

Forum: HYC 1

Issue: Ensuring vaccine access in LEDCs

Student Officer: Arnav Gupta

Position: Deputy President

Introduction

Vaccines are one of the most effective public health tools, preventing millions of deaths each year¹. It is a biological preparation that provides active acquired immunity to a particular infectious or malignant disease¹. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins, or one of its proteins¹.

However, access to vaccines in Less Economically Developed Countries (LEDCs) remains severely limited due to barriers such as high costs, intellectual property restrictions, weak health infrastructure, and inequitable global distribution². The COVID-19 pandemic amplified these challenges: while high-income countries secured multiple times the doses needed, many LEDCs struggled to vaccinate even frontline health workers³. Addressing this imbalance is critical for achieving global health equity and preparedness for future pandemics⁴.

Only 1.2% of global COVID-19 vaccine doses (counted as a single dose or more) have been administered in the Least Developed Countries, despite 14% of the world's population living there⁵. In total, just 3.1% of the population in Least Developed Countries — 33 million people — have received at least one dose of a COVID-19 vaccine⁵. A handful of countries have only just begun receiving vaccines⁵. For every 1,000 people living in LDCs, just 31 have received a vaccine dose⁵. Less than 2% of the world's COVID-19 vaccines have been administered in Africa, which has the slowest vaccination rate of any continent, with many countries yet to start mass vaccination campaigns.⁵

Definition of Key Terms

LEDCs (Less Economically Developed Countries)

Less Economically Developed Countries (LEDCs) are nations identified by the United Nations as having the lowest levels of socio-economic development⁶. The Committee for Development Policy

(CDP) reviews the list every three years and is approved by ECOSOC. To be classified as an LEDC, a country must fall below set thresholds in three areas: income, human assets, and economic and environmental vulnerability. Graduation from LEDC status requires meeting at least two of these criteria over two consecutive reviews, or surpassing the income-only threshold⁶.

Vaccine Equity

Vaccine equity means ensuring that all people, regardless of where they live or their economic status, have equal access to vaccines⁷. This concept gained global importance during the COVID-19 pandemic but applies to other diseases as well. Equitable access is vital because viruses that persist in unvaccinated populations can spread globally, evolve into more transmissible or resistant variants, and threaten everyone⁷.

COVAX

COVAX, part of the ACT Accelerator, was a global effort led by CEPI, Gavi, WHO, and UNICEF to develop, produce, and share COVID-19 vaccines fairly⁸. In the Americas, PAHO's Revolving Fund helped with procurement. WHO guided vaccine policy, safety, approval, and delivery, and set up a No-Fault Compensation Program⁸. Together with UNICEF and Gavi, WHO also ran the COVID-19 Vaccine Delivery Partnership (CoVDP) to help countries, especially those with very low vaccination rates, get vaccines, solve problems, and reach more people⁸.

TRIPS Agreement

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is a global legal framework under the World Trade Organisation (WTO) that sets minimum standards for how member countries regulate intellectual property⁹. While all members are equally bound by TRIPS, developing countries were granted extended transition periods to adjust their national laws—these ended in 2005. Least developed countries had additional extensions, with general compliance deadlines in 2013 and for pharmaceutical patents until January 1, 2016, with potential further extensions⁹.

Cold Chain Infrastructure

Cold-chain infrastructure is a temperature-controlled supply system essential for maintaining the potency and effectiveness of vaccines¹⁰. Vaccines must be kept within strict temperature ranges, as exposure to excessive heat or cold can permanently reduce their ability to protect against disease¹⁰.

LDCs

This is an official United Nations classification. The UN currently (as of 2024) recognises 46 countries as LDCs⁶. They are the poorest nations in the world, judged on low income, weak human assets (like health and education), and high economic vulnerability⁶. Examples: Chad, Afghanistan, Mozambique, Haiti. All LDCs are LEDCs⁶.

