



Health Supply Chains in an Ebola Context: Assessment and Risk Mitigation

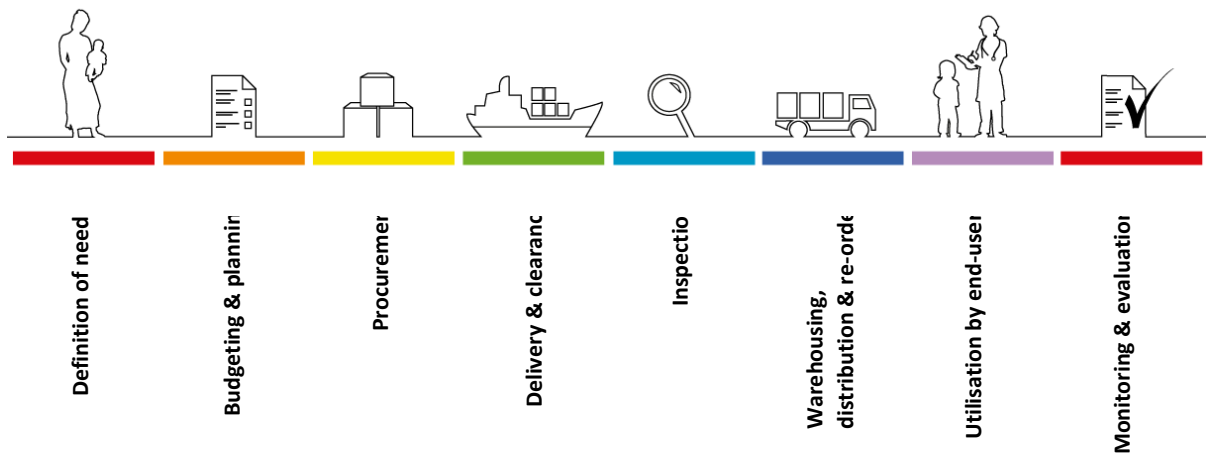
WORKING DRAFT

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This is a working draft of an internal guideline that aims to support the assessment of key risks to health supply chains in an Ebola context, and ideas for mitigation. It is shared publicly in the hope that we can receive useful inputs from all concerned parties.

It will remain a working document to be updated with practical learning and changing contexts.

The following changes have been made since the last updates on 29.08.14 and 05.09.14:

Added Annex 1 – List of essential equipment and supplies for preparedness

Updated Annex 2a – List of essential equipment and supplies for response

Updated Annex 2b – List of essential MNC supplies for response

Added Annex 3a – List of essential equipment and supplies for disrupted PHC systems

Added Annex 3b - List of essential MNC supplies for disrupted PHC systems

Added Annex 9 – ASLM Ebola Resource Page

Added Annex 10 – MSF note on use of Household Kits

Please send any input to **Musonda Kasonde**, Supply Chain Capacity Development Manager, UNICEF Supply Division, Copenhagen: mkasonde@unicef.org

ASSESSING AND MITIGATING KEY RISKS TO HEALTH SUPPLY CHAINS IN AN EBOLA CONTEXT

This assessment tool discusses key risks that national and sub-national health supply chains are facing in regard to Ebola and the relevant disease control strategies. The assessment is based on three phases and organized by supply chain segment (see supply chain graphic on previous page).

Under each supply segment, there is guidance on areas to assess and actions to take. Assessments of many of the segments may have already be done, so this is intended to trigger a review, as well as suggesting mitigation for segments not already assessed.

Ebola preparedness assessment, Phase 0

This pre-assessment should be done by countries still unaffected by the Ebola Virus Disease (EVD) but which need to put in place contingency plans to enable a rapid response to any threats. The basic list of key EVD supplies that countries should consider stockpiling for an immediate response is stated in Annex 1.

Ebola-focused assessment, Phase 1 (e.g. first 30-60 days)

The first assessment would be of the supply chains needed to procure and distribute supplies directly related to EVD prevention, control and care. The sources of these supplies would normally be national stocks, supplemented by supplies brought in by WHO, UNICEF, NGOs and others.

The key to Phase 1 is speed, which should be the primary performance factor, while noting that minimum quality standards for products must be maintained. The basic list of key EVD supplies is stated in Annex 2, based on guidance from WHO, but these should be assessed in consultation with the national strategy. There is a risk that it will become more difficult to move supplies into quarantined/isolated areas as the amount of supplies being procured and moved increases.

