
GLOBAL
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Addressing the supply chain conundrum associated with preparing for and responding to epidemics

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Outline:

- Emergency Supply Chain (ESC) Conundrum
- GHSA and Supply Chain Management
- ESC Framework: Approach and Impacts
- Cameroon: Learnings from the Pilot
- References and Acknowledgements

What is Emergency Supply Chain Conundrum?

- Globally, public health supply chain management systems face the following challenges:
  - Fragmentation
  - Response times
  - lack of a supply chain model/framework to support GHSA and emergency disease responses.
  - Stockout issues
  - Lack of governance, leadership, and dedicated experts
  - Low capacity of staff
  - Inadequate supply of life-saving commodities, suppliers, transporters, and storage units
  - Lack of data visibility and information systems necessary for decision making
- While supply chain systems are weak, the end-users they are meant to deliver to become vulnerable

Supply Chain Management and the GHSA

- A global health security agenda (GHSA) priority: the need for improved access to medical/non-medical countermeasures for preparedness and response to infectious disease threats
- Capacity-building efforts to establish a national and subnational framework for efficiently sending and receiving vital supplies
- Countries to adopt the *one-health* approach to supply chain management and infectious disease prevention
  - Limit the spread of outbreaks in humans and animals
  - Limit spillover from animals to humans
  - Limit impacts on the environment and ecosystem

WHAT IS EMERGENCY SUPPLY CHAIN PREPAREDNESS AND WHY DOES IT MATTER?

Definition of emergency supply chain preparedness: Establish a system ahead of an emergency to manage all the commodities necessary to respond to an outbreak and ensure they get to the point of care as efficiently as possible.

WHY IS EMERGENCY SUPPLY CHAIN IMPORTANT?

Emergencies present unique supply chain challenges

Demand is **unpredictable** and requires timely delivery to save lives

Emergencies put a **strain on existing logistics** systems

Resources required to respond to emergencies are **complex and expensive**

Investments in preparedness pay off

Preparedness saves lives by **getting essential medicines to the front lines rapidly**

Money invested in preparedness reduces the amount of response funds by **2x**

Time invested in preparedness speeds response **by over a week on average**

SOURCE: UNICEF/WFP Return on Investment for Emergency Preparedness Study, January 2015. Emergency management logistics must become emergency supply chain management, Young and Peterson.

WHAT IS OUR APPROACH TO EMERGENCY SUPPLY CHAIN PREPAREDNESS?

This playbook takes a particular perspective on emergency supply chain preparedness, although the recommendations and resources it contains are applicable across a range of emergency contexts.

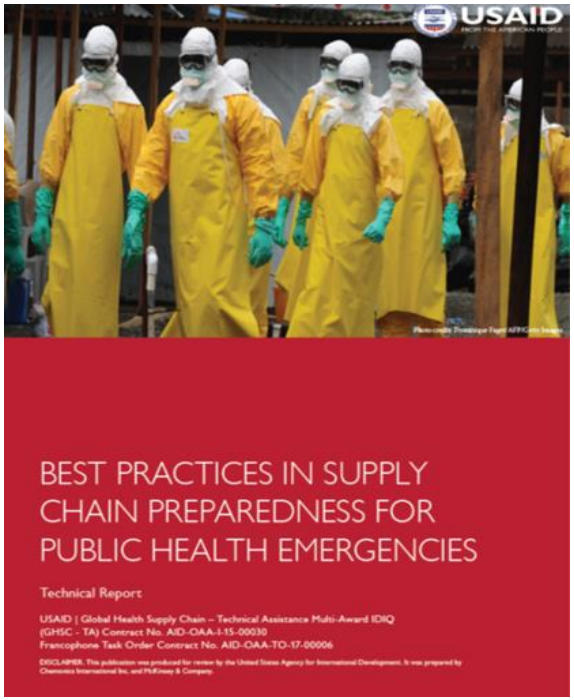
Area:	Audience	Types of emergencies	Function	Time frame
Playbook perspective:	This playbook focuses on helping country governments strengthen their emergency supply chain preparedness capabilities, though other partners will be involved	This playbook takes a One Health lens, focusing on emergencies caused by diseases with human, animal, and environmental factors posing epidemic and pandemic threats, thought it can complement an all hazards approach	This playbook focuses on supply chain, which fits into a broader comprehensive emergency planning process that includes other functions like surveillance	This playbook emphasizes the "preparedness" phase of emergency planning, which occurs before an outbreak takes place; however, a country's response plan should build on the capabilities put in place during this phase

What is the Emergency Supply Chain (ESC) Framework?

