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Population Health NEWS

Developments in Data Science and Population Health

by Michael McCabe

The ability to deliver against the goals of value based care is a function of the ability to understand patient populations and develop effective care plans for those populations. While seemingly simple, these are among the two hardest challenges in healthcare - having vexed the industry for the better part of a decade.

Over that decade, however, new analytical techniques have emerged and evolved - namely machine intelligence. Using these techniques, healthcare can fulfill the promise of value based care by first understanding population risk and then creating multi-factorial care process models for those populations.

More importantly, this is already occurring in practice by innovative players on both the payer and provider side (or both in the case of an IDS).

Let's turn our focus to the challenge of population risk stratification. For too long, payers and providers have viewed their populations through the lens of monolithic disease states. One reason is that traditional analytical techniques are not able to present a clear, justifiable picture of the multifactorial nature of a system's highest utilizers. Because we think of healthcare in terms of the most chronic presenting disease state, we tend to treat and view healthcare through that same lens — missing the fact that these high utilizers are that way precisely because they have multiple comorbidities.

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In This Issue

The 'Patient-to-Consumer Loop'

by John G. Singer

We have effectively killed off the independent sphere. Nature was once a "separate and wild province" from human civilization, as Bill McKibben wrote in his famous 1989 call-to-arms, *The End of Nature*: It was "a world apart from man to which he adapted and under whose rules he was born and died."

McKibben's argument was this: the world as we used to know it and define it has morphed into something completely different, one global system where everything is connected to everything else in one complex, interactive whole. He called for a fundamental, philosophical shift in the way we relate to nature. A whole new taxonomy was needed to shape thinking, creativity, solutions.

"There's still something out there," he said, "but in the place of the old nature rears up a new 'nature' of our own devising" — a construct where "each cubic yard of air, each square foot of soil is stamped indelibly with our crude imprint, our X."

In predicting the structural shift Apple's Health Records will cause in population health management strategies and precision medicine efforts, Shez Partovi, chief digital officer and senior vice president of digital health at Dignity Health, frames things this way:

> *"When you think of personalized medicine, you can think about caring for yourself in two dimensions. There's care management, where a health system or physician or team is managing your care, and there's self management."*

Said differently, "patient engagement" is an under-conceptualized view of how health happens. It implies someone in a clinical setting, reinforces the perception of disease, excludes the role of family and caregivers, and doesn't integrate the social determinants of health as one experience.

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Publisher
Clive Riddle, President, MCOL

Editor
Peter Grant

Population Health News
1101 Standiford Avenue, Suite C-3
Modesto CA 95350
Phone: 209-577-4888 | Fax: 209-577-3557
info@populationhealthnews.com
www.populationhealthnews.com

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Editor's Corner

Greetings readers of *Population Health News*! We are pleased to be bringing you another excellent edition of the newsletter, full of insights from population health professionals who combined real world experience is unparalleled. Thank you again for subscribing and please do not hesitate to contact me should you have any questions, comments or concerns. As well, we always welcome recommendations for content.

Kind Regards,

Peter Grant
Editor, *Population Health News*

Developments in Data Science and Population ... *continued from page 1*

New techniques come at the problem differently. The emergence of unsupervised learning allows payers and providers to find the patterns and relationships that exist in the data without having to have an outcome variable in mind. By not asking a single question (thereby eliminating others), one opens up to the possibility of any number of questions by finding the underlying structure of the data. What emerges from an unsupervised learning approach is a far more fine grained understanding of the patient groups and collections of conditions.

> ***"By not asking a single question… one opens up to the possibility of any number of questions by finding the underlying structure of the data."***

While grossly oversimplified the following example outlines how an already innovative IDS applied these techniques to their population risk challenges. This IDS was working with standard monolithic definitions - let's call them Cancer, Diabetes, Chronic Pain, etc. They knew, and had identified, that there were multiple subgroups of these disease states. Cancer, for example had multiple subtypes that required different care: breast cancer and prostate cancer.

What they also knew, but struggled to find in their data, was that prostate cancer often had accompanying comorbidities and that they were not accounting for that in their care plans as well as they wanted to, or in their financial projections.

By using analytical techniques like Topological Data Analysis, alongside supervised prediction the IDN was able to identify the key populations of prostate cancer + other comorbidities. These smaller patient groups provide for significantly better cost prediction - more than 50% better in than traditional techniques.

The prediction of costs, while important, is not as important of delivering better care to those patients. The multifactorial nature of these patient groups represent a particular challenges for care process model development. Again, because medicine has tended to think monolithically with the most urgent presenting condition, care process models are also monolithic in nature and tend to focus on acute care (total knee replacement, colorectal, CABG). Here again, using unsupervised learning to identify the factors that contribute to better outcomes for similar patient groups - we now have the ability to develop multifactorial, human understandable consensus care paths. This leads, by definition, to more complex and generally longer care process models, but also to better patient results.

This is important because the technology to view the patient in this multi-dimensional space is not enough to deliver against the triple aim. Rather, payers and providers need to embark on a transformative journey to alter their processes, their training and their delivery networks to deliver against this new view of the patient.

Still, these are exciting times for healthcare - we can see how data science can unlock the massive investments in EMRs and EDWs to deliver real value to stakeholders across the board.

