2019 Summit on Building New Pathways for Value-Based Healthcare

Nov 5-6, 2019 Phoenix, AZ

Sponsored by ASU College of Health Solutions Arizona State University   GORE   AHVAP Association of Healthcare Value Analysis Professionals

Building New Pathways for Value-Based Healthcare Access, Affordability, and Exceptional Care Outcomes

Coauthors:

Kate Austin, W.L. Gore & Associates, Inc.

Jasmine Bhatti, RN, MS, PhD, Arizona State University

Eric Bour, MD, MBA, Piedmont Healthcare

Deborah Dahl, MD, Entrepreneur

Bradley N. Doebbeling, MD, MSc, Arizona State University

Dee Donatelli-Reber, RN, BSN, MBA, Dee Donatelli Consulting

Gloria Graham, DNP, RN, CVAHP, Association for Healthcare Value Analysis Professionals (AHVAP)

Ed Hardin, MHA, Froedtert Health

Warren Hebert, DNP, RN, CAE, FAAN, HomeCare Association of Louisiana

Andy Kamai, W.L. Gore & Associates

Sue Miller, RN, MN, CMRP, CVAHP, Thomas Jefferson University & Jefferson Health

Langdon Morris, InnovationLabs LLC

Sue Pepin, MD, MPH, Arizona State University

Stacy Prigmore, formerly - W.L. Gore & Associates

Barbara Strain, MA, CVAHP, Association for Healthcare Value Analysis Professionals (AHVAP)
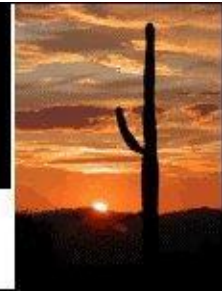
Michelle Villegas-Gold, PhD, MPH, MC, Arizona State University

Kristen Will, PhD(c), MHPE, PA-C, Arizona State University

PREFACE

2019 Summit on Building New Pathways for Value-Based Healthcare — Nov 5-6, 2019 Phoenix, AZ. Sponsored by ASU College of Health Solutions Arizona State University, GORE, AHVAP Association of Healthcare Value Analysis Professionals

During the months since the Summit occurred in November 2019, the face of healthcare both in the United States and around the world has been forever changed by the massive impacts of the COVID-19 pandemic. The authors recognize that while major changes have certainly occurred since the Summit, the primary goals and targeted outcomes articulated during the Summit are now even more important to the healthy functioning of our society: Improving Access to Care, Affordability of Healthcare, and Improved Patient Outcomes and Health.

It is too early to discern all the lessons learned from the pandemic, but swift and readily accessible medical supplies will certainly be a topic of discussion in the coming months and years. In addition, many of the trends and themes identified in the white paper have abruptly transitioned into everyday practice, including broadening access to care, care being provided through increased use of telehealth tools, and the need for collaboration across health systems among those providing medical devices, supplies, pharma, and payments. All these will be key drivers that will soon lead to improvements in the overall value of healthcare provided in the U.S.

And yet the fact remains that the healthcare system in U.S. is still siloed and highly fragmented. Through the lessons learned in fighting the COVID-19 pandemic, the values discussed in this white paper will certainly remain at the forefront of future discussions about the needed initiatives, and we hope you find this white paper valuable as you consider the next generation of innovations and improvements to healthcare and health outcomes.

Executive Summary

The current performance of the U.S. healthcare system is disappointing across multiple dimensions and ranking systems. As of 2019, the system absorbs about 18% of U.S. GDP, a far higher percentage than other developed nations.[1] Notably, the U.S. delivers overall poorer health outcomes for the American people than is achieved in most other developed nations. Care outcomes are uneven and inequitable, costs continue to rise, waste is excessive, and a significant proportion of providers report serious symptoms of burnout.[2] The system is highly complex, and many patients find it confusing and intimidating.

As a consequence of these converging concerns, there is no shortage of discussion about what to do, but insights and actionable policy and programs are rarer. Additionally, the US political landscape is dysfunctional with poorly conceived proposals for change fraught with flaws..

It is with this in mind that several organizations from the academic, business, and professional spaces in healthcare organized a consensus building meeting. Arizona State University's College of Health Solutions has entered into partnership with W. L. Gore and Associates, Inc. and the

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Association of Healthcare Value Analysis Professionals (AHVAP) to identify, refine, and implement viable and systemic solutions for change across the U.S. healthcare landscape.

A key initiative of this partnership was the "Summit on Building New Pathways for Value-Based Healthcare," held November 5 & 6, 2019 in Phoenix. A group of 45 healthcare experts from across the U.S. joined together in a two-day discovery process to explore the current state of the system and to devise programs, policies, and redesign initiatives to address its well-recognized shortcomings.

Goal

We aspire to achieve a patient-centered, value-driven healthcare system in America, in which each activity is assessed and undertaken based on the value impact for the patients. We have identified three specific core values to guide our efforts:

Improved, Universal Access
Affordability
Exceptional Care Outcomes

Recognizing that parts-only or fragmented thinking will not be sufficient to address either the scale of the problems nor their complexity, we have adopted a set of principles, notably the understanding that we must apply rigorous systems thinking in order to develop and implement meaningful, impactful, and enduring solutions within our various institutions, and across the healthcare system as a whole.

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1. The Current State

The headlines that we see over and over currently tell the disturbing stories of America's current healthcare landscape. None of this news is surprising to healthcare industry insiders, practitioners, or to patients. However, all of it nevertheless points inexorably to worsening conditions of patient care amid the increasing scale of its financial impact.

For example:
- The US pays a very high cost for its healthcare as a percentage of GDP, about 18%, yet achieves low metrics for this cost. In other words, we pay more and get less in return.[1]
- Many consumers are burdened by, and outraged by high healthcare costs, and medical debt is now rampant across the country.[3]
- Epidemics in preventable diseases are occurring regularly.[4]
- Consolidation is prevalent across the provider landscape among physician offices, hospitals, suppliers, and group purchasing organizations that all seek greater financial stability or increased profits, or both. However, billions in profits flow to some industry stakeholders that have effectively blocked legislative solutions.
- Consumers, meanwhile, experience widespread confusion and often dismay regarding insurance coverage and treatment options. It is entirely understandable why they are so confused.
- Today, chronic illnesses account for 90% of healthcare costs. Importantly, the sickest 5% consume about 50% of total American healthcare resources.[5] This latter group of high cost, high needs patients has been recently targeted by expert panels, such as the National Academy of Medicine (NAM), as deserving of focus for systems policy, practice redesign and research.

Here are some additional concerns:

Medicare spending during the last year of life requires a full 25% of the entire Medicare budget, with patients having an average of 29 doctor's office visits during their last 6 months of life. Half of Medicare patients arrive in the ED during the last month of life, with 1 in 3 admitted to the ICU, and 1 in 5 having surgery.[6]

In the many locations where care capacity is limited, patients must wait for beds to open up before they can be admitted, and surgeries may often be delayed, leading to delays in discharges and still higher costs.

Further, in the 20 years since the National Academy of Medicine *To Err is Human* report was released, we are still waiting for the implementation of a safer healthcare system.[7] Experts

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observe that the pace of progress is slow and spotty, and that changing payment models, drug prices, clinical burn out, etc., have caused safety and quality to actually decline.

