Covid-19 Supply Chain System Assessment

Executive Summary

26 February 2021
The Yellow House

WE ADVISE, CONVENE,
PUBLISH AND
CAUSE REFLECTION
FOR POSITIVE IMPACT
About the consultants

The Yellow House (TYH) LLC led the assessment.

TYH is a small advisory and advocacy firm that provides advice, convenes, and causes reflection on a range of topics for positive impact on humanity. Their focus includes Access to Health Products via healthy markets & supply chains; Innovations & Innovative Financing; and Diversity & Inclusion framed as anti-racism, anti-misogyny and anti-exploitive.

The lead consultants of the assessment were Jorgen Kofoed, Meredith Shirey, and Shanelle Hall

https://www.theyellowhouse.dk/

TYH partnered with MM Global Health (MMGH) Consulting GmbH for key aspects of the assessment.

MMGH is an advisory firm supporting public and non-profit clients to translate scientific evidence, data and knowledge into strategies and actions directly impacting people’s health. Their focus and expertise are centred on vaccine-preventable and neglected diseases.

https://www.mmglobalhealth.org/
CSCS Assessment Report

- Summary Assessment, Written Report
- Executive Summary, 2-page Written Report
- Comprehensive Assessment, Slide
- Executive Summary, Slide deck
- Lessons Learned Summary, Slide deck
- Country Profiles, Slide deck

Context
Summary Data
Overall CSCS
Stakeholder perspectives
Leadership
Demand
Funding
Allocation
Procurement
Snapshots of Buyers
Lead-times
Pricing
Key products
Delivery
Countries
UN & NGO front line humanitarian staff – Duty of Care
Task Force, and Control Tower,
Tools: Partners Platform, Supply Portal, Essential Supplies Forecasting Tool
Data
Purchasing Consortium: IPC, Clinical Care, Diagnostics,
Summary Recommendations & Next steps
Summary of Lesson Learned
Assessment of the Covid-19 Supply Chain System (CSCS)

• Commissioned by WHO as advised by the CSCS Task Force in October to answer key questions

• Steered by the Joint Steering Group comprised of CSCS Task Force members and chaired by the Danish Refugee Council

• WHO is the Secretariat and is a part of the Advisory Group

• WHO supported that the assessment be as ‘independent’ as possible

Did the CSCS establish and implement a global strategy to help with access to critical and life-saving Covid-19 supplies?

Did it:

Bring together the collective capabilities of public and private actors to meet these needs?

Was equitable access to critical Covid-19 supplies achieved? Did this vary between diagnostics, oxygen, and PPE; and if so, in what way?

Ensure the transport of vital Covid-19 cargo?

What were key learnings along the way?

What contributed to success? What could have been done differently?

What next:

Which aspects of the CSCS, if any, could be useful to continue or adapt to ensure equitable access of critical Covid-19 tools for the next wave of the pandemic response?

What learnings of the CSCS could be useful for other emergency responses?
Methodology & Timeline

1. Desk review
   - Chronology, timelines, etc. being developed based on desk review and interviews
   - Request with CSCS partners to share lessons learned, client satisfaction surveys, etc.
   - Interviews with key informants

2. Survey
   - 397 invited
   - Aim >100
   - Actual 113 responses
   - 75% UN
   - 50% global level

3. Interviews
   - 48 invited
   - Aim >30
   - Actual 29

4. Quantitative data review
   - Supply Portal
   - Control Tower
   - Delivery info from TGF, UNICEF, WFP, WHO
   - Buyer info from CHAI, GDF, IMC, IOM, PAHO, TGF, UNDOS, UNFPA, UNHCR, UNICEF, UNOPS, WHO
   - Publicly available data

5. Analysis & assimilation
   - Iterative review with the JSG and TF
   - Informed by discussions with the Secretariat and stakeholders

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Multiple changes in data received, 4-6 week delay
Methodology - from information gathering & assimilation to assessment & lessons learned

- Assimilate input from **4 streams** (Desk review, Survey, Interviews, Quantitative)
- Conduct analysis & identified common themes based on triangulated information
- Verified analysis with stakeholders
- Develop lessons learned
- Pressure test lessons learned with stakeholders
- Finalise

There was a wide range of views within and between stakeholder groups – no ‘single truth’ including via different data channels. Multiple data channels became core to the analysis

The CSCS Plan, approved by the Task Force, was used as main bench-marking document
**Data Sources**

