Access to Essential Supplies

Background paper 7 by

The Independent Panel for Pandemic Preparedness and Response

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The Independent Panel FOR PANDEMIC PREPAREDNESS & RESPONSE

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This paper has been prepared by the Secretariat to the Independent Panel for Pandemic Preparedness and Response as background for the Panel. The views expressed herein do not necessarily represent the views of the Panel.

Summary

During the initial stages of the pandemic, the world experienced a serious shortage of essential supplies. The situation was referred to by WHO Director-General Tedros Adhanom Ghebreyesus as "one of the most urgent threats to our collective ability to save lives". This global supply shortage was caused by factors such as lack of access provisions; poor stockpiling; overdependence on a few supplier countries; hoarding, panic buying and protectionism; travel cargo capacity restrictions; and a lack of immediate funding for procurement by LMICs. The dynamics and key drivers of supply shortages varied by type of essential supply.

The WHO and other institutions established the UN COVID-19 Supply Chain System (CSCS) in response to the shortage. Survey results showed it provided ~50% of PPE, diagnostics, and biomedical supplies procured by LMICs. Even so it left an enormous gap in supply, as the system was only operationalized in May 2020 – months into the pandemic. Other major channels such as the World Bank did not sufficiently address the huge gap due to operational delays. This led to some positive changes as well – e.g., building of regional procurement capacity (e.g., in Africa) and manufacturing capacity for PPE in India.

There are three key potential areas for change as seen by experts who were interviewed and/or participated in a roundtable discussion:

1. **Strengthen decentralized manufacturing and procurement systems**. This could help address over-reliance on manufacturing from only a few countries and speed up access to supplies at country level. Strategic use of national and regional stockpiling to stabilize the market and maintain surge manufacturing capacity would be a critical part of this effort, as would support for regional procurement platforms.

2. **Reshape international supply systems**. Current international systems need to address critical gaps in leadership and capabilities in quality assurance; market building; procurement for diagnostic tests, oxygen supplies, and PPE. There needs to be agreement on clear playbooks among international agencies.

3. **Establish fit-for-purpose financing and open data system**. For a decentralized and international system to function in an integrated manner, it is critical to make fast-moving risk capital available that is not tied to specific products, pricing, or procurement channels. Supply, demand and procurement data should be transparent and available for all parties (global, regional, country, and public).

These actions require an overarching international coordination, decision-making, financing, and data oversight body (i.e. aggregator). It would be important to couple the mechanism with the pandemic system for vaccines, therapeutics, and diagnostics to provide integrated solutions (to be discussed in a separate vaccines, therapeutics, and diagnostics paper).

1. Introduction

This paper reviews how essential supplies such as personal protective equipment (PPE), test kits, and oxygen equipment were produced, allocated and delivered during the COVID-19 pandemic. It proposes ways in which the supply system can be managed differently to ensure equitable and effective access to these essential supplies.

Key questions and structure of the paper

(1) Global shortages of essential supplies during the early stage of the pandemic: What happened? How did it happen?

Prices of essential supplies went up significantly during the early stage of the pandemic. This was due in part to disruptions of supplies and logistics as well as competition and protectionism by countries over these insufficient supplies. In early March of 2020 WHO noted that the price of surgical masks had increased six-fold since the start of the pandemic, the price of N95 respirators had tripled, and the price of surgical gowns had doubled[1]. This put low−income countries at a disadvantage. This section aims to understand what happened and how it happened. It includes a review of incentives and behaviors of countries and private vendors, as well as the systemic underlying issues to consider when thinking about how such a situation can be avoided during future pandemics.

(2) International responses: What worked? What did not work?

In the face of such global supply shortages and price increases, the UN-led COVID-19 Supply Chain System (CSCS) was established as an international mechanism to coordinate an approach to the market and avoid fragmentation and competition among countries. In addition to the CSCS, countries and regions – in particular low- and middle-income countries (LMICs) – established and used other channels to procure essential supplies. These included the World Bank's channels, bilateral channels, regional channels such as the Africa Medical Supplies Platform (AMSP), and local manufacturing. This section aims to understand how these different channels were used, what worked and what did not, to draw critical lessons and identify areas requiring reform.

(3) Changes to make: What should the global system look like to ensure effective and equitable access to essential supplies during pandemics?

Based on results from the review described above, this section explores what needs to change, and in what way, to prevent the serious supply shortages and inequitable access of essential supplies that occurred during this pandemic.

Methods

Multiple approaches were used to answer the questions above.

- Literature review: Published and grey literature were reviewed. The list of literature is available in Annex 2.

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7314445/pdf/main.pdf

- Country survey: For number two above, the review was carried out in collaboration with the CSCS assessment team (Yellow House), and selected data they collected are included in this paper. The CSCS assessment included a survey with >113 responses from country stakeholders.
- Quantitative data analysis: In addition to the data collected through literature review, the paper presents analysis of data from the CSCS system.
- Key informant interviews: 23 key informants from countries, CSOs, private vendors, UN and technical agencies, as well as experts were interviewed based on a semi-structured interview guide. The list of individuals interviewed is available in Annex 2.
- Essential supplies roundtable: a roundtable was held on January 12th, 2021 to validate initial findings and discuss lessons learned from COVID-19 responses and implications for future international response. Eleven experts participated in the discussion (list available in Annex) and five panel members attended.

