Q&A

David B. Nash Advocates Better Outcomes And Lower Costs Through Population Health

J. Stephen McIver

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P&T: The term “population health” may mean different things to different people. As a leader in this field, tell us what population health really entails.

DBN: There are both academic and pragmatic definitions. Let me give you the academic one first.

The first time that I recall reading this in the peer-reviewed literature was in David Kindig’s 2003 American Journal of Public Health paper,³ which basically said that public health is wonderful—AIDS prevention, obesity reduction, smoking cessation, driving 55 miles an hour, wearing a seatbelt. All of those policies have accomplished far more than the 140 academic medical centers could ever hope to do in terms of improving health. But Dr. Kindig understood that the public health community failed to think about a couple of things: the price of what they were doing—the cost to providers, payers, and society—and the outcome and the safety.

So population health, from our college perspective, includes public health, health care quality and safety, health economics, and health policy [Table 1]. From David Kindig’s perspective, population health is the outcomes (morbidity, mortality, quality of life), the determinants (socioeconomic status, individual behavior, medical care), and then that interplay. The punchline for the academic definition of population health is that 80% of the well-being of a society has nothing to do with the delivery of medical services—it’s the social determinants that are in play. A third definition focuses on population health management, when you bear economic risk for a population. How are we managing their cases? When you bear economic risk, what are the key procedures and policies and tenets that you have to embrace, such as care coordination, risk stratification, predictive analytics, evidence-based practice, closure of the feedback loop with practitioners, creating a standard of care? The reason people have trouble understanding population health is that there are a lot of definitions, and it means a lot of things to different people, depending on whether you are a patient, a provider, a payer, or a policy-maker.

P&T: Let’s start with outcomes. Are knowing what works and for whom major parts of this?

DBN: Among the core tenets of population health—certainly the way we describe it at our college in 2017, although maybe not in Kindig’s definition in 2003—are transparency and accountability for outcomes. That means everything from putting your individual physician Press Ganey scores online, to having your error rate publicly available, to the outcomes from open-heart surgery at the doctor-specific, surgeon-specific level, all available for anyone at any time. Now, is the theme of transparency and accountability specifically and traditionally part of population health? Well, from my perspective, how can you improve the health of the population if the population doesn’t have access to the best possible information regarding cost, quality, outcomes—in one word, value?

P&T: You also mentioned safety. P&T’s surveys of readers consistently show that safety is their number-one priority. How are we doing in that regard?

DBN: To Err Is Human was published in 1999, 18 years ago.² Staggering, right? Here we are, nearly two decades later, and the best available evidence, re-evaluating the original data, says that the problem is worse than we ever thought. According to people like Marty Makary and others, the third leading cause of death in the U.S. is preventable medical mistakes.³ So our view is that people should be in the street, protesting—or, as in the title of my latest book, demanding better. Is that under the purview of improving the health of the population? Of course. People don’t think of preventable medical error as an important part of improving health and improving outcomes. But it is.

Here’s a way to better understand this. If you ask folks in the public health community what the contributors to safety are, they will appropriately answer: wearing a seatbelt, wearing a bicycle helmet, and driving the speed limit—which clearly have saved thousands of lives. But the notion of system improvement, lean thinking, closure of the feedback loop, the tenets of quality improvement—that’s not part of their lexicon. That’s where public health as a definition falls short in their understanding of the critical nature of improving the safety of the care we deliver.

The author is the editor of P&T.
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GLOSSARY

**Big data**—Extremely large data sets that may be analyzed via computer programs to reveal patterns, trends, and associations.

**Bundled payments**—Linking providers’ reimbursement for the multiple services that patients receive during an episode of care. The Centers for Medicare and Medicaid Services’ Bundled Payments for Care Improvement initiative broadly defines four models in which payment arrangements include financial and performance accountability.

**Care coordination**—Organizing the activities of participants in a patient’s health care to facilitate the appropriate delivery of services. Marshaling the personnel and other resources needed to carry out all required patient care activities relies in part on the exchange of information among participants responsible for different aspects of care.

**Closed feedback loop**—A system that reduces errors by identifying points of failure, recognizing deviations from what is expected, and adjusting processes. This enables reliable, repeatable, and cost-effective performance. Complex health care processes—preventing unnecessary hospital readmissions, for instance—require multiple feedback loops and failure detection mechanisms.

