POPULATION HEALTH

Laying the Foundation of Healthcare’s Next Generation of Care

written by

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Introduction

Today’s healthcare executives can define Population Health Management (PHM) in a dozen ways; from the start of the electronic health record (EHR) journey to initiating value-based services and payment reforms, PHM has many facets that are constantly evolving for executives from year to year.

Provider organizations will inevitably weave through four distinct, but intertwined aspects of PHM—data control and governance, population management and risk stratification, care management, and patient engagement. These aspects come together to marry data with actionable campaigns, engage patient communities, and facilitate accountable care to ultimately achieve PHM. Successfully maneuvering through these areas of PHM is simple enough when summed up in one sentence, but the executives of today’s healthcare environment know that the road to PHM is long and winding, with bumps and barriers along the way.

With the enactment of the American Recovery and Reinvestment Act (ARRA) of 2009, which supports the advancement of health information technology (HIT), the industry is truly positioned to make PHM an attainable goal. The slowly evolving federal legislation and advancing HIT increasingly make PHM real for provider communities across the country. The challenge now is pushing forward—using new technologies, applying the potential, and begin making a difference in the health of our individual communities and the nation. In this paper, we will explore the unique milestones and challenges of each of the four aspects, which must be overcome, and what role they play in achieving PHM.

You’re only as Good as Your Data

Population Health is dependent on reliable, actionable patient data that is extracted, aggregated, and analyzed from Patient Health Information (PHI) systems, like EHRs, as well as many other health technologies. Ensuring the data from those systems and technologies is not only accurate, but also normalized to fit industry standardizations is absolutely essential to the success of a PHM effort. An enigmatic definition of that extracted, aggregated patient data is “Big Data,” a widely used, but wildly confusing term assigned to mass amounts of never-before-used data.

“[Big Data] comprises all traditional data plus new forms of data (e.g. real-time streaming device data, unstructured text, genetic data, global information systems, etc.) that were effectively incapable of being captured and used for other than highly specialized intended purposes.”

In the past decade, the healthcare industry has seen a substantial influx of data in the form of EHRs as a result of federal policies and legislation. Last year, The Office of National Coordinator for Health Information Technology (ONC)—responsible for authoring regulations and determining incentives schedules, as authorized by the Health Information Technology for Economic and Clinical Health (HITECH) Act—released a report on the status of EHR adoption in the United States (US). In the report, ONC showed that only 59% of hospitals across the US had adopted a basic EHR system, which is a 34% increase in just a year, from 2012-2013—a five-fold increase from 2008.

Of course, as every healthcare organization knows, there is more to EHRs than just the implementation. The Centers for Medicare and Medicaid Services (CMS) initiated an incentives program, Meaningful Use, to motivate organizations with an adoption-based allowance when providers attain each stage of Meaningful Use. Achieving Meaningful Use has become
quite a task, and sometimes a burden, for many provider organizations, but in the scheme of Population Health, the meaningful use of EHRs translates to achieving PHM through valuable, comprehensive data.

While there has been a significant increase in implementation and meaningful adoption of EHRs and the subsequent collection of data, there is still a substantial chunk of the country not using EHRs meaningfully or accurately, or not capturing data through an EHR at all.¹

Even with the full, nationwide adoption and meaningful use of EHRs, that is only the first step. Mechanisms to collect and aggregate data securely are what make sharing valuable data possible—these are referred to as Health Information Exchanges (HIEs).² These entities are difficult to achieve due to the sensitive nature of the data being shared. To date, many HIE attempts have fallen short of success.¹ Electronic health records have made significant strides in recent years, but by their very nature silo one organization’s patient records from other systems. The ability to securely exchange sensitive patient information to HIEs is imperative for more collaborative, holistic approaches to care and for the success of PHM.

Health information exchanging challenges the industry to change a business model from competitive to collaborative, a change that is difficult and slow moving for many stakeholders. On top of that, there is a lack of trust across HIE participants regarding both the use of their data and the integrity of that data. While there are milestones to overcome, there has been some HIE success, and the benefits of shared information are significant.

