



Report on the Ebola Commodities Quantification for the Period January 2016 through December 2018

April 2017



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Report on the Ebola Commodities Quantification for the Period January 2016 through December 2018

Bamako, Mali
June 15–21, 2016

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Key Words

Ebola, quantification, Mali

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ACRONYMS

CNAM	Centre National d'Appui à la lutte contre la Maladie (National Disease Center)
ComHC	community health center
CTCSGME	Comité Technique de Coordination et de Suivi de la Gestion des Médicaments Essentiels (Technical Committee on the Coordination and Management of Essential Medicines)
CTE	Centre de Traitement Ebola (Ebola treatment center)
CTO	Centre de Transit et d'Observation (transit and observation center)
DNS	Direction Nationale de la Santé (National Health Directorate)
DPM	Direction de la Pharmacie et du Médicament (National Directorate of Pharmacy and Medicines)
DNP	Direction Nationale de la Population (National Population Directorate)
DRS	Direction Régionale de la Santé (Regional Health Directorate)
EHF	Ebola hemorrhagic fever
EOC	Emergency Operations Center
GDP	gross domestic product
MSF	Médecins Sans Frontières (Doctors Without Borders)
MSHP	Ministère de la Santé et de l'Hygiène Publique (Ministry of Public Health and Hygiene)
ORS	oral rehydration salt
PPE	personal protective equipment
PPM	Pharmacie Populaire du Mali (Central Medical Stores)
RDT	rapid diagnostic test
RefHC	reference health center
RGPH	Recensement Général de la Population et de l'Habitat (General Census on Population and Housing)
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
USAID	US Agency for International Development
USD	US dollar
WHO	World Health Organization
XOF	CFA (African Financial Community) franc (issued by the BCEAO, the Central Bank of the West African States)

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- US Agency for International Development (USAID)
- Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program
- Mali's Central Medical Stores (Pharmacie Populaire du Mali, or PPM)
- National Disease Center (Centre National d'Appui à la lutte contre la Maladie, or CNAM)
- National Health Directorate (Direction National de la Santé, or DNS)

The MSHP would also like to acknowledge all those helping to support and ensure the successful quantification of commodities for the control of Ebola. The results are the product of a broad-based participatory process involving all stakeholders in the fight against Ebola. The MSHP extends special thanks to the SIAPS Program for its technical and financial assistance.

SUMMARY

The 2014 outbreak of Ebola hemorrhagic fever (EHF) in Africa affected several West African countries, including Guinea, Liberia, and Sierra Leone. The World Health Organization (WHO) reported 10,141 cases of the disease and 4,922 related fatalities in October 2014.

Mali recorded its first case of EHF in October 2014. There were eight reported cases of the disease and five fatalities during the outbreak. Following a determined effort to control the disease, with significant government involvement, Mali announced the eradication of Ebola in January 2015.

To better coordinate activities undertaken by all interested stakeholders to control the Ebola outbreak (including the treatment of suspected cases of the disease), the Malian government enacted Decision N° 2014-0850/PM-RM of November 14, 2014, resulting in the development of a contingency plan and the establishment of an Emergency Operations Center (EOC).

A quantification exercise was conducted with technical assistance and financing from the SIAPS Program for the preparation of consensus-based forecasts, with input from interested stakeholders. This process will facilitate efforts to raise and secure funding for the procurement of needed commodities for the control of Ebola.

Two scenarios were used for the purposes of the quantification exercise: a minor outbreak (a low-transmission scenario) and a major outbreak (a high-transmission scenario). Needs were estimated for each type of site (an Ebola treatment center [CTE], transit and observation center [CTO], isolation center, “cordon sanitaire” [quarantine], and laboratory) under each scenario.

The results of the quantification exercise were submitted to the Technical Committee on the Coordination and Management of Essential Medicines (Comité Technique de Coordination et de Suivi de la Gestion des Médicaments Essentiels, or CTCSGME) for validation on August 4, 2016. The main outputs of the quantification exercise are as follows:

- Drafting of a consensus-based list of commodities (medicines, expendable supplies, materials, and equipment).
- Identification of the different types of sites and teams involved in the management of Ebola cases based on Mali’s health system.
- Estimates of needed quantities of equipment, supplies, and medicines for each type of site/team for a six-month period under the low-transmission (table 1) and high-transmission (table 2) scenarios.

Table 1. Summary of the cost of six months' worth of needed medicines, equipment, and other commodities for each individual site under the low-transmission scenario

#	Site / Team	Number	Cost (USD)
1	Triage / Ebola treatment center (CTE)	1	\$ 56,210
2	Triage / Transit and observation center (CTO)	1	\$ 23,373
3	Triage / Isolation room	1	\$ 3,945
4	Laboratory	1	\$ 10,144
5	Points of entry (borders) – Cordons sanitaires	1	\$ 4,169
6	Mobile rapid intervention team	1	\$ 6,915
7	Safe burial team	1	\$ 2,183
8	Contact follow-up team	1	\$ 431
9	Summary for all sites		\$ 107,370
10	MEDICINES		\$ 1,338

Table 2. Summary of the cost of six months' worth of needed medicines, equipment, and other commodities for each individual site under the high-transmission scenario

#	Site / Team	Number	Cost (USD)
1	Triage / Ebola treatment center (CTE)	1	\$ 799,323
2	Triage / Transit and observation center (CTO)	1	\$ 1,981,542,905
3	Triage / Isolation room	1	\$ 35,326
4	Laboratory	1	\$ 37,862
5	Points of entry (borders) – Cordons sanitaires	1	\$ 30,819
6	Mobile rapid intervention team	1	\$ 467,555
7	Safe burial team	1	\$ 244,690
8	Contact follow-up team	1	\$ 472
9	Summary for all sites		\$ 2,372,427
10	MEDICINES		\$ 897,301

The country has a very high level of debt. Cumulative public debt as of the end of 2010 was estimated at 1.225 trillion XOF, or 26% of GDP. It was as high as 112% of GDP at the end of the 1990s. Debt service payments went from 47 billion XOF in 2009 to 49 billion XOF in 2010, including 35 billion XOF in principal and 14 billion XOF in interest.² The outstanding public debt also grew by 20%, from 908 billion XOF in 2009 to 1.089 trillion XOF in 2010, or to 23.5% of GDP, compared with 21.5% in 2009.

Mali is among the world's least developed countries and is a beneficiary of the Heavily Indebted Poor Countries Initiative. The poverty rate has been declining. It went from 55.5% in 2001 to 47.4% in 2006, down to 43.6% by 2010.³ Poverty affects the standard of living, particularly for child health and education. In fact, according to the findings of the 2010 Short-Form Integrated Household Survey:

- The gross school enrollment and net enrollment ratios at the primary education level were 75.4% and 54.3%, respectively, showing virtually no change from the figures of 74.5% and 55.2% in the 2006 survey.
- Access to a safe water supply and basic sanitation facilities (latrines) is largely dependent on the economic situation of a given population. The rate of access to drinking water remained unchanged and, in some cases, dropped from 78.3% in 2006 to 72.4% in 2010.⁴
- The share of the population with access to improved sanitary facilities (pit latrines) in 2010 was 76%, although 19% of households had no latrines (27% of rural households and 5% of urban households). Only 5% of households had sanitary facilities with flushing systems.

Cultural data

There are approximately twenty different ethnic groups in Mali. According to the General Census on Population and Housing (RGPH) of 2009, Bambara is the native language of 46% of the country's population. In addition, most of the respondents were Muslim (94.8%), with Christians (2.4%) and animists accounting for only a very small share of the population.

Demographic data

According to census data, Mali had a population of 14,528,662 inhabitants in 2009.⁵ There were 7,204,990 males (49.59% of the population) and 7,323,672 females (50.41% of the population). The urban population was 22.54%, with rural dwellers accounting for 77.46% of the population.

² Ibid.

³ Institut National de la Statistique du Mali (Malian National Statistics Institute). Findings of the Short-Form Integrated Household Survey. Bamako: Institut National de la Statistique; 2010.

⁴ Government of Mali. Strategic Framework for Growth and Poverty Reduction 2012-2017. Bamako: Government of Mali; 2011.

⁵ Malian National Statistics Institute. Fourth Malian General Population and Housing Census: Final Census Data, Volume 1: Population Series. Bamako: National Statistics Institute; 2011.

The level of educational attainment in Mali is low. Only 12.4% and 4.8%, respectively, of the country's population aged three years and above have a secondary and higher education. Of the educated population, 82.9% had only a primary school education.

The total fertility rate is still very high, at 6.6. There is a high rate of early fertility, namely, 188 births per 1000 girls between the ages of 15 and 19. The number increases to 283 among women between the ages of 20 and 24, peaking at 292 between the ages of 25 and 29 and dropping to 25 births between the ages of 45 and 49 according to the 2012/2013 Demographic and Health Survey.⁶

According to the final 2009 census (RGPH) data, there were 4,462,053 youths between the ages of 10 and 24, accounting for 30.71% of the total population. Children under the age of five accounted for 18.06% of the population. Life expectancy at birth was 55.6 years.

Based on estimates made by the National Population Directorate (DNP) for the West African Economic and Monetary Union, the size of the country's total population grew from 14,528,662 inhabitants in 2009 to 16,317,996 inhabitants by 2012.

Control of Ebola in Mali

The first outbreak of EHF in Mali was in October 2014. Control measures were taken by the national government in March 2014, but the highly contagious nature of Ebola, the geographic proximity of the center of the epidemic, and the intensity of socio-economic exchanges fueled fears that the disease would spread across Mali and into neighboring West African countries. Faced with this dilemma, the WHO and its member countries and partners held an emergency meeting in July 2014 to discuss the best way to stop the virus from spreading across West Africa. In the wake of this important meeting, it was recommended that all interested countries adapt their contingency plans to the regional strategy for the control of EHF outbreaks.

Mali moved quickly from the preparedness phase to the response phase after its first imported case of the disease from Guinea, in which the patient died on October 24 in Kayes without any reported contamination. The virus was subsequently reintroduced into the country by another patient from Guinea, who directly or indirectly contaminated seven people, five of whom died from the disease.

Mali announced the eradication of the Ebola outbreak in the country in January 2015, 42 days after laboratory control tests for the last recorded case of the disease came back negative on December 6, 2014.

The Malian government formulated a contingency plan and established an EOC as part of its effort to control the disease.

⁶ Planning and Statistics Unit (CPS/SSDSPF), National Statistics Institute (INSTAT/MPATP), INFO-STAT, and ICF International. 2012-2013 Malian Demographic and Health Survey. Rockville, Maryland, USA: CPS, INSTAT, INFO-STAT, and ICF International; 2014.

Scope of the quantification exercise

This was a national-level quantification exercise involving the public sector and covering a period of six months. The relatively short quantification period is due to the fact that the commodities are designed to be used in the event of an outbreak and are thus not continuously or routinely used commodities. The commodities quantified are listed in tables 3 and 4.