Ebola-impacted assessment, Phase 2 (e.g. 30 days plus)

While the first phase of the response will be about ensuring access to EVD supplies, there is a risk that decreases in movements in and out of the country (due to quarantine or the suspension activities by freight carriers) could restrict the flow of health supplies coming into these countries. This becomes more acute as local stocks for basic health products are exhausted to support EVD activities.

The assessment and mitigation proposals should include health supply chains more generally - to prevent stock-outs of essential supplies for child and maternal health. A list of supplies that may be at risk is stated in Annex 3, but should be assessed in consultation with the national strategy.



FORECASTING AND PLANNING

- **Identify the additional needs – Phase 1:**
 - Has a supply plan been established for Ebola-related supplies: masks, gloves, intravenous (IV) fluids, injectable glucose, Calcium Hypochlorite (HTH), Oral Rehydration Salts (ORS), etc.?
 - Do forecasts incorporate the increased demand, taking into account different scenarios?
 - Has the revised forecast been communicated to Supply Division (SD) and the Regional Office (RO)?
 - Is a national supply plan available?
 - Is support needed for quantifying the needs?
 - Has the RO been contacted on availability of potential emergency stockpiles in the regional hubs (Accra and Douala)?
 - Do we know what government and other partners (e.g. WHO), are planning for?
 - Co-ordination with other leading stakeholders is crucial for an effective response.

- **Identify the additional needs – Phase 2:**
 - Has the forecast for other essential supplies been updated in this context?
 - Has consideration been given to ordering these supplies within the first month of Ebola to prevent stock-outs of basic, essential health supplies?

- It is essential for overall supply chain planning to:
 - identify the quickest access (sourcing) to identified supplies in the plan, and to also include place of origin, readiness to ship and estimated transit times;
 - provide information on the ports of entry and delivery routes (including an assessment of their vulnerability, e.g. if certain airports or border crossings are closed, or may close);
 - list the customs requirements and timelines for customs clearance;
 - include contact details of key ministries, customs offices, local suppliers and other relevant local stakeholders in the plan;
 - identify the storage and transportation capacity needed for in-country logistics and consider the long-term arrangements (LTAs) that are in place.



PROCUREMENT

- **Procurement method:** Direct procurement through government procurement process vs procurement services vs programme procurement via a sales order.
 - What are the challenges and opportunities associated with each method?
 - Taking into account the lead-time, which one is the most realistic to execute?
- **Mobilising resources:**
 - Are sufficient resources available for procuring the additional supplies?
 - What are the additional funding sources?
 - How much money has been reallocated from regular programmes to emergency response?
 - Are there any requirements to access donor funding?
 - Does the re-allocation of resources take away from other programmes?
 - What is the plan for replenishment?

Opportunity:

 - Ensure that the supply plan is costed and that additional funding requirements are communicated to the programme.
 - Identify funding gaps and explore options with SD for example, reprogramming funds or advanced funding options such as bridge financing.
 - Consider the potential impact on other programmes and plan for replenishment.
- **Procurement lead times:** There is a need to avoid delays due to long lead-times and government public procurement processes.

Opportunity:

 - Consult with SD as soon as a supply plan is available to confirm lead-times.
 - Appreciate and encourage government counterparts to apply emergency procurement procedures which are generally accommodated within public procurement regulations.
- **International transport:** Disruptions due to flight cancellations or limitations at ports of entry.

Opportunity:

 - Assess the likelihood of such a situation and work with SD on alternative routes, modes of transport or charter planes.
 - Explore opportunities for combining shipments to the region with other partners, e.g. communication with the Global Logistics Cluster (GLC).

- **Customs clearance:** Need to alert clearing agents and engage customs officials in advance so that items are not held up at ports that may already be overwhelmed due to restrictions.