“Around 45% of US hospitals are now either participating in local or regional health information exchanges (HIEs) or are planning to do so in the near future…the HIE in the state of Indiana now connects over 80 hospitals and has information on more than ten million patients. Over 18,000 physicians can take advantage of the data.” ⁴ –Center for US Health System Reform Business Technology Office

Organizations, in order to feel confident in their own data, must first focus on the adoption of their EHR and integrity of their data. Structured internal data governance and data control in conjunction with normalization of data with industry standards will make the sharing, collection, aggregation, and utilization of population data seamless for an organization and secure for the patient population when it comes to participating in an HIE.⁵ Building a culture of data confidence and collaborative care efforts is indispensable for organizations on the road to PHM—this is not easily achieved, but as legislation and incentives improve HIT, organizations will be armed with the right information and tools to successfully overcome the challenges of Big Data and the safe, invaluable exchange of patient information.

**Population Stratification—Understanding Your Patient Population**

At the point when an organization is confident in the integrity of their data, and are prepared to extract and analyze that data, they will need to develop a data aggregation and platform integration plan for the Big Data they have been collecting. The catch-22 of aggregating, extracting, and analyzing Big Data in healthcare is that the analytics are only as good as the data. This is why widely-adopted EHR standards are so critical for the success of PHM.

Data mining, or cleaning and aggregating data for extraction, is a delicate endeavor, and requires the utmost respect for patient information—for both a patient’s security and an organization’s integrity. As such, data miners have a particularly challenging task when mining EHR records; patient deidentification and anonymizing are implemented to ensure both
patient security and data integrity. After integrity-rich data has been successfully and safely mined, organizations can see Big Data in a population view, allowing them to better understand their patient population and then identify subpopulations.

Subpopulations are determined by drilling-down population data—subpopulations can be stratified by hundreds of thousands of data points. The possibilities here are truly infinite. Organizations with rich EHR data can drill-down subgroups to highly-targeted populations using demographic and medical record information like sex, race, income level, past diagnosis and procedures, and family history. For example, an organization could drill-down to identify a subgroup of single-parent, female, Medicaid patients who have a history of cancer in their family, were recently diagnosed with high blood pressure, and who live in a low-income area. The benefit to population stratification is being able to then stratify subgroups by risk, referred to as risk stratification, which identifies groups that are at-risk for further illness or continued, chronic illness.

“Providers must be able to identify subpopulations of patients who might benefit from additional services. Examples of these groups include: patients needing reminders for preventive care or tests; patients overdue for care or not meeting management goals; patients who have failed to receive follow-up after being sent reminders; and patients who might benefit from discussion of risk reduction.” —Agency for Healthcare Research and Quality (AHRQ)

Many organizations today already have registries that hold this type of information, but PHM is most effective when organizations are able to utilize real-time population data, not information from a census conducted up to 10 years ago. Health Information Technology holds the potential to take existing EHR technology and escalate it to providing live data, automated notifications, and up-to-the-minute health notifications across an entire population. In order for EHRs and patient registries to be effective, they will require real-time risk stratification, automated algorithms, and report filtering tools to allow clinical teams to immediately understand which patients in what subgroups need priority care, and then intervene and monitor those patients continually. Electronic health record systems are able to generate alerts or reminders to providers and patients via smartphones, but real-time push notifications from live patient data are needed to further empower providers and patients to be proactive instead of reactive in health care.

Patient health is dynamic in nature; patients get better or worse within a matter of days or even hours. Risk stratification, in order to be accurate and usable, should be updated frequently to continually understand and maintain the health of a population—this is where reliable, real-time data from EHRs and other Big Data sources is necessary. Big Data provides healthcare organizations the opportunity to revolutionize care—the possibilities extend far beyond care in one community. Population surveillance, in conjunction with automated alerts and notifications, will play a key role in monitoring, in real-time, bioterrorism threats and other national health threats. EHRs and related HIT investments have cost the industry billions of dollars in the past decade, but the end result of full population health visibility and the benefits that visibility provides to the patient population will be priceless.

Targeted Care Management Models

After population stratification has been performed and subpopulations have been pinpointed, provider organizations are then tasked with another evolution of their population health journey. Having an understanding of what subpopulations are at risk of getting sick or sicker allows organizations to develop and implement comprehensive care models to make a significant impact on the health of at-risk subpopulations.
Definitions of “care model” are vast and constantly evolving, but in the context of population health, can be defined as a staged approach to preventative care and diagnosis, treatment, and management of care that increases the value of a healthcare provider’s services. Care models, or models of care, have been in the industry for decades, and have been especially necessary for the contingency of providers as shifts in treatments, changes in consumer demands, resource and capital restraints, an aging society, increased chronic illness, etc. impact the health systems of the US. Patient-centered-medical-homes (PCMH) and chronic care management programs (for diabetic, chronic pain, or terminally ill patient populations) are just a couple of examples of models of care.