**CSCS Dashboard**
- Procurement by buyers by product group
- No monthly data
- No pricing, supplier info

**Supply Portal**
- Requests, procured, WAC by month, by product item/group – *WHO only*
- No delivery info

**Ad hoc**
- Info taken form meeting minutes
- Data publicly available

**Buyers**
- Procurement volumes
- Supplier base
- Pricing
- Deliveries
- Shipments

**WFP**
- Delivery volumes by month (not value) for all

- 5 main data channels
- Data sets were fractured and had different definitions of data points
- Information on funding sources - not a part of data sets
- Assessment queries identified issues – many iterations of data sets Dec-Jan
- Some buyers used their own definition of 'essential' PPE products
- Difficult to get an overall picture
Full report contains lessons learned on most aspects of the CSCS

“What worked well, Better if”

- Overall CSCS
- Leadership
- Task Force, Consortia, Control Tower
- Demand
- Allocation
- Procurement
- Delivery
- Data
- Communication
- Review by product area: Clinical Care, Diagnostics, IPC
- Tools: Partners Platform, Supply Portal, Essential Supplies Forecasting Tool

Analysis

- Technical and QA
- Deep dive of key products (ventilators, oxygen concentrators, respirators, PPE sets, PCR tests)
- Market Typologies
- Stakeholder perspectives
- Country & Regional body views
- UN & NGO front line humanitarian staff – Duty of Care
- Funding
Context
Context

A novel virus

• The CSCS was created during an unprecedented time. The world was facing a novel pathogen, the scope and spread of which was unknown in the beginning of 2020.

• WHO declared a Public Health Emergency of International Concern on 30 January and a Global Pandemic on 11 March.

• By end March, nearly a quarter of the world’s population was under quarantine, travel was restricted, schools closed, and markets for basic supplies and key medical supplies had contracted quickly.

• By early April, more than one million cases were confirmed with over 60,000 deaths, increasing to 83 million cases and 1.8 million deaths by the end of the year.

UN Action

• The UN took early actions. By end January, WHO convened the Pandemic Supply Chain Network to alert of market constraints for Personal Protective Equipment (PPE).

• In early February WHO reached out to UN agencies and NGOs to begin discussions on coordination.

• In mid-February the WHO Director General reached out to select Heads of State and Industry CEOs calling out for help with expanding PPE manufacturing.

• A rapid response of PPE and test kits to countries, notably by WHO and UNICEF was underway.

• The UN Crisis Management Team (CMT) convened by mid-February, from which the concept and structure of the CSCS matured.
The CSCS started in March and more fully launched at the end of April

- The CSCS brought together UN agencies, donors, vendors and NGOs to improve access to critical, life-saving Covid-19 supplies via coordinated and efficient pandemic supply chains

- Two main objectives:
  - Source and allocate essential Covid-19 products for IPC (PPE), clinical support (BioMedical products) and testing (Diagnostics),
  - Deliver these products via a virtual and physical supply chain leveraging humanitarian air service transport.

- Three core strategies: Consolidated Demand and Allocation, Coordinated Purchasing and Streamlined Delivery.

The CSCS set-up:
- An interagency Task Force that provided strategy and oversight
- Three Purchasing Consortium (PPE, BioMedical, Diagnostics)
- A Control Tower that provided the operational backbone, the systems and tools, and Coordinated Delivery.
Timeline: Rapid response to CSCS set-up

January
- WHO declared COVID-19 Public Health Emergency of International Concern
- First PSCN meeting
- 30 private sector / 10 multilateral organizations

February
- Activation of UN Crisis Management Policy
- WHO alerts agencies / stakeholders of PPE shortages and need for coordination
- 30 private sector / 10 multilateral organizations

March
- Meeting of Global Supply Chain Network on PPE and coordination
- WHO DG letter to 12 CEOs re PPE supply constraints
- WHO DG letter to 23 Heads of State re PPE supply constraints
- First meeting of UN CMT, highlights supply constraints.
- Following supply chain coordination group set up in WHO
- UN Chief Executives decision to establish SCTF
- UN Humanitarian Response Plan launched

April
- WHO declared COVID-19 Global Pandemic
- WHO launched COVID-19 Partners Platform
- WFP common services established
- Report at CMT, Solidarity Fund received 190M USD pledges, 128M USD to disburse

May
- UN Solidarity Fund launched
- Report at CMT, all purchasing consortia launched
- WHO launched CSCS Supply Portal
- WHO launched COVID-19 Partners Platform

Early action, eg.
- WHO shipped nearly 500,000 sets of PPE (0.85m units) and diagnostics to 77 countries by end February
- UNICEF shipped 3.8m units to PPE to 8 countries by end February

CMT = Crisis Management Team
CSCS = COVID-19 Supply Chain System
EMS = Emergency Service Marketplace
PSCN = Pandemic Supply Chain Network
SCTF = Supply Chain Task Force
Summary Data
Headline statistics of the CSCS supply chain, 2020

$1.091 billion Covid-19 supplies for 184 countries
46% PPE, 41% Diagnostics, 13% Biomedical (of value)
1.023 million units of PPE were supplied to 169 countries
71 million diagnostics tests/kits were supplied to 161 countries
58,246 oxygen concentrators to 127 countries (mostly to LIC, LMIC)
3,462 ventilators to 84 countries (approximately half were UMIC)

64% was delivered by air. Of which approx. 60% were managed by the WFP hub and spoke system.