**Determinant**—Any factor that brings about change in a health condition or other defined characteristic. Determinants include medical care, public health, socioeconomic status, physical environment, individual behavior, and genetics.

**Evidence-based treatments**—Systematically selected, implemented, and evaluated strategies, programs, and policies backed by evidence from the scientific literature that they have shown effectiveness in accomplishing intended outcomes.

**Healthy days**—A set of survey measures developed by the Centers for Disease Control and Prevention and its partners for use in tracking population health status and health-related quality of life in states and communities (see www.cdc.gov/hrqol/pdfs/mhd.pdf).

**Incentive compensation**—A type of individual pay based on performance. In health care, an organization might link employees’ financial rewards to cost-effective management of patient care or reducing adverse outcomes.

**Lean thinking**—A management philosophy that focuses on how efficiently resources are being used, and with each step in a process stops to ask, “What value is being produced?” The method can be used to improve service and eliminate steps that offer no value to the patient.

**Meaningful use**—Use of certified electronic health record technology to improve quality, safety, and efficiency; to reduce health disparities; to engage patients and family; to improve care coordination and population and public health; and to maintain privacy and security of patient health information. Eligible professionals and hospitals must achieve specific meaningful use objectives to qualify for incentive programs run by the Centers for Medicare and Medicaid Services.

**Outcomes**—All possible results that may stem from exposure to a causal factor from preventive or therapeutic interventions, including changes in mortality rates, morbidity, disability, health status, and quality of life.

**Patient engagement**—Combining a patient’s knowledge, skills, ability, and willingness to manage his or her own health and care with interventions designed to increase activation and promote positive patient behavior.

**Precision medicine**—An approach to disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. This allows doctors and researchers to predict more accurately which treatment and prevention strategies for a given disease will work in which groups of people.

**Predictive analytics**—Using a variety of techniques from data mining, statistics, modeling, machine learning, and artificial intelligence, this branch of advanced analytics analyzes current data to make predictions about unknown future events.

**Press Ganey**—A national health care consulting firm that offers analytics focused on patient satisfaction. Its scorecards allow clients to compare themselves against other facilities on key performance areas and determine where to focus improvement efforts.

**Registry**—An electronic system for uniform collection of information used to evaluate specified outcomes for a patient population defined by a particular disease, condition, or exposure. Among the varying types of registries, the Centers for Medicare and Medicaid Services recognizes qualified clinical data registries, which can be used to collect and submit physician quality reporting system measures data for a practice.

**Relative value unit (RVU)**—The basis of fee-for-service Medicare payment. Three RVUs go into calculating a payment; they reflect the relative time and intensity associated with furnishing a service, the costs of maintaining a practice, and the costs of malpractice insurance. RVUs are adjusted to account for geographic cost variations.

**Risk stratification**—A tool for identifying and predicting which patients are at high risk or likely to be at high risk and prioritizing the management of their care in order to prevent worse outcomes.

**Risk-based contracting**—An agreement by providers to improve the health of a specific population for a certain level of reimbursement; they lose money if they don’t deliver results based on certain performance measures. Risk-based models make physicians more accountable for quality of care and effective use of resources.

**Standard of care**—A diagnostic and treatment process that a clinician should follow for a certain type of patient, illness, or clinical circumstance.

**Telemedicine**—The remote diagnosis and treatment of patients by means of telecommunications technology.

**Value-based payment**—Programs that reward health care providers with incentive payments for the quality of care they give to people.

**P&T**: What are some of the ways that population health can address safety?

**DBN**: You have to follow the money. Every error that reaches a patient has a cost; it’s roughly $5,000 for every incident. The triple aim in promoting population health is to improve the health of the population, reduce per capita cost by reducing waste, and improve the individual experience of care. So, if I reduce error, I’m reducing waste, I’m reducing per capita cost, I’m certainly improving the individual experience of care, and thereby I’m improving the health of the population. Since I’ve reallocated resources that I was spending to fix something I should have done right the first time, I am able to improve hypertension screening in the community or accomplish some other goal, whatever it might be. To me, they’re inextricably interconnected.

**P&T**: Some people might look at these tenets of outcomes, safety, and cost and think that they can be contradictory in some instances.

