



NEST360 | UNICEF Health Facility Assessment (HFA)

Biomedical Technician Workshop Module

Version: October 22, 2021

Date (yyyy/mm/dd): / /

Data Collector 1 (first and last name):

Data Collector 2 (first and last name):

Facility Name:

Facility Code:

Module Overview for Biomedical Technician Workshop

Section 1: Spare Parts & Tools (direct towards the Head Biomed Engineer/technician in maintenance department)

Section 2: Storage & Layout (direct towards the biomed maintenance staff)

Section 3: Other Workshop Questions (direct towards the Head Biomed Engineer/technician in maintenance department)

Section 4: Maintenance & Repair (direct towards the biomed maintenance staff)

Facility Name:

Facility Code:

Section 1. Spare Parts and Tools

Instructions: Please have all participants fill in their names and positions below, before completing the following forms in *Section 1. Spare Parts and Tools*.

Respondents	
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position

Facility Name:

Facility Code:

Section 1. Spare Parts and Tools

Instructions: Direct these questions to the head biomedical engineer or technician of the maintenance department or, if available, direct these questions to the spare parts, tools, or general workshop manager. *Observe* the items. The following questions will ask about the availability of various supplies. For the following questions you should first assess if the item is available today through observation. If no item is available, select “**not available today**”. If the item is available today and has not been out of stock in the last four weeks, select “**available and no stockout in last 4 weeks**”. If the item is available today, but there has been a stock out at any point in the last four weeks, select “**available today, but stockout in last 4 weeks**”.

Prompt: “I'd like to ask you a few questions on spare parts and tools.”

1A. Workshop

No.	Item	Response
1.01	Is there a dedicated workshop area?	<input type="radio"/> Yes <input type="radio"/> No

1B. Personal Protective Equipment (PPE)

No.	Item	Response
1.02	What, if any, personal protective equipment is available in the workshop? <i>(Read all response options aloud. Select all that apply.)</i>	<input type="checkbox"/> Overalls/jumpsuit <input type="checkbox"/> Gloves (reusable) <input type="checkbox"/> Face mask (dust/debris) <input type="checkbox"/> Face mask (surgical) <input type="checkbox"/> Face mask (N95) <input type="checkbox"/> Face shield <input type="checkbox"/> Goggles (infection prevention) <input type="checkbox"/> Goggles (safety)

1C. Spare Parts

No.	Item	Response
General Spare Parts		
1.03	What general spare parts are available? <i>(Read and observe)</i>	
1.03a	Power cables	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.03b	9V batteries	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.03c	AA batteries	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.03d	AAA batteries	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.03e	Fuses (various)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Glucometers		
1.04	What spare parts are available for glucometers? <i>(Read and observe)</i>	
1.04a	Batteries	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