2. Findings

Global shortages of essential supplies during the early stage of the pandemic

Shortages of essential health supplies spanned a variety of products. These included personal protective equipment (PPE) such as medical masks, N95 respirators, gloves, face shields, gowns, and sanitizing products, in addition to more advanced devices such as hospital and ICU beds, oxygen therapy, ventilators and extracorporeal membrane oxygenation (ECMO) devices. The broad factors associated with supply shortages likely span the diversity of products, although there are certainly variations in the value-chains of each product type. These also likely contributed. Although some specific examples are provided, the scope was generally limited to the broader factors that contributed to shortages rather than product-specific factors.

What happened?

In March 2020 the WHO warned that hoarding and shortages of protective equipment were leaving doctors and nurses "dangerously ill equipped" to look after Covid-19 patients. WHO Director-General Tedros Adhanom Ghebreyesus said prices of surgical masks had increased six-fold, N95 respirators had more than tripled, and gowns had doubled. He noted that, "supplies can take months to deliver, market manipulation is widespread, and stocks are often sold to the highest bidder," (WHO, 2020). By the end of March, Tedros noted, “the chronic global shortage of personal protective equipment is now one of the most urgent threats to our collective ability to save lives” (Burki, 2020). While the WHO estimated global monthly consumption of 89 million masks, 76

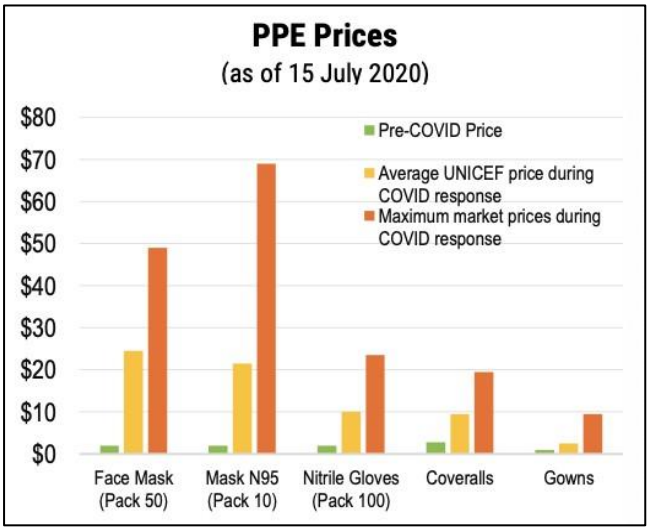

Figure 1: PPE price changes (UNICEF, 2020)

million gloves and 1.6 million goggles (WHO, 2020), prices of some PPE items soared to more than 20 times their historical cost (Figure 1).

The results as high demand met short supply led to new terms and conditions between suppliers, distributors and buyers. These applied to payment terms with high financial risks (e.g. 50% upfront payments), excessive mark-ups, and reduced access to known, quality-assured suppliers (Besson, 2020). There were delivery delays as the highest-paying customers bumped to the front of the line, and counterfeit products spread widely[2]. One interviewed expert estimated only ~20% of demand for PPE and test kits was fulfilled by June. This "sellers' market" placed LMICs at a disadvantage (Burki, 2020).

Why did this happen?

Many contributing factors led to supply shortages of essential health products during the early stages of the pandemic. Some were **systemic factors established prior to the pandemic**, while others were based on various **incentives and behaviors** at play among select stakeholders:

- **Lack of access provisions**: International frameworks that currently govern access to essential supplies largely rest on informal norms and voluntary funding, rather than binding rules and committed financing (Moon *et. al.*, 2020). Furthermore, with few exceptions (e.g. Product Development Partnerships, CEPI, etc.) access provisions have typically not been incorporated into the R&D processes for these products, demonstrating lack of an end-to-end strategy.

- **Poor stockpiling:** Following a period of increased preparedness in the 2000s (Davet & L'homme, 2020), the 2009 swine flu led to rapid anti-pandemic reactions in some countries. Seemingly mild symptoms and low mortality led to backlash over excessive spending, low cost-benefit ratios of the 2009 flu vaccine, and public-sector criticism over perceived overreaction. National strategic stockpiles of essential health supplies were systematically not renewed. In France, for example, health authorities decided to leave stocks un-replenished, to reduce storage and new acquisitions, to rely more on supplies from China and just-in time logistics, and to delegate responsibilities to private companies on an optional basis (Vignal, 2020). French strategic stockpiles dropped from 1B surgical masks and 600M FFP2 masks in 2010 to 150M and zero, respectively, in 2020 (Verner, 2020). The story is similar in countries including the United States, Sweden, Denmark, Norway, and Australia.

- While shortages of protective equipment became a major issue in high-income countries, the picture is bleaker in LMICs (Gage & Bauhoff, 2020). In some LMICs, the national stores and public-sector health facilities contain large stocks of health products past their expiry dates, with many such stockpiles being the result of donations (Clark, 2012). Stockpiles aside, even regular stocks are limited in most LMIC settings. A recent pre-pandemic study from seven low-income countries found eye protection available in only 37% of hospitals and 9% of primary health facilities. In four countries (Bangladesh, Nepal, DRC, Tanzania), fewer than a third of primary level health facilities had face masks (Gage, 2020). 24 countries in Africa were well short of the 450 million pieces of PPE required to supply 916,000 community health workers (Nepomnyashchiy, 2020).