Table 3. List of commodities quantified

Item	Packaging unit	Package size
Non-reusable full personal protective equipment (PPE)	Kit	50
Non-reusable basic PPE	Kit	50
Vacutainer needle 21 G / 23 G	Needle	100
Alcohol 70% concentration, 1 liter bottle	Liter	1
Alcohol 70% concentration, pad	Piece	50
Bib	Piece	50
Smock - Scrub suit (pants + top)	Piece	1
Rubber boot	Pair	1
Disposable mask	Piece	50
Hood w/ face shield	Piece	1
Catheter 20 G / 22 G / 24 G	Catheter	50
Dressing cart	Piece	1
Calcium hydroxide (slaked lime)	Kg	50
Chlorine powder 70% / kg	g	1000
One-piece coverall	Piece	1
Shoe cover, pair	Piece	1
Reusable cuspidor (10liter bucket with lid)	Piece	1
Thermal imaging camera	Piece	1
Javelle water 12%	Liter	1
Cleaning glove	Single glove	1
Non-sterile powder-free nitrile or latex gloves, sizes 7.5 and 8	Single glove	100
Surgical gloves, sizes 7.5 and 8	Pair of gloves	50
Hydro-alcoholic antiseptic gel, 500 ml	ml	500
Gresil (disinfectant)	Liter	1
Shipping kit (triple package)	Kit	1
Dispenser for chlorine solution (50 L receptacle with tap + 20-liter bucket + transport device)	Kit	1
Dispenser for chlorine solution (100 L receptacle with tap + 20-liter bucket + transport device)	Kit	1
Single hospital bed	Piece	1
Protective goggles with strap	Piece	1
Goggle cleaning solution	Liter	1
Pediatric oxygen mask	Piece	1
Oxygen spectacles (adult)	Piece	1
Mattress with plastic cover	Piece	1
Injection tray + accessories	Piece	1
Reusable nebulizer (1.5 liters)	Piece	1
Nebulizer, 20 liters	Piece	1
Red plastic trash can liner, 100 liters	Piece	10
Black trash can (risk-free area)	Piece	1
Body bag A: 250 cm / 120 cm and E: 150 cm / 100 cm	Bag	1
Plastic bucket with lid, 20-30 liters	Piece	1
Sphygmomanometer (blood pressure monitor)	Piece	1

Introduction

Item	Packaging unit	Package size
Single-use protective apron	Piece	50
Heavy plastic or rubber apron	Piece	1
Thermo Flash	Piece	1
EDTA blood collection tube	Tube	100
Sterile polyester swab	Piece	100
Viral transport medium (VTM)	Piece	1
Absorbent cotton, 500 g roll	500 g roll	1
8-slot metal rack	Piece	1
Indelible ball-point pen (lab marker)	Piece	12
Adhesive label (tube identification)	Piece	50
Pre-cut "Sparadrap" dressing	Piece	50
Infusers	Piece	1
10 cc syringe + G21 needle	Piece	1
Sterile compress 40x40	Piece	10
Transfusers	Piece	1
Blood bag	Piece	1
Two-way bladder catheter 16/18	Piece	1
2-liter urine bag + drain	Piece	1
Plastic tables	Piece	1
Plastic chairs	Piece	1
Plastic basins (foot baths)	Piece	1
5 L safety box for used syringes / needles, etc.	5L boxes	1
Tourniquet	Piece	1
Bed for security guards	Piece	1
Red trash can (at-risk area) – 100 L	Piece	1
Mirror, 1.80 m x 1 m	Piece	1
Mineral water, 0.5 L	Liter	0.5
Stretcher	Piece	1
Folding screen	Piece	1
Liquid soap	Liter	1
Absorbent diaper	Piece	1
Wheelbarrow	Piece	1
Shovel	Piece	1
Squeegee	Piece	1
Broom	Piece	1
Brush	Piece	1
Floor cloth	Piece	1
Towel	Piece	1
Adhesive tape	Piece	1
Large basin	Piece	1
Smock	Piece	50
Central venous catheter (CVC)	Catheter	1
Sugar jar, 0.33 liter	Bottle	1
Digital thermometer	Piece	1
Trash can with foot pedal	Piece	1
Jump suit (overall)	Piece	1
Liquid phenol (Vesphene)	Liter	5
Cryotubes, 1.5 ml and 1.8 ml	Cryotube	100
Scotch autoclave tape (autoclave test strips)	Roll	1
Cryotube rack	Piece	1
Refrigerator - 80 degrees	Piece	1
Refrigerator 2 - 8 degrees	Piece	1
Inactivation reagents	Kit	1
PCR reagents	Kit	1
Extraction reagents	Kit	1

Item	Packaging unit	Package size
Smock (PCR / Extraction)	Smock	50
Hair covering	Piece	P50
Absolute ethanol 96%	Liter	1
Electronic Eppendorf-type pipette, 2-20 ul	Piece	1
Electronic Eppendorf-type pipette, 20-200 ul	Piece	1
Electronic Eppendorf-type pipette,100-1000 ul	Piece	1
Sterile Pasteur transfer pipette	Piece	50
Three-way digital timer	Piece	1
Antiseptic liquid soap, 500 ml	Liter	1
Ultra-pure RNase-free water	Liter	1
Red 100-liter autoclavable plastic biohazard waste bag	Bag	10
Red 5-liter autoclavable plastic biohazard waste bag	Bag	10
Thermo Flash batteries	Battery	1

Table 4. List of medicines quantified

Item	Dosage	Package size
Ribavirin, 200 mg capsules	200 mg	60
Ribavirin, injection, 100 mg vial	100 mg	1
Paracetamol, 500 mg tab	500 mg	100
Paracetamol, 500 mg, inj	10 mg/ml - 50 ml	1
Tramadol, 100 mg, inj	100 mg/2 ml	1
Morphine	10 mg/ml	1
Promethazine	25 mb/ml	1
Metoclopramide, 10 mg, inj	10 mg/2ml	1
Diazepam, 10mg, inj	10 mg/2ml	1
Chlorpromazine	25 mg/5ml	1
Ceftriaxone, 1g, inj	1 g / 10 ml	1
Amoxicillin + Clavulanic acid, tab	1 g / 10 ml	1
Cefixime, 200 mg tab	200 mg /	1
Ciprofloxacin, 500 mg tab	500 mg	1
Ciprofloxacin, inj	200 mg /	1
Metronidazole, 250 mg	250 mg	1
Metronidazole, 500 mg, inj	500 mg/ inj	1
Erythromycin, 250 mg	250 mg	1
Artemether + Lumefantrine B/24	20/120 mg	24
Vitamin A	200,000 IU	1
Vitamin B1 complex	50 mg	1
Vitamin C tab	1G	1
Sodium chloride 0.9% - 500 ml	500 ml	1
Sodium lactate, compound solution (Ringer's lactate) - 500 ml	500 ml	1
Glucose 5% - 500 ml	500 ml	1
Sodium bicarbonate serum 1.4% - 500 ml	500 ml	
Potassium chloride 10% - 10 ml	10 ml	1
Sodium chloride 10% - 10 ml	10 ml	1
Oral rehydration salt (ORS)	ml	1
Dopamine, 200 mg, inj	200 mg / 5ml inj	1
Adrenaline, 1 mg, inj	1 mg / ml	1
Artesunate, 60 mg, inj	60 mg	1
Vitamin K1	10 mg/ml	1
Haemaccel	500 ml	1
Azithromycin, 250 mg	250 mg	1
Dexamethasone	4 mg/ml	1
Iron + folic acid	60 mg/400 ug	1

Item	Dosage	Package size
Oxytocin	10 IU	1
Glucose 10%	500 ML	1
Hypertonic glucose 50%	50%	1
Tinidazole, 500 mg	500 mg	1
Polyvidone (povidone) iodine	200 ml	1
Ibuprofen	400 mg	1
Prednisolone drops, 1%	1%	1
Prednisolone tablets	20 mg	1
Methotrexate tablets	10 mg	1
Ranitidine	150 mg	1
Omeprazole tablets	20 mg	1
Haloperidol	5 mg	1
Atropine drops	0.5%	1
Timolol	0.5%	1
Urine pregnancy test	Test	1
HIV test	Test	1
RT / PCR test	Test	1
Malaria RDT	Test	1
Amitriptyline	25 mg	1

Goal of the quantification exercise

The goal was to assess the needs for commodities for the control of Ebola for a given six-month period, extrapolating actual needs based on the duration of the outbreak. The findings will be used to plan, mobilize, and secure funding and estimate short-term procurement requirements for the period 2016 to 2018.

QUANTIFICATION PROCESS AND METHODOLOGY

Table 5. Phases and process

Phases	Structures involved	Activity details	Dates
Meeting of the technical committee	CTCSGME	<ul style="list-style-type: none"> Validation of the results of the quantification exercise 	August 4, 2016
Meeting of the technical committee	Quantification sub-committee	<ul style="list-style-type: none"> Validation of the quantification process and preliminary results by the quantification sub-committee 	June 21, 2016
Quantification workshop	Quantification sub-committee	<ul style="list-style-type: none"> Assessment of needs for commodities for the control of Ebola 	June 15-20, 2016
Organization and analysis of data	Teams: DPM, EOC, PPM, DNS, SIAPS	<ul style="list-style-type: none"> Examination and compilation of available data and information Identification of missing data and sources of data Identification and contacting of appropriate partners to obtain data and information Organization and analysis of data, information, and documents Preparation of data and formulation of assumptions for discussion, establishment of forecasts, and drafting of a procurement plan 	June 13-14, 2016
Document review	DPM, EOC, SIAPS	Documents reviewed: <ul style="list-style-type: none"> Malian National Ebola Contingency Plan List of available commodities Specifications for available PPE (Doctors Without Borders [MSF] brochure) WHO report, March 2016 Number of sites (Assessment Mission Report, April 2016) 	June 2016
Discussions with various stakeholders and experts	DPM, PPM, DNS, EOC, SIAPS, IMC, MSF, CRS	<ul style="list-style-type: none"> Understanding and validation of the data and obtaining of additional data/information 	June 2016
Active collection of logistics data	DPM/DRS/SIAPS, EOC/CNAM	<ul style="list-style-type: none"> Data collection and dissemination at distribution points (district, regional, and central) for the public sector in the country's five regions and Bamako district 	April–May 2016
Quarterly meeting of the CTCSGME	CTCSGME	<ul style="list-style-type: none"> Validation and forwarding of the results of the quantification exercise for commodities for the control of Ebola to the DPM by the CTCSGME 	October 8, 2015

Preparations for the quantification exercise

The quantification group worked on the data, tools, and targets for the quantification exercise.

Main data used and sources of data

The main documents, data, and data sources collected and examined for the purposes of the Ebola commodities quantification are listed in table 6.