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No.	Item	Response
Pulse Oximeters		
1.05	What spare parts are available for pulse oximeters? (<i>Read and observe</i>)	
1.05a	Neonatal sized pulse oximetry probe (reusable, clip)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.05b	Neonatal sized pulse oximetry probe (reusable, wrap)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.05c	Recharger for batteries	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Radiant Warmers		
1.06	What spare parts are available for radiant warmers? (<i>Read and observe</i>)	
1.06a	Temperature probe	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.06b	Circuit board (control)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.06c	Circuit board (heating element)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.06d	Power supply unit	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.06e	LCD	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.06f	Heating element	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Incubators		
1.07	What spare parts are available for incubators? (<i>Read and observe</i>)	
1.07a	Circuit board (control)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.07b	Heating element	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.07c	Temperature probe	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.07d	Fan	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.07e	Control panel (membrane or LCD)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Oxygen Cylinders		
1.08	What spare parts are available for oxygen cylinders? (<i>Read and observe</i>)	
1.08a	Pressure regulator	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.08b	Stop valve	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.08c	Cap	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.08d	Pressure gauge	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.08e	Flowmeter	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.08f	Pigtail with Safety Wire	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Oxygen Concentrators		
1.09	What spare parts are available for oxygen concentrators? (<i>Read and observe</i>)	
1.09a	Flowmeter	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09b	Circuit board (control)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09c	Circuit board (oxygen monitoring)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09d	Circuit board (fan)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09e	Fan	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.09f	Solenoid valves (4-way)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09g	Solenoid valves (equalization)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09h	Molecular sieve beds	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09ii	Power supply unit	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09j	Intake Filter (internal, fine particle)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09k	Intake Filter (external, gross particle)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09l	Reservoir tank	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09m	Resonator	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09n	Compressor	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09o	Compressor rebuild component	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.09p	Starting capacitor	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Oxygen Flow Splitters		
1.10	What spare parts are available for oxygen flow splitters? (<i>Read and observe</i>)	
1.10a	Flowmeter	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Suction Pumps (portable, electrical with accessories)		
1.11	What spare parts are available for suction pumps (portable, electrical with accessories)? (<i>Read and observe</i>)	
1.11a	Pump assembly	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.11b	Vacuum gauge	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.11c	Filter (bacterial)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.11d	Collection reservoir	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.11e	Collection reservoir lid	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.11f	Power supply unit	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Suction Pumps (manual, non-electric power dependent)		
1.12	What spare parts are available for suction pumps (manual, non-electric power dependent)? (<i>Read and observe</i>)	
1.12a	Piston assembly	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.12b	Vacuum gauge	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.12c	Filter (bacterial)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.12d	Collection reservoir and lid	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
LED Phototherapy Lights		
1.13	What spare parts are available for LED phototherapy lights? (<i>Read and observe</i>)	
1.13a	Circuit board (control)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.13b	Power supply unit	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.13c	LED circuit or module	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.13d	Control panel (membrane or LCD)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
Fluorescent Phototherapy Lights		
1.14	What spare parts are available for fluorescent phototherapy lights? (<i>Read and observe</i>)	
1.14a	Fluorescent bulb	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.14b	Power supply unit	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
CPAP Driver System (Standard or Bubble CPAP) with Accessories		
1.15	What spare parts are available for CPAP driver system (standard or bubble CPAP) with accessories? (<i>Read and observe</i>)	
1.15a	Pump assembly	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.15b	Filter (internal, pump)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.15c	Flowmeter	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.15d	O-ring	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.15e	Power supply unit	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

1D. Tools

No.	Item	Response
What (if any) tools are available? (<i>Read and observe</i>)		
1.16	Digital Multi meter, digital, LED, with accessories; comparable or similar to Fluke brand piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.17	Penlight torch piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.18	Pocket magnifier piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.19	160 mm combination pliers (heavy duty) piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.20	Junior hack saw and blade piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.21	Hammer, soft-faced; 1 lb. piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.22	Hammer, ballpein; 1 lb. piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.23	Soldering station with iron; 240 Vac, 300-500 watts	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.24	Soldering wire	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.25	Soldering tip cleaner (solution or wire sponge)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.26	Desoldering pump or sucker	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.27	Solder braid wick	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.28	Imperial hex (Allen) key set	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.29	Tape measure; 3 meters; metal, metric piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.30	Metric hex (Allen) key set	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.31	Parallel tip screwdriver; 6 x 3/16 in. piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.32	Flared screwdriver; 4 x 1/4 in. piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.33	Diagonal cutter; 130 mm heavy duty piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.34	Straight tweezers piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.35	Polycarbonate brass trimmer set (7 items)	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.36	Insulated inspection screwdriver (165 mm) piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.37	Offset blade screwdriver (2 x 6 mm) pieces	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.38	Adjustable wire stripper/crimping tool combination; 0.25 to 0.8 mm piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.39	Terminal screwdriver piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.40	1.5 mm slot screwdriver piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.41	2.5 mm slot screwdriver piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.42	Reversible screwdriver (No.1 and ¾ in. Blades) each	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.43	Engineer's files; wooden handle; hand, square, warding, half round, round, and three-square in plastic wallet set	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.44	Tx 8, Tx 10, Tx 15 and Tx 20 Torx	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.45	1.5 mm and 2.5 mm ball end drivers	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.46	1.5 mm and 2.5 mm nut driver	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.47	Bevelled cutter; 4 in. piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.48	Small snipe-nose pliers piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

No.	Item	Response
1.49	Interchangeable Jeweler's screw drivers with 3 flats and 2 crosshead bits set	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.50	4 in. and 6 in. adjustable spanner each	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.51	150 mm utility pliers (heavy duty) piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today
1.52	Snap-off blade knife piece	<input type="radio"/> Available today and no stockout in last 4 weeks <input type="radio"/> Available today, but stockout in last 4 weeks <input type="radio"/> Not available today

Facility Name:

Facility Code:

Section 2. Storage and Layout

Instructions: Please have all participants fill in their names and positions below, before completing the following forms in *Section 2. Storage and Layout*.

