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Population Health Management

White paper

Population health: A perspective on healing, continuous health and activating populations

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Introduction

The business of healthcare – care delivery, quality management, reimbursement, market outreach and customer engagement – is transforming, at an accelerating rate. Driven by market dynamics – a shift to empowered and incented consumers, competition for treatment location, modality and convenience, and an ever rising/unsustainable cost burden – healthcare organizations are adapting new business and payment models, enhancing patient and care team engagement and shifting their focus from *episodic care* to *longitudinal health*, to ultimately allow their mission, and the populations they manage, to thrive.

Philips views this transformation as a journey to *continuous health* in which healthcare organizations implement processes enabled by broad aggregation of data, purpose-driven analytics and impactful workflow – to assess, manage and empower the health of individuals and populations they serve. At the pinnacle of maturity on that journey, organizations will move beyond *sick care* to true *health delivery*, provided where, when and how the consumer requires.

This white paper reviews factors that are driving the shift to value-based care (VBC), which in turn demands comprehensive population health management (PHM) strategies. It also examines how an ecosystem that leverages consumer-based workflow, supported by analytics, connected devices, engagement and coaching, can activate people and populations to move towards continuous health.

The trends transforming our view of health and healthcare delivery

Three trends are fueling the transformation of our view of health and healthcare delivery:

- First, the *Consumer Effect* is redefining the "who." Passive *patients* are becoming active *consumers* who demand faster, better and more thorough service (which they've come to expect from every other retail segment of their lives). We are shifting to a focus from *patient* workflow to *consumer* workflow – where consumers participate, question and investigate; and healthcare organizations must compete and build brand awareness and affinity based on the consumer effect.

- Second, the *Convenience Effect* is defining a new view of "where, when and how" care is delivered. Consumers seek care that can be delivered on their schedule, at a time and place of their choosing. Just as Netflix's *where, when and how* model of entertainment made obsolete Blockbuster's fixed *come to us* approach, healthcare organizations must embrace ways to provide healthcare on demand wherever and however it's most convenient, creating a plethora of new options and players – freestanding urgent care centers, retail clinics, emergency department fast tracks, concierge services, web-based triage and telehealth solutions – that strive to create *customer affinity* through convenient access.

- Third, the *Wallet Effect* is driving an ever-increasing *personal cost burden* – high-deductible plans, increasing copays and increasing insurance costs are creating consumers that feel the burden, and evaluate and demand more value for their dollars. Rising healthcare costs have caused employers and payers to shift ever-increasing costs to consumers, with an ever-larger percent of healthcare expenditures coming out of their own pockets. Whereas in 2004, almost half of privately insured patients paid no deductible[1], by 2016, nearly half of employees were in high-deductible (over $1,000) plans.[2] As a result, consumers want greater value for their health dollar, and demand price and quality transparency.

These trends are driving the demand away from facility-oriented, fee-for-service-based episodic care to more cost-effective, 'connected' care that can be delivered continuously – when, where and how consumers prefer. Rather than taking time off from work to be seen in a physician's office, consumers increasingly expect and get healthcare services at home or on the go, beyond traditional office hours.

That on-demand care is being enabled with a host of cloud-based information and digital tools – from patient portals and web services to email and text options, telehealth services and personal devices (from wearables to sensors). Consumers can stream a growing variety of data from these devices to providers, from vital signs and data about their sleep habits, and from sensors that indicate whether a frail person living alone is taking

medications or performing daily activities like opening a refrigerator or meeting activity targets.

As Stephen Klasko, president/CEO of Thomas Jefferson University and Jefferson Health said, "... our definition of success will move from how many beds are filled in our hospitals to how can I 'stream' Jefferson care out to where patients work and live through enabling technologies." [3]

So, how will change occur?