Table 6. Key data and their respective sources

Description of the data	Sources
Number of cases (suspected, confirmed, and probable)	WHO report of March 30, 2016
Case fatality rate (suspected, confirmed, and probable cases)	WHO report of March 30, 2016
Number of fatalities among suspected, confirmed, and probable cases	WHO report of March 30, 2016
Length of stay in an isolation and treatment center	Consensus-based assumption/EOC/Mali
Basic and full personal protective equipment	Consensus-based assumption/EOC/Mali
Utilization rate	Consensus-based assumption/EOC/Mali
Number of sites (CTE, CTO, isolation room, quarantine)	EOC/Mali

Quantification workshop

The quantification workshop was held from June 15 to June 21, 2016 in the EOC/CNAM conference room. Central government structures in the MSHP and their partners in the fight against Ebola took part in this activity. (See the list of participants in Annex C.) The representative of the EOC Coordinator presided over the opening ceremonies. In his speech, he asked participants to be diligent in their efforts to achieve the workshop's objectives. The following activities were carried out during of the workshop.

Organization and analysis of data

This was done during the preparatory phase, on June 13 and 14, and was completed during the quantification workshop. It involved the following:

- Organization of additional data/information: Organization of the data collected from the various sources using a pre-prepared template (an Excel file) designed specifically for this activity.
- Analysis and comparison of data/information: The data collected from the various sources were compared and the quality of the data was evaluated as part of this essential stage of the process. This helped determine whether the collected data were sufficient for the purposes of the quantification exercise and to pinpoint any gaps.

Formulation of assumptions

The analyzed data were fine-tuned to ensure their comprehensiveness and quality. Assumptions were established to bridge gaps in the existing data. This is discussed in greater detail in the section below on Key Assumptions.

Composition of personal protective equipment kits

The personal protective equipment (PPE) kit contains several items that are worn together by a worker for his or her protection. There are two types of PPE:

- Non-reusable basic PPE
- Reusable full PPE

The contents of each PPE kit are listed in Annexes A and B.

Forecasting

The demographic/morbidity data method and official statistics method were selected as the main forecasting methods.

Validation of the results of the quantification exercise

The results of the quantification exercise were validated by the CTCSGME at its meeting on August 4, 2016.

RESULTS

Key assumptions

Several assumptions were made for purposes of the quantification exercise.

Types of sites and teams

The types of sites and teams were specified based on existing health structures and Mali's health system. Table 7 shows the organizational structure established for purposes of the quantification exercise. The types of sites represent treatment, diagnostic, and surveillance facilities or sites for the management of Ebola cases.

Table 7. Types of sites and teams, by level of the health system

Health- # system level	Health facility	Type of site	Type of team/site	# of sites
1 Community	Community	Sanitary cordon	Contact follow-up team	32
2 District	Community Health Center (ComHC)	Triage / isolation room	Triage and isolation unit	1,264
	Reference Health Center (RefHC)	Triage / transit and observation center	Safe burial team	65
3 Regional	Hospitals	Triage / transit and observation center	Safe burial team / rapid intervention team	8
4 National	CNAM	Triage center / CTE	Rapid intervention team, safe burial team, treatment unit, isolation unit	1
	HIV/AIDS and Tuberculosis Research and Training Center (SEREFO), Merieux Lab	Laboratories	Biological diagnostic testing	2
Total				1,372

The minimum numbers of sites and teams were established at the country level, broken down as shown in Table 8.

Table 8. Total number of health sites and teams

#	Type of Site / Team	Location	Total number
1	Triage / CTE	CNAM, Bamako	1
2	Triage / Transit and Observation Center	RefHC and hospital	73
3	Triage / Isolation Room	ComHCs	1,264
4	Laboratory	SEREFO, Bamako – Merieux mobile lab	2
5	Points of entry (borders) – Sanitary cordons	Communities	32
6	Mobile rapid intervention team	CTO/CTE (one team / region and 2 at the CNAM)	10
7	Safe burial team	CTO/CTE (per region)	10
8	Contact follow-up team		32
9	Airport		1
Total			1,425

Classification of activities by type of site

Activities were defined by the type of site involved, based on the health system. Table 9 shows the various activities identified through a consensus approach, broken down by type of site, based on the information available.

Table 9. Definition of activities, by type of site

Activities	Points of entry (borders)/ cordons	Triage / Isolation Room	Triage / Transit and Observation Center	Ebola Treatment Center	Reference Laboratory (SEREFO, Mobile Lab / MSHP)
Prevention / Protection	X	X	X	X	X
Biosecurity / Waste management / Incineration	X	X	X	X	X
Sampling			X	X	
Transport of samples			X	X	X
Transport of confirmed cases to the CTE			X		
Biological diagnostic testing					X
Treatment of Ebola cases				X	
Management of remains		X	X	X	
Temperature control	X	X	X	X	

Activities were also defined by the type of team involved in the treatment of suspected and confirmed cases of Ebola. The results are presented in table 10.

Table 10. Definition of activities, by type of team

#	Activities	Mobile rapid intervention team	Safe burial team	Contact follow-up team
1	Prevention / Protection	X	X	
2	Biosecurity / Waste management /Incineration	X	X	
3	Sampling	X	X	
4	Transport of samples	X	X	
5	Transport of confirmed Ebola cases to the CTE	X		
6	Biological diagnostic testing			
7	Treatment of Ebola cases			
8	Management of remains	X	X	
9	Temperature control	X	X	X

Key assumptions for the epidemiology of Ebola

The exercise broke down the epidemiology of Ebola into two scenarios (a low and a high-transmission scenario) based on available sources of data (the WHO report, data from the EOC/Mali).

The WHO report on Mali was used as the source of the data presented in table 11 for the low-transmission scenario, supplemented by available information from the EOC and Doctors Without Borders.

Table 11. Low-transmission (minor outbreak) scenario (Guinea and Sierra Leone)

Reference Period	Six months
Number of tested cases	40
Number of confirmed cases	4
Number of probable cases	1
Number of suspected cases	12
Total number of "tested" cases	40
Fatality rate for confirmed cases	71%
Fatality rate for probable cases	100%
Fatality rate for suspected cases	3%
Number of deaths among confirmed cases	3
Number of deaths among probable cases	1
Number of deaths among suspected cases	1
Length of stay in an isolation center	7 days
Length of stay in a treatment center	10 days

The data for the high-transmission scenario presented in table 12 were developed from WHO data collected in Guinea and Sierra Leone. The average for both countries was used to calculate the number of cases in a six-month period. The various fatality rates were obtained by calculating the proportion of cases resulting in death.

Table 12. High-transmission (major outbreak) scenario (Mali)

Reference Period	Six months
Number of tested cases	4482
Number of confirmed cases	3014
Number of probable cases	185
Number of suspected cases	1283
Total number of "tested" cases	4482
Fatality rate for confirmed cases	47%
Fatality rate for probable cases	89%
Fatality rate for suspected cases	3%
Number of deaths among confirmed cases	1418
Number of deaths among probable cases	165
Number of deaths among suspected cases	38
Length of stay in an isolation center	7 days
Length of stay in a treatment center	10 days

All these data were projected over a six-month period for a minor (low-transmission scenario) and major (high-transmission scenario) outbreak.

Key assumptions for the use of equipment by caregivers

The workshop established the different types of equipment to be used per day and per site.

Personnel in the sanitary cordon areas were found to use basic PPE. Table 13 presents specific information on the breakdown and number of personnel in each team, the number of teams per day, the frequency of equipment use, and the total number of basic PPE kits used per day.

Table 13. Equipment (basic PPE) used in each sanitary cordon (at borders)

Estimate for basic PPE	Number of people / team	Number of teams / day	Total number of people	Frequency of use / day	Total
Physicians	1	2	2	1	2
Nurses	2	2	4	1	4
Sanitation personnel	1	2	2	1	2
Total Team 1	4	2	8	1	8

Personnel in isolation rooms use both full and basic PPE kits. Table 14 presents specific information on the teams involved and the frequency of equipment use.

Table 14. Equipment (full and basic PPE) used in an isolation room

Estimate for a full PPE kit	Number of people / team	Number of teams / day	Total number of people	Frequency of use / day	Total
Physicians / Nurses / Midwives	1	2	2	1	2
Total Team 1	1	2	2	1	2
Sanitation personnel	1	2	2	1	2
Total Team 2	1	2	2	1	2
Estimate for basic PPE					
Additional personnel	4	1	4	2	8

Personnel in transit and observation centers use both full and basic PPE kits. Table 15 presents specific information on the teams involved and the frequency of equipment use.

Table 15. Equipment (full and basic PPE) used in a transit and observation center

Estimate for full PPE	Number of people / team	Number of teams / day	Total number of people	Frequency of use / day	Total
Physicians	1	3	3	2	6
Nurses / Midwives	2	3	6	2	12
Lab Technician	1	1	1	0.5	0.5
Total Team 1	4	3	10	2	18.5
Sanitation personnel	2	3	6	2	12
Total Team 2	2	3	6	2	12
Estimate for basic PPE					
Additional personnel	4	1	4	1	4
Total Team 3	4	1	4	1	4

Table 16 presents specific information on the teams involved and frequency of equipment use for full and basic PPE kits at an Ebola treatment center.

Table 16. Equipment (full and basic PPE) used at an Ebola treatment center

Estimate for full PPE	Number of people / team	Number of teams / day	Total number of people	Frequency of use / day	Total
Physicians	1	3	3	4	12
Nurses / Midwives	2	3	6	4	24
Lab Technician	1	1	1	0.5	0.5
Total Team 1	4	3	10	4	36.5
Sanitation personnel	2	3	6	4	24
Total Team 2	2	3	6	4	24
Estimate for basic PPE					
Lab Assistants	2	1	2	2	4
Additional personnel	6	1	6	1	6
Total Team 3	8	1	8	2	10

Table 17 presents specific information on the teams involved and the frequency of equipment use for full and basic PPE kits at a reference laboratory.

Table 17. Equipment used by reference laboratory teams

Estimate for full PPE	Number of people/ team	Number of teams / day	Total number of people	Frequency of use / day	Total / day
Lab Technician – Inactivation	2	2	4	2	8
Total Team 1	2	2	4	2	8
Estimate for basic PPE					
Lab Technician – PCR	2	1	2	2	4
Lab Director	1	1	1	1	1
Total Team 2	3	1	3	2	4

Table 18 presents specific information on the personnel involved and the frequency of equipment use by mobile intervention teams for full and basic PPE kits.

Table 18. Equipment used by mobile intervention teams

Estimate for full PPE	Number of people / team	Number of teams / case	Total number of people	Frequency of use/ case	Total
Physicians	2	1	2	1	2
Nurses	2	1	2	1	2
Total Team 1	4	1	4	1	4
Sanitation personnel	2	1	2	1	2
Total Team 2	2	1	2	1	2
Estimate for basic PPE					
Driver	1	1	1	1	1
Total Team 3	1	1	1	1	1

Table 19 shows the personnel involved and the frequency of equipment use by safe burial teams for full and basic PPE kits.

