



CCEOP MARKET SHAPING EVALUATION FINAL REPORT

JSI Research & Training Institute, Inc.

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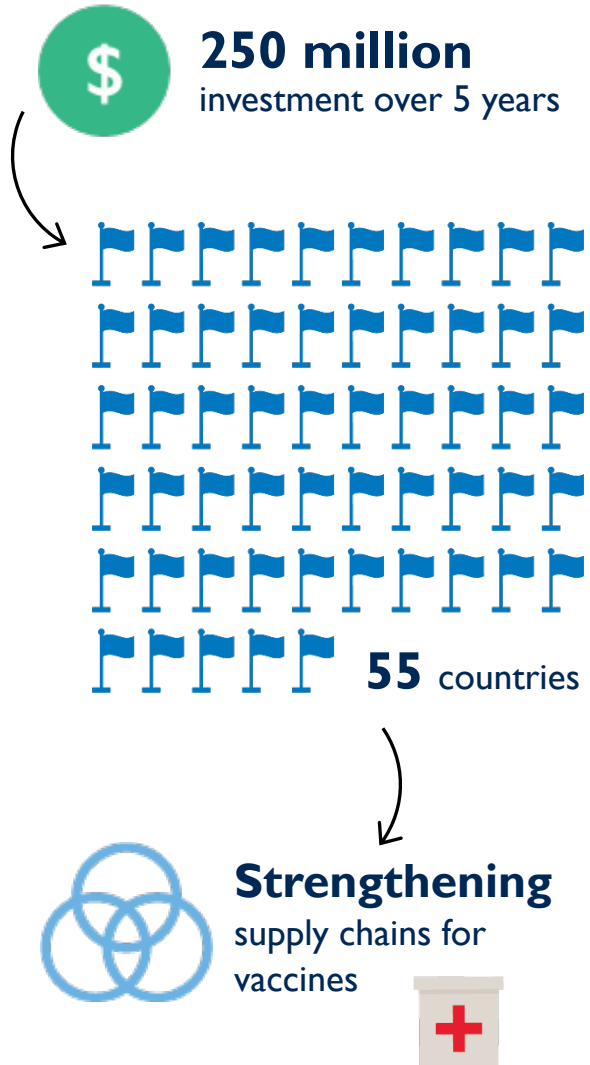
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BACKGROUND & EVALUATION APPROACH

Context



The Gavi Cold Chain Equipment Optimization Platform (CCEOP) was established in recognition that functional cold chain equipment (CCE) is a critical precondition to strengthening vaccine supply chains and ultimately, to achieving the Alliance’s immunization equity and coverage goals, yet it was a gap in many countries. In 2015, the Alliance approved CCEOP and included a specific market shaping component to improve the availability and installation of high-performing CCE.

Through CCEOP, the Alliance pledged \$250 million dollars over five years to be jointly invested with other funding sources to support 55 countries to upgrade and expand their CCE footprint. This commitment is an important step in strengthening supply chains for vaccines. It also directly supports Gavi’s efforts to expand access to vaccines and ensure their efficacy to the time of administration. CCEOP represents a \$50 million investment per year to protect the \$1.3 billion spent annually on vaccines. This complementary investment underscores the need to ensure the market for CCE is healthy and that optimal, yet durable and high-performing, products are being procured with Gavi funding.

CCEOP Market Shaping Objectives

In establishing the market shaping (MS) approach, Gavi conducted a market analysis in 2015–2016 around CCE to identify market failures on both the supply and demand side that would need to be addressed by CCEOP to enable widespread adoption of higher-performing CCE.

On the **supply side**, the major challenges identified were limited understanding by manufacturers of desired product characteristics, lack of visibility to potential demand/procurement volumes, and therefore limited incentives to develop new or improved technologies or expand production capacity, and general lack of information to generate interest in Gavi-supported markets.

On the **demand side**, procurement and funding were generally ad hoc and fragmented, leading to weak forecasting, limited information on new technology options and their potential benefits, and sporadic country level planning, affecting maintenance and installation capacity.

The MS strategy was developed to address these limitations.

The global market shaping goal is to accelerate and incentivize a market where CCE is available at an optimal total cost of ownership (TCO) and ultimately, to create a market where innovative, high-performing equipment and services are available to countries from a solid supplier base at sustainable prices.

Market Shaping Evaluation



Photo: Ian J. Connors

JSI was commissioned by Gavi to conduct an evaluation of CCEOP implementation in 2017. The MS component of the evaluation focuses on the global level CCE MS activities and results. It complements the deep dive, three-country evaluation in Kenya, Pakistan, and Guinea, which covers the results framework from inputs to outcomes, looking at achievements over a three-year period from 2017 through the end of 2019.

This MS evaluation provides a better understanding of the overall market health for CCE, market changes, and unintended consequences, both positive and negative. Over the three-year period, JSI has evaluated how well the CCEOP MS strategy has achieved its goals to date, how well it is set up to continue to achieve its goals, and provides recommendations for how to fine-tune the approach, as appropriate.

MS Evaluation Scope & Methodology

The purpose of this report is to provide the Alliance with a comprehensive summary of outcomes and findings, reflecting the market impact in terms of procurement outcomes as of December 2019. This report builds on findings summarized in previous CCEOP Evaluation reports.

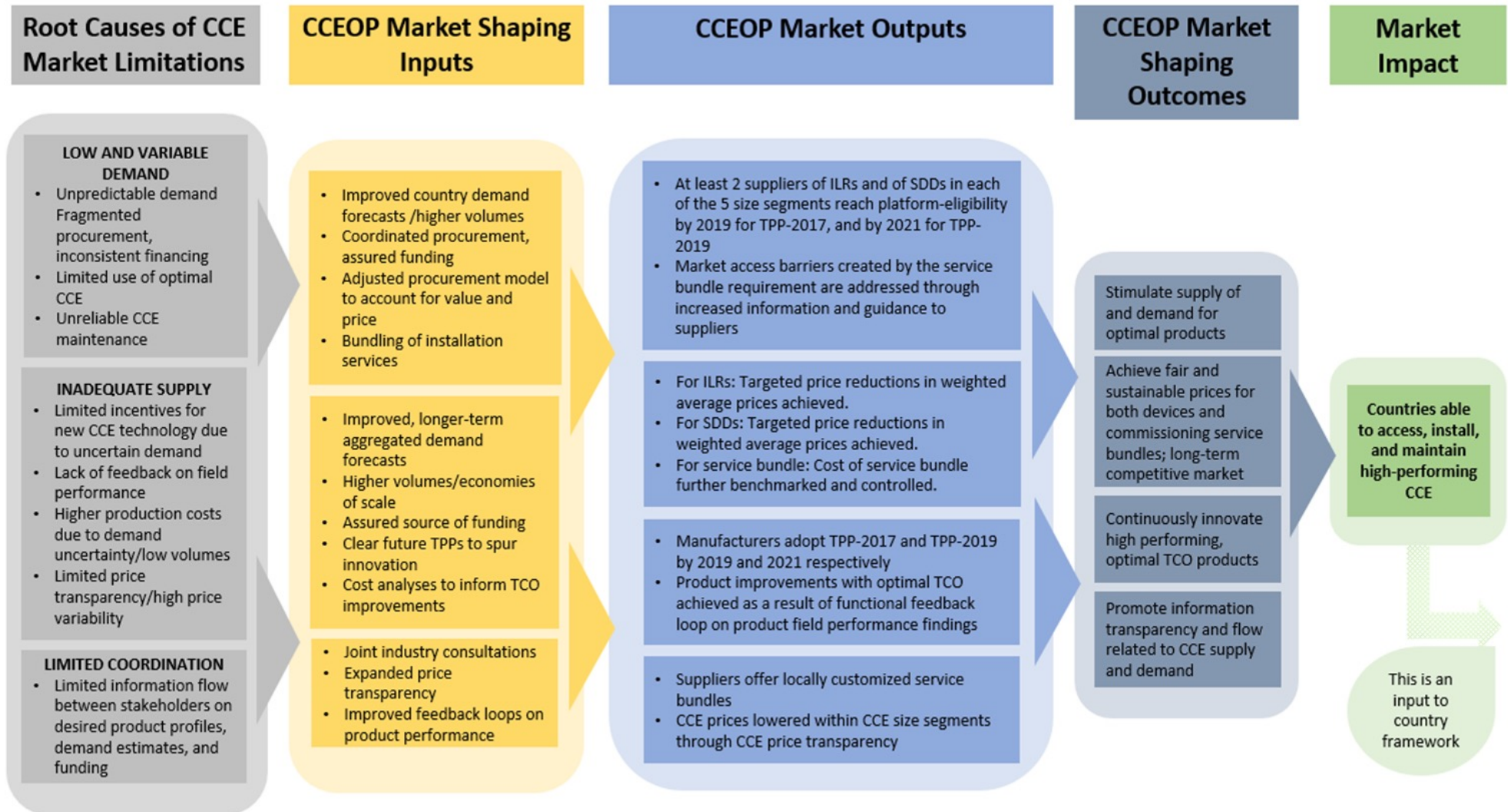


This report captures:

- Progress towards the initial evaluation questions posed by Gavi on the MS strategy for CCE in 2017 **and the changes in the strategy** implemented in 2019 via the revised Supply and Procurement Roadmap for CCE.
- The assessment of these strategies and highlights where outstanding questions persist to understand the longer-term outlook for CCE market health.

This report relies on secondary data related to the procurement experience and results and CCE pricing, provided by Gavi and UNICEF Supply Division (SD) through December 2019. Analysis of these data and other changes since the last report was conducted in Q1 2020. Based on analysis of that data, the team conducted global level key informant interviews (KIs) from March 5th–April 15th, 2020 with stakeholders who were either part of implementing or affected by the MS strategy. During this time there was additional document review. Annex 1 provides a full list of organizations engaged in KIs. In addition to KIs, the summary also relies on findings from the baseline and midline evaluations conducted in Guinea, Kenya, and Pakistan. The list of consulted data sources is in Annex 2.