First - Making the business case for PHM

The industry, motivated by the Centers for Medicare & Medicaid Services (CMS), is responding to this evolution. The case can be made that we have been in a *transformative journey* over the past 35 years, beginning with the advent of Diagnosis Related Groups (DRGs) in the early 1980s (the first model to shift cost and care risk), moving to Health Maintenance Organizations (HMOs), capitation, and today's high-deductible health plans (HDHPs) and the shifting of risk between payers, providers and developing *payviders*. These models, and many more, have been paving our journey toward the *triple aim* – improving the health of populations, while providing care experiences with the highest quality, at the lowest per capita cost.

These models have been stepping stones to VBC, the shift from episodic-based fee-for-service to payment and incentives based on health and health outcomes. In early 2015, a sentinel catalyst occurred, as CMS announced its goals to change healthcare via motivation – changing how the government (and industry) pays for healthcare.

CMS set and exceeded its goal of tying 30% of fee-for-service Medicare payments to quality or value through alternative payment models by the end of 2016, and is well on track to tie 50% of payments to these models by 2018. Commercial insurers also jumped on board the VBC bandwagon, with a broad collaborative of major providers, employers and insurers committed to shifting 75% of their business into VBC by 2020.[4] Aetna, one of the participants in that task force, reported in February 2017 that more than 45% of their medical spend was part of some type of VBC model and that they were on track to meet their goal of 75% by 2020.[5]

Yet healthcare organizations are struggling to keep up. In 2016, HIMSS found that only 3% of providers believed their organization was highly prepared to make the transition to VBC payment models.[6]

With the acceleration of these models, healthcare organizations that become risk-bearing organizations - or *payviders* - and that transform their quality, financial, access and market processes to proactively assess and embrace the new VBC environment, will be positioned not only to survive, but to thrive and lead within their markets.

This transformation, while fraught with risk, can in fact be self-funding. Philips Wellcentive developed an online *Cost of Inaction Calculator* to help healthcare organizations estimate the costs and incentives in play within VBC programs, and importantly, just how much sitting on the sidelines might cost them.[7]

Technology partners can play an important role in transforming to VBC. Philips Wellcentive has historically helped to enable our customers to participate in such initial programs as the Physician Quality Reporting System (PQRS), Delivery System Reform Incentive Payment (DSRIP), ACOs and the Chronic Care Management (CCM) fee, resulting in more than $700 million in incentive-based payments, funding ever-expanding care coordination and population health initiatives.

Within much newer models, we are supporting providers in five multi-payer regions embarking on Comprehensive Primary Care Plus (CPC+), an advanced-alternative payment model as part of the Medicare Access and CHIP Reauthorization Act (MACRA) 2017 performance year launch.

CPC+ is very much a PHM endeavor, rewarding care management within specialty, post-acute and transitions of care processes. Over time, the model incorporates behavioral health, social data points and self-management support, with an emphasis on improved chronic care. We also anticipate future growth within MACRA through Medicare Advantage, voluntary bundled payment models and others that will continue to align public and private payers.

So how do we get started?

The journey to continuous health

The transformation to VBC must be viewed as a journey – healthcare organizations, payers, employers and individual consumers are all evolving in their roles, while continuing to support older models and needs, as there is no offseason in healthcare! The journey must be thoughtful yet accelerated, comprehensive and inclusive, aligning all stakeholders to the overarching goal – inspiring health in every consumer. Our view of data, impact, risk and action must be transformed accordingly into a comprehensive approach to PHM.

The KLAS health IT rating organization **defines** six layers of capability that are needed for success in PHM: Data Aggregation, Analysis, Care Coordination, Administrative/Financial Management, Clinician Engagement and Patient Engagement. Integrated solutions are needed that span the entire risk pyramid, from healthy people to the 'frequent fliers' of the healthcare system who consume the most healthcare resources.