Table 19. Equipment used by safe burial teams

Estimate for full PPE	Number of people / team	Number of teams / case	Total number of people	Frequency of use / case	Total
Body-preparer	4	1	4	1	4
Team Total	4	1	4	1	4
Estimate for basic PPE					
Personnel transporting the body	4	1	4	1	4
Sanitation worker	2	1	2	1	2
Supervisor / Mediator	1	1	1	1	1
Driver	1	1	1	1	1
Team Total	8	1	8	1	8

Forecasting results

The forecasting results are based on the demographic method, official statistics, and the epidemiology of Ebola. They establish the conditions of use and usage period for each commodity.

The following two scenarios were used in the forecasting process:

- **Scenario One (SC1)**, the low-transmission scenario for Ebola
- **Scenario Two (SC2)**, the high-transmission scenario for Ebola

Estimates were established for each intervention site under each of these scenarios. The results presented in the following series of tables summarize needs for commodities under a particular scenario at all sites (from treatment centers to security cordons).

Forecast for Scenario 1

Estimated needs for medicines, equipment, and other commodities and related costs

The assumptions established for the low-transmission scenario (SC1) were used as the basis for estimating needs at a single site for a six-month period, by type of site. Tables 20, 21, 22, and 23 show the estimated quantities and costs of needed equipment and other commodities.

Table 20. Estimated quantities of needed equipment and supplies for a six-month period under the low-transmission scenario

Item	Pack-aging unit	Pack-age size	Total for 6 months (units)	Total for 6 months (pack-ages)	Total for 6 months (pack-ages)
1 Non-reusable full PPE	Kit	50	3400	68	68
2 Non-reusable basic PPE	Kit	50	1460	29.2	30
3 Vacutainer needle 21 G / 23 G	Needle	100	172	1.72	2

Results

Item	Pack-aging unit	Pack-age size	Total for 6 months (units)	Total for 6 months (pack-ages)	Total for 6 months (pack-ages)
4	Alcohol 70% concentration 1 liter bottle	Liter	1	60	60
5	Alcohol 70% concentration, pad	Piece	50	360	7.2
6	Bib	Piece	50	2208	44.16
7	Smock – Scrub suit (Pants + top)	Piece	1	150	150
8	Rubber boot	Pair	1	123	123
9	Disposable mask	Piece	50	0	0
10	Hood w/ face shield	Piece	1	288	288
11	Catheter 20 G / 22 G / 24 G	Catheter	50	166.8	3.336
12	Dressing cart	Piece	1	7	7
13	Calcium hydroxide (slaked lime)	Kg	50	100	2
14	Chlorine powder 70% / kg	G	1000	655200	655.2
15	One-piece coverall	Piece	1	0	0
16	Shoe cover, pair	Piece	1	0	0
17	Reusable cuspidor (10-liter bucket with lid)	Piece	1	17	17
18	Thermal imaging camera	Piece	1	2	2
19	Javelle water 12%	Liter	1	1518	1518
20	Cleaning glove	Single glove	1	166.4	166.4
21	Non-sterile powder-free nitrile or latex gloves, sizes 7.5 and 8	Single glove	100	15564	155.64
22	Surgical gloves, sizes 7.5 and 8	Pair of gloves	50	3276	65.52
23	Hydro-alcoholic antiseptic gel, 500 ml	ML	500	250530	501.06
24	Gresil (disinfectant)	Liter	1	282	282
25	Shipping kit (triple package)	Kit	1	92	92
26	Dispenser for chlorine solution (50 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	30	30
27	Dispenser for chlorine solution (100 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	24	24
28	Single hospital bed	Piece	1	11	11
29	Protective goggles with strap	Piece	1	292	292
30	Goggle cleaning solution	Liter	1	32	32
31	Pediatric oxygen mask	Piece	1	5	5
32	Oxygen spectacles (adult)	Piece	1	16.6	16.6
33	Mattress with plastic cover	Piece	1	15	15
34	Injection tray + accessories	Piece	1	8	8
35	Reusable nebulizer (1.5 liters)	Piece	1	77	77
36	Nebulizer, 20 liters	Piece	1	20	20
37	Red plastic trash can liner, 100 liters	Piece	10	1614	161.4
38	Black trash can (risk-free area)	Piece	1	12	12
39	Body bag A: 250 cm / 120 cm and E: 150 cm / 100 cm	Bag	1	10	10
40	Plastic bucket with lid, 20-30 liters	Piece	1	16	16
41	Sphygmomanometer (blood pressure monitor)	Piece	1	11	11
42	Single-use protective apron	Piece	50	0	0
43	Heavy plastic or rubber apron	Piece	1	88	88
44	Thermo Flash	Piece	1	42	42
45	EDTA blood collection tube	Tube	100	224	2.24
46	Sterile polyester swab	Piece	100	9	0.09
47	Viral transport medium (VTM)	Piece	1	47	47
48	Absorbent cotton, 500 g roll	500g roll	1	8	8
49	8-slot metal rack	Piece	1	2	2
50	Indelible ball-point pen (lab marker)	Piece	12	48	4
51	Adhesive label (tube identification)	Piece	50	200	4
52	Pre-cut "Sparadrap" dressing	Piece	50	252	5.04
53	Infusers	Piece	1	46.8	46.8
54	10 cc syringe + G21 needle	Piece	1	98	98
55	Sterile compress 40x40	Piece	10	0	0
56	Transfusers	Piece	1	42.8	42.8

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Item	Pack-aging unit	Pack- age size	Total for 6 months (units)	Total for 6 months (pack- ages)	Total for 6 months (pack- ages)	
57	Blood bag	Piece	1	89.6	89.6	90
58	Two-way bladder catheter 16/18	Piece	1	43.2	43.2	44
59	2-liter urine bag + drain	Piece	1	43.2	43.2	44
60	Plastic tables	Piece	1	21	21	21
61	Plastic chairs	Piece	1	44	44	44
62	Plastic basins (foot baths)	Piece	1	32	32	32
63	5 L safety box for used syringes / needles, etc.	5L boxes	1	66	66	66
64	Tourniquet	Piece	1	84	84	84
65	Bed for security guards	Piece	1	7	7	7
66	Red trash can (at-risk area) - 100L	Piece	1	20	20	20
67	Mirror, 1.80 m x 1m	Piece	1	7	7	7
68	Mineral water, 0.5 L	Liter	0.5	6073	12146	12146
69	Stretcher	Piece	1	5	5	5
70	Folding screen	Piece	1	6	6	6
71	Liquid soap	Liter	1	211.5	211.5	212
72	Absorbent diaper	Piece	1	236	236	236
73	Wheelbarrow	Piece	1	6	6	6
74	Shovel	Piece	1	8	8	8
75	Squeegee	Piece	1	66	66	66
76	Broom	Piece	1	72	72	72
77	Brush	Piece	1	66	66	66
78	Floor cloth	Piece	1	516	516	516
79	Towel	Piece	1	516	516	516
80	Adhesive tape	Piece	1	58.6	58.6	59
81	Large basin	Piece	1	9	9	9
82	Smock	Piece	50	0	0	0
83	Central venous catheter (CVC)	Catheter	1	0	0	0
84	Sugar jar 0.33 liter	Bottle	1	2880	2880	2880
85	Digital thermometer	Piece	1	96	96	96
86	Trash can with foot pedal	Piece	1	13	13	13
87	Jump suit (overall)	Piece	1	8	8	8
88	Liquid phenol (Vesphene)	Liter	5	30	6	6
89	Cryotubes, 1.5 ml and 1.8 ml	Cryotube	100	200	2	2
90	Scotch autoclave tape (autoclave test strips)	Roll	1	6	6	6
91	Cryotube rack	Piece	1	2	2	2
92	Refrigerator - 80 degrees	Piece	1	1	1	1
93	Refrigerator 2- 8 degrees	Piece	1	1	1	1
94	Inactivation reagents	Kit	1	0.4	0.4	1
95	PCR reagents	Kit	1	0.4	0.4	1
96	Extraction reagents	Kit	1	0.4	0.4	1
97	Smock (PCR / Extraction)	Smock	50	120	2.4	3
98	Hair covering	Piece	50	0	0	0
99	Absolute ethanol 96%	Liter	1	1	1	1
100	Electronic Eppendorf-type pipette, 2-20 ul	Piece	1	6	6	6
101	Electronic Eppendorf-type pipette, 20-200 ul	Piece	1	6	6	6
102	Electronic Eppendorf-type pipette, 100-1000 ul	Piece	1	6	6	6
103	Sterile Pasteur transfer pipette	Piece	50	120	2.4	3
104	Three-way digital timer	Piece	1	4	4	4
105	Antiseptic liquid soap, 500 ml	Liter	1	12	12	12
106	Ultra-pure RNase-free water	Liter	1	1	1	1
107	Red 100-liter autoclavable plastic biohazard waste bag	Bag	10	90	9	9
108	Red 5-liter autoclavable plastic biohazard waste bag	Bag	10	90	9	9
109	Thermo Flash batteries	Battery	1	600	600	600

Table 21. Cost of needed equipment and supplies for a six-month period under the low-transmission scenario