[2] The Economic Times, for example, reported that around 63,000 Chinese-manufactured PPE kits (37% of the order) did not meet Indian standard criteria when received by Indian government in April (Economic Times, 2020).

- **Overdependence on production in a few countries:**
  The standard around the world has been for procurement teams to maintain whatever national supply of PPE they deemed necessary at minimal cost. This typically meant giving the tender to the lowest bidder, often China. Companies had little incentive to maintain production in high-cost locations or to worry about geographic diversity in production (Shih, 2020). Before the pandemic, China was responsible for ~50% of the world's supply of surgical masks and was the only supplier of mass-producing clinical gowns (Feinmann, 2020). In the United States, for example, PPE production is limited, and more than 70% of respiratory protection supplies used in the US are manufactured in China (Mehrotra et. al., 2020). Even in situations where a supplier was outside China, they ended up realizing that even their raw materials originated in China. More than two decades of reliance on globalized supply-chains has left many countries without the infrastructure and experience to manufacture and distribute PPE in mass quantities.

  During the early stage of the pandemic – as the first country to recognize the unprecedented quantities of PPE required – the Chinese government made itself the sole customer of the major PPE manufacturers within its own territory. It imposed export restrictions and simultaneously purchased much of the rest of the world's supply (Feinmann, 2020; Burki, 2020). With supply already disrupted by the Chinese New Year, the public health restrictions that followed prevented many factory workers from returning to work (Burki, 2020). Manufacturers able to return to work faced backlogs and limited access to raw materials. New policy and export regulations put in place by the Chinese government and many other countries to curtail the spread of the virus caused clearance and distribution delays of supplies coming from China (UNICEF, 2020). Overdependence of supplies was not limited to China. Nitrile gloves were largely dependent on Malaysia, for instance; its lockdown disrupted domestic flow of supplies, which affected global access to nitrile gloves.

- **Hoarding, panic buying and protectionism:** Other countries took steps to protect their own supplies. France, Germany, Britain, South Korea, China, India, Turkey, Morocco, and others responded to the outbreak by limiting or banning exports of medical supplies to protect their citizens, including rescinding orders that other nations had already secured (Zhou, 2020). Even the UAE, where WHO had its stockpile, placed restrictions on exports. WHO had to get approval from the UAE health ministry to export them. The Trump administration went so far as to use the Defense Production Act to order 3M to stop selling US-produced masks to Canada and Latin America (3M, 2020). Nationalism prevailed, with over 70 countries imposing export restrictions on medical materials (Nkengasong, 2020).

- **Travel and cargo capacity restrictions:** Travel restrictions compounded the shortages (Burki, 2020). With all commercial passenger and cargo flights suspended during most of April and May, many transportation routes were unavailable. Cargo space was scarce, leaving only more expensive cargo charters as an alternative (MSF, 2020). Major distributors were unable to fill orders and some health systems faced delays of 3-6 months for requested supplies (Mehrotra *et. al*., 2020).

- **Financing**: LMICs wanted to buy more PPE but were still negotiating where resources would come from (World Bank, GFATM, etc.) while high-income countries were buying up most of the stocks. Most of the available PPE supply dried up quickly, with the exception of suppliers were willing to sell to large institutional procurers (UNICEF or World Bank sourcing teams) or at very high prices. Quantities requested months ago remain undelivered.

Issues by product

Interviewees noted that the essential supply shortages experienced during the early stages of the pandemic varied depending on the type of product.

- **PPE**: The nature of the supply constraints varied in HICs and LMICs. For example, in HICs the demand surge was high and resourcing teams could quickly start directly sourcing product (largely China-based). They had immediate financing to do so. LMICs, on the other hand, followed the pattern noted above. Price for surgical gowns decreased as markets opened up and production (including local) increased (Figure 2 left). However, prices for other PPE items such as surgical masks (Figure 2 right), face shields, and surgical and examination gloves stayed at high levels. Interviewees suggested there is limited expertise in procurement of PPE in the current international architecture, which negatively affected the procurement and price negotiation for LMICs.

Figure 2: Quantities and prices procured through the CSCS for surgical gowns (left) and surgical masks (right) (Source: CSCS Assessment)

- **Testing kits**: Initially there was a lot of excitement related to consortium partners coming together (i.e. FIND, GFATM, WHO, UNICEF, CHAI, etc.). But this did not play out as smoothly as anticipated for testing kits. According to one expert interviewed, it took 3 months to ship the first test through the CSCS, and price negotiation with suppliers did not yield low prices (Figure 3). The process had to be set up from scratch, and the process for the procurement partners in the CSCS was not designed for emergency response. For example, UNICEF was not shipping a lot of diagnostics before the pandemic, and it took time to adjust their ordering processes for what was required. Similarly, World Bank funding seemed unavailable for procurement early enough. It did not help that there are ~1,200 companies producing tests (with ~800 rapid diagnostics tests in development or on the market, of which only 2 are WHO approved, and about 20 FDA approved), with the majority of producers being new entrants to the market and not having distribution or support networks.

