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# Global Public-Private Supply Chain for Pandemic Preparedness and Response



# The Threat

**360 million**



people could be killed  
in the first year of a  
global pandemic

**10% of GDP**



could be lost globally  
in the event of  
a pandemic

**USD 54 billion**



The cost of the  
SARS outbreak in  
East Asia in 2003

# Logistics & Supplies in Health Crises



- Inadequate supply chain preparedness and response leads to **loss of lives** and **waste of scant financial resources**.
- Supply chain and logistics account for **more than 50% of the costs** of pandemic response.
- **Platforms** that facilitate public-private **information sharing** are fundamental to successful response.



# Public-Private Pandemic Supply Chain Initiative



- **Ebola/Davos 2015 follow-up:**

- More attention to supply chain and logistics
- Better coordinated engagement of private sector

- **Public-private initiative**

Current partners: WFP, WHO, UNICEF, OCHA, FAO, World Bank, Henry Schein, UPS, NEC, BD, J&J, CDC, GS1, University of Minnesota and WEF.

- **Growing body of knowledge**

Discussed in eight teleconference calls and six face-to-face meetings

# Top 60 Pandemic Response Items



## Pharmaceutical

- Antitoxin (BAT - Botulism Antitoxin Heptavalent)
- Essential drugs/consumables to support general health facilities: Interagency Emergency Health Kit
- Infusion (Ringer's lactate - litre)
- Oral Rehydration Salts (ORS)
- ELISA and Reverse Transcriptase PCR laboratory equipment and reagents
- Packaging transport substance, class 6.2 (infectious substances)
- Rapid diagnostic testing kit for malaria
- Rapid diagnostic test for dengue and chikungunya
- Rapid diagnostic test kit for cholera
- Rapid test for Zaire ebolavirus
- Sample collection tubes
- Swabs for buccal sample collection
- Swabs for nasal sample collection
- Alcohol-based hand rub
- NaDCC granules
- NaDCC tablets

## Health equipment

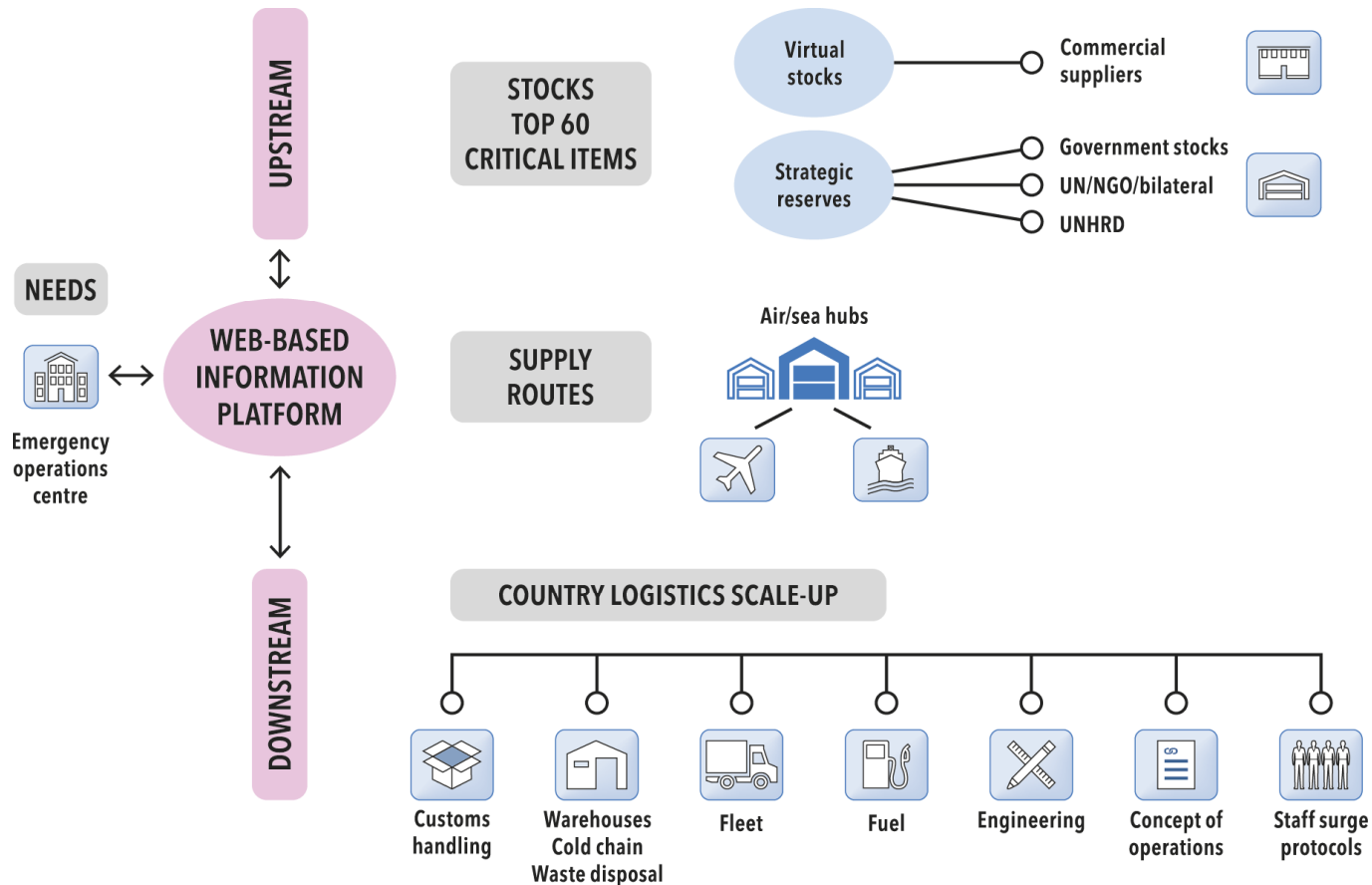
- Cholera beds
- Essential hospital and medical equipment to support health facilities (beds, examination table, foldable stretcher, i-STAT system, isometer, stethoscope, sphygmomanometer)
- Incinerators for contaminated waste
- Medical triage/treatment/isolation facilities
- Refrigerated containers for cold chain purpose (immunization campaign)
- Dialysis equipment
- Infrared thermometer
- Laryngoscope, adult, child set
- Mobile basic diagnostic X-ray system
- Neonatal/adult intensive care ventilator
- Oxygen concentrators
- Oxygen face mask with reservoir bag, disposable
- Pulse oximeter, portable
- Suction system
- PPE sets for haemorrhagic fever: gloves, masks, N95 respirators, gowns, face shields, goggles, scrubs
- PPE sets for airborne diseases: coveralls, hoods, gowns, aprons, gloves, boots
- Bag, disposable for biohazardous waste (PPE and clinical waste without sharps)
- Bed nets
- Body bags (suitable for burial or cremation)
- Infusion giving set
- Repellent (individual set)
- Safety box / sharps container (must be labelled biohazard)
- Set for haemorrhagic fever: hand gel and soap for targeted population
- Set for airborne diseases: Mask, gel and soap for targeted population
- Syringes: 0.5 ml autodestruct (AD) and 5 ml reuse prevention (RUP)