Item	Packag-ing unit	Package size	Price per package (USD)	Total cost (USD)
Non-reusable full PPE	Kit	50	\$ 20.00	\$ 1,360.00
Non-reusable basic PPE	Kit	50	\$ 13.00	\$ 390.00
Vacutainer needle 21 G / 23 G	Needle	100	\$ 25.00	\$ 50.00
Alcohol 70% concentration, 1 liter bottle	Liter	1	\$ 3.00	\$ 180.00
Alcohol 70% concentration, pad	Piece	50	\$ 1.00	\$ 8.00
Bib	Piece	50	\$ 3.00	\$ 135.00
Smock – Scrub suit (pants + top)	Piece	1	\$ 15.00	\$ 2,250.00
Rubber boot	Pair	1	\$ 15.00	\$ 1,845.00
Disposable mask	Piece	50	\$ 5.00	\$ 0
Hood w/ face shield	Piece	1	NA	NA
Catheter 20G / 22G / 24G	Catheter	50	\$ 25.00	\$ 100.00
Dressing cart	Piece	1	\$ 180.00	\$ 1,260.00
Calcium hydroxide (slaked lime)	Kg	50	\$ 25.00	\$ 50.00
Chlorine powder 70% / kg	G	1000	\$ 25.00	\$ 16,400.00
One-piece coverall	Piece	1	\$ 13.00	\$ 0
Shoe cover, pair	Piece	1	\$ 0.13	\$ 0
Reusable cuspidor (10-liter bucket with lid)	Piece	1	\$ 1.00	\$ 17.00
Thermal imaging camera	Piece	1	\$ 12,000.00	\$ 24,000.00
Javelle water 12%	Liter	1	\$ 3.00	\$ 4,554.00
Cleaning glove	Single glove	1	\$ 1.50	\$ 250.50
Non-sterile powder-free nitrile or latex gloves, sizes 7.5 and 8	Single glove	100	\$ 5.00	\$ 780.00
Surgical gloves, sizes 7.5 and 8	Pair of gloves	50	\$ 15.00	\$ 990.00
Hydro-alcoholic antiseptic gel, 500 ml	ml	500	\$ 6.00	\$ 3,012.00
Gresil (disinfectant)	Liter	1	NA	NA -
Shipping kit (triple package)	Kit	1	\$ 50.00	\$ 4,600.00
Dispenser for chlorine solution (50 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	\$ 20.00	\$ 600.00
Dispenser for chlorine solution (100 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	\$ 30.00	\$ 720.00
Single hospital bed	Piece	1	\$ 308.00	\$ 3,388.00
Protective goggles with strap	Piece	1	\$ 5.00	\$ 1,460.00
Goggle cleaning solution	Liter	1	\$ 4.00	\$ 128.00
Pediatric oxygen mask	Piece	1	\$ 1.00	\$ 5.00
Oxygen spectacles (adult)	Piece	1	\$ 1.00	\$ 17.00
Mattress with plastic cover	Piece	1	\$ 60.00	\$ 900.00
Injection tray + accessories	Piece	1	\$ 10.00	\$ 80.00
Reusable nebulizer (1.5 liters)	Piece	1	\$ 1.00	\$ 77.00
Nebulizer, 20 liters	Piece	1	\$ 30.00	\$ 600.00
Red plastic trash can liner, 100 liters	Piece	10	\$ 3.00	\$ 486.00
Black trash can (risk-free area)	Piece	1	\$ 3.00	\$ 36.00
Body bag A: 250 cm / 120 cm and E: 150 cm /100 cm	Bag	1	\$ 15.00	\$ 150.00
Plastic bucket with lid, 20-30 liters	Piece	1	\$ 3.00	\$ 48.00
Sphygmomanometer (blood pressure monitor)	Piece	1	NA	NA -
Single-use protective apron	Piece	50	\$ 5.00	\$ 0
Heavy plastic or rubber apron	Piece	1	\$ 3.00	\$ 264.00
Thermo Flash	Piece	1	\$ 50.00	\$ 2,100.00
EDTA blood collection tube	Tube	100	\$ 12.00	\$ 36.00
Sterile polyester swab	Piece	100	\$ 15.00	\$ 15.00
Viral transport medium (VTM)	Piece	1	\$ 50.00	\$ 2,350.00
Absorbent cotton, 500 g roll	500 g roll	1	\$ 3.00	\$ 24.00
8-slot metal rack	Piece	1	\$ 12.00	\$ 24.00
Indelible ball-point pen (lab marker)	Piece	12	\$ 10.00	\$ 40.00
Adhesive label (tube identification)	Piece	50	\$ 10.00	\$ 40.00
Pre-cut "Sparadrap" dressing	Piece	50	\$ 8.00	\$ 48.00
Infusers	Piece	1	\$ 1.20	\$ 56.40
10 cc syringe + G21 needle	Piece	1	\$ 0.20	\$ 19.60
Sterile compress 40x40	Piece	10	\$ 3.00	\$ 0

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Item	Packag-ing unit	Package size	Price per package (USD)	Total cost (USD)
Transfusers	Piece	1	\$ 1.20	\$ 51.60
Blood bag	Piece	1	\$ 20.00	\$ 1,800.00
Two-way bladder catheter 16/18	Piece	1	\$ 1.00	\$ 44.00
2-liter urine bag + drain	Piece	1	\$ 0.40	\$ 17.60
Plastic tables	Piece	1	\$ 12.00	\$ 252.00
Plastic chairs	Piece	1	\$ 10.00	\$ 440.00
Plastic basins (foot baths)	Piece	1	\$ 3.00	\$ 96.00
5 L safety box for used syringes / needles, etc.	5L boxes	1	\$ 5.00	\$ 330.00
Tourniquet	Piece	1	\$ 1.00	\$ 84.00
Bed for security guards	Piece	1	\$ 130.00	\$ 910.00
Red trash can (at-risk area) - 100L	Piece	1	\$ 30.00	\$ 600.00
Mirror, 1.80 m x 1m	Piece	1	NA	NA -
Mineral water, 0.5 L	Liter	0.5	\$ 0.60	\$ 7,287.60
Stretcher	Piece	1	\$ 400.00	\$ 2,000.00
Folding screen	Piece	1	\$ 200.00	\$ 1,200.00
Liquid soap	Liter	1	\$ 2.50	\$ 530.00
Absorbent diaper	Piece	1	\$ 1.00	\$ 236.00
Wheelbarrow	Piece	1	\$ 15.00	\$ 90.00
Shovel	Piece	1	\$ 6.00	\$ 48.00
Squeegee	Piece	1	\$ 5.00	\$ 330.00
Broom	Piece	1	\$ 3.00	\$ 216.00
Brush	Piece	1	\$ 2.00	\$ 132.00
Floor cloth	Piece	1	\$ 1.00	\$ 516.00
Towel	Piece	1	\$ 5.00	\$ 2,580.00
Adhesive tape	Piece	1	\$ 1.00	\$ 59.00
Large basin	Piece	1	\$ 8.00	\$ 72.00
Smock	Piece	50	\$ 120.00	\$ 0
Central venous catheter (CVC)	Catheter	1	\$ 0.50	\$ 0
Sugar jar, 0.33 liter	Bottle	1	\$ 0.80	\$ 2,304.00
Digital thermometer	Piece	1	\$ 8.00	\$ 768.00
Trash can with foot pedal	Piece	1	\$ 15.00	\$ 195.00
Jump suit (overall)	Piece	1	\$ 20.00	\$ 160.00
Liquid phenol (Vesphene)	Liter	5	\$ 560.00	\$ 3,360.00
Cryotubes, 1.5 ml and 1.8 ml	Cryotube	100	\$ 40.00	\$ 80.00
Scotch autoclave tape (autoclave test strips)	Roll	1	\$ 5.00	\$ 30.00
Cryotube rack	Piece	1	\$ 13.00	\$ 26.00
Refrigerator - 80 degrees	Piece	1	NA	NA -
Refrigerator 2- 8 degrees	Piece	1	\$ 2,500.00	\$ 2,500.00
Inactivation reagents	Kit	1	NA	NA -
PCR reagents	Kit	1	NA	NA -
Extraction reagents	Kit	1	NA	NA -
Smock (PCR / Extraction)	Smock	50	NA	NA
Hair covering	Piece	50	NA	NA
Absolute ethanol 96%	Liter	1	NA	NA
Electronic Eppendorf-type pipette, 2-20 ul	Piece	1	\$ 60.00	\$ 360.00
Electronic Eppendorf-type pipette, 20-200 ul	Piece	1	\$ 60.00	\$ 360.00
Electronic Eppendorf-type pipette, 100-1000 ul	Piece	1	\$ 60.00	\$ 360.00
Sterile Pasteur transfer pipette	Piece	50	\$ 60.00	\$ 180.00 -
Three-way digital timer	Piece	1	\$ 18.00	\$ 72.00
Antiseptic liquid soap, 500 ml	Liter	1	\$ 5.00	\$ 60.00
Ultra-pure RNase-free water	Liter	1	NA	NA
Red 100-liter autoclavable plastic biohazard waste bag	Bag	10	NA	NA
Red 5-liter autoclavable plastic biohazard waste bag	Bag	10	NA	NA
Thermo Flash batteries	Battery	1	\$ 1.00	\$ 600.00

Tables 22 and 23 show the estimated quantities and costs of needed medicines and expendable supplies.

Table 22. Estimated needs for medicines for a six-month period under the low-transmission scenario

Name	Dosage	Package size	Total quantity (units)	Total quantity (boxes)
Ribavirin, 200 mg capsules	200 mg	60	96	2
Ribavirin, injection, 100 mg vial	100 mg	1	80	80
Paracetamol, 500 mg tab	500 mg	100	24	1
Paracetamol, 500 mg, inj	10 mg/ml - 50 ml	1	87.36	88
Tramadol, 100 mg, inj	100 mg/2 ml	1	14.4	15
Morphine	10 mg/ml	1	0.08	1
Promethazine	25 mb/ml	1	0.4	1
Metoclopramide, 10 mg, inj	10 mg/2ml	1	18	18
Diazepam 10 mg, inj	10 mg/2ml	1	10.8	11
Chlorpromazine	25 mg/5ml	1	2.4	3
Ceftriaxone 1 g, inj	1 g / 10 ml	1	36	36
Amoxicillin + Clavulanic acid, tab	1 g / 10 ml	1	8	8
Cefixime, 200 mg tab	200 mg /	1	36	36
Ciprofloxacin, 500 mg tab	500 mg	1	40	40
Ciprofloxacin, inj	200 mg /	1	27	27
Metronidazole, 250 mg	250 mg	1	66	66
Metronidazole, 500 mg, inj	500 mg/ inj	1	18	18
Erythromycin, 250 mg	250 mg	1	24	24
Artemether+ Lumefantrine B/24	20/120 mg	24	57.6	3
Vitamin A	200,000 IU	1	24	24
Vitamin B1 complex	50 mg	1	9	9
Vitamin C tab	1 G	1	12	12
Sodium chloride 0.9% - 500 ml	500 ml	1	36	36
Sodium lactate, compound solution (Ringer's lactate) - 500 ml	500 ml	1	96	96
Glucose 5% - 500 ml	500 ml	1	36	36
Sodium bicarbonate serum 1.4% - 500 ml	500 ml		0	0
Potassium chloride 10% - 10 ml	10 ml	1	36	36
Sodium chloride 10%- 10 ml	10 ml	1	72	72
Oral rehydration salt (ORS)	ml	1	84	84
Dopamine, 200 mg, inj	200 mg / 5ml inj	1	0.4	1
Adrenaline, 1 mg, inj	1 mg / ml	1	0.2	1
Artesunate, 60 mg, inj	60 mg	1	0.12	1
Vitamin K1	10 mg/ml	1	12	12
Haemaccel	500 ml	1	16	16
Azithromycin, 250 mg	250 mg	1	6	6
Dexamethasone	4 mg/ml	1	19.2	20
Iron + folic acid	60 mg/400 ug	1	16.8	17
Oxytocin	10 IU	1	0.32	1
Glucose 10%	500 ML	1	5.6	6
Hypertonic glucose 50%	50%	1	1.4	2
Tinidazole, 500 mg	500 mg	1	1.6	2
Polyvidone (povidone) iodine	200 ml	1	5.6	6
Ibuprofen	400 mg	1	75.6	76
Prednisolone drops, 1%	1%	1	16.8	17
Prednisolone tablets	20 mg	1	5.6	6
Methotrexate tablets	10 mg	1	5.6	6
Ranitidine	150 mg	1	16.8	17
Omeprazole tablets	20 mg	1	11.2	12
Haloperidol	25 mg	1	0	0
Atropine drops	0.5%	1	5.6	6
Timolol	0.5%	1	16.8	17

Name	Dosage	Package size	Total quantity (units)	Total quantity (boxes)
Urine pregnancy test	Test		1	20
HIV test	Test		1	0.4
RT/ PCR test	Test		1	4
Malaria RDT	Test		1	40
Amitriptyline	25 mg		1	0