The original MS strategy & outcomes were designed to address identified root causes of CCE market limitations (Supply & Procurement Roadmap, 2016)



The revised MS strategy responded to limitations identified in the early phases of implementation of CCEOP

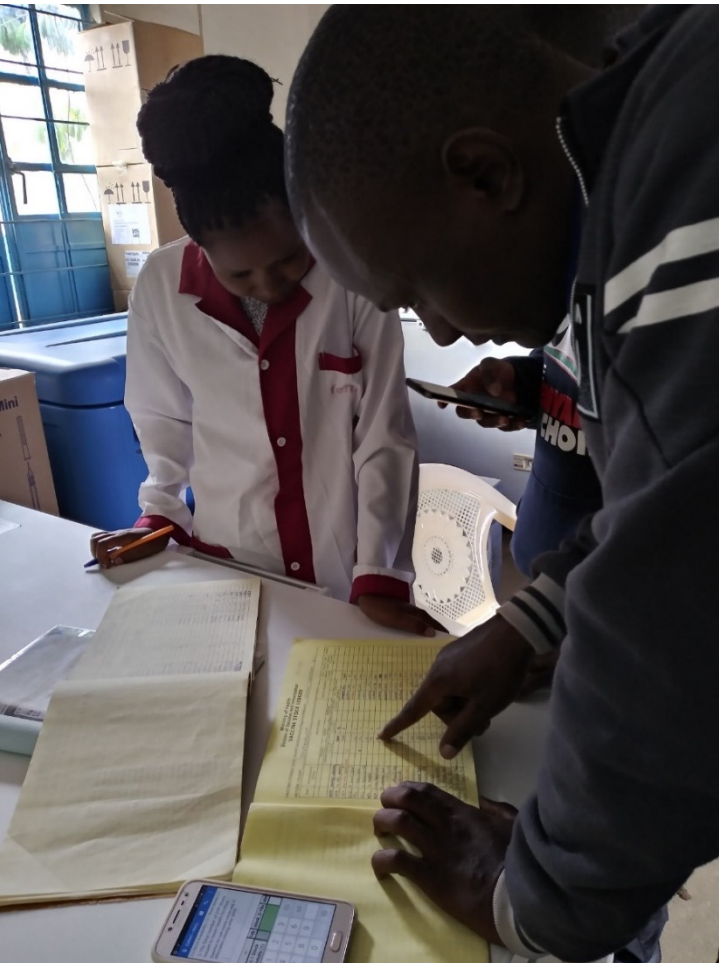


Photo: CCEOP Evaluation Team, Kenya

The Alliance and partners recognized early on that the original MS strategy for CCE needed to be revised to address some of the initial results and unique challenges posed by CCE. In response, in 2019 Gavi and partners released the revised Supply and Procurement Roadmap for Ice Lined Refrigerators (ILR) and Solar Direct Drive (SDD). The revised strategy also introduced a tender approach where countries are asked to allocate at least 25% of their needs to a non-dominant supplier. The revised strategy allowed more active management of procurement and provided a limited opportunity to inject competition to market, while simultaneous efforts were underway to continue to improve the information available to countries to inform product selection.

The updated strategy included the revised objectives and stakeholder action plan to better align with the Gavi CCE Healthy Market Framework and address some of the earlier observed limitations.

The revised MS strategy relies heavily on the differentiated tender process to better allocate demand across multiple suppliers to:

- 1) create opportunities for less established suppliers
- 2) create both familiarity and an evidence base on new CCE
- 3) ultimately, try to prevent suppliers from prematurely leaving the market

The 25% (“differentiated”) tender approach applies primarily to high-volume countries; lower volume countries have a more limited list of bidder based on country preferences to help reduce procurement lead times.

Comparison of the original (August 2016) & revised (June 2019) MS objectives

Like the original strategy, the revised MS strategy is supported by four strategic objectives, each with associated target outcomes and stakeholder action plan, detailed in the Implementation section of this report.

Original MS strategy strategic objectives:

- 1 Stimulate demand & supply of higher-performing, cost-effective & quality products
- 2 Minimize costs of devices & services
- 3 Promote innovation
- 4 Information sharing to better connect supply & demand

Revised MS strategy strategic objectives:

- 1 Improve long-term competition & increase evidence base to inform country preferences
- 2 Achieve reductions in weighted adjusted price (WAP) to maximize value to countries
- 3 Reform procurement processes for greater efficiencies
- 4 Innovation driven by country preferences & future target product profiles (TPPs)

Market Shaping Evaluation Questions

As part of the CCEOP evaluation, the Alliance identified key questions regarding the relevance, implementation, effectiveness, and sustainability of the MS component of CCEOP. These are the questions that have guided JSI's previous evaluation efforts and deliverables related to CCEOP MS activities and outcomes.

With the release of Gavi's updated CCE MS strategy in June 2019 and changes from the 2016 strategy, the evaluation approach adapted the questions in response to shifts in objectives and targets, while not losing sight of what had already been achieved and learned. (revised questions in **bold text** below)

Relevance

- To what extent was the original CCE MS strategy relevant and fit for purpose?
- To what extent was the MS monitoring and evaluation system relevant and practical?
- **What were some of the ideas or assumptions in the original strategy that were addressed in the revised strategy? To what extent have these addressed limitations observed in early implementation?**

Implementation

- To what extent were MS activities (including stakeholder action plan) conducted as planned? **[this will acknowledge original action plan, but focus on stakeholder action plan from revised strategy]**
 - What are the main factors explaining these results?

Effectiveness

- To what extent has the original CCE MS strategy and activities achieved (or are on track to) their objectives and targets?
- **To what extent has the REVISED CCE MS strategy and activities achieved (or are on track to) their objectives and targets?**
- What are the main factors explaining these results?

Sustainability/Results

- To what extent are the CCE MS results sustainable?
- To what extent did the MS strategy/activities result in any unintended positive/negative consequences?
- **How has the revised MS strategy addressed early signs of unintended consequences and/or altered the sustainability outlook for CCE?**

EVALUATION FINDINGS

Summary of Findings

- CCEOP has been **successful in stimulating a market for and catalyzing awareness, availability, and use of higher performing CCE** in many countries. There is value in more organized and aggregated procurement and information sharing for CCE.
- The original CCEOP MS strategy highlighted some of the potential challenges to achieving the MS objectives that ultimately played out, but was insufficiently robust to address them. The revised MS strategy appears to address some of those limitations, and **progress has been made in promoting a healthier market and shifting demand to some of the lesser utilized CCE suppliers**.
- The revised MS objectives were appropriate to address some of the challenges observed with the original objectives, which at times were at odds or mutually inconsistent. However, **the revised objectives have not fully reconciled the tensions between observing country preferences, achieving continuous product innovation, recognizing cost savings, and maintaining a relatively large number of interested suppliers** - alongside a relatively static demand outlook.
- The supply-side objectives of CCEOP have been met, supported by a **strong base of platform eligible suppliers and range of options across ILRs and SDDs and size segments**. It is unclear what the optimal number of suppliers are to maintain a healthy market for CCE.
- Deliberate MS efforts have resulted in a third supplier accumulating greater market share in 2019 and alleviating concerns around the duopoly observed in the early years of CCEOP. However, procurement volumes will need to remain on track and maintain or expand market split through 2020 and beyond to continue to meet MS goals.
- The mandated service bundle component created initial complexity for CCEOP, and MS efforts in particular, but as all of the parties involved became more familiar with implementation, valuable lessons have been learned about the benefits as well as opportunities to be more flexible with service bundle options in different types of country contexts.

RELEVANCE

MS Evaluation: Assessing Relevance



To what extent was the original and revised CCE MS strategy relevant and fit for purpose?

- Did the CCE MS strategy take into account other MS strategies/ approaches used by the Gavi Secretariat (for vaccines) and/or at other organizations?



What were some of the ideas or assumptions in the original strategy that were addressed in the revised strategy? To what extent have these addressed limitations observed in early implementation?

The original MS strategy relied heavily on Gavi experience with vaccines and was insufficient to address the market weaknesses for expensive, durable, branded equipment

The initial outcomes from CCEOP showed the heavy sway of country preference, limited opportunity for new entrants, even for those offering more innovative and/or lower priced products, thus reducing competition and entrenching two well-established suppliers.

The original MS strategy **heavily depended** on Gavi's experience with MS for vaccines. This proved to be insufficient to address challenges with high value, branded, durable equipment. The strategy was not sufficient to overcome the barriers to entry for new suppliers, who did not have the brand recognition and marketing power of the more mature, incumbent suppliers. The country-specific CCE selection and procurement process, along with the ability to use other sources of donor funds to fulfill co-financing requirements limited price sensitivity and undercut the expectation that value for money (or TCO) would be easy to assess and more rationally distribute demand across the platform eligible suppliers. The addition of the service bundle provider mandate further exacerbated this by increasing the complexity of bidding and created an advantage for suppliers already familiar with and having existing networks in countries.

The outcome was that early procurement perpetuated a duopoly with the two incumbent suppliers, creating little opportunity for other suppliers that were needed to diversify the market and achieve the other MS objectives.

The revised MS strategy attempts to address early challenges identified via the differentiated tender approach

The revised strategy attempts to bridge the divide between country preferences and opportunities for less well-known brands potentially offering innovative, higher-performing CCE at lower prices. A key change is the “differentiated” tender approach where countries are asked to allocate at least 25% of their needs to a non-dominant supplier.

Observing the procurement trends and how the way high-volume procurements can sway the market, the focus of the differentiated approach on only the high-volume countries makes sense. However, procurement results to date indicate that countries are still not generally price sensitive and decisions are often informed by brand familiarity, reputation, and in-country marketing efforts from suppliers. Further price sensitivity has been limited by the ability to use other sources of donor funding to fulfill the co-financing requirement.