## Logistics, water and sanitation


- Ambulance with air isolation for transport of contagious patients
- Water tank truck and/or water trailer for potable water
- Chemicals: malathion, pyrethroid (Permethrin, Deltamethrin)
- Drinking water quality control module
- Fogging machine
- Rodent repellent treatment
- Ultra-low volume sprayers
- Sprayer, hand, disinfectant, portable, small
- Sprayer, backpack
- Goods:\*
  - Storage units
  - Treatment units
  - Vehicles (trucks, cars, ambulances, motorbikes)
  - Communications equipment
  - Generators
  - Heavy handling equipment
  - Fuel, incinerators, WatSan
- Services:\*
  - Transport and handling (passengers and cargo)
  - Construction/engineering

*\*additional to critical items*

# Global Pandemic Supply Chain - Framework



# Estimating the Needs


Welcome Wims\zerbonia@who.int! [ Log Off ]

Home | My Scenarios | Estimating W&V | Converting Units | Glossary

**1** Select Model
**2** Parameters
**3** Assumptions
**4** Results

Working with: H1N1 2,000,000 Expec. Patients

**Hospital Stay Length** ?

In-Patients - Non-critical  days

Inpatients - Needing Oxygen  days

Inpatients - Needing Ventilation  days

**Freight Charges** ?

Air  USD/kg

Sea  USD/kg

Road  USD/kg

**Dimensional Weight Factors** ?

Air  cm<sup>3</sup>/kg

Sea  cm<sup>3</sup>/kg

Road  cm<sup>3</sup>/kg

**Items** ?

Name ↓

- EYE VISOR, safety glasses, disposable
- GEL for hand disinfection without water, Gel, 100 ml
- GLOVE, SURGICAL, size 7, sterile
- GOWN, SURGICAL, size L, disposable, sterile
- MASK, OXYGEN, ADULT, w/conn.tube+ nose clip+ neck band, dis.
- MASK, RESPIRATORY PROTECTION, N95/FFP2, w/o valve, single use
- MASK, SURGICAL, standard size, type II, tie-on, single use
- OSELTAMIVIR PHOSPHATE, 75mg, caps
- OXYGEN, medical, cylinder size M24/E, 680 ltr
- PARACETAMOL (acetaminophen), 500 mg
- RINGER LACTATE, 1000ml

