CCEOP technical and target requirements

Technical requirements for CCEOP eligibility in 2018

Technical requirements	Solar Direct Drive refrigerators[1] (SDD)	Ice-Lined Refrigerators (ILR)	On-grid freezers	SDD freezers	Long-term passive devices	Cold boxes	Vaccine carriers
User independent freeze protection (Grade A)	✓ (no requirement for user intervention to prevent vaccine freezing- e.g., storage configuration or manual de-frosting)	✓ (no requirement for user intervention to prevent vaccine freezing- e.g., storage configuration or manual de-frosting)			✓ (no requirement of user intervention - e.g., storage configuration, removable barriers)	✓ (no requirement of user intervention - e.g., storage configuration, removable barriers)	✓ (no requirement of user intervention - e.g., storage configuration, removable barriers)
Extended ambient temperature range	✓ (performance rated in ambient temperatures from 10 to 43 degrees C)	✓ (performance rated in ambient temperatures from 10 to 43 degrees C)	✓ (performance rated in ambient temperatures from 10 to 43 degrees C)	✓ (performance rated in ambient temperatures from 10 to 43 degrees C)	✓ (extended cool/cold life rated in ambient temperatures from 10 to 43 degrees C)	✓ (extended cool/cold life rated in ambient temperatures from 10 to 43 degrees C)	✓ (extended cool/cold life rated in ambient temperatures from 10 to 43 degrees C)
Temperature monitoring and logging	✓ (temperature log with 30 days transferable data for maintenance analysis)	✓ (temperature log with 30 days transferable data for maintenance analysis)	✓ (temperature log with 30 days transferable data for maintenance analysis)	✓ (temperature log with 30 days transferable data for maintenance analysis)			
Technical maintenance kit (tools and parts)	✓	✓	✓	✓			
Installation kit (tools and parts)	✓	✓	✓	✓			
ID sticker	✓	✓	✓	✓	✓	✓	✓
Operating sticker	✓	✓	✓	✓	✓	✓	✓
Maintenance sticker	✓	✓	✓	✓			
Robust packaging	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)	✓ (packaging capable of withstanding conditions of transport to avoid physical damage of device)
PV cable length	✓ (minimum 20m cable connector to PV array)			✓ (minimum 20m cable connector to PV array)			
Voltage regulators (bundled with device)		✓	✓				
Spare parts	• Compressor • Compressor controller • Condenser • Fan • Thermostat	• Thermostat • Compressor • Fan	• Thermostat • Compressor • Fan	• Thermostat • Compressor • Fan	Spare ice packs (if relevant)	Spare ice packs (if relevant)	Spare ice packs (if relevant)

1 SDD without ancillary battery
Note: Based on expert input from select members of the CCE Priority Working Group

Target requirements for supporting application documents[1]

Table A.1: CCE inventory target requirements

	Target requirement listed below are intended to guide countries in completing CCE Optimisation Platform *Application Form* and supporting documents *(Italics = Can be pulled from PQS lookup table, if Model ID available[2])*
Basic equipment (and location) information	• Facility name (facility ID / code); if available, system location information (e.g., level in health system including province, zone, and district) • *Manufacturer and model* • *Storage type (refrigerator / freezer / combination)* • *Refrigerator / freezer type (e.g., compression electric, compression solar, absorption)* • *Net vaccine volume (or internal storage dimensions if model ID unavailable)* • Power source used to power equipment (directly or indirectly[3]) • Overall inventory should have 60% coverage of all devices in health system and be recently updated (i.e. within the last 1 year)[4] • Date that overall inventory was last updated • Other, if available: Equipment model ID and serial number
Functionality and performance information	• Year of first installation (or best estimate) • Working status (functioning, not functioning, unserviceable, not yet installed) • Other, if available: Reason for non-functionality (spare parts unavailable, finance for repair unavailable, lack of electricity or fuel, equipment is surplus, lack of trained maintenance staff)
Supporting equipment information	• Other, if available: Type of temperature monitoring device, if any (e.g., built-in, 30 DTM, RTM, dial thermometer); Presence of voltage regulator for each piece of non-SDD electric-powered equipment (which can be rolled up into overall count of regulators in use across system)

