible infrastructure where data can be seamlessly secured, stored, managed and moved. A strategic solution that serves today's needs with scalability for tomorrow must be in place.

One solution that is proving particularly effective is the hybrid cloud. To learn more about how a hybrid cloud approach helps healthcare organizations retain ownership, control their data and demonstrate compliance, GovLoop partnered with NetApp, a leader in hybrid cloud solutions, for this market trends report. In the following pages, we'll examine the explosion in population health data, identify best practices for how it can be managed in a hybrid cloud and see how the Health Resources and Services Administration is using data to drive outcomes. Paul Smith, Healthcare Strategy Leader at NetApp, will share his insights on the present and future of IT-enabled population health management.

BY THE NUMBERS

83 million

people in the U.S. are expected to have three or more chronic diseases by 2030 —compared to the 30.8 million in 2015.

Source: Milken Institute

133 million or 45%

of Americans have at least one chronic condition which accounts for 75 percent of national healthcare spending.

Source: Health Industry Post

$1.1 trillion

was the total direct healthcare costs for chronic conditions in 2016.

Source: Milken Institute

75%

of hospital CIOs surveyed said that population health management is the top priority, with work beginning in the next 12 months.

Source: Population Health

83%

of enterprise workloads will be in the cloud by 2020.

41%
public cloud

22%
hybrid cloud

Source: Forbes

40%

of stakeholders are making electronic health records optimization a top budget priority over the next three years.

Source: Health IT Analytics

THE CHALLENGE
Accessing and Storing Rising Amounts of Healthcare Data

The healthcare landscape today is rapidly transforming. Costs are rising and chronic health conditions are affecting an increasing percentage of the population. Additionally, treatment models are shifting quickly from a volume-based, fee-for-service model to a value-based system, supported by emerging models that target population health management.

Population health management focuses on compressing patient data across a variety of health IT resources into a single patient record through which care providers are able to improve clinical and financial outcomes. Together, healthcare providers, payers and government agencies are training their focus on early identification of risk and proactive prevention. The goal is to treat like groups of people with chronic conditions at a large scale.

"What we are seeing today is a large aggregation of data," said Paul Smith, Healthcare Strategy Leader at NetApp. "Many times it's in a data lake (or a centralized repository) that comes from feeds like claims data. But, additionally, we see pharma data, lab data, clinical data, in some cases even genomics data."

But a massive challenge remains: **Healthcare technologies are not yet able to access or store the vast amount of information that these new data sets can provide.** Additionally, all of this data lives in so many different places — public clouds, private clouds, on-premises data centers and more — that it can be difficult for healthcare organizations to get a single view of all of their available data.

Finally, the data needs to be accessible both by outside partners for analysis, and immediately and continuously available onsite at the point of diagnosis and care.

THE SOLUTION
Moving to the Hybrid Cloud for Healthcare Data

Moving to a hybrid cloud allows healthcare organizations to embrace the cloud on their terms by integrating on-premises enterprise-class data management and control with the flexibility, speed and economies of cloud.

A hybrid cloud solution also enables providers to adhere to security policies and requirements and promote innovation and IT responsiveness.

"The beauty of the hybrid cloud is that you can reach efficiencies of scale because you are able to combine public hyperscalers but also maintain the sanctity and compliance of your sensitive patient data in your private cloud," said Smith.

Hybrid clouds enable organizations to have greater control, agility and cost efficiency. Combining aspects of public and private cloud environments, hybrid clouds are a good choice for population management initiatives because they are designed to accelerate the journey to higher-quality patient care, enabling better-informed, data-driven decisions.

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>
> *- Paul Smith, Healthcare Strategy Leader at NetApp*

Moving Population Health Data to the Hybrid Cloud

1. Understand what data you have – and don't have

"Any organization will find a 'cold spot' where they have orphan volumes of storage that they've invested in but are not using," said Smith. "They'll also find hot spots that might be bottlenecked because there's too much traffic accessing them." Understanding where these spots are will help you understand what data to move where.

2. Identify your organization's needs

A move to hybrid cloud must consider where cloud services could facilitate better service to your organization's data and users, as well as what security levels are needed.

3. Develop requirements

After you know your organization's needs and security levels, you must develop the actual requirements for the system. This can be a unique challenge because legacy systems must be translated into cloud-based ones.

4. Tier your data to the appropriate device

This means knowing that if the data is accessed regularly, it should be placed on devices with the quickest access and the highest performance. If it's data that is not accessed very often, put it on slower, lower-cost devices.

5. Partner with the right vendor

Partnering with the right vendor that has compatibility with the most prominent hyperscalers is a critical move for any organization looking to move to a hybrid cloud model.

HOW NETAPP HELPS

The digital transformation in healthcare hinges on identifying "right size, right speed, right place" technologies, designed, delivered and proven to accelerate application performance, future-proof investment, and deliver the flexibility to scale capacity and shift data for maximum cost efficiency.

Faster, smaller and more flexible flash arrays deliver ultra-low latency, running clinical applications with unprecedented speed and efficiency. A common platform for EHR, imaging, AI, genomics and IT workloads unifies architecture, tools, processes, protocols and protection.

Cloud-connected flash accelerates clinical applications, workloads and analytics; dramatically improves data center economics; and protects and secures data on-premises or in any cloud environment.

"With NetApp Private Storage, you have the freedom to connect to multiple industry-leading public clouds while maintaining control of your data. This is particularly important when dealing with patient health information (PHI), and helps balance the tradeoffs between capital expenditures and operating expenditures," Smith said.

With the ability to securely share, store and maintain control of your data–including big data from multi-ology images, diagnostic reports and other critical patient-care information systems–NetApp cloud-connected flash solutions provide healthcare organizations with the tools to continue to transform patient care and PHM.