**DBN**: But they’re not. Let’s go back to the triple aim, which is an easy way to operationalize in your head the goals of population health. To improve the health of the population, let’s allocate resources in a way that makes sense. That means decreasing waste. There are three types of waste: individual
In its most fundamental sense, population health is a systematic approach to health care that aims to prevent and cure disease by keeping people healthy. Population health builds on public health and clinical foundations:

- It connects prevention, wellness, and behavioral health science with health care delivery, quality and safety, disease prevention/management, and economic issues of value and risk—all in the service of a specific population, be it a city, provider’s practice, hospital’s primary service area, or preschool children.
- It identifies socioeconomic and cultural factors that determine the health of populations and develops policies that address the impact of these determinants.
- It applies epidemiology and biostatistics in new ways to model disease states, map their incidence, and predict their impact.
- It uses data analysis to design social and community interventions and to develop new models of health care delivery that stress care coordination and ease of accessibility.
- It emphasizes value rather than volume of services rendered.

### Table 1 What Is Population Health?

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<th>Conventional Health Care</th>
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<td><strong>Purpose</strong></td>
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<td>Preventing disease</td>
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<td>Keeping people healthy and well</td>
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<td><strong>Values</strong></td>
<td>Diagnosis, treatment, and cure</td>
<td>Prevention of disease</td>
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<td>Physician’s expertise</td>
<td>Emphasis on wellness</td>
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<td>Unlimited access to health care</td>
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<td>Increased quality/reduction of errors</td>
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<td>Doctor is center of care team</td>
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Source: Jefferson College of Population Health

waste, clinical waste, and operational waste. Individual waste relates to people’s behavior, such as smoking and all the rest. Clinical waste involves errors, inappropriate testing, and dangerous testing. Operational waste is information technology (IT) systems that don’t talk to each other, duplicative billing procedures, ridiculous stuff that goes on every single day. If we could decrease all three, what an incredible improvement in the health of the population we could achieve.

For example, on individual waste, we know that four things contribute to 40% of all mortality in the country: physical inactivity, inappropriate or poor diet, lack of exercise, and smoking. If we could harness the energy that goes into those four things and redirect it, get people to consume even 60 to 100 fewer calories a day—that’s all we’re talking about—it would contribute immeasurably to the health of the population. So individual behavior as a type of waste contributes mightily to mortality, which in turn contributes to decreasing the health of the population. All these things are connected.

**P&T:** Isn’t smoking an instance where efforts to change behavior have had a big impact?

**DBN:** A gigantic impact. Smoking is probably still public enemy number one, but the moonshot for cancer—although that’s fantastic—pales in comparison to the contribution that smoking reduction has made in cancer mortality.

**P&T:** We’ve been talking mostly about big-picture concepts. How do individual practitioners contribute to this, and how do they benefit?

**DBN:** At the individual practitioner level—nurse, doctor, pharmacist—this is all pretty amorphous until the group that these doctors, nurses, and pharmacists are in begins to bear economic risk for the outcome at the clinical, individual patient, or population level. Let’s say I’m in my private practice office, doing my gerbil-on-a-wheel-type work every day based on RVUs [relative value units]. If you’re a diabetes nurse educator, who can help me do a much better job treating my patients, the fact that you’re an expense to me means that I am not going to deploy you appropriately. The fact that the pharmacist has far better knowledge of the side effects of all of the drugs and can make an important contribution to the team—and the research evidence on this is super-solid—well, she’s an expense, too, in an RVU world.

Now, let’s turn that world upside down based on the Patient Protection and Affordable Care Act and the bundled payment experiment. I’m going to pay your multispecialty group practice, let’s say, a bundled payment for congestive heart failure. All of a sudden, that diabetes nurse educator, with her panel of patients who also have congestive heart failure as the result of a vascular disease … you get the idea. All of a sudden, she’s a vital member of the team, helping me to reduce cost, reduce waste, and improve outcomes. Oh, and the pharmacist? She’s amazing because she knows every side effect of every drug, and she’s my right-hand person in helping me with compliance, which is a gigantic issue.
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You’ve got to change the economic incentives at the individual practitioner or group level before they really participate in this complete paradigm shift that we’re discussing.

P&T: What role do practice-based registries serve?
DBN: Let’s go back to the triple aim—improving the health of the population, reducing per capita cost, and improving the individual experience of care. How can we implement these aims when typically we don’t even know who our own patients are in the population? In private RVU-based practice, whoever shows up is your patient. Now, imagine I start by thinking of the population of all my patients who have diabetes, congestive heart failure, chronic obstructive pulmonary disease, coronary disease, whatever. If I’m going to be paid based on improving certain measures relative to their health, step one is, who are they? What I envision—using tools such as Healthy Planet and others from Philips Wellcentive and a score of others—I’d like to come in to my primary care office in the morning and be able to ask the following question: How am I doing? It seems obvious, but that’s an incredibly difficult question today to answer. If you ask most academic doctors how they’re doing, they would say, “What are you talking about? I’m great. That’s why I’m here.” But what I would argue—as we have in our textbook—is, look, in God we trust; everybody else, bring your outcomes data. The registry is just another tool to help me to measure, evaluate, close the feedback loop, figure out where I can do a better job.