Respondents	
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position

Facility Name:

Facility Code:

Section 2. Storage and Layout

Instructions: The data collection team should direct these questions to the biomedical maintenance staff and observe. For some questions, you will need to ask and observe the staff or specific items/spaces at the facility. If a response is unknown, write “unknown” or select “unknown” from the multiple-choice answers.

Prompt: “I'd like to ask you a few questions and observe the storage and layout of the workshop”.

Section 2A. Storage Location for New Equipment

No.	Item	Response	Skip To
2.01	Is there a storage location available for new equipment?	<input type="radio"/> Yes <input type="radio"/> No	If “No”, skip to 2.07
2.02	Which of the following, if any, are available today in the storage location for new equipment? (Read all response options aloud. Observe and select all that apply.)		
2.02a	Pallet storage/appropriate racking	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02b	Temperature and relative humidity monitoring and recording systems	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02c	Fire protection and fighting equipment	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02d	Warning and information signs	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02e	Quality assurance system and record keeping	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02f	Controlled access (e.g., sign in sheet)	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02g	Lighting sufficient to view all racking areas	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02h	6 x 6 m or more free space for orderly packing, loading & unloading of equipment	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02i	Outside space for loading/unloading equipment	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02j	Transport structures (picking trolley, etc.)	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02k	First aid kit	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.02l	Adequate PPE (dust mask, safety goggles, etc.)	<input type="radio"/> Available today <input type="radio"/> Not available today	—
2.03	<i>For observation only:</i> Is the storage location for new equipment free and protected from insects, birds, and rodents?	<input type="radio"/> Yes <input type="radio"/> No	—
2.04	<i>For observation only:</i> Is the storage location for new equipment visibly clean today?	<input type="radio"/> Yes <input type="radio"/> No	—
2.05	<i>For observation only:</i> Is the storage location for new equipment secured?	<input type="radio"/> Yes <input type="radio"/> No	—
2.06	<i>For observation only:</i> Is there ventilation in the storage location for new equipment?	<input type="radio"/> Yes <input type="radio"/> No	—

Facility Name:

Facility Code:

No.	Item	Response	Skip To
2.07	What minimum documentation is available for each equipment order? (Observe documentation. Select all that apply.)	<input type="checkbox"/> None <input type="checkbox"/> Date of receipt <input type="checkbox"/> Name and description <input type="checkbox"/> Quantity received <input type="checkbox"/> Name and address of supplier <input type="checkbox"/> Batch numbers <input type="checkbox"/> Expiry date if applicable	—
2.08	Is there a location for decommissioned equipment?	<input type="radio"/> Yes <input type="radio"/> No	—

Section 2B. Workshop Space and Organization

No.	Item	Response
2.09	Does the maintenance workshop have an independent space?	<input type="radio"/> Yes <input type="radio"/> No
2.10	What, if any, device sorting system is used? (Select all that apply)	<input type="checkbox"/> No sorting system used <input type="checkbox"/> Ward <input type="checkbox"/> Type <input type="checkbox"/> Time received <input type="checkbox"/> Other (specify below)

Section 2C. Workshop Layout and Infrastructure

Instructions: Please measure the dimensions of the workshop room(s) in cm and draw a basic outline on separate blank pieces of paper with the following designated sections and components.

If the workshop is made up of multiple rooms, please draw each room on a separate sheet of paper. The first diagram should be an overview of all the rooms and subsequent drawings should be detailed diagrams of each room. For each diagram, label what areas are in the diagram (e.g., overall layout, detailed diagram of storage areas, etc.).