Figure 3: Quantities and prices procured through the CSCS for Cepheid Xpert Xpress tests (left) and Abbott a real-time test (right) (Source: CSCS Assessment)

- **Biomedical equipment and oxygen supplies**: The Lancet Commission on Global Surgery revealed years before Covid-19 that approximately one-quarter of hospitals surveyed in resource-limited countries lack sufficient oxygen supply (Meara et. al., 2015). A Clinton Health Access Initiative study found that in health facilities across five countries surveyed – India, Nigeria, Ethiopia, Kenya and Uganda – over 90% lacked pulse oximeters (for measurement of blood oxygen levels) and fewer than half had reliable oxygen supplies (Houdek, 2020). Across 41 African nations, serving hundreds of millions of people in public hospitals, it is estimated that there were fewer than 2,000 working ventilators as of April 17, 2020. Ten countries in Africa had no ventilators at all (Maclean & Marks, 2020). Such is the context where 80% of people hospitalized due to COVID-19 need between 3-15 litres of oxygen per minute. For the 20% who stay, the needs are even more severe: over 20 litres per minute (Stein et al, 2020). Even when available the cost of oxygen in Africa can be prohibitive, with prices fluctuating widely and often depending on whether production sites are nearby.

- Despite the tremendous need to scale up efforts to improve and implement more sustainable oxygen infrastructure in countries, estimation of required ventilator and oxygen concentrator supplies was likely inflated during the early stages of the pandemic. This was partially related to the WHO essential supplies forecasting tool, which one expert described as “giving a false sense of being a sophisticated model,” while in reality, according to several experts, it was a top-down model that did not take country-specific absorptive capacity into consideration. More importantly, due to lack of focus on oxygen before the pandemic, no one collected data on country capacity related to oxygen. Consequently, countries ordered too many ventilators, while other critical oxygen supplies were not ordered at all. One expert interviewed described the situation as “flying blind”. In addition, the expert explained that even after carrying out health facility surveys, WHO could not share the data without consent by countries.

Figure 4 Quantities and prices procured through the CSCS for Portable O2 concentrator (left) and BiPAP: Bilevel or two-level Positive Airway Pressure (right) (Source: CSCS Assessment)

International responses: What worked? What did not work?

Early action

WHO and UNICEF as well as donors and other partners reacted quickly to the crisis. WHO actioned a "no regrets" mechanism to reach a large number of countries early, primarily using stockpiles they had. UNICEF provided higher quantities to fewer countries. In February 2020, 84 countries received PPE and diagnostics and 104 countries in March (CSSC Assessment).

UN CSCS

At the request of the UN Secretary-General and WHO Director-General in response to the acute shortage of essential supplies, a Supply Chain Task Force was convened in March 2020 to establish the UN COVID-19 Supply Chain System (CSCS)[3]. The CSCS was supported by multiple agencies for PPE, test kits and supplies for clinical management. They formed Purchasing Consortia to agree on technical specifications for each product, aggregate demand forecasts, and leverage their mechanisms to source supplies. Staff from WHO, WFP, UNICEF and other key partners (e.g., CHAI) formed the Control Tower reviewing requests and maps, allocating available supplies, and identifying supply agencies to fulfill allocation. Supply coordinators (resident staff from WHO, PAHO, UNICEF, WFP, and other agency staff; 1-4 per country) were assigned to consolidate and validate requests within each country.

[3] The participating partners include: WHO, UNICEF, UNDP, UNOPS, the Global Fund, the World Bank, Unitaid, PAHO, Africa CDC, BMGF, FIfND, CHAI, and PATH.

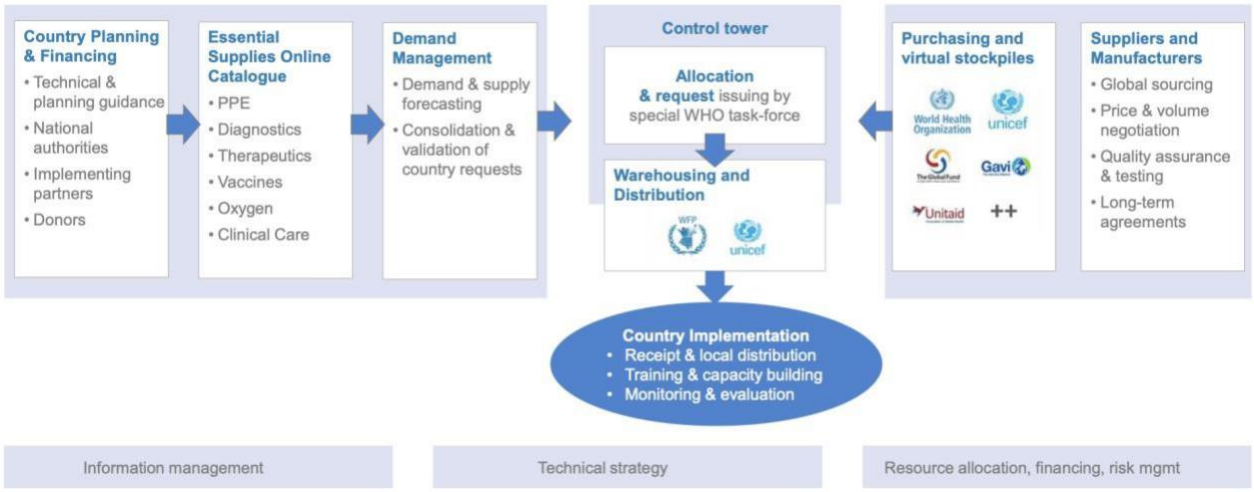

Figure 5: UN CSCS High Level Flow (WHO/UNICEF, April, 2020)

Of the survey responses received thus far (n=117/397) - representing a good balance between global, national and regional levels, as well as distribution across all regions (with overweighting in Africa) - findings show that respondents sourced around half of their supplies via the CSCS (i.e., UN agencies and Global Fund combined). It was the channel most used (Figure 6).