Michael McCabe is a Data Scientist at Ayasdi.

The 'Patient-to-Consumer Loop' *... continued from page 1*

Technology is a Form of Biology

Healthcare is really one 'nested market' — it is big business comprised of an ever-expanding zoo of market segments and micro-services, an endless parade of bright and shiny digital objects, all with data that demonstrate promise to improve our health and well being. The reproductive cycle of stuff is an additive process, rather than subtractive. The old media forms endure; the new are layered on top of the previous (for evidence: the fax machine is still the predominant means of communications by the lion's share of physicians).

Our world is not multi-channel. It is infinite channel.

There are islands of features everywhere. The challenge is pulling it all together in a way that a whole system is born and becomes focused on generative value.

Or to put it another way, competing on outcomes means solving for fragmentation and serving a 'patient-to-consumer loop' over a long period of time. This is about harnessing a wide-open space to make things out of ceaseless change, where the next growth curve is based on dissolving boundaries, harnessing flow and connecting the adjacent possible.

Paul Romer, an economist at New York University who specializes in the theory of economic growth, says real sustainable economic growth does not come from new resources, but from existing resources that are rearranged to make them more valuable.

Achieved a 34% reduction in healthcare expenditures

- ***19% direct reduction in PMPM expense***
  - ***Driven by a reduction in hospitalizations, re-admissions, and number of ICU days***
- ***15% reduction in Medical Loss Ratio — MLR related to earlier and appropriate election of the hospice Medicare benefit.***

"Recombination is really the only source of innovation. Economic growth occurs whenever people take resources and rearrange them in new ways."

More succinctly, new growth comes from remixing pieces and parts into novel combinations. Technology is a commodity input to this story, more like electricity.

Outcomes-Based Design

The bigger context, though, is the emerging market transition to outcomes-based competition. Essentially everyone in healthcare — payers, providers, pharmaceutical and medical device companies — is groping their way through the white space.

And if you buy into the logic that it's not just one thing that improves outcomes, but many things simultaneously and interactively, then advantage goes to those who are best at creating and managing unique systems of health engagement. The data that flows from this system, and then refined into specialized cognition, is the thing that generates new business value, supports population health and guarantees performance.

Data strategy becomes market strategy. You design for the analytics you want to capture.

Outcomes-based competition is a strategic transformation. It is not a rigid creed. Rather, it is a spectrum of attitudes, techniques, and tools that promote collaboration, sharing, coordination and unique aggregations. This is a new frontier for design, and a particularly fertile space for innovation.

Health System Strategy

"Digital" is not a stand-alone idea. *It enables a new logic of value creation*. Its value is expressed in the ability to dissolve boundaries, create new identities, remove friction and re-configure entire business systems.

The map changes the landscape.

Or to put it another way, the transformational remit for today's health market leaders is the ability to creatively explore and conceptualize a new territory, assemble the intellectual viewpoint, and then design the new industry infrastructure -- the nervous system -- to own the space.

The objective is to write new rules by which others have to play. This is a race *with* machines, not against them. More like freestyle chess, where the partnership is between man and machine.

"While the provision of palliative care is beneficial for hospitalized patients and their families, this approach has the potential to be very impactful when introduced earlier in the disease process."

Winners are those who can move laterally the fastest, and think at a system level. Cue the entrance of Apple and Amazon…

John G. Singer is the Global Head Of Strategy, Innovation And Technology at Health Business Unit.

Seven Steps to Greater Value-Based Care Profitability

by Tom Zajac

Rather than asking if they can afford to invest in value-based care (VBC), providers should be asking if they can afford not to. While VBC has taken root more slowly than expected, it's clearly here to stay. The cost of inaction is getting steeper as MACRA rewards and penalties increase, as payers emphasize narrow networks and as patients pay a larger percent of their medical costs. Further, organizations that don't start managing population health now may forever cede their place in narrow networks to competitors that are embracing change.

The good news is that the majority of providers are making VBC work. Two proof points: (1) a recent survey[1] found that 76% of healthcare executives say they are generating ROI from VBC, and (2) our customers collectively generate over $700 million in VBC revenues each year. Most of these organizations, however, say that to prepare for VBC, they had to look beyond their EHRs for the VBC functionalities they needed – whether by building it themselves or through third-party population health management (PHM) solutions.

"76% of healthcare executives say they are generating ROI from VBC."

To succeed in VBC, your organization must optimize care quality, patient engagement and utilization so that you can maximize margins at every step along the VBC maturity curve.

- Even if the majority of your revenue is still fee-for-service (FFS), using PHM techniques to manage and close care gaps for your patients increases preventive care and compliance-related visits, driving increased revenues and positioning you for future quality reporting and incentive dollars.
- At partial or full risk, your ability to target impactable patients, motivate their active participation, and manage their access to optimal care will drive patient satisfaction, incentive-based revenue, margins, and competitive advantage.

Implementing a VBC strategy now is a top priority, and will help accelerate your pivot from a business model designed for sick care to one designed to deliver well care.

Seven Steps to Greater ROI

Regardless of where you fall on that maturity curve, building the right strategy can be the difference between success and failure. Here are seven steps you can take to help make VBC pay off for your organization – and your patients. Each is described below.