Please take at least three photos of the workshop from different angles. If there are multiple rooms, please take photos of each room.

No.	Item	Notes
Designated Sections		
2.11	Office space(s)	
2.12	Service manuals section(s)	
2.13	Tool storage section(s)	
2.14	Spare parts storage section(s)	
2.15	PPE storage section(s)	
2.16	Devices in progress section(s)	
2.17	Repaired devices section(s)	
2.18	To be decommissioned section(s)	
2.19	Equipment storage section(s)	
Components		
2.20	Repair bench	
2.21	Welding station	
2.22	Soldering station	
2.23	Shelving	

Facility Name:

Facility Code:

No.	Item	Notes
2.24	Racking	
2.25	Caging	
2.26	Doors	
2.27	Sinks	
2.28	Outlets	

Section 2D. Areas Shown in Photographs and Diagrams

Instructions: Please answer the following questions about the areas of the workshops shown in diagrams and photographs.

No.	Item	Notes
2.29	Which areas are in the photograph?	<input type="checkbox"/> Office space <input type="checkbox"/> Service manuals section <input type="checkbox"/> Tool storage <input type="checkbox"/> Spare parts storage <input type="checkbox"/> PPE storage <input type="checkbox"/> Devices in progress section <input type="checkbox"/> Repaired devices section <input type="checkbox"/> To be decommissioned section <input type="checkbox"/> Equipment storage section <input type="checkbox"/> Components <input type="checkbox"/> Repair bench <input type="checkbox"/> Welding station <input type="checkbox"/> Soldering station <input type="checkbox"/> Shelving <input type="checkbox"/> Racking <input type="checkbox"/> Caging <input type="checkbox"/> Other (<i>specify below</i>)
2.30	Which areas are in the diagram?	<input type="checkbox"/> Overall layout <input type="checkbox"/> Office space <input type="checkbox"/> Service manuals section <input type="checkbox"/> Tool storage <input type="checkbox"/> Spare parts storage <input type="checkbox"/> PPE storage <input type="checkbox"/> Devices in progress section <input type="checkbox"/> Repaired devices section <input type="checkbox"/> To be decommissioned section <input type="checkbox"/> Equipment storage section <input type="checkbox"/> Components <input type="checkbox"/> Repair bench <input type="checkbox"/> Welding station <input type="checkbox"/> Soldering station <input type="checkbox"/> Shelving <input type="checkbox"/> Racking <input type="checkbox"/> Caging <input type="checkbox"/> Other (<i>specify below</i>)

Facility Name:

Facility Code:

Section 3. Other Workshop Questions

Instructions: Please have all participants fill in their names and positions below, before completing the following forms in *Section 3. Other Workshop Questions*.

Respondents	
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position

Facility Name:

Facility Code:

Section 3. Other Workshop Questions

Instructions: The data collection team should direct these questions to head biomedical engineer or technician of the maintenance department and observe. For some questions, you will need to ask and observe the staff or specific items/spaces at the facility. If a response is unknown, write “unknown” or select “unknown” from the multiple-choice answers.

3A. Documentation

No.	Item	Response
3.01	What documentation is available in the workshop? (Select all that apply)	<input type="checkbox"/> None <input type="checkbox"/> Corrective maintenance job cards <input type="checkbox"/> Planned preventive maintenance job cards <input type="checkbox"/> Stock cards <input type="checkbox"/> Tool requisition register <input type="checkbox"/> Spare parts requisition register <input type="checkbox"/> Equipment/asset tags <input type="checkbox"/> Decommissioning records <input type="checkbox"/> Procurement records

3B. Planned Preventive Maintenance

No.	Item	Response	Skip To
3.02	Is there a Planned Preventive Maintenance System in use?	<input type="radio"/> Yes <input type="radio"/> No	If “No”, skip to 3.06
3.03	Which, if any, wards are covered by the Planned Preventive Maintenance System? (Select all that apply)	<input type="checkbox"/> Neonatal unit <input type="checkbox"/> Postnatal unit <input type="checkbox"/> Labour & delivery ward <input type="checkbox"/> None of the above	
3.04	Are specific staff allocated to each ward? (Staff can be assigned to one ward or multiple wards)	<input type="radio"/> Yes <input type="radio"/> No	
3.05	What is the frequency of scheduled preventive maintenance? (Select one)	<input type="radio"/> Biweekly <input type="radio"/> Monthly <input type="radio"/> Quarterly <input type="radio"/> Annually <input type="radio"/> Other (specify below)	