Let me give you two concrete examples. I hope I live to see a registry that might say to me, “Look, David, your generic drug prescribing rate is too low. Here’s the evidence from the last two quarters across 100 patients that you’ve seen in the office. And by the way, the benchmark against which we’re comparing your performance is from your own group practice. Here’s the norm for your practice. Oh, and here’s the norm for the region, and here’s the national norm.” Well, you can’t do any of that without a registry. To me, it’s the critical tool, closing the feedback loop to the practitioner. The good news is, if you give me good information in a timely, nonpunitive way about what I’m doing, and you show me the gap in my performance, knowing that most doctors are at least A– students, I will stampede to improve. You just better get out of my way.

P&T: Is there a need for an attitude change among providers? I think back to my childhood family doctor, a single practitioner who seemed to know everything.
DBN: I’m very fortunate to have twin daughters. They’re both in the business. One of them is going to be a chief resident in medicine. And I’m privileged now to see medicine through her young eyes, at 30. I think their expectations are very different than those of my physician wife and me. They’ve grown up in a world of transparency and accountability. Her work at the bedside has been measured, evaluated, videotaped. I experienced none of that. And she’s emerging as a junior attending physician into a world where she’s going to be paid, in part, based on a good outcome. So, to answer your question, I think this is a generational change. For people like me over 60, the gig is up, we’ll never change. I think that for doctors between 40 and 60, it’s going to be a struggle. For doctors 35 and under, this is going to be standard operating procedure; it’s what they grew up with. They will know no other way.

P&T: Do you think tomorrow’s physicians and pharmacists are getting all the training they need?
DBN: You’re asking a tough question. Kaiser Permanente is building a brand-new medical school from scratch in Oakland, California. Why are they doing that? As the largest, oldest, not-for-profit, totally integrated delivery system at economic risk, what have they observed in the last 40 years? Medical education isn’t building the right doctor on the factory floor, if you’ll pardon my analogy, to fit into that world. This is emblematic of the fact that medical education, of which I have been a part for 35 years, has failed. We have not kept up with the needs and demands of the marketplace. The amount of exposure that the average medical student, in great medical schools, gets on quality, safety, and the true cost of care, is laughable. Then we wonder, a decade post-graduation, post-training, when they’re junior attending physicians, why they have stress over these issues. It’s because they’ve never been taught. We’ve got educational malpractice with regard to the lack of appropriate training on these issues, in my view.

P&T: We’ve discussed some systemic changes, such as bundled payments, that began as governmental initiatives, but you’ve talked about the market moving beyond government mandates. Do you see these types of things continuing, even if the government pulls back?
DBN: Totally. As I’ve said, this horse is so far out of the barn, you can’t even see its tail anymore. What horse? The horse on the journey from volume to value. So, how do you achieve value? In our world view, it’s by implementing the tenets of improving the health of the population—embracing the triple aim. The private payers—the Aetnas, Humana’s, Cignas of the world—are all moving toward a value-based payment system because it completely aligns incentives with the beneficiary. Keeping the beneficiary healthy, after all, is the core corporate goal. Let me give you an example. I’m very privileged to be a member of the board of Humana. Humana’s overarching corporate goal is, in every major market that Humana works, we want to have a 20% improvement in the health of the population by 2020, using readily available, research-proven measures such as self-reported “healthy days” based on the tool from the Centers for Disease Control and Prevention. From Humana’s perspective, they are perfectly aligned with the tenets of population health. Most delivery systems are not, because their revenue base is still heads-in-beds, volume reimbursement. I believe that the private sector is going to continue to push toward value-based reimbursement.

One of the many challenges is that the measures are blunt. It’s like a baseball bat, and we need a scalpel. It’s going to take a while to improve the measures. We have too many measures; lots of experts have talked about measurement mania. So I think we have a lot of work to do to improve the measures and to get greater sensitivity and specificity of the measures. But there is no doubt in my mind that we’re moving toward value-based payment.