Waste accounts for 25% of the $3.8 trillion healthcare costs.[8] This waste of $760 billion - $935 billion in the U.S. can be summarized in six major categories, in order of magnitude from lowest to highest:

> Failure of care coordination
> Fraud and abuse
> Over treatment or low value care
> Failure of care delivery
> Pricing failure
> Administrative complexity

Savings in each of these categories, other than administrative complexity, has been calculated based on studies suggesting that if intervention efforts are focused in the first 5 categories, savings range from $191 billion to $282 billion.

Access to preventive services also remains an issue for many Americans. The U.S. Healthcare system continues to focus on "sick" care vs. well-care, which has long term effects on increasing burden of chronic disease and healthcare costs.[9] Cost savings and decrease of chronic disease have been shown to improve with implementation of early preventive services, but despite these findings, employers, policy makers, and consumers often do not endorse such programs.

Interventions based on these waste domains provide a grass roots opportunity to help reduce the continual increases in healthcare spending. As Berwick describes, while the combination of these interventions is a step in the right direction, there are still challenges within the US healthcare system requiring, "both awakening a sleepy status quo and shifting power to wrest it from the grip of greed."[10]
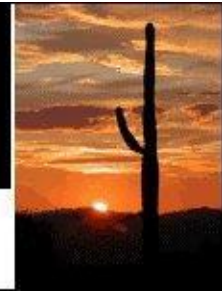
In many clinical settings, care is delivered in a highly siloed fashion, with little to no coordination resulting in increased costs and placing heavier burdens on patients and their families.

All these factors and the six headline themes above describe the situation of a healthcare system that is enormously complex and poorly performing. Thus, we find ourselves today lost in the healthcare maze, adrift among a vast gathering of competing stakeholders. We are unclear as to the direction toward which we ought to go, and so naturally we also lack a site line to navigate our progress. And thus, as we lack a clear direction and a good map, we drift further from our goal: costs rise, and outcomes worsen.

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And what should our goal be? Our consensus building effort has identified and focused on three key priorities, Access, Affordability, and Care Outcomes. We will address each of these as we continue through this white paper.

We also recognize from the outset that because the poor performance of the healthcare system is precisely a systemic issue, we have to consider guidance and insights from the field of "systems thinking," which we do herein as well.

A Sense of Urgency: Radical Transformation Is Needed

If our assessment and that of other expert panels is accurate, then it is no exaggeration to say that the U.S. healthcare system is desperately in need of an overhaul, a radical transformation. The current environment presents burdensome complexities and major barriers to change. This results in healthcare in the U.S. being unfriendly and underperforming for healthcare consumers, providers, suppliers, payers, and healthcare organizations. Thus, while some firms are profiting, the American population as a whole is suffering.

Unraveling and solving the complexities of healthcare requires a careful analysis of all the perspectives of relevant stakeholder groups. These include consumers, patients, physicians/providers, nurses, allied health professionals, chief executives, payers, insurers, business/industry, vendors, institutions of higher learning, and government. We have to understand their goals, and the forces that enable and constrain them, in order to develop a successful plan.

It is also critical to anticipate the future. Care delivery today is a patchwork of unconnected organizations and systems with uneven and inconsistent outcomes at ever-rising costs. However, innovators in the U.S. and globally continue to move forward in many fields, from genetics and proteomics to medical devices and consumer wearables. New treatments, technologies, and protocols emerge with great regularity. Some of these innovations offer improved outcomes, and some that represent genuinely significant breakthroughs, and many of which carry higher price tags. Future disruptions are coming regularly, but nearly all come with higher overall costs, which also have to be managed.

We summarize this in the following figure, Disruptions in Care: Causes & Effects:

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Disruptions in Care: Causes & Effects

Upstream Causes

Siloed care delivery
Lack of inpatient bed availability
ED backlogs
Surgery delays
Confusion
Waste
More complexity
Anticompetitive business

Downstream Effects

Delayed discharges
Increase LOS
Epidemics
Medical bankruptcies
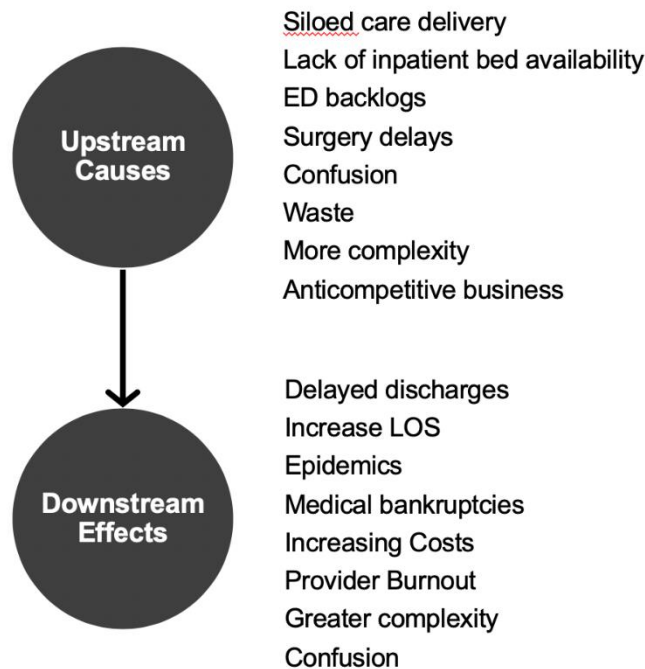Increasing Costs
Provider Burnout
Greater complexity
Confusion

Figure 1. Disruptions in Care
ED: Emergency Department
LOS: Length of Stay

Patient or Consumer?

Multiple studies show that cost transparency in healthcare in the U.S. is very poor. The peculiar behavior of the healthcare system leaves the ones who should be at the center of it all, the patients, scratching their heads in confusion. As patients aren't we also consumers? In many instances, lack of price transparency in healthcare leaves the patient/consumer entirely in the dark about the costs and consequences of their choices; we all know someone who received a shocking bill following a hospital visit. Do we have choice then? If so, how do we exercise that choice? How, that is, should we think about the end users of the healthcare system? What role should they (and we) play in care decisions and care management?

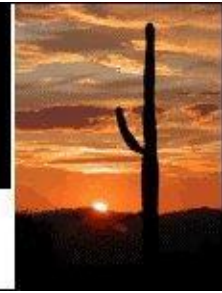2019 Summit on Building New Pathways for Value-Based Healthcare

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2. The End Goal: Access, Affordability, and Exceptional Care Outcomes

The current situation is highly complex and deeply problematic. If we are going to make progress toward meaningful improvements, then we must identify both the ends toward which to work, and the means with which to do so.

What, then should we identify as our end goal? That is, if we anticipate that large-scale, systemic interventions are absolutely necessary, and we do, then we must articulate the end state vision so that we know where we're going. Our ideal future state for healthcare is thus defined this way:

Access, Affordability, and Exceptional Care Outcomes

Access
The future state of healthcare will locate the individual patient and the care population at the very center of its focus. Individuals with diverse backgrounds and needs will be empowered to make healthy choices and wise decisions about their health, and they will have ready access to high quality care that matches the complexity of their needs.