Opportunity:

- Engage with senior management in the customs authority, with an official note from UNICEF explaining the situation and requesting their support to facilitate speedy clearance of goods.
 - Advocate through the MoH to the Ministry of Finance for a fast clearance process. Note: There is an Office for the Co-ordination of Humanitarian Affairs (OCHA) agreement with some governments which can be activated in support of priority customs clearance for humanitarian emergency supplies.
 - A high level government decree may also help to waive customs restrictions.
- **Local markets:** The high demand will cause shortages of locally procured supplies, including in the private sector pharmacies (which are also affected by the closed borders and limited entry for cargo). Cost of products may be elevated due to the high demand. There may be impact on quality and a risk of counterfeit products due to the market situation.

Opportunity:

- Explore options for regional procurement and sourcing supplies from neighbouring countries.
- Liaise with other Country Offices (COs) to share supplier information within the region and ensure that LTAs are available (e.g. open an LTA in VISION) accordingly.



WAREHOUSING, INVENTORY MANAGEMENT AND DISTRIBUTION

- **Storage capacity:** Is there warehouse capacity at all levels to effectively store products that arrive?
 - Existing warehouse facilities may need to be relocated and alternative storage assessed.
 - Growing demand may have an impact on costs, particularly where there are no LTAs in place. Is there emergency stock available in the region? (Annex 5, Inventory Reports).

Opportunity:

- Conduct a capacity assessment following the quantification exercise if needed.
- Identify potential storage areas e.g. government buildings which could be turned into warehouses or shipping containers that could be used for storage.
- Consider renting warehouse space from the private sector. Assess partners' (GLC, MoH) storage capacity.
- Confirm whether there is emergency stock available in the region, (e.g. in the regional hubs in Accra and Douala).

- **Transportation:** Noting that one of the key characteristics of the EVD outbreak is that it is in high density urban areas (not just remote areas), inland transporters may be unwilling to travel to affected areas. Those transporters who are willing may then raise their prices knowing that options are limited. Quarantined areas may restrict access. It

Opportunity:

- Conduct a rapid market assessment; review the list of approved freight forwarders/transporters
- Understand the perspective of transporters before the need arises, and plan/budget accordingly.
- Review local LTAs with transporters.
- Share/solicit lists of transporters with/from other UN agencies and government partners. Explore other options such as state owned transporters, donors, military, mining companies, small scale local transporters and modes of transport.

- **Data for decision making:** Reduced reporting on already weak reporting systems means even less data is available to inform the response and determine the requirement. However, often there is felt to be no time or motivation for reporting with so many other priorities.

Opportunity:

- Establish an inter-agency in-country co-ordination mechanism that focusses on supplies, and work with government and partners to share information and co-ordinate responses.
- Make use of the Supply Monitoring Dashboards (Annex 4).

- **Quarantine:** If part of the EVD response strategy includes quarantine of geographical areas (e.g., in-country or at national borders) or where there is to be restricted movement, this is likely to impact the supply chain for Ebola related supplies and other health supplies. It will also likely impact local prices.

Opportunity:

- Review the impact of quarantine on movements, including the identification of companies and supply chain staff willing to go to quarantined areas.

- Distribution activities may need to be less frequent and therefore larger in volume.
- **Other programme supplies:** As well as supplies to manage Ebola, other essential supplies, including medicines, vaccines, antiretrovirals (ARVs) and other health supplies will be affected (see above) potentially leading to increased shortages. While this may not seem to be a priority during the acute phase of EVD, there is likely to be a negative impact on the availability of these products in the mid to long term.

Opportunity:

- Review these commodities alongside the Ebola supplies and lessen the broader impact wherever possible by e.g. bundling supplies.
- Make use of the Supply Monitoring Dashboards (Annex 4).
- **Waste Management:** Appropriate waste handling is critical to break environmental transmission lines of the virus.
 - **Solid waste:** used disposable personal protective equipment (PPE), non-sharps and other infectious waste need to be collected in leak-proof waste bags in covered waste bins for incineration.
 - **Sharps waste disposal:** in spite of the WHO recommendation (and universal precautions) to limit all invasive procedures performed on Ebola suspected/confirmed cases and to substitute it with oral alternatives, the use of sharp objects cannot be avoided in clinical settings as an intervention for managing Ebola or other diseases. There is a need to ensure the availability of puncture-resistant/leak-proof sealed disposable containers for sharp medical waste (syringe, needles, scalpel blades, cannula, and other sharps) for collection before incineration.
 - **Cadavers and human remains:** These need to be contained in sealed, leak-proof bags before burial.
 - **Biological infectious waste** such as placentas and biopsy samples should be buried separately.
 - **Infectious excretes:** all other liquid waste (faeces, vomit, urine, etc.) must be disposed of in patient latrines.