Table 23. Cost of needed medicines for a six-month period under the low-transmission scenario

	Name	Dosage	Package size	Unit price	TOTAL
1	Ribavirin, 200 mg capsules	200 mg	60	\$ 3.00	\$ 360.00
2	Ribavirin, injection, 100 mg vial	100 mg	1	NA	NA
3	Paracetamol, 500 mg tab	500 mg	100	\$ 0.01	\$ 1.00
4	Paracetamol, 500 mg, inj	10 mg/ml - 50 ml	1	\$ 2.00	\$ 176.00
5	Tramadol, 100 mg, inj	100 mg/2ml	1	\$ 0.40	\$ 6.00
6	Morphine	10 mg/ml	1	NA	NA
7	Promethazine	25 mb/ml	1	\$ 0.10	\$ 0.10
8	Metoclopramide, 10 mg, inj	10 mg/2 ml	1	\$ 0.16	\$ 2.88
9	Diazepam, 10 mg, inj	10 mg/2ml	1	\$ 0.20	\$ 2.20
10	Chlorpromazine	25 mg/5ml	1	\$ 0.50	\$ 1.50
11	Ceftriaxone, 1 g, inj	1 g/10 ml	1	\$ 0.74	\$ 26.64
12	Amoxicillin + Clavulanic acid, tab	1 g/10 ml	1	\$ 3.00	\$ 24.00
13	Cefixime, 200 mg tab	200 mg	1	\$ 1.25	\$ 45.00
14	Ciprofloxacin, 500 mg tab	500 mg	1	\$ 0.10	\$ 4.00
15	Ciprofloxacin, inj	200 mg	1	\$ 1.00	\$ 27.00
16	Metronidazole, 250 mg	250 mg	1	\$ 0.008	\$ 0.53
17	Metronidazole, 500 mg, inj	500 mg/inj	1	\$ 1.00	\$ 18.00
18	Erythromycin, 250 mg	250 mg	1	\$ 0.04	\$ 0.96
19	Artemether + Lumefantrine B/24	20/120 mg	24	\$ 1.00	\$ 72.00
20	Vitamin A	200,000 IU	1	\$ 0.03	\$ 0.72
21	Vitamin B1 complex	50 mg	1	\$ 0.03	\$ 0.27
22	Vitamin C tab	1 G	1	\$ 0.01	\$ 0.12
23	Sodium chloride 0.9% - 500 ml	500 ml	1	\$ 0.70	\$ 25.20
24	Sodium lactate, compound solution (Ringer's lactate) - 500 ml	500 ml	1	\$ 0.70	\$ 67.20
25	Glucose 5% - 500 ml	500 ml	1	\$ 0.70	\$ 25.20
26	Sodium bicarbonate serum 1.4% - 500 ml	500 ml		\$ 2.50	\$ -
27	Potassium chloride 10% - 10 ml	10 ml	1	\$ 0.50	\$ 18.00
28	Sodium chloride 10% - 10 ml	10 ml	1	\$ 0.50	\$ 36.00
29	Oral rehydration salt (ORS)	ml	1	\$ 0.10	\$ 8.40
30	Dopamine, 200 mg, inj	200 mg/5ml inj	1	\$ 0.60	\$ 0.60
31	Adrenaline, 1 mg, inj	1 mg/ml	1	\$ 0.10	\$ 0.10
32	Artesunate, 60 mg, inj	60 mg	1	\$ 1.56	\$ 1.56
33	Vitamin K1	10 mg/ml	1	\$ 2.00	\$ 24.00
34	Haemaccel	500 ml	1	NA	NA -
35	Azithromycin, 250 mg	250 mg	1	\$ 1.20	\$ 7.20
36	Dexamethasone	4 mg/ml	1	\$ 0.20	\$ 4.00
37	Iron + folic acid	60 mg/400 ug	1	\$ 0.20	\$ 3.40
38	Oxytocin	10 IU	1	\$ 0.50	\$ 0.50
39	Glucose 10%	500 ML	1	\$ 1.50	\$ 9.00

Results

	Name	Dosage	Package size	Unit price	TOTAL
40	Hypertonic glucose 50%	50%	1	NA	NA
41	Tinidazole, 500 mg	500 mg	1	\$ 1.30	\$ 2.60
42	Polyvidone (povidone) iodine	200 ml	1	\$ 4.00	\$ 24.00
43	Ibuprofen	400 mg	1	\$ 0.50	\$ 38.00
44	Prednisolone drops 1%	1%	1	\$ 4.00	\$ 68.00
45	Prednisolone tablets	20 mg	1	\$ 0.25	\$ 1.50
46	Methotrexate tablets	10 mg	1	\$ 0.20	\$ 1.20
47	Ranitidine	150 mg	1	\$ 0.50	\$ 8.50
48	Omeprazole tablets	20 mg	1	\$ 3.00	\$ 36.00
49	Haloperidol	25 mh	1	NA	NA
50	Atropine drops	0.5%	1	NA	NA
51	Timolol	0.5%	1	\$ 6.00	\$ 102.00
52	Urine pregnancy test	Test	1	\$ 2.00	\$ 40.00
53	HIV test	Test	1	\$ 1.00	\$ 1.00
54	RT/ PCR test	Test	1	NA	NA
55	Malaria RDT	Test	1	\$ 0.40	\$ 16.00
56	Amitriptyline	25 mg	1	\$ 0.10	\$ 0 -
TOTAL					\$ 1,338.08

Forecast for Scenario 2

Estimated needs for medicines, equipment, and other supplies and related costs

The assumptions established for the high-transmission scenario (SC2) were used as the basis for estimating needs at a single site for a six-month period, by type of site. Tables 24, 25, 26, and 27 show the estimated quantities and costs of needed equipment, supplies, and medicines.

Table 24. Estimated needs for equipment and supplies for a six-month period under the high-transmission scenario

Item	Packaging unit	Pack- age size	Total for 6 months (units)	Total for 6 months (pack- ages)	Total for 6 months (pack- ages)	
1	Non-reusable full PPE	Kit	50	18864	377	378
2	Non-reusable basic PPE	Kit	50	11328	227	227
3	Vacutainer needle 21 G / 23 G	Needle	100	39712	397	398
4	Alcohol 70% concentration, 1-liter bottle	Liter	1	360	360	360
5	Alcohol 70% concentration., pad	Piece	50	69250	1385	1385
6	Bib	Piece	50	5928	119	119
7	Smock – Scrub suit (pants + top)	Piece	1	214	214	214
8	Rubber boot	Pair	1	195	195	195
9	Hood w/ face shield	Piece	1	1468	1468	1468
10	Catheter 20G / 22G / 24G	Catheter	50	26979	540	540
11	Dressing cart	Piece	1	19	19	19
12	Calcium hydroxide (slaked lime)	Kg	50	36437	729	729
13	Chlorine powder 70% / kg	g	1000	3817800	3818	3818
14	Reusable cuspidor (10-liter bucket with lid)	Piece	1	57	57	57
15	Thermal imaging camera	Piece	1	2	2	2
16	Javelle water 12%	Liter	1	2844	2844	2844

Item	Packaging unit	Pack- age size	Total for 6 months (units)	Total for 6 months (pack- ages)	Total for 6 months (pack- ages)
17	Cleaning glove	Single glove	1	4254	4254
18	Non-sterile powder-free nitrile or latex gloves, sizes 7.5 and 8	Single glove	100	73584	736
19	Surgical gloves, sizes 7.5 and 8	Pair of gloves	50	41856	837
20	Hydro-alcoholic antiseptic gel 500 ml	ml	500	905010	1810
21	Gresil (disinfectant)	Liter	1	3702	3702
22	Shipping kit (triple package)	Kit	1	9716	9716
23	Dispenser for chlorine solution (50 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	9	9
24	Dispenser for chlorine solution (100 L receptacle with tap + 20-liter bucket and transport device)	Kit	1	27	27
25	Single hospital bed	Piece	1	72	72
26	Protective goggles with strap	Piece	1	1488	1488
27	Goggle cleaning solution	Liter	1	62	62
28	Pediatric oxygen mask	Piece	1	610	610
29	Oxygen spectacles (adult)	Piece	1	3437	3437
30	Mattress with plastic cover	Piece	1	72	72
31	Injection tray + accessories	Piece	1	78	78
32	Reusable nebulizer (1.5 liters)	Piece	1	141	141
33	Nebulizer, 20 liters	Piece	1	23	23
34	Red plastic trash can liner, 100 liters	Piece	10	86678	8668
35	Black trash can (risk-free area)	Piece	1	56	56
36	Body bag A: 250 cm / 120 cm and E: 150 cm / 100 cm	Bag	1	5689	5689
37	Plastic bucket with lid, 20-30 liters	Piece	1	40	40
38	Sphygmomanometer (blood pressure monitor)	Piece	1	1841	1841
39	Heavy plastic or rubber apron	Piece	1	136	136
40	Thermo Flash	Piece	1	34	34
41	EDTA blood collection tube	Tube	100	31449	314
42	Sterile polyester swab	Piece	100	2914	29
43	Viral transport medium (VTM)	Piece	1	14863	14863
44	Absorbent cotton, 500 g roll	500g roll	1	90	90
45	8-slot metal rack	Piece	1	4	4
46	Indelible ball-point pen (lab marker)	Piece	12	234	20
47	Adhesive label (tube identification)	Piece	50	31941	639
48	Pre-cut "Sparadrap" dressing	Piece	50	58262	1165
49	Infusers	Piece	1	12890	12890
50	10 cc syringe + G21 needle	Piece	1	17186	17186
51	Sterile compress 40x40	Piece	10	5371	537
52	Transfusers	Piece	1	17186	17186
53	Blood bag	Piece	1	17186	17186
54	Two-way bladder catheter 16/18	Piece	1	8593	8593
55	2-liter urine bag + drain	Piece	1	8593	8593
56	Plastic tables	Piece	1	57	57
57	Plastic chairs	Piece	1	171	171
58	Plastic basins (foot baths)	Piece	1	66	66