Affordability
Effective and timely healthcare will be affordable for all, and the extreme financial stress and medical bankruptcy that has become so common today will disappear.

Exceptional Care Outcomes
The smoothly-functioning healthcare system will achieve exceptional care outcomes for all patients, their families, and healthcare providers. It will work well at levels, from the individual to the community to the nation as a whole, addressing all types of needs, from behavioral and mental health to acute and chronic conditions of all types.

It is not an accident that we identified core values in these three domains. This triad has been referred to as McClure's Dilemma.[11]

Systems Thinking
Given that the complexity of the American healthcare system is so great, its scope so vast, and our aspiration for its improvement is so fundamental, it's to be expected that we experience a bit of despair as we wonder how it can possibly be transformed from a top-down perspective. Citizens increasingly acknowledge the high level of dysfunction in Washington, and the many decades of struggle to agree upon national-scale reforms. Hence, we recognize that it may be

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more productive for us to consider what can be done at our individual institutions, and how we can learn from one another to share successes and advances in a bottom-up or networked fashion. Therefore, at the Phoenix Summit we sought to understand the macro-scale change factors, and to develop and apply institutional-scale interventions.

We found a "systems thinking" framework was a useful perspective, and sought to apply these concepts in our discussions. For example, in systems thinking we focus on connections between the elements of a system, and not just on the individual parts. Importantly, it is usually through the connections that system's behaviors emerge. We also learn to focus on making improvements in an iterative fashion, step by step, rather than trying to institute massively disruptive change wholesale.

With that in mind, we began the Summit by asking each participant to identify a health innovation that addressed any of our three organizing themes. We then organized them according to the systems thinking framework developed by the World Health Organization. The WHO framework identifies five thinking shifts, distinguishing between the "Usual Approach" and a "Systems Thinking Approach," and of course by orienting them according to this framework we wanted to bring forth greater awareness of systems thinking in the course of our work.[12]

Usual Approach	Systems Thinking Approach
Static Thinking Focusing on particular events.	**Dynamic Thinking** Framing a problem in terms of a pattern of behavior over time.
System-as-Effect Thinking Viewing behavior generated by a system as driven by external forces.	**System-as-Cause Thinking** Placing responsibility for a behavior on internal actors who manage the policies and "plumbing" of the system.
Tree-by-Tree Thinking Believing that really knowing something means focusing on the details.	**Forest Thinking** Believing that to know something requires understanding the context of relationships.
Factors Thinking Listing factors that influence or correlate with some result.	**Operational Thinking** Concentrating on causality and understanding how a behavior is generated.

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| **Straight-Line Thinking** Viewing causality as running in one direction, ignoring (either deliberately or not) the interdependence and interaction between and among the causes. | **Loop Thinking** Viewing causality as an on-going process, not a one-time event, with effect feeding back to influence the causes and the causes affecting one another. |

Figure 2. Five Dimensions of Systems Thinking

We also wanted to help the participants see how much innovation is going on in the healthcare field on a continual basis. Accordingly, these are the 36 innovation examples that participants identified, as sorted into the five WHO framework categories:

Dynamic Thinking
Framing a problem in terms of a pattern of behavior over time.
1. *Duralance Dural Elevating and Cutting Mechanism*, enabling some surgeries to be completed more quickly and easily. (2018)
2. *Insulin* treatment for diabetes. (1921)
3. *Value Analysis Apex*, Education program for HC suppliers to understand the HC value analysis process and decision-making. (2019)

System-as-Cause Thinking
Placing responsibility for a behavior on internal actors who manage the policies and "plumbing" of the system.
4. *IV Nutrition Management During Cancer Treatment*, addressing malnutrition during cancer treatment by providing software, diagnostic tools, and metrics to enhance lean muscle mass. (2014)
5. *Smarter Care Virginia*, reduced the provision of medical tests and procedures identified as "low value" (i.e. choosing wisely) which achieved a 25% relative reduction in 7 tests, changing the payment system to reward those who are successful.
6. *Interstate Medical Licensure Compact*, facilitated license portability for physicians by creation of a super credential acceptable to licensing board across the country. (2001)
7. *Design a New Health Profession PA*, improve access to care by creating the PA role.
8. *Daily Operations Brief*, to enable quick resolution of barriers that would impact patient care by having leadership support in the process when problems identified allowed for a much sooner resolution or mitigating strategy. (2013)
9. *Supply Chain Transparency*, share all information about product availability, specifications, and use to all who need and want it by creating an ERP tool providing a

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pictorial catalog and shopping cart for use by all, leading to more intelligent use of products and selection, bringing right product, right place, right time, right cost. (2009)

10. *Bridge Clinic*, provides a way to transition children safely out of an acute behavioral health crisis and / or prevent escalation of an emerging BH crisis by creating a BH clinic (innovation), to "bridge" the patient back to OP BH and PCP with eventual goal of long – term BH and PCP transformations. (2016)

11. *Mayo Clinic HIM Physician Assistant Fellowship*, creates a pipeline of highly qualified providers while providing postgraduate training for PAs, a new model of physicians / residents / trainees. (2009)

12. *Hand Hygiene Systems*, decreases hospital infections, costs, and medical errors by change culture about handwashing.

Forest Thinking
Believing that to know something requires understanding the context of relationships.

13. *Medtech Accelerator*, assists medtech startup companies to become scalable and commercialized, by connecting innovators to leaders in investment, marketing, and journalism to allow for growth and success with their products.

14. *Students Visit Dementia Patient Weekly*, reduces anxiety of dementia patients, reduce burnout of caregivers, and provides companionship for dementia patients.

15. *Measurable, Sustainable, Replicable Customer – Supplier Collaboration*, working with the best suppliers to create innovative solutions that drive value for both organizations and our mutual customers: clinicians and patients, by measuring supplier performance, having a construct for sustaining these relationships, having a construct for replicable relationships across the entire supplier community, and creating a business case for increasing / decreasing supplier footprint. (2013)

16. *Orthopedic Transformation*, improves orthopedic surgery knee and hips are reduces variation in quality and outcomes using clinical pathways. (2015)

17. *Increase Tobacco Cessation Rates*, decreases the rates of tobacco use in pregnant women in US, by addressing social determinants of health and behavioral health to decrease tobacco use, using tobacco taxation to fund initiatives.

18. *MedStar House Call Program*, a high value way to care for the frail and elderly using house calls. (1989)

19. *Clinical Integration*, improved collaboration between physicians and hospital, through discussion and articles leading to insights and discovery of barriers and biases.

20. *OASIS Exam Collaboration*, a process to achieve consistent use of OASIS comprehensive assessment instrument for home health providers and researchers, leading to increased accuracy in application of the assessment instrument, better patient outcomes, and valid population health data. (2004)

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Operational Thinking

Concentrating on causality and understanding how a behavior is generated.

21. *Patient Fall Agreement*, reduces fall rates in the hospital by creating a paper agreement between patient and nurses that invokes responsibility and participation on part of the patient after education the "why." (2015)

22. *Stabilizing the Process*, addresses problems with variable manufacturing outcomes of devices, by tracking failure, identifying why was it occurring and what the system is doing to cover it up, and then implementing process discipline and rewards for stopping the production process to make errors visible. A "Catch of the Day" reward given for stopping the process replaced rewards for high production.

