Received: 20 January 2023 | Revised: 30 March 2023 | Accepted: 5 April 2023

DOI: 10.1096/fba.2023-00007

FASEB BioAdvances WILEY

PERSPECTIVE

# Healthcare is not about health

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**Abstract**

Initiatives designed to reduce the disease burden and improve the health of the US population that focus on increasing access to health care have been disappointing. Progress requires multifaceted change. We must first acknowledge that the healthcare system is focused on reversing or modifying disease, not enhancing health. Our conceptualization of the development of ill health and disease must also change. Scientific advances are clarifying the complex interactions among the development of ill health and disease and an individual's behaviors, their microbiota, and their physical, social, and emotional environments. A person's genetic makeup predisposes them to a wide array of disease conditions but is rarely deterministic in and of itself. Factors extrinsic to the individual, including the social determinants of health, play a major role in disease development, often decades later. The complexity of health and disease requires a "team" accountable for the health of our populations, and these teams must be expanded beyond the medical professions. Governmental officials, architects, business leaders, civic organizations, social and neighborhood groups are among the key stakeholders on the health side of the equation. If and when disease does become manifest, then the care part of the healthcare system assumes the larger role. This has major implications for the education of our clinically focused health science students, but also of professional disciplines previously deemed peripheral to health. Simply redoubling our efforts and focusing on our current healthcare system is insufficient to make progress in the health of the populace. One example of a multipronged approach in Allentown, PA is explored in depth.

**KEYWORDS**

behavior, disease, environment, health, healthcare, mental model, microbiota, new paradigm, social determinants of health

## 1 | INTRODUCTION

Healthcare in the United States is failing. Aspirational goals, such as those in Healthy People 2030,[1] often prove elusive. The US healthcare system is the best in the world. People come from around the globe for care at our hospitals and clinics.

These diametrically different characterizations of the current state of healthcare in the United States are both true. The problems have long been identified and the

COVID-19 pandemic has again focused attention on the many stress fractures, ranging from an inadequate public health infrastructure to overwhelmed clinical staff and facilities and to disproportionate morbidity and mortality in people with chronic diseases, populations of color, and low socioeconomic status. Despite many initiatives designed to reduce the disease burden and enhance the health of the US population through increasing access and reforming payment models, results have been inadequate. If we are to make substantive progress, the complexity of this challenge and its major contributors to our current conundrum need to be fully recognized and addressed. These range from reconceptualizing our mental understanding of factors pertinent to health and disease, to enlisting and appropriately educating professionals who play an important role in the maintenance of health, to integrating relevant information systems, to addressing necessary accreditation and policy changes. Attempts to redress the failings of our healthcare system by simply redoubling our efforts and recasting past initiatives will not achieve the desired results.

One problem is our terminology. When we talk about the healthcare system there are two major components—*health* and *care*. The present reality is that most providers and organizations under the umbrella of "healthcare," are primarily concerned with reversing or modifying the course of disease. Health is not addressed in any systematic way. Our "healthcare system" is essentially a disease care industry. With a few notable exceptions (e.g., vaccinations), the impact of the current "healthcare system" in the progression from health to disease is generally negligible. Our terminology perpetuates the erroneous assumption that our healthcare system has the inherent capability to address health. The reality is that efforts directed at enhancing the care side of the system have little potential to improve the health side of the equation.

## 2 | SCIENTIFIC ADVANCES NECESSITATE CHANGE

A fundamental problem is that our conceptualization of factors underpinning the progression from health to disease has not kept pace with scientific advances. While we acknowledge correlations between ill health and substandard housing, poor education, and food insecurity, the pathophysiologic mechanisms underlying the effects of these "social determinants of health" are only now being elucidated and recognized as central rather than peripheral to the development of disease.[2] Scientific advances increasingly demonstrate the complex interactions among the physical,[3] social and emotional environment,[4] an individual's behaviors[5] and their microbiota[6,7] in the development of disease in individuals and potentially epigenetic modifications that have intergenerational implications.[8] For example, air pollution, such as experienced by people living in housing abutting freeways, is associated with increased mortality due to cardiovascular disease, cancer, chronic kidney disease, and dementia.[9,10] Inflammation is a common factor in the development of these pollution mediated diseases. Other examples include diet that impacts the gut microbiota, which in turn has been implicated in a host of diseases including those involving organs distant to the gut.[11] Similarly, the built environment affects not only infectious disease transmission and engagement in healthy behaviors but also long-term health.[12]