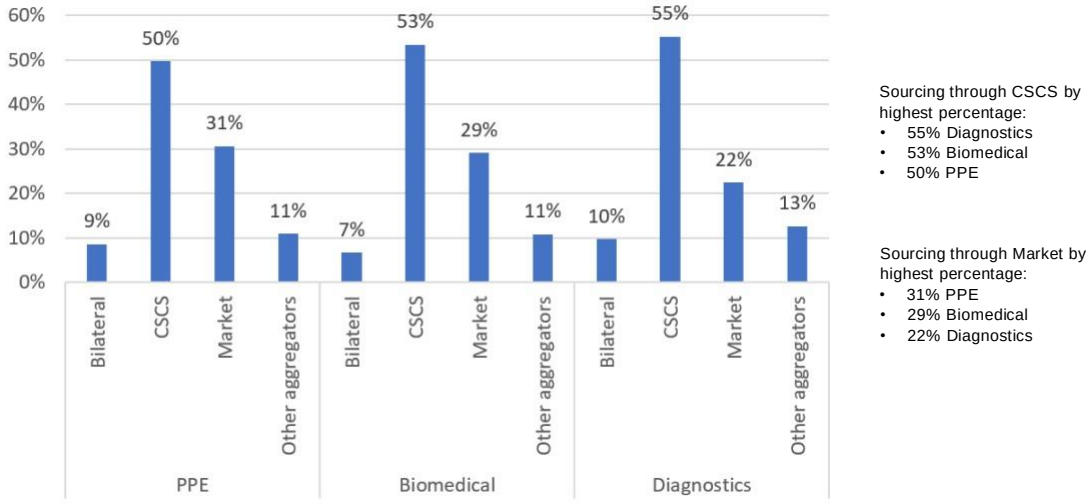

Figure 6: Essential Supplies Sourcing by Channel (n-117); (Source: Yellow House Analysis)

The majority of respondents (>70%) confirmed they used multiple channels to access critical COVID-19 supplies. Sixty-three percent of respondents noted that PPE was secured through channels other than the CSCS half the time or more. This figure was 48% for biomedical supplies, and 52% for diagnostics (Figure 7).

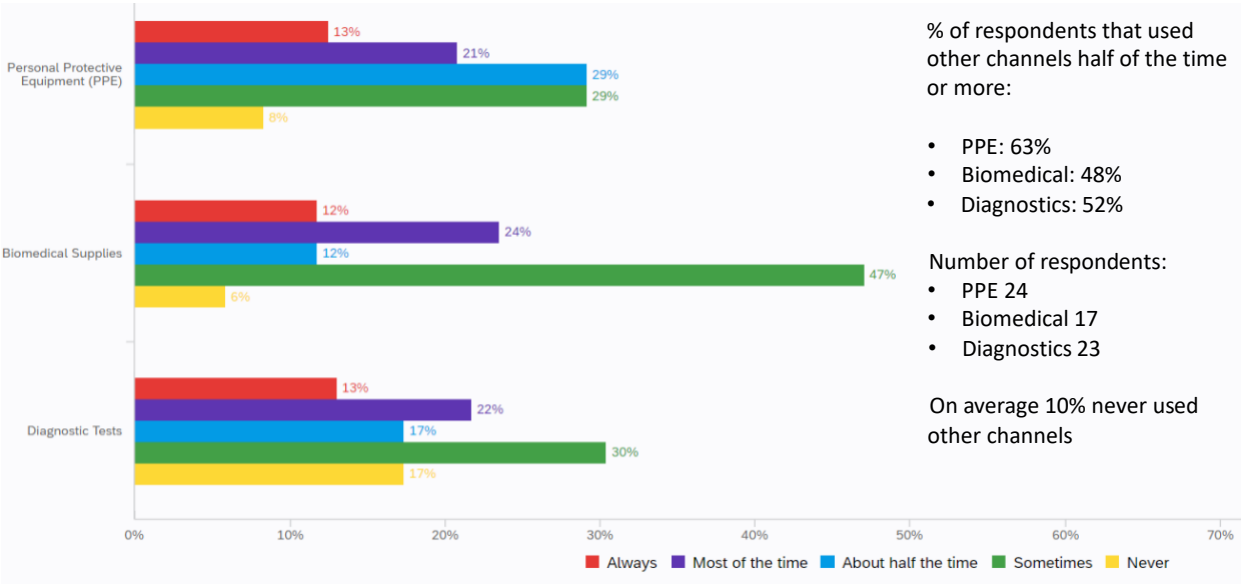

Figure 7: Percent of respondents (n=117) that used other channels half of the time or more

In sum, the CSCS played a major role for the LMICs to procure essential supplies. But it did not meet countries' demand, and as a result countries and regions engaged in multiple supply channels using different financial sources.