1. **Data Aggregation** – healthcare systems and providers need the ability to develop actionable data from a wide variety of sources and systems available to the right people at the right time.
2. **Analysis** – a robust population health analytics platform can create actionable information that allows healthcare organizations to risk stratify patients.
3. **Care Coordination** – the analytics platform can provide algorithms and workflow tools that integrate with care management programs to manage high-risk patients and coordinate their care across a wide variety of settings.
4. **Administrative/Financial Management** – vendors can help healthcare organizations reduce the cost of care within systems, regions and more by providing an ecosystem of connected platforms and services.
5. **Clinician Engagement** – engaging clinicians remains a perennial challenge, as many continue to feel that technology has added to rather than lessened their burden. They need actionable data within their workflow to help reduce variations in care delivery and align care pathways.
6. **Patient Engagement** – connected devices, tools and programs allow patients and consumers to take an active role in their own health. For frailer patients, comprehensive telehealth services and advanced home monitoring and intervention solutions can help them stay healthy and independent for as long as possible. Those tools also can help lighten the burden for caregivers by providing new ways to keep their parents or other loved ones safely at home, knowing that an alert will notify them of concerning changes in behavior.

While this represents a comprehensive, systemic view of PHM, critical evolutions are necessary to achieve practical implementation.

From big data to *actionable and impactful* data

With the rise of health informatics, including electronic health records (EHRs), healthcare organizations increasingly have access to a wealth of episodic patient data across the health continuum. The accelerating pace of wearables and sensors bring additive volumes of personal vitals, activity, dietary and lifestyle data. But providers continue to struggle to enable a true purpose – 'meaningful use' – from that data; if not supporting and enabling actionable workflow or driving meaningful outcomes, the data fails to benefit the process.

The majority of quality measurement programs to date have focused on reporting structural or process measures rather than outcomes; of nearly 2,000 measures tracked by the AHRQ's Quality Management Clearing House, *only 139 (7%) pertain to actual health outcomes.* Most measures to date have been structural measures, such as the use of EHRs, e-prescriptions or the percentage of physicians with board certification,[8] or process measures, such as the percent of a population using a patient portal.

Outcome measures, which are focused on the results of care interventions, can provide a better measure of health but must deliver on the following key criteria:

- They must *identify impactable patients* – individuals and populations that present an opportunity and likelihood for improvement;
- They must be *actionable*, by the care team, to provide value;
- They must be easily tracked, to measure impact and drive scalable efforts.

Establishing a clear purpose for the data collected is an important first step, as is finding a technology partner that can help deliver the right data in easy-to-read formats that improve insights into both patient and population health.

Philips Wellcentive worked with Blanchard Valley Health System's Medical Home Initiative, enabling the system to aggregate data from multiple sources into an actionable patient registry, identify gaps in care and deliver alerts to clinical staff that allowed them to fill care gaps.[9] The program served more than 4,000 enrollees, driving better management of high-risk and high-cost patients, greater preventive care compliance, and a drop in unnecessary ER utilization.

Philips Wellcentive's end-to-end solution was critical to the success of this initiative. The solution both aggregated data about the medical home's population and empowered caregivers to take targeted action to improve outcomes. The technology enabled the medical home to establish and maintain an effective care management program and better manage care transitions using nurse care navigators embedded in physician offices.

The results were impressive: admissions, length of stay and ER visits were significantly lower for those in the medical home population, and Blanchard received a 244% return on their investment.

Empowering impact - Understanding the person

The focus of care has historically been a focus on sick care, with the predominance of our annual expenditures and our data aggregation efforts focused on healing via episodic care including hospital, physician, treatment events and medications. Yet studies consistently point to genomic, environmental, social and support aspects as among the predominant factors impacting current health and future care need propensity. Indeed, *the most important data point for predicting health may in fact be a person's zip code.*

Such socioeconomic elements, or *social determinants* of health, define the underlying patient environment, and serve to define both the *reactive* (causal aspects, such as smoking and dietary habits, economic and environmental stressors), and the potentially *proactive* (responding aspects, such as access to home care, transport, affordability of and propensity to comply with prescribed medications and treatments, safety of environment and social access) care influencers. These influencers are critical; imagine the expected compliance and post discharge outcome projections for two sub populations:

- Patients with poor social support, economic difficulty and lack of access to transportation;
- Patients released to close family supervision, and high access to ambulatory and home care, telehealth and wearable sensors to track progress.