This necessitates a paradigm shift in our conceptualization of health and disease.[13] A person is born with a genetic makeup that predisposes them to a wide array of disease conditions, but this is rarely in and of itself deterministic. We have an incomplete understanding of the complexity of the relationships among behaviors, environmental factors, diet, and emotional and social stressors, and the likelihood that an apparently healthy individual will develop clinically manifest disease. Nonetheless, scientific advances require that these stressors be recognized as contributing causes, not simply correlations, and that they be addressed in the quest to improve individual and population health. We need to adopt a mental model that embraces these complex interrelationships in the progression from health to disease over one's lifespan. This will enable, and indeed necessitate recognition that simplistic solutions will not address the multifaceted conundrum of health inequalities and unequal disease burden. No longer is it appropriate to focus on the individual as an isolated entity. Rather, we must realize that populations and individuals exist within an ecosystem that has direct, if long-delayed, effects on their long-term health and disease development (Figure 1).

## 3 | IMPLICATIONS

As the focus shifts from simply managing the progression of disease to maintaining and improving the health of our population, we must consider some significant implications.

- We must expand the "team" accountable for the health of our populations and give responsibility and accountability for health outcomes to key stakeholders beyond the medical professions. These include local governments, water and sanitation departments, urban planners and zoning commissions, architects, business and industry boards and leaders, school boards and educational

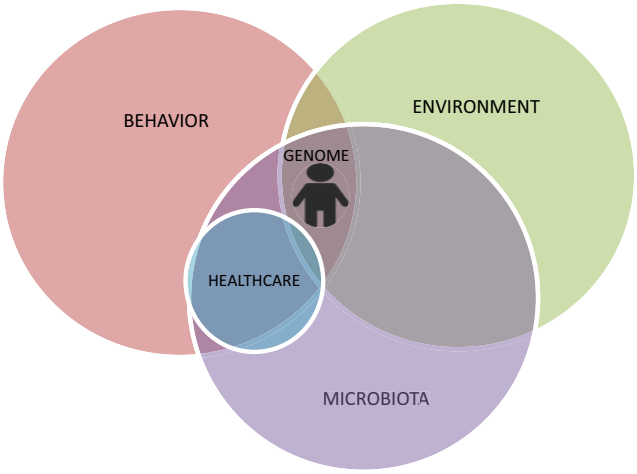


**FIGURE 1** The conceptualization of health. The contributing factors to an individual's health and eventual progression to disease include both intrinsic and extrinsic influencers often not considered by current healthcare professionals. For an individual the contributions of each factor will vary but, as depicted, clinical care is modest compared to other components.

systems, public safety commissions and police, faith congregations, civic organizations, social clubs, neighborhood groups—the list is long. Importantly, if we are to successfully remediate the multiple factors involved in unhealthy community ecosystems, multiple entities must coordinate efforts. The "care" part of the healthcare system assumes the larger role when trauma, disability, and disease occur.

- Our clinically focused health science students must re-examine their own professional identity. Medicine has typically claimed hegemony over new advances and expanded its purview. However, to make progress on the factors identified as contributing to the development of disease requires action far beyond the boundary of "traditional medicine". Accreditation agencies can facilitate this transformation by requiring the curricular changes needed in educational programs for health professionals. Clarity as to what is in scope for medicine versus other professions is important. Medical professionals should care about the upstream determinants of health but also realize that this requires the expertise of other disciplines. The primary focus of physicians and traditional members of the clinical care team is on providing optimal care of the diseased and disabled.[14] But to do so, clinicians must consider all factors, past and present, that contribute to the development of disease, the probability of a given diagnosis and its treatment. Furthermore, as new factors are implicated in the pathophysiology of disease, medical education must provide a foundation that facilitates the assimilation of this knowledge. The long-standing "infectious disease model" of disease must be replaced by a model that embraces the complexity inherent in viewing the individual as existing in an ecosystem.