Background Information

Intellectual property and global equity

Patent and intellectual property barriers prevent LEDCs from producing generic vaccines⁹. TRIPS rules protect pharmaceutical monopolies, giving developed-world firms control over pricing and supply⁹. Even when temporary waivers are debated, poorer countries often lack the licenses and technology to manufacture at scale¹¹. Compulsory licensing is possible in theory, but politically sensitive, discouraging its use¹². The lack of technology transfer further slows capacity building¹³. As a result, LEDCs remain reliant on imports during health crises¹¹. Vaccine nationalism emerged strongly during COVID-19, with wealthy nations securing supplies early². The US, EU, and others signed advance deals even before vaccine trials concluded². This left little supply for poorer countries, forcing them to wait months². While these countries secured domestic stability, the global shortage prolonged the pandemic². Continued outbreaks in LEDCs allowed new variants to spread². Ultimately, vaccine nationalism endangered both rich and poor nations alike².

Global Initiatives and their limits

COVAX was created to ensure equitable vaccine access worldwide⁸. It delivered millions of doses but was consistently underfunded⁸. Wealthy countries prioritised bilateral deals, undermining the collective approach⁸. Delivery delays and limited coverage damaged its credibility⁷. Critics argued it resembled aid rather than a global solution⁷. The experience highlighted the need for manufacturing independence in LEDCs¹³. Regional initiatives such as the African Vaccine Acquisition Task Team (AVAT) pooled resources for procurement¹. While a positive step, these efforts faced financing shortfalls and supply bottlenecks¹. Many countries still relied on donations to cover gaps¹. Supply constraints limited large-scale coverage, leaving populations vulnerable¹. Despite challenges, AVAT showed the potential of collective regional action¹. Such models need stronger financial backing to succeed long-term¹.

Infrastructure and distribution challenges

Cold-chain logistics are essential for preserving vaccine potency, but infrastructure in LEDCs is limited¹⁰. Vaccines like Pfizer require ultra-cold storage, demanding equipment that many rural areas lack¹⁰. Power outages and weak transport systems cause frequent breaks in the chain¹⁰. These challenges increase wastage and weaken immunisation campaigns⁴. Renewable refrigeration could

reduce dependence on unreliable grids⁴. Without investment, rural populations will remain underserved⁴. Urban–rural inequality deepens vaccine gaps within countries⁴. Urban centres benefit from hospitals, skilled staff, and functional supply chains⁴. By contrast, rural communities face poor connectivity and limited healthcare personnel⁴. Trained vaccinators are scarce, making large-scale drives difficult⁴. As a result, rural residents remain more exposed to preventable disease⁴. Bridging this divide requires targeted rural outreach and investment⁴.

Conflict, misinformation and future preparedness

Conflict zones present some of the toughest barriers to vaccination⁵. Refugees and displaced people often lack documentation, blocking access to care⁵. Overcrowding and malnutrition accelerate outbreaks of preventable diseases⁵. These crises leave conflict-affected children among the least protected⁵. Without humanitarian corridors, equitable vaccination remains impossible⁵. Misinformation also weakens vaccination campaigns globally¹⁴. False claims spread through social media, politics, and religion¹⁴. Many distrust governments and fear profiteering or long-term effects¹⁴. Others deny COVID-19 or favour natural immunity¹⁴. These narratives discourage uptake and prolong outbreaks¹⁴. Trusted community figures must be engaged to counter them effectively¹⁴. Future preparedness is essential for LEDCs to avoid repeating failures¹⁵. Crises in food security show how delayed responses worsen outcomes¹⁵. New preparedness plans stress early detection, rapid funding, and coordinated action¹⁵. Similar frameworks should be adapted for health emergencies¹⁵. Without structural reform, LEDCs risk falling further behind¹³. Pandemic resilience requires both local capacity and global solidarity¹³.

