

Point of view

Getting “A’s” Across the Board...

10 Capabilities Delivery Systems Need for Population Health Management



**AGATE
CONSULTING**

November 2012

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Getting “A’s” Across the Board...

10 Capabilities Delivery Systems Need for Population Health Management

The entire business model of care delivery is rapidly transforming. Specifically, payment for care provision is moving from “paid-for-work-done” to “pay-for-value.” This transformation does not come from one source, rule, law, or insurer. Rather, it is the outgrowth of numerous governmental programs, private insurance initiatives, and consumer demand, including those in Table 1:

Table 1: Forces driving transformation to “pay for quality”

Governmental	Private Payer	Provider	Consumer
<ul style="list-style-type: none">• Phys. Group Practice Pilots• Medicare ACOs• Value-based purchasing• Readmit penalties• PQRS program• “Never events”• Others...	<ul style="list-style-type: none">• Pay for Performance• Patient centered medical homes• Private ACOs• Medicare Advantage• “White label” health plans• Others...	<ul style="list-style-type: none">• Limited growth potential in Fee-for-Service• Market consolidation• Vertical integration--buying provider groups• EMRs (“Meaningful Use”)• Others...	<ul style="list-style-type: none">• Cost & quality transparency• New cost-sensitive entrants to risk pools• Broadband & mobile• “Aging at home”• Others...

Each one of these topics is worthy of individual exploration. However, taken in totality, they imply that care providers must reorient themselves from managing an individual patient to managing entire populations. “Managing” in this context is not just clinical management, but financial management and consumer satisfaction management as well.

Looking at the money, up to 5% of Medicare’s payments to physicians and 7% of Medicare hospital payments will be at risk by 2017 in some sort of quality program. As Medicare is typically the largest single payer for any (non-pediatric) care provider, these at-risk dollars could exceed already slim provider operating margins. Further, following Medicare’s lead, large private payers have initiated some form of risk-model, with AETNA (AET), United (UNH), WellPoint (WLP), and the larger non-profit Blues leading the pack. Significant risk-based pay is now the new normal for providers.

What specific forms this risk sharing will take going forward remains uncertain. Further there is imperfect clarity as to the pace of transformation, consumer reaction to potentially less-than-popular side effects of the transformation (e.g., “narrow networks”), as well as general supply/demand balancing issues. However, there is near certainty that the market forces will create a world for providers characterized by:

1. A marked increase in the financial risk providers assume for their patient populations,
2. Greater consumer & purchaser transparency on care quality, outcomes, & cost-efficiency, and,
3. Competitive threats from both reorganized existing players as well as new entrants.

Perhaps the most frightening element of these changes is lack of “new money” to finance it. US healthcare spending already approaches 20% of GDP. (In absolute terms, US per capita health spending is the highest in the world, 51% more than Norway, who was second in this in 2008.)ⁱ Given this already high spend, most changes will quickly need to become cash neutral to providers or threaten their cash reserves.

After introducing the concept of Population Management, this paper will outline some capabilities delivery systems can begin to implement to succeed in this challenging future. **Framed as “10 A’s”, this paper presents a checklist of strategic capabilities any integrated delivery system or provider group looking to compete in the new risk-financed future should develop and/or enhance.**

1. PCMH to Population Management-- why broaden the perspective

Already there is a framework for providing care that allows physicians to “do well” and “do good” at the same time-- the Patient Centered Medical Home (PCMH). PCMH, a primary care model, has 7 pillars: (i) a personal physician, (ii) physician-directed care, (iii) whole person orientation, (iv) coordinated & integrated care, (v) focus on quality & safety, (vi) accessibility, and (vii) payment for all value created.ⁱⁱ Collectively these have the power to transform the relationship between patient and primary care physician (PCP). PCMHs have already demonstrated dramatic improvements in cost & quality. (The Commonwealth Fund has an excellent library on the impact of PCMH programs available at www.commonwealthfund.org.) While critical, health systems will need to expand beyond PCMH programs to become true Population Management organizations for at least three reasons:

- **Physician services are only a piece of healthcare spending.** Per Figure 1, in 2009 only 24% of Personal Health Expenditures were for Physician Services. Hospital Care dominated at 36%.ⁱⁱⁱ Of course, many of the goals of PCMH are designed to reduce hospital utilization. However, acute care is still the major cost item in the value chain. The dollars involved, along with the intensity of the care hospitals provide, means that any comprehensive population management program must address hospital care, even with a strong PCMH model in place. Population Management must also rationalize pharmacy, nursing home, home health, and dental services.

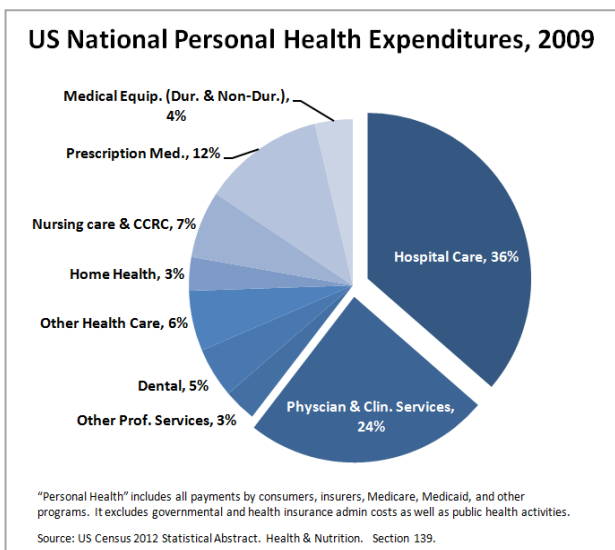


FIGURE 1: BREAKDOWN OF US NATIONAL HEALTH EXPENDITURES

- **Specialists account for more than 40% of all office visits, and a disproportionate amount of spending.** 43.4% of doctor visits within Figure 1’s Physician Service’s category were for specialists (CDC, 2009).^{iv} These specialists influence tremendous levels of spending, including the majority of the 30% of admissions that are surgical.^v More interestingly, 10% of all admissions are “Preference-sensitive,” e.g., medical treatment vs. surgery for Stable Angina, Hip Osteoarthritis, Herniated Disks, etc. Many of these are specialist managed.^{vi} Further, many admissions that could be avoided with better outpatient care, e.g., complications of Diabetes, Hypertension, CHF, and COPD (so called “Ambulatory Care Sensitive Admissions”), deeply involve specialists.^{vii} Collectively, there are thus significant opportunities to improve the cost and quality around interventional specialty care.^{viii} While the primary-care centered PCMH model is the critical lynchpin of population health, any comprehensive strategy must address specialists too.
- **There is mass consolidation of primary care, specialists, hospitals, and insurers.** Today, over half of US physicians are employed by hospitals or integrated delivery systems, up from under 20% ten years ago.^{ix} Additionally, payers are buying delivery systems (e.g., Humana buys Centra, United buys Monarch), and delivery systems are launching health plans (e.g., UPMC partners with The Advisory Board Company), while other health systems are creating their own