Foundations of today’s care management models include Care Teams (primary care physician, nurses, technicians, administrative staff, nutritionists, pharmacists, personal trainers/rehabilitation services, home health, etc.) dedicated to their patient’s health outside of office visits. A Care Team is there for a patient not just in the office, but wherever the patient has touch points with the health care continuum. The Care Team works in concert to maintain a strong patient relationship, understand changes in a patient’s health and care delivery, monitor improvements, and follow up to schedule next visits.

A successful strategy for nearly all care management models is the implementation of electronic mechanisms for improved patient outreach—or the use of telehealth, defined by the US Department of Health and Human Resources as the use of electronic information and telecommunication to support clinical health outside of a physician’s office. MHealth, or mobile health, strategies have gained increased momentum with the use and availability of smart phones, mobile medical devices, and more across patient populations and providers.

Telehealth has been a widely-used tool in new and old care models. As patient populations become more technology-savvy, offering telehealth services like self-scheduling, electronic record access, electronic access to lab results, educational information, e-visits, teleconferencing, and more become essential tools. The benefits of telehealth to PHM and new care models is that it not only increases contact with a patient, but does so at a lower cost while fostering engagement from the patient for increased participation in managing their own health.

As one example, the Iowa Chronic Care Consortium (ICCC) implemented a telehome care model designed for a heart failure/Medicaid subpopulation in a large health system—a patient population of 266 accruing costs of $24,000 per patient. Using only telephone communication, the ICCC communicated daily with these patients. At the close of the program, the large health system saw a net savings more than $3 million, primarily due to evaded, unnecessary hospitalizations. Other examples of how telehealth strategies can improve the health of a subpopulation include mobile apps to help bipolar patients track and monitor their moods, and computer-assisted cognitive behavior therapy (CBT), which can be used to treat depression, anxiety, and Post Traumatic Stress Disorder (PSTD).

Today, healthcare organizations are thinking about care models that make sense for their patients, and understand that better patient-provider communication will be key in improving population health. The automation of care through real-time patient population alerts, the removal of geographic barriers, and the improved connectivity to patient populations drive innovation in care models, reduce costs, and make PHM more attainable.

The availability of telehealth services is growing, and the investments that organizations are making in the technology will far outweigh the savings of implementing more advanced telehealth services. For example, Mercy, a multistate health care
system, is investing in the future of telehealth with a $50 million, 120,000-square-foot virtual “care center,” slated to open late 2015. The center is expected to manage more than three million telehealth visits in the next five years.9 With younger generations looking for more accessible care (to match every other aspect of their lives) and the increasing availability of technology, advanced telehealth programs like Mercy’s will spread like wild fire across the US.

After all the data is collected and analyzed, after the population has been stratified, and even after care management plans have been developed and set into motion, there is still one element to population health that will be the lynchpin of each aspect—the patient.

Encouraging Engagement: Using Technology to Drive Patient Accountability

Providers are frustrated. A burning question among physicians is “Why should I continue to care about my patient’s health, when they don’t even care?” Physicians are steadily losing enthusiasm for patient outreach, especially when 83% of Americans admit to not following a provider’s treatment plan as prescribed. A shocking 67% of Americans do not eat the recommended amount of vegetables and 40% do not get any exercise at all—two things repeatedly ingrained to us since infancy.9 The point in all these numbers is that the patient population has become far less responsive to care directions and far more apathetic to their own health. The true challenge lies in getting those patient populations—especially those subpopulations difficult to reach—engaged in and accountable for their own health.

With an open admission of guilt when it comes to not following prescribed care routines, of course providers are frustrated; however, patients are frustrated too. Common reasons why patients fail at care plans include: they feel they received inadequate information; the side effects were worse than their original affliction; when they started feeling better they assumed they are cured, not that the treatment was working; the expense was too high.13 The barriers of patient engagement only begin at the willingness of the patient to engage—other barriers include cultural, socio-economical, and geographical demographics, to name a few.

Whatever the barrier, improving patient engagement begins with the provider. Patients do not follow care plans exactly because they are not getting the follow up they need to reinforce treatment or are not offered new options if they are experiencing side effects. If we know that patients do not follow care routines, and we know why, then the responsibility falls on the provider to rethink their care management approach.