**Item Details** ?

**Item Name** MASK, RESPIRATORY PROTECTION, N95/FFP2, w/o valve, single use

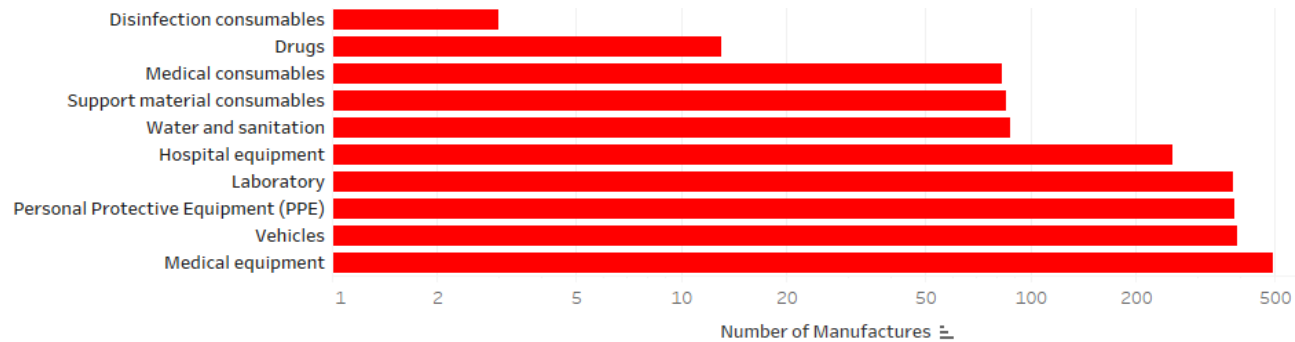
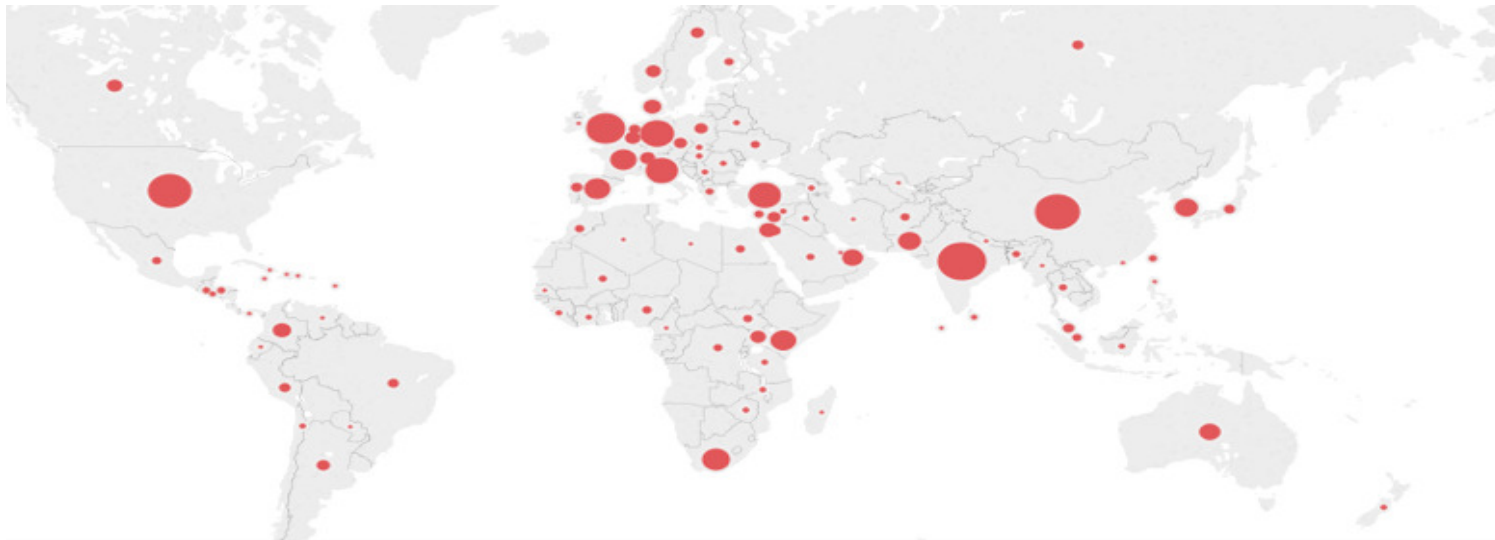
**Unit**       **Shipping Volume**  cm<sup>3</sup>