23. *50 Minute Meetings*, uses time more efficiently, respects peoples' time and standardizes "breaks" between meetings. (2018)

24. *Enterprise Value Analysis Transformation*, implements enterprise-wide value analyses structure and decision making, to shift focus of transformation process from individual division to patient outcomes. (2018)

Loop Thinking

Viewing causality as an on-going process, not a one-time event, with effect feeding back to influence the causes and the causes affecting one another.

25. *LEAN Methodology Education / Adaption*, learning to think differently and approach our work systematically through education and adoption to use in day-to-day work. (2013)

26. *"Stick – it" to the Flu*, increase flu vaccination at downtown ASU campus by bringing the flu vaccine to the students. (2019)

27. *Committed R+D Funding at Multiple Levels*, fosters discovery of what works in creating positive system change, including a contracting mechanism for selection and funding of rapid system change, a mechanism through The Agency for Healthcare Research and Quality (AHRQ) to accelerate change in organizations and networks, and also used at CMS to improve access to care. (2010)

28. *Tele ICU → Home Telehealth*, decreases ICU mortality and errors, ICU cost, and increases best practices. (2006)

29. *Improve Patient Experience*, improves patient experience on inpatient hospital units, improves perception of care, through a daily "safety hour" with executive leaders participating in rounding on all inpatients. (2018)

30. *Raising Excellence in the Clinical Learning Environment*, improves patient care and communication amongst healthcare providers through interdisciplinary huddles and rounds. (2018)

31. *New Clinical Pathway in Surgery*, reduces surgical site infections, length of stay, opioid utilization, and antibiotic utilization, while improving patient experience, through development of new clinical pathways with surgeons and anesthesiologist and new order sets, processes, technology, etc., an effort led by the supply chain value analysis team.

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32. *Be Connected Closed – Loop Referral System*, while addressing social determinants of health (SDOH) needs, this process aims to have all needs met for client by assigning a personal navigator who works with those in the other departments and resources to address SDOH needs, with the overall goal to reduce suicide risks to this population. (2019)

33. *Mobile Analytics and Patient Education Platform*, improves patient education regarding prostate cancer and treatment options through video vignettes of patient testimonials that take into consideration patient's unique interest and values.

34. *Care Coordination*, improves overall care and lowers cost to decrease hospitalizations and increase patient satisfaction.

35. *Care Level in 30 Minutes*, provides care to the community within 30 minutes.

36. *Same Day Surgical Program*, decreases the number of regional doctor visits from 5, in some cases, to 2 or 3. The program is for healthy, low risk children with common surgical diagnoses to have their clinic visits, surgical procedures, and follow up within one visit, which not only saves time but allows for decreased loss of work and school, and decreases travel. (2012)

It's obvious from the breadth and scope of this list, and from the benefits that these innovators achieved, that innovation is happening regularly, and pretty much everywhere we look for it. Our challenge, is to continue to innovate, to engage even more people in the innovation effort, to share innovative learning and results more broadly. We need better systems to identify and target the next iterations of our innovation efforts toward those barriers, bottlenecks, and problem areas where we can achieve the greatest benefits.

Population Health Focus
One key target area should be population health. It is easy to see that the system as it functions today is oriented to "sick care" for individuals. However, it would be much more effective to have a system that promoted and sustained "wellness" and preventative care for entire populations. Due to the focus on sick care, the system incentivizes those who care for sick and injured patients, but does not give sufficient attention to the health of individuals or populations. Now that the era of Big Data is here, with billions of connected devices and people, the raw data will be available to enable greater understanding of populations, behaviors and practices in powerful new ways, which will enable us to orient our sick care system more and more towards health and health promotion.

Value Based Care Focus
The Value Based Care concept for reimbursement can move U.S. healthcare toward a consistent quality outcomes practice in specific disease states that streamlines costs. This approach to reimbursement for care has been successfully proven and expanded by the CMS bundled care

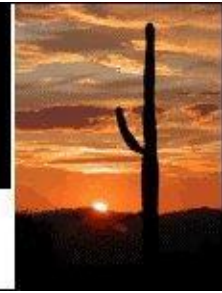**2019 Summit on Building New Pathways for Value-Based Healthcare**

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program, assisting in decreasing the fee for service reimbursement that is currently one of the key drivers of rising overall healthcare delivery costs.[13]

3. Key System Actors and Change Opportunities

When examining any system and designing interventions to improve its behavior, it's essential to identify the actors involved. Some entities have the capacity to alter their own behaviors in order to enable or accelerate systemic improvements, and these provide us with leverage to achieve meaningful change. Here we briefly describe eleven critical and prominent roles that can drive positive change, including a key enabler of those roles, an integrated data system.

1. Care Professionals: Providing Care
In our ideal future state, we anticipate that most healthcare workers will collaborate in teams. They have the skills to interpret extensive and complex patient data to make effective decisions, they understand systemic responses, and they actively work to create systemic improvements.

2. Educators: Preparing the Clinical Work Force
Achieving a much higher level of teaming and analytic capability requires educators to prepare future care providers to communicate and collaborate effectively in team-based clinical environments. Thus, interprofessional collaboration training is built into the curriculum, including knowledge of effective listening and communication skills.

3. Accreditors: Assessing Capability
Accreditation institutions can facilitate this transition to collaborative, team-based care by promoting and assessing factors such as critical thinking, communication, and collaboration skills, along with the important clinical skills that are presently emphasized.

4. Value Analysts
Healthcare value analysis contributes to optimal patient outcomes through an evidence-based, systematic approach to reviewing healthcare products, equipment, technology and services. Using recognized best practices and working in collaboration with organizational resources, value analysts evaluate appropriate utilization, clinical efficacy, and safety issues to attain the greatest financial value.

5. Professional Societies: Remaining at the Leading Edge of Knowledge
Professional medical societies must work to define "good outcomes," and establish standards of care using the currently available data, while also recognizing that a much-enhanced data landscape is arriving. They will soon need to establish guiding principles

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regarding collection and aggregation of data, and develop appropriate monitoring systems to evaluate the effectiveness of their standards as new data are transformed into new evidence. They will then need to pivot as new discoveries emerge, which we can expect to occur with disruptive regularity. Given the radical expansion of available data and the analytic methods to make sense of it, we expect that significant investments will be needed in the coming years to make proper use of the resulting insights. Additionally, the various professional societies should work collaboratively to resolve contradictions between their various recommendations, and to assure consistent knowledge is disseminated to providers as the knowledge base itself expands (or explodes).

6. Healthcare Organizations: Collaborating to Improve Outcomes
Healthcare organizations will implement the standards set by professional societies, but it is a matter of concern as to how quickly they will be able to adapt to the potential explosion of new knowledge. We suggest that adaptive practices will have to be enabled by team collaboration not only among the clinical teams, but also with the active support of leadership and administrators. It will be necessary to incentivize this process through disciplined practice and visible metrics.

7. Government and Policy Makers: Supporting Transformation
A significant responsibility lies with government and policy makers to create and implement policies enabling new data models and resulting in wide and rapid use of new care models, which implies support for reframing and disruptions to the system. Government can also support the shift toward team-based care and interprofessional education. In addition, government funding priorities and policies can further drive the important transformation from sick care to well care by altering current system incentives toward a greater focus on population health. This will be in government's own interest, of course, because a national-scale effort focused on population health offers the possibility of significantly lowering future care costs.