Table A.2: CCE Inventory report and Facilities segmentation target requirements

	Target requirement listed below are intended to guide countries in completing CCE Optimisation Platform *Application Form* and supporting documents
CCE INVENTORY REPORT	

[1] The Platform will support the purchase of spare parts for existing (in-country) PQS-certified ILRs, SDDs, and freezers not older than 5 years at the time of application for Platform support. In addition, for newly-purchased equipment through the CCEOP, UNICEF SD will provide 10 sets of spare parts for every 100 units of equipment, i.e., a 1:10 ratio of spare parts to equipment.

[2] Must manually include italicised information for non-PQS equipment.

[3] Example of indirect power source include the use of generators.

[4] Each site must have at least a binary indicator (i.e., yes / no) for the presence of fixed CCE at that site (ILR, SDD or long-term passive devices). This will assist countries in planning inventories, as well as provide evidence for the inventory coverage (percentage).

Summary of inventory findings	• Summary of all equipment in country (up to service delivery points): o basic equipment makes and models distribution, storage types, power sources, age, locations etc. **as in Table A.1 above**
	  • basic equipment functionalities and reasons for non-functionalities
	  • numbers, types, distribution and functionalities of other devices such as temperature monitoring devices, voltage regulators, equipment spare parts etc.
	• An annex providing details (numbers, location, functionalities etc.) of pipeline (tender made and/or uninstalled in country) equipment

FACILITIES SEGMENTATION	
Basic facility information	• Facility name and system location information (e.g., level in health system including province, zone, and district); Facility ID / code (e.g., from Master Facility list or non-DHIS system), if available • Facility type (e.g., national store, provincial store, district store, provincial hospital, referral hospital, health centre, health post) • HR (both qualified and non-qualified) personnel available at the facility • Climate zone (likely provided on a national basis but should be included in overall database) • Other, if available: Ownership (e.g., government, private, faith-based, military, other)
Source of power	• Grid electricity availability; hours per day, if available (e.g., >16 hours, 8 -16 hours, 4 - 8 hours, <4 hours, none) • Other, if available: Electricity source (e.g., grid, grid and generator, generator, none); Gas and kerosene supply (e.g., available, irregular, not available, unknown); Suitability for solar (e.g., “Are facility grounds shaded from sun more than • 1 hour per day between 10 AM and 4 PM?” or “Are there heavy clouds for more than two weeks at a time?”)
Cold chain capacity needs	• Cold Chain Capacity volume needs, average volume require to vaccinate every month by facility • Vaccine storage and immunisation services (e.g., only storage, immunisation services without on-site storage, storage and immunisation services, or no storage nor immunisation services) • Other, if available: types of immunisation services provided (e.g., static, outreach, static and outreach, neither); quantity of conditioned ice-pack or chilled water packs (litres) used weekly for routine services
Supply chain information	• Vaccine reserve stock requirement (weeks) • Maximum vaccine supply interval (weeks) • Other, if available: mode of vaccine supply (e.g., delivered, collected, both delivered and collected); time (hours) and distance (km) to vaccine supply point; name of facility providing vaccine supply

*Table A.3: CCE rehabilitation and expansion plan, equipment selection, **operational** deployment plan and projected coverage and equity improvements requirements (as a SINGLE document)*

