



# Pooled Procurement in the Vaccine Market: UNICEF's Experience

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## Acronyms /Abbreviations

ARV	Antiretroviral
DCM	Developing Country Manufacturer
EPI	Expanded Programme on Immunization
Gavi	Global Alliance for Vaccines and Immunizations
GCC	Gulf Cooperation Council
GDF	Global Drug Facility
HIC	High-income country
LIC	Low-income country
LMIC	Lower-middle income country
LTA	Long Term Agreement
MNM	Multinational Manufacturer
PAHO	Pan American Health Organization
SCMS	Supply Chain Management System
TB	Tuberculosis
TT	Tetanus Toxoid
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children's Fund
WHO	World Health Organization

## Acknowledgements

Laura Kopczak is gratefully acknowledged as an early contributor for the content of this case study, and multiple reviewers are acknowledged for their time and contributions.

## Introduction

Vaccines are a successful public health product, preventing an estimated two to three million deaths each year from diseases like diphtheria, tetanus, pertussis (whooping cough), and measles.<sup>1</sup> The World Health Organization (WHO) recommends that children worldwide receive immunizations against six childhood vaccine-preventable diseases. This recommendation is known as the WHO's Expanded Program on Immunization (EPI). Today, 85%<sup>2</sup> of children receive EPI vaccines, up from 20% in 1980.<sup>3</sup> Market intervention strategies have made this increase in global coverage possible by enabling access to very low-price EPI vaccines in developing countries.

Three factors contributed to the affordability of EPI vaccines in low- and middle-income countries: pooled procurement carried out by United Nations Children's Fund (UNICEF) and the Pan American Health Organization (PAHO); differential pricing arrangements of multinational manufacturers; and the entry of emerging market manufacturers. This case study examines the first of these factors, pooled procurement, as used by UNICEF for purchasing vaccines for low- and middle-income countries.

Pooled procurement refers to consolidating the purchase quantities of multiple buyers under one third-party entity, in order to leverage larger volume purchasing to obtain better pricing than the individual buyers could obtain by purchasing directly from manufacturers on their own. In the vaccine market, UNICEF's Supply Division, PAHO and the Gulf Cooperation Council Group Purchasing Program (GCC) pool orders from individual countries and procure on their behalf.

Given that UNICEF is the world's largest procurement agent of vaccines for developing markets, its experience in the procurement of vaccines provides an important learning for understanding market dynamics. As this case will show, the key shortcomings of the vaccine market required UNICEF to move from traditional pooled procurement to *strategic pooled procurement*.

Considerations related to pooled procurement will be discussed as part of this retrospective analysis of UNICEF's role and evolution in the global vaccines market.

## Background on the Vaccine Market in Developing Countries

### *Market Size and Players*

The global vaccine market has tripled in value from US \$5 billion in 2000 to US \$24 billion in 2013. In the countries served by UNICEF and PAHO, purchases have comparably grown from US \$340 million in 2002 to US \$1.4 billion by 2011.<sup>4</sup>

Broadly speaking, the actors in the vaccine marketplace include suppliers (the manufacturers of the vaccine), donors (who provide funding), governments (who approve/qualify vaccines for quality, safety and efficacy and, in some countries, set prices), policy makers (who determine priorities for vaccines) and procurers (who purchase vaccines on behalf of others).

In developing countries, governments and donor organizations provide the majority of the funding for vaccines. Then, procurement agencies purchase the vaccines. UNICEF and PAHO act as these procurement agencies, and they purchase most vaccines for low-income countries. UNICEF buys for 80 to 100 countries annually, procuring roughly \$1.286 billion worth of vaccines.<sup>5</sup> PAHO, through its Revolving Fund, buys for a regional group of 41 Latin American and Caribbean countries.<sup>6</sup> Together, UNICEF and PAHO control more than 70% of the global vaccine market by volume, but only 7.5% of it by value.<sup>7</sup> This notable disparity between value and volume is due to the deeply discounted prices of vaccines provided by many multinational vaccine manufacturers to low-income countries.

The creation of Gavi, the Vaccine Alliance in January 2000 provided new resources to low-income countries (LICs) and some lower-middle-income countries (LMICs). Gavi is a public-private partnership whose mission is to increase poor-country access to immunization<sup>1</sup> as well as to the vaccines themselves. Through Gavi, many countries previously unable to afford vaccines were able to access them. UNICEF is the procurement partner for Gavi and procures Gavi-funded vaccines on behalf of eligible countries.