13 main buyers, with 69% of Covid-19 supplies procured for countries by WHO (including PAHO) and UNICEF. UNDOS and IOM procured supplies for UN and peacekeeping staff.

Of the 184 countries, 29 were low-income and received 26% of the supplies, 51 were lower-middle and received 37% of the supplies, 57 were upper-middle and received 31% of the supplies, and 47 were high-income countries and received 6% of the supplies.
### Early action by WHO & UNICEF – deliveries of PPE and Diagnostics

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$1.091 billion of Covid-19 supplies procured for countries
Plus $308 million procured for inventory

Data as of 31 December 2020
93% of stock is UNICEF’s (mainly PPE gloves and masks)

PPE
- $495m (45%) procured for 169 countries
- Of which 81% is delivered
- 19% potentially still pending

Diagnostics
- $450m (41%) procured for 161 countries
- Of which 72% is delivered
- 28% potentially still pending

Biomedical
- $146m (13%) procured for 149 countries
- Of which 70% is delivered
- 30% potentially still pending
1 billion units procured for countries via the CSCS

Data as of 31 December 2020

**PPE:**
- 1.023 million units procured for countries
- Of which 81% (825 million) are delivered
- 19% pending

**Diagnostic:**
- 71 million units procured for countries
- Of which 62% (44 million) are delivered
- 38% pending

**Biomedical:**
- 1.7 million units procured for countries
- Of which 84% (1.45 million) are delivered
- 16% pending
Supply Channels - Since the start of the SARS-CoV-2 pandemic, from which sources did you access your COVID-19 supplies?

<table>
<thead>
<tr>
<th></th>
<th>PPE</th>
<th>Biomedical</th>
<th>Diagnostics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilateral</td>
<td>9%</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>CSCS</td>
<td>50%</td>
<td>29%</td>
<td>55%</td>
</tr>
<tr>
<td>Market</td>
<td>31%</td>
<td>11%</td>
<td>22%</td>
</tr>
<tr>
<td>Other aggregators</td>
<td>11%</td>
<td>11%</td>
<td>13%</td>
</tr>
</tbody>
</table>
Procurement values supplied, regionally

Data as of 31 December 2020
Regional portions of total quantities and values received

Data as of 31 December 2020
Procurement total by buyer, excluding stock

Data as of 31 December 2020
- WHO* includes PAHO $135m
- Includes non-essential PPE
- The Global Fund (TGF) procured approx. $70m PPE via UNICEF and $13M PPE & Dx via UNDP
Estimated number of deliveries to countries by month

Notes:
- Data through November
- WFP, UNICEF, WHO and GF data: Approx 90%
- No. of WFP, Global Fund, and WHO dispatches is determined based on a count of a combination of destination country and dispatch date
- The Global Fund funded PPE would primarily appear as UNICEF and WFP deliveries
- Data does not include passenger movements

- Deliveries every month
- Rapid scale-up
- Slower in April-May
- Then steady growth
WFP Hub & Spoke Set-up for Streamlined Delivery

Overall the location and throughout of hub and spoke system made sense – in particular the new hubs created based on Covid-19 supply routes in Liege and Guangzhou.

Consolidating large volumes for efficient and timely delivery. Weak aspect was ability to pull out high priority cargo from a consolidation.

<table>
<thead>
<tr>
<th>Region</th>
<th>Guangzhou</th>
<th>Liege</th>
<th>Dubai</th>
<th>Addis Ababa</th>
<th>Kuala Lumpur</th>
<th>Brindisi</th>
<th>Panama</th>
<th>Accra</th>
<th>Johannesburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMRO</td>
<td>41,495</td>
<td>2,622</td>
<td>4,188</td>
<td>704</td>
<td>736</td>
<td>301</td>
<td></td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>AFRO</td>
<td>20,104</td>
<td>5,365</td>
<td>2,618</td>
<td>4,403</td>
<td>415</td>
<td>1,637</td>
<td>2,032</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>EURO</td>
<td>10,221</td>
<td>1,490</td>
<td>277</td>
<td>4,403</td>
<td>241</td>
<td>1,590</td>
<td>10</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>AMRO</td>
<td>11,076</td>
<td>1,144</td>
<td>216</td>
<td>436</td>
<td>1</td>
<td>2,414</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEARO</td>
<td>4,038</td>
<td>167</td>
<td>112</td>
<td>1,049</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPRO</td>
<td>3,413</td>
<td>113</td>
<td>51</td>
<td>253</td>
<td>228</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