insurance products (e.g., Banner Health). Net net, the Primary Care practice working in isolation is becoming rarer than ever. Therefore, by definition, PCMH models will need to expand their vision to address the broader context in which they now operate.

World-class primary care systems based on PCMH principles are the key first step. Going forward, delivery systems must then broaden their perspectives to address care coordination challenges across the entire value chain, i.e., they must become Population Managers-- meeting the health needs of the well to those facing end-of-life issues, and everyone in between.

2. Population management in a nutshell

Felt-Lisk & Higgins define Population Health Management (hereinafter *Population Management*) as:

“Programs targeted to a defined population that use a variety of individual, organizational, and societal interventions to improve health outcomes.... [using a] set of interventions designed to maintain and improve people’s health across the full continuum of care—from low-risk, healthy individuals to high-risk individuals with one or more chronic conditions.”^x

Population Management encompasses traditional utilization management, case management, care transition programs, disease management, coaching, as well as wellness/lifestyle initiatives. In Population Management there is a strong focus on slowing progression of disease from “well” to “at risk” to “chronically ill” to “acutely ill.” Representative Population Health components are listed in Table 2:

Table 2: Representative Population Management Programs

	← Entire Population →			
	“Well”	“At Risk”	“Chronically Ill”	“Acutely Ill”
Representative Programs	<ul style="list-style-type: none"> • Fitness & nutrition • Healthy incentives • Preventative screening 	<ul style="list-style-type: none"> • Weight management • Smoking cessation • Health incentives • Health coaching • Disease-specific screening 	<ul style="list-style-type: none"> • Health system navigation support • Care planning • Remote monitoring • Rx Adherence (Rx Therapy Mngt.) 	<ul style="list-style-type: none"> • Care transitions & discharge planning • 2nd opinion services • Home health • End-of-life planning
Representative Goals	<ul style="list-style-type: none"> • Screening & prevention • Health engagement 	<ul style="list-style-type: none"> • Improved lifestyle (e.g., BMI, smoking) • Screening adherence • Use of primary care 	<ul style="list-style-type: none"> • Disease-specific metrics • Guideline adherence • Ambulatory Care Sensitive Admissions 	<ul style="list-style-type: none"> • Inpatient use • End-of-life spending • Appropriate ER use • Readmission rates
	← Lower annual health spending Improved care quality Higher productivity →			

While instructive to think of the various programs in isolation, it is critical to note that Population Management is more than the sum of its individual parts. Patients typically have a multitude of health needs at any one time, including chronic illness, acute health issues, and unhealthy lifestyles. In fact, 22%, 45%, and 54% of Americans between ages 45-64, 65-79, and 80+, respectively, have at least three chronic diseases.^{xi}

Functionally, Population Management is centered around stratifying a defined group of patients, getting the right intervention to each one of them at the right time given all care considerations, and then

measuring over time the program's impact on outcomes and spending. Clearly, doing this takes effort and resources on the part of the delivery systems, as well as new mindsets and new capabilities.

3. The provider as population manager—Learning from the past

There are many individual success stories published on Population Management. (See AHRQ's Health Care Innovations Exchange for examples.^{xii}) However, holistically, some would argue the jury is still out. Particularly Case and Disease Management, a core component of Population Management, has over the last decade failed to meet the expectations many purchasers—insurers, employers, and governments—had for these programs. Quoting the RAND Institute's Mattke et al.:

"We found consistent evidence that disease management improves processes of care and disease control but no conclusive support for its effect on health outcomes. Overall, disease management does not seem to affect utilization except for a reduction in hospitalization rates among patients with congestive heart failure and an increase in outpatient care and prescription drug use among patients with depression.... there was no conclusive evidence that disease management leads to a net reduction of direct medical costs."^{xiii}

Similarly mixed results are summarized by Mathematica Policy Research.^{xiv} Vendors in the space, including Healthways (HWAY), Health Dialog (a division of BUPA), and others, have seen market contractions as purchasers have downsized and in-sourced their programs, further demonstrating the mixed feelings on the approach. Given this uncertainty, why focus on Population Management as over arching philosophy at all?

Firstly, despite the mixed results of the past, certain themes have emerged regarding what does work. From Mathematica^{xv}, successful Population Management programs employ the following:

- **Use individualized case management interventions.** A personalized plan is developed following an initial assessment. Specific attention is placed on patient education and self-care.
- **Contact patients in person.** Successful programs involve face-to-face interactions between the care coordinator and the patient, and, more generally, are personal, high-touch experiences.
- **Focus on hospital discharges as key opportunities to improve health outcomes.** By definition, hospitalized patients are often the sickest and most expensive. Accordingly, there are more opportunities to optimize the cost/outcomes equation among this group, e.g., improving self-care, discharge planning, follow up, etc.
- **Encourage patients to use effective treatments by reducing out-of-pocket costs for recommended care.** Removing the financial barriers to getting care improves compliance. Other studies and research have shown removing logistical barriers, e.g., lack of transportation, or cultural / linguistic issues, can have similar impact.

Secondly, and most importantly, past Population Management programs were typically initiated by the healthcare purchaser-- the insurer, employer, or the government. They were not led by the provider. This was problematic for two reasons. First, the purchaser is at arm's length from the patient and not positioned to easily execute on the aforementioned list of what works. Perhaps more importantly, per Figure 2, it is the provider that consumers' trust.