Results

Item	Packaging unit	Pack- age size	Total for 6 months (units)	Total for 6 months (pack- ages)	Total for 6 months (pack- ages)
59	5 L safety box for used syringes / needles, etc.	5L boxes	1	23686	23686
60	Tourniquet	Piece	1	8778	8778
61	Bed for security guards	Piece	1	9	9
62	Red trash can (at-risk area) - 100L	Piece	1	27	27
63	Mirror, 1.80 m x 1m	Piece	1	7	7
64	Mineral water, 0.5 L	Liter	0.5	84962	169923
65	Stretcher	Piece	1	7	7
66	Folding screen	Piece	1	16	16
67	Liquid soap	Liter	1	2385	2385
68	Absorbent diaper	Piece	1	38723	38723
69	Wheelbarrow	Piece	1	6	6
70	Shovel	Piece	1	10	10
71	Squeegee	Piece	1	84	84
72	Broom	Piece	1	78	78
73	Brush	Piece	1	84	84
74	Floor cloth	Piece	1	588	588
75	Towel	Piece	1	588	588
76	Adhesive tape	Piece	1	77.8	78
77	Large basin	Piece	1	15	15
78	Smock	Piece	50	960	19
79	Central venous catheter (CVC)	Catheter	1	3867	3867
80	Sugar jar 0,33 liter	Bottle	1	30960	30960
81	Digital thermometer	Piece	1	422	422
82	Trash can with foot pedal	Piece	1	71	71
83	Jump suit (overall)	Piece	1	24	24
84	Liquid phenol (Vesphene)	Liter	5	60	12
85	Cryotubes, 1.5 ml and 1.8 ml	Cryotube	100	22408	224
86	Scotch autoclave tape (autoclave test strips)	Roll	1	12	12
87	Cryotube rack	Piece	1	4	4
88	Refrigerator - 80 degrees	Piece	1	2	2
89	Refrigerator 2- 8 degrees	Piece	1	1	1
90	Inactivation reagents	Kit	1	45	45
91	PCR reagents	Kit	1	45	45
92	Extraction reagents	Kit	1	45	45
93	Smock (PCR / Extraction)	Smock	50	120	2
94	Absolute ethanol 96%	Liter	1	2	2
95	Electronic Eppendorf-type pipette, 2-20 ul	Piece	1	12	12
96	Electronic Eppendorf-type pipette, 20-200 ul	Piece	1	12	12
97	Electronic Eppendorf-type pipette, 100-1000 ul	Piece	1	12	12
98	Sterile Pasteur transfer pipette	Piece	50	13445	269
99	Three-way digital timer	Piece	1	4	4
100	Antiseptic liquid soap, 500 ml	Liter	1	144	144
101	Ultra-pure RNase-free water	Liter	1	2	2
102	Red 100-liter autoclavable plastic biohazard waste bag	Bag	10	540	54
103	Red 5-liter autoclavable plastic biohazard waste bag	Bag	10	540	54
104	Thermo Flash batteries	Battery	1	960	960

Table 25. Cost of needed equipment and supplies for a six-month period under the high-transmission scenario, per site

Item	Packaging unit	Package size	Price per package	Total cost
1 Non-reusable full PPE	Kit	50	\$ 20.00	\$ 7,560
2 Non-reusable basic PPE	Kit	50	\$ 13.00	\$ 2,951
3 Vacutainer needle 21 G / 23 G	Needle	100	\$ 25.00	\$ 9,950
4 Alcohol 70% concentration, 1-liter bottle	Liter	1	\$ 3.00	\$ 1,080
5 Alcohol 70% concentration, pad	Piece	50	\$ 1.00	\$ 1,385
6 Bib	Piece	50	\$ 3.00	\$ 357
7 Smock – Scrub suit (pants + top)	Piece	1	\$ 15.00	\$ 3,210
8 Rubber boot	Pair	1	\$ 15.00	\$ 2,925
9 Hood w/ face shield	Piece	1	ND	ND
10 Catheter 20G / 22G / 24G	Catheter	50	\$ 25.00	\$ 13,500
11 Dressing cart	Piece	1	\$ 180.00	\$ 3,420
12 Calcium hydroxide (slaked lime)	Kg	50	\$ 25.00	\$ 18,225
13 Chlorine powder 70% / kg	g	1000	\$ 25.00	\$ 95,450
14 Reusable cuspidor (10-liter bucket with lid)	Piece	1	\$ 1.00	\$ 57
15 Thermal imaging camera	Piece	1	\$ 12,000.00	\$ 24,000
16 Javelle water 12%	Liter	1	\$ 3.00	\$ 8,532
17 Cleaning glove	Single glove	1	\$ 1.50	\$ 6,383
18 Non-sterile powder-free nitrile or latex gloves, sizes 7.5 and 8	Single glove	100	\$ 5.00	\$ 3,680
19 Surgical gloves, sizes 7.5 and 8	Pair of gloves	50	\$ 15.00	\$ 12,570
20 Hydro-alcoholic antiseptic gel, 500 ml	ml	500	\$ 6.00	\$ 10,866
21 Gresil (disinfectant)	Liter	1	\$ -	\$ -
22 Shipping kit (triple package)	Kit		\$ 50.00	\$ 485,850
23 Dispenser for chlorine solution (50 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	\$ 20.00	\$ 180
24 Dispenser for chlorine solution (100 L receptacle with tap + 20-liter bucket + transport device)	Kit	1	\$ 30.00	\$ 810
25 Single hospital bed	Piece	1	\$ 308.00	\$ 22,176
26 Protective goggles with strap	Piece	1	\$ 5.00	\$ 7,440
27 Goggle cleaning solution	Liter	1	\$ 4.00	\$ 248
28 Pediatric oxygen mask	Piece	1	\$ 1.00	\$ 611
29 Oxygen spectacles (adult)	Piece	1	\$ 1.00	\$ 3,438
30 Mattress with plastic cover	Piece	1	\$ 60.00	\$ 4,320
31 Injection tray + accessories	Piece	1	\$ 10.00	\$ 780
32 Reusable nebulizer (1.5 liters)	Piece	1	\$ 1.00	\$ 141
33 Nebulizer, 20 liters	Piece	1	\$ 30.00	\$ 690
34 Red plastic trash can liner, 100 liters	Piece	10	\$ 3.00	\$ 26,004
35 Black trash can (risk-free area)	Piece	1	\$ 3.00	\$ 168
36 Body bag A: 250 cm / 120 cm and E: 150 cm / 100 cm	Bag	1	\$ 15.00	\$ 85,350
37 Plastic bucket with lid, 20-30 liters	Piece	1	\$ 3.00	\$ 120
38 Sphygmomanometer (blood pressure monitor)	Piece	1	\$ -	\$ -
39 Heavy plastic or rubber apron	Piece	1	\$ 3.00	\$ 408
40 Thermo Flash	Piece	1	\$ 50.00	\$ 1,700
41 EDTA blood collection tube	Tube	100	\$ 12.00	\$ 3,780
42 Sterile polyester swab	Piece	100	\$ 15.00	\$ 450
43 Viral transport medium (VTM)	Piece	1	\$ 50.00	\$ 743,150
44 Absorbent cotton, 500 g roll	500 g roll	1	\$ 3.00	\$ 270
45 8-slot metal rack	Piece	1	\$ 12.00	\$ 48
46 Indelible ball-point pen (lab marker)	Piece	12	\$ 10.00	\$ 200
47 Adhesive label (tube identification)	Piece	50	\$ 10.00	\$ 6,390
48 Pre-cut “Sparadrap” dressing	Piece	50	\$ 8.00	\$ 9,328
49 Infusers	Piece	1	\$ 1.20	\$ 15,468
50 10 cc syringe + G21 needle	Piece	1	\$ 0.20	\$ 3,437
51 Sterile compress 40x40	Piece	10	\$ 3.00	\$ 1,614
52 Transfusers	Piece	1	\$ 1.20	\$ 20,623

Results

	Item	Packaging unit	Package size	Price per package	Total cost
53	Blood bag	Piece	1	\$ 20.00	\$ 343,720
54	Two-way bladder catheter 16/18	Piece	1	\$ 1.00	\$ 8,593
55	2-liter urine bag + drain	Piece	1	\$ 0.40	\$ 3,437
56	Plastic tables	Piece	1	\$ 12.00	\$ 684
57	Plastic chairs	Piece	1	\$ 10.00	\$ 1,710
58	Plastic basins (foot baths)	Piece	1	\$ 3.00	\$ 198
59	5 L safety box for used syringes / needles, etc.	5L boxes	1	\$ 5.00	\$ 118,430
60	Tourniquet	Piece	1	\$ 1.00	\$ 8,778
61	Bed for security guards	Piece	1	\$ 130.00	\$ 1,170
62	Red trash can (at-risk area) - 100L	Piece	1	\$ 30.00	\$ 810
63	Mirror, 1.80 m x 1 m	Piece	1		\$ -
64	Mineral water, 0.5 L	Liter	0.5	\$ 0.60	\$ 101,954
65	Stretcher	Piece	1	\$ 400.00	\$ 2,800
66	Folding screen	Piece	1	\$ 200.00	\$ 3,200
67	Liquid soap	Liter	1	\$ 2.50	\$ 5,963
68	Absorbent diaper	Piece	1	\$ 1.00	\$ 38,723
69	Wheelbarrow	Piece	1	\$ 15.00	\$ 90
70	Shovel	Piece	1	\$ 6.00	\$ 60
71	Squeegee	Piece	1	\$ 5.00	\$ 420
72	Broom	Piece	1	\$ 3.00	\$ 234
73	Brush	Piece	1	\$ 2.00	\$ 168
74	Floor cloth	Piece	1	\$ 1.00	\$ 588
75	Towel	Piece	1	\$ 5.00	\$ 2,940
76	Adhesive tape	Piece	1	\$ 1.00	\$ 78
77	Large basin	Piece	1	\$ 8.00	\$ 120
78	Smock	Piece	50	\$ 120.00	\$ 2,400
79	Central venous catheter (CVC)	Catheter	1	\$ 0.50	\$ 1,934
80	Sugar jar, 0.33 liter	Bottle	1	\$ 0.80	\$ 24,768
81	Digital thermometer	Piece	1	\$ 8.00	\$ 3,376
82	Trash can with foot pedal	Piece	1	\$ 15.00	\$ 1,065
83	Jump suit (overall)	Piece	1	\$ 20.00	\$ 480
84	Liquid phenol (Vesphene)	Liter	5	\$ 560.00	\$ 6,720
85	Cryotubes, 1.5 ml and 1.8 ml	Cryotube	100	\$ 40.00	\$ 9,000
86	Scotch autoclave tape (autoclave test strips)	Roll	1	\$ 5.00	\$ 60
87	Cryotube rack	Piece	1	\$ 13.00	\$ 52
88	Refrigerator - 80 degrees	Piece	1		\$ -
89	Refrigerator 2- 8 degrees	Piece	1	\$ 2,500.00	\$ 2,500
90	Inactivation reagents	Kit	1		\$ -
91	PCR reagents	Kit	1		\$ -
92	Extraction reagents	Kit	1		\$ -
93	Smock (PCR / Extraction)	Smock	50		\$ -
94	Absolute ethanol 96%	Liter	1		\$ -
95	Electronic Eppendorf-type pipette, 2-20 ul	Piece	1	\$ 60.00	\$ 720
96	Electronic Eppendorf-type pipette, 20-200 ul	Piece	1	\$ 60.00	\$ 720
97	Electronic Eppendorf-type pipette, 100-1000 ul	Piece	1	\$ 60.00	\$ 720
98	Sterile Pasteur transfer pipette	Piece	50		\$ -
99	Three-way digital timer	Piece	1	\$ 18.00	\$ 72
100	Antiseptic liquid soap, 500 ml	Liter	1	\$ 5.00	\$ 720
101	Ultra-pure RNase-free water	Liter	1		\$ -
102	Red 100-liter autoclavable plastic biohazard waste bag	Bag	10		\$ -
103	Red 5-liter autoclavable plastic biohazard waste bag	Bag	10		\$ -
104	Thermo Flash batteries	Battery	1	\$ 1.00	\$ 960
	TOTAL				\$ 2,372,428