China (Guangzhou): 42% to EMRO, 21% to AFRO and 18% to EURO
Belgium (Liege): 50% to AFRO, 24% to EMRO and 11% to AMRO
Dubai: 56% to EMRO, 35% to AFRO and 4% to EURO
Early action by WHO & UNICEF
84 countries received Dx & PPE in Feb, 104 countries in March

In addition, UN DOS supplied BioMed, Diagnostics & PPE to Peacekeeping missions in Feb & Mar

Number of countries supplied with Diagnostics & PPE

<table>
<thead>
<tr>
<th>Month</th>
<th>UNICEF</th>
<th>WHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>77</td>
<td>7</td>
</tr>
<tr>
<td>Feb</td>
<td>85</td>
<td>19</td>
</tr>
<tr>
<td>March</td>
<td>77</td>
<td>19</td>
</tr>
</tbody>
</table>

USD value of PPE and Diagnostics, millions

<table>
<thead>
<tr>
<th>Month</th>
<th>UNICEF</th>
<th>WHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>0.85</td>
<td>0.11</td>
</tr>
<tr>
<td>Feb</td>
<td>2.4</td>
<td>0.16</td>
</tr>
<tr>
<td>March</td>
<td>3.91</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Units of PPE & Diagnostics millions

<table>
<thead>
<tr>
<th>Month</th>
<th>UNICEF</th>
<th>WHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>1.44</td>
<td>0.48</td>
</tr>
<tr>
<td>Feb</td>
<td>4.42</td>
<td>1</td>
</tr>
<tr>
<td>March</td>
<td>3.91</td>
<td>1</td>
</tr>
</tbody>
</table>
184 countries reached with supplies - by buyer and product

Number of countries procured for by CSCS buyer:

- WHO: 174
- UNICEF: 138
- UNDP: 114
- UNFPA: 101
- UNHCR: 82
- The Global Fund (TGF): 72 (plus more countries were procured for via UNDP & UNICEF on TGF behalf)
- GDF: 23
- PAHO: 22
- UNOPS: 20
- IMC: 17
- CHAI: 16

Number of countries by product group:

- PPE: 16
- Diagnostics: 161
- Biomedical: 149

Data as of 31 December 2020
Countries with largest procurement value

Data as of 31 December 2020
Nigeria supply summary – example country snapshot

Data as of 31 December 2020
WHO* includes PAHO

*categories as non-essential supply
**PPE procurement summary**

Data as of 31 December 2020

WHO* includes PAHO

TGF procured approx. $70m PPE via UNICEF and $6M via UNDP

*classified as non-essential supply
Diagnostics procurement summary

Data as of 31 December 2020
WHO* includes PAHO
TGF procured approx. $6m Dx via UNDP and GF procured $5.6M via UNICEF
### Resourcing the CSCS and critical supplies

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing Plan May</td>
<td>$100 million</td>
</tr>
<tr>
<td></td>
<td><strong>$800 - 900 million</strong> (per Task Force mtg)</td>
</tr>
<tr>
<td></td>
<td><strong>$240 million</strong></td>
</tr>
<tr>
<td>Updated Plan June (GHRP2)</td>
<td>$170 million</td>
</tr>
<tr>
<td></td>
<td>$tbc million</td>
</tr>
<tr>
<td>Actual, 31 December</td>
<td>$150 million</td>
</tr>
<tr>
<td></td>
<td><strong>$1.091 billion</strong> <strong>(Excludes $308 M supplies in stock)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>$102 million</strong> <strong>(Excludes $100M Passenger &amp; Medevac)</strong></td>
</tr>
</tbody>
</table>

---

*Excludes $100M Passenger & Medevac
**Excludes $308 M supplies in stock

**Bridging facility
**Critical Supplies
**Common Services
## Key messages by stakeholder group – difficult to distil given wide range of views within and between stakeholder groups

### COUNTRY & REGIONS
- Overall the CSCS helped with access
- Rapid response was helpful
- Long lead-times after initial rapid response was a frustration. As well as communication - what supplies, when, & from whom
- Want visibility on global demand-supply situation, basis for allocation, and allocation decisions
- **Strong voice for:**
  - More regionalisation of approach – design & procurement
  - More use of local and regional suppliers
  - Involvement in design (same for ACT-A)