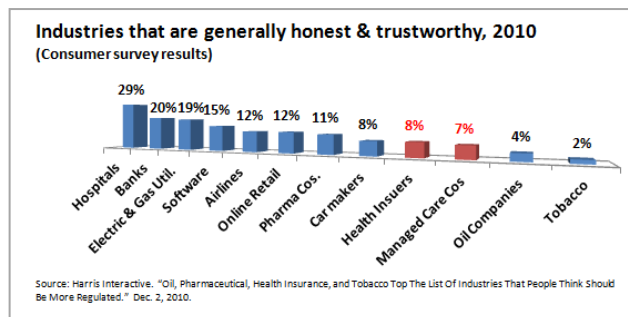


FIGURE 2: CONSUMER TRUST OF VARIOUS INDUSTRIES

Intuitively, consider that health insurers invest tremendous sums to get patients to take online Health Risk Assessments or answer their telephone calls. Success in these, typically referred to as "engagement rates," vary, and often rely on the use of consumer financial enticements.^{xvi} Conversely, consider the relationship consumers have with their providers. Patients disrobe at their physician's office, disclose intimate details of their lives (to varying degrees of accuracy & truthfulness), and actively seek advice. Given these engagement challenges and trust issues, is not surprising purchaser-led population management programs struggled. At the same time, these same dynamics suggest provider involvement can change the game.

4. What can be different with provider-led Population Management

Traditional medical management programs were designed to fill gaps left by the non-integrated fee-for-service health system. They are often do not integrate well into the patient/provider experience and receive only limited support from treating physicians. However, once the provider is involved, several new opportunities present themselves, including:

- **Programs can more effectively prioritize resources and interventions.** Interventions of any sort are expensive and thus need to be rationed. Fortunately, per Figure 3, healthcare costs at any one time are highly concentrated. For example, 5% of the population accounts for almost half of health spending.^{xvii} In Medicare, the last year of life alone accounts for 27% of all outlays.^{xviii} Today, several tools exist to prospectively identify high-cost patients, patients likely to be readmitted to the hospital, and patients likely to be non-compliant with care regimens. Many of these tools require timely provider input & data, as well as a willingness on the part of treating clinicians to use the results of the models. With that participation, interventions can be made where they can do the most good, when they are most useful.
- **Programs have a better ability to manage the sickest, most expensive patients.** If resources are constrained, emphasis must be placed on those patients where the most good could be achieved. Realistically, as noted by Mathematica in the previous section, this correlates to those patients who are the sickest, and those with the most confounding behavioral, socioeconomic, and psychosocial issues. Simplistically, a 10% reduction in total health spending for the average Congestive Heart Failure (CHF) patient can generate more than \$4,000 in annual savings. The same 10% reduction in spending of a COPD sufferer could only save a fifth of that amount.^{xix} Of

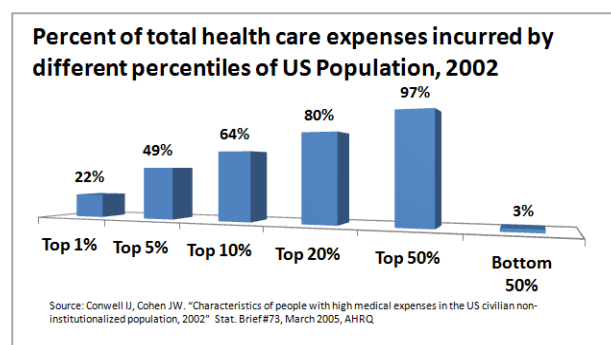


FIGURE 3: HEALTH SPENDING OF POPULATION BY PERCENTILE

course, payer-led Population Management programs have acknowledged this and thus focused on CHF. However, within other disease states, perhaps most notably Diabetes, the natural, if unintentional, tendency is focus on the “average Type II diabetic,” versus those with the complications, e.g., those with Chronic Kidney Disease, despite their extra spending.

- **The patient-physician conversation can be broadened to include lifestyle issues.** The classic model of the office visit—history & evaluation, diagnosis, treatment plan creation, and education—will remain. However, there can be greater emphasis placed on the last component. When the provider is tasked with Population Management, lifestyle decisions, notably weight, diet & exercise, smoking, medication adherence, and alcohol & addiction counseling can all grow to mitigate chronic disease progression.
- **More entities can be involved in the patient’s care.** Currently 49% of physicians working in office settings have Nurse Practitioners, Physician Assistants, or Nurse Midwives in their practice.^{xx} If the providers are actively managing entire populations, the number of clinicians, and the skill set of those clinicians, can and must be further expanded. This brings new scale and skills (e.g., coaching) to the doctor’s office. Appreciating this opportunity to get more resources where they can do the most good, private payers are starting to deploy their care managers in the physician office. In 2007, AETNA began embedding nurse managers in out-patient clinics to help Medicare Advantage members. Today, over 36 practices have these AETNA resources.^{xxi} Similarly, other providers are adding clinical pharmacists, diabetes nurse educators, and health & wellness coaches as well. One example of this team-based care approach is Boston Children’s Hospital Optimal Weight for Life (OWL) Program. Here overweight juveniles are managed by a team of physicians, nutritional counselors, and behavioral medicine professionals all working in concert.^{xxii}
- **Use multiple communication modalities including telecommunications.** As care providers become engaged in Population Management they are more likely to embrace solutions like remote home monitoring as well as phone-, online-, and email-visits. Collectively, these offer the potential to cost-effectively deliver impactful interventions in ways more satisfying to the patient.

Capitalizing on these opportunities and realizing the promise of provider-based population management overall will not be simple. However, there are certain core capabilities that delivery systems can start to develop to lay the ground work.

5. “The 10A’s”-- New capabilities required to manage populations

Managing populations requires new mindsets, patient flows, governance structures, physician compensation programs, reimbursement methods, IT assets, supplemental personnel, additional physical infrastructure (e.g., retail clinics), partnerships, and more. It will be a multiyear journey. However, in making this transformation, there are at least 10 capabilities that systems can initially focus on. For simplicity, this framework can be summarized as “10 A’s.”¹

1. **Actionable information.** All care is as informed as possible, including an actionable synthesis of past information and visibility into activity that occurred outside the system’s walls.
2. **Analytics-driven.** Predictive analytics and benchmarking tools drive resource allocation, strategic planning, and real-time decisions at the point-of-care.