Other channels

World Bank

One of the major sources for LMICs of funding for essential supplies was the World Bank. On March 17th, 2020, the World Bank committed US$6 billion of funding for the COVID response. The main part was for procurement of essential supplies. The Bank provided countries with three options: (i) Bank-facilitated procurement (BFP); (ii) use of UN agencies; and (iii) self-procurement by countries. The BFP was a new mechanism pooling funding for countries for the Bank to procure supplies collectively from pre-negotiated suppliers at reasonable cost, without paying 5-7.5% fee to the UN agencies. The Bank partnered with the Emergency Care Research Institute to develop technical specifications.

Several interviewees from countries, CSOs, and international agencies suggested few of these funds were used for the delivery of essential supplies, despite the heroic efforts by the Bank to make large funds available for countries quickly through a flexible multi-phased approach and rapid project approval process. This is due to the Bank's disbursement and procurement procedures, including delays on the part of LMICs. Roundtable participants suggest faster flow of flexible funds from the Bank and other development banks as a critical area for improvement to support countries' and regional procurement.

Regional actors

Facing delays in delivery through the international systems, regions developed and strengthened procurement efforts through their own channels. The African Union, Africa CDC, African Export-Import Bank and ECA created the Africa Medical Supplies Platform (**AMSP**) as an online marketplace for essential supplies. They established direct procurement channels with China and elsewhere without relying on UN systems. The AMSP established itself as the long-term platform, owned and operated by the region and its member countries. It negotiates not only on price, but also technology transfer, in

order to build local manufacturing capacity in the region. Also, PAHO operates its Strategic Fund for Latin American countries as a technical cooperation mechanism for pooled procurement of essential supplies, though one interviewee from Latin America suggested its operations were slow moving.

Some countries also strengthened their own manufacturing capacities. India, for example, developed over 100 PPE manufacturers from a baseline of zero in just a few months. This was accomplished by bringing in closely aligned sectors (e.g. textiles, garment manufacturers, internal trade), easing transport regulations (e.g. for importing and across state lines), facilitating access to required manufacturing equipment, establishment of standards and guidelines, injection of public funds and through strong leadership. Such local resources can be a basis for strategic decentralization of manufacturing capacity.

Donations to address initial delays in international systems
As viral transmission in China slowed in April 2020, it began shipping masks to other countries as part of goodwill packages. Due to delays in the international system, many African countries originally relied on donations for essential products (Umviligihozo et. al., 2020). One of the better examples came from Chinese billionaire Jack Ma, who made a series of PPE donations to Africa through his foundations (Burki, 2020). These donations were deemed to be critical by many officials on the African continent.

Interviewees suggest governments chose procurement channels for supplies **without sufficient information** about which one could provide which supplies the fastest way, at lowest cost. As a result countries made decisions based on relationships with UN and other agencies. It created unhealthy competition between agencies, and different procedures for different channels confused governments.

Key lessons learned

Key interviews and roundtable discussions pinpoint important challenges from the international response and lessons learned: among them are a weak international ecosystem and institutions; financing gaps; data fragmentation; unclear playbooks; delayed set-up; and equitable allocation.

- **Importance of decentralized systems**: The COVID-19 experience demonstrates the clear limitations of the international procurement system in securing rapid and equitable access to essential supplies during a global pandemic. Overreliance on a few countries can have serious consequences due to nationalism and travel restrictions. Countries, regions, and the international system need to make deliberate efforts to establish decentralized manufacturing capacity. COVID-19 has highlighted a critical role and the ability of regional institutions (e.g., AMSP/Africa CDC) to aggregate demand and service the needs of countries.

- **Financing gaps**: Several interviewees mentioned gaps in: (i) rapid risk capital to secure essential supplies in times of competition with high-income countries; (ii) funding availability for LMICs to purchase supplies; and (iii) funding for distribution within countries. Interviewees and roundtable participants note that funding from philanthropies (e.g., BMGF, Wellcome Trust) as rapid risk capital helped a lot, although amounts were insufficient. They also suggest that funding from large financiers (e.g., World Bank, other development banks) need to flow much faster in a more fit-for-purpose manner for procurement of essential supplies.

- **Data fragmentation**: All purchase data by different agencies should flow into a single repository to avoid overlaps. Also, such procurement data should be available for regional and country stakeholder use. This did not happen even within the UN agencies and the Global Fund until

recently. Without information from international agencies on what will arrive, when, and from whom, countries are unable to effectively plan and respond for their citizens. Under huge pressure to make essential supplies available, countries had to explore various other channels such as bilateral deals to secure sufficient quantities of supplies. This further enhanced fragmentation.

- **Weak international ecosystem**: Challenges in international responses reflect the weaknesses of the global ecosystem and institutions in several key areas such as oxygen, diagnostic tests, and PPE:

    - **Oxygen:** At the roundtable several experts who work to improve oxygen supply stressed that a major underlying problem was a "vacuum" in the global health architecture for mounting credible oxygen responses with expertise. No institution seems to have the networks or ability to understand countries' needs and capacities, levels of expertise required, or has industry relationships for procurement and price negotiation. This needs to change as more respiratory pandemics are expected in the future. Also, countries need oxygen plants. This is a critical area for the World Bank/IFC and other development banks to step in.