**Cost per unit (USD)**       **Shipping Weight**  kg

Patient category	Units	Length of treatment	Proportion
<input type="checkbox"/> Fatalities	Total Units <input type="text"/>		<input type="text"/> %
<input type="checkbox"/> Outpatients	<input type="text"/> Units per day	<input type="text"/> days	<input type="text"/> %
<input type="checkbox"/> All Inpatients	<input type="text"/> Units per day	<input type="text"/> days	<input type="text"/> %
<input type="checkbox"/> In-Patients - Non-critical	<input type="text"/> Units per day	<input type="text"/> Hospital Stay <input type="text" value="3"/> days	<input type="text"/> %
<input checked="" type="checkbox"/> Inpatients - Needing Oxygen	<input type="text"/> Units per day <input type="text" value="2"/>	<input type="text"/> Hospital Stay <input type="text" value="4"/> days	<input type="text" value="100"/> %
<input checked="" type="checkbox"/> Inpatients - Needing Ventilation	<input type="text"/> Units per day <input type="text" value="15"/>	<input type="text"/> Hospital Stay <input type="text" value="7"/> days	<input type="text" value="100"/> %
<input type="checkbox"/> Secondary Bacterial Pneumonia	<input type="text"/> Units per day	<input type="text"/> days	<input type="text"/> %