### UN AGENCIES
- The right concept, execution could have been better including more consultation with those experienced in humanitarian response – health
- Country level planning and requisitioning, including via the Supply Portal was a challenge
- Heavy meeting schedule and time to build during early phase of a pandemic
- Preparation measures helped with rapid response
- Concern about basis for allocation (buyer-driven rather than epi driven)
- Country level UN more positive
- UN Staff & Peacekeeping left out.
- Non-humanitarian actors were given lead roles

### NGOS
- CSCS was key to continuing their humanitarian programmes – transport of passengers and supplies
- Challenge in accessing procurement deals, contracts, and the Supply Portal.
- Gap in allocations to humanitarian needs (and staff).
- Felt like they were more of an observer than influencer. Not included from onset.

### VENDORS
- Strong support for coordination on market facing work (procurement, demand, etc) – want it to continue
- Critique that access agreements for tests resulted in longer lead-times
- WHO allocation model & strategy helped them. But implementation was a black box
- Need for clearer tech specs (PPE) and use-case (Tests) and buyers to align
- Frustrated that hub-and-spoke model not used for tests (multiple FF picking up with diff standards, priority)
- Competition between buyers was a challenge
- Overall – plan for UN coordination was good but execution not as planned
- Biomed demand didn’t materialise in full

### FOUNDATIONS, EXPERTS
- Good strategy, worked well in the beginning. Challenges in execution thereafter. But then better at the end. A ‘U’ shaped performance curve
- Comparison made with ACT-A which has more senior leadership (if pillars = consortiums)
- Decentralise and localise
- Decide to truly coordinate
- Financing: need fast capital to bridge until slow money is available
- Need strong leadership from WHO. UN agencies could have leaned-in more
- More visibility on needs, and what was being supplied, by whom.
- Access terms (pricing, etc.) – should be available to others (WB, etc.)
Current supply-demand situation of essential Covid-19 products
Current supply and demand situation for essential Covid-19 supplies

As of 31 December, 20-30% of all items procured via the CSCS in 2020 have not yet been delivered.

- PPE: 21%
- Dx: 28%
- Biomed: 31%

Long lead-times and insufficient supply for key diagnostics.

In addition, the buyers data portal indicates (in red, as of 20 December) products with potential access challenges or action pending, needing follow-up by the Control Tower and discussion between buyers.
Market situation and continued need for coordination & collaboration

Taking into account:

• A continued highly constrained market situation for Diagnostics (PCR and RDTs)
• A somewhat constrained market situation for Biomedical supplies and the need to continue the build-out of medical oxygen supply (for Covid-19 and regular health programmes)
• The large inventories of PPE

We recommend the Task Force and CMT consider continuing with an adapted form of CSCS that:

• Supports countries until the above market situations are improved (e.g., late Q2 2021)
• Negotiate price reductions for PCR and RDT for effect from 2Q
• Uses data to provide regulator updates to the TF for monitoring and decision-making
• Provide market updates that are made publicly available for countries, regions and partners
• Support the roll-out of Covid-19 vaccines and therapeutics, as needed
• Use momentum to put in place a ‘Playbook’ and other lessons learned in advance of when needed next, bringing in countries and regions in its design
Overall CSCS Lessons Learned
From interviews and surveys, the vast majority think the CSCS concept was right—and a CSCS-type of mechanism is needed for the next phase of the pandemic and for future health emergencies.

Q4.16 - In your opinion, which aspects of the CSCS could be useful to continue or adapt to ensure access to COVID-19 supplies for the response to the next wave of the SARS-CoV-2 pandemic? (select all that apply; in case you believe no aspects should be continued or adapted please leave all boxes unmarked)

<table>
<thead>
<tr>
<th>aspect</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Protective Equipment (PPE)</td>
<td></td>
</tr>
<tr>
<td>Biomedical Supplies</td>
<td></td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td></td>
</tr>
</tbody>
</table>

- The approach and mechanism needs to be developed based on learnings from the CSCS. With countries and with the WB.
- Improvements need to be made in how the CSCS works as a coordinated team.
- And how it supports countries and regional bodies—via their leadership. Consider more radical approach that shifts procurement and production to the regions.
Summary Assessment

- The CSCS established and implemented a global strategy to help with access to critical and life-saving Covid-19 supplies. It harnessed the collective capabilities of the UN and Global Health Partners to procure and deliver large volumes of supplies.