This reveals underlying tensions between Gavi’s commitment to country decision-making and MS objectives. At the global level, there is a sense that countries are not price sensitive and making “uninformed” decisions when they select more expensive CCE models, but how those decisions are made is not always clear. This underscores the need to better assess the role of brand familiarity and trust in the CCE market, understanding the differences from non-durable products, such as vaccines, which may be more easily substituted between brands, and how to increase visibility and information on lesser-known brands.



Photo: CCEOP Evaluation Team, Kenya

The product selection process in country varies and it's unclear what resources are used most frequently or how supplier marketing efforts influence decisions

The country decision-making process seems to vary. Some countries depend heavily on partners and country-level technical support, which influences product selection, while others lead the process themselves. Stakeholders familiar with the product selection process raised the issue that countries do not necessarily read everything sent to them and may need better means of comparing options and evaluating value for money (vs. marketing efforts).

DECISION-MAKING CONSIDERATIONS:

- **Availability of information** on available models and comparisons (Gavi CCE Equipment Guide and TCO tools)
- **Strong sales and marketing capabilities**; some manufacturers have large marketing budgets and are dominant in certain countries, making it harder for others to break in
- **Brand affinity/familiarity** (including for other types of products)
- **National priorities** – evaluating the “bang for the buck” (TCO and maintenance structure/needs) vs existing pool of technicians already familiar with a brand

Anecdotal reports from stakeholders working with country teams indicate that the Gavi CCE equipment guide is widely used, as is the WHO PQS website, but countries also want experience and opinions of other countries— they trust the experience of other EPI programs over other information sources. Stakeholders also raised concerns about the marketing reach and budgets of some of the larger companies compared to smaller ones in terms of influencing product selection, while others questioned how far UNICEF should go into “marketing” to help correct for this imbalance.

Changes to respond to limitations of the of the original MS strategy were appropriate but may not have fully addressed all limitations

The revised MS objectives are still being implemented and supported by a stakeholder action plan with ongoing work so it's too soon to fully assess the overall relevance and outcomes.

However, tensions in the objectives persist and may need further revision to clarify MS goals and address points of inconsistency.

The revised MS objectives (see page 10) were appropriate to address some of the challenges observed with the original objectives, which at times were at odds or mutually inconsistent.

However, the revised objectives have not fully reconciled the tensions between observing country preferences, achieving continuous product innovation, recognizing cost savings, and maintaining a relatively large number of interested suppliers (capable of also implementing service bundles across the globe) alongside a relatively static demand outlook. It is not yet clear that the available levers to shape or influence the market are sufficient.

The accompanying stakeholder action plan is still in progress of implementation so this will need to be further assessed as progress is made, new modalities tested, and outcomes become clearer.

Summary: MS Strategy Relevance

The new MS strategy was implemented in mid-2019 so its relevance cannot be fully evaluated yet, but it appears to address at least some of the limitations of the original MS strategy.

- The original MS strategy highlighted some of the potential challenges to achieving the MS objectives that ultimately played out, but was insufficiently robust to address them.
- The revised MS strategy appears to address some of those limitations and progress has been made in shifting the market slightly to some of the lesser utilized CCE suppliers. The differentiated/25% allocation tender approach has helped with this effort.
- However, country preference and lack of price sensitivity seem to limit gains around the objectives related to maximizing value to countries and promoting long-term market competition. The revised strategy still may not be able to reconcile the primary tension of Gavi's commitment to country preference with the need to implement more "heavy-handed" MS interventions.
- The supply-side objectives of CCEOP have been met, supported by a strong base of platform eligible suppliers and range of options across ILRs and SDDs and size segments.
- CCE has been effective in increasing procurement and deployment of optimal CCE across 38 countries as of the end of 2019; however, procurement volumes will need to remain on track to achieve forecasts through 2020.

IMPLEMENTATION & EFFECTIVENESS

MS Evaluation: Assessing Implementation










To what extent were MS activities (including stakeholder action plan) conducted as planned? [*This will focus on stakeholder action plan from the revised strategy.*]



What are the main factors explaining these results?

Progress on the revised stakeholder action plan is largely underway; many outcomes are targeted for 2021





Objective	Target Outcomes (Public Roadmap Summary)	Evaluation: Assessment of Implementation Progress	
1. Ensure 'Long-term competition' & influence 'Country Preferences'	By 2021, at least four viable manufacturers offer ILR/SDD equipment, with [confidential] market share targets by ILR and SDD segments.		Allocation approach implemented; need to monitor progress and outcomes to determine if targets (and overall objectives) are met.
	By 2021, a minimum of two manufacturers offer products in each of the high demand ILR and SDD size segments.		Currently there are more than 2 suppliers per CCE product type and segment; CCEOP Equipment Guide updated in Oct 2019; industry roadshows (virtual) held in Q1/Q2 2020.
	By 2021, field performance data on multiple brands is available, informs understanding of TCO, and can be used by countries to inform their investment decisions.		Post installation inspection (PII) implemented, post market monitoring (PMM), and intelligent maintenance and performance tool (IMPT) less far along. Gavi recognized country ownership of all data generated by CCE products as of Sept 2020.
	By end 2019, increase visibility of demand through publishing updated long-term demand forecasts of ILRs and SDDs and sharing with suppliers.		Revised forecasts and supplier-specific tender outlooks shared with manufacturers in Q1 2020 and on a quarterly basis.
2. Achieve reductions in WAP to 'max value to countries'	UNICEF-SD 'CCE WAP' for each of the four highest volume product segments achieve target reductions (confidential) in 2019 and 2020 versus 2018 CCE WAP baselines. No annual increase in 'CCE WAP' for each product segment in 2019 and 2020 versus combined 2017-2018 WAP baselines.		New long-term agreements (LTAs) for CCE expected in 2021. 2019 CCE WAP compared to 2018 yielded UDS \$4.1M in savings; an additional \$5.8 M in savings is estimated in 2019 due to changes made to applications to select better value for money CCE options. (Targets set as %; unclear how that relates to values provided)
	UNICEF-SD 'Service bundle WAP' for each of the highest volume product segments achieve target reductions (confidential). No annual increase in 'Service bundle WAP' for any product segment in 2019 and 2020.		New LTAs for service bundles expected in 2021. Service bundle savings based on negotiations and benchmarks yielded USD \$500k savings in 2019. (Targets set as %; unclear how that relates to values provided)

 On Track

 Underway with some delays

 Significant delays or concerns

Stakeholder action plan progress (continued)

Objective	Target Outcomes (Public Roadmap Summary)	Evaluation: Assessment of Implementation Progress	
3. Reform procurement processes to increase ‘country ownership and capacity’, ‘max value to countries’, increase ‘Long-term competition’, and meet ‘country preferences’	Optimised procurement processes in place by 2020 to improve timelines and predictability of demand.		Predictability of demand to be addressed through quarterly, supplier-specific communications on tenders they will be invited to bid on; unclear how that will play out over the year and how Covid-19 will affect efforts to improve predictability.
	By 2021, countries have alternative options for procurement and implementation of the service bundle for ILRs/SDDs, providing countries meet evidence-based requirements .		In progress; de-linking pilots underway to learn more about de-linking models and criteria.
	By 2021, at least three-quarter of installations are assessed as ‘acceptable’ and all installations are at a minimum ‘adequate’.		PII results from 9 countries showed 84% of visits classified as ‘acceptable’. [PII on hold in 2020 during Covid-19]
4. Innovation driven by ‘country preferences’ and aligned with ‘max value to countries’	By 2021, at least two manufacturers offer latest future TPP product features.		Survey conducted to obtain country input on TPPs and needs. Contingent upon new TPPs and timeline; expected in Dec 2020 but not yet released. Earliest date of expected inclusion of TPPs in specs is Jan 2023.

The stakeholder action plan associated with the revised MS strategy detailed out target outcomes and associated interventions planned between 2019 and 2021. As of the Q1 2020 evaluation point, most are still in progress. Several have target outcome dates in 2021 so can only be assessed as in progress. Further, for many, the impact of COVID-19 on implementation and progress achieved in 2020 and beyond is unclear.

MS Evaluation: Assessing Effectiveness



To what extent has the original CCE MS strategy and activities achieved (or are on track to) their objectives and targets? Specifically to:

- Stimulate supply to meet demand
- Achieve fair and sustainable prices ILRs and SDDs and commissioning of service bundles by type and volume categories
- Continuous innovation of high performing and optimal total TCO products
- Increased, equitable, and transparent communication and flow of information with suppliers, service bundle providers, etc.



To what extent has the REVISED CCE MS strategy and activities achieved (or are on track to) their objectives and targets? Specifically to:

- Improve long-term competition and increase evidence base to inform country preferences
- Achieve reductions in WAP to maximize value to countries
- Reform procurement processes for greater efficiencies
- Innovation driven by country preferences and future TPPs



What are the main factors explaining these results?

Stimulating supply and demand for optimal CCE with a focus on higher performing SDDs and ILRs



Photo: CCEOP Evaluation Team, Pakistan

The objective of the CCEOP is to stimulate the market for optimal CCE while generating the demand in Gavi-supported countries to rapidly replace obsolete cold chain equipment and expand immunization services. At the highest level, CCEOP has been effective by significantly increasing attention to the CCE market and generating high levels of country awareness of and demand for better technology. The initial and revised versions of the Supply and Procurement Roadmap for Cold Chain Equipment (2016 & 2019) and stakeholder action plan were both focused on two types of CCE, ILRs, and SDDs; this summary is aligned with that focus.