These determinants are critical in the definition of meaningful data, clinical response and the care management of populations.

In addition, incorporating *community vital signs* into available data – information about the neighborhoods and social settings in which patients live, work, play and learn – can further inform disease management initiatives, referral management, risk stratification and preventive medicine. Recent studies and consensus on a national level have combined to amplify the understanding that identifying at-risk populations based on community vitals and then tailoring healthcare delivery to them can be a cornerstone for PHM.

According to the Robert Wood Johnson Foundation Commission to Build a Healthier America, large disparities in health can be found among pockets of populations that live short distances from each other. The 2014 study found that babies born in Montgomery County, Maryland and neighboring counties in Virginia (Arlington and Fairfax) have a life expectancy six to seven years longer than those born in Washington, D.C., just one zip code away.

That same year, the Institutes of Medicine and the National Quality Forum recommended that community vitals be included in patient data. The Centers for Disease Control and Prevention recommends several factors:

- Economic stability (income, debt, employment)
- Education (literacy, language, training, services)
- Physical environment (housing, transportation, safety, parks, walkability)
- Food (hunger levels, access to healthy options)
- Social support networks (social integration, community networks)
- Access to healthcare (available providers, cultural diversity needs, quality of care, insurance)

Building more purposeful and broad views of the individual by aggregating data from traditional clinical/episodic sources, wider patient-provided data and social and community determinants, will lead to new and effective ways to advance beyond patient engagement to *patient activation*, the highest level of successful PHM.

Needed - A broader perspective of risk management

Today, healthcare providers and payers alike are focusing most of their attention on the *frequent fliers* who use the most healthcare resources–the elderly, those with multiple chronic conditions, those with a severe acute condition, and those in the last year of life. As of 2009, the top 5% of these populations consumed nearly 50% of all costs.[10]

While reducing costs in this high-risk population is critical, with the growth in VBC, it ultimately *will not be sufficient*. As they move through the stages of PHM, successful providers will expand their focus to include the entire health continuum:

- Lower-risk populations, such as pre-diabetics or those with early hypertension, as well as populations managing multiple chronic conditions at home;
- Walking well and healthy but at-risk populations, active participants with potential future health needs based on life, genomic or behavioral impact.

Key will be monitoring and targeting *movers*, those who are expanding or accelerating up the pyramid of care needs. Providers and payers will increasingly develop strategies and proactive interventions that keep them from progressing up the risk pyramid.

Interventions that prevent the progression to diabetes and other costly chronic conditions could significantly reduce the cost of care in a long-term PHM payment model. For example, one-third of Medicare dollars are spent on treating diabetes and the average lifetime cost of caring for a type 2 diabetic patient exceeds $85,000.[11] Of the nearly 80 million pre-diabetics in the U.S., without intervention, 15% to 30% are projected to progress to diabetes within five years.[12] That could create a staggering $1 to $2 trillion health bill.

In acute and post discharge care, progressive providers will move away from the 'Groundhog Day' cycle that has defined the U.S. health system for decades. Rather than taking an episodic approach in which care is provided only after patients get sick again following a hospitalization or post-acute care stay, providers will begin to provide more continuous monitoring, coaching and early interventions to keep these populations healthier.

Children's Health Alliance took this approach with a home asthma action plan targeting another vulnerable population. The program assessed and stratified 80,000 pediatric patients by aggregating data from 20 practices to identify gaps in care and to standardize protocols.

Elements included establishing annual well visits, spirometry and environmental trigger assessments every two years and making sure patients received an annual flu vaccine.

The initiative realized a 230 percent increase in annual well visits. These interventions led to a 20 to 40 percent decrease in ER visits against benchmark and an 80 to 800 percent increase in the number of patients receiving evidence-based protocols.