- The CSCS created inclusive and information exchange forums in the midst of at times competition between organisations/buyers. It acquired large volumes of PPE, biomedical supplies and diagnostics and maintained open corridors that delivered these essential, life-saving supplies to 184 countries in need.

- Prior to the assessment, few people if any, had an overview of the work of the CSCS (across its large breadth and depth). There were divergent stake-holders views on most aspects of the CSCS. A lack of data and an underestimation of the effort to keep people informed and coordinated contributed to the lack of shared understanding.

- It fell short in some important areas of implementation:
  - Coordinated end-to-end (E2E) value & supply chain strategy and communication
  - Allocation of scarce supply
  - Data - requirements, sharing, and use of
  - Lead-times
  - Visibility of supply situation to countries

- There was a limited operational link to the pandemic response (and at times, resistance to WHO leadership) which left space for other priorities to be the determinant for key decisions.

- The culture and atmosphere during peak constrained periods was negative at times – seemingly due to a lack of agreement on strategy and roles, and organisational interest.

- It is difficult to assess if “equitable access” was achieved, due to data gaps and no clear definition of “equitable.”

- Throughout the assessment it was clear that the majority of respondents believe that something like the CSCS was needed and should be continued in the future. Including around demand and allocation, procurement and delivery. More alignment and coordination with the WB.

- There are key lessons learned that could be incorporated to improve efficiency and impact of a future mechanism.
Overall - What worked well

**EARLY SIGNALS TO MARKETS**
- Within 2 weeks of PHEIC being called (30 Jan) WHO warned of shortages publicly & the DG sent letters to manufacturer CEO and countries
- Within 4 weeks of PHEIC (and 1 week prior to Pandemic being called), WHO projected a need of 1.3 billion PPE units over coming 9 months for LIC/LMIC – which proved to be >80% accurate

**SUITE OF PLANNING TOOLS**
- On-line information on the CSCS with contact points, reference documents, links to systems & tools, videos, etc.
- Partner Platform, Supply Portal, Essential Supplies Forecast Tool – first versions out in March
- Most comprehensive on-line tools to facilitate coordination at country level, quality forecasts, and data sharing to enable a coordinated, effective supply chain.
- But Supply Portal was the most complex and not used in full or built out – so was a point of frustration

**RAPID DEPLOYMENT OF SUPPLIES & FUNDING**
- By end February, WHO had pushed a first surge of PPE and test supplies to 47 countries on a no regrets basis. UNICEF had shipped PPE and tests to 8 countries.
- By early March, a bridge fund had been created with the Gates Foundation for rapid deployment of supplies
- By 11 March, the Solidarity Fund was launched and used to deploy urgent supplies
- By end March, >300 shipments to >110 countries.
- Fast movement by health humanitarian actors
- Preparations (post Ebola and influenza pandemic) enabled a rapid response by WHO & UNICEF

**DELIVERY**
- Cargo & passenger corridors remained opened throughout 2020, including during months with highest travel bans April-May
- Multiline cargo – WFP but also UNICEF, GF & WHO
- Game changer for NGOs

**EARLY COORDINATION & STRATEGY**
- Within 2 weeks of Pandemic being declared (11 March) the CMT approved the creation of a Supply Chain Task Force to be established
- Clear concept and strategy that focused on the right topics (demand/allocation, market/acquisition, delivery) and structure (Task Force, Control Tower, Country Portal)
- Consolidated delivery channel available for all in February (later named Solidarity flights) – used by the UN, Jack Ma Foundation, NGOs and others.

**USE OF HEALTH PROCUREMENT ASSETS OF THE UN & GLOBAL HEALTH PARTNERS**
- Multi-lane approach to procurement expanded access to the market overall
Overall - Better if

PLAYBOOK ON ROLES & A SYSTEM TO COORDINATE

Consult Countries/Regional bodies, Global Health Partners (GF, Gavi, CHAI, UNITAID, BMGF, FIND, etc.), WB/IFIs, UN agencies, NGOs on design.

Define data needs, Communication strategy, Roles

Establish a suite of tools – focus on visibility, coordination, planning & end-to-end execution (not an ERP system).

Build during ‘peace-time’

Include a plan for Duty of Care – UN and NGO front line humanitarian staff

Use current momentum

FINANCING

Coordinate with the World Bank and other IFIs.

Establish funding so volume guarantees can be made with mfrs of novel products to ensure quantities.

Consider expanding ‘bridge financing’ like mechanisms (fast capital) for buyers to access while funding materializes (slower capital).