UNICEF procurement of both CCEOP and non-CCEOP funded CCE has totaled nearly 65k units from 2017 to 2019

CCEOP and non-CCEOP funded procurement

	2017	2018	2019	Total (2017-2019)
CCEOP	7,341	12,848	19,396	39,585
CCEOP Pilot Ethiopia	6,016			6,016
Non-CCEOP	6,895	6,083	5,866	18,844
GRAND TOTAL	20,252	18,931	25,262	64,445

While the CCEOP MS strategy and objectives have focused on CCEOP-funded procurement (and procurement with inclusion of the service bundle) many of the MS efforts have had indirect effects on overall procurement. For the CCEOP-eligible suppliers, this has resulted in procurement volumes of nearly 65,000 units over 3 years (an average of 21,482 annually).

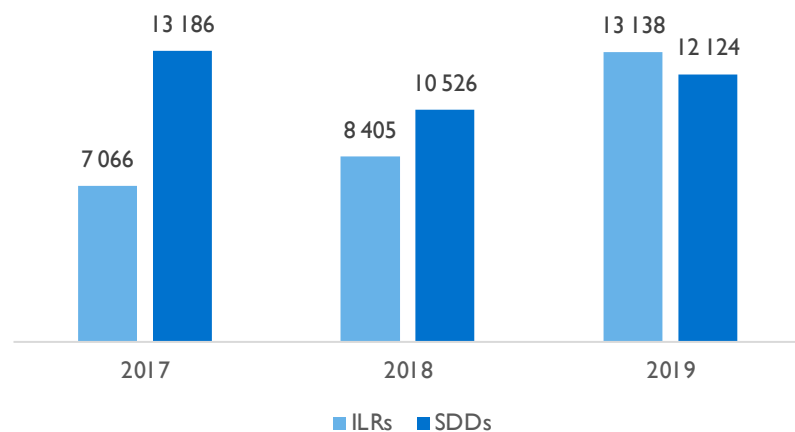
Over the three years, quantities of SDDs procured has exceeded the quantity of ILRs purchased though that trend was reversed in 2019.

UNICEF reports these figures as part of the annual key performance indicators (KPIs). They are important in terms of assessing the overall market health and in comparison to forecasts, which in many cases were not specific to CCEOP funded procurement.

The following pages in this report on procurement will focus on CCEOP-funded procurement only, but are important to consider within this larger procurement context.

It is worth noting that the distribution of procurement across suppliers is very similar for total procurement as it is for CCEOP-funded procurement.

UNICEF Procurement of ILRs and SDDs



Nearly 40k units of CCE were procured with CCEOP funding by the end of 2019; on track to reach target of 65k by end of 2020

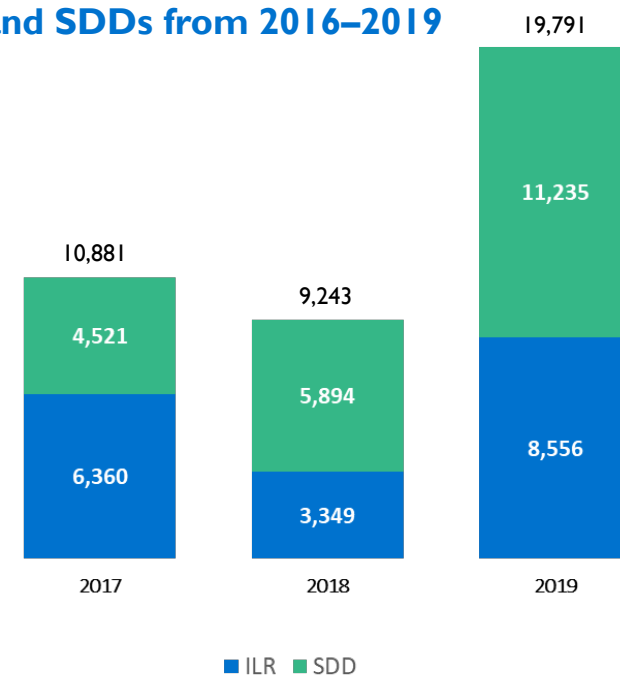
By all accounts, CCEOP achieved the overall goal of getting large quantities of optimal products procured, distributed, and deployed in a short amount of time. New and functional CCE is installed and helping to protect the \$1 BN + of vaccines that Gavi and governments procure. Overall, CCEOP is considered a success in rapidly expanding the use of longer lasting CCE with lower TCO, replacing broken and obsolete equipment, and increasing use of SDDs that require minimal maintenance.

Over the course of the first four years of CCEOP (2016 to 2019, though the first procurement did not occur until 2017), **purchase orders (POs) were placed for nearly 40,000 units of ILRs and SDDs (18,265 ILRs and 21,650 SDDs) for 38 countries* with CCEOP funding.**

If procurement volumes keep pace, this will mean CCEOP is on track to meet the revised forecast that 65,000 units of ILRs and SDDs will be procured by the end of 2020.

* NOTE: All procurement data was provided by Gavi. In some cases, discrepancies were noted with annual figures reported elsewhere, but Gavi and the evaluation team agreed to use these figures.

Purchase orders for ILRs and SDDs from 2016–2019



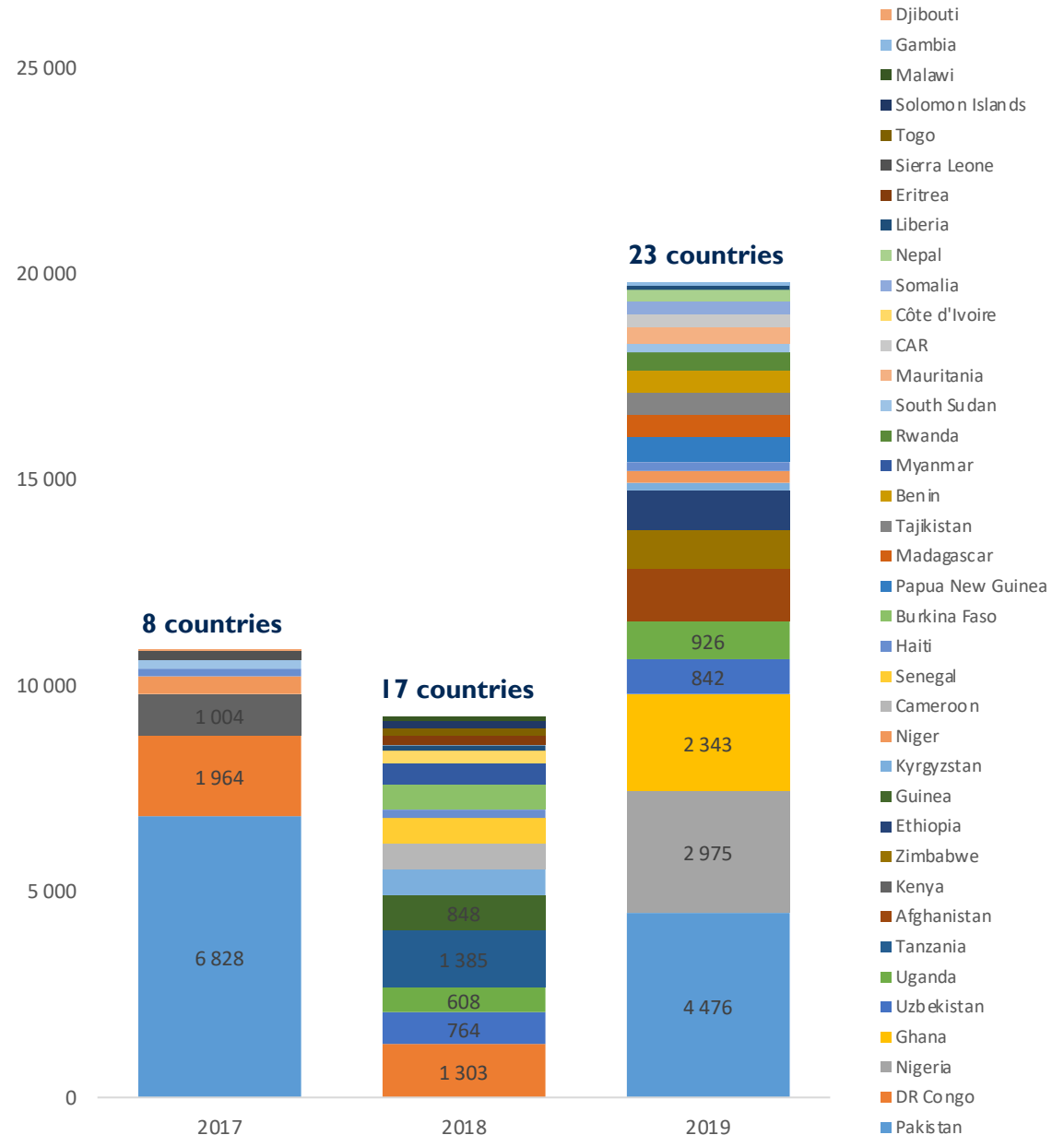
CCEOP funded procurement only

Increasing number of countries received new CCE each year; volumes driven by small subset of countries

The effectiveness of the platform in increasing the availability of and demand for optimal CCE is a clear achievement of the platform based on the procurements and deployments thus far.

As of December 2019, purchase orders have been placed for 38 countries (ten of these including Year 2 and three procurements) and deployments initiated for 28 of those countries (includes Year 2 deployments for three of these countries).

The four highest volume countries account for 50% of the procurement to date (Pakistan, DRC, Nigeria, Ghana) and 16 of the 38 countries account for 80% of the procurement volumes.