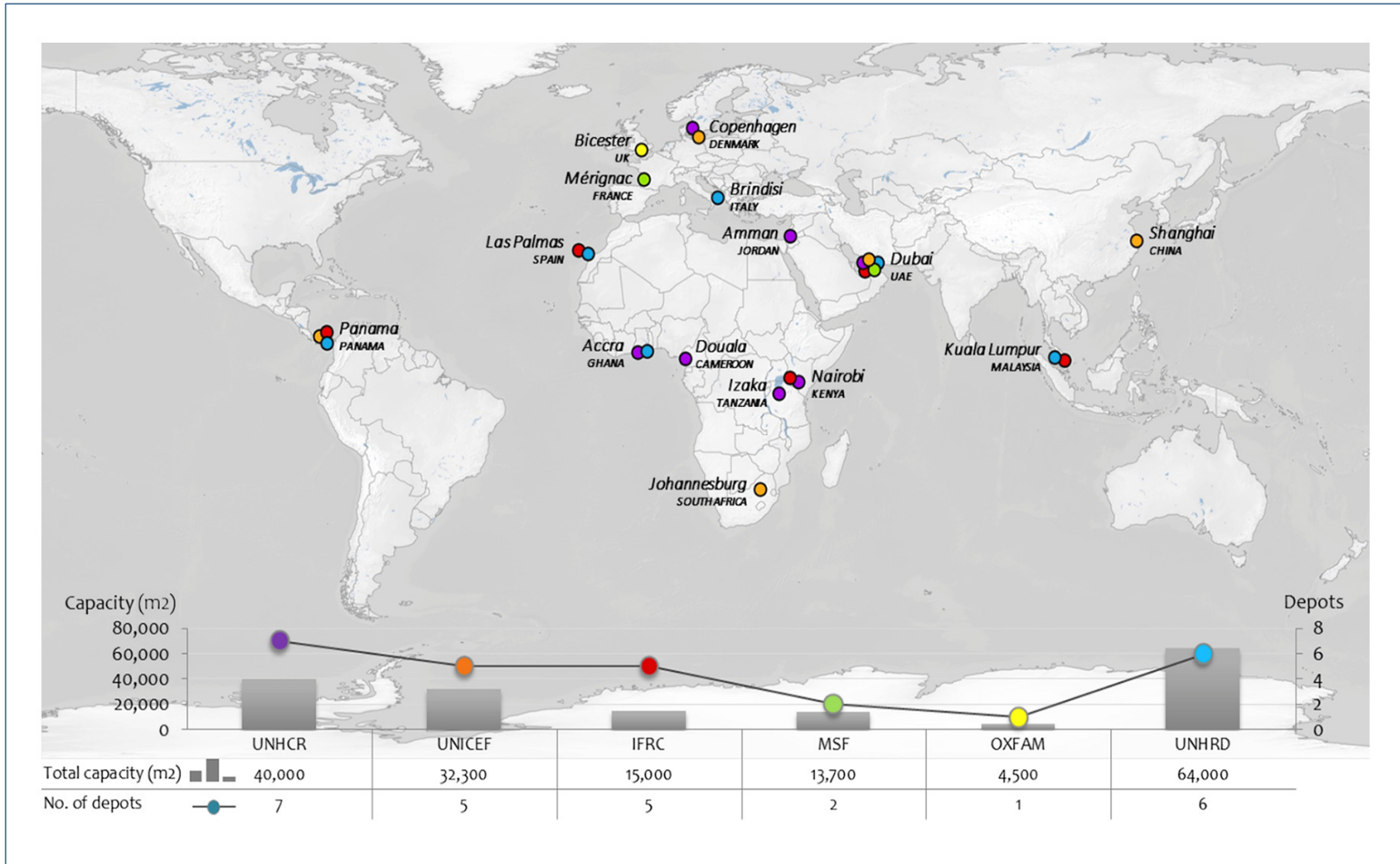


# Manufacturers of Essential Pandemic Response Items by location and by category

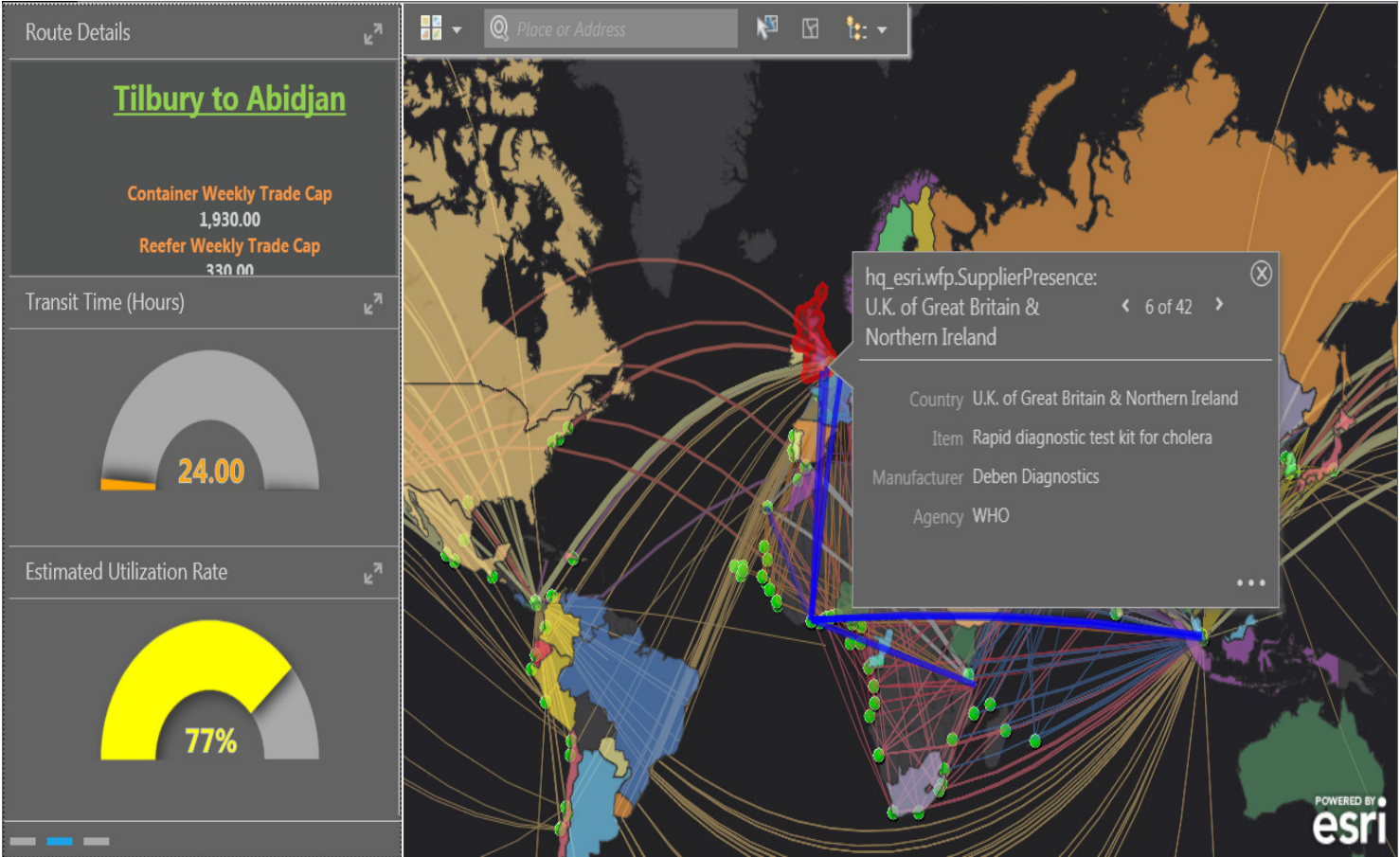


Source: UNGM

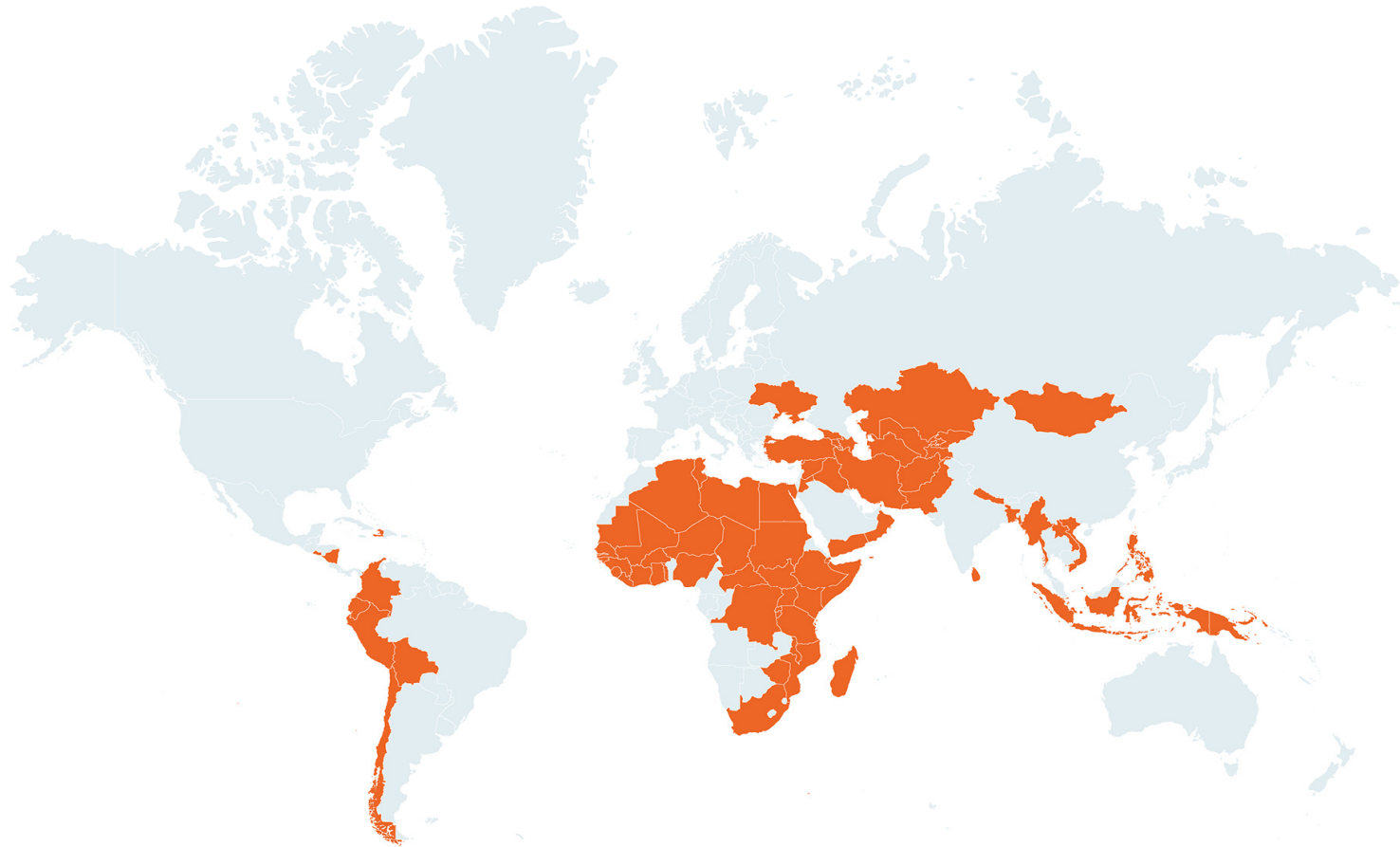
# Strategic Reserves



# Upstream Supply Route