	Target requirement listed below are intended to guide countries in completing CCE Optimisation Platform *Application Form* and supporting documents
Chapter 1: **REHABILITATION AND EXPANSION PLAN**	
Cold chain coverage plan and capacity analysis	• Demonstration that plans include both current immunisation needs and expected growth of National Immunisation Programme (including planned introduction of new vaccines) to achieve coverage and equity targets • Accompanied by data and methods used to calculate the gap between future required capacity and current capacity for each level, facility, and location • Show that country proposal prioritises areas with low coverage and equity issues for rehabilitation and expansion • Projections of needs 3-5 years into future with consideration of supply chain design optimisation, including links to multi-year replacement & standardisation plans • Explanation of equipment removal and replacement criteria • Analysis of capacity gaps and surpluses by facility type and administrative area (e.g., district) • Stated commitment to meet required capacity plus a certain percentage buffer (e.g., 25-50%)[5] • Demonstrate that country can support manufacturers/representatives or third party (in charge of distribution) with appropriate country-level transport and access information needed • Other, if available: show that country equipment distribution and system design will assist health facilities and health workers spend less on transportation and other logistics
Overview of CCE Rehabilitation and Expansion plan	• Number of units planned for rehabilitation (i.e., repair and recovery) • Number of units to be replaced according to replacement / standardisation schedule • Number of units to be purchased according to plans for expansion and improved equity (e.g., due to new vaccine introductions or increasing percentage of population receiving vaccinations) • Multi-year plan for filling gap, including unit forecast for 3-5 years, consistent with latest strategy of plan (e.g., cMYP) • Explanation of current and / or planned approach to decommissioning (disposal of obsolete or irreparable) CCE, including ability to harvest and recycle spare parts
Proposed budget	• Includes high-level costs for purchase, shipping, transport, installation (including site preparation and certification) and maintenance contracts (if not bundled into purchase contracts) • Provision of costs of rehabilitation of existing equipment (i.e., repair), and spare parts availability

[5] To be confirmed or clarified upon release of WHO VMH module.

Supply Chain System design	• State the current supply chain design in operation in the country (by health delivery level or supply chain aspect e.g. vaccines, cold chain equipment) • Explain how the CCE rehabilitation and expansion plans complements or changes the current system to achieve coverage and equity objectives in an efficient way • Explanation of system design alternatives that were considered (or will be considered) instead of expanding CCE capacity (e.g., de-layering supply chain, improving transport efficiency), with reasons they were not adopted • Explanation of current and / or planned approach to decommissioning of CCE, including ability to harvest and recycle spare parts
Chapter 2: PROJECTED COVERAGE AND EQUITY IMPROVEMENTS *(These should be linked to a recently conducted coverage and equity analysis and inform prioritisation of requested investments*	
Projected coverage and equity improvements	• What coverage and equity analysis (focusing on at least geographic and socio-economic inequities and gender barriers) have been conducted to inform prioritisation of CCEOP investments • Baseline and target (post-CCEOP investment) sub-national immunisation coverage rates in proposed areas of equipment deployment
Chapter 3: OPERATIONAL DEPLOYMENT PLAN *(This plan should be aligned with the coverage and equity prioritisation as described in Chapter 4 (Projected Coverage and Equity Improvements) below)*	
Operational details for application	• Quantity, type, capacity, and model of equipment to be purchased and justification for choice of equipment (e.g., criteria used, results of TCO analysis if applicable) • Description of planned procurement through UNICEF and country facilitation of the process
	• Description of factors underlying site prioritisation [aligned with rehabilitation and expansion plan] and how prioritisation contributes to coverage and equity goals • List of end location sites (district, state) to receive first, second, etc. batch of CCE, and number of equipment to be delivered to each site type in each batch (or disbursement) • Timeline for commissioning (i.e., estimated dates for each step including delivery to port, customs clearance, storage at various sites, transportation, and final deployment and installation); budget for additional resources, people or training associated with deployment; delivery and installation arrangements (i.e., who is responsible for delivery installation, and commissioning confirmation, as well as arrangements for warehousing, site preparation, and initial user training); explanation of CCE handoffs between parties and who is responsible at each stage; and proof of deployment ability (e.g., # of technicians needed and available, experience of technicians, necessary funds, and clear distribution plan) • Health facility readiness assessment, i.e., whether the chosen health facilities are prepared to receive the CCE (e.g., whether roofs are suitable for solar panels) • Deviation plan, i.e., the plan in case the health facilities specified in the deployment plan are found to be unprepared at the time of delivery of CCE • Other, if available: Description of past experiences in deploying CCE (i.e., how many devices, timing for deployment from port of entry to final facility, number of people required).