¹ Medical students quickly learn mnemonics are invaluable for remembering key facts among a deluge of information. The author apologizes for any loss of clarity created by forcing the framework into “A-words,” but felt this would make it easier for the reader to retain the concepts.

3. **All encompassing care plans.** Patients are guided through staged, long-term health improvement objectives developed via an ongoing dialog between provider and patient.
4. **Automation.** New technologies streamline routine clinical and administrative tasks that, such as scheduling, patient reminders, and routine communications (e.g., prescription renews)—collectively creating capacity for more value-adding discussions.
5. **At-home monitoring & care.** Keeping tabs on patients when they are away from the office, and treating them directly in their home when it is safe, efficacious, and cost-effective to do so.
6. **Ancillary supported access.** Use of mid-level providers is expanded to improve access, reduce costs, and most importantly reap the benefits of specialization that these resources bring.
7. **Alluring brand experiences.** Building consumer trust and satisfaction, including acting as a patient advocate, while appealing to the broader provider community to maintain referral bases.
8. **Aggressive supplier management.** Ruthless, data-driven negotiations with vendors and suppliers on both price and service levels, including risk-sharing with them.
9. **Aligning objectives.** The multiple entities in the system, e.g., primary care, specialists, acute care, home health, etc., all manage to a shared set of clinical and financial objectives.
10. **At-risk payments.** Establishing a relationship with payers where delivery systems can reap large operating gains if the cost/value equation is improved, even if this means taking “downside risk” in the event of underperformance.

This is a long list, each with many sub-components, but it approachable in pieces.

5.1. Actionable information.

Managing a population requires readily available cross-institutional, standardized, structured information. Starting with the electronic medical records (EMRs), this includes many systems:

1. **EMRs, including disease registries.** Driven in part by the ARRA-HiTECH Act, today 2,400 hospitals, half of those eligible, and 110,000 professionals, roughly 20% of the total eligible, have already received incentive payments for meeting EMR use criteria.^{xxiii} EMRs are the lynchpin for documenting what goes on within a given health system, and the industry appears on its way to having this place.
2. **Utilization tracking systems.** In addition to clinical documentation, population managers need to track dollars—starting with service utilization. Per the Commonwealth Fund, 85% of hospitals planning to participate in an Accountable Care Organization (a shared savings program that encompasses many Population Management attributes) already have information systems in place to track utilization.^{xxiv} The rapid uptake of these systems today demonstrates their criticality. Their growth will undoubtedly continue.
3. **Health Information Exchange.** EMRs are great, but they don’t tell clinicians what happened outside their own walls. Here is where Health Information Exchanges (HIE) and HIE technologies help. Health systems can start their own HIE with support from vendors like [Axolotl](#), [Relay Health](#), [Medicity](#), [Orion Health](#), [MobileMD](#), and others, or join existing ones. According to CapSite, nearly half of US physician groups plan to join an HIE.^{xxv} With HIEs, providers can share labs, reports, radiology results, allergy info, discharge summaries, and more.

4. **Natural language processing – from English to data.** To use the soon to be ubiquitous EMRs, clinicians will need to change behavior. At the same time, technology can come closer to them. In particular, Natural Language Processing, the ability to translate written text (and spoken words) into structured data, will grow in importance. These systems will not only save time, but will allow for more complex analytics and clinical decision support.

5.2. **Analytic driven care.**

In a resource constrained world, providers will need to do more with less. Core to this is using aggregated patient data to make resource allocation, compensation, and network design decisions, as well as inform the care providers about individual patients. Quoting from **DiagnosisONE's** white paper *Clinical IT Requirements for ACOs*,^{xxvi} five types of analytics required of successful health systems going forward are:

1. **Population analytics.** Information to enable development of effective population management strategies, identify system-wide issues, and align clinical service lines against the areas that can reap the greatest system-wide improvement.
2. **Provider analytics.** Identify and reward high-achieving provider groups, facilities, and care delivery networks, while developing effective patient steerage strategies.
3. **Panel analytics.** Automatically monitor and arm each clinician executive with the information to ensure ongoing adherence to guidelines and protocols.
4. **Patient analytics.** Actionable information on a specific patient that is easily accessible at any point-of-care, either in the physician office or elsewhere (e.g., pharmacy, call with health coach, ER, outside provider).
5. **Problem area analytics.** Information targeted at improving the management of specific chronic illnesses that cut across provider groups/networks, facilities, etc.

In delivering this information, **predictive analytics** is particularly important. Rather than simply report on data “as is,” predictive models make the data even more actionable, including in the following five ways:

1. **Predict future costs & events.** Raw data reporting can tell executives who spent what when. Predictive-based reporting allows users to see who will likely spend more in the future, who will likely be admitted to the hospital in

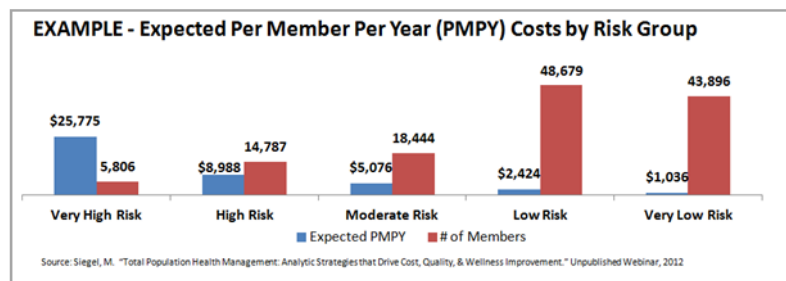


FIGURE 4: EXAMPLE OF POPULATION RISK STRATIFICATION

the future, and thus how best to mitigate these costs. For example, consider the sample data in Figure 4 of 130K lives provided from the leading predictive analytics company **Verisk Health**. It shows how patients can be grouped by future expected annual spending.^{xxvii} Here a mere 16% of patients will be responsible for 52% of costs in going forward. Similar models are used to predict likelihood of hospitalization or readmission, ER use, or condition-specific adverse events (e.g., high-risk pregnancies.) Using models helps prioritize where to deploy home-health resources, whom to follow up with more aggressively, or other high-touch interventions.

