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Structural inequities in the global supply of personal protective equipment

Low and middle income countries are priced out and facing severe shortages

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From March until late May Uganda was under strict lockdown to reduce the spread of covid-19. A curfew went into effect every night; public transportation was suspended. Although some restrictions have since eased, and confirmed cases only recently topped 1000, concerns about covid-19 remain high, particularly among healthcare workers. The main supplier of personal protective equipment (PPE) to the regional referral hospital in Soroti, located about 320 km northeast of the capital city Kampala, was out of stock for most of this spring, with no word on when new shipments would arrive.

Many low and middle income countries are facing similar concerns, particularly as covid-19 outbreaks deepen around the world. Amid the ongoing pandemic, global PPE supply chains have been upended: demand is soaring, prices are rising, and an international bidding war has ensued, with many low and middle income countries being outbid and priced out.¹ In Cameroon, N-95 respirator masks are almost non-existent and basic surgical masks are scarce. In Uganda, suppliers have run out of PPE entirely. Middle income countries are also facing crunches: a survey of Colombian health workers found nearly 90% of respondents worked in facilities lacking N95 masks or face shields.²

In recent months, high income countries have been scrambling not only to secure PPE shipments but also to deploy technologies to reuse and decontaminate PPE.³⁻⁵ But what are the options for low and middle income countries? Many PPE decontamination technologies are resource intensive and costly. An ultraviolet radiation tower costs \$25 000-\$40 000 (£20 000-£32 000; €22 000-€35 000), and a hydrogen peroxide vaporisation unit \$40 000-\$130 000 (personal communication). Some countries, or select hospitals within countries, might find such investments cost effective; at least one university affiliated hospital in Bogotá, Colombia, has adopted hydrogen peroxide protocols. Yet the price tag may limit more widespread adoption. Potentially cheaper methods, including moist heat and microwave generated steam, are being investigated, but these have limitations.⁶

Shortages of PPE are nothing new for many low and middle income countries; systemic inequities in the supply chain were compromising healthcare delivery and health worker safety long before covid-19 appeared. During the 2014-15 Ebola outbreak in west Africa, healthcare workers were 20-30 times more likely to be infected than the general population, partly because of pervasive PPE shortages.⁷ Despite

the international publicity around Ebola, those gaps have persisted. A recent pre-pandemic study from seven low income countries found eye protection available in only 37% of hospitals and 9% of health centres or clinics. In four countries, fewer than a third of primary level health facilities had face masks.⁸

Robust supply chains have three core elements: they should be continuous, sustainable, and deliver high quality products.⁹ Yet in many countries, external and internal factors have hampered supply chain development. Historically, infrastructure for the procurement, storage, and distribution of medical supplies has been underfinanced, and international vertical programmes for specific diseases (such as malaria and HIV) have fuelled parallel and fragmented supply chains, contributing to shortages and waste.¹⁰ Supply chains in many low and middle income countries rely on “push systems,” whereby centralised agencies distribute medicines and supplies top-down, rather than more responsive “pull systems,” in which facilities determine need based on actual consumption.¹¹ Meanwhile, production too often remains concentrated among a few international companies,⁹ leaving countries vulnerable to price swings and disruptions.

Innovative responses

In the current pandemic, many low and middle income countries are innovating policy responses to these deeply rooted challenges. The African Union has organised a continent focused taskforce and launched a medical supply platform to streamline procurement and reduce reliance on donations.^{12 13} National regulatory agencies, such as Colombia's, have adopted policies to accelerate imports and encourage domestic production.¹⁴ The Bogotá Chamber of Commerce has built a digital platform to connect PPE suppliers and local end users. Businesses are responding, too. In Uganda, one company is making face shields from recycled plastics. Countries are taking other steps to protect health workers, including establishing agencies to evaluate the quality of locally made PPE.

In addition, multilateral institutions and global non-profit organisations are ramping up funding for covid-19 programmes. These programmes are critical to a timely response but should be designed to reduce not reinforce existing problems in the supply chain. A more strategic response to covid-19 could lay the groundwork for longer term structural reforms, including investing in information technology, infrastructure, and training in supply chain

management and expanding domestic manufacturing.

At the same time, the international community could do more to help, rather than hamper, local responses. The United Nations recently formed a supply chain taskforce on global PPE procurement and distribution. This taskforce could be empowered with real responsibilities, including investigating price gouging and increasing market transparency by publicising lists of suppliers alongside their prices and practices. Western governments could relax policies that have reduced exports and placed restrictions on the use of foreign aid to buy PPE. And buyers and advocates could put pressure on manufacturers to adopt fair pricing policies, similar to those adopted for vaccinations and essential medicines.

These measures won't solve systemic inequities in supply chains overnight, but they would go a long way towards promoting a more equitable global response to covid-19—one that could save lives, protect health workers, and support more resilient health systems.

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