Chapter 4: EQUIPMENT SELECTION	
Equipment selection	• Details of lessons learnt from previous equipment selection, procurement and installation in-country • Explanation of input parameters (and results) for equipment selection (e.g. via TCO), including equipment type and required capacity • Justification of types, makes and models of equipment selected for procurement

Table A.4: Other implementation details target requirements

	Target requirement listed below are intended to guide countries in completing the CCE Optimisation Platform *Application Form* and supporting documents
Country joint investment	• Identification of source of country joint investment (e.g., country budget, bilateral donor, HSS) and amount of funding from each source • If HSS or other grant, indication of whether funding has already been budgeted to purchase CCE • Indication of status of funding for joint investment (e.g., secured and budgeted, approved but pending disbursement, requested and under evaluation, preparing request, etc.)

Technical assistance	• Description of cold chain-related technical assistance that the country is currently receiving or plans to receive, including information on:
	  • Provider of TA (e.g., name of organisation or NGO)
	  • Cold chain activities that are the focus of TA (e.g., inventory, facility segmentation, rehabilitation and expansion plan, maintenance, monitoring, data systems and management)
	• If no TA in progress or planned, country must provide an explanation of the decision not to solicit TA

Other documents	• Submission of data access provision granting Gavi and its partners access to certain pieces of data for the duration of CCE Optimisation Platform support and for two years following support:
	  • Data access provision will cover the full set of relevant data necessary for countries to meet the CCE Optimisation Platform application requirements and monitoring requirements (e.g., inventory, facility segmentation, M&E metrics, etc.)
	• Written commitment to obtain tariff exemption: o Countries must provide Gavi with documentation that demonstrates their effort to secure import tariff exemptions for platform-funded cold chain equipment
	  • Ministry of Health and / or Finance should provide this documentation, which should specify whether (a) import tariff exemptions have been petitioned and obtained, (b) import tariff exemptions have been petitioned but rejected, and (c) the petition for import tariff exemptions are currently pending
	  • Countries must request tariff exemptions before submitting an application to the CCE Optimisation Platform

Table A.5: Maintenance plan (with financing and sources) target requirements

	Target requirement listed below are intended to guide countries in completing the CCE Optimisation Platform *Application Form* and supporting documents

Overall maintenance strategy and structure	• Develop a maintenance plan for the duration of the CCE Optimisation Platform support that include the following: • Explanation of how EPI cold chain maintenance is organised at different levels of health system • Identification of official(s) and / or departments who have ultimate responsibility for overall maintenance effort, as well as individual components of maintenance (e.g., repairs) • Number of human resources that support maintenance effort • Indication of whether the country has experimented with different models of organizing maintenance (e.g., outsourcing) and details regarding those models, if applicable • Explanation of the country's vision for its optimal organisational structure for CCE maintenance • Explanation of data systems in place to manage and track maintenance interactions (e.g., repairs); if these do not exist, describe plans for development • Indication of the frequency of CCE inventory updates (i.e., how frequently changes in equipment status are recorded)[1] • Explanation of how CCE maintenance is financed (and sources of such finances) and its annual resourcing requirement; if not adequately funded, explanation of steps that will be taken to improve resourcing for maintenance • Description of a sustainability plan for platform- purchased equipment (e.g. maintenance and replacement) post-CCE Optimisation Platform support

Preventative maintenance	• Explanation of who is responsible for performing preventative maintenance (e.g., health worker, facility manager) at each type of storage or vaccination location
	• Description of supervisory mechanisms that exist to ensure that preventative maintenance SOPs are followed (i.e.
	• how does country know that SOPs are followed? How is execution of preventative maintenance documented and verified?)
	• Other, if available:
	  • Explain if standard operating procedures (SOPs) for preventative maintenance exist for each type of deployed equipment; if these do not exist, describe plans for development
	  • Explain if facility-level workers are trained on relevant SOPs
	  • Confirm that job aids are available at the facility level and these aids show how to perform preventative maintenance tasks; if these do not exist, describe plans for development
	  • Describe how planned preventive maintenance will be implemented, monitored and challenges acted upon

