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INSIDE EDGE

Population Health: Defining Populations

Introduction

How mature can population-health analytics be if we can't get our polling data right for a national election? That's the important question raised by some pundits for healthcare organizations pursuing population health: If Big Data analytics wasn't sharp enough to predict Trump winning the presidency, how can we expect it to drive population health under value-based care?

"We're working on it," is the answer in both cases. The key is the quality of the data, which requires data models that are time-consuming to design and build. In that vein, our *Inside Edge* report on population health begins at the beginning: defining populations. In a later *IE* we'll focus on how to design care models based on those definitions, which stratify populations according to risk.

Given the gravity of the topic we asked two heavyweights to, well, weigh in: John Glaser, PhD, legendary long-time CIO at Partners HealthCare in Boston, now senior VP for population health at Cerner https://www.cerner.com, and Paul Tang, MD, former chief innovation officer at Palo Alto Medical Foundation (Sutter Health http://www.sutterhealth.org) in California and a national leader in healthcare informatics and HIT policy, now VP and chief health transformation officer, IBM Watson Health http://www.ibm.com/watson/health/.

Sociologist-trained Glaser takes the straightforward approach: populations share the same goal and care plan; Physician Tang wants to heal society over the long-term. "You're both right," says Russ Staheli, senior VP of population health & care management at Health Catalyst https://www.healthcatalyst.com, who ties everything together using flexible data models and tools.

"What is a population?" asks John Glaser existentially. It's a collection of people with a common health or care goal such as a common chronic disease, but that's just one kind of population. It may be people who need hips done or those who are being discharged today and need a drive home. We tend to think of chronic disease, but a population might be defined by a common procedure or by a public health category like a group of first or second graders.

Cerner

John Glaser, PhD, senior VP, population health, Cerner

Once you define a particular population, take a step back to set goals for the population. That requires looking at individuals within the population using a holistic approach, not just clinical information.

Scottsdale Institute Conferences

Camelback Inn,
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Value-based Care/Population Health

- Approach to healthcare that considers best care for groups of patients, rather than one at a time
  - For example, patients with complex needs or specific diseases (diabetes, depression, HIV, substance use)
  - Provide specialized services for these groups
- Also, creates incentives for improvements of key processes, e.g., transitions of care, engagement in primary care, use of data for quality improvement, etc.
- Driven by Payment Model
  - "Population" usually refers to a plan's beneficiaries
  - Payment models that reward outcomes rather than volume; reward efficiency

AMAZING THINGS ARE HAPPENING HERE

NewYork-Presbyterian

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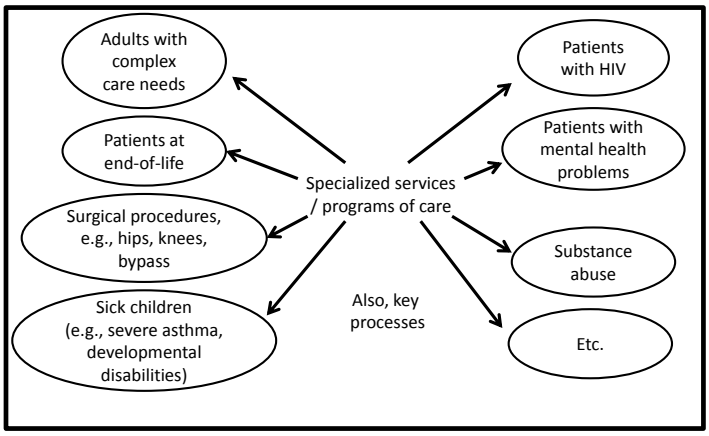
Then, what's the plan? And, again, it's not just clinical. Does the person live in a neighborhood without good food sources? Is she lonely and depressed? Increasingly, populations are not so much focused solely on clinical aspects but social and behavioral factors. If we lump all diabetics together, we miss differences. They can be cognitive, diet or motivation-related. Now we have crude umbrellas, and we need to tailor them better into finer and finer subgroups.

Value-based Care/Population Health



Source: NewYork-Presbyterian

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It's not prediction so much as characterization. We're characterizing the risk that the plan won't work. That's what algorithms are all about: why is it not likely to work? Is it nutrition? Is it because John is eating poorly or because he can't get a ride to the doctor?