  This radical change in perspective on health[13] requires the transformation of education programs beyond those traditionally considered health professions programs. "Non-health" programs such as architecture, engineering, and political science must also include explicit teaching of the scientifically established impact that their discipline and actions have on maintaining and enhancing health, and conversely on how their actions or inactions contribute to the development of disease. Students in these "non-health" disciplines must share in the pursuit of aspirational health goals. Particularly public health, the early foundations of which embraced the importance of the physical environment, must renew its focus on the interplay between the individual and environmental factors and expand to include the social and psychological environments.[15]
- We must develop the infrastructure to support the integration of risk factors into health decisions. Electronic medical records, recently rebranded as electronic health records (EHRs), are widely adopted and ideally allow clinicians to easily access required clinical information. Just as alcohol and tobacco use are part of the EHR and are relevant for clinical decision-making, so too are other environmental and behavioral exposures that increase the prior probabilities for disease. A logical step toward enhancing clinicians' decision-making abilities is configuring EHRs to link individuals' records to existing geospatial databases, such as census tract level housing information, environmental exposures to toxins and pollutants, public safety records, and food availability. While this will require a significant upgrade to existing EHRs, the scope of relevant data is beyond what clinicians can reasonably be expected to know and is as important as current functions, such as pharmacologic interactions, that have become integrated in EHRs. Further, while this will create an opportunity to better address the social needs of patients in the health care setting,[16] it does not address the root causes that lead to or contribute to disease development in that specific patient's broader complex ecosystem.

## 4 | REAL WORLD EXAMPLES

If real progress is to be made toward health for all, a new mental model, expansion of the responsible team, educational reforms, and infrastructure are necessary. But is this simply a theoretical construct or is it doable? Over the past 50 years the preponderance of funding and program

development under the rubric of health improvement has focused on specific disease categories: diabetes, heart disease, cancer, etc. Understandably this has resulted in many discrete entities, that while functional administratively, are strategically inadequate. More recently, there has been a growth in non-profit initiatives focusing further upstream, not on disease states, but on the determinant's contributions to the development of ill health and disease. Yet most such well-intentioned efforts are also singularly focused on food insecurity, or housing, or another upstream contributor to ill health. Too frequently these initiatives are in parallel with, rather than partnered with, governmental service units such as housing, public education and community development, and relevant businesses. It is necessary to break through these entrenched practices to create the multifaceted approaches needed to rectify the systemic factors contributing to ill health and disease. Incorporating all these entities in a new approach to health is seemingly overwhelming.

Nevertheless, there are emerging models, such as BUILD Health Challenge,[17] that encourage inclusive, multi-sector initiatives at the local level. This can be accomplished by approaching the challenge through an intrinsic community or "place" as opposed to service delivery, beginning with the neighborhood, and working out and up. Let us look at one such "place-based" approach: Allentown in the Lehigh Valley of Pennsylvania.

The Lehigh Valley, population 670,000, is 90 miles west of New York City and 60 miles north of Philadelphia in Eastern Pennsylvania. Allentown, its largest city, has a population of approximately 125,000. It is the third largest MSA in the Commonwealth. In the 1980s, the Lehigh Valley experienced the same dramatic loss of an industrial economy as did many regions in the country, with the collateral damage of lost jobs (and health benefits), decaying neighborhoods, declining public education systems, and a hollowing out of a once vibrant commercial district. Concurrently, many Latino families from New York and northern New Jersey saw Allentown and the Lehigh Valley as offering opportunity beyond their current circumstances, and a desirable place to relocate. This demographic shift in Allentown toward a majority minority continues. Over the decades, demographic shifts of prosperity from the city to new suburban neighborhoods created disparities in income, housing stock, educational attainment, and health status, much of this along racial and ethnic lines.

Within the past decade, Allentown has received national recognition as a model for urban revitalization, largely through Pennsylvania legislative action creating the Neighborhood Improvement Zone (the Zone) which established favorable tax conditions for investment in Allentown's center city and riverfront, leading to a dramatic resurgence. Concomitantly, there was a recognition that this economic engine would not be fully successful unless adjacent distressed neighborhoods would share in the success. To do so required the creation of a new team of critical stakeholders.