Establish a pooled fund(s) for products in limited supply so a minimum allocation can be based on need not funding availability (e.g., automated PCR tests, antivirals, vaccines – novel and pathogen specific products)

COORDINATION OF MULTI-LANE APPROACH

To maximise impact and minimise complexity to countries & markets

Procurement & Delivery

Technical specs, QA, procurement and delivery to countries, and market-facing engagement on demand & access negotiations

DATA

Define data needs for visibility of a supply chain operation and market situations.

Define data needs beyond the CSCS – for multi-directional information and data flow.

Establish data sharing compacts and pre-build a system for data sharing given system interoperability challenges.

Use data to drive performance, manage risks, course correct, support decision making.

MARKET - TAILORED STRATEGIES TO ACCESS

The approach to access critical supplies should be tailored to markets.

Commodity (PPE), Pathogen specific (Tests, Vx), Equipment (O2, Vents)

Including:

- Preparation (strategic stockpiling)
- Procurement strategy
- Roles (see subsequent slides)

STAY PANDEMIC-RESPONSE LED

Stay Pandemic-response led to provide authority & expertise (‘final voice’, if needed) on:

- Negotiation and ensuring access terms link to procurement
- Specifications, use-case & suitability of supplies
- Demand forecast - top-down & bottom-up
- Demand generation
- Allocation of scarce supplies
- Product innovation

EXECUTION LEADERSHIP

A small ExCom of principals to provide strategic leadership and focus

Establish a fire-wall between coordination & implementation.

Use data to understand needs, monitor performance, communicate.

Maintain an overarching, end-to-end view of markets & supply chain – including demand (needs, funding) and supply (availability, price, allocation) and strategies.

Enable more senior-level engagement across partners (not just WHO) to keep strategic and agile. The right people in the right place – draw on expertise
Preparation and response strategies - based on market archetypes / typologies

**Commodity market**
- Technical Equipment
- Differentiated products

**PPE market**: Some inventory in the market, many suppliers, low barriers to market entry, off-shoring to low-cost mfg, rapid scale-up, price elasticity, inconsistent quality, product interchangeable

**Recommendations**
- Strategic inventories at local, regional, global or vendor level
- Use a consolidator to increase efficiency (due to workload with high no. of suppliers, products and countries)
- Shared quality assessment of suppliers
- Alignment on use-case, composition of sets and technical specs
- Regionalise: inventory and procurement (& production)
- Coordinate the buy – primarily for countries
- Use innovation to accelerate improved products and suitability

**Biomed market**: No inventory in the market, few suppliers, high barriers to market entry, customization, complex products (500-2500 parts), price inelasticity

**Recommendations**
- Very difficult to scale-up production at a rapid pace and difficult for countries to absorb new products
- Build out medical oxygen during peace-time (given likeliness of other respiratory disease and the lack of access to medical oxygen in LIC and LIMC)
- This will also increase local and regional technical expertise and increase production capacity
- Consider regional/global stockpiles of some products (at mfrs)

**Diagnostic market**: Could be novel / pathogen specific, few suppliers/oligopolies, high barriers to market entry, regulated products, market has a public health focus, plug & play manufacturing, a “supplier market” as they set price and decide where products go, limited product interchangeability

**Recommendations**
- Set clear technical specs and testing protocol
- Strengthen buyer influence: Leadership from pandemic leadership, volume guarantees, establish a lead buyer or at least shared strategy and organization of buyers
- Group of experts to advice Pandemic Response on allocations
In order to achieve equitable access to essential pandemic supplies, the mechanism should be adapted to different phases, working with countries, the UN, global health partners, WB/IFIs, and markets.

**BUILD THE PLAYBOOK**

To move quickly and efficiently – draw on a “playbook” (including roles, responsibilities, data needs, etc.) and preparedness measures (e.g., strategic inventory) to adapt based on the pathogen and scope of the outbreak.

Develop with countries, regions, global health partners, WB, IFIs. Incorporate lessons learned.

*Build on Ebola & Covid-19 lessons learned*

**RAPID RESPONSE**

Be prepared to provide a rapid response cushion for 2-3 months via a combination of regional, country and global actions

Adapt the Playbook.

*Build on Ebola & Covid-19 lessons learned*

**MAXIMISE ACCESS**

Provide leadership for a global response that empowers regions, countries and partners by setting goals, coordinating, and providing visibility.