I need to characterize 50,000 people. A person can be parts of several populations within those 50,000. What I need is the ability to synthesize enormous amounts of data including claims, device and environmental data like pollen count. It may be that the neighborhood is crime-ridden and the air is polluted. You aggregate this diverse data in a centralized data repository and see the gaps.

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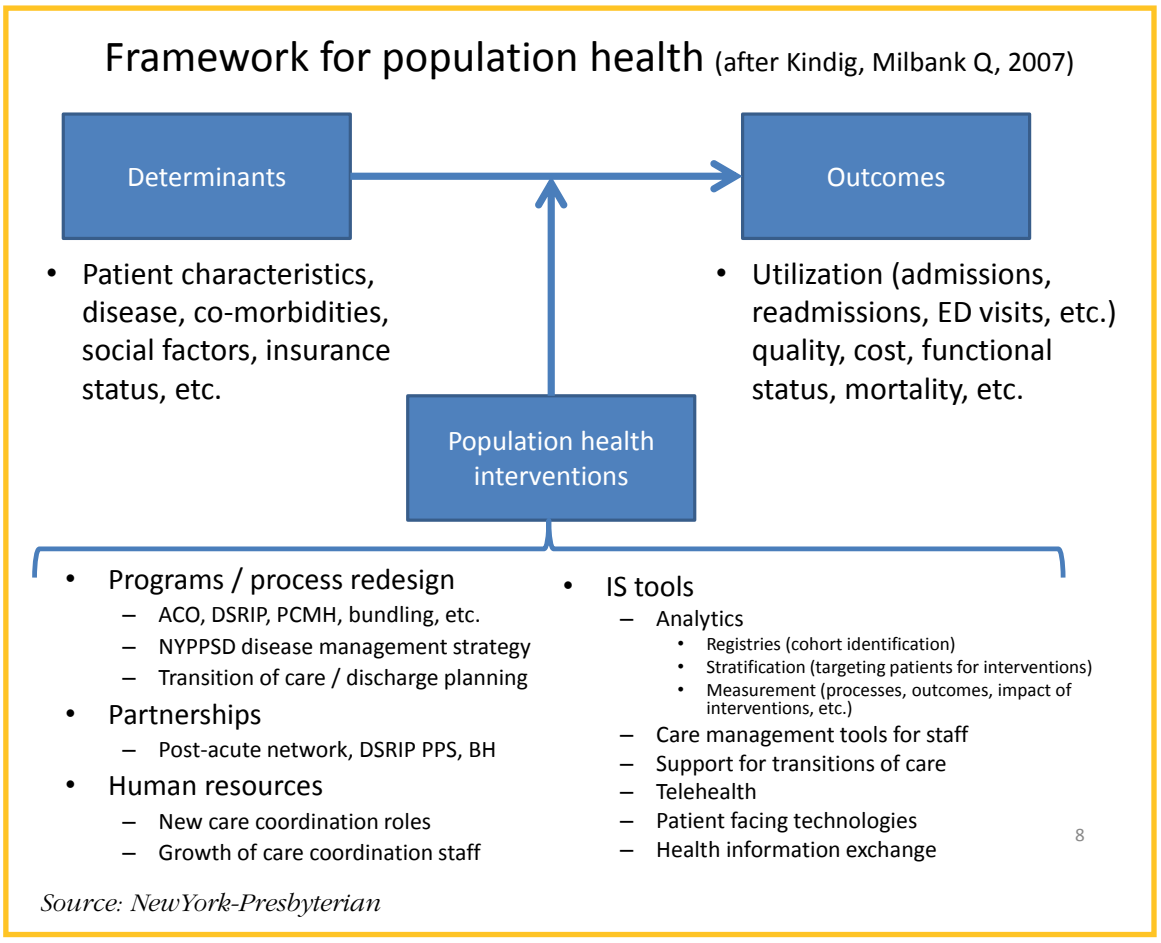
Apply machine learning but also apply a clinical social worker's eye. People motivate differently. Of 50,000 individuals I want to know the 500 who have diabetes, but John may be a diabetic who belongs to three populations. When you overlay the care plan on the individuals within a population, you further define the population.