2. **Identify specific gaps-in-care.** In addition to predicting future spending or events, predictive models used in both in- and out-patient settings find specific areas for clinicians to focus on. At the individual patient level, these can be general alerts (e.g., 65 year old with no flu vaccination), disease-specific alerts (e.g., a diabetic with no recent record of HgBA1c), medication alerts (e.g.,

drug-condition interaction), etc. More importantly, the predictive analytics can find recurring, systemic gaps-in-care, allowing for programmatic intervention.

3. **Create a synthesized patient summary.** Predictive models help group disparate patient data into a single source of truth for all treating clinicians. In particular, predictive analytics help clinicians and executives quantify “episodes,” where data on the same health issue may be generated from multiple settings. As an example, consider a heart attack. The ER admission, the hospital stay, the out-patient cardiology visits, the pharmacy scripts for the blood thinners, etc. are all combined to look at the cost and quality of the episode holistically.
4. **More accurately evaluate provider and program performance.** Consider the old joke... “it is generally accepted that more than 90% of physicians have patient populations sicker than average.” Predictive models allow executives to assess which programs, interventions, and individual providers are delivering the most efficient care. To illustrate, say Doctor A's patients spend on average \$800 per month on care, and Doctor B's spent \$780 on average, each with the same quality scores. Which is doing a better job?... B right. Actually, it depends. Running a predictive model that says Doctor A's patients were predicted at the start of the year to cost \$850 per patient per month, as his panel has lots of diabetics, are older, etc., while Doctor B's, healthier patients were only expected to spend \$770 per month. Thus Doctor A's \$800 per month was less than his expected benchmark of \$850, while Doctor B's \$780 per month was above his \$770 benchmark.
5. **Improve documentation and revenue capture.** Clinical analytics can be self-funding. In Medicare Advantage, it is used extensively to ensure all patient diagnoses are coded properly to get maximum allowed payment from CMS. Predictive models can help providers accurate code specific visits, alert providers to missing required supportive documentation, or even find missing charges altogether.

5.3. All encompassing care plans.

The relative concentration of spending among patients with chronic conditions necessitates long-term comprehensive care planning. Of particular importance is dealing with the complexity of patients with multiple chronic illnesses. Today, 25% of Americans have at least two chronic illnesses. In senior populations, the number rises to two-thirds.^{xxviii} Managing these patients is particularly challenging because (i) different diseases are often managed by different specialists, (ii) the management of one illness can adversely affect another, (iii) there is a lack of clear guidelines for treatment of multiple conditions simultaneously, (iv) the overall morbidity reduces patient compliance & self-care, and others.

To mitigate this, each patient should develop with their primary care team a written care plan-- a single, sharable document detailing a health improvement roadmap. Such a care plan should:

1. Be developed only after a comprehensive health risk assessment-- ideally a separate office visit.
2. Address the patient as a whole rather than a collection of diseases. Specific attention should be paid to medication reconciliation and reduction of unnecessary pharmacy and diagnostics.
3. Contain discrete, measurable, individualized goals that can be tracked over time.
4. Account for the patient's specific preferences, and, with patient consent, include input from family and other care givers.
5. Address behavioral and root-cause issues, most notably lifestyle choices (e.g., smoking, nutrition, stress), and recommend other resources and self-care programs to help address them.
6. Be continually updated via a structured process.

This level of care planning and long-term goal setting will hopefully become the “new normal” as patient-centered medical homes evolve. Already we are seeing companies in the market help providers create

and manage these care plans, e.g., [Care Team Connect](#), [Rise Health](#), [Health Loop](#), and [Medecentive](#). To help coordinate and improve the discharge process, [CuraSpan](#) and [Midas\(Xerox\)](#) are also innovating in this area.

5.4. Automation.

Keeping track of patients and their progress against comprehensive care plans takes time and effort. Fortunately, information technology can help-- especially when a plan of care is structured in an electronic format. Several routine transactions can be automated with relative ease by a delivery system and thus create capacity to provide more care overall:

1. **Gaps-in-Care & Follow Up Alerting.** Mentioned already in Section 5.2 above, there are several technologies that can automatically review internal data sets to identify patients that need follow up. Some, like [Verisk Health](#), [Humedica](#), [MedAI](#), [Forward Health](#) and [DiagnosisONE](#) focus on EMR and claims data. Others such as [Patient Engagement Systems](#) can review third-party lab data to find patients in need of intervention. Companies like [RxEOB](#) help identify patients who are deviating from their medication regimen using pharmacy claims. There will likely be many more of such systems in the future.
2. **Automated outreach.** Interactive voice response (IVR), secure email, and even text messaging can proactively remind patients of specific activities and/or solicit specific data elements. Representative transactions include appointment reminders, refill reminders, providing supplemental follow-up / self-care instruction, etc. Several vendors, notably [ELIZA](#), [Silverlink](#), and [Warm Health](#) have out-of-box technologies to provide all this, and more. SMS-based programs like [Txt2stop](#), a smoking cessation aid, while not appropriate for secure communications, demonstrate how even basic automated engagement can improve outcomes.^{xxix}
3. **Patient check in, check out.** Collecting patient clinical and insurance information is time consuming for all parties, is frustrating for patients, and can create revenue-cycle issues. Companies like [No More Clip Board](#) and [Phresia](#) can automate many of these tasks. Having cleaner data can in parallel free up valuable doctor/patient time.
4. **Appointment scheduling.** Online scheduling makes life easier for patient and office staff alike, and supports clinical reporting as well (e.g., missed follow-ups). Companies like [ZocDoc](#) and [iTriage](#) can help physician practices with this.

The examples above are merely illustrative. The strategic theme is using IT to address to practical workflow challenges, save time, and make the process more user friendly for all.

5.5. At home monitoring & care.

Bringing care providers to the patient has several advantages over having the patient come to the provider. Delivery systems will need to do both in the future. Today, options to provide care in the home are unprecedented, and will likely continue to expand overtime. Some exciting early examples are:

1. **Home health visits.** Home care has been a pillar of elder care, and its use will likely expand over time. Visiting nurses can provide a multitude of services, from assessment, taking vitals, dressing wounds, changing catheters, helping with medications, and the like.