1. *Increase revenue streams using analytics*
2. *Make it easier for clinicians to use and act on patient insights*
3. *Identify and engage patients who aren't being seen*
4. *Track progress and drive change using dashboards*
5. *Identify and manage patients at rising risk*
6. *Better manage referrals to coordinate care and risk within your system*
7. *Stay connected to extend care anywhere*

1. Increase revenue streams using analytics

Every healthcare organization should have a plan to maximize your FFS visits that align to the quality initiatives in your contract. Effective data management and analytics functionality is critical to help identify patients who have not been seen for preventive care or screenings such as a colonoscopy or mammogram, or those not complying with care management protocols. By sending out proactive reminders for well visits and needed care maintenance visits, you can increase wellness/screening visits (and revenue) throughout the year as well as build continued patient affinity and engagement.

2. Make it easier for clinicians to use and act on patient insights

Most physicians are spending more time today with their EHRs than they are with their patients, and even their spouses or significant others. No wonder they want the process of retrieving, using and analyzing data to be simpler. Organizations that can deliver a single experience with meaningful, insightful, and actionable data within their workflow without creating alert fatigue will prevail.

To give clinicians this ability, your platform should be able to send integrated, automatic alerts when the patient's chart is opened in the EHR, giving your clinicians patient-specific information that guides their treatment decisions, identifies payer quality requirements and helps to close care or coding gaps. That allows the clinician to act while the patient is in the office, driving higher revenues while improving quality and patient satisfaction.

3. Identify and engage patients who aren't being seen

EHRs are purpose-built to document patient episodes and manage billing. If you're responsible for managing population health, your focus is not simply on episodes; your quality scores and risk-based contracting can suffer simply because members of your population are not coming in for care, or not complying with their defined care plan. Patients must be identified, targeted, and engaged, and your VBC strategy needs the support of a comprehensive PHM platform that can aggregate data across locations and sources, identify impactable patients, and support effective coordination and outreach.

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Seven Steps to Greater Value-Based Care Profitability … *continued from page 4*

Agnostic PHM solutions can bridge across multiple EHRs and data sources to analyze data and create a single longitudinal patient record. A Sage Growth Partners survey[2] underscored the importance of looking outside your EHR for this functionality: 46% of respondents believed that having a third-party solution outside their EHR was critical to VBC success.

As an example, a healthcare organization with 19 primary care practices found that two-thirds of its members whose diabetes was poorly controlled weren't being seen regularly by their physician. Using comprehensive PHM methods allowed them to identify these members and engage them in healthier behaviors. After just three months, their practices were able to decrease the percentage of those whose diabetes wasn't under control from 29% to 19%. They then further reduced that percentage (and maintained it for the past three years) to 15% of the total.[3]

4. **Track progress and drive change using dashboards**

After picking the 'low-hanging fruit' of VBC, it can become challenging to achieve continued improvement. For example, many ACOs have mastered quality, wellness visits and yearly visits for members over age 50, but then they hit a plateau. At this critical juncture, they risk losing their providers unless they can obtain the proactive data and insights they need to succeed in the third year and beyond.

To progress beyond the early years of VBC, your organization must have deep population insights. VBC dashboards can help to reveal and prioritize opportunities to improve scores from the prior year, allowing all stakeholders to determine progress and benchmark results at a glance. Activities can be further prioritized by tracking costs and revenues to know which of your potential actions will deliver the greatest impact.

5. **Identify and manage patients at rising risk**

Advancing the VBC agenda, organizations can extend their monitoring horizon by identifying and addressing members of your population that are at rising risk. Intervening before members' health deteriorates can save you significant dollars in the coming years. A study[4] found that, by meeting quality goals for BMI, hemoglobin A1c and blood pressure control, organizations could save more than $2,000 per patient per year in future health cost avoidance.

"A study found that, by meeting quality goals for BMI, hemoglobin A1c and blood pressure control, organizations could save more than $2,000 per patient per year in future health cost avoidance."

Without such proactive interventions, some 10 to 20% of those at risk for a chronic condition will acquire that condition each year[5] and your healthcare risk and expenditures could rise significantly.[6, 7] A 2016 white paper[8] found that a common denominator for success in 17 risk-bearing entities was identifying at-risk patients that could most benefit from proactive care.

6. **Better manage referrals to coordinate care and risk within your system**

You can increase patient affinity, optimize revenues and control costs by better managing patient referrals. One survey[9] found that a third of patients don't follow up on referrals from their doctor, and about two-thirds go to out-of-network specialists, resulting in significant revenue loss for your organization. If patients going out of network use high-cost specialists and you're at risk for the total cost of care, you'll lose twice.

The data and analytics within PHM can help you quantify the patients that are leaving your network for care and build a high-performance referral network to turn them into loyal customers. Algorithms allow you to map network referral patterns and quantify lost revenue due to referral leakage. You can even manage referrals across a provider network with different EHRs, where interoperability is an issue. It creates a win-win – your patients benefit from more coordinated care and avoid higher out-of-network costs, and you can optimize revenues and better manage risk.