Dashboard

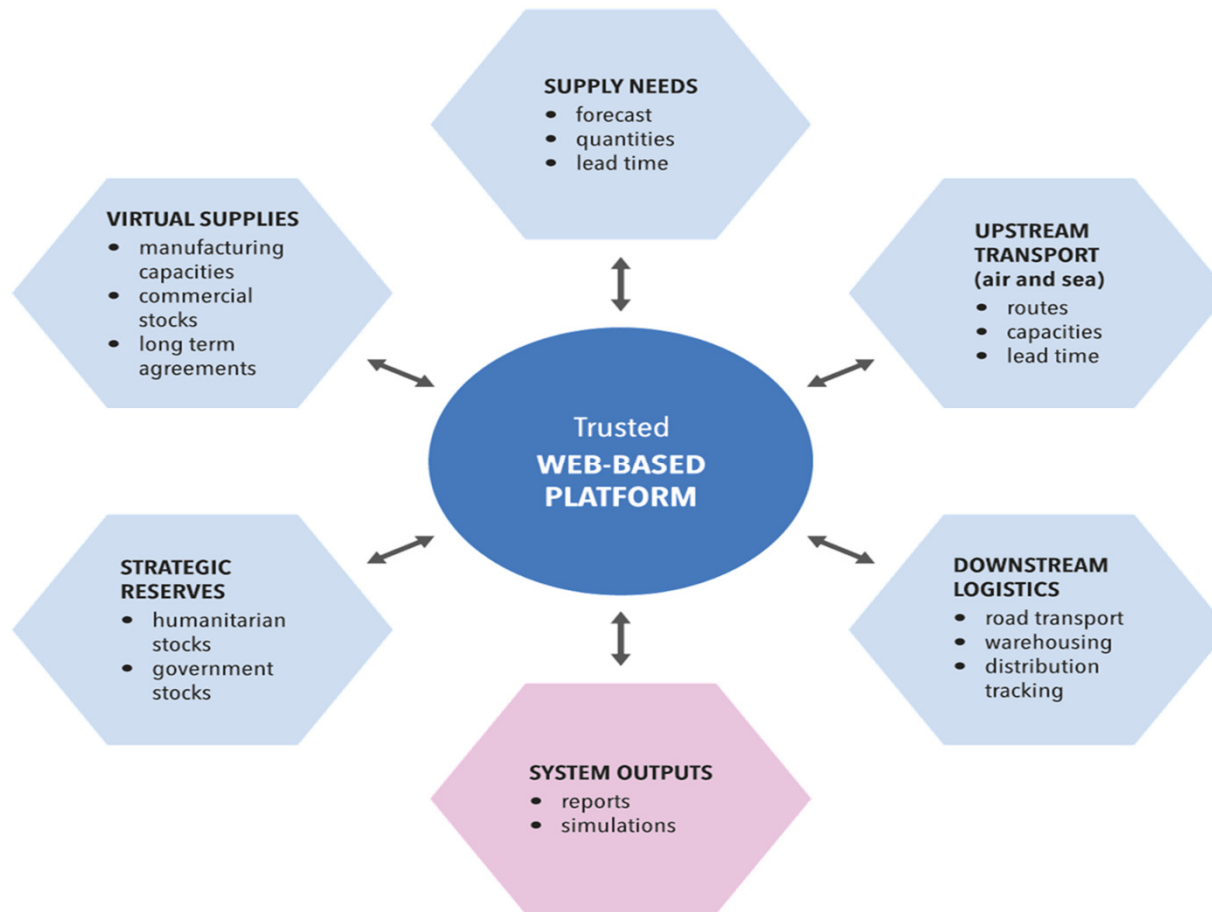


# Logistics Capacity Assessments



❖ 100 % overlap with GAVI countries

# Concept: Information Platform



# The PSC Network and GS1 Standards

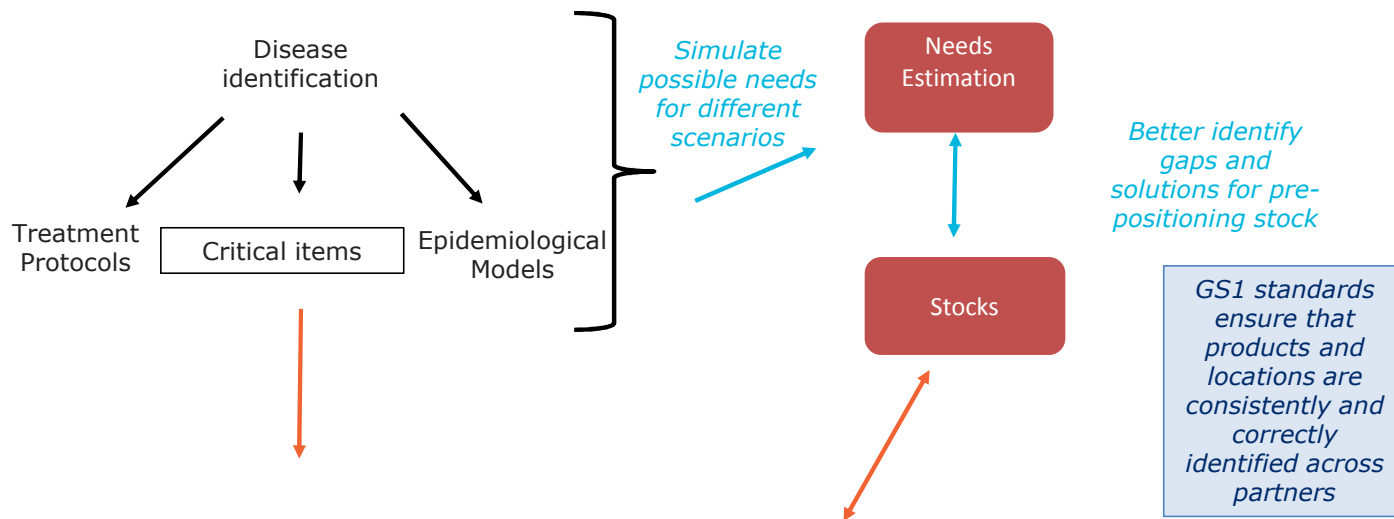


- PSC = an innovative approach to engage and co-ordinate the broad range of stakeholders along the supply chain.
- "Standards" are a pre-condition for efficient co-ordination.
- PSC = first time that standards are used to facilitate more effective co-ordination in preparedness and response.