### **Market Structure**

Vaccine development and manufacture is very complex and highly capital intensive. It requires suppliers to make high up-front investments. Unlike the multi-purpose small molecule manufacturing facilities required for oral dose pharmaceuticals, vaccines require dedicated facilities. The fixed costs in operating a vaccine production facility are higher (approximately 60% of overall costs)<sup>8</sup> than for most pharmaceutical products. The capital cost and technological knowhow required to implement manufacturing processes capable of reliably producing high-quality vaccines are more significant than for pharmaceuticals or other health products, particularly because vaccine manufacturing is based on live biologicals rather than chemicals.

Second, governments require that the manufacturing processes of vaccines meet strict quality standards. Meeting these standards requires additional costs and often brings delays due to the process of getting regulatory approval. Finally, manufacturers need economies of scale. That is, manufacturers must produce high volumes of vaccines to reduce the cost of producing each vaccine. Together, these factors result in vaccine markets having fewer participating manufacturers for extended periods of time, in some cases even after patent expiration.

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<sup>1</sup> Immunization is the *service* of administering the vaccine to the patient) in contrast to the vaccine, which is the *product*.

## Background on Pooled Procurement

The concept of pooled procurement is straightforward: procurement agencies pool member product requirements, establish financing and supplier payment mechanisms, and utilize prequalification requirements; all in order to insure secure and timely product delivery at favorable prices. While such consolidation of purchasing power can take different operational forms, this cooperation between buyers results in a greater degree of leverage and transaction efficiency in the marketplace. In the vaccine market, UNICEF and PAHO consolidated orders for vaccines across multiple LICs and LMICs, in order to ensure affordability and availability of vaccines.

Pooled procurement involves:

- Negotiating prices and contract terms with suppliers
- Creating aggregate forecasts
- Placing orders and making payments.

Pooled procurement is one of various demand-side strategies to address supply chain risks in public health markets, such as demand fragmentation, inefficient procurement, high per-unit product costs, and inaccurate or delayed forecasting and supply planning. Although this case study focuses on vaccines, pooled procurement has multiple applications in other areas, such as antiretrovirals (ARV) for the treatment of HIV. Pooled procurement is typically utilized in conjunction with other market and economic tools, such as demand forecasting, various contracting provisions, and financing arrangements (PAHO's Revolving Fund). Other well-recognized examples of pooled procurement mechanisms in global health include:

- Supply Chain Management System (SCMS) Project (for HIV/AIDS drugs, under PEPFAR)
- The Global Drug Facility (GDF) for tuberculosis (TB) drugs
- The Global Fund to fight AIDS, Tuberculosis and Malaria
- The Gulf Cooperation Council Group Purchasing Program (GCC) (vaccines, drugs, supplies, chemicals used in the public sectors)
- United Nations Fund for Population Activities (UNFPA) Procurement Services Branch (contraceptives)

Pooled procurement is not needed and would not necessarily work for all products. For example, for products such as medical supplies, barriers to entry and risks for suppliers are relatively low, so there are sufficient numbers of suppliers in the market without actively “managing” supply sustainability. Buyers with low volume or divergent product needs and unpredictable demand are not well-suited to establish joint procurement.

Broadly speaking, buyers and sellers need to be similarly situated, as pooled procurement is less viable for participants with too much heterogeneity. That said, there are current pooling arrangements with elements of heterogeneity across the buyers. PAHO and GCC are both geographically-based procurement pools, with considerable income heterogeneity across their member countries. In contrast the vaccine procurement pool which UNICEF runs for Gavi is income-based.

Fundamental principles of pooled procurement involve forecasting and aggregating demand for standardized products in order to economize on transaction costs between buyers and the sellers. This UNICEF case study highlights vaccine production as an excellent example of where the specialized physical assets required for production increase the appropriateness and likelihood of success for pooled procurement. A necessary market condition is standardized product requirements across the multiple purchasers including quality and regulatory guidelines in order to aggregate demand at an acceptable level for suppliers.

In addition to standardized product requirements, pooling mechanisms require governance structures