“Half of healthcare professionals believe their job begins and ends during regular office visits. One in four believe it’s their job to keep patients on track between office visits.”13

Continually engaging patients in their care plan, based on what their specific subpopulation responds best to, is most effective in creating accountability among a patient population. Engagement in the form of a follow up and care management routine in-between office visits is strongest when supported by an entire Care Team, as discussed earlier. Physicians cannot be expected to call a patient every five days to see how a new medication is going or if a patient has checked their blood sugar, but a care manager certainly can, or an automated encouragement message could be sent via text, email, voicemail, or mobile patient portal application (app).
Various subpopulations require different methods of communication, encouragement, or engagement, and understanding the stratified populations is key—knowing which populations are more receptive to specific engagement strategies and those who are not is the difference between a successful care model and one that falls flat. For example, only 63% of schizophrenia patients own a smart phone, therefore, a Care Team would want to adjust their between-visit outreach strategy for those patients.²

Women populations, depending on their subpopulation status, may need more support from a provider between visits—34% of women say they would follow provider recommendations better if they received reminders via email, voicemail, or text.¹³ As the main decision makers and care takers of the family, women are guilty of putting their own health on the backburner—alerts and reminders keep their health at the forefront of their day-to-day routine.

Of course, every subpopulation has their own complexes when it comes to healthcare, however, with the utilization of EHRs and population stratification, providers can understand the unique engagement needs of each subpopulation to launch better, more targeted care campaigns. Patient engagement, mind you, requires a balance between technology and personal relationships. Data mining, EHRs, remote imaging, mHealth apps, and other technologically advanced health tools are only agents of change; the relationship between providers and patients is what ultimately makes PHM successful.

**Conclusion**

Much of the success of a PHM depends on the success and interoperability of each of these areas. Organizations across the US are coming together to reach the same goals—providing better care for less cost and improving the population’s health as a whole. Through continued EHR adoption, improved data reporting, and advanced analytics in real-time, healthcare providers are closer to standardizing the tools and processes necessary to implement effective care and population management programs. Those tools will give provider organizations the necessary insight to reach their patient subpopulations, engaging them in their own health, and steadily improving the overall population health.
References


ABOUT THE AUTHORS

Dana Alexander MBA, MSN, RN, FAAN is Divurgent’s Vice President of Clinical Transformation and a recognized industry thought leader, with concentrated expertise in population health, accountable care, strategic planning, and clinical transformation. She is a HIMSS Board Member, and extremely active in the healthcare industry. Possessing a strong clinical background in Nursing, Dana brings decades of experience in the clinical environment paired with executive-level experience.

Dana utilizes her industry expertise and clinical experience to work with Divurgent’s clients to implement transformative clinical and business strategies that allow for the collection, measurement, and application of data toward improving the safety, effectiveness, efficiency, and delivery of patient care they provide. Dana’s expertise in population health and analytics, patient engagement, and patient safety, arm Divurgent’s Clinical Transformation Team with the client-focused solutions that improve health outcomes and clinical efficiencies. Divurgent’s Clinical Transformation practice provides our clients with services related to population health management, patient centered medical home, accountable care, transitions of care, Meaningful Use, and other clinical transformation initiatives vital to today’s healthcare providers.

Prior to joining Divurgent, Dana worked with Caradigm (GE Healthcare & Microsoft Joint Venture) as Vice President of Integrated Care Delivery and Chief Nursing Officer, as well as GE Healthcare as Vice President and Chief Nursing Officer. Dana is an active participant in the following organizations: ONC Consumer Engagement Workgroup; HIMSS Board of Directors, Chair-Elect; HIMSS Finance Committee; NQF/MAP Population Health Task Force; MAP Hospital WG; NQF Care Coordination Committee; AONE; ANA; ANF Board Member. Additional honors include her achievement of American Academy of Nursing Fellow and HIMSS Fellow. She is also an accomplished speaker and writer.

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Colin’s industry expertise ranges from pharmaceuticals, provider and payer markets, Health IT, to Accountable Care Organizations, a trend in which he has particular interest in. Author of two books,speaker and thought leader—he has notable influence within the healthcare community.

Currently, Colin is serving as a Fellow in the Healthcare Information Management Systems Society (HIMSS) as well as Past President and Programs Chair of the Virginia HIMSS Chapter. Colin is also a member of the American College of Healthcare Executives (ACHE).

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Focused on the business of hospitals, health systems and affiliated providers, Divurgent believes successful outcomes are derived from powerful partnerships. Recognizing the unique culture that every organization offers, we leverage the depth of our experienced consulting team to create customized solutions that best meet our client’s goals. Utilizing best practices and methodologies, we help improve our client’s operational effectiveness, financial performance, and quality of patient care. For more information about Divurgent, visit us at www.divurgent.com
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