CCEOP has been effective at promoting the supply and availability of optimal CCE

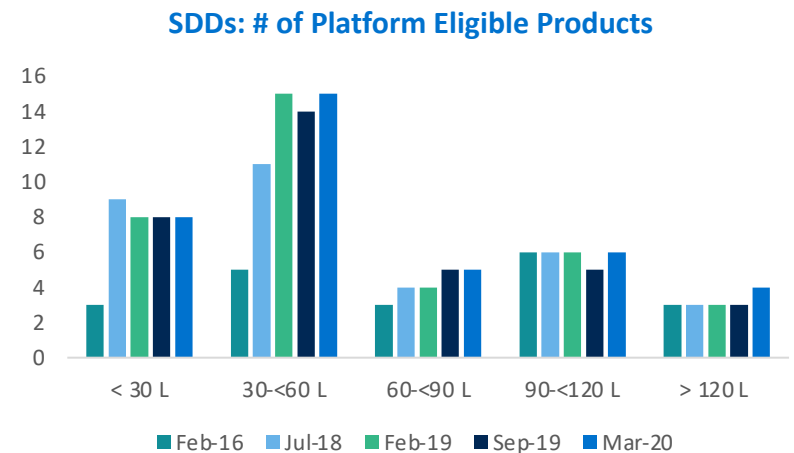
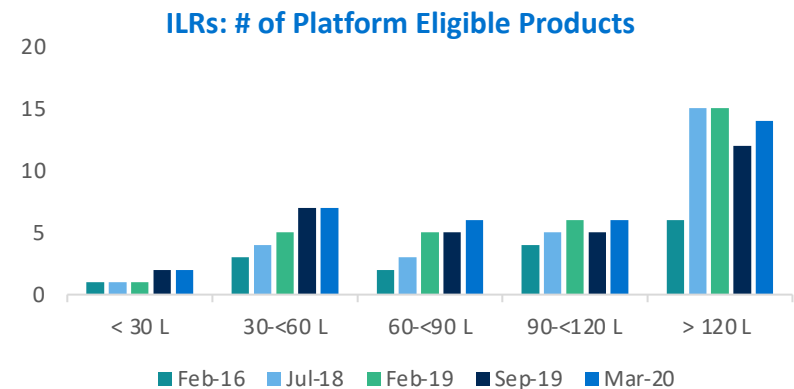
The MS goal of having two suppliers of ILRs and SDDs in each segment that are platform eligible has been achieved for all segments (across CCE types – fridge- or freezer-only or dual).

The increase in number of suppliers and platform-eligible equipment has achieved the original target of ensuring that there were at least two suppliers per product size segment (combining fridge/dual/freezer for each segment). Prior to CCEOP approval in 2015 there were six manufacturers of ILRs, now there are seven with platform eligible CCE, while for SDDs, there were four suppliers, now there are eight manufacturing platform-eligible equipment.

Both categories of CCE have seen increases in available models by the five size segments.

- For mains powered refrigerators and freezers, as of March 2020 there are currently 35 platform-eligible models, compared to 29 in July 2018. In 2014, prior to CCEOP, only five ILR devices would have been platform eligible.
- For SDDs, there are 38 platform-eligible models in March 2020, compared to 33 in July 2018 that were platform eligible and only two that would have been platform eligible in 2014.

Further, there are additional models in the pipeline for eligibility.



MS efforts have helped address concerns of concentration of procurement with a subset of suppliers and improve overall market health

Early procurement was concentrated among two incumbent suppliers; more recent trends indicate some expansion to additional suppliers.

Tender results through the end of 2019 show some continued challenges with achieving the healthy market goals of supporting multiple suppliers in this market. From the initial country application and tendering process, demand from 2017–2018 clustered around the two suppliers who were already dominant in this market before CCEOP, with a third supplier emerging as a larger player in 2018–2019.

The shifts in procurement trends to include different suppliers in 2019 are in part due to the differentiated tender process that was implemented in early 2019, recognizing the market concentration with a subset of suppliers. Through this change, high-volume countries are asked to allocate 25% of their procurement needs to a non-dominant supplier. This change attempts to address the challenges observed where countries continue to choose known and recognized brands. Through this process and other efforts, a third supplier has gained greater market share and helped break up the duopoly observed in the early years of CCEOP.

However, not all suppliers have benefited equally. It will be important to continue to watch these trends in 2020 to see the continued impact of MS efforts implemented in 2019. It is also important to note that not all of the smaller suppliers have the capacity to grow much beyond current levels of demand.

Further, the negotiation with countries to accept the 25% can lead to protracted dialogues, which may be at odds with efforts to speed up the application, decision-making and award process.

Achieving Price Reductions

The evaluation team was provided with total estimated savings for 2019 of approximately USD \$10.5 M, comprised of USD \$4.1 M savings from CCEWAP (2019 vs 2018 as benchmark), USD \$5.8 M savings from country selection of better value for money CCE, and USD \$500k from service bundles from better negotiations and use of benchmarks.

However, the perception persists that countries are not price sensitive during their equipment selection process and the product selection and procurement processes are not set up to drive pricing efficiencies. Further, questions were raised whether the effort to keep eight manufacturers in the eligible pool of suppliers was supporting or limiting the opportunities to achieve price reductions. While the theory is that more suppliers should help drive competition and lower prices, the reality may be that low procurement volumes mean that production capacity is underutilized, and suppliers are unable to recognize greater efficiencies by optimizing production that could yield price reductions.

“There is still a tension between price reduction and innovation while the volumes are not high enough. The market shaping roadmap is not set up for success when it comes to this. We’re asking suppliers for more [innovation] so we can’t ask them to lower prices.”

- Global stakeholder



Photo credit: Ian J. Connors

Forecast Comparison and Timeline

There have been multiple forecasts provided at various points before and during implementation of CCEOP. Some were developed at the outset of CCEOP and represented more of a needs-based estimate for CCE, while later estimates focused more on what would likely materialize in actual demand or procurement based on funding and country applications. UNICEF's forecasts and those communicated to manufacturers represent all CCE demand, not just that procured with CCEOP-specific funding.

The more recent short-term forecasts from UNICEF reflect lower levels of annual procurement in the early years of CCEOP (2016-2017) with gradual annual increases to 2020-2021 to arrive at an average of ~22k units annually across ILRs and SDDs.

	5-year Annualized Forecast (2015)	3-year Short term demand forecast (2015)	UNICEF Short-term Demand Forecast (2016)	PPC Forecast (2017)	UNICEF Short-term Demand Forecast (2018)	UNICEF 2020-2021 Projections (2020)
Source	2016 Supply & Procurement Roadmap	2016 Supply & Procurement Roadmap	UNICEF Short term demand forecast 28 Oct 2016	May 2017 PPC, Appendix 3	March 2018 Industry Consultation	Feb 2020 Industry Roadshow slides
Time horizon	2016-2020	2016-2018	2016-2017*	2017-2021	2018-2019	2020**
Forecast type	Needs-based	Demand-based	Demand	Needs-based	Demand	Demand
ILRs	9,000 - 10,400 annual	9,400 annual	9,000-10,000	50,590 (10,118 annually)	21,300	8,533
SDDs	7,000-9,500 annual	11,200 annual	17,000-21,000	99,141 (19,828 annually)	28,200	16,825
TOTAL	16,000 – 19,900 annual	20,600 annual	24,100 (12,050 annually)	149,731 (29,946 annually)	22,452 (11,226 annually)	26,711

*Annual quantities for 2016 were revised downward due to slower start to CCEOP; 2017 forecasts exceeded 20k in total

** Figures indicated would achieve 65k total units (37k SDD + 28k ILR by end of 2020)

Efforts to improve manufacturer planning via better forecasts have not been consistent or effective

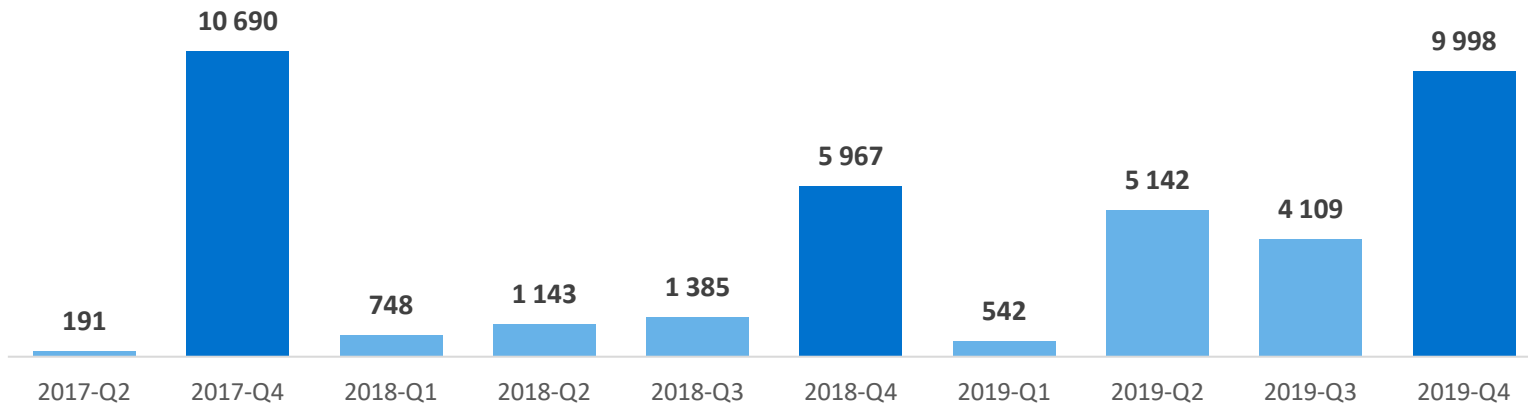
One of the ideas underpinning CCEOP's ability to drive simultaneous improvements in innovation and pricing was that better predictability of and visibility to demand could help suppliers plan and optimize production at scale, which in turn, would allow them to offer better prices.

Original forecasts estimated that 16,000–20,000 units of CCE would be procured annually, starting in 2016 with the launch of CCEOP. As CCEOP was initiated, no CCEOP-funded procurement occurred until late 2017, effectively pushing much of the forecast out one to two years. Stakeholders interviewed indicated this lag was largely due to delays in CCEOP implementation but manufacturers were disappointed by the delays and perception of lost or over-stated demand. Another point of confusion has been what these forecasts comprise and when and from where procurement will be coming. UNICEF's forecasts represent both CCEOP and non-CCEOP funded procurement, yet suppliers may not know that orders outside of the CCEOP tender process are also Gavi-funded and included in UNICEF's estimates, so when orders come through a different process it may not be clear that this is part of that same demand outlook. The current forecast estimates that by the end of 2020, 65,000 units of CCEOP-funded CCE would be procured and reach 85k units by end of 2021.