7. **Staying connected to extend care anywhere**

Many providers are looking beyond their facility walls to deliver care more proactively and cost effectively. Patient home monitoring systems are increasingly able to detect problems post-discharge or as part of chronic care management, enabling effective and timely intervention, and reducing readmissions, emergency visits and health deterioration. Monitoring and predictive analytics can also expand the horizon from detecting immediate need to predicting trends that signal the need for preventative intervention. That allows more secure "care at home" situations, improving both quality of life for patients and financial and quality outcomes for your risk-based contracts.

The bottom line – if you're sitting on the VBC sidelines, it's time to jump in with both feet. As you gain experience at early stages of the VBC maturity curve, you'll start building the necessary skill sets to take on more risk without risking your margins. Selecting the right set of tools and the right partners will help you get there faster and more profitably.

[1] http://sage-growth.com/index.php/2018/03/ehrs-task-sage-growth-partners-report/
[2] http://sage-growth.com/index.php/2018/03/ehrs-task-sage-growth-partners-report/
[3] https://www.wellcentive.com/resource/webinar-a-framework-for-a-better-phm-strategy/
[4] http://www.ajmc.com/journals/supplement/2014/a481_jan14_t2dm/a481_jan14_t2dm_lafeuille_s5
[5] https://www.advisory.com/research/care-transformation-center/care-transformation-center-blog/2013/06/three-care-delivery-models
[6] https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Downloads/HeartConditions_DataBrief_2017.pdf
[7] https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Downloads/HeartConditions_DataBrief_2017.pdf
[8] https://www.aamc.org/download/470456/data/riskid.pdf
[9] https://www.beckershospitalreview.com/payer-issues/3-important-statistics-about-provider-referrals.html

Tom Zajac is an Executive Advisor at Philips.

Thought Leaders' Corner

Each month, *Population Health News* asks a panel of industry experts to discuss a topic suggested by a subscriber. This month, there are two questions.

Q. What are some ways to address the social determinants of health?

Tackling Social Determinants of Health: The Permanente Medical Groups' Systems-Based Approach Creates a 'Safety Net' for Health

Four years ago, Kaiser Permanente faced a sobering statistic: 30 percent of its nearly 10 million members lived at or near 250 percent of the federal poverty line. For two out of five patients, gaps in social determinants of health adversely affected their health and well-being. The impact of ACEs – adverse childhood events – also posed long-term health consequences for children.

Leaders within the Permanente Medical Groups (PMGs) and Kaiser Foundation Health Plan and Hospitals (KFHP/H) recognized that a proactive, systematic approach was required to deal with this problem to improve the health of individuals as well as communities. Treating patients whose health status and even life expectancy was influenced primarily by forces outside the health care system demanded innovation in a systematic way to identify and document non-medical needs, connect members with community resources, and optimize and develop strategic community partnerships.

Working together, we are changing the culture at Kaiser Permanente to emphasize the total health of patients and members beyond the clinic walls. At Kaiser Permanente Northwest (KPNW), we are focused on adopting a standardized non-medical assessment, integrating technology and incorporating non-medical assessments into care delivery operations.

Several key components of this work include:

- Extending the notion of the clinical care team to include non-medical professionals such as navigators, community health workers and peers to liaison between the clinical care team, the patient and community. They advocate for patients and their families and connect patients with community resources that can help them overcome barriers to care such as transportation, finances, home care resources, long-term housing, food and social support.
- KPNW has implemented a comprehensive approach to address the social determinants of health by including the use of a validated social needs assessment that are mapped to a taxonomy of ICD-10 social diagnostic codes (z codes). The novel EHR-based tools have led to the use of standardized, measurable and actionable social determinants of health to help us understand our population beyond clinical risk factors.

As an integrated health system committed to total health, Kaiser Permanente cannot expect our patients to manage their health or engage in behavior change if they have little to no access to healthy food or are unable to pay their rent or utility bills, e.g. manage their day-to-day basic needs. Our goal in approaching social determinants of health is not to become a social service agency, but to better understand the non-medical social factors that impact health outcomes and address them with a standardized, reliable connectivity to community partners and non-medical community resources.

We hope this effort will help align care delivery, community health, research and evaluation, IT, marketing, business strategy and other assets of our organization to strategically invest social, economic and health capital in the organizations and agencies that best meet the needs of the patients and communities we serve.

By continuing to leverage technology to provide actionable data and inform our operations, we can form better and strategic community connections. And, so, this work can be scaled to more effectively assist the millions of individuals and families who need this help. The technology "support system" ensures that each patient's needs are better identified, evaluated and met.

Imelda Dacones, MD
President and CEO, Northwest Permanente

Peter Grant serves as editor of *Population Health News*. He invites you to submit bylined articles on population health issues and case studies illustrating successes with the model. He can be reached at peter@granteventsmanagement.com.

Thought Leaders' Corner

Conditions in the places where people live, learn, play, work and grow old, affect a wide range of health risks and outcomes. Food security, safe housing, transportation, social engagement, and other social determinants of health are critical to address for an effective and efficient system of care, and a growing number of health care providers and payers are seeking feasible ways to do so. One opportunity for health care delivery systems is to adapt and help meet the needs of their older patients by incorporating home and community based social services. Integrating services from community based organizations into the health care continuum can advance coordinated, comprehensive and expert care for a population that is complex and often costly.