Source: NewYork-Presbyterian

We're early in defining populations. We tend to think of diabetes, but it's much broader and deeper than that. Elderly people may have five physicians with five plans for dementia, diabetes and Parkinson's. We're really limited in our ability to define a population because there are so many variables.

When Boston Children's identifies a kid with asthma they factor in the age of the mattress because kids put their faces into the mattress. How do we collect the ages of mattresses? Get meals on wheels or get Uber? We need to break out of the box and become much more sophisticated. We're still just at the beginning. There are dozens of data chestnuts out there that need to be gathered.

? The healthcare CFO asks, 'Where do I start?' Start with your employee base.

For example, it turns out that one of the great predictors of prescription compliance is credit score. A major factor in John's health may be that his marriage is falling apart or his job is miserable. You need to get down to an N of one.

Populations are very fluid. You can start out low-risk and end up at high-risk. You need to identify what subset is shifting. These shifts will become more and more frequent.

Population health is moving fast. A year ago it was all conceptual; now we're focused on data quality. Next year we'll have moved beyond the data.

"Let's not wait for people to be sick. It's not a question of segmenting the population but how we can improve their health and well-being," says Paul Tang, MD.

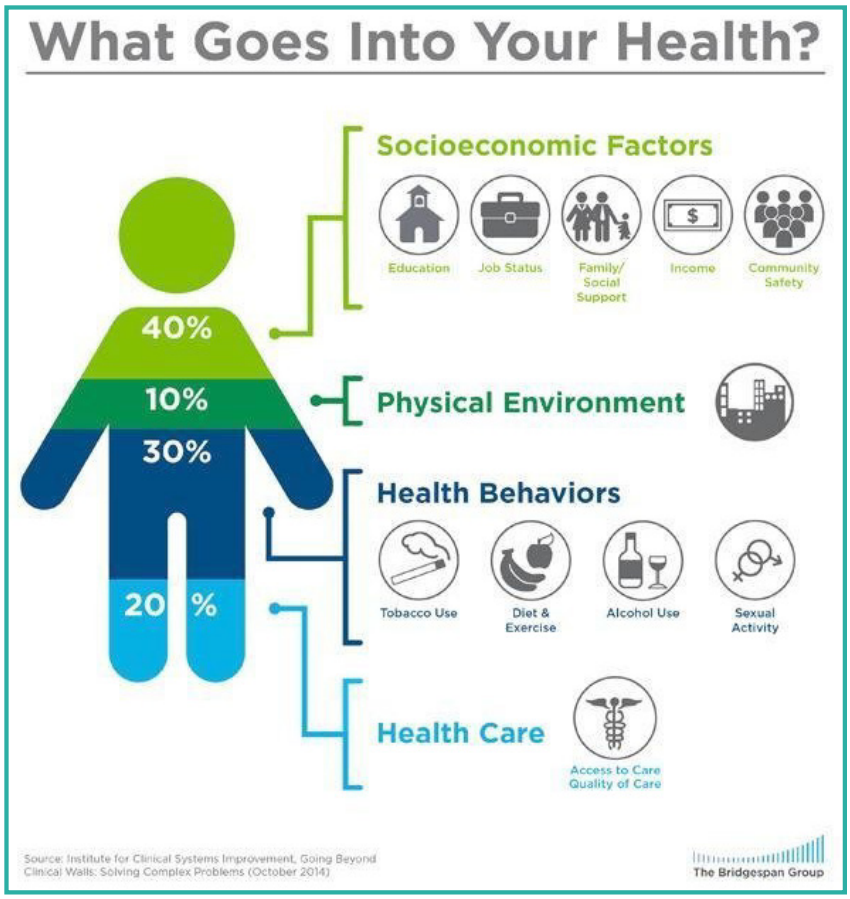
IBM Watson Health

Paul Tang, MD, VP and chief health transformation officer, IBM Watson Health

If two-thirds of people are obese we need to go upstream and eliminate the causes of obesity. Why wait for them to get obese? It's about elementary school and school lunches. What's the program to improve the health of the entire country?