A PHM approach demands a more longitudinal perspective and new solutions. Technology partners can arm providers with sophisticated data aggregation and analytics capabilities that allow them to stratify populations by risk. They can also provide tools for ongoing care management and connected devices that help providers deliver cost-effective interventions appropriate for the needs of each person within a given population.

Unfortunately, even as late as 2016, KLAS viewed the data analytics market as being in its infancy,[13] noting that KLAS survey respondents need to capture richer data from fewer vendors and to more readily integrate data from different vendors to better manage risk. Survey respondents also want data that lets them make reliable decisions and that meets the needs of multiple stakeholders, plus data feeds that are easy to build and maintain.

Not all vendors are seen as flexible partners that are responsive to provider needs; healthcare organizations increasingly seek to form true long-term partnerships with vendors that offer rapid adaptation of service and software, ongoing support and guidance, a collaborative customer base to share successful approaches, all built around clinical, financial and consumer innovation, impact and improvement.

Activating patients to continuous health

As they progress on the journey to continuous health, healthcare organizations can better engage patients by providing information, access, coaching and tools to help each individual adopt behaviors to improve wellness and health status. That support can extend to the individual's personal ecosystem of family members, care team and social participants. Family members can be empowered with actionable insights and alerts that help them keep older and frailer populations safely in their home as long as possible, track episodes in chronic conditions such as asthma and congestive heart failure, alert the social ecosystem to the need for follow up or urgent action, and create a social peer group for health behavior modification such as diet or activity goals.

Philips believes that the goal of population health is to move beyond *patient engagement*, to true *patient activation*. The essential driver of continuous health, patient activation describes the intersection of the above process and the participants (providers, patients and personal ecosystem) that motivate patients to act on health information and make behavior changes and care decisions that improve wellness and health status.

Why does patient activation matter? The major influencers of health – including environment, genetics and personal behaviors – drive the predominance of impact. Personal behaviors, as a single category, are responsible for more than half of what makes us healthy.[14] Yet, historically, 88% of our U.S. healthcare dollars have gone to pay for medical services, while we've spent only 4% supporting behaviors that keep people healthy.[14] Our focus on *healing* (sick care) versus *health* must be rebalanced to address the nation's health issues and costs.

Activating patients and populations to continuous health is no small challenge, requiring a significant shift in thinking about care and health. Key to making the switch is creating a comprehensive ecosystem of who, what, where and how:

- Informed insight, including analytics that can accurately target impactable individuals and populations and identify population needs *(**who** to target)*
- Actionable response, through coordinated and integrated health management, to define gaps in care, and direct resolution and compliance paths *(**what** actions to take)*
- Consumer-centric workflow, allowing care and health efforts that are convenient and focus across modalities as needed at home, at work, in a medical office/facility, and on the go *(**where** the consumer desires)*
- Empowered support, including connected data, wearable sensors and devices matched with available system-based and live coaching, and innovative incentives for healthier behavior *(**how** to deliver support)*

Engaging and managing the health of populations will be challenging but achievable when healthcare organizations have the right technology, aligned and coordinated care teams, effective prevention information and targeted follow-up interventions. A comprehensive end-to-end PHM solution allows providers to use integrated data and analytics to stratify populations by risk and need, determine the least costly, most effective interventions, and monitor, coordinate and coach health and care among all the players involved.

At Covenant Healthcare, internist Sara Rivette utilizes such a platform to integrate with system EHRs and identify preventive care opportunities. Based on alerts, in one instance, a patient who had gone more than a year without a mammography was found to have breast cancer, now successfully treated through surgery and radiation. In another example, a patient shown as overdue for a routine colonoscopy was urged to have the procedure, after which a rare form of colon cancer was found early, which up to that point was still asymptomatic.

The evidence is growing that activating patients – getting individuals to take an active role in their health – can promote outcomes and manage risk across populations:

- In 2013, Judith Hibbard and Jessica Greene reported that "patients with higher activation scores are more likely than patients with lower scores to have biometrics such as body mass index, hemoglobin A1c, blood pressure and cholesterol in the normal range."[15]

- In a subsequent study,[16] these authors found that activated patients had better health outcomes in nine of 13 measures and lower costs over a two-year period than a non-activated group. They noted, "These findings suggest that efforts to increase patient activation may help achieve key goals of health reform."

