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STRENGTHENING U.S. AND HEMISPHERIC SECURITY THROUGH BIOMEDICAL TECHNOLOGY: THE DOMINICAN REPUBLIC'S STRATEGIC ROLE UNDER THE AMERICA FIRST GLOBAL HEALTH STRATEGY

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Abstract

The COVID-19 pandemic exposed structural vulnerabilities in global health supply chains heavily concentrated in Asia, particularly for active pharmaceutical ingredients, diagnostics, and medical equipment. These disruptions demonstrated that health security is inseparable from economic resilience and geopolitical strategy. In response, the United States introduced the America First Global Health Strategy (AFGHS) in 2025, emphasizing bilateral partnerships, supply-chain diversification, and regional resilience.

This paper argues that biomedical nearshoring in the Dominican Republic represents a strategically viable mechanism to operationalize the AFGHS in the Western Hemisphere. The Dominican Republic has emerged as one of the largest medical device exporters in Latin America, with biomedical products representing roughly one-third of the country's free-trade-zone exports and generating billions in annual trade. Combined with geographic proximity to the United States, political stability, and a mature export manufacturing ecosystem, these capabilities position the country as a natural anchor for hemispheric biomedical supply chains.

Drawing lessons from China's state-enabled innovation system and the semiconductor sector's strategic reconfiguration under the U.S. CHIPS and Science Act, the paper argues that coordinated public–private–academic partnerships can accelerate biomedical capacity while strengthening regional security. In an era of intensifying technological competition between the United States and China, biomedical nearshoring in trusted democratic partners offers a practical strategy for reinforcing both health resilience and geopolitical stability in the Americas.

Introduction

The COVID-19 pandemic revealed a structural weakness in the architecture of global health supply chains. Over the past three decades, the production of critical health inputs (including active pharmaceutical ingredients (APIs), diagnostics, and personal protective equipment) became increasingly concentrated in a small number of Asian manufacturing hubs. While this model optimized cost efficiency, it created systemic vulnerability when geopolitical tensions, export restrictions, and pandemic-related disruptions interrupted supply flows.

These disruptions highlighted a fundamental strategic reality: health supply chains are now a component of national security. Countries that lack reliable access to medicines, diagnostics, and biomedical technologies face not only public health risks but also economic and political instability (Baldwin, 2020).

Recognizing these vulnerabilities, the United States released the America First Global Health Strategy (AFGHS) in September 2025 (U.S. Department of State, 2025). The strategy reframes global health engagement around three pillars: Safer, Stronger, and More Prosperous, prioritizing bilateral partnerships, regional supply-chain resilience, and technological cooperation with trusted allies.

This shift reflects a broader transformation in global politics. Intensifying strategic competition between the United States and China has extended beyond military and economic domains into technology, biotechnology, and health security. As a result, building resilient biomedical supply networks within politically aligned regions has become a central strategic priority.

From an international-relations perspective, the AFGHS reflects a hybrid framework combining neo-realist concerns for strategic autonomy with elements of liberal institutional cooperation (Waltz, 1979; Nye, 1990; Mearsheimer, 2018). This combination suggests that economic resilience and trusted partnerships have become central components of national security policy.

Within this context, the Dominican Republic emerges as a compelling candidate to anchor biomedical nearshoring in the Western Hemisphere. The country combines geographic proximity to the United States, political stability, and an established export manufacturing ecosystem that already includes a large medical device sector.

This paper argues that expanding biomedical production and innovation capacity in the Dominican Republic could significantly strengthen hemispheric supply-chain resilience while advancing the strategic objectives of the America First Global Health Strategy.

The America First Global Health Strategy: A New Paradigm

The AFGHS represents a departure from earlier global health frameworks centered on multilateral aid and diffuse governance structures. Instead, it prioritizes sovereignty, alliance-based cooperation, and technological leadership (U.S. Department of State, 2025).

The strategy is structured around three pillars:

- **Safer.**

  This pillar focuses on early detection, preparedness, and forward-deployed capabilities designed to prevent health threats from reaching U.S. territory.

- **Stronger.**

  The second pillar emphasizes bilateral partnerships grounded in co-investment and accountability, transforming traditional aid recipients into strategic collaborators.

- **More Prosperous.**

  The final pillar links health security directly to economic growth, innovation, and workforce development, recognizing that resilient health systems contribute to broader economic stability.