Area Agencies on Aging and other community based organizations have served for decades as cost-effective, trusted and proven resources for health related social needs. As the health care sector is becoming more aware of the value of these resources, formal relationships are developing. A recent study found that involvement of Area Agencies on Aging in a broad variety of cross-sector collaborations with health care and social service organizations is associated with a reduction in hospital re-admission rates. This research also found that counties in which these agencies had nursing home diversion programs had significantly lower avoidable nursing home use rates. Several studies have found that home delivered meals improve health and are also associated with reduced nursing home use. In addition, results from a recent study noted that states with a higher ratio of social services to health spending showed better health outcomes on a number of health-related measures.

Area Agencies on Aging and other community based organizations have been increasing their business acumen and organizational capacity to respond to the growing demand for their services in the evolving health care marketplace. Building on several years of support from The John A. Hartford Foundation and other funders, the National Association of Area Agencies on Aging and the Administration for Community Living, with several leading aging and disability organizations, created The Aging and Disability Business Institute. This Business Institute serves as a national resource center for community based organizations interested in acquiring skills for sustainability and business planning and helps organizations successfully build and strengthen partnerships with health care providers and payers to be part of the larger health system. The National Association of Area Agencies on Aging reports that now over one third of the 622 area agencies have formally partnered with or are pursuing a health care partnership. This is good news for primary care practices seeking better health for their patient populations, better care and smarter spending. To find an Area Agency on Aging near you, visit www.n4a.org.

Jane Carmody, DNP, MBA, RN
Program Officer with The John A. Hartford Foundation

With three hospitals in Hudson County, NJ, one of the most densely populated and diverse urban areas of the country, CarePoint Health partners each year with numerous non-profit organizations, community groups, low-income housing residences, schools and places of worship, among others, to address social determinants of health with different ethnic communities, need-based target groups such as seniors, women and children, the uninsured, underinsured, and the LGBT community, which is one of the largest in the state. Just last year, our nurses and physicians conducted over 14,500 screenings at community events for blood pressure, cholesterol, glucose, hearing and self-breast exams.

Holding lunch and learn seminars six times throughout the year with local non-profit AngelaCARES Inc. is one way we ensure our senior citizen population is kept abreast of timely information addressing their specific health care needs.

To provide health education and resources to Jersey City's growing family population, we partner with JC Families, a local organization that enables us to reach over 5,000 Jersey City residents. We also partner with Union City Board of Education (BOE) by holding monthly health education seminars for the parents of children who attend the city's 17 schools, bringing our van to 6 schools' back-to-school events, and participating in their annual BOE Health Fair. We are taking our partnership with Union City BOE one step further and hosting meet and greets at the city's schools with doctors from our new Neighborhood Health Center so parents are aware of the services we offer our communities.

Understanding the barriers that some populations face in being able to receive the healthcare they need, we also provide monthly health screenings as well as holiday dinners to local homeless shelters in Hoboken and Jersey City.

Peter Daniels
Chief Operating Officer, CarePoint Health

Thought Leaders' Corner

Ten years ago, social determinants were not considered a part of the healthcare provider's domain. Although it has been a consideration in public health for years, going all the way back to the time when patient zero was sought out after disease outbreaks, it is now garnering the same level of importance in consideration for patient care. Today, with the rise of value-based care, identifying at-risk populations based on social determinants of health and then tailoring healthcare delivery to them is a key cornerstone of population health management (PHM).

Addressing social determinants as part of a broader shift toward population health can help to reduce costs via care coordination, care management and preventive care, long before patients present at the emergency room or enter the healthcare system for sick care. Through simple algorithms and data points, decisions can be made by extended care teams and even office staff to complete outreach to patients who are at high risk for isolationism, depression or even the more common problem of medication non-adherence while on a plan of care. However, while we have greater insight into how these factors can influence health, obtaining accurate and actionable data on them remains challenging.

One way to incorporate social determinants into care plans to make it actionable is through data analytics and predictive modeling, which can help healthcare organizations determine at-risk populations and identify avoidable healthcare costs. For example, a person's ZIP code is one of the most important numbers to predict a patient's health status – it can tell physicians and care managers about a patient's access to healthy food, environmental exposures, education and income levels, and neighborhood stress levels. It can also provide insights into barriers to care like access to public transportation or if a patient is without a car – arming providers with information that was historically less visible pre- or post-visit and enabling care managers to intervene in ways not considered before.

The goals for end-to-end PHM solutions are creating and maintaining patient registries, data management via documentation and tracking, identifying care management gaps and tracking referral loops. Adding social determinants data can enhance a scalable and mobile longitudinal patient record, helping care teams address health needs and tailor care management plans based on the patient's unique circumstances, enhancing the goal of serving the right patient, in the right way, at the right time for the best outcome.

Niki Buchanan
Business Leader, Philips Population Health Management

Broadly understood, social determinants of health (SDOH) are macro-level factors responsible for influencing health risks and health outcomes. Although the categorical name feels a bit academic, a thorough list of these variables quickly brings humanity back to the topic. SDOH variables negatively impacting health include things like: unsafe or unsanitary working conditions, insufficient income, poor educational experiences, unpredictable housing, lack of public safety, restricted healthcare access, etc.