8. Private Sector: Innovating
Private sector innovators are expanding their efforts beyond just technologies focused on devices, products, and pharmaceuticals. For example, private sector providers are already engaged in innovating healthcare delivery by providing the patient experience in new care delivery settings such as urgent care, and care delivered in pharmacy or Big Box retail settings.

In addition, private sector employers already invest heavily to protect and to improve the health of their employee populations by emphasizing employee wellness and incentivizing preventative care, setting the stage for a broader, national-scale effort expanding on these important themes and practices.

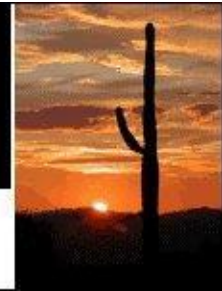2019 Summit on Building New
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9. **Insurers and Payors**
Payers, providers, and patient advocacy groups must work together to develop new
strategies to increase access and health while lowering costs.

10. **Pharma and Biotechnology**
Just as payers and providers are part of the solution, so too are the pharmaceutical and
biotechnology industries. They must be included in the conversation to help improve
access to care and lower healthcare costs.

11. **Integrated Data: Enabling Better Outcomes**
Data is valuable, but it doesn't act on its own, as it requires trained individuals and
machine learning algorithms to become useful. An integrated, national data system that
enables caregivers and public health professionals to aggregate and assess large volumes
of patient care data is essential to improving the overall effectiveness of our health care
system, as this is the key enabler of evidence-based medicine for population health.
Indeed, the current fragmentation of medical recordkeeping is a significant barrier and
must be solved (it's also a source of extreme day-to-day frustration for patients and care
givers). Healthcare organizations will have to collaborate to aggregate the data that will
generate broad insights into how to improve population health.

4. System Interventions: Changing Systems and Processes

We don't have the luxury of stopping or even pausing the healthcare delivery system until the
new reality is fully built, so we'll have to engage in repairing this car while we're driving it at
full speed. Here are some changes we propose to make while the car is in motion.

> Overcoming Misalignment
As it presently operates, incentives throughout the healthcare system are badly misaligned. The
reward system is based on fee-for-services, so it pays for processes, for activity, for what is done,
rather than paying for what is needed, or the quality of the results, or the outcomes achieved.
This dynamic is not present in any other industry, and it creates perverse incentives. More
procedures produce greater revenue to providers, and thus more profits, and more expensive
procedures produce even more profits.

> Instituting Transparency and Restoring Critical Feedback
The US healthcare system operates entirely without transparency. Whereas commercial markets
are self-correcting because of the innate character of supply and demand logic and price
visibility, the healthcare market has removed the feedback loop that keeps prices in balance.

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Hence, market principles around the function of price as the arbiter of supply and demand don't exist because prices are largely invisible. Patients don't know what care costs, and often neither do providers. The same procedure, delivered at the same quality, can cost twice as much at one hospital than another, but no one knows, and consequently the concepts of paying for value and guarantees of performance that prevail in other industries do not have a foothold (or are not present at all) in today's health care marketplace. Even more bizarrely, lower quality care can cost much more, as reflected in metrics regarding readmissions, extended length of stays, and higher morbidity and mortality rates.

Insured patients generally pay only a portion of their hospital or physician cost, and often never see nor understand what the care is actually costing, while physicians decide about supplies and drugs that they do not pay for, and administrators focus on driving volumes of activity through their sites of care rather than on quality or effectiveness of care. Suppliers receive bonuses for generating more sales, and group purchasing organizations (GPOs) are paid fees by suppliers for the dollar value of products that can be purchased through their agreements, which means they essentially receive bonuses for increasing volume, the very opposite of increasing efficiency.

Suppliers often camouflage the true cost of products including implantable devices by charging the same price while rewarding providers with rebates, and true costs are hidden all along the supply chain, from raw materials to manufacturing, transportation, distribution, and purchasing.

> Critical Feedback

As a result of these factors, the healthcare marketplace is an unhealthy hybrid, in the sense that we call it a market, but the self-correcting features of market systems have been removed. Consequently, it is a market with in-built imbalances, and so it can hardly be a surprise that its most defining characteristic is steadily increasing costs. The feedback loops that would provide for self-correction are missing, and so the cost to operate the system has spun out of control.
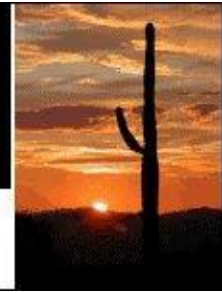
To function in a self-correcting manner costs must be made transparent so patients and providers can compare and contrast the value propositions offered by various options and care providers. Thus, we ask;

- If patients knew the full scope of cost for their treatments and also understood the options for their care, would they be prudent with their own money and that of their employers?
- If physicians were rewarded for choosing less expensive but more efficacious forms of care without the risk of litigation, would they act accordingly?
- If administrators were rewarded for keeping patients *out* of hospitals but in alternative (and less expensive) care venues, and supported by wellness and prevention efforts, would they do so?

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We believe that in most cases they would, and so while these are modest interventions, they could flip the system performance upwards in very positive ways. The system can work properly when the missing feedback loops are restored.

> Reforming Education

For more than 100 years America has trained its healthcare workforce in basically the same way, based on the Flexner report of 1910, which led to the reform of medical school and physician training. Since then, however, little has changed in the education of healthcare professionals, despite the massive changes that have occurred throughout the healthcare field, and so we continue to train healthcare professionals at both the entry and professional levels in separate silos.

Several innovations in education that may lead to improved patient outcomes and could contribute to reimagining the healthcare system include training in teams, which is how care is practiced in real care settings, integrating soft-skills including communication, empathy, and motivational interviewing into the curriculum, and applying systems thinking into both entry-level training and continuing education curricula.

Decades of research has shown that team-based care improves patient outcomes and improves provider engagement in both acute care and ambulatory care settings. For example, care coordination, Patient-Centered Medical Homes,[14] and other team-based care approaches have been effective, including specialized acute care teams in Palliative Care, Oncology, and Intensive Care.

To promote collaboration in clinical learning, the National Collaborative for Improving the Clinical Learning Environment (NCICLE), an initiative engaging more than 40 member organizations from all facets of healthcare, is focused on fostering teamwork in the clinical learning environment for all learner, by promoting team-based care training in health professions education.[15]

Engaging patients and empowering them to take an active role in their health involves many initiatives, including team-based care.[16] Providers who engage in patient-centered care techniques such as shared mental models, collective decision-making, and motivational interviewing often achieve better patient engagement, improved clinical outcomes, better well-being and satisfaction for both patients and providers.[17]

Another key educational dimension is competency-based education. This approach to higher learning adapts to each individual's experiences and previous knowledge, enabling them to progress at their own pace as they demonstrate mastery of concepts.

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Providers should also receive training in leading and managing organizational change, and in specific tools including lean six sigma, healthcare engineering, and positive deviance, to help their organizations, community agencies and other stakeholders identify opportunities for system redesign and to successfully implement new designs.