- The USAID GHSC-TA Francophone Task Order in response to a GHSA priority, developed a comprehensive framework and piloted it in Cameroon, a priority Phase 1 country. This framework includes:
  - Best practices document in ESC management
  - Comprehensive toolset of ESC protocols, SOPs, and data-tracking tools – The “ESC Playbook”
  - An interactive simulation exercise for the country’s supply chain and public health stakeholders to test the overall framework and make adaptations to fit the ESC context

What is the ESC Framework? Cont.

- Part 1 of 3: **A literature review** of best practices, case studies, and interviews from supply chain and epidemiology experts worldwide from USAID, WHO, FAO, CDC, UNICEF, WFP, non-governmental organizations and national public health officials worldwide
  - 2014 Ebola in West Africa
  - 2015 – 2016 Zika outbreak in LAC region
  - Reviewed and validated by WHO and UNICEF
  - Published as *Best Practices in Supply Chain Preparedness for Public Health*



What is the ESC Framework? Three Modules of Focus

1 People and Processes	2 Commodity Planning	3 Logistics and Transport
What are the structures that enable the ESC to function? ▪ Governance and organizational structure ▪ Financing ▪ Triggers ▪ Data visibility	**What commodities will the ESC be responsible for, and how will it handle them?** ▪ Commodity forecasting ▪ Procurement and sourcing ▪ Stockpiling	**How will the commodities get to where they need to go?** ▪ Warehousing and storage ▪ Transport and waste management
Clear governance, processes, and data transparency to run the emergency supply chain	**Stockpiled commodities based on an up-to-date hazard assessment**	**Storage and transportation arrangements in place to move commodities**

What is the ESC Framework? cont.

- Part 2 of 3: Development of the toolset known as the **"ESC Playbook"** which contains SOPs, protocols, and tools for 9 essential components each country should have within their framework:

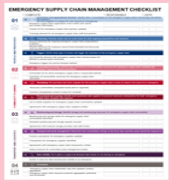
PREPAREDNESS

Outbreak

RESPONSE/ACTION

A

Management Checklist for ESC lead, summarizing key outputs from each part of the emergency supply chain to track completion and to maintain preparedness

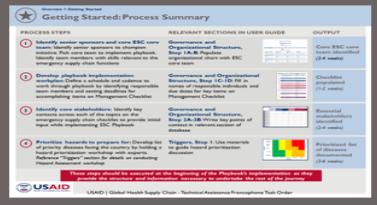


B

ESC Preparedness Overview for senior leaders, providing introduction to emergency supply chain concepts and what the work of preparing emergency supply chains entails

C

Technical User Guide providing detailed technical instructions and templates to assist the ESC core team members, summarizing all the content necessary to strengthen the emergency supply chain over ~4-6 months. The manual provides step-by-step implementation guides and tools to support capability-building across each of the emergency supply chain functions. *Tools are in Excel on Memory Key.*



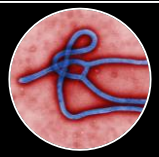
D

Response Job Aids for any actors involved in a response, providing a "crash course" on disease overview, supply chain considerations, and response protocol for priority diseases

E

Response Quick Guide for all ESC core team members, summarizing response protocols under each supply chain function to put in action when an outbreak occurs

Example of Ebola Supply Chain Job Aid



EBOLA

Description: Ebola is a severe form of hemorrhagic fever. Outbreaks have originated in rural areas but can spread to urban centers. Several potential treatments for Ebola have been tested and supportive care with fluid replacement can be effective, especially if initiated earl. Nevertheless, the disease possesses a high mortality rate and can spread quickly once introduced. Infection prevention and control, safe burial, contact tracing and surveillance are all key to controlling an outbreak

Mode of transmission: Human to human transmission; direct contact with blood or body fluids; objects contaminated with body fluids, infected bats or primates

SUPPLY CHAIN CONSIDERATIONS

- PPE needs will be high because Ebola is highly transmissible through physical contact
- Various new Ebola-related technologies are being tested so supply chain needs may evolve in the next few years
- Safe burial is an important part of Ebola control so supply chain must cover safe burial commodities (e.g., body bags)
- Supply chain personnel should follow PPE protocols if entering treatment red zones or in contact with suspected cases

SUGGESTED COMMODITY LIST

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- [ ] Aprons, disposable
- [ ] Aprons, heavy-duty, reusable
- [ ] Boots, rubber
- [ ] Coveralls, fluid-resistant, disposable, with elastic wrists, ankles and hood
- [ ] Examination gloves
- [ ] Full face shield
- [ ] Goggles
- [ ] Gown, fluid-resistant, disposable, with elastic wrists
- [ ] Gloves, heavy-duty
- [ ] Hood
- [ ] Mask, surgical, flat rectangular with folds
- [ ] Surgical N95 respirator