Can you think of a time when you felt under-resourced, unsafe, or unsupported? Has this feeling ever become your new normal because of chronic exposure to a physical or social environment that won't seem to improve? If so, you've had a taste of the permeating influence SDOH's can have, an effect which tends to increase proportionally to the vulnerability level of those exposed. These health determinants are often placed into five key areas: economic stability, education, social and community context, health and health care, and neighborhood and built environment.

The first step towards addressing SDOH variables is measurement. Within each of the areas in this framework, impact assessments measure the specific determinants most likely to have a positive or negative influence on health outcomes. The next step is to create an intervention that strategically responds to the most relevant SDOH variables for a given population. In terms of efficacious interventions aimed at SDOH, the Centers for Disease Control and Prevention (CDC) has compiled a repository of evidence-based tools that can empower everyone across the continuum of care. Examples include: guidelines for conversations between patients and health care professionals, tactics for ensuring access to health resources free of cultural or linguistic barriers, educational efforts to improve health literacy along with knowledge of health benefits amongst community members, ways to develop policies that promote affordable housing, and support documents that inform best practices for preventive care.

When thinking about SDOH factors in a workplace setting, health benefits, health-related policies, social norms, workplace environment, and organizational culture all play a role in impacting the health and wellbeing of employees. Efforts to address these phenomena can have an effect on everything from mortality rates…to quality of life…to healthcare utilization…to workplace productivity.

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Thought Leaders' Corner

From a behavioral science lens, the most appropriate SDOH interventions use evidence-based change techniques to impact the variables known to facilitate the adoption or maintenance of a desired behavior. The first step is identifying the appropriate determinants for a given intervention. Once these targets are identified, change techniques can be implemented. If successful, these interventions will consistently predispose people to better behavior(s), resulting in a strong effect on outcomes when assessing at the population level. Recognizing the gravitation force SDOH have on health outcomes, it is paramount to not only address the symptoms of disease, but to also respond to variables known to cause and/or exacerbate illness.

Matt Miller, PhD
Vice President, Behavioral Science, StayWell

Industry News

higi Completes Salesforce Accelerate Program, Expands Population Health Screening App for Salesforce Health Cloud

higi, a population health enablement company that empowers consumers to measure, track and act on their health data, today announced it has completed the Salesforce Accelerate program. Chosen from an extensive group of applicants, higi was one of 17 companies to complete the intensive training and mentorship program that included both technical and business topics.

Salesforce Accelerate is a three-month virtual program designed to provide the insights, learning and support that companies need to strategically align with Salesforce and accelerate their time-to-market with Salesforce AppExchange.

During the three-month program, higi focused on the companies' joint solution, which combines the higi's data platform with Salesforce Health Cloud, and further developed tools enabling providers to better reach, know and manage their populations as consumers consent to share their biometric data. This enhancement included the development of new patient biometric data graphics and aggregate population views to help health care organizations prioritize populations based on current risk, improve patient health and derive scalability in health and well-being programs.

The enhanced higi Population Screening App will expand upon existing capabilities for health plans, providers and employers. This will enable them to leverage higi stations and user data to:

- Better understand the individualized health status of each member of a large population to improve stratification and risk prediction.
- Provide a low-cost means to meet patients and members "where they are" to improve adherence and receive screenings data throughout the year based on individual requirements.
- Integrate actionable screening and patient reported data into analytics and care coordination workflows to close the loop.
- Produce real-time biometric data and graphics for actionable insights on populations and clinical data sets.

"higi is proud to work with Salesforce and continue developing cost-effective, scalable, screening solutions for health plans, providers and employers," said Jeff Bennett, CEO of higi. "The enhanced higi Population Screening App will help healthcare providers better engage with patients across their networks, manage patient data in new and powerful ways, and produce actionable data for smarter care decisions."

"We are thrilled to see higi complete the Salesforce Accelerate program and formally join the Salesforce ecosystem to provide customers with an exciting new way to measure, track and act on their health data," said Leyla Seka, EVP of the Salesforce AppExchange. "The exponential growth of the AppExchange underscores the enormous opportunity the entire Salesforce ecosystem has in creating cutting-edge solutions and driving customer success."

Industry News

Maxim Healthcare and Leidos Partner to Develop Next-Generation Population Health Tools

Maxim Healthcare Services and Leidos today announced a partnership to develop a suite of healthcare products that will put actionable information in the hands of caregivers before entering a patient's home. These tools will allow community-based caregivers to balance the type, level and amount of care needed to improve outcomes at a lower cost.

The products, which will be deployed through Maxim's workforce of more than 65,000 frontline caregivers, will operate on the Leidos platform and combine structured and unstructured data from a variety of sources to provide a holistic patient view while identifying potential risks or gaps in care. This information will enable Maxim team members to stratify populations, make more informed clinical decisions and better allocate resources.

In addition, the companies plan to implement these services for health plans, large health systems, employers and government payers seeking to better manage post-acute and long term community-based care services for chronic care and medically fragile populations. The products will also support population health initiatives for Maxim's large existing business serving self-insured employers. Financial terms of the five-year agreement were not disclosed, however both parties will be involved in technology development, sales and marketing, and will have a financial stake in the success of the relationship.