Facility Name:

Facility Code:

3C. Corrective Maintenance

No.	Item	Response	Skip To
3.06	Is there a Corrective Maintenance System in use?	<input type="radio"/> Yes <input type="radio"/> No	If "No", skip to 3.11
3.07	Which, if any, wards are covered by the Corrective Maintenance System? (Select all that apply)	<input type="checkbox"/> Neonatal unit <input type="checkbox"/> Postnatal unit <input type="checkbox"/> Labour & delivery ward <input type="checkbox"/> None of the above	—
3.08	How are staff allocated for corrective maintenance? (Select one)	<input type="radio"/> By ward <input type="radio"/> By availability <input type="radio"/> Other (specify below)	—
			—
3.09	Is there an existing referral system in use to send devices offsite for maintenance?	<input type="radio"/> Yes <input type="radio"/> No	—
3.10	Are corrective repairs documented?	<input type="radio"/> Yes <input type="radio"/> No	—

3D. Decommissioning

No.	Item	Response	Skip To
3.11	Is there a decommissioning system in use?	<input type="radio"/> Yes <input type="radio"/> No	If "No", skip to 3.19
3.12	Is there a clear, written procedure for decommissioning? (Observe written procedure)	<input type="radio"/> Yes <input type="radio"/> No	—
3.13	Which, if any, of the following are included in the clear written procedure? (Read all response options aloud and select all that apply)	<input type="checkbox"/> Decommission <input type="checkbox"/> Decontaminate <input type="checkbox"/> Eliminate <input type="checkbox"/> None	—
3.14	Which, if any, of the following are included in the clear written procedure regarding the initial Decommission step? (Read all response options aloud and select all that apply)	<input type="checkbox"/> Request to decommission (user/biotech) <input type="checkbox"/> Decommission confirmation (manager/biotech) <input type="checkbox"/> Decommission approver (manager/MOH) <input type="checkbox"/> Clear points of contact at each decommissioning stage <input type="checkbox"/> None	—
3.15	Which, if any, of the following are included in the clear written procedure regarding the second Decontaminate step? (Read all response options aloud and select all that apply)	<input type="checkbox"/> Disassemble <input type="checkbox"/> Manual cleaning <input type="checkbox"/> Mechanical cleaning <input type="checkbox"/> Disinfect <input type="checkbox"/> None	—

Facility Name:

Facility Code:

No.	Item	Response	Skip To
3.16	Which, if any, of the following are included in the clear written procedure regarding the final Eliminate step? <i>(Read all response options aloud and select all that apply)</i>	<input type="checkbox"/> Disposal <input type="checkbox"/> Reuse <input type="checkbox"/> Refurbish <input type="checkbox"/> Reprocess <input type="checkbox"/> Upgrade <input type="checkbox"/> Donate <input type="checkbox"/> Sell <input type="checkbox"/> Trade-in <input type="checkbox"/> Reassign internally <input type="checkbox"/> None	—
3.17	Is there an inventory of decommissioned equipment?	<input type="radio"/> Yes <input type="radio"/> No	—
3.18	What, if any, challenges are there to decommissioning equipment? <i>(Select all that apply)</i>	<input type="checkbox"/> None <input type="checkbox"/> Long process <input type="checkbox"/> Too many approvers <input type="checkbox"/> Lack of familiarity (at any level, e.g., approver, biotech) <input type="checkbox"/> No plan for device replacement <input type="checkbox"/> Other <i>(specify below)</i>	—
			—