2. **Device-based home monitoring.** Keeping tabs on patient's blood pressure, weight, blood glucose, and/or mood need not be labor intensive. Numerous vendors, notably [Bosch Healthcare](#), [Honeywell](#), and [Numera](#) provide solutions to help providers collect data from the home and make it available to the delivery systems themselves or to third-party monitoring centers. Another interesting example is smart pill containers, like those produced by [Vitality](#) or [MedMinder](#), that can check to see if patients are really taking their medications.
3. **Phone, web, and tele-consultations.** Sometimes a home- or in-office visit is just not necessary, and a structured web-visit or phone call can meet the patient's needs. Providers are already using services like [American Well](#) to make their physicians available 24 X 7 X 365. Other providers are using phone-based third-party "on call" physicians, like [TelaDoc](#), to make a clinician available for after hour coverage. Some groups, perhaps most notably the [Ontario Telehealth Network](#), are deploying telehealth centers and kiosks with peripheral devices to provide specialty care to the community.
4. **At-home hospitalizations.** Some providers are actually providing in-patient level care at the patient's home, including John Hopkins [Hospital at Home](#) or the vendor [Clinically Home](#). A patient is sent home from the ER with supplies. Onsite and remote nursing and physician care are provided all without the infection risk and overhead costs associated with an in-patient stay.
5. **Game-like interventions.** While in its infancy, certain home-based technologies can be re-tasked to provide care. For example, clinical trials are currently exploring how interactive games on the [Nintendo Wii](#) or [Microsoft Xbox](#) can help patients with Parkinson's disease, musculo-skeletal issues, and obesity improve their health.

5.6. Ancillary supported access.

Even under existing care models, the Association of American Medical Colleges has identified a primary care shortfall of 45,000 physicians by 2020.^{xxx} As noted above, today almost half of office-based physicians work with at least one mid-level provider, an NP, PA, or midwife. With the added burden of comprehensive care planning, proactive outreach, remote home monitoring, and growing disease burdens, the need for more clinician time at each point-of-care will become more acute. Thus, health systems will need new resources, such as clinical pharmacists, diabetes nurse educators, and health coaches to help. A lot of work has already started in this area. For example, consider Mercy Clinics in Des Moines, Iowa, a 150-physician multi-specialty group. Their primary care sites employed Health Coaches (RNs and CMAs) to manage their disease registries, conduct pre-visit chart reviews, work with families to support self-management, coordinate care across settings, and work on Quality Improvement initiatives. The results seemed great, and the reported Return-on-Investment is 4:1.^{xxxi}

One particularly important use of new ancillary providers at the point-of-care is working with patients to manage obesity and its related complications. Currently, more than 35% of adults are obese, as are 17% of children.^{xxxii} (See Figure 5.) Obese men and women spend an additional \$1,152 and \$3,613 per year, respectively, on direct medical expenses. This means obesity costs more than smoking.^{xxxiii}

As physician and former health plan CEO Peter Weiss describes:

"Doctors all across the nation are struggling to treat [obesity-related] lifestyle-induced conditions... [but] Physicians aren't trained to help patients change their behavior.... Well then you ask, 'Who will help patients change?' I recommend life coaches, also called personal coaches."^{xxxiv}

To bring these coaches and other services to provider offices, many physician groups are working with third-party vendors like [Privia Health](#) to create virtual ancillary staff, or companies like [Healarium](#) to automate effective comprehensive wellness programs.

5.7. Alluring brand experiences.

In any service industry the brand matters. For delivery systems, brand is a two pronged issue. There is the patient (a.k.a. “consumer”) brand, and there is the brand to care providers.

Maintaining a positive consumer brand ensures adequate patient volume. A 2007 McKinsey & Co. survey found that 41% of consumers who could choose which hospital to get care at, which was 61% of the total sample, said “patient experience” was the most important criteria. This was more than any other factor.^{xxxv} In addition to volume, a strong consumer brand better positions the clinicians to effectuate the behavior change required for population health. Unfortunately, maintaining positive consumer healthcare experiences is complicated compared to other industries for several reasons, including those in Table 3:

TABLE 3: HOW BUILDING A HEALTHCARE CONSUMER BRAND DIFFERS FROM OTHER SERVICE INDUSTRIES

In non-healthcare service industries...	In healthcare...
<ul style="list-style-type: none"> • People often want to be consumers of the service • Consumers typically get instant gratification from the service • Providers have primarily a single objective, consumer satisfaction, that is easily assessed at the time of service • Consumer can often use the service at all times of their lives, and usually do so when it is convenient for them 	<ul style="list-style-type: none"> • Consumers would prefer not to be patients at all • Instant gratification is not assured regardless of quality • Providers have two set of objectives, satisfaction and outcomes, the later being harder to assess in real-time • Patients, particularly the sickest ones, are inherently in a challenged psychological state, and illness is seldom at a convenient time

Despite these barriers, there are things health systems are doing today to satisfy consumers:

1. **Redesigning core patient experiences.** Under Medicare’s Value-Based Reimbursement program, significant payment is tied to patient satisfaction as measured in the Hospital Consumer Assessment of Healthcare Providers & Systems Scores.^{xxxvi} This policy is leading to several changes, perhaps most visibly in the hiring of Chief Patient Experience Officers (CPEO), a.k.a. Chief Experience Officers (CXOs). These executives focus on improving staff-patient communication, standardizing best practices across the organization, and surveying patients to identify dis-satisfiers. CPEOs and other health system executives are working with firms like [Experia Health](#), [Fast Forward Consulting](#), and others to revisit specific patient flows to both satisfy consumers and improve care simultaneously.
2. **Improving convenience & transparency.** There have been several successful early efforts to improve convenience, accessibility, and process transparency in healthcare delivery. On-line scheduling (see Section 5.4), open scheduling, evening & weekend hours, provider-branded retail clinics, and e-/tele-visits are being used at various locations across the US. Other systems are posting wait-times for their Emergency Rooms on websites or mobile apps, or even guaranteeing time to be seen, such as Methodist Southern Hospital in Memphis.^{xxxvii} These are just examples of how care is becoming more “retail-like,” i.e., more responsive to consumer tactical needs & wants. The strategic theme is developing internal processes to continually identify, prioritize, and execute patient-satisfying innovations.
3. **Focusing on patient advocacy.** Because healthcare is complicated, consumers, particularly sick ones, need an advocate. Hospitals like Boston Medical Center are using [Project Red](#), a national program demonstrated to reduce hospital readmissions, which includes Discharge Advocates.