"We believe this will be a game changer for our patients and customers, as well as healthcare providers and payers seeking ways to better manage populations at home," said Maxim Chief Executive Officer Bill Butz. "From a recently discharged patient navigating social barriers to a ventilator-dependent child receiving care in the home or an employer looking for ways to keep their workforce healthy, this technology will provide the depth of information needed to improve quality and value for each of the populations we serve."

The products will be built on Leidos' healthcare platform, CareC2. Leveraging the same underlying technology used by the U.S. Air Force to run flight missions, CareC2 is an enterprise-level integration and interoperability platform that takes data from multiple sources and in multiple formats to create a holistic picture of patient health. Establishing a data lake of all available clinical, claims, scheduling, mobile, wearable device and self-reported data with embedded capabilities such as complex clinical workflow management, predictive and descriptive analytics and advanced healthcare logistics, the platform monitors and tracks patients along defined care pathways. As a result, clinicians have access to analytics that guide workflows and enable providers and payers to manage and monitor all aspects of individuals' health and healthcare needs across the ecosystem.

Maxim Healthcare and Leidos Partner *...continued*

Though Leidos has deployed similar technology in acute-care hospitals, the partnership with Maxim marks the first time it will be used in post-acute and community-based settings. The companies plan to develop additional products focused on improving transitions across episodes of care in the home and community-based settings.

"As care moves into more diverse settings, reflecting patient demands for comfort and efficiency, we are creating the tools to ensure vital data is captured and moves with them," said Chris Day, president, CareC2, a Leidos Health business. "Our partnership with Maxim is unique because we are creating the industry's first technologies that help manage and coordinate all aspects of clinical and non-clinical care as patients take advantage of community and home-based care. At the same time, we are linking up with larger and more geographically diverse community-based workforces, ensuring real-time improvements in patient outcomes in those settings are now possible."

According to Andy Friedell, senior vice president of Maxim's Strategic Solutions group, a perfect storm of policy and market forces are driving healthcare providers and payers to find new ways to more effectively manage the delivery of care in post-acute and community settings. In addition to the value-based and accountable care incentives introduced by the Affordable Care Act, new regulations such as MACRA and the IMPACT Act along with Medicaid's shift to managed care, the growing focus on improved HEDIS measures and recent changes within the Medicare Advantage program have all added new incentives to deliver better outcomes at lower costs.

"These factors have created an environment where our clients want partners who can accept responsibility for the problems we tackle together," said Friedell. "We look forward to working with Leidos to leverage data to drive better outcomes and promote the highest quality, lowest-cost setting for care. This, along with our willingness to put 'skin in the game,' will help us meet the shared goals and needs of our patients, customers and caregivers."

Capital Blue Health and Wellness Centers Launch Innovative Health Coaching Program

Everyone has different health goals they would like to reach. Whether it is one of the more common goals of eating better, getting more exercise, or improving sleep habits, or a very specific goal unique to an individual's health circumstances, no one solution will apply to everyone. The Capital Blue health and wellness centers recognize the need for personal attention, and are launching a new program to help people in Central Pennsylvania and the Lehigh Valley meet their goals.

Personalized health coaching at Capital Blue is a unique program tailored to meet the needs of the individual.

(continued on page 11)

Industry News

Capital Blue Health and Wellness *...continued*

The program follows three paths; nutrition, health coaching and personal training. During an initial consultation, a certified health coach will learn the goals a person would like to reach and determine a plan to make it possible. —pharmacists— with VOA, the only validated tool able to predict the likelihood of a life-threatening opioid overdose from a prescription opioid with 90-percent accuracy.

"As a community-based health insurer delivering leadership in population health and wellness, we are proud to offer this unique program to people interested in improving their overall health," said David Skerpon, Senior Vice President, Consumer Strategies and Community Impact, Capital BlueCross. "What sets this program apart is its personalized attention. Each person's specific needs will be identified, with a custom plan built to address their unique goals. Our health coaches will then work with these individuals, motivating and encouraging them to achieve their goals."

Each Capital Blue health coach is trained to:

- Motivate and guide individuals toward greater health
- Identify and build on strengths
- Explore new skills and challenges
- Help set realistic goals for lasting change and confidence
- Celebrate victories with positivity and appreciation

The health coaching program is available to everyone in the community, meaning you do not have to be a Capital BlueCross member to participate. The first consultation is free for anyone interested. Capital BlueCross members receive their initial three, 30-minute sessions at no cost, and it is $40 for non-members.

Record Breaking Financial Quarter for i2i Population Health

i2i Population Health announces record breaking financial results for 1st Quarter of 2018. A top ranked population health management (PHM) company by KLAS, set an eighteen-year (18) company record in all categories of financials for an accelerated start to fiscal year 2018 versus the same period 2017.

Growth has occurred in every product line of business and in all market segments – Federally Qualified Health Centers, Commercial Ambulatory and Health Systems, and Payers. "i2i is truly thankful to all of its passionate customers across the 36 states and communities we serve. Building communities of better health is demonstrated daily by our committed platform users. I am honored to lead the i2i Team through this incredible growth period and evolving demand for real population health," stated Justin L. Neece, President.

As the healthcare market continues to operate with disparate systems across the care continuum, i2i powers interoperability through data integration solutions, which allows its PHM platform to operate on top of EHRs and Practice Management Systems.