In keeping with these concepts, The American Medical Association (AMA) has adopted new education strategies, including healthcare economics, within medical schools and residency programs. This builds on the ongoing effort by the AMA to incorporate a Health Systems Science curriculum which began in 2016. AMA's immediate Past President Barbara L. McAneny, M.D. stated that, "medical students and residents with a deeper understanding of cost, financing and medical economics will be better equipped to provide more cost-effective care that will have a positive impact for patients and the healthcare system as a whole."[18]

> Retirement and Burnout

A troubling concern regarding our current healthcare landscape is simply the supply of healthcare providers. According to the Association of American Medical Colleges, the U.S. is predicted to have a shortage of up to 55,200 primary care physicians by 2032. Although the supply of Physician Assistants and advanced practice registered nurses is projected to increase, according to the US Bureau of Labor Statistics (2018) an additional 1.1 million registered nurses will be needed.[19] Retention of the healthcare work force will therefore be critical to adequately care for all Americans.

One reason for the projected shortfall is the high number of practitioners who will soon be considering retirement. Grant notes that possibly as much as one-third of the nursing work force could retire within the next 10-15 years,[20,21] and the AAMC suggests that more than 40% of the current physician work force may retire over the next 10 years.[22]
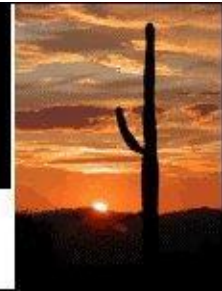
Coupled with these losses and the increasing care needs of the large population of aging baby boomers with multiple health conditions, it's not difficult to foresee an emerging care crisis.

Compounding the problem, significant numbers of healthcare providers are also suffering from burnout, which also contributes to their intent to leave the profession. When physicians suffer from burnout they are also more likely to make medical errors and display less empathy for their patients. According to the Mayo Clinic, about half of all physicians experience at least one symptom of burnout, while 78% of RNs and 69% of advanced practice RNs also report burnout symptoms.[23]

As we consider systemic solutions that will improve the healthcare system, the following are also critical issues to address.

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> Other Opportunity Areas

In addition to the three major themes described above, there are many other opportunities to enhance, correct, or improve the performance of the system, which we summarize here.

> **Integrated Data in a Central Health Data Repository**. As previously discussed, this is a critical enabler that is both essential and should be a high priority. Data sharing, transparency, and interoperability in today's environment of big data creates both challenges and opportunities. Healthcare providers, suppliers, payers, and the community at large need actionable information in order to implement and sustain change, so we must facilitate data sharing without risking confidentiality.

> **AI and Machine Learning.** As the data becomes available, artificial intelligence and machine learning approaches will need to be applied ethically to support clinical diagnosis and monitoring, as well as to enable community-scale and national scale population health initiatives.

> **Digital Communication Tools** and technology are optimized for patient convenience, timely point of contact, and best care.

> **Medical Records.** All types of patient information records must become standardized, readily accessible, and securely transferable among providers and patients.

> **Provider Education.** As we discussed in Section 3, education for interdisciplinary teamwork will become the standard.

> **Partnerships.** Academics, communities, providers, and industry are all focused in pursuit of value, but each of these constituencies may view and define value differently, even though the underlying challenges are the same. We thus will have to work to bring convergence to our definitions and solutions, and full interoperability to our work.

> **R&D.** The healthcare industry is highly successful at developing and implementing new technologies, largely due to investments in R&D in the biopharma, pharma, information technology, device, and imaging sectors. But redesign of the healthcare system itself lags. Continuing innovation investment, coupled with rapid assessment of innovations, accelerates the process of improvement while harnessing the proliferation of technological advances. Consequently, experts from the National Academies of Engineering and Medicine have suggested that investments in R&D related to healthcare system redesign should become a priority, in topic areas including population health metrics and utilization of population health data and findings.[24]

> **Pre-Care.** Pre-care, or preventative care, requires going out to the community and providing well-care visits to alleviate the lack of access to primary care physicians (PCPs). Creating medical records for those who don't already have them would enable people to be connected to the care system while simplifying the complex scheduling process.

> **Behavioral Economics.** As our workforce has moved from one largely involved in manual labor to one that is more desk-bound, we also formed new lifestyles that may not promote good health. We all make decisions throughout our lives, but some of them are not actually in our own best interests, whether that's eating a second piece of pie when it really isn't good for us, skipping a daily walk when we should not, or failing to take our medications, the persistence of small omissions can lead to individual and systemic problems. For example, 40% of deaths from each of the top five causes are preventable.[25] (CDC.gov, 2014) The cost of medication non-adherence in the US is estimated at $100 million per year while the cost for hospitalizations for preventable causes is $100 - $300 billion per year.[26]

We must proactively address these issues by applying the principles of behavioral economics, the discipline that considers the process of human decision making. We can, and must, design our environments to nudge, provoke, and encourage health-supporting behaviors rather than health-detracting ones. For example, we need systems embedded in daily life to promote adherence to medications, healthy diets, care provided in compliance with best practices, more self-care, and to assure that family and non-licensed caregivers get the support they need.
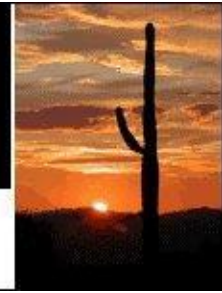
While the opportunities for improvement really are unlimited, the fourteen areas highlighted above are certainly among the most important for us to pursue as innovators and system transformers.

5. Transition to the New Systems and Process

As the process of the Summit unfolded, we explored foundational topics of innovation, systems thinking, and complexity in the healthcare system. We identified the key target areas where systemic improvements should be made in the focus themes of access, affordability, and exceptional care outcomes, as described above in Section 4. We then turned our attention back to our own work in our own institutions, to see where we each might focus future innovation efforts.

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Underlying this emphasis on what we can do personally is the awareness that the scale and complexity of the system we call "U.S. healthcare" are so vast and have so many competing interests and stakeholders, that it would be most productive for us to focus where we have influence, as there are so many opportunities for each of us to inspire, insist upon, foster, and implement beneficial change in our own institutions. The three co-sponsoring organizations of this effort also recognize that our opportunity and responsibility is to create a forum in which individual learnings can be shared so the scale of their impacts increases, through what we might call a "bottom-up" process of systemic change.
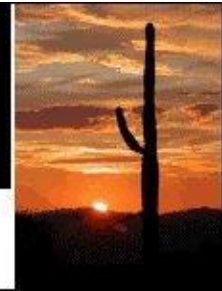
At the same time, the voice of the Summit also calls for "top-down" change, which we seek to describe and exemplify even as we also engage in important work at the institutional level. Thus, we see that the right approach is not "either bottom-up or top-down," it's both.

Accordingly, at the conclusion of the Summit we invited each participant to document future innovations that they will begin working on following the Summit. Here is a sampling of some efforts that participants identified to take back for implementation at their own institutions:

1. Improvement projects that are focused on value, through collaboration and communication to translate educational research and concepts into clinical application.

2. Data access and analysis that can facilitate interchange, collaboration with providers, and partnership models for value-based supply agreements.

3. Intentional, value-based care concepts regarding clinician-patient engagement in the healthcare setting.

4. Gap analysis related to the level of knowledge of value analysis concepts in healthcare, to facilitate development of an education plan and learning tools to fill the gap.