Opportunity:

- Liaise with programmes to check whether there are any additional requirements for supplies and/or equipment to facilitate the safe disposal of waste.

HUMAN RESOURCES

- **Absences:** Health/logistics personnel also fear falling ill and may be staying away from work in affected areas and not mobilising logistics on the ground so supplies do not move and/or are misused and/or are not secured.

Opportunity:

- Offices should make sure that logistics personnel, transporters, and other supply chain operatives are targeted with Communication for Development (C4D) communications.

- **Capacity:** Need to clarify roles and responsibilities for supply and logistics functions. It is likely that there will be increases in volumes being procured and moved and an increased role for UNICEF vis-à-vis the coordination of NGOs.

Opportunity:

- Develop terms of reference (ToRs) to facilitate the urgent deployment of surge capacity if needed.
- Plan for business continuity in the event of evacuation.
- Identify lists of surge response capacity to support in-country logistics and procurement capacity in respective countries.



UTILISATION/OTHER IMPACT

- **Vaccines:** Neglect of other life threatening illnesses and interventions, e.g. immunization programmes, because of competing priorities. Could unused vaccines be at risk?

Opportunity:

- Liaise with the immunization programme on the status of vaccine stocks.

- **Nutrition:** Impact due to break down in the food supply chain with transporters not willing to travel to affected areas, and also with the reduced food imports. It is reported that markets have been shut. Could this affect ready-to-use therapeutic food (RUTF) supplies?

Opportunity:

- Liaise with the nutrition programme on status.

- **Maternal, New-born and Child Health (MNCH):** Mothers may not want to travel to health centres with their healthy children for immunization or integrated campaigns for fear of contracting the virus, increasing the risk of other preventable diseases. Fear amongst health workers (HWs) could mean children with diseases that present similar symptoms to Ebola e.g. malaria, pneumonia, etc., are not attended to. Could this increase demand for essential medicines, Artemisinin-based Combination Therapy (ACT), etc.?

Opportunity:

- Liaise with programme and partners to anticipate potential requirements.

- **C4D:** Distribution of communication materials for public information campaigns may also be affected due to transportation issues and unwillingness of HWs to reach out to the community.

Opportunity:

- Consider bundling with other essential supplies.

- **Long-Lasting Insecticidal Nets (LLINs):** There may be a negative impact on planned campaigns; e.g. it may be a challenge to conduct a full national campaign.

Opportunity:

- Adapt the distribution plan based on the country situation.

- **Water, Sanitation and Hygiene (WASH):** Linked to the health supply chain, is the necessity to make sure that adequate hygiene is practiced. This means having a chlorine supply chain for cleaning. There might be a run on this product at the national level (even in countries with local production).

Opportunity:

- Work with MoH and partners to explore alternative sources of supply and distribution mechanisms.

- **Education:** Most schools have been closed or children may drop out from school.

- **Economic:** Businesses in the community are affected by the general disruption in the supply chain making other essential products unavailable or unaffordable, e.g. sanitation products like soap, and also causing reduced income in many families which may affect nutrition, education and the ability to access health services for Ebola and other regular illnesses.