Record Breaking Financial Quarter for i2i *...continued*

Care Teams, in real-time, leverage the i2i suite to identify gaps in care, assign care plans to coordinate consumer actions, and benchmark health system performance. Delivering significant quality outcomes in the communities served is a true testament of i2i and its customer partnerships.

The company is currently hiring several key positions to meet the new market demands. iQlarity™ and Value Based Care (VBC) Tracker, two new products, are currently in beta testing and will be launched in July for both Payers and Providers. i2i will showcase these products at its annual User Conference, Better Is The Journey, on August 6-8, 2018, in Phoenix, AZ..

GRAND VIEW RESEARCH

The Global Population Health Management Market is Expected to Reach USD 88.9 billion by 2025

The global population health management market is expected to reach USD 88.9 billion by 2025, according to a new report by Grand View Research, Inc. The need for population health services that combine multiple functionalities is increasing, due to the complex nature of care delivery and payment models. PHM solutions can process clinical, financial, and operational data for the improvement of efficiency and patient care. Convenience offered by value-based payment models is responsible for increased adoption of population health solutions by the accountable care organizations (ACOs).

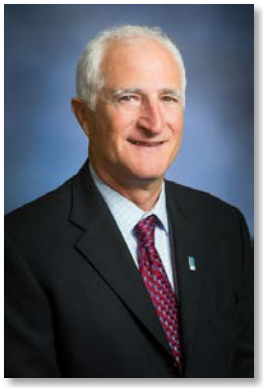
ACOs, consisting of hospitals, clinics, doctors, and other caregivers, collaborate with the payers for the delivery of high quality care to the patients.Private and public insurance providers have introduced various disease management programs, to assist in treatment of chronic illnesses.

These multidisciplinary efforts are expected to result in efficient treatment outcomes and are likely to suggest best suitable courses of action that need to be undertaken. Successful large-scale trials in the U.S. have enabled significant advancements in disease management programs.

Further Key Findings From The Report Suggest:

- Population health management has changed focus from fee-for-service to value-based payments.
- Based on the applications, the PHM market is grouped into software and services. Of these the software segment held the majority of the market share in the year 2016, as it offers higher level of customizations based on business needs.
- PHM software offer on premise benefits and data analytics network to manage multiple functionalities of healthcare in single platform.
- PHM software offers predictive data analytics, which can be applied for interpreting population characteristics from unstructured clinical data.
- Healthcare providers held the largest market share of the end-use segment in the market in year 2016.

Catching Up With ....



Dr. Richard Seidman

Chief Medical Officer, L.A. Care Health Plan

Dr. Richard Seidman is Chief Medical Officer at L.A. Care Health Plan. He is responsible for developing and implementing strategies and initiatives to ensure quality health care delivery to the more than two million members – some of the most vulnerable in the county. Dr. Seidman oversees the medical leadership of the organization and focuses on enhancing access and the quality of care provided through contracted plans and providers.

***Population Health News**: Can you lay out for our readers the basic landscape of heart failure readmissioHow will attention to population health improve the health care system?*

Dr. Seidman: Population health aims to improve the health of the population, reduce costs and enhance patient experience. It also aims to reduce health inequities within entire communities by addressing a broad range of factors or conditions that influence health. These include clinical and behavioral factors such as diet and exercise, as well as social determinants such as socioeconomic status, education, access to affordable healthy food, and safe neighborhoods.

Coordination of care based on the risks and health status is the key to a strong Population Health program. By also going beyond what happens within the walls of a doctor's exam room, we can help prevent people from getting sick in the first place, or we can increase the possibility of better outcomes with earlier more effective interventions. Effective coordination of these efforts can help reduce the demands on the health care system and the burden of patients suffering with more complex and costly conditions. This will be critical as the aging population outpaces the number or primary care physicians necessary to treat the population.

***Population Health News**: How can health plans include population health into their thinking?*

Dr. Seidman: Health plans increasingly understand that they need to focus on the overall health of their entire population. Thinking in these terms, identifying member segments, and stratifying members based on needs can lead to improved outcomes and lower costs resulting from matching members with effective interventions.

Health plans are beginning to invest in programs and initiatives that address the determinants that present the highest health risks, like homelessness and food insecurity. Here at L.A. Care Health Plan, we have committed millions of dollars each year to these efforts. We have also included community health and social workers in the care management teams of our most vulnerable members to ensure the various determinants are being addressed.

***Population Health News**: What made you interested in practicing medicine?*

Dr. Seidman: I've always liked to help people, and knew from an early age that I was good at math and science, and interested in social justice. Once I started learning about public health and medicine, I knew that I had found my calling. As a student, I pursued a combined degree in medicine and public health, and continued along the same path during training in pediatrics and preventive medicine. Throughout my career as a medical director and chief medical officer at a community health center, and now, at a health plan, I have been able to combine my interests and training in service to others.

***Population Health News**: Lastly, tell us something about yourself that few would know.*

Dr. Seidman: I was born and raised in Los Angeles to two working class first generation American Jewish parents. Their parents all immigrated as children with their families from Russia, Poland and Austria, in search of a better life and economic opportunity, free from oppression. My professional interests align with my culture and personal goals to do what I can to make a difference and have a positive impact on others.