5. Add a value analysis professional to our leadership council, prepare a research communication plan to advance our work, and continue to speak to diverse groups about the opportunities to advance better healthcare value.

6. Study the appropriateness and costs concerning where medical services are accessed and where patients enter our system, e.g., ED, urgent care, telehealth.

7. Develop new metrics and observations regarding the quality of care.

8. Identify funding mechanisms for testing and evaluating innovative strategies for value-based care from federal, state, and foundations, particularly value-based care strategies

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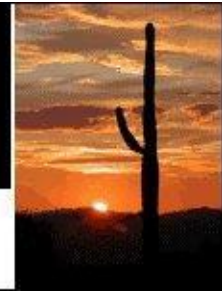
pertaining to high-cost, high need patients.

9. Identify community partners interested in working on value-based care innovations, evaluation, implementation, and dissemination.

10. Incorporate population health management into our curriculum, and develop technologies with population health applications.

11. Study what happens with Amazon as a healthcare provider, and identify examples of successful uses of deep learning and AI.

12. Gather data and information on the current knowledge of our clinicians regarding the functionality of healthcare supply chain management to identify how greater understanding and collaboration can improve value-based care models. Subsequently, include this topic on the Association for Health Care Resource & Materials Management (AHRMM) Board meeting agenda, and connect with suppliers associated with AHRMM.

13. Identify community engagement groups focused on health, determine how to collaborate with them, reach out beyond traditional suppliers, and identify ways to include Access and Affordability as part of our Big Ideas set.

14. Increase the use and visibility of process engineers in reforming our complex healthcare system by streamlining and simplifying patient flow and navigation.

15. Develop a clearly defined process for value analysis and education specific to clinicians in the value analysis supply chain.

16. Teach nurses about the importance of supply chain through info sessions, and create a Value Analysis database related to the products we use.

17. Demonstrate that uncoupling physician documentation from reimbursement leads to less administrative burden, improved provider wellness, and more meaningful clinical documentation, including possibly the use of AI.

18. Understand how to represent the role of medical devices in value analysis frameworks.

19. Partner with other faculty members on collaboration with other universities and others to identify better ways to engage patients and improve access to care.

20. Introduce a Value Analysis certificate training at our institution.

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21. Develop new collaborative models for working with our suppliers.

22. Develop tools to extract data from EPIC to improve predictive analytics.

23. Help to create a new profession of "nurse engineers" that are trained in supply chain effectiveness.

24. Create a cybersecurity training program, degree, or CEU, for the healthcare industry.

25. Study the impact of the mobile analytics and patient education platform on patient engagement, mindset, confidence and comfort with treatment decisions.

26. Redesign the value analysis conversations in our institution to include the topics of value-based care and population health.

27. Apply technology more broadly for care service management to enable patients to better navigate our system, with clear and concise instructions for appointments, timing of studies, and expectations during visits.

28. Remove barriers to enable better data collection and sharing.

29. Identify what is required to change the payment system to "value" rather than "volume."

30. Develop a value analysis education curriculum with the collaboration of the Summit partners.

31. Conduct a comparative study of how local health institutions approach care access and value-based care.

32. Create a hub for medical students to connect using AI.

33. Research trust building and engagement with family caregivers to support development of a model for value-based care in the home setting.

This list demonstrates both great range and also excellent focus. The scope of initiatives is indeed broad, but they also certainly share a common intent around improving access and affordability, and on attaining exceptional outcomes. These intentions demonstrate the high value that can be achieved through collaborative processes such as the Summit, even as it was only a day and half, and shows how mutual exchange, learning and sharing of ideas among a diverse group of experts can result in important new insights, discoveries, and commitments.

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Our Ongoing Network
It is our expectation that this group of participants will be proactive and ambitious in their efforts, and that many of these initiatives will be great successes. We will continue to interact with one another and learn from each other's experiences, both the successes and failures, with the intent to spread our efforts progressively wider. We also hope to expand participation by engaging more people in this innovation-learning-systems transformation process, and through persistence to achieve results for our own institutions and for the many stakeholders we serve – patients, families, care providers, partners, and the broader communities, as well as achieving impact at more significant scale in cities, regions, and even more broadly.

6. Conclusion: An Urgent and Important Transformation

Healthcare Expenditure Report
The U.S. healthcare expenditure rate continues to grow. According to a recent National Healthcare Expenditure Data report, spending in 2018 increased 4.6%, to a total of $3.6 trillion, or $11,172 per person, which is 17.7% of Gross Domestic Product (GDP). Fastest growth was associated with the net cost of health insurance, as described in the CMS "Where it Came From, Where it Went" report.[27]

This makes it clear that the American healthcare marketplace is an unhealthy hybrid, because although we call it a market, the self-correcting features of market systems have been removed, so it can hardly be a surprise that its most defining characteristic is steadily increasing costs. Feedback loops that would provide for self-correction are missing, and so the cost to operate the system has, perhaps predictably, spun out of control.

Transformation Begins with Systems Thinking
Consequently, it is no exaggeration to say what's required is an urgent and important transformation. This transformation will address the system in all of its many dimensions – the organization and delivery of patient care, the funding models, the education of the clinical work force, and the metrics and rewards. In this respect it will be a systemic transformation, and thus the discipline of "systems thinking" has much to contribute to the process which we must undertake. To get to meaningful and impactful solutions, we must apply systems thinking by forming linkages across the multiple and linked categories of healthcare waste, healthcare care spending, and population health.

Building New Pathways

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During our dialog we focused on three dimensions of care: increased access, increased affordability, and attaining exceptional care outcomes. We recognize that these are ambitious goals, but they are the right goals. Attaining them will require that we identify and implement solutions that will include "bottom up" initiatives that emerge from those working in the field, and from the insights and discoveries they may have in the course of delivering care. It is also essential to develop "top down" solutions that come about as a result of strategic thinking by institutional and governmental leaders. Corporations, entrepreneurs, and professional groups will also play critical roles through insights and innovations that bring forth new services, new technologies, and new ways of working.

Three important innovation resources available to healthcare innovators are the CMS Historical and Projected National Healthcare Expenditure Data,[1] the CMS Innovation Center,[21] and the JAMA report categorizing waste in the healthcare system,[3] while other sources include information on strategies and initiatives as reported in blogs, social media, government and agency websites, and healthcare focused publications.

In addition, we appreciate the work being done by the Institute for Healthcare Improvements (IHI) Leadership Alliance focusing on waste reduction in healthcare, as recently cited in *Modern Healthcare*.[28]

Using resources provided by Summit participants (see future innovations list, page 20), the CMS Innovation Center, healthcare professional organizations, published research and articles and institution subject matter experts, we can readily identify many of the actions that will be required. By initiating focused goal setting and innovation seeking today, combined with the work currently underway, we should by 2025 begin to see significant results from our collective efforts, and be a healthier and more financially stable nation for it.
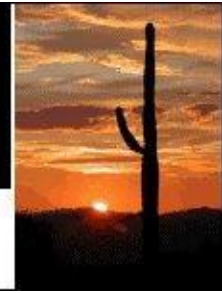
But how do you make the finances work, you ask? Value-based care teaches us that driving improved total value to produce quality care outcomes at most favorable costs relies on preventative care as the underlying principle, and establishes leading practices to reduce variation across the care continuum to benefit all.