Major Countries and Organisations Involved

African Union

The African Union (AU) has played a key role in coordinating vaccine access on the continent, particularly through the African Vaccine Acquisition Task Team (AVAT). By pooling resources and negotiating as a bloc, the AU sought to complement COVAX and donations. However, challenges such as limited financing, dependence on imports, and supply bottlenecks restricted the initiative's reach.¹

United States of America

The United States was one of the largest purchasers of vaccines, securing hundreds of millions of doses early in the pandemic. While it later became a leading donor through COVAX and bilateral channels, much of its surplus was delivered late or near expiry.² The U.S. also held a key voice in TRIPS waiver debates at the World Trade Organisation (WTO), reflecting its pharmaceutical interests.³

European Union

The European Union (EU) strongly supported COVAX and provided major funding for global vaccine distribution. At the same time, EU member states signed large bilateral deals with manufacturers, contributing to vaccine nationalism.⁴ The EU also resisted broader TRIPS waivers, instead promoting voluntary licensing and donations, which limited LEDCs' ability to scale local production.⁵

India

India, home to the Serum Institute of India, is one of the world's largest vaccine manufacturers. It supplied millions of doses to LEDCs through the COVAX facility and bilateral agreements.⁶ India, along with South Africa, co-sponsored the TRIPS waiver proposal at the WTO, highlighting its role as a leader in advocating for equitable vaccine access in the Global South.⁷

South Africa

South Africa emerged as a key advocate for vaccine equity, jointly pushing for the TRIPS waiver with India. It also hosted the WHO mRNA technology transfer hub in Cape Town, aimed at building regional vaccine production capacity.⁸ Despite challenges in scaling production, South Africa's efforts marked a significant step toward regional self-reliance.

Possible Solutions

During global health emergencies, suspending or reforming intellectual property protections can allow manufacturers in LEDCs to produce vaccines at affordable prices. This would expand supply and reduce reliance on pharmaceutical monopolies based in wealthier nations. The TRIPS waiver debate during COVID-19 demonstrated how slow progress left LEDCs vulnerable. Without IP flexibility, vaccine access in LEDCs will continue to be delayed and dependent on imports.⁹ Establishing regional vaccine manufacturing hubs in Africa, Asia, and Latin America would reduce dependence on external imports. Decentralised production also improves resilience during pandemics when global supply chains are strained. Such hubs would allow LEDCs to respond faster to local and regional outbreaks. Over time, this builds sustainable self-reliance in vaccine access.¹⁰

Maintaining cold-chain systems is essential to keep vaccines potent, but many rural LEDCs lack reliable electricity. Expanding renewable-powered refrigeration, such as solar-based cold storage, would ensure safe distribution in remote areas. This would also reduce wastage caused by heat exposure and poor transport infrastructure. By investing in sustainable cold-chain systems, LEDCs can strengthen last-mile delivery. Improved logistics guarantee that vaccines reach even the most isolated populations safely.¹¹ Unstable donor-based funding leaves immunisation programs in LEDCs vulnerable to delays and shortages. Financing tools such as vaccine bonds, global levies, or pooled funds can provide more

reliable revenue streams. This stability would also reduce dependence on high-income countries' surplus donations. Ultimately, consistent funding is essential for sustained vaccine access and preparedness.¹²

Vaccine misinformation and distrust in governments have fueled hesitancy. Community health campaigns led by trusted local and religious leaders are one of the most effective tools against disinformation. By tailoring messages to cultural contexts, misinformation can be countered with communication. Partnerships with schools and local media can further strengthen these campaigns. Building trust at the community level is essential for increasing vaccine uptake.¹³ Populations in rural areas of LEDCs often lack access to clinics and trained health workers. Deploying mobile vaccination units and training local community health workers can extend services to these areas. Rural outreach also ensures that vulnerable children are reached consistently, not just during crisis campaigns.¹⁴

Conflicts often destroy health systems, block vaccine delivery, and displace millions of people. Establishing humanitarian corridors for vaccines would ensure safe and reliable access in war zones.¹⁵ Pooling resources among LEDCs can reduce costs and improve negotiating power with pharmaceutical companies. Regional vaccine procurement and manufacturing agreements can help lower prices.¹⁶ A WHO-led global treaty on pandemic preparedness could enforce equitable vaccine allocation rules. This would prevent wealthy countries from hoarding supplies. Global cooperation of this kind is vital to prevent LEDCs from being left behind in future crises.¹⁷

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