Recognizing that education and housing influence health and, conversely, health influences education and housing, the Lehigh Valley Health Network (the Network), now the largest employer in the region, and The Dorothy Rider Pool Health Care Trust (the Trust) were initial partners in the creation of the Downtown Allentown Community Development Initiative (the Initiative). Informed by national philanthropic and "best practice" colleagues in Baltimore, Philadelphia, Camden, Atlanta, and Cincinnati, the Trust and Network shared that knowledge gleaned with the Initiative. This group of regional corporate and foundation leaders and the Zone developers meet regularly to identify, advocate for, and implement projects to improve infrastructure, property conditions, homeownership, safety, access to mental health and medical care, education, and job creation in the downtown neighborhoods. The Initiative consists of individuals in roles traditionally identified as leadership positions in business, government, not-for-profit organizations, healthcare, and education, who recognize that it is their collective opportunity and responsibility to address the multitude of problems that undermine the health of individuals in the community. Realizing that it could take years for demonstrable results, they view it in their enlightened self-interest to commit to the long game necessary to ensure the sustained success and vitality of the communities they serve.

Equally essential to the collective process are members of the community who are recognized as leaders and trusted messengers (such as leaders of faith communities and neighborhood association leaders), not necessarily due to the titles they hold but rather their stature within their community. Due to their influence and power, they are involved in all aspects of the community-led approaches to address complex social issues that impact health. The authentic engagement of these leaders is vital alongside the Initiative's primarily private sector-driven efforts.

In 2014, the Trust and the Rider Pool Foundation created the program now known as the Pool Fellowship for Health, designed to further develop embedded leadership and address complex quality of life challenges within neighborhoods surrounding the Zone. The Trust has learned that no one service sector can solve complex problems and that cross-sector work is necessary. Cross sector work cannot happen without trust and authentic relationships. The Pool Fellowship enables essential trusting relationships among neighborhood and not for profit leaders

across service sectors. Ten to twelve community leaders participate in the year-long experiential learning process. The Fellowship operates at an annual expense of under $200k. Over 70 local leaders are now Pool Fellows actively participating in collective work that leverages public and private funds and enables groundbreaking work in areas including human trafficking, deaths of despair, educational gaps, and youth violence. A Ripple Effect Mapping evaluation tracks and measures incidence, influence and trajectory of the Fellows and their work (Figure 2). Impressively, the Fellows have advanced in rank and status in employment and civic life such as becoming executive directors and elected officials resulting in enhanced cooperation and collaboration among agencies. An eighth cohort commenced in Fall of 2022.

While problem identification, stakeholder desire and willingness to implement change, and visionary and embedded leadership are necessary, mechanisms to measure progress (or the lack thereof) are essential. In 2021, the Network and the Trust created the Leonard Parker Pool Institute for Health (the Institute) to serve as a durable and credible convener of entities engaged in addressing specific problems and provide a trusted source of qualitative and quantitative data to assess performance on key agreed upon metrics, holding all partners mutually accountable.

Knowing that the Institute would require quantitative analytics that would transcend traditional health care data, the Trust created and endowed the Pool Center for Health Analytics at the Network. This support enables practical cross-sector data analysis and enables the Institute to remain a nimble and agile innovator.

The Institute is organized across four pillars:

1. Analysis of data across factors impacting health at the neighborhood level—For example, there is an eight-year disparity in life expectancy on the east side versus the west side of an urban Network campus, neighborhoods that are a mere 10 blocks apart.
2. Authentic involvement of neighborhood leadership—For example, parents in one distressed neighborhood have expressed concern that their children must walk a great distance across dangerous streets to get to their elementary school.
3. Cross sector agency partnerships—Collective action among County Drug and Alcohol, local law enforcement, and the Network ER staff has led to increased prompt and successful admission into addiction treatment.
4. Backbone development, that is, strengthening neighborhood ability to manage community projects—A grassroots community organization has engaged


**FIGURE 2** Centered on the community, multiple entities and groups bring their expertise and authority to bear on factors leading to ill health and disease in Allentown neighborhoods. Pool Fellows, as embedded leaders, facilitate community structure relationships.

residents of key neighborhoods regarding their health concerns and facilitated ongoing meetings to address those concerns.