Continue with main architecture: Pandemic Lead, Purchasing Consortiums, Streamlined Delivery. With new regional, country lens and market typology based

**Keep pandemic led:** Allocations of scarce quantities, specifications, use-case, and negotiations with markets at key moments

**Country needs**

Build on the partner platform and other existing platforms

**Coordinated Supply Chains, including ICL**

Build on the concept of the supply portal and PIC/S

**Visibility on global markets**

Build on global market dialogues started for HPV, etc.
**Develop 'Playbook’ with countries, regions, partners and private sector**

<table>
<thead>
<tr>
<th>OBJECTIVES &amp; CONTEXT</th>
<th>RAPID RESPONSE (2-3 MONTHS)</th>
<th>MAXIMISE ACCESS (3-9 MONTHS ++)</th>
<th>ROLES</th>
<th>DATA &amp; INFO SHARING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set the objectives of the preparations around the phases of a response: Rapid Response Phase &amp; Maximize Access Phase and by main areas of work: Market-facing work &amp; Supply chains</td>
<td>Establish a plan for 2-3 months of essential supplies via a combination of inventory and rapid procurement.</td>
<td>Develop strategies to maximize access to key products (defined in essential package), reflecting market typology.</td>
<td>Based on strategies, define the architecture with key roles around Demand, Products, Purchasing, Allocation, Delivery, Data &amp; Platforms, Coordination, Communication, Oversight &amp; Strategy.</td>
<td>Define data needs for visibility of a supply chain operation and market situations. For operational &amp; strategic needs.</td>
</tr>
<tr>
<td>List priority diseases, projected to be at higher risk of evolving pandemic</td>
<td>Establish strategic inventory – via a combination of local, regional, global vendors, held by key partners. Estimate demand quantity for first cushion. Consider inventory for Duty of Care.</td>
<td>Identify actions needing to be taken in advance</td>
<td>Assign roles to organizations. Rapid response should be agreed upfront but roles for Maximize Access phase can be reviewed and confirmed (during the RR phase of a pandemic).</td>
<td>Define data needs beyond the CSCS – for multidirectional information and data flow.</td>
</tr>
<tr>
<td>Establish packages of essential supplies &amp; draft use-case, specs, QA/QC requirements. Standard descriptions.</td>
<td>Establish rapid procurement arrangements with key vendors (a combination of regional and global mfrs) – that define key access terms for country, UN, NGO, Foundation access. Buyers to be indicated but confirmed at pandemic onset. Refer to market access strategy.</td>
<td>Develop operating principles (e.g., Access terms are linked to procurement, shared QA/QC, etc.)</td>
<td>Consider establishing senior experts to be on stand-by to fill key roles.</td>
<td>Create standard material descriptions and coding.</td>
</tr>
<tr>
<td></td>
<td>Agree on rapid delivery mechanism – WFP &amp; buyers.</td>
<td>FINANCE</td>
<td>DATA &amp; INFO SHARING</td>
<td>Establish data sharing compacts. Build a data sharing platform given system interoperability challenges.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Develop dashboards and standard report</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>Consider partnering with data-sharing experts to develop a new approach.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Establish a platform for information sharing on preparations and markets. that can be further activated at onset. Build on existing forums developed for Covid-19.</td>
</tr>
</tbody>
</table>
Rapid Response

Be prepared to provide a rapid response cushion for 2-3 months via a combination of regional, country and global actions

- Build on existing system of humanitarian and regional actors
- Establish strategic inventory (e.g., PPE: countries: 1 month each at country, regional and global levels for priority disease)
- Maintain open dialogue with key industries during peace-time
- Fast pace risk capital
- Build out of medical oxygen at country level
- Review Playbook, confirm roles, etc.
- Consider early volume guarantees of novel product to secure quantities

Maximise Access

Provide leadership for a global response that empowers regions, countries and partners by setting goals and providing visibility. Continue with main CSCS architecture. Keep Pandemic Led.

- Requires data sharing compacts
- Leveraging expertise and assets of partners, regions and countries
- Strategic insight and action
- Allocation
- The freedom of a tight strategy
- Financing: volume guarantees, bridge, pooled funds

Country needs
Transparency, collaboration, and efficiency for countries, UN agencies, implementing partners, and donors in their pandemic response.

- Supply needs
- Allocation
- Funding
- Partner roles

Coordinated supply chains
Visibility and coordination of various supply chain actors from requisition to delivery

- Data interfaces with supply chain actors (so not a parallel ERP system) – a data compact
- Visibility will help align product sources, shipment planning
- Supplement with shared inspections
- Consider in-country logistics

Pandemic global markets
Transparency on global market situations for essential supplies & transport

- On-line & available for all buyers, countries, regions
- Recommended actions
- Track demand, major deals, global estimated supply, pricing issues, regional or market specific issues (e.g., raw materials)
- Update on a regular basis with frequency coinciding with phase of response
- Can inform allocations

Build on the partner platform
Build on the concept of the supply portal and PICS

Regionalise (AMSP, PAHO, etc) and localise

Build on global market dialogues
Thank you.