Our legacy is anchored in a fee-for-service world, so we wait for people to get diseases and then badger them. The concept of 'Vital Living' flips that on its head. It's not just a matter of age, sex and other demographics. The predictors are often people's habits: advertising they habitually see, school lunches, everything in life.

You still have to define that population, but it's not a matter of just getting their phone numbers to call when they get sick. How do you segment the population? In the end our goal is to change behaviors that affect your health.



Ultimately, 40 percent of the influencers of your health status are behavioral; only 20 percent is clinical.

Most of health gains have occurred because of public policy standards such as car seats and indoor plumbing. It's all about how you change behavior.

The United States is the only country that spends more on the intervention side than the prevention side. However, the Affordable Care Act (ACA) started turning the country in the direction of prevention.

Who leads this transformation? The health system CEO and CMO. In the new world you won't be punished for prevention. In America you put in incentives to make something happen. It's that easy. We just don't have the measuring system yet.

How do we stratify our population? If you're in it for the long haul, you work at the community level. A community is a group of people with shared affiliation such as geography, religion or church, a hobby, ethnicity and school. That's how you reach people.

Take care of folks in the catchment area. We're very ineffective at stopping smoking in the exam room. Health systems can more effectively achieve the Triple Aim by working in the community. They're doing it in Hennepin County, Minnesota. Medicaid waivers have become a way to be creative in this area.

The hard job is to change unhealthy behaviors such as eating high-calorie and fast foods. You don't do that by blaming people but by making it cool to do. Make it easy to do the right thing. Like using a smaller plate to eat. Whatever the trick is. Segment the population according to what works. That's how you stratify people.

A health system can be a facilitator of behavior change. Creating the proper aligned financial incentives for transformative change is a great way to get action. America is really good at that.

"Population health means a lot of things to a lot of people," says Russ Staheli, which he casts into two buckets: one, the model of care, which includes stratification of populations according to risk and, two, the system of payment which requires care coordination based on those stratifications. You can't separate your care management focus from the payment model because that is how you measure your "return on engagement" with the specified population.

HealthCatalyst
ignite change

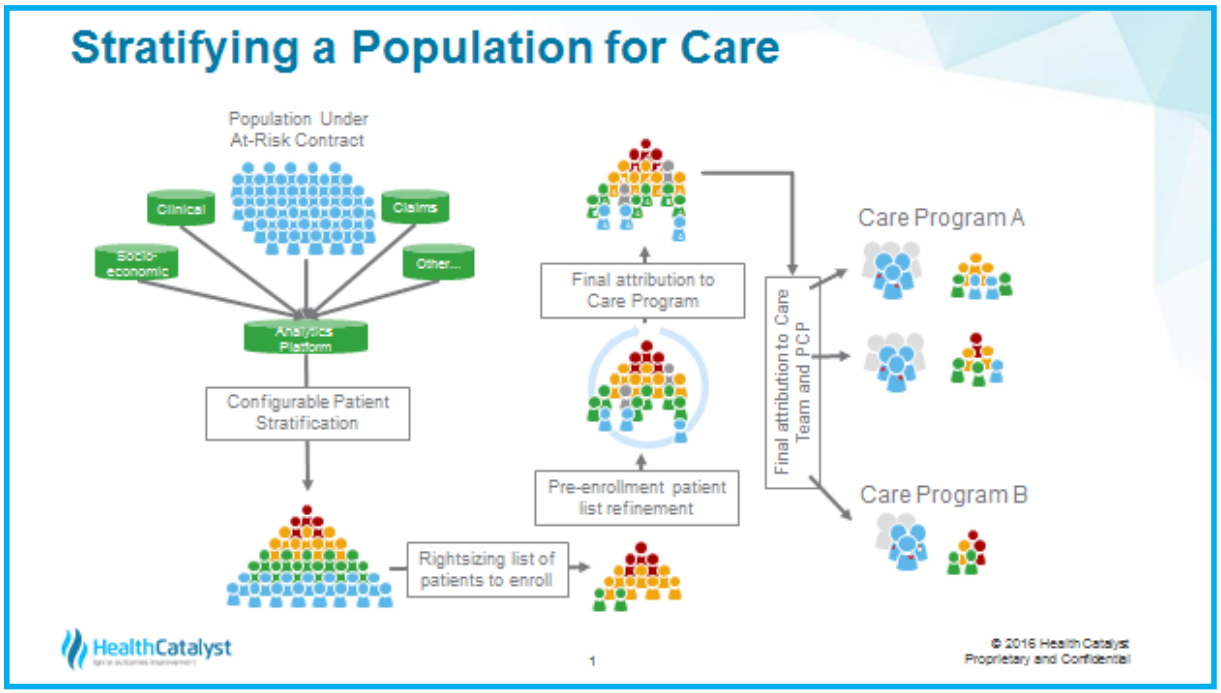
Russ Staheli, senior VP of population health & care management, Health Catalyst