P&T: Earlier, you mentioned bulky IT systems. Gathering and analyzing data is important to population health, and the progress of electronic health records has been an up-and-down thing. What needs to happen, and how can we make it happen?
DBN: That’s a huge area. Health information technology got a $19 billion public handout at the beginning of the recession as part of the Troubled Asset Relief Program (TARP). Number one, this industry wouldn’t be anything like it is today without that enormous public handout. Number two, there’s the notion of meaningful use. Taking away the handwritten prescription, implementing barcoding, implementing standards of care—all of those things are improvements, no doubt about it. On the downside, we’ve added about 90 minutes per day of unreimbursed time to every doctor, at least in primary care. We’ve created some unanticipated side effects in the mistakes that information technology actually promotes. I think we dove head first into an IT pool that had maybe 4 feet of water, not 9 feet. We didn’t break our neck, but came pretty damn close.

So, what must happen in the future? These systems have to become more consistent with our workflow. They have to be easier to maneuver through. They have to be able to create a registry function without the need for a programmer by your side; they have to be transparent for patients; and they have to completely interconnect the system—inpatient, outpatient, laboratory, all of that. It’s a tall order.

P&T: Some patients might hear the term “population health management” and think, “I’m going to get the same exact care that every other patient gets and that doesn’t sound that good to me.” Do you encounter that?

DBN: Sometimes I think patients are vexed by this whole movement. Let’s get back to the core tenets of transparency and accountability. When I talk with my patients and they see me wearing my green population health button on my white lab coat, they want to know what that means. I say, “Well, it’s a way to make sure that we’re finding the means to keep you healthy, and that we’re not just focused on the individual problem that you have, which is still important, but we want to find ways to support your health, in addition to trying to help you with the aspects of the acute and chronic problems.” I understand that patients are confused by this. Most practitioners are confused by this. We have to find a way to better explain it.

In our college, we believe that the health of the population can’t be improved without patient engagement. Patient engagement in the modern era might be emailing with patients, texting with patients, telemedicine with patients, completely mobile health with patients, getting back to patients in a reasonable time, sharing all the information with them, shared decision-making with patients. So another core component of improving health is patient engagement.

P&T: Some institutions are linking executive pay to patient health outcomes. Trinity Health System, for example, has put a chunk of its executives’ compensation into reducing smoking, obesity, readmissions, etc. Is that helpful?

DBN: Very much so. There’s a white paper from the Governance Institute linking executive compensation to the goals of population health. Now I’m not saying all compensation, but imagine if we put a big chunk of incentive compensation on senior leaders and connected it to measures of improving the health of the population. Let’s take Healthy People 2020 and use some of those goals. Let’s take the Robert Wood Johnson Foundation’s Culture of Health goals. And let’s link some of those societal goals to aspects of incentive compensation. I think that would be a game changer. All of a sudden, we would be talking to the elementary school superintendent in the district contiguous with our hospital to help her introduce healthy eating habits with grade-schoolers; we would be working with the food banks; we would be opening up primary care clinics everywhere. Perhaps in the Midwest, hospitals would be growing crops to feed the poor. So I think having some part of incentive compensation linked to measures of population health would be fantastic.

P&T: How do population health and related big-data issues relate to the work of formulary committees and pharmacy issues in general?

DBN: I’ve been privileged to be a member of the Jefferson Hospital P&T committee for 27 years, to be chair of the medication quality and safety committee for 20 years, and to be editor-in-chief of P&T for nearly 15 years. Let’s look at the convergence of precision medicine and population health. I hope I’m still in practice to see this: I envision a world where, based on your unique genetic makeup, I have a pretty good idea of which antidepressant is going to work for you or which anticoagulant is going to work for you. Then I can target my pharmacopeia more carefully for your individual needs. And if I take 25 people or 100 people like you, now I’m talking about a population. So it’s the convergence—maybe even the collision—of precision medicine with population health. Sometimes people think it’s paradoxical when you say precision medicine is all about the individual, and population health is about the population. But from my perspective, they’re synergistic—amazingly so. The P&T committee of the future might be all about deciding, based on these various genetic compositions, what’s the appropriate drug to put on the formulary? That would be amazing.

I also see P&T committees studying the health of the population and the impact that the different drugs have on that health in a very measurable way, and then making decisions based, in part, on those outcomes. That would be pretty amazing, too. I hope I’m around to see it.

REFERENCES