To date, the Institute has engaged with community leadership and relevant stakeholders around:

- Precarious housing in two urban census tracts with high eviction rates.
- Plans for a longitudinal, prospective Cradle to College or Career pathway for an initial cohort of 400 preschoolers from a low-income minority community.
- Sanctuary, education, and dignity in employment for survivors of human trafficking.
- Key Informant Interviews with local senior health care executives to best understand their perspective on the challenges and opportunities for reduction of health inequity.
- A Fall 2022 Network Community Health Symposium with more than 100 not-for-profit community and health care leaders in conversation on a path forward to reduce regional health disparities.

The Institute is early in its journey. Since its incorporation in Spring, 2020, it has learned and reaffirmed lessons regarding a new mental model for health improvement.

- Place is very important. To play the "long game" needed, the people who make up the community must be included and preferably at the lead of any effort. Trust is earned and relationships are essential. Place-based health improvement needs to be considered in 10-year increments. The traditional 3-year soft money program will not be effective unless it is integrated within a durable long-range frame.
- Enlightened self-interest is powerful. Win-Win-Win opportunities are very possible.
- Food security is a determinant of health.
- Health is a determinant of education.
- Education is a determinant of income.
- Income is a determinant of housing.
- Housing is a determinant of economic vitality.
- Economic vitality is a determinant of community health.
- Appreciating the mutual dependence required for concerted action is best understood and measured at the local level.
- The capacity to measure and analyze both quantitative and qualitative data across sectors is essential.

While the success of this comprehensive approach to addressing factors that lead to ill health and disease will not be known for decades, the question of whether this is simply a theoretical construct or doable has been answered. It is not only doable but a powerful force for change. Health care services in the Lehigh Valley alone costs billions annually. Housing, education, public safety, and other factors that influence health add additional billions. The monetary expense for this effort is not great in relative proportion to the assets to be leveraged. This approach is not "scalable" in the traditional service delivery parlance. It is, to its credit, diffusible, and as the Institute has learned from other communities and approaches, the innovations developed in the Lehigh Valley will be similarly shared and adapted by others.

However, one should not underestimate the effort, sustained over time, required to convene entrenched entities, whether governmental, philanthropic, or nonprofit, that have not previously seen themselves as needing partners or being part of a team. Developing the necessary trust among individuals occupying traditional seats of power and leadership positions and community identified leaders requires time and a willingness to invest in the effort on the part of the involved individuals.

While much can be gleaned from the Allentown example, it is critical to remember that each community has unique characteristics and is defined by social fabric organizations; it is not necessarily a city or county. "One-size-fits-all" programs, while providing a sense of accomplishment to outsiders, may not achieve long-term success due to failure to consider important local realities. Rural versus urban, differing economic conditions, and ethnic community differences regarding trustworthy sources of information are some of the obvious differences that must be considered for all initiatives designed to address the factors that undermine health. That said, given the multitude of ongoing experiments,[18,19] sharing of successes and failures is necessary to facilitate progress. Just as the concept of learning health systems is gaining traction worldwide, to maximize the effectiveness of the work being done the development of a network of learning for health communities is needed.

It is timely that the focus on care is balanced by a focus on health. Fundamentally, our traditional "healthcare" system is insufficient. Only through adoption of a new paradigm that explicitly incorporates factors influencing the progression from health to disease will our aspirational goals for populace health be possible. Governmental agencies, employers and business, and society at large must recognize the complexity of the situation. Progress toward health for all will only be realized through the casting of a wide net and the coordinated long-term efforts of a team of professionals and disciplines working in concert with community leaders.

## AUTHOR CONTRIBUTIONS

James O. Woolliscroft developed the initial concept and initial draft. Larry D. Gruppen, Edward F. Meehan, and Jasna Markovac contributed additional content. James O. Woolliscroft, Larry D. Gruppen, Edward F. Meehan, and Jasna Markovac all reviewed and edited the manuscript.

## ACKNOWLEDGMENTS

Financial support: None.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed.

## DISCLOSURES

All authors declare that they have no conflicts of interest.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Woolliscroft JO, Gruppen LD, Markovac J, Meehan EF. Healthcare is not about health. *FASEB BioAdvances*. 2023;5:221-227. doi:10.1096/fba.2023-00007