DISINFECTION CONSUMABLES/ BIOHAZARDOUS WASTE MANAGEMENT

- [ ] Alcohol-based hand rub
- [ ] Bag, disposable for biohazardous waste PPE and clinical waste without sharps
- [ ] Body bags (suitable for burial or cremation)
- [ ] Incinerators for contaminated wastes

DISINFECTION CONSUMABLES/ BIOHAZARDOUS WASTE MANAGEMENT

- [ ] NaDCC tablets
- [ ] NaDCC granules (kg)
- [ ] Safety box/sharps container (must be labelled "Biohazard")
- [ ] Set: Hand gel and soap for targeted population – hemorrhagic fever

DRUGS AND MEDICAL CONSUMABLES

- [ ] Essential drugs and consumables to support general health facilities
- [ ] Infusion giving set
- [ ] Infusion (Ringer's lactate – liter)
- [ ] Syringes: 0.5 ml autodestruct (AD) and 5 ml reuse prevention (RUP)
- [ ] Oral Rehydration Salts (ORS)

HEALTH FACILITIES INFRASTRUCTURES AND EQUIPMENT

- [ ] Ambulance with air isolation system for transport of contagious patients
- [ ] Essential hospital and medical equipment to support health facilities: adjustable hospital beds, examination table, foldable stretcher, pulse oximeter, portable, isometer, stethoscope, sphygmomanometer
- [ ] Medical triage/treatment/isolation facilities
- [ ] Cholera beds

LABORATORY TEST EQUIPMENT AND REAGENTS

- [ ] ELISA and RT PCR Laboratory equipment and reagents
- [ ] Packaging transport substance, class 6.2
- [ ] Rapid diagnostic testing kit for malaria (useful also to rule out malaria in other outbreaks)
- [ ] Rapid test for Zaire ebolavirus
- [ ] Sample collection tubes
- [ ] Swabs for buccal sample collection

MEDICAL EQUIPMENT

- [ ] Infrared thermometer

WATER AND SANITATION

- [ ] Drinking water quality control module
- [ ] Sprayer, backpack
- [ ] Sprayer, hand, disinfectant, portable, small
- [ ] Water tank truck and/or water trailer for potable water

MISCELLANEOUS

- [ ] Cups
- [ ] Markers
- [ ] Tape

SOURCE: CDC, PSCN

What is the ESC Framework? cont.

- Part 3 of 3: Implementation and testing of the ESC Playbook toolset in-country through a **simulation exercise** that allows country stakeholders to enact an emergency situation
- Conducted through roleplays, team discussions, documenting actions, and team debriefs
- Serves to demonstrate improvement in applied knowledge of the 9 ESC competency areas and associated protocols and outputs
- Serves to identify gaps in the ESC system which countries should regularly analyze, improve, and customize the ESC Playbook accordingly

How does the ESC Framework address the conundrum?

- ESC Playbook triggers critical thinking in the 9 ESC competencies
- During an outbreak, what government entity and who is in charge of declaring an epidemic? What agency and who, is in charge of procurement, transportation, distribution and coordination.
- Is there a shortage of personal protective equipment, medical gloves, or disinfectants? Are there secured contracts with vendors?
- Have databases in storage and waste disposal sites been updated?
- If country resources are insufficient, which international organization can be contacted for assistance?

What are the Positive Impacts of the ESC Framework?

- Reduction in number of deaths and length of morbidity from outbreaks, due to rapid mobilization of resources and quick access to health commodities.
- Mitigating economic burden from depletion of resources through effective preparedness protocols
- Stronger multisectoral coordination and country ownership for public health and supply chain professionals serving in government ministries, central medical stores, private sector, and international organizations
- Sustainable solution for continuous learning and capacity-building through implementing, testing, customizing, and maintaining the ESC Playbook

Learnings and Achievements from Implementation of the ESC Framework in Cameroon

- A governance structure of the ESC was defined, anchored at the MoPH, respecting the aspects of the One Health approach
- Key ESC stakeholders were engaged throughout implementation, including working sessions with key ministries for human, animal, and the environment, as well as international partners (WHO, CDC, WFP, UNICEF, MSF)
- ESC Playbook databases extensively adapted to Cameroon's context, after several working sessions, iterations, and alignment of both international and national experts
- Major components addressed were governance and processes, disease prioritization and quantification, stockpiling strategy, storage & transport strategy, and the development of the Response Quick Guide
- Country adoption and commitment to institutionalizing the framework
- Utilization of the ESC Framework post-pilot during Monkeypox outbreak and Ebola in neighboring countries

References

- The ESC Framework tools have been published and are available on the GHSA website: https://www.ghsagenda.org/resources#tools
- For questions regarding implementation of the ESC Framework, email FrancophoneTOBillable@chemonics.com
- USAID Bureau for Global Health Emerging Pandemic Threats Division https://www.usaid.gov/what-we-do/global-health/pandemic-influenza-and-other-emerging-threats

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