Manufacturer representatives all spoke about the challenges the lack of more specific forecasts and uncertainty in demand pose for them, from knowing if/when to invest or seek financing for capital investments and research and development to production planning and staffing. This would be difficult to provide at a more granular level unless the role of country preference in product selection and procurement was diminished.

Volatility and uncertainty of demand has limited manufacturers' abilities to optimize production

Purchase Orders for CCE Units Placed by Quarter



Suppliers mentioned the unpredictability of orders placed over annual periods as a complicating factor. Suppliers said they have limited insight to when tender awards will be made and POs placed. As CCEOP got underway in 2018, UNICEF SD shared quarterly tender calendars on their website but these were discontinued for over a year in 2019. Quarterly updates have been resurrected and are now shared with individual suppliers by email, with information specific to tenders on which they will be eligible to bid.

The figure above shows the PO volumes placed by quarter. Volumes in 2017 and 2018 were particularly skewed with 98% and 65% of procurement volumes occurring in Q4 of the year; this fell to 50% in 2019. Given that many manufacturers produce CCE on a make-to-order basis, this means the many suppliers were underutilizing capacity throughout the year and uncertain about overall demand. Low levels of predictability and “lumpy” demand due to the uneven country application process and variable procurement timelines hinder efforts to achieve price reductions.

The Alliance and partners have worked to address this by decreasing the number of steps and time for each step to accelerate the process to smooth demand over time.

Inclusion of the service bundle complicated CCEOP but experience to date has yielded important learnings

There is widespread acknowledgement that including the service bundle mandate in CCEOP has complicated MS efforts. Initially this meant that suppliers needed a network of local partners, which favored more established suppliers or meant that less experienced suppliers were making large assumptions in their budgets, potentially inflating service bundle costs to account for uncertainty and risk. However, with experience, the challenges seem to have minimized, though costs have not necessarily decreased significantly. All of the suppliers expressed concern with the prospect of de-linking and several mentioned how the experience to date has improved their management of the process and associated costs.

Concerns focused on costs of service bundles:

- Many people were surprised at the costs and time required to implement the service bundle component of the CCEOP.
- Countries were frustrated when their CCE requests were reduced to allow sufficient budget for the service bundles.
- Manufacturers also experienced unexpected costs in establishing supplier networks and unanticipated costs during deployments.

Benefits of the service bundle:

- Almost all stakeholders interviewed acknowledged the effectiveness of the service bundle towards rapid deployment and the overall goal of widespread availability and installation of high-performing CCE.
- Many stakeholders cited the important lessons learned in the first few years about effective coordination— project management teams (PMTs), deployment, communication.
- Many stakeholders mentioned improvements seen through this coordination and optimism that these mechanisms will remain.
- Several suppliers talked about the value of being included in the process, being close to the end users to understand needs, and developing appropriate training mechanisms and tools.

Rethinking the service bundle mandate requires understanding the value and trade-offs of de-linking options

Different models for the service bundle may be appropriate in different contexts; the revised MS strategy includes efforts to explore options to de-link, in contexts where desired and appropriate.

Findings from the CCEOP midline evaluation in Kenya, Pakistan, and Guinea further detailed the tension between the expense of the **service bundle provider (SBP) approach** and recognition that it was a highly effective mechanism to rapidly deploy large volumes of CCE. The different findings from the three countries underscore the idea that different models may be appropriate in different contexts.

Extrapolating these findings to the varying contexts within Gavi countries supports rethinking the service bundle mandate, particularly if there are countries or components of the service bundle where the full “white glove” service bundle adds excessive costs and decreases a sense of government ownership. De-linking the procurement of equipment and service bundles would allow suppliers to bid on one or the other or both or to waive the service bundle requirement if certain criteria are met.

Alliance efforts are exploring options for de-linking the SBP as a required component of CCEOP in Gavi-supported countries, but it remains unclear what this should look like. Several pilots are proposed to test different deployment models which will help inform this analysis and understanding of whether the service bundle is always necessary to ensure timely and quality installation or if there are circumstances where other models may be equally or more effective to ensure timely and quality installation with better value.

The general hypothesis is that there are two types of countries that will emerge as the most likely candidates for delinking:

- Fragile/conflict settings with no service provider
- Countries with high level of capacity (e.g. PMT in place, experience with installation, etc.)

CCEOP promotes innovation via TPPs but the future requirements are unclear

CCEOP set early benchmarks for optimal equipment, creating eligibility criteria for CCE procurement that exceeded what was required for WHO Performance, Quality, and Safety (PQS) prequalification. The tool selected for driving innovation is a set of target product profiles (TPPs). A TPP lists the desired features of a product category for future WHO PQS prequalification with the purpose of steering manufacturers toward product development that responds to the operational needs of countries. WHO releases these TPPs as part of their PQS process, and Gavi then selects which parts of the TPP will be part of next round of “optimal” criteria or characteristics for CCEOP eligibility by a certain date.

“We could build new innovative fridges, but it would be a long time until it’s CCEOP compliant — so there’s really no incentive to be an innovator; it’s actually the opposite.”
- Supplier representative

However, many key informants raised questions about the future of innovation and role of TPPs as CCEOP progresses. Some key informants felt that the TPPs helped achieve the “basics” or fundamental baseline characteristics of optimal CCE, but now innovation is incremental. Interviewees also voiced concerns around the lag in the next set of platform-eligibility specifications, and how that was influencing or creating uncertainty with manufacturer decisions in the interim, as TPPs have not been updated since 2019.

This lack of information flow on new platform eligibility requirements has created different responses from suppliers. Some suppliers continue to make enhancements and add features to their products. Others question the point if it will not be rewarded.

Programmatic stakeholders also had varying opinions. From one perspective, these enhancements add value. However, others are concerned that countries are then paying more for features they do not need. Some informants shared their view that some of the innovation is marketing only, without adding extra value or filling a real need with country programs. Some were concerned that product differentiation further fragments the market and makes it more difficult to compare products and make informed decision-making.

More guidance is needed to help countries assess CCE value vs. purchase price regarding features and warranties

All of this also raises the question of MS strategy with regard to innovation and competition (manufacturers wanting to differentiate their products, justify higher pricing) and efficiency/comparability between products.

Regardless of the outcome on TPPs, many people mentioned the opportunity and need for clarity around new features sooner rather than later – for example, integrated remote temperature monitoring devices (RTMDs), energy harvesting, or integrated voltage stabilizers. The risk otherwise is that manufacturers will make their own decisions about what new features to include, which could be at odds with what could eventually be required for CCEOP, resulting in sunk costs and suboptimal outcomes. Further, it is unclear what mechanism is in place to ensure that future TPPs are well informed by country preferences.

Another complicating factor in assessing the value of CCE appears to be the extended warranties offered by some suppliers.

UNICEF has provided an FAQ on warranties to help clarify. This document explains why two years is the minimum warranty period, when a warranty can be used, and the important role of preventive maintenance. It also highlights the potential risks of:

- Warranties extending beyond two years, including ambiguity around product failure due to quality or lack of maintenance
- The manufacturer being able to fulfill the obligations the longer out they extend.

The FAQ includes this important note, “The extended warranties come with a price tag which varies among the manufacturers. Countries should carefully consider whether the advantages of the extended warranties outweigh the cost.” However there is no guidance on how to actually measure and compare the potential advantages versus costs.

Efforts to monitor field performance of CCE have not yet been implemented in a widespread or consistent manner

The target outcome of “By 2021, field performance data on multiple brands is available, informs understanding of TCO, and can be used by countries to inform their investment decisions” is still a work in progress.

Efforts to monitor CCE field performance are underway, but not all have progressed at the anticipated pace and there is not yet a robust mechanism to collect and report these data in a way that is visible for decision-makers.

There are two distinct performance feedback functions in different phases of implementation—the Gavi-led Intelligent Maintenance and Procurement Tool (IMPT) and post market monitoring (PMM). A few stakeholders cited lack of coordination between IMPT and PMM as a missed opportunity to learn across efforts and avoid confusion.

- The Gavi-led IMPT seems to be the platform best positioned to capture and aggregate information across many countries, but has stalled and focuses only on temperature, which may miss other aspects of performance feedback.
- PMM is led by WHO PQS and still in pilot phase. PMM will collect data via sentinel surveillance sites which will provide insight to the frequency and reasons for equipment failure. This will inform PQS specifications and verification protocols, as well as feed into timely feedback to manufacturers to enable corrective and preventative actions.

A third mechanism, post installation inspection (PII), is a one-time effort to assess the quality of CCE installation.

- PII is conducted to better differentiate the performance and reliability of CCE provided through CCEOP. UNICEF is leading the PII effort and the vision is that it will replace the commissioning that was initially part of the SBP’s responsibility. UNICEF uses an ISO sampling framework to follow up on installation quality and early product performance approximately six months following installation. The rationale is that it will save money on the SBP while also providing more meaningful performance feedback on CCE and allow both unique instances of issues and trends to be identified and information shared more widely.

Each performance monitoring effort has benefits, but it is not clear that any one of them will meet the needs for CCEOP

PMM is more deliberate and addresses specific questions on performance, but it has not yet been implemented at a scale to provide the type of robust feedback data that is needed.

Further, for many of the CCE being procured and installed now, there is no longer term performance data available due to the nascency of some of the models and technology. While efforts to monitor performance is underway, there is no indication of how CCE will perform in situ after Year 5 or 6. And in five or six years there will be a new and even more innovative CCE. Further, while some models now promise long-term performance, and in some cases, ten-year warranties, these are based on manufacturer testing only; it is unclear what the expected lifespan or real-life obsolescence should be for many of these models.