Education
Education will certainly play a key role as well. The education of clinicians, administrators, payers and public health officials will of course be necessary, as they will have to adopt new ways to practice and to manage. We also need to engage in the education of the larger population of citizens, as the transformation of the care system requires full engagement of all of us in supporting and enhancing our own health. We must teach American society what health is and what healthcare is, where to get it, how to navigate its systems, and how to pay for it.

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Final Thoughts

The Summit provided a welcome opportunity for the partnering organizations and all participants to examine these issues in depth, to recognize important progress that has already occurred, and to think ahead to the next steps. Coming out of the Summit we are establishing a network of participants to continue the process of shared learning and sharing our learnings, and you, as a reader of this white paper and perhaps an innovator in your own organization, are welcome to join with us in the important work.

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Appendices

About the Summit
The Summit was held November 5-6, 2019, in Phoenix, Arizona.

Summit Participants

Mara Aspinall	CEO	Health Catalysts
Kate Austin		W.L. Gore & Associates, Inc.
Sean Barnett	Chief, Division of Pediatric Surgery	Dayton Children's Hospital
Jasmine Bhatti, RN, MS, PhD	Graduate Student	Arizona State University
Ambike Bhraguvanshi	Graduate Student	Arizona State University
Beth Bortz, MD, MBA	President and CEO	Virginia Center for Health Innovation
Eric Bour	CEO, Piedmont Newton Hospital	Piedmont Healthcare
Randy Bradley, Ph.D	Associate Professor of Information Systems and Supply Chain Management	University of Tennessee
Laurinda Calongne, Ph.D.	Chief Academic Officer	Our Lady of the Lake Regional Medical Center
Jodi Carter, MD	Chief Clinical Integration Officer	Phoenix Children's Hospital
Carol Clothier		Retired
Stephen Clyman	Consultant	Salutions
Melina Cox-Ferreras		Arizona State University
Deborah Dahl, MD	Innovator	Entrepreneur
David Davies		W.L. Gore & Associates, Inc.
Isabella Denton	Graduate Student	Arizona State University
Brad Doebbeling, MD, PhD	Professor	Arizona State University
DeeAnn Donatelli-Reber, RN, BSN, MBA	Principal	Dee Donatelli Consulting
Jim Eckler	Co-Founder	Healthcare Supply Chain eXcellence
Patrick Flaherty	Vice President, Supplier Performance, CQO & Strategic Decision Planning, Vice President Operations, Biotronics	UPMC
Bruce Gingles	Vice-President, Global Technology Assessment and Healthcare Policy	Cook Medical
Gloria Graham, DNP, RN, CVAHP	DNP, RN, CVAHP Past President	Association for Healthcare Value Analysis Professionals (AHVAP)
Edmond Hardin, MHA	Vice President, Supply Chain	Froedtert Health
Warren Hebert, DNP, RN, CAE, FAAN	Chief Executive Officer	HomeCare Association of Louisiana
Andrew Kamai	Provider Marketing	W.L. Gore & Associates, Inc.
Robert Kuramoto	Adjunct Professor	Arizona State University
Natalie Landman	Executive Director, Healthcare Delivery & Policy Program	Arizona State University
Ashley Law	Manager, Health and Clinical Partnerships	Arizona State University
Scott Leischow, Ph.D.	Director of Clinical and Translational Science and Professor	Arizona State University

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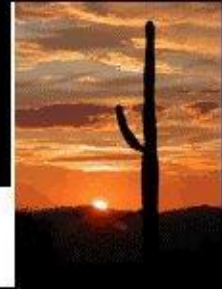|		
Michael Louviere	Internal Consultant	Ochsner
Daniel Matloff	Graduate Student	Arizona State University
Susan Miller, RN, MN, CMRP, CVAHP	Senior Director Enterprise Value Analysis	Thomas Jefferson University & Jefferson Health
Belinda Mohr	Medical Devices Special Interest Group Leadership	W.L. Gore & Associates, Inc.
Langdon Morris	CEO	InnovationLabs LLC
Monica Najar Vega	Graduate Student	Arizona State University
Pooja Paode		Arizona State University
Susan Pepin, MD, MPH	Managing Director, Health and Clinical Partnerships	Arizona State University
Savas Petrides	CEO/SVP	Innovation Care Partners/HonorHealth
Stacy Prigmore	Formally - Global Leader - Health Economics, Medical Products Division	W.L. Gore & Associates
Gene Schneller, Ph.D.	Professor	Arizona State University
Barbara Strain, MA, CVAHP	Board of Directors	Association for Healthcare Value Analysis Professionals (AHVAP)
Lisa Thakur	Corporate Senior Vice President, Ancillary Operations	Scripps Health
Michelle Villegas-Gold, Ph.D.	Project Manager, Health and Clinical Partnerships	Arizona State University
Kristen Will, PhD(c), MHPE, PA-C	Director, Clinical Accreditation	Arizona State University
Ben Winfield	Vice President	Intalere
Haleigh Wolfe	Program Manager, Executive and Continuing Education	Arizona State University
Scot Zernick	Director Value Analysis	Penn State Health

About the Summit Partners

ASU College of Health Solutions: The College of Health Solutions offers undergraduate and graduate degree programs in health, health promotion, health care delivery, and management of health data, people and populations. It is the college's mission to offer its students high quality education with real-world experiences and connections in a variety of health and health care related fields and majors. The college's location in Downtown Phoenix, Arizona places students in an ideal environment for making connections and learning through those experiences. (https://chs.asu.edu/)

W. L. Gore and Associates, Inc.: Known for our innovation and distinctive team culture, we work closely with healthcare professionals to solve some of the most complex medical challenges of today and tomorrow. Saving lives and improving the quality of life for patients is at the core of everything we do. This meaningful work gives purpose to our lives and inspires us to create solutions that make a difference in the lives of others. (https://www.goremedical.com/about-us)

2019 Summit on Building New Pathways for Value-Based Healthcare

Nov 5-6, 2019
Phoenix, AZ

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AHVAP
Association of Healthcare Value Analysis Professionals

AHVAP: The Association of Healthcare Value Analysis Professionals (AHVAP) is an organization of nurses and clinical professionals whose expertise bridges the gap between clinical staff and the supply chain process. Using evidence-based data, professional experience, and an understanding of the cost/quality continuum, professional Value Analysis facilitators guide the clinical staff in the product selection process and assist with the resolution of quality concerns. Many AHVAP members coordinate their hospital Technology Assessment committees, which engage physicians in the approval of emerging medical technologies that impact the cost of healthcare. (https://ahvap.site-ym.com/page/about_ahvap)

InnovationLabs LLC: InnovationLabs is recognized worldwide as one of the leading innovation consultancies. We have helped hundreds of organizations around the world enhance their capacity to innovate, and for this effort we provided the Summit design, facilitation, and documentation. (https://www.innovationlabs.com/)

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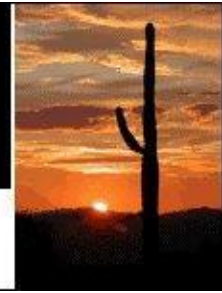
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