These professionals counsel patients and provide tactical assistance in overcoming basic barriers to health, e.g., give taxi vouchers to patients who need transport to follow up appointments.^{xxxviii} Another example of patient advocacy is [Livestrong's Navigator Service](#), a national non-profit that provides free one-on-one telephonic support to anyone affected by cancer.^{xxxix} Particular focus is on areas that the system often fails to adequately address (e.g. reproductive counseling pre-chemo) or where decision-making is complex and clinicians may not agree (e.g. necessity of PET scan for monitoring). There are numerous other advocacy examples in the market. The strategic theme is creating systems to fight for patients and more generally taking responsibility for patient health even beyond the traditional standard of care.

4. **Engaging & activating the consumer.** Long-term health improvement is hard to see day-by-day by patients. Yet such improvement requires ongoing patient collaboration. Hence, health systems are trying to make their impact more visible to patients, thus keeping them engaged, nurturing the trust relationship, and demonstrating value to the consumer. With remote home monitoring devices, smart phones, etc., health systems are allowing patients to track and receive real-time feedback of their health improvement, along with alerting them to when course correction is needed. Some vendors, like [Keas](#), and [Health Rageous](#), have end-to-end programs to help providers automate these. Other systems are implementing solutions on their own.

The other side of the brand equation, the provider brand, can be almost as important as the consumer brand to health system financials. Providers exhibit complex decision rules in choosing where to refer patients. It is not just clinical expertise. Barnett et al. identified at least 10 such criteria. In that study, Barnett's team found "PCPs are more often concerned with between-physician communication and patient access," when making referral decisions than other factors.^{xi} Thus, for health systems, the provider brand cannot rest on academic reputation, but rather must actively invest in maintaining relationships with referrers. Because of the inherent complexity and importance of the provider brand, many systems today employ Physician Liaisons. (For example, Tenet Healthcare has over 150 of them on payroll.^{xii}) These professionals reach out to community providers to explain the virtues of referring patients to their employer. Other systems are using vendors like [eVariant](#) to actively track and manage sources of patients, designing targeted programs armed with data. While the mission of most health systems is focused on serving patients and not community providers, this brand must not be ignored.

5.8. **Aggressive supplier management.**

On the expense side, health systems going forward will need to ruthlessly drive out unnecessary costs. Many of the capabilities touched on already can result in lower per-patient-per-year costs through improved patient management. However, this must be accomplished alongside more traditional sourcing and supply chain initiatives. In fact, given changes to provider cost structures, supply chain executives will need to expand their role, re-orient from price-based purchasing to value-based & solution-based models, as well as broaden their scope to include new clinical technologies and the employee health benefit.

In sourcing, as elsewhere in healthcare, data is power. Already health systems across the country are using analytic tools and wrap-around services from [Premier](#) and others to ensure the best price for overhead items, disposables, DME, and other high-volume items. Some health systems, like Johns Hopkins, are even setting up private auctions, using vendors like [MedPricer](#), to allow head-to-head competitions in real-time among suppliers. Overall, this analytic approach to purchasing will need to increase going forward.

Beyond cost management, supply chain executives will have the opportunity to increase the utility of each vendor partner. For complex items, in particular Information Technology, this is critical. According to a

2012 survey by the Group Purchasing Organization Premier, “Spending on information technology is the one exception to a marked slowdown in capital spending by hospitals.”^{xlii} IT is big and growing. Clinical IT systems are not commodity products. The same system or feature & function set can have dramatically different return-on-investment profiles depending on environmental factors, including: (i) uptime & stability, (ii) deploy-ability, (iii) customizability, (iv) support & maintenance costs, (v) interoperability, (vi) executive buy-in, and others. Unit price is a small component of *Total Cost of Ownership*. Effectively purchasing these items will continue to tax health system leadership for some time. Unfortunately, from both a strategic and regulatory perspective, these purchases cannot wait.

For clinical technologies, including medical devices and pharmaceuticals, price is not the only consideration. Already insurers are piloting so called “Value Based Purchasing” initiatives for medications. Here payment to the supplier is in part driven by outcomes. For example, Cigna pays Merck more for the Diabetes drug Januvia® if patients using it are better controlled.^{xliii} Similar ideas for implantable devices are being explored. With new clinical and supply-chain analytics, Populations Managers of the future will likely be able to establish more of these types of relationships, thus sharing the population health risk with suppliers.

One final area of aggressive cost management is the cost of the health benefit for the health system’s employees. As labor is the largest expense for health systems, and the health benefit is the fastest growing component of labor costs, each health systems will need to “heal thyself” in reducing this line item. Fortunately, as a care provider, health systems have tremendous advantages over other employers to do so, either going it alone, or partnering with **Evolent Health** or other vendors to bring new Population Management infrastructure to their employee bases.

5.9. **Aligning objectives.**

Cost-effectively improving outcomes requires providers, hospitals, and ancillary care providers to coordinate and cooperate. This paper has already touched on many tools to improve care continuity and information flow across different care settings, e.g., shared clinical information systems, health information exchanges, gap-in-care analytics, nurse care managers, and the like.

Ensuring consistent objectives and performance metrics is also needed. While each site of care has their own clinical and financial performance reporting, delivery systems going forward will need to develop population-level performance management dashboards and metrics. Vendors like **MedeAnalytics** and **Objective Health** today provide Business Intelligence (BI) solutions to help with many of these challenges.

A key to aligning incentives is understanding how providers are working together today, and how patients are interacting with providers outside their normal care delivery system. Innovators such as **Activate Networks** and **Navvis** give health systems analytic tools to map patient flows, discourage out of network use, and enable the system as a whole to focus on outcomes improvement and cost containment.

5.10. **At-risk payments.**

Last but not least, Population Managers need to pay for all these new capabilities. Fee-for-service reimbursement does not create incentives to innovate around any or all of the above capabilities, save for perhaps point programs like EMR adoption and readmission avoidance where dedicated funding exists. Fortunately, there are multiple risk models providers can now use for both governmental and commercially insured populations to profit from improved population health.