    - **Diagnostic tests:** Experts and country leaders also share a consistent view that quality assurance and procurement capabilities for diagnostic tests are critical gaps in the global health architecture. FIND and Global Fund were tasked to develop two rapid tests, provide training to 10,000 healthcare workers, and establish testing for 500 million people in LMICs by mid-2021. However, an expert suggested one LMIC has been paying 3-4 times what the UK has been paying as a result of no collective efforts on price negotiation. Only 10 million (6.7%) antigen RDTs out of the 150 million that SD Biosensor (one of the only two WHO-approved providers) produces every month have been allocated for LMICs, which is extremely small compared to the need.

    - **PPE:** Despite its importance in particular for LMICs with serious human resources for health (HRH) constraints, according to an interviewee, the international ecosystem for procurement and delivery of PPE is "most rudimentary". Unlike vaccines and diagnostics where Gavi, FIND and other partners provide expertise and industry relationships, a cluster or expertise for PPE is lacking.

- **Unclear playbooks**: The system did not have clear structure and protocols ("playbooks") for international agencies to work together and leverage each other's strengths. This led to serious inter-agency competition (e.g., on procurement and logistics). According to multiple interviewees and roundtable participants, WHO did not have the right leadership, expertise, and staffing capability to run the system as a procurer. Several also pointed out that the function WHO played overlaps with the mandate and strengths of UNICEF. They suggest there was a lack of involvement of other agencies in decision-making, as well as weak transparency by WHO in running the CSCS.

- **Delayed set-up**: The analysis by the consultancy Yellow House highlights key chronological events related to the CSCS from January to May (See Annex 1 for detailed analysis). Despite very intensive efforts of all stakeholders, it took 3-4 months for the COVID-19 Supply Portal to launch in May 2020. In the meantime, from Jan-March of 2020 (even before the launch of the Supply Portal), the UN system delivered over 6.4 million gloves, 1.8 million surgical masks, and 1 million gowns to countries across the world. But an enormous gap remained between what UNICEF and partners had secured and the demand requirements for LMICs (UNICEF PPE Market Note, 5 May 2020). Faster and more delivery would have been possible if the system existed and was financed before the pandemic.

- **Equitable allocation**: Though all regions suffered from insufficient supplies from the international system, according to the roundtable discussion, Latin American countries in particular suffered from low allocation. The allocation formula for the CSCS did not take account for epidemiological criteria such as number of cases and deaths. As a result the percentage of diagnostic tests and PPE allocated to the American region from the CSCS is much lower than the region's percentage of cases (Figure 8), though other factors (e.g., other channels of supply) need to be factored in to judge the appropriateness of the allocation. Unlike Europe, according to the interviewees in the region, Latin American countries could not fill the supply gaps.

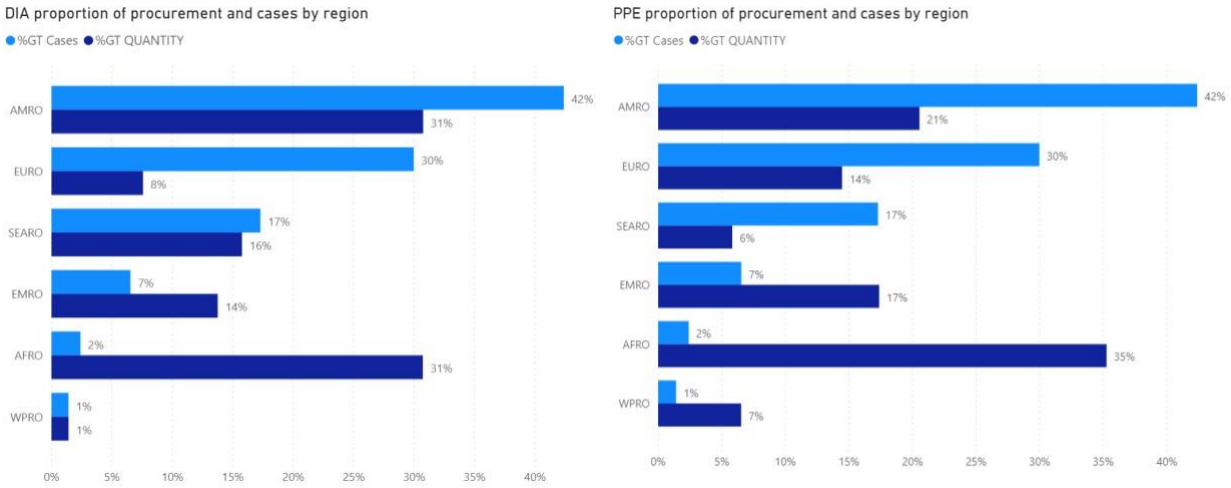

Figure 8: COVID-19 cases (%) vs. quantity procured (%) by region, for diagnostics (left) and PPE (right)

Potential changes to make: What could the global system look like in ensuring effective and equitable access to essential supplies during pandemics?

The interviews and roundtable discussions consistently suggested the need for strategic efforts to: (i) strengthen decentralized manufacturing and procurement systems; (ii) reshape international supply systems; and (iii) establish fit-for-purpose financing and an open data system (Figure 9).