Learn more here: netapp.com/healthcare
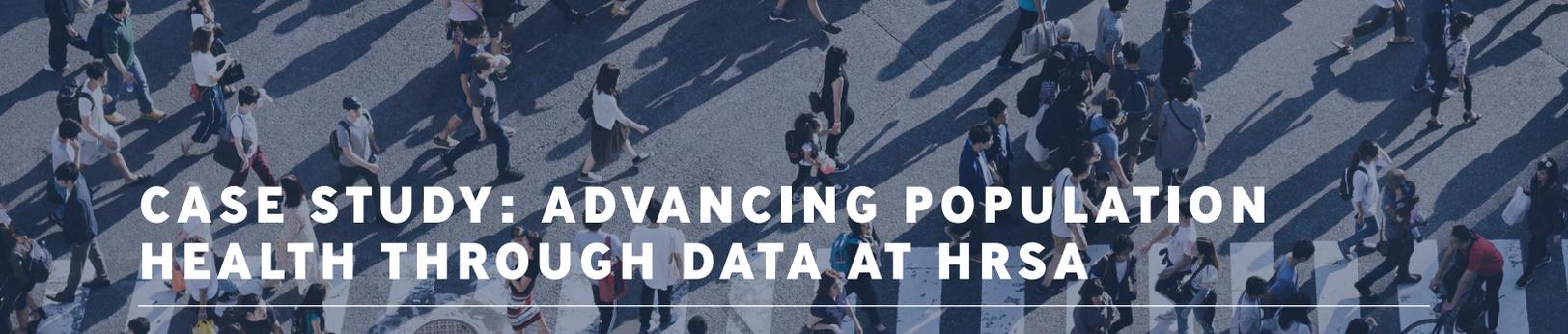
CASE STUDY: ADVANCING POPULATION HEALTH THROUGH DATA AT HRSA

The Health Resources and Services Administration (HRSA) is the federal agency within the U.S. Department of Health and Human Services that administers the Health Center Program and provides grants to federally qualified health centers (FQHCs). These health centers, which are mandated to serve vulnerable and underserved communities, are considered pioneers in PHM strategies in order to best serve their patients and communities.

To learn more about HRSA's efforts, GovLoop spoke with Dr. Suma Nair, Director of the Office of Quality Improvement in HRSA's Bureau of Primary Health Care.

Nair pointed out that HRSA-funded health centers serve an enormous population and therefore create, store and access an enormous amount of data.

"There are nearly 1,400 organizations that we fund through grants that comprise over 11,000 service-delivery sites all across the country and serve over 27 million patients," she said.

Given this massive amount of data, how does HRSA work to support health centers nationwide to analyze and improve operations, based upon the information that they have? The answer to that question has been a focus of Nair's for several years.

"Health centers have a growing cohort of people who are focused on quality improvement and data analytics," she said. "Strengthening both HRSA and health center data infrastructure and analytic capabilities has helped our success in advancing population health."

Nair explained that HRSA is extremely focused on a specific set of clinical measures. Health centers use these metrics to measure success, and in order to do that, they need access to data. They developed the following framework and foundation to enable their cause:

- **Health infrastructure and technology:** Nair said they've worked to make sure their centers have the infrastructure and IT in place to access the data and information to proactively manage the population.

- **Advancing adoption of electronic health records:** "Right now, 99 percent of health centers are utilizing an Office of the National Coordinator for Health Information Technology-certified electronic health record," Nair said.

"In fact, most of them have gone beyond adoption and now are using additional health IT to manage their patient populations and the volume of data, especially as we've moved towards value-based care."

- **Data transparency:** HRSA has then taken this data and made it transparent and public on its website. "If you go to our website, you can find data at the national level, the state level, and a profile for each one of our 1,400 organizations, and you can see how they compare with each other," said Nair. "That's been really transformative in terms of population health management and quality improvement by creating the opportunity to benchmark and identify opportunities for improvement working across health centers locally, statewide and nationally."

- **Employ location data:** HRSA also imports all of its data into a Geographic Information Systems platform. This allows health centers and other stakeholders to understand where patients are, the outcomes they're experiencing, overlaid public health surveillance data and more.

So are these approaches working? According to the metrics, yes:

- Ninety-two percent of HRSA health centers have met or exceed Healthy People 2020 goals.

- A study that looked at 13 states found that, when HRSA-funded health centers are used as the primary care home for patients, there was 24 percent less spending compared with other primary care providers. "We also found that spending on specialty care was 33 percent lower, indicating health center patients were cared for more appropriately in primary care," Nair said.

- There was a 25 percent decrease in inpatient admission, as well as a 27 percent decrease in spending on inpatient care.

- "When extrapolated out to all of our patients who are Medicaid-fee-for-service, that's $10 billion in savings," Nair said.

The outcome is clear: When thinking about population health management nationally, health centers are an important piece of that puzzle – and data is driving their continuous improvement.

Conclusion

As chronic conditions, an aging population and the cost of care continue to escalate, so too will the focus on population health management. The foundation of PHM will continue to rely on access to increasingly large volumes of data, able to be stored, secured, managed and analyzed to better identify, prevent and treat disease. That data must also be portable throughout our complex health care system, which demands both privacy and accessibility. In short, an increase in data storage is a requirement for health care systems and insurers. A move to the hybrid cloud, with its combination of on-premises and public cloud solutions, allows organizations to seamlessly and simply manage data, delivering information and enabling the insights that will help lead the country and its citizens to better health.

ABOUT NETAPP

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations.

For more information, visit www.netapp.com. #DataDriven

ABOUT GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 270,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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