



Editorial

# Innovation and Research: Think Global, Start Local

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## Introduction

The global health care landscape is characterized by substantial discrepancies in health care spending and outcomes. The rising health care costs, particularly in the Western world, have reached unsustainable levels, making health care less affordable for patients. This article examines the need for a paradigm shift in research and innovation in health care, emphasizing the importance of thinking globally while using local expertise and potential in each country to bridge the health care disparities.

## Health Care Disparities and Spending Trends

### Health Care Spending Discrepancies

Analysis of health care spending data reveals a significant divergence in health care expenditures between countries. By comparing the health care spending as a percentage of gross domestic product between the United States, Germany, and selected countries in the western Asia and North Africa region, it becomes evident that the U.S. health care spending has surpassed that of any other nations while just in 1980, that percentage was equal between U.S. and Germany.<sup>1</sup> Despite this excessive spending, the U.S. lags behind in health care affordability and performance, highlighting the inefficiency of current health care systems.<sup>2</sup>

### Outcomes Disparities

In addition to spending disparities, health care outcomes also vary significantly across different regions. By examining key performance indicators such as life expectancy, infant mortality rates, and disease burden, it becomes apparent that certain countries achieve better health outcomes with lower health care expenditures. Understanding these outcome disparities is crucial for identifying areas of improvement and opportunities for innovation.

## The Imperative for Innovation

### Defining Innovation

Innovation plays a crucial role in transforming health care systems and addressing the challenges posed by escalating costs. One can define innovation as a meaningful, transformational, and exponential change that is useful, approvable, sellable, and accessible. It encompasses not only technological advancements but also innovative approaches to care delivery, financing models, and policy reforms.

### Overcoming Implementation Hurdles

Implementing innovations in health care often faces significant hurdles. These hurdles include intellectual property registration, prototype development, safety demonstration, and regulatory compliance. It is important to establish supportive frameworks that facilitate the translation of innovative ideas into practical solutions. Collaboration between stakeholders, including researchers, policymakers, health care providers, and industry partners, is essential to overcome these challenges.

### The Impact of Rising Costs

The increasing costs of health care pose a threat to innovation investments. As resources become scarce, it is crucial to redirect efforts toward developing cost-effective solutions that improve health care affordability without compromising quality. Innovative approaches such as value-based care, preventive strategies, and leveraging technology for efficiency gains can contribute to sustainable health care systems.

## Thinking Globally, Starting Locally

### Global Perspective

To foster innovation, it is essential to adopt a global perspective while considering local resources and potentials. Health care challenges are not confined to a single country or region, and solutions developed in one context can often be adapted

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and applied globally. Sharing knowledge, best practices, and lessons learned across borders can accelerate innovation and improve health care outcomes worldwide.

### Stepping Out of Comfort Zones

Innovation often requires stepping out of comfort zones and challenging existing norms. Researchers and innovators should embrace frustration as a catalyst for generating innovative ideas. By questioning conventional practices and exploring unconventional approaches, breakthrough solutions can emerge. It is important to cultivate a mindset of curiosity, openness, and adaptability to drive meaningful change in health care.

### Leveraging Local Resources

Considering local resources is crucial when developing innovative solutions. Researchers and innovators should explore cost-effective materials and technologies that are readily available in their respective regions without compromising quality. By leveraging existing resources, such as local expertise, traditional healing practices, or natural materials, innovative solutions can be tailored to specific health care contexts, leading to improved accessibility and affordability.

### Global Impact on Affordability and Accessibility

Innovation in health care should aim to have a global impact on affordability and accessibility. Solutions that address the needs of underserved populations, particularly in low-resource settings, can significantly improve health care outcomes on a global scale. By developing innovative approaches that are scalable, cost-effective, and adaptable, health care disparities can be reduced, ensuring that everyone has access to high-quality care.

## Case Studies in Affordable Innovations

### Case Study 1: Utilizing Readily Available Sutures for Arterial Embolization

One example of an affordable innovation is the use of readily available sutures as embolic materials for arterial embolization procedures. Traditional embolic materials can be expensive and limited in availability. However, by repurposing sutures, which are widely accessible and cost-effective, this innovative approach has demonstrated comparable safety and efficacy, while significantly reducing the financial burden on health care systems.<sup>3</sup>

### Case Study 2: Protein-Based Hydrogel Embolic Agents

Another case study showcases the development of protein-based hydrogel embolic agents using whey proteins. These agents offer a biocompatible, cheap, and reproducible alternative to conventional embolic materials.<sup>4</sup> By utilizing whey proteins, which are abundant and cost-effective, this innovation presents a scalable solution that can be widely adopted, particularly in resource-constrained settings.

## Research: Demystifying Complexity

### The Importance of Research in Health Care Innovation

Research plays a pivotal role in driving health care innovation. It generates evidence, identifies gaps, and informs the devel-

opment of new interventions, technologies, and policies. However, research is often perceived as complex, time-consuming, resource-intensive, and expensive, which can discourage participation and hinder progress. It is essential to demystify research and promote a more accessible and pragmatic approach. As physicians treating patients, interventional radiologists are bound to know the outcome of their procedure. Knowing the success rate, failure, and complications are measures that are impactful, and crucial, directly influencing patient care and outcomes. By aligning research objectives with the needs of health care systems and patient populations, studies can generate actionable insights and guide the development of cost-effective solutions. Emphasizing cost-effectiveness ensures that research findings translate into practical, sustainable improvements in health care delivery.

### Bridging the Gap between Knowledge and Practice

Research should bridge the gap between knowledge and practice. Health care professionals should actively engage with research by staying informed about the latest evidence, critically appraising research findings, and implementing evidence-based practices. Collaboration between researchers and health care providers is vital to ensure that research addresses real-world challenges and yields practical solutions.

## Conclusion

This article has underscored the urgent need for a fresh approach to health care research and innovation. By addressing health care disparities, promoting innovation, thinking globally, starting locally, and demystifying research complexity, significant opportunities arise to transform health care systems and improve outcomes. By embracing a collaborative and adaptable mindset, researchers, innovators, policymakers, and health care providers can work together to develop affordable, accessible, and sustainable solutions that have a positive global impact on health care. Through these efforts, we can strive toward a future where health care disparities are minimized, and high-quality care is accessible to all.

### Conflict of Interest

None declared.

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