Strengthen decentralized system

- Make planned strategic investment in **national and regional stockpiling** to stabilize the market and build and maintain **local surge manufacturing capacity**
- Support **regional supply platforms** (e.g., AMSP, PAHO strategic fund, equivalent one in Asia)

Reshape international system

- Invest in **pre-procurement quality assurance, market building, and procurement** functions for tests, PPE, and oxygen
- Establish **clear playbook among international agencies** by type of products based on their strengths, with overarching coordination body

- Make available **fast moving risk capital not tied to specific products, pricing, or procurement channels**
- Establish a system to **make supply/demand data available for all parties** (global, regional, country, other)

Figure 9: Summary of potential changes to make, coming out of interviews and roundtable

Strengthen decentralized manufacturing and procurement system

- As described above, developing and strengthening decentralized manufacturing and regional procurement systems, in addition to reshaping the international system, would be critical to address over-reliance on manufacturing in a few countries and to accelerate access at country level.
- **Strategic use of national and regional stockpiling** was suggested **to stabilize the market and maintain surge manufacturing capacity** at a decentralized level. This requires intentional investment based on strategies built on the market conditions of each product. **Mapping of available manufacturing capacity and stockpiles** would be needed to track and accelerate progress.
- In addition, **regional procurement platforms** such as AMSP need to be strengthened (and established as needed) in all regions.

Reshape international system

- As described above, the current international system for essential supplies has **critical gaps in leadership and capabilities** in a few areas. Clarifying who will lead and strengthening their functions seems essential to prepare for future pandemics.
- **Pre-procurement quality assurance and market building** (for all products, but in particular diagnostic tests and PPEs) is needed. This would help assess quality from small/new manufacturers based on pre-defined specifications and aggregate them for country/regional/global purchasers.
- **Market shaping and procurement** for medical oxygen, PPE, and diagnostic tests. Medical oxygen, in particular, requires strategic infrastructure investments (e.g. oxygen plants) that can be financed through the World Bank and other development banks.
- Related to above, **clear playbooks among international agencies** need to be pre-negotiated among the international institutions for each type of product.
- Other main suggestions include: building a special **structure (sub-group) to work/negotiate with large supplier countries** (e.g., China) to influence transparency, availability, price, etc.; to review and establish reasonable **allocation criteria** based on epidemiology, vulnerability, and absorption capacity; and to ensure access goes beyond countries to **all actors including humanitarian agencies**.

Establish fit-for-purpose financing and open data system as cross-cutting supporting mechanisms

- Interviewees and roundtable participants made consistent suggestions on making available **fast moving risk capital not tied to specific products, pricing, or procurement channels.** This is required at all levels (national, regional, and global). It is critical to define financing mechanisms (e.g., combination of broader pandemic system and re-configured World Bank pandemic financing system) to meet this need.
- Interviewees and roundtable participants were also consistent about the need to establish a system to **make supply, demand and procurement data available for all parties** (global, regional, national, and other) **in multiple directions** (i.e. not just in flow to international bodies) as a global public good. This is critical for coordinated, demand-driven procurement across levels and institutions and can empower countries and regions. An important lesson shared by several experts is that the data should be managed and made transparent by a third party without any stakes in procurement of essential supplies. For example, a large tech company can set up a system to draw data from all the proprietary data systems (WHO, UNICEF, WB, GF, Gavi, WFP, regional, country, etc.) and translate the procurement data into one format that is easily searchable by anyone, anywhere - including the general public.

These actions would require an overarching international coordination, decision-making, financing, and data oversight body (i.e. aggregator). It would be important to couple the mechanism with the pandemic system for vaccines, therapeutics, and diagnostics to provide integrated solutions (to be discussed in a separate vaccines, therapeutics, and diagnostics paper).

Annex 1

Chronology of process until the launch of the COVID-19 supply portal in May 2020

January	February	March	April	May
First reconvening of the Pandemic Supply Chain Network (PSCN), made up of ~30 private sector / 10 multilateral organizations, coming out of the West African Ebola outbreak, to refocus on influenza. When COVID started used PSCN to get some market research (surveys) going. Identified that supply shortages would be an issue, esp. PPE Started doing some small shipments (PPE)	4th - Activation of UN Crisis Management Policy 5th - WHO alerts agencies / stakeholders of PPE shortages and need for coordination 7th - Meeting of Global Supply Chain Network to discuss PPE and coordination 11th - First meeting UN Crisis Management Team (CMT), highlights supply constraints. Following this, supply chain coordination group set up in WHO 12th - WHO DG letter to 12 CEOs re PPE supply constraints 19th - WHO DG letter to 23 Heads of State re PPE supply constraints	11th – WHO declares COVID-19 Global Pandemic 13th – UN Solidarity Fund launched 16th – Who launches COVID-19 Partners Platform 25th – UN Chief Executives decide to establish Supply Chain Task Force (SCTF); UN Humanitarian Response Plan launched; Market & Supply Chain Working Group established (approx.) 31st – 1st meeting of diagnostics consortium	5th – SCTF TORs in place 6th - Personal protection equipment <u>Joint UN industry consultation</u> 8th – COVID-19 SCTF launched 13th – First meeting of the SCTF 15th - Report at CMT, all 3 purchasing consortia launched; TORs for Biomed consortium in place earlier this month 2nd - Report at CMT, Solidarity Fund received 190M USD pledges, 128M USD to disburse (70M WHO, 10M vax development, 20M WFP, 20M UNICEF) 29th – COVID-19 UN Supply Chain System launched	5th - WHO launched COVID-19 Supply Portal; PPE consortium TORs in place; date TBD for diagnostics consortium TORs

Annex 2

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