New CCE equipped with RTMDs will provide a source for performance data, in line with Gavi's recognition of country ownership of all data generated by CCE products.

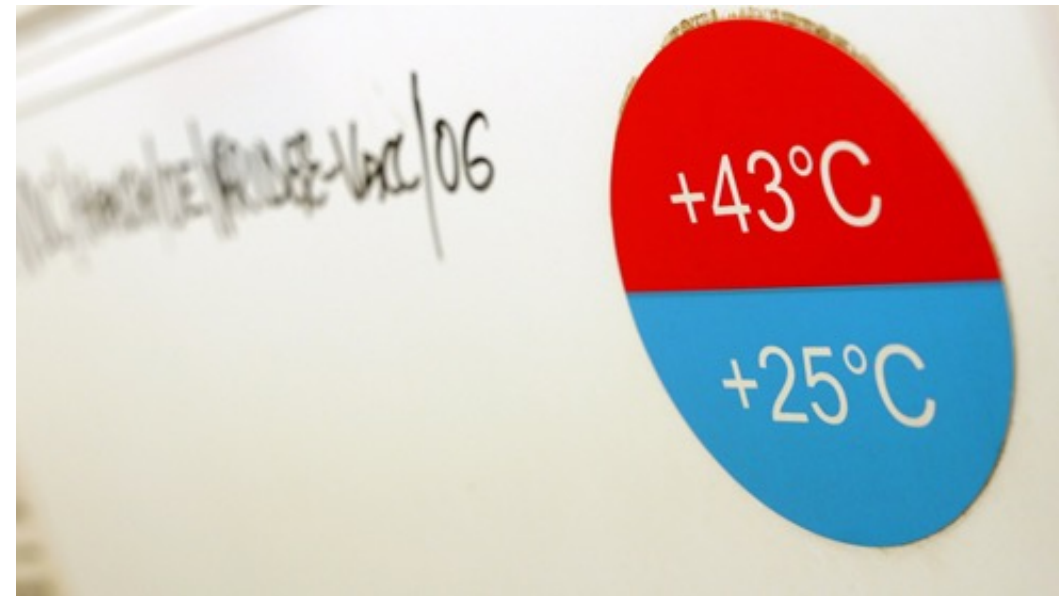


Photo credit: Ian J. Connors

PII has helped to provide data on the quality of installation and provides a large sample size, although it is just a snapshot and not an on-going monitoring process. But it provides proxy indicators on alarm, heat/cool, and temperature and is a useful starting point for learning and to determine what kind of monitoring is feasible and sustainable.

PII can also help identify issues with models in the field and can help ensure that equipment performance will be checked and flagged to WHO PQS.

While the target is to use field performance monitoring to inform TCO, stakeholders questioned the utility and purpose of using the TCO tool to do this



Photo: CCEOP Evaluation Team, Pakistan

While additional input on CCE performance is an important part of the feedback loop and should be incorporated to product selection and comparison tools, it is not obvious that adding to the TCO estimates/tools will be the most useful way to accomplish this. Already, according to stakeholders at country and in programmatic support roles, using TCO to guide decision-making and country preference has been challenging and is not always a straightforward task.

Some informants who work more on the programmatic side of CCEOP suggested that a challenge is that people do not know how to use the tool or evaluate TCO, despite efforts to update and provide education on its use. Others questioned the use of TCO for the purpose of comparing across models; they suggested that it was useful to convince countries to move away from gas or kerosene and explore higher performing or solar options but not to compare features of CCE across models and manufacturers, given the proliferation of features and options.

Overall suppliers felt that communication around CCEOP supply needs and processes has been variable over the years, with some recent improvements

One of the original strategies and objectives of CCEOP was to address information asymmetry to help optimize the market and better connect supply and demand. This was meant to provide suppliers with better information (demand forecasts, innovation needs/target product profiles, programmatic updates) to inform their planning and countries with better information to increase awareness of product options and inform product selection.

The views of the key informants are presented below:

- Most key informants felt that the original signals and information shared by the Alliance and partners around CCEOP were clear, but they had become less clear over time. This concern was expressed for both demand forecasts and signals around innovation and the TPPs.
- Several suppliers cited initial progress on information sharing and then a void in 2018 and into 2019 as the Alliance and partners worked to re-think the MS strategy.
- Many key informants felt that information sharing had improved again later in 2019 and into 2020, especially with the renewed focus on industry consultations and quarterly emails.
- Almost all suppliers expressed a desire for more transparency from UNICEF on tenders awarded (how, when, and to whom) and feedback on bids that did not win.
- Several informants referenced the changing leadership and key staffing at almost all of the partner organizations working on CCEOP MS since the initiative's inception in 2015/2016 as a potential reason for the changes and volatility in flow of information over time.

Summary: Implementation & Effectiveness

Comparing the MS objectives, implementation of the stakeholder action plan, and target outcomes to date, findings related to the effectiveness of the strategy are summarized below:

- The supply-side objectives of CCEOP have been met, supported by a strong base of platform eligible suppliers and range of options across ILRs and SDDs and size segments.
- CCE has been effective in increasing procurement and deployment of optimal CCE across 38 countries as of the end of 2019; however, procurement volumes will need to remain on track to achieve forecasts through 2020.
- Procurement results through the end of 2019 favor three large suppliers; with one newer entrant making headway into markets previously dominated by established suppliers. Smaller suppliers still seeing limited volumes.
- Procurement results and seeming lack of price sensitivity in product selection underscore on-going tension between Gavi's commitment to country preference and MS objectives.
- Demand uncertainty and volatility coupled with variability and gaps in information flow has contributed to supplier's limited ability to optimize production and has hampered price reduction targets.
- The service bundle created complexity at the start, but a lot has been learned on how to implement and manage this component well. Learnings from de-linking pilots will be crucial to understand how to maintain benefits and value of this service to ensuring CCE is deployed rapidly and correctly.
- Lack of updated TPPs has led to some confusion around desired and required CCE characteristics; this risks suppliers adding features that countries do not need or want to pay a premium for. Current tools and guidance may not be sufficient to help countries assess CCE value vs purchase price regarding features and warranties
- Performance monitoring efforts need further attention to determine if there is a way to comprehensively collect, share, and use this data to improve product comparisons and selection.

SUSTAINABILITY

MS Evaluation: Assessing Sustainability



- To what extent are the CCE MS results sustainable?



- To what extent did the MS strategy/activities result in any unintended positive/negative consequences?



- How has the revised MS strategy addressed early signs of unintended consequences and/or altered the sustainability outlook for CCE?

The sustainability of the CCEOP MS efforts rely on sustained and reliable demand

MS activities typically take several years, if not longer, to fully understand the effects on the market. For CCEOP, given that market engagement effectively began to play out with procurements conducted in late 2017, and recent strategic changes were just implemented, it is still early to be evaluating the impact on longer-term sustainability. However, results to date raise a few questions about sustainability and unintended consequences.

Initial forecasts for CCEOP in 2015 estimated that the need for CCE could reach up to 150,000 units of on-grid and solar-powered equipment, plus over 700,000 freeze safe vaccine carriers and 200,000 freeze safe cold boxes, pending sufficient funding and successful roll out of CCEOP in 55 countries.* Facilitating the availability and procurement of this CCE is part of the broader Alliance goal to equip 90,000 facilities with upgraded equipment and 45,000 currently unequipped facilities in the 55 supported countries.

These numbers were refined in the original MS ILR & SDD Procurement Roadmap to estimate annual procurement at 16,000 to 20,000 units of ILRs and SDDs, meaning that between 2016 and 2020, between 80,000 to 100,000 units would be procured. These figures were shared with manufacturers and helped pique their interest in this market and consider investments required to ensure that their product portfolio included models in different size segments and met platform eligibility requirements.

However, delays in CCEOP implementation and application approvals meant that procurement did not start until 2017, pushing the initial five year forecast beyond 2020. Further, as prices of CCE and the service bundle were higher than originally anticipated, funding did not go as far as originally expected. As CCEOP was implemented, the actual volumes procured with Gavi funds have yielded just shy of 40k units in the four years from 2016-2019. In response, the procurement outlook has been updated to target 65k units procured by end of 2020.

* GAVI REPORT TO THE PROGRAMME AND POLICY COMMITTEE – 11-12 MAY 2017, AGENDA ITEM 07, APPENDIX 4

Sustaining a healthy market for CCE may require fewer suppliers than are currently CCEOP eligible

The procurement results through 2019 raise questions about the size of the CCE market and number of suppliers required to ensure a healthy market. Specifically, if the annual procurement volume is ~20k units, are eight suppliers with an estimated combined production capacity of ~200k+ units annually needed to support this? In 2019, the differentiated tender approach attempted to address the emerging duopoly and support market growth for additional suppliers.

From the Alliance's perspective, stakeholders said there is no interest in mandating the right number of suppliers or to keep it artificially high, but the efforts to date have been implemented to prevent premature exit; that is, a supplier providing a quality product(s) with low TCO leaving before they have a chance to gain a foothold in some markets. However, generally there is still agreement that there is not enough field performance to assess risk with existing models and promote selection of better performing CCE.



Photo credit: Ian J. Connors

Finding the MS balance between active management of procurement and optimal number of suppliers

The efforts required to allocate 20k units a year across eight suppliers are significant and may contribute to higher, not lower prices. Several manufacturers mentioned under-utilization (and uncertainty of demand) as limiting further price reductions as they cannot achieve manufacturing efficiencies with smaller volumes. Others platform eligible suppliers are small and may not be seeking higher volumes or greater market share.