Implementing this framework requires regional partners that are politically stable, democratically governed, and capable of integrating manufacturing, research, and logistics into U.S.-aligned supply networks (Waltz, 1979). Identifying such partners is essential to building resilient hemispheric health systems.

Why the Dominican Republic Matters

The Dominican Republic is uniquely positioned to serve as a strategic biomedical partner within this framework. As a longstanding U.S. ally and the largest economy in the Caribbean by Nominal GDP, the country has demonstrated sustained economic growth and macroeconomic stability over the past decade (World Bank, 2023).

Geography further enhances its strategic value. Located less than two hours by air from Miami, the Dominican Republic offers a proximity advantage unmatched by more distant manufacturing hubs. Modern ports, international airports, and established free-zone infrastructure enable rapid manufacturing, distribution, and emergency response capabilities (Edwards, 2023).

Beyond geographic proximity, the Dominican Republic has cultivated a favorable regulatory and business environment that supports foreign investment and industrial expansion. The country's Free Trade Zone (FTZ) system hosts hundreds of export-oriented firms and provides tax incentives, streamlined customs procedures, and specialized industrial infrastructure. This framework has successfully attracted major medical device manufacturers and pharmaceutical logistics operations. Biomedical products account for approximately one-third of total free-trade-zone exports, generating billions of dollars in annual trade and supporting tens of thousands of skilled manufacturing jobs. Major multinational medical device firms have established operations in the country, producing cardiovascular devices, surgical equipment, and diagnostic technologies for global markets.

This industrial base provides a critical foundation for future expansion into broader biomedical supply chains. Unlike many developing economies attempting to build manufacturing capacity from scratch, the Dominican Republic already possesses:

- an established medical device manufacturing cluster
- experienced export logistics infrastructure
- regulatory institutions familiar with international compliance standards
- a workforce trained in biomedical manufacturing processes

Geography further strengthens these advantages. Located less than two hours from Miami, the Dominican Republic offers a logistical proximity that dramatically reduces transportation time compared to Asian manufacturing hubs. While ocean freight from East Asia can require more than a month to reach U.S. markets, shipments from the Dominican Republic can reach major U.S. ports within a few days.

In an era when supply-chain resilience increasingly depends on speed, reliability, and political trust, these geographic and institutional advantages position the Dominican Republic as a natural biomedical partner for the United States

Regulatory institutions have also strengthened over time. The Dominican regulatory authority, DIGEMAPS, has expanded oversight capacity and engaged in international cooperation with global regulatory organizations and the U.S. Food and Drug Administration. These institutional developments have improved regulatory credibility and created a more predictable environment for biomedical investment.

Together, these structural advantages make the Dominican Republic a natural bridge between North and Latin America, capable of anchoring biomedical production, logistics, and research within a hemispheric supply network closely integrated with U.S. markets.

Lessons from China's Innovation Model

China's post-reform innovation trajectory illustrates how coordinated state policy can accelerate technological development while maintaining strategic direction (Sun, 2003). By integrating universities, enterprises, and local governments into a national innovation system, China achieved rapid industrial expansion and technological advancement (Keane & Zhao, 2014).

For democratic states, the lesson is not to replicate centralized authoritarian control but to adopt forms of state-enabled coordination that remain transparent and accountable. Governments can establish strategic priorities, provide targeted incentives, and support research infrastructure while allowing private sector and academic institutions to drive innovation.

The Dominican Republic can apply this model by establishing clear national priorities for biomedical development and fostering structured collaboration among universities, industry, and government agencies. Such public–private–academic partnerships can accelerate technological capability while maintaining democratic governance and market openness.

Semiconductors as a Template for Biomedical Resilience

The semiconductor industry offers a powerful analogy for understanding biomedical supply-chain resilience. Through targeted industrial policy, research investment, and alliance-building, the United States has sought to reduce dependence on strategic rivals and secure critical technologies (The White House, 2022).

The CHIPS and Science Act demonstrates how governments can coordinate investments, research institutions, and international partnerships to rebuild strategic industries. Rather than pursuing complete self-sufficiency, the semiconductor strategy relies on specialization within networks of trusted partners (Park, 2023).

Biomedical resilience requires a similar approach. Research, manufacturing, regulatory oversight, and logistics must be integrated into a cohesive system capable of withstanding geopolitical or economic disruptions. Within such a network, the Dominican Republic could serve as a specialized and reliable node supporting regional production, distribution, and innovation.