SPECIFIC CONCERNS / SECONDARY EFFECTS ON VACCINES/ VACCINATION

- Reduced ability to conduct vaccine introductions and introduction evaluations as planned, impact on coverage and in particular challenges with equity for the Ebola affected areas.
Opportunity:
 - Programme should monitor various parameters related to introductions and coverage.
- **Alert:** Potential impact on country ability to prioritise compliance with co-financing requirements, and potential defaulting towards GAVI, the Vaccine Alliance as a result.
Opportunity:
 - Countries are recommended to alert the SD Vaccine Centre (VC), if possible.
- **Alert:** Reduced ability of countries to stay focused on surveillance and adverse events. This could be also be underreported for new vaccines, and the strain on resources could increase the risks of mistakes leading to Adverse Effects Following Immunization (AEFIs).
- **Alert:** Suspicion and misinformation on immunization and health services in general, could erode trust in vaccines and result in set-backs re coverage and demand.
- **Alert:** In particular, the frontier use of untested vaccines can erode confidence in vaccine quality that can have grave effects on other vaccines, such as what happened after the pandemic flu use (and narcolepsy cases, the MMR 'autism' misinformation, and previous unethical – non-consensual testing of meningitis vaccines by companies in areas in Nigeria). There is a communication challenge in this, and it will affect UNICEF and countries as we continue to supply vaccines.
- Not vaccinating will potentially pose a risk of outbreaks, in particular of measles and rubella. Response vaccinations will be difficult to carry out in the short term, but might be possible in the medium term.
Opportunity:
 - Ensure sufficient supply in place and flag the needs to SD/VC in advance, whenever possible.
- In the longer term, a lack of vaccination affecting coverage will possibly have a significant impact for the increased target population age range for the upcoming Supplementary Immunization Activities (SIAs) and the way SIAs are to be designed.
Opportunity:
 - Programme is to take this possible affect into consideration when planning the next campaign and forecasting.

ANNEXES

- 1) Phase 0 – Preparedness - List of essential medical equipment and supplies for preparedness
- 2) Phase 1 – Focussed assessment
 - a. List of medical equipment and supplies for response
 - b. List of essential medicines and nutrition supplies for response
- 3) Phase 2 – Impacted assessment
 - a. List of medical equipment and supplies for disrupted PHC systems
 - b. List of essential maternal, neonatal and childcare (MNC) medicines and supplies for disrupted PHC systems
- 4) Supply monitoring dashboards for the affected countries (UNICEF intranet)
 - a. Liberia
 - i. Supply and Logistics dashboard
 - ii. Warehouse inventory dashboard
 - b. Sierra Leone
 - i. Supply and Logistics dashboard
 - ii. Warehouse inventory dashboard
 - c. Nigeria
 - i. Supply and Logistics dashboard
 - ii. Warehouse inventory dashboard
 - d. Guinea
 - i. Supply and Logistics dashboard
 - ii. Warehouse inventory dashboard
- 5) Inventory report for the WCARO regional hub (UNICEF intranet)

Note: Annexes 1 - 5 and 10 can be found in zip file:

<http://supplychainsforchildren.org/~ /media/files/scc/Health Supply Chains in an Ebola context Annexes>

- 6) Guidelines for the procurement of HTC (Calcium Hypochlorite) in sub-Saharan Africa (UNICEF INTRANET)

<https://intranet.unicef.org/Denmark/danhomepage.nsf/0/FBD21C20D0F1C323C1257B94002B49BD?open&expandlevel = MainLevel1&expandlevel2 = SecondLevel6&expandlevel3 = ThirdLevel17>
- 7) Supply and Logistics in Emergencies (UNICEF intranet)

<https://intranet.unicef.org/Denmark/danhomepage.nsf/0/E631F3494B40E10FC12579E6004D5907?open&expandlevel = MainLevel10&expandlevel2 = SecondLevel59>

- 8) Effect of Ebola on Supply Chains in Liberia – The Pharmaceutical Journal – 12.08.14
<http://www.pharmaceutical-journal.com/sign-in?rtn=news-and-analysis/news-blog/medicines-supply-chain-overwhelmed-by-ebola-crisis/20066154.fullarticle>
- 9) African Society for Laboratory Medicine (ASLM) – Ebola Resource Page
<http://www.aslm.org/resource-centre/ebola-resources/>
- 10) MSF note on use of Household Kits
- 11) UNICEF Supply Focal Points

Supply Division	
Medical equipment and supplies	Helene Moller , Chief of Health Technology Centre
Essential medicines and nutrition supplies	Francisco Blanco , Chief of Medicines and Nutrition
Water and sanitation supplies (incl. HTC)	Chris Cormency , Chief of Water, Sanitation and Hygiene
Emergency planning	Jean-Cedric Meuss , Chief of Emergency
Supply Monitoring dashboards	Gemma Orta-Martinez , Chief of Data Management Unit
Supply Chain strengthening	Ann Hasselbach , Chief of Supply Chain Strengthening Musonda Kasonde , Supply Chain Capacity Development Manager
West and Central Africa Regional Office (WCARO)	
Regional Supply Advisor	Pascale Crapouse
East and Southern Africa Regional Office (ESARO)	
Regional Supply Advisor	Thomas Sorensen