The overall framework is to customize your population selection criteria to select groups of patients that will share a care program, calculate their current risk state, and then forecast future resource requirements. Then you engage them in a care program and monitor the results to understand the "return on engagement" in the context of financial and quality impact.

Population health's five core competencies:

1. Data Integration
2. Patient Stratification
3. Care Coordination
4. Patient Engagement
5. Performance Monitoring

Data Integration is required to achieve the second competency, Patient Stratification. That requires an information infrastructure that aggregates clinical, claims, socioeconomic and patient-reported outcomes information.



Then you apply algorithms that allow you to "mix and match" patient characteristics to enroll them in specific Care Coordination Programs. For example, you may want to identify patients based on past behavior—high numbers of readmissions, ER visits, ICU costs—or you may want to focus more on "rising risk" factors based on trends and rates of change in co-morbidities, lab results, for example. Or, you may want to weigh in on social determinants that may be based on where they live. These various filters can be applied in a flexible fashion so you can organize people into similar care programs that will allow you to manage their care costs relative to the payment models that cover them.

With all of this data in a data warehouse—utilization, claims, clinical, socioeconomic—a patient-stratification tool can be applied using various customizable risk algorithms to identify and stratify patients into "registries" of patients with similar care needs, creating a landing spot for a care-management strategy that can emphasize active or passive Patient Engagement and management of the resulting patient population.

The idea:

Here's a framework, you can mix and match the factors, using a slide to weight different variables in your algorithms depending on how much your organization emphasizes each factor.

Performance Monitoring is important to ensure you are achieving the desired "return on engagement" for the population under risk. **We've seen 5% of the population consume over 50% of the resources.** Managing the "downside risk" is a critical component of a population health strategy.

Conclusion

Defining or stratifying populations for population health under value-based care is the first step for health systems to inaugurate a population-health strategy. It requires algorithm-based analytics to continually refine and categorize the population according to pre-determined patient profiles while monitoring its shifting shape based on the levels of risk associated with each patient. It is not for the faint of heart. An integrated data platform, highly sophisticated analytics and intuitive user dashboards are de riguer. Defining populations, like population health generally, also requires social and community awareness and engagement. Given that the most critical factors in managing health are behavioral and socioeconomic, gathering data to define populations may just require defining the term community in an entirely new way.

RELATED RESOURCES

Check out the report on Population Health from the SI 2016 Chief Data & Analytics Officers Summit at
https://scottsdaleinstitute.org/summits/CDO-CAO.asp

Check out these 2017 SI Teleconferences on Population Health at
https://scottsdaleinstitute.org/teleconferences/2017.asp

February 14: **IS Support for Value-based Care and DSRIP at NYP**

February 16: **Controlling Chaos: Preparing for Success in Value-based Care**

Check out these 2016 SI Teleconferences on Population Health at
https://scottsdaleinstitute.org/teleconferences/2016.asp

December 12: **Utilizing HealtheIntent in an ACO at Memorial Hermann**

December 7: **Pop Health Journey at Geisinger Health System**

November 15: **Becoming Agile: Leveraging Strategies from Outside of Healthcare to Transform How Ascension Works**

September 19: **Advocate-Cerner Partnership Creates Big Data Analytics for Pop Health**

Check out these Cerner resources on Population Health at
https://www.cerner.com/solutions/population-health-management

Check out these IBM Watson Health resources on Population Health at
https://www.ibm.com/watson/health/population-health-management/

Check out these Health Catalyst resources on Population Health at
https://www.healthcatalyst.com/knowledge-center/insights/category/population-health/

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