- A retrospective review conducted by Philips Respironics of approximately 15,000 people found that patients using the SleepMapper app (since rebranded DreamMapper) demonstrated a 22% greater adherence to therapy than those who did not use it.[17]

- More than a decade after a 2001 Diabetic Prevention Program Outcomes Study found that those at high risk can delay or avoid type 2 diabetes through regular physical activity and diet, a follow up study found the benefits persisted.[18]

- Scalable solutions are being developed and in clinical study for pre-diabetics which include coaching using artificial intelligence and connected devices. This approach, designed as a 16-week program, could reduce risk factors for diabetes and prove as effective as intensive personal coaching, paving the way for a more scalable approach to engage millions of pre-diabetics.

- Predictive modeling solutions can help activate populations toward continuous health. Philips Wellcentive used this approach when it worked with MGM Resorts International to aggregate data from 26 physicians and multiple data systems, identify which employees should receive health screenings, then drive them to appropriate screenings by helping physicians send them personalized messages. Participating employees significantly increased screening rates for conditions such as diabetes, and breast, colorectal and cervical cancer.[19]

- Technology can also help activate those living with multiple chronic conditions toward better health. In 2016, a program combining telehealth with care management and other services, which served about 1,800 residents with chronic conditions such as COPD or heart failure, significantly reduced emergency admissions and secondary care costs. Some 90% of participants also reported that they felt more in control of their condition, had gained confidence and/or felt better able to cope.[20]

What to expect in the future of PHM

As healthcare continues to accelerate the transformation to VBC and the focus on continuous health, all stakeholders – healthcare organizations, payers, employers, care teams and individuals – will need to operate under new objectives.

Healthcare organizations and payers will respond to greater risk environments, managing not only sick care but longitudinal health. They should expect to see continued demand for greater price transparency and better value for healthcare expenditures, as consumers demand more for their out-of-pocket dollars and as payers continue to push for provider panels that deliver value. They will expand their distributed capabilities – building affinity with consumers where, when and how they can best be impacted.

Consumers and employers will also need to respond to risk by shifting cost burdens, with a concurrent higher expectation for active participation in health status and care compliance. Consumer demand for insight, access, convenience and passive and active coaching will drive stronger care team alignment around health.

Social ecosystems – healthcare organizations, care teams, employers, families and support networks – will prove that it "takes a village" to truly impact all the determinants of health for the community of individuals and populations.

As healthcare transforms to a more cohesive relationship with activated patients, engaged physicians and truly coordinated care, Philips foresees that incentive-driven reimbursement will continue to expand, and more strategic models will grow. The business of healthcare will rationalize around markets and deliver models that reflect consumer health needs. Acute care will become predominantly outcomes based; population health efforts, including chronic and longitudinal care, increasingly will be capitated; and episodic payments will continue for specific event-driven health.

Winning organizations will realize that quality, cost, access and convenience equate to affinity, outcomes and health enablement. Technology, data, digital devices and enabling services will play an important role in allowing the key stakeholders in this ecosystem to connect in ways that work for consumers, providers and payers.

About the author

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Tom Zajac has spent more than 30 years participating in the transformation of healthcare, as a health system executive, entrepreneur, thought leader and CEO of a series of public and private transformative health companies. He currently serves as Chief Executive Officer and Business Group Leader, Philips Population Health Management, a global health technology leader focused on improving health and enabling better outcomes across the health continuum, from healthy living to diagnosis, treatment, home care and coaching-enabled services. He joined Philips upon the acquisition of Wellcentive, where he served as CEO of one of the industry's leading PHM companies and now leads combined global efforts in PHM, home care, telehealth and personal health solutions. He is a senior scholar at the Jefferson College of Population Health, and serves on several corporate and industry advisory boards.

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