For Medicare, Eggbeer et al. outlines three options for provider networks beyond fee-for-service:^{xliv}

1. **Participate in an ACO/Shared Savings Program.**

In its simplest form, Accountable Care Organizations (ACOs), are fee-for-service providers who are paid a bonus, which is a percent of the difference between actual population spending and a projected benchmark. Hence, in this model, delivery systems that reduce total costs of the population can make more money. Over 200 providers have been identified by Leavitt Partners as exploring Accountable Care Organization (ACO) arrangements^{xlv}. In total, 50% of hospitals are exploring some form of a shared savings model.^{xlvi} (See Figure 5.)

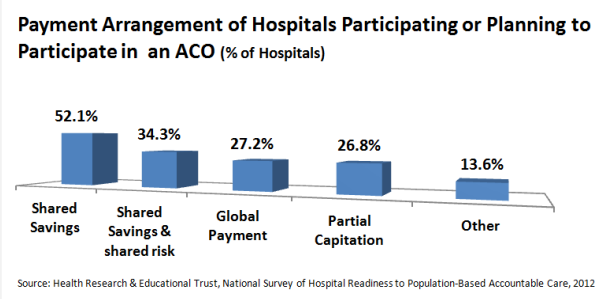


FIGURE 5: HOSPITAL INTEREST IN VARIOUS SHARED RISK MODELS

2. **Participate in a Bundled Savings Program.** Under this model, a single payment is made for multiple services related to same care episode, e.g., a surgery. If the care providers are able to collaborate to reduce the cost of the episode below the sum of their individual components, they profit on it. While less comprehensive than ACO arrangements, they too are becoming possible.
3. **Participate in Medicare Advantage.** In 2012, 13.1M Americans were enrolled in a Medicare Advantage program, representing 27% of the total Medicare Population.^{xlvii} With Medicare Advantage a private payer receives payments from CMS to provide the Medicare health benefit to seniors, thus taking on full financial risk for these participants. Within these Medicare Advantage programs providers have several options. At one end of the spectrum, they can contract with a Medicare Advantage plan with some shared savings / shared risk model. More aggressively, providers can take on partial or full capitation (a.k.a., “percent of premium” or “percent premium”). Alternatively, providers can work with an existing health plan to develop a “narrow network” co-branded Medicare Advantage insurance product, taking on full risk for a member but leveraging the health plan partner’s insurance infrastructure (e.g., claims processing, compliance, customer service.) An interesting example of this is how the retirement community Erickson partnered with United Healthcare to provide such a product. Finally, providers can go all in and start/buy a Medicare Advantage plan themselves.

For the non-Medicare market, notably commercial or managed Medicaid, there are similar options as in Medicare. Almost every major insurance carrier, including Aetna, United, WellPoint, Health Care Services Corporation, as well as most Blue Plans, have ACO programs in place. Of particular interest is Aetna, who is aggressively working with health systems to set up “private label” health plans, where providers can take on a great deal of risk & upside, but not deal with all the complexities of health plan administration.

The optimal set of risk-bearing tactics for each institution is based on a number of factors. The strategic theme however is consistent—there is no free lunch. Funding care model transformation, and hence exiting the low-growth, low-margin fee-for-service paradigm, will require new dollars which can only come from taking on more risk. “Upside Only” arrangements, i.e., fee-for-service with a small bonus for better cost efficiency but no penalty for under performance, can be seen only as an entry point. The bonuses will simply not be big enough. To really fund innovation and growth, systems must be willing to take risk to share in a bigger portion of upside.

6. Starting small, growing fast

Transforming delivery systems to Population Managers is not easy, and success is not a foregone conclusion. For example, after 5 years, all ten of the Physician Group Practices (PGP) who participated in

Medicare's PGP Demonstration Program achieved quality increases. At the same time, only between 2 and 5 groups received shared savings bonuses each year of the pilot.^{xlviii} Fortunately, new technologies and services, including those touched on here, will make this easier going forward, as will the lessons learned from these and other pioneers.

Lewis Carroll, author of Alice in Wonderland, is credited with the quote "if you don't know where you're going, any road will get you there." When it comes to transforming a healthcare delivery system to Population Manager, a more apt statement would be "if you don't know where you're going, no road will take you there." The first step is always creating a long-term vision of what it means to provide care for a population, and work backwards from there. Patient Centered Medical Home is certainly a great starting point, and layering on one or more of the 10As seems like a no-regrets move. Attempting all 10 at once is probably not necessary, nor practical, but it always useful to have an end vision even when taking first steps. To this, some simple first-moves include:

1. Develop a strategic five year roadmap for successfully managing at least some portion of your population, and profitably bearing financial risk, "upside" & "downside," on that group. Initiate discussions with local managed care organizations if not done so already.
2. Benchmark utilization of patient populations, starting with historically problematic areas, notably care transitions & hospital discharges, co-morbid chronic populations, and lifestyle disease sufferers (e.g., Type II Diabetes, Hypertension).
3. Conduct a 10A capability "gap analysis," identifying and prioritizing areas for incremental investment. Engage internal stakeholders around process improvement opportunities, and, as appropriate, reach out to external vendors.

In any and all these, Agate Consulting is happy to help. More importantly we applaud the innovators around the country, those mentioned here and the thousands of other organizations who regrettably were not, who have all already embarked on the Population Management journey.

Acknowledgements

The author would like to thank Stanley Goldstein, Aimee Jungmann, Robert Goodman, David Tamburri, and Melissa Crocker MD for their substantive contribution to this work.

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Before founding Agate, Kevin designed a consumer-oriented mobile pharmacy management platform now marketed as emWellics® by the company RxEOB. Prior to RxEOB, Kevin helped build CareKey, Inc., a market leading medical management application suite employed today by some of the largest payers in the US. While at CareKey Kevin was responsible for strategy & planning, business development, marketing, and general corporate operations. CareKey was sold to its long-time channel partner The TriZetto Group (TZIX) in December, 2005 for \$100M.

Kevin holds a degree in Chemical Engineering from MIT, and was a researcher and project manager at the MIT Sloan School of Management. Additionally, Kevin completed McKinsey & Company's mini-MBA program. Kevin is a published author in strategy, marketing, and organizational design, and speaks at healthcare and mHealth conferences.

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