Building Hemispheric Supply-Chain Resilience

Latin America remains heavily dependent on Asian sources for active pharmaceutical ingredients (APIs) and diagnostic technologies, creating systemic vulnerabilities in times of crisis (Park, 2023). Diversifying production across the Western Hemisphere could significantly improve regional resilience.

By anchoring a regional biomedical corridor, the Dominican Republic could integrate raw-material inputs, manufacturing capacity, and logistics infrastructure into a distributed network of trusted democracies. For the United States, this proximity enhances supply reliability and strategic security. For Latin American partners, it promotes economic integration, technology transfer, and workforce development (Baldwin, 2020).

Such a hemispheric biomedical ecosystem would represent not only a public health initiative but also a strategic economic partnership.

The restructuring of global biomedical supply chains must also be understood within the broader context of great-power competition between the United States and China.

Over the past two decades, China has invested heavily in biotechnology, pharmaceuticals, and advanced manufacturing as part of a broader strategy to achieve technological leadership. State-supported industrial policy, research investment, and integration between universities and industry have allowed China to rapidly expand its biomedical capabilities (Sun, 2003; Keane & Zhao, 2014).

This expansion has generated both economic opportunity and strategic concern in Washington. Heavy global reliance on a small number of manufacturing hubs for essential medicines and health technologies creates potential vulnerabilities during geopolitical crises.

In response, the United States has increasingly pursued strategies aimed at ("friend-shoring" critical industries) relocating production to politically aligned partner countries rather than adversarial or unstable regions.

The semiconductor sector provides a clear precedent. Through the CHIPS and Science Act, the United States has sought to rebuild domestic manufacturing while also strengthening supply networks among trusted partners. A similar approach could be applied to biomedical industries.

Within such a framework, the Dominican Republic could serve as a regional production hub within a broader Western Hemisphere biomedical network. By expanding manufacturing, research collaboration, and regulatory coordination, the country could help reduce reliance on distant supply chains while reinforcing strategic economic partnerships.

Challenges to Implementation

Despite its advantages, several structural challenges must be addressed for biomedical nearshoring in the Dominican Republic to succeed.

First, regulatory harmonization remains a critical requirement. Although DIGEMAPS has strengthened regulatory oversight, further alignment with U.S. FDA and European regulatory standards will be necessary to support advanced pharmaceutical manufacturing and clinical research collaboration.

Second, human capital constraints may limit rapid sector expansion. Biomedical industries require highly specialized talent, including biomedical engineers, regulatory scientists, clinical researchers, and data scientists. Expanding university programs and strengthening international academic partnerships will be essential to developing this workforce.

Third, infrastructure limitations must be addressed. Biomedical manufacturing requires reliable energy systems, cold-chain logistics, and specialized laboratory facilities. Continued investment in these areas will be necessary to support high-value biomedical production.

Fourth, financing and industrial coordination present additional challenges. Biomedical innovation requires sustained investment and coordinated industrial policy. Without alignment among government agencies, private investors, and international partners, investment may remain fragmented and insufficient to build a globally competitive cluster.

Encouragingly, the Dominican Republic's experience with medical device manufacturing within its Free Trade Zones demonstrates that such challenges can be overcome. Through targeted incentives, regulatory coordination, and international partnerships, the country has successfully developed export-oriented manufacturing sectors. Similar strategies could be applied to pharmaceuticals, biotechnology, and clinical research.

Conclusion

The COVID-19 pandemic demonstrated that supply chains designed solely for efficiency leave nations vulnerable to strategic disruption. In response, the America First Global Health Strategy reframes health security as an instrument of national resilience and geopolitical stability (U.S. Department of State, 2025).

The America First Global Health Strategy reflects this shift by emphasizing trusted partnerships and regional supply-chain diversification. However, the success of this approach depends on identifying partners capable of supporting advanced biomedical production and innovation.

The Dominican Republic offers a uniquely promising opportunity. Its established medical device manufacturing sector, strategic geographic location, and expanding regulatory capacity provide a foundation for deeper integration into U.S.-aligned biomedical supply networks.

Expanding biomedical nearshoring in the Dominican Republic would not only strengthen hemispheric health security but also contribute to economic development and regional stability. In an era of intensifying geopolitical competition and recurring global health threats, building resilient biomedical ecosystems within trusted democratic partnerships may prove to be one of the most important strategic investments of the twenty-first century.

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