# Pandemic Supply Chain Preparedness



## GS1 identifiers and Master Data are an integral part of preparedness



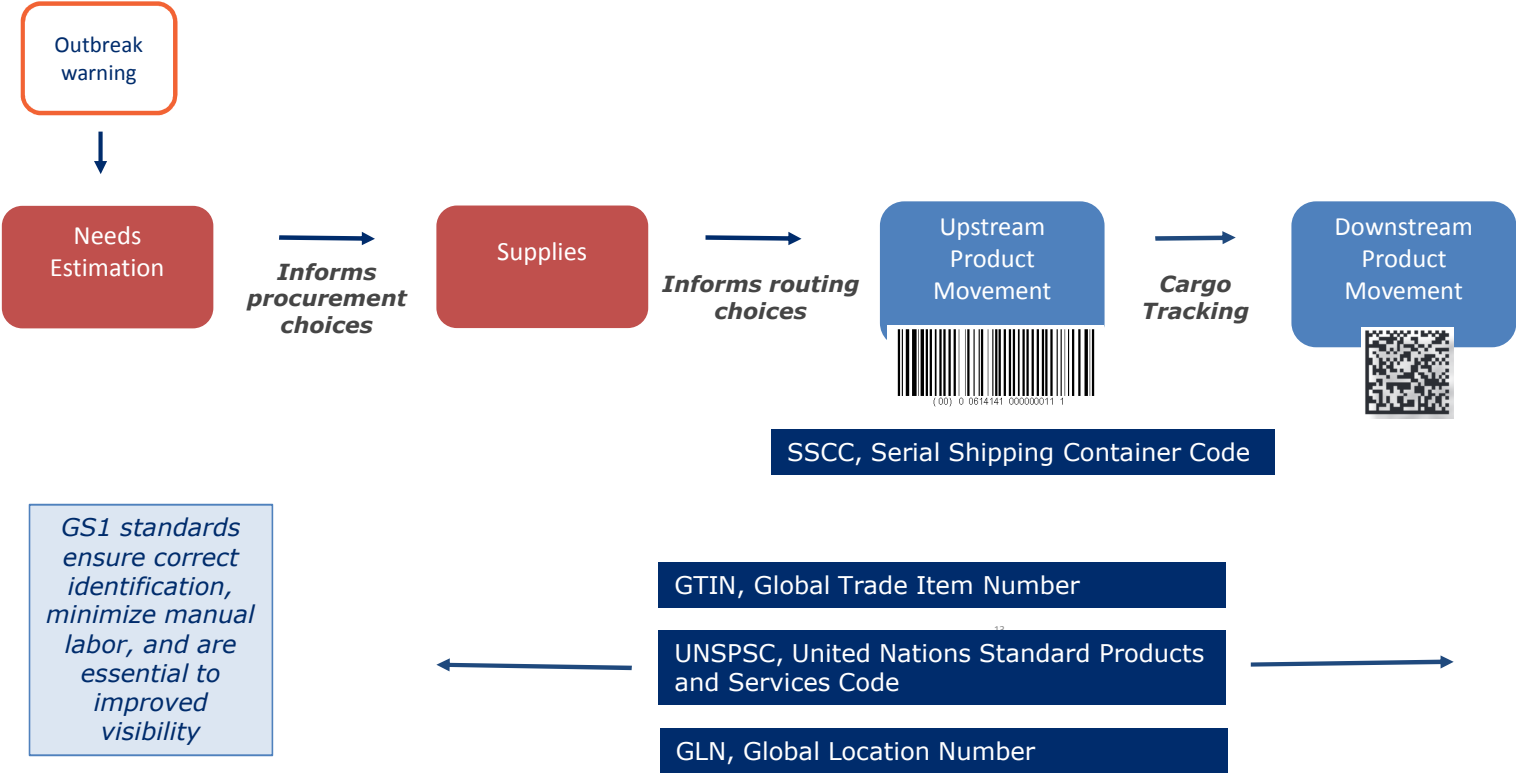
### Master Data

GTIN, Global Trade Item Number	Granular product identification
UNSPSC, United Nations Standard Products and Services Code	Product identification based on functional similarity
GLN, Global Location Number	Granular entity and location identification

# Pandemic Supply Chain Response



**GS1 standards will support increased speed, data accuracy and visibility**





# Questions?