Table 26. Estimated needs for medicines for a six-month period under the high-transmission scenario

Name	Dosage	Package size	Total quantity (units)	Total quantity (boxes)
Ribavirin, 200 mg capsules	200 mg	60	72330	1206
Ribavirin, injection, 100 mg vial	100 mg	1	60275	60275
Paracetamol, 500 mg tab	500 mg	100	18082.5	181
Paracetamol, 500 mg, inj	10 mg/ml - 50 ml	1	65820.3	65821
Tramadol, 100 mg, inj	100 mg/2 ml	1	10849.5	10850
Morphine	10 mg/ml	1	60.275	61
Promethazine	25 mb/ml	1	301.375	302
Metoclopramide, 10 mg, inj	10 mg/2 ml	1	13561.9	13562
Diazepam, 10 mg, inj	10 mg/2 ml	1	8137.13	8138
Chlorpromazine	25 mg/5 ml	1	1808.25	1809
Ceftriaxone, 1 g, inj	1 g/10 ml	1	27123.8	27124
Amoxicillin + Clavulanic acid, tab	1 g/10 ml	1	6027.5	6028
Cefixime, 200 mg tab	200 mg	1	27123.8	27124
Ciprofloxacin, 500 mg tab	500 mg	1	30137.5	30138
Ciprofloxacin, inj	200 mg	1	20342.8	20343
Metronidazole, 250 mg	250 mg	1	49726.9	49727
Metronidazole, 500 mg, inj	500 mg/inj	1	13561.9	13562
Erythromycin, 250 mg	250 mg	1	18082.5	18083
Artemether + Lumefantrine B/24	20/120 mg	24	43398	1809
Vitamin A	200,000 IU	1	18082.5	18083
Vitamin B1 complex	50 mg	1	6780.94	6781
Vitamin C tab	1 G	1	9041.25	9042
Sodium chloride 0.9% - 500 ml	500 ml	1	27123.8	27124
Sodium lactate, compound solution (Ringer's lactate) - 500 ml	500 ml	1	72330	72330
Glucose 5% - 500 ml	500 ml	1	27123.8	27124
Sodium bicarbonate serum 1.4% - 500 ml	500 ml		0	
Potassium chloride 10% - 10 ml	10 ml	1	27123.8	27124
Sodium chloride 10% - 10 ml	10 ml	1	54247.5	54248
Oral rehydration salt (ORS)	ml	1	63288.8	63289
Dopamine, 200 mg, inj	200 mg/5ml inj	1	301.375	302
Adrenaline, 1 mg, inj	1 mg/ml	1	150.688	151
Artesunate, 60 mg, inj	60 mg	1	90.4125	91
Vitamin K1	10 mg/ml	1	9041.25	9042
Haemaccel	500 ml	1	12055	12055
Azithromycin, 250 mg	250 mg	1	4520.63	4521
Dexamethasone	4 mg/ml	1	14466	14466
Iron + folic acid	60 mg/400 ug	1	12657.8	12658
Oxytocin	10 IU	1	241.1	242
Glucose 10%	500 ML	1	4219.25	4220
Hypertonic glucose 50%	50%	1	1054.81	1055
Tinidazole, 500 mg	500 mg	1	1205.5	1206
Polyvidone (povidone) iodine	200 ml	1	4219.25	4220
Ibuprofen	400 mg	1	56959.9	56960
Prednisolone drops, 1%	1%	1	12657.8	12658
Prednisolone tablets	20 mg	1	4219.25	4220
Methotrexate tablets	10 mg	1	4219.25	4220
Ranitidine	150 mg	1	12657.8	12658
Omeprazole tablets	20 mg	1	8438.5	8439
Haloperidol	25 mg	1	0	0
Atropine drops	0.5%	1	4219.25	4220
Timolol	0.5%	1	12657.8	12658
Urine pregnancy test	Test	1	2240.75	2241
HIV test	Test	1	301.375	302
RT / PCR test	Test	1	3013.75	3014
Malaria RDT	Test	1	4481.5	4482
Amitriptyline	25 g	1	0	0

Table 27. Cost of needed medicines for a six-month period under the high-transmission scenario, per site

Name	Dosage	Package size	Unit price	TOTAL
Ribavirin, 200 mg capsules	200 mg	60	\$ 3.00	\$ 217,080.00
Ribavirin, injection, 100 mg vial	100 mg	1		\$ -
Paracetamol, 500 mg tab	500 mg	100	\$ 0.01	\$ 181.00
Paracetamol, 500 mg, inj	10 mg/ml - 50 ml	1	\$ 2.00	\$ 131,642.00
Tramadol, 100 mg, inj	100 mg/2 ml	1	\$ 0.40	\$ 4,340.00
Morphine	10 mg/ml	1	NA	NA
Promethazine	25 mb/ml	1	\$ 0.10	\$ 30.20
Metoclopramide, 10 mg, inj	10 mg/2 ml	1	\$ 0.16	\$ 2,169.92
Diazepam, 10 mg, inj	10 mg/2 ml	1	\$ 0.20	\$ 1,627.60
Chlorpromazine	25 mg/5ml	1	\$ 0.50	\$ 904.50
Ceftriaxone, 1 g, inj	1 g/10 ml	1	\$ 0.74	\$ 20,071.76
Amoxicillin + Clavulanic acid, tab	1 g/10 ml	1	\$ 3.00	\$ 18,084.00
Cefixime, 200 mg tab	200 mg	1	\$ 1.25	\$ 33,905.00
Ciprofloxacin, 500 mg tab	500 mg	1	\$ 0.10	\$ 3,013.80
Ciprofloxacin, inj	200 mg	1	\$ 1.00	\$ 20,343.00
Metronidazole, 250 mg	250 mg	1	\$ 0.008	\$ 397.82
Metronidazole, 500 mg, inj	500 mg/inj	1	\$ 1.00	\$ 13,562.00
Erythromycin, 250 mg	250 mg	1	\$ 0.04	\$ 723.32
Artemether + Lumefantrine B/24	20/120 mg	24	\$ 1.00	\$ 43,416.00
Vitamin A	200,000 IU	1	\$ 0.03	\$ 542.49
Vitamin B1 complex	50 mg	1	\$ 0.03	\$ 203.43
Vitamin C tab	1 G	1	\$ 0.01	\$ 90.42
Sodium chloride 0.9% - 500 ml	500 ml	1	\$ 0.70	\$ 18,986.80
Sodium lactate, compound solution (Ringer's lactate) - 500 ml	500 ml	1	\$ 0.70	\$ 50,631.00
Glucose 5% - 500 ml	500 ml	1	\$ 0.70	\$ 18,986.80
Sodium bicarbonate serum 1.4% - 500 ml	500 ml	1	\$ 2.50	\$ 0
Potassium chloride 10% - 10 ml	10 ml	1	\$ 0.50	\$ 13,562.00
Sodium chloride 10% - 10 ml	10 ml	1	\$ 0.50	\$ 27,124.00
Oral rehydration salt (ORS)	ml	1	\$ 0.10	\$ 6,328.90
Dopamine, 200 mg, inj	200 mg/5ml inj	1	\$ 0.60	\$ 181.20
Adrenaline, 1 mg, inj	1 mg/ml	1	\$ 0.10	\$ 15.10
Artesunate, 60 mg, inj	60 mg	1	\$ 1.56	\$ 141.96
Vitamin K1	10 mg/ml	1	\$ 2.00	\$ 18,084.00
Haemaccel	500 ml	1	NA	NA
Azithromycin, 250 mg	250 mg	1	\$ 1.20	\$ 5,425.20
Dexamethasone	4 mg/ml	1	\$ 0.20	\$ 2,893.20
Iron + folic acid	60 mg/400 ug	1	\$ 0.20	\$ 2,531.60
Oxytocin	10 IU	1	\$ 0.50	\$ 121.00
Glucose 10%	500 ML	1	\$ 1.50	\$ 6,330.00
Hypertonic glucose 50%	50%	1	NA	NA
Tinidazole, 500 mg	500 mg	1	\$ 1.30	\$ 1,567.80
Polyvidone (povidone) iodine	200 ml	1	\$ 4.00	\$ 16,880.00
Ibuprofen	400 mg	1	\$ 0.50	\$ 28,480.00
Prednisolone drops, 1%	1%	1	\$ 4.00	\$ 50,632.00
Prednisolone tablets	20 mg	1	\$ 0.25	\$ 1,055.00
Methotrexate tablets	10 mg	1	\$ 0.20	\$ 844.00
Ranitidine	150 mg	1	\$ 0.50	\$ 6,329.00
Omeprazole tablets	20 mg	1	\$ 3.00	\$ 25,317.00
Haloperidol	25 mg	1	NA	NA
Atropine drops	0.5%	1	NA	NA
Timolol	0.5%	1	\$ 6.00	\$ 75,948.00
Urine pregnancy test	Test	1	\$ 2.00	\$ 4,482.00
HIV test	Test	1	\$ 1.00	\$ 302.00
RT / PCR test	Test	1	NA	NA
Malaria RDT	Test	1	\$ 0.40	\$ 1,792.80
Amitriptyline	25 mg	1	NA 0.10	\$ 0
TOTAL				\$897,300.62

CHALLENGES

The quantification exercise faced several challenges, including:

- The lack of a national list of commodities.
- Inadequate epidemiological data.
- The lack of duly disseminated instructions and standard operating procedures for the treatment of Ebola.
- The estimation of the minimum quantities to be made available for provision. These quantities are based on the results of the quantification exercise.
- The lack of a validated contingency plan.

RECOMMENDATIONS

The quantification exercise led to the formulation of the following recommendations:

- Implement emergency measures to ensure the proper management of currently available commodities whose expiration dates are coming due (DPM).
- Establish the definitive number of sites (CTOs, CTEs, etc.) to fine-tune the quantities needed for procurement in anticipation of an outbreak (EOC).
- Establish specifications for the procurement of commodities (EOC).
- Establish the lead times for the delivery of supplies (DPM).
- Finalize and validate the contingency plan (EOC).
- Conduct other workshops to assess the needs for other inputs, such as communications, human resources, training, psycho-social treatment services, infrastructure, logistics, etc. (EOC).

ANNEXES

Annex A: Contents of the basic PPE kit

Item	Quantity
Surgical gloves	One pair
Nitrile gloves	One pair
Apron	1
Bib	1
Cap	1
Hood	1
Boots	One pair
Face shield / goggles	1

Annex B: Contents of the full PPE kit

Item	Quantity
One-piece coverall	1
Mask	1
Surgical gloves	One pair
Disposable apron	1
Bib	1
Cap	1
Shoe cover	One pair
Scrub suit	One pair
Face shield	1
Boots	One pair
Goggles	1

Annex C: List of participants

N°	First and last names	Organization	Contact	Email address
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