3E. Equipment Leasing and Servicing Contracts

No.	Item	Response
3.19	Are equipment leasing and servicing contracts in use?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
3.20	Which, if any, of the following are included in the service provider assessment procedure? <i>(Select all that apply)</i>	<input type="checkbox"/> Responsiveness to fault (e.g., within 48 hours) <input type="checkbox"/> Prior programme of attendance for servicing equipment <input type="checkbox"/> Timely reports produced <input type="checkbox"/> Timely job cards produced <input type="checkbox"/> Responsiveness to requested interventions/issues <input type="checkbox"/> Responsibility in assessing when necessary <input type="checkbox"/> Responsibility in intervening when necessary <input type="checkbox"/> Appropriate skills transfer provided across devices <input type="checkbox"/> None of the above

Facility Name:

Facility Code:

3F. Electronic Maintenance System

No.	Item	Response
3.21	Is an electronic maintenance system in use?	<input type="radio"/> Yes <input type="radio"/> No
3.21a	What is the name of the system?	Name:
3.22	What is covered by the electronic maintenance system? (Select all that apply)	<input type="checkbox"/> Equipment Inventory <input type="checkbox"/> Spare Parts Inventory <input type="checkbox"/> Planned Preventive Maintenance <input type="checkbox"/> Corrective Maintenance Record <input type="checkbox"/> Spare Parts Tracking <input type="checkbox"/> Reporting <input type="checkbox"/> Repair Library <input type="checkbox"/> Decommissioning <input type="checkbox"/> Other (specify below)

3G. Reporting

No.	Item	Response
3.23	Are monthly reports developed to report to any of the following audiences? (Select all that apply)	<input type="checkbox"/> None <input type="checkbox"/> Hospital admin <input type="checkbox"/> Regional/District health officers <input type="checkbox"/> Ministry of Health (national) <input type="checkbox"/> Unknown <input type="checkbox"/> Other (specify below)
3.24	Are infrastructural issues (e.g., power or water interruptions) included in reports?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
3.25	Are equipment maintenance issues included in reports?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
3.26	<i>For observation only:</i> Are reports organized and available for review?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/>

If reports are available for review, please write the date of the most recent report (yyyy/dd/mm):
 ____/____/____

Facility Name:

Facility Code:

3H. Human Resources

No.	Item	Response
3.27	Which, if any, of the following staff cadres are allocated to the maintenance department? (Select all that apply)	<input type="checkbox"/> Biomedical engineers <input type="checkbox"/> Medical technicians/biomedes <input type="checkbox"/> Spare parts requisition managers <input type="checkbox"/> Tools requisition managers <input type="checkbox"/> Electricians <input type="checkbox"/> Plumbers <input type="checkbox"/> Carpenters <input type="checkbox"/> Bricklayers <input type="checkbox"/> Painters
3.28	How many of each staff type are currently employed in the maintenance department?	Biomedical engineers: Number:
		Medical technicians/biomedes: Number:
		Spare parts requisition managers: Number:
		Tools requisition managers: Number:
		Electricians: Number:
		Plumbers: Number:
		Carpenters: Number:
		Bricklayers: Number:
Painters: Number:		
3.29	Are the biomedical engineers exclusively assigned to this facility?	<input type="radio"/> Yes <input type="radio"/> No
3.30	Are the medical technicians/biomedes exclusively assigned to this facility?	<input type="radio"/> Yes <input type="radio"/> No

Facility Name:

Facility Code:

3I. Staff Scheduling

Instructions: Someone is considered **physically present** if they are physically present anywhere at the facility, not just the neonatal ward. Someone is considered **on-call** if they can be called and reach the hospital within 30 minutes or if they are able to provide support needed by telephone. On-call **excludes the staff that are physically present at the time**, and only includes additional staff that have set times during which they could be called to the hospital if they are needed.

No.	Which of the following time(s) is the facility staffed by medical technicians/biomedes or engineers?	Response		
		Is the biomed staff physically present?		If yes, how many?
	Regular Schedule (not on-call staff)			
3.31	Monday-Friday during the day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.32	Monday-Friday during the night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.33	Saturday during the day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.34	Saturday during the night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.35	Sunday during the day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.36	Sunday during the night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.37	Last night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.38	Today	<input type="radio"/> Yes	<input type="radio"/> No	Number:
	On-Call Schedule	Is biomed staff on-call?		If yes, how many?
3.39	Monday-Friday during the day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.40	Monday-Friday during the night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.41	Saturday during the day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.42	Saturday during the night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.43	Sunday during the day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.44	Sunday during the night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.45	Last night	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.46	Day	<input type="radio"/> Yes	<input type="radio"/> No	Number:
3.47	Today	<input type="radio"/> Yes	<input type="radio"/> No	Number:

3J. Other

No.	Item	Response
3.48	Is there a procurement plan in place for medical devices?	<input type="radio"/> Yes <input type="radio"/> No
3.49	Are there guidelines or a system for receiving equipment donations?	<input type="radio"/> Yes <input type="radio"/> No
3.50	Which, if any, of the following meetings include biomedical or maintenance staff? (Select all that apply)	<input type="checkbox"/> None <input type="checkbox"/> Management meetings <input type="checkbox"/> Budget planning <input type="checkbox"/> Procurement planning

Facility Name:

Facility Code:

Section 4. Maintenance and Repair

Instructions: Please have all participants fill in their names and positions below, before completing the following forms in *Section 4. Maintenance and Repair*.

Respondents	
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position
Respondent Name (first and last name)	Respondent Position

Facility Name:

Facility Code:

Section 4. Maintenance and Repair

Instructions: The data collection team should direct these questions to head biomedical engineer or technician of the maintenance department and observe. For some questions, you will need to ask and observe the staff or specific items/spaces at the facility. If a response is unknown, write “unknown” or select "unknown" from the multiple-choice answers.

4A. In the Neonatal Unit

No.	Item	Response
4.01	<i>For observation only:</i> Is there an inventory list of all the equipment in this unit?	<input type="radio"/> Yes <input type="radio"/> Yes, but not observed <input type="radio"/> No
4.02	Who employs the technician?	<input type="radio"/> Hospital <input type="radio"/> Ministry of Health <input type="radio"/> Distributor <input type="radio"/> Manufacturer <input type="radio"/> Unknown <input type="radio"/> Other (<i>specify below</i>)
4.03	Is repair of medical equipment free for the facility?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
4.04	Who primarily funds the spare parts when equipment breaks? (<i>Select all that apply</i>)	<input type="checkbox"/> Hospital <input type="checkbox"/> Government <input type="checkbox"/> Donation from NGO <input type="checkbox"/> Private purchase <input type="checkbox"/> Unknown <input type="checkbox"/> Other (<i>specify below</i>)
4.05	What do you think is the biggest barrier to repairing equipment? (<i>Select one</i>)	<input type="radio"/> Insufficient number of technicians <input type="radio"/> Lack of training for technician <input type="radio"/> Cost of repair <input type="radio"/> Lack of spare parts <input type="radio"/> Lack of tools for repair <input type="radio"/> Other (<i>specify below</i>)

Facility Name:

Facility Code:

4B. Biomedical Services

Instructions: 'On the job training' is defined as any training undertaken while you are doing the job, including mentorship, informal training, shadowing and side-by-side work. 'A course' is defined as any formal training undertaken during your employment period, but not while you are at work. This could include any offsite or onsite training course.

No.	Item	Response
4.06	Repairing CPAP Device	
4.06a	Does your facility provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.06b	Were you trained during pre-service training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.06c	Have you ever received a course on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.06d	Have you ever received on the job training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.07	Repairing Oxygen Concentrators	
4.07a	Does your facility provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.07b	Were you trained during pre-service training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.07c	Have you ever received a course on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.07d	Have you ever received on the job training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.08	Providing Routine Maintenance on Oxygen Concentrators	
4.08a	Does your facility provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.08b	Were you trained during pre-service training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.08c	Have you ever received a course on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.08d	Have you ever received on the job training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.09	Repairing Phototherapy Lights	
4.09a	Does your facility provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.09b	Were you trained during pre-service training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.09c	Have you ever received a course on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.09d	Have you ever received on the job training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No

Facility Name:

Facility Code:

No.	Item	Response
4.10	Providing Routine Maintenance on Phototherapy Lights	
4.10a	Does your facility provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.10b	Were you trained during pre-service training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.10c	Have you ever received a course on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No
4.10d	Have you ever received on the job training on how to provide this service?	<input type="radio"/> Yes <input type="radio"/> No