In some countries the differentiated allocation process (assigning 25% of procurement volumes to an alternative supplier) has gone well; in others there has been significant pushback. In a few cases, the Alliance has had to escalate the negotiation with the MOH on the allocation to Gavi and UNICEF representatives in country. This risks relationships with government and delays the overall goal of increasing availability and use of optimal CCE.

However, other stakeholders raised concerns about any of the eight current suppliers, and especially those that have deployed significant volumes in any one country, exiting the market. There are concerns about the availability of spare parts and validity of existing warranties.



Key questions for consideration are:

- What is the longer-term goal of the MS efforts? If at the end of 2020, some suppliers are not seeing orders should additional effort be invested in keeping them in the pool?
- What is Gavi's responsibility for warranties if a supplier fails or leave this market?

Planning for sustainability now requires thinking through the potential future issues and considerations

Sustainability also needs to consider costs to maintain products for 10 years+ and replacement

While most warranties cover product failure for two years and some for longer periods, what is being done to support countries to budget for maintenance and repair following that period is unclear. CCEOP countries are required to submit maintenance budgets as part of the process but unclear if these are available and used as planned.

Related to this, there will also be a need to replace CCE that is currently operational and in use (pre-CCEOP installed base) and CCE that fails 8-12 years out. It is important to help countries to start planning for that now.



Key questions for consideration are:

- What responsibility does Gavi have to ensure ongoing maintenance and repair for these products once they are off warranty?
- What is Gavi doing to help governments plan for longer term sustainability of CCE?

CCEOP was instrumental in increasing use of optimal CCE; to build on this success, future efforts should situate CCE firmly within Gavi's larger strategy

CCEOP was a critical catalyst to rapidly accelerate procurement of higher performing CCE, and by all signs, this was achieved. Now that this is in motion, the longer-term strategy for CCE needs to be centered on goals beyond CCEOP. There is value in this mechanism in terms of consolidating procurement, even for self-funded countries, and potentially beyond ILRs and SDDs.

Think about cold chain needs overall, not just vaccines.

What will concurrent efforts on health facility electrification mean? Shift to ILRs?

Decommissioning – what happened to CCE that has been replaced?

Assuming this equipment is meant to last for 10 years, and countries are replacing and equipping ~70% of their CCE needs in this time period:

- What will the market be for CCE post-2022 until CCEOP-procured equipment needs to be replaced in large quantities?
- Will there be sufficient funds available to replace such a large quantity of equipment at one time?
- How should countries plan now for such a change?

Summary: Sustainability

The longer-term sustainability of MS efforts and their outcomes is unclear at this point but raises a few considerations for moving forward:

- Credibility of forecasts and certainty around future demand is critical to maintaining supplier interest in this market. Communication to date seems to have created confusion or set unrealistic expectations.
- Given current annual procurement results and forecasts for the coming years, the current number of eligible suppliers may be too high and require too much effort from to maintain.
- In fact, these efforts may in fact be undermining the MS objectives if it means that suppliers are not able to optimize production and achieve cost savings by operating at scale.
- CCEOP has been successful in stimulating a market for and catalyzing awareness, availability, and use of higher performing CCE in many countries. There is value in more organized and aggregated procurement and information sharing for CCE.
- CCEOP has created great momentum for CCE. As the initial phase of CCEOP implementation winds down, CCE should be fully integrated to Gavi's strategy to promote access to quality, efficacious vaccines.

OUTSTANDING QUESTIONS & RECOMMENDATIONS

While learning is still underway, stakeholders raised several questions about recurring challenges with MS for CCE

Words that were used consistently about CCEOP at all points of the evaluation were “game changing” and “transformational.” However, as with any undertaking of the size and scope of CCEOP, there are always learnings and opportunities to improve. With the newly launched MS strategy and planning for the next phase of CCEOP underway, there is still a lot to learn about what will ultimately be effective and what will not. However, through conversations with stakeholders across all organizations and functions, the following key questions came up consistently about how to address recurring challenges with MS and CCEOP objectives:

? Is it possible to reconcile the commitment to country preferences and MS objectives? Can country preference be more generic (specifications-based) rather than brand/model specific? What would this do to country ownership?

? If the goal is to reduce TCO can we reward manufacturers to do that? How does CCEOP continue to promote innovation at the same time?

? How do countries assess the real value add of features versus those that may be “marketing”? Is TCO the right tool for this?

? How can CCEOP provide better visibility to demand to achieve production efficiencies and lower prices?

? What is Gavi’s role to help foster greater price sensitivity & real competition?

? Will different co-financing models inject more price sensitivity into decision-making?

? SBP is semi-institutionalized now and the quality of the bids have improved, how can countries better assess the value of this service?

Based on the evaluation findings and the outstanding questions, recommendations for each are listed below



Is it possible to reconcile the commitment to country preferences and MS objectives? Can country preference be more generic (specifications-based) rather than brand/model specific? What would this do to country ownership?



Gavi and UNICEF:

- Look at models used for procurement of other durable equipment (procured by UNICEF and others)
- Pilot a specifications-based procurement model and create funding incentives for countries who agree to use this model
- Consult with countries on brand preferences/perceptions
- Assess 25% allocation model to determine if/how this could be increased (to 30%? 40%?) to further advance MS objectives



How can CCEOP provide better visibility to demand to achieve production efficiencies and lower prices?



UNICEF SD and Alliance partners:

- Establish minimum annual order quantities with suppliers to improve production planning, efficiencies, and ultimately prices; pass savings onto countries in terms of incentives for procurement
- Ensure forecasts are realistic and updated and shared routinely
- Work with manufacturers to understand their production planning schedules and when more concrete inputs would be needed to help planning; work to align forecasts with these schedules
- Review demand fluctuations and set out a deliberate schedule and timeline for annual processes (across applications, approval, ODPs, to POs) to better smooth demand









What is Gavi's role to help foster greater price sensitivity & real competition? Will different co-financing models inject more price sensitivity into decision-making?



Gavi and Alliance partners:

- Alliance needs to clarify role/goals with MS; Gavi to determine "ideal" number of suppliers in the market to meet healthy market goals and establish clearer strategy to do so
- Explore pricing, allocation and financing levers to achieve set goal, even if at odds with country choices

Outstanding questions & recommendations (continued)

<p> If the goal is to reduce TCO can CCEOP reward manufacturers to do that? How does CCEOP continue to promote innovation at the same time?</p>	<p> Gavi and UNICEF:</p> <ul style="list-style-type: none"> • Agree on next set of TPPs (or set new platform-eligibility criteria) and communicate clearly to manufacturers • Establish comparison tool based on required product features; determine if/how to include field performance data • Clarify and stick to timing for any new feature requirements
<p> How do countries assess the real value add of features versus those that may be “marketing”? Is TCO the right tool for this?</p>	<p> Gavi and Alliance partners:</p> <ul style="list-style-type: none"> • Define set of essential characteristics; help set value/notional use case for additional features and warranties • Ensure decision-support tools are user-friendly (less text, easier to access and use outcomes for both decision-making and advocacy)
<p> SBP is semi-institutionalized now and the quality of the bids have improved, how can countries better assess the value of this service?</p>	<p> Gavi and UNICEF:</p> <ul style="list-style-type: none"> • Alliance should support better costing tools to assess true cost of deployment and maintenance • Benchmark timelines and costs for comparison • Establish clear criteria for choosing to de-link (some/all of SBP services) or full service bundle

ANNEXES

Annex 1: Global Level Key Informant Interviews

Overall, 18 key informant interviews were conducted between March 5th and April 15th, 2020 with participants currently or previously working with the following organizations and companies in roles related to the implementation of or affected by the CCEOP MS strategy.



- Clinton Health Access Initiative
- Gavi Secretariat, current and former employees
- PATH
- UNICEF Programme Division
- UNICEF Supply Division
- WHO PQS
- B Medical
- Dulas
- Haier
- SunDanzer
- SureChill
- Vestfrost

Annex 2: Data Sources Consulted

- CCEOP Alliance Partners and Supplier Meeting slides (CCE supplier roadshow_Generic slides_Feb 2020.pdf)
- Gavi, Accelerating and Tracking Implementation (PPT, July 2017)
- Gavi Cold Chain Equipment Optimization Platform Technology Guide, October 2019
- Gavi Cold Chain Equipment Optimization Platform Technology Guide, April 2018
- Gavi Cold Chain Equipment Optimization Platform Technology Guide, February 2016
- Gavi CCEOP Country Applications (various)
- Gavi CCEOP Database – CCEOP procurement database_April2020.xls (Confidential)
- Gavi Report to the Programme and Policy Committee – 11-12 May 2017, Agenda Item 07, Appendix 4
- Gavi Supply and Procurement Strategy 2016-2020, Report to the Board, Agenda Item 15 – Appendix I
- Gavi Supply and Procurement Roadmap (multiple vaccine products)
- Gavi Healthy Markets Framework
- Gavi Supply and Procurement Roadmap for ILR & SDD Cold Chain Equipment, Public Summary (Dec 2016) and Restricted version (August 2016)
- Gavi Supply and Procurement Roadmap for ILR & SDD Cold Chain Equipment, Public Summary (June 2019 Update)
- Gavi Supply and Procurement Roadmap Intervention Tracker (Timeline for ILR-SDD 2019 Roadmap-Public Action Plan_Aug2019.xlsx)
- UNICEF Industry Updates – various emails and PPTs shared Q1/Q2 2020
- UNICEF Industry Consultation 22 March 2018 – Meeting Presentations
- UNICEF CCEOP Tender Diagnostic Results, PPT Feb 2018 (Confidential)
- UNICEF Market Share Data (2017-2019)
- UNICEF Milestones tables – various updates 2019-2020
- UNICEF Supply Division CCE Pricing Data - <https://www.unicef.org/supply/pricing-data>
- UNICEF Supply Division Annual CCE Procurement Totals and 2019 Savings Estimates – provided by email
- UNICEF Warranty FAQ (Warranty FAQ_ILR-SDD.pdf)