Corrective maintenance	• Explanation of organisational model for corrective maintenance (e.g. government-run, outsourced)
	• Description of geographic structure of maintenance activities (e.g. where are maintenance units, transport resources, spare parts, and technicians located?)
	• Explanation of how the country currently has a sufficient number of technicians to meet repair needs for the requested CCE; if not, explanation of plans in place to hire / contract and train the additional technicians required
	• Description of training process and program for technicians
	• Description of supervisory mechanisms that exist to ensure that repairs are promptly performed (i.e. data management system, process for alerting and deploying technicians and receiving repair confirmations)
	• Other, if available:
	  • Explanation of how technicians obtain the consumables needed for repairs (e.g. brazing rods, epoxy resin, PG gas);
	  • Details on country's spare parts inventory (e.g. how many sites, justification for their location, how often tools are replenished);
	  • Explanation of distribution process for spare parts and tools to technicians or facilities needing repairs; o List of metrics that country uses to measure the effectiveness of repairs.

Other considerations	• Presentation of maintenance-related challenges identified in latest EVM assessment and outline of the plan to address those challenges and recommendations from EVM assessment • Indication of whether HSS funding is being used to strengthen CCE management (i.e. specific activities that are being strengthened like inventories or rehabilitation and expansion plan) • Explanation of how equipment is removed from national inventory, how spare parts are recovered from non-functional equipment, and how those parts are introduced into the spare parts inventory • Explanation of disposal requirements in place for old CCE (e.g. removing CFC refrigerant, special locations for disposal, parts that are to be recycled)

Table A.6: Monitoring target requirements

	Target requirement listed below are intended to guide countries in completing the CCE Optimisation Platform *Application Form* and supporting documents
Standard indicators to be provided and updated annually	• Percentage of equipped existing sites replacing CCE with (any) platform-eligible ILR, SDD or long-term passive devices, and irrespective of their funding source; • Percentage of existing sites previously without equipment, newly equipped with platform-eligible equipment (i.e. ILRs, SDDs or long-term passive devices); • Percentage of equipped existing sites, equipped with platform-eligible equipment to meet storage requirements for introduction of new vaccines and or reaching an increasing population; • Percentage of new sites equipped with Platform eligible equipment; and • Well-defined indicator proposed by country to reflect appropriate maintenance of equipment; for example percentage of equipped facilities with functioning cold

	chain equipment[6], such as demonstrated by remote temperature monitoring. □ Submission of an updated CCE inventory on a yearly basis

Additional intermediate results indicator(s)	• 1-3 intermediate results indicators to track rehabilitation, expansion, maintenance or other supply chain fundamentals □ These indicators should use existing data collection efforts
	• Examples of these 1-3 indicators may include (*refer to Part G of the Application Form*):
	  • **Functional status of cold chain equipment**: Ratio of functional CCE[7] and ratio of districts with at least 90% functional equipment;
	  • **Closed vial wastage**: Rate at a national, district and facility level;
	  • **Forecasted demand ratio**: Ratio of actual usage compared to forecast (vaccines);
	  • **Full stock availability**: Ratio of facilities/districts without any stock out;
	  • **On-time and in-full (OTIF) delivery**: Ratio of order completely delivered on time;
	  ▪ **Stocked according to plan**: Percentage of facilities/stores/districts that have stocks levels between set minimum and maximum stock levels;
	  • **Temperature alarms**: Frequency and magnitude of heat and cold alarms per monitoring period (i.e. temperature excursion) and number of CCE devices with more than a certain level of temperature excursion.

Other information	• Explanation of how monitoring activities will be executed • Indication of whether country will obtain additional funding for monitoring activities: if so, identification and source of funding (e.g. HSS funds)

[6] **Indicator definition**: *% CCE functioning = (# functioning CCE devices) / (total # of CCE devices designated for use)*. CCE devices considered for this indicator include all refrigerators, fixed passive storage devices, walk-in cold rooms and freezers designated for string vaccines. Both the numerator and denominator should be collected from the same geographical area / period in time and should not include decommissioned equipment. Functionality of CCE is broadly defined to mean that the device is operable at a particular point in time for storing vaccine.

[7] CCE defined as all refrigerators, fixed passive storage devices, and walk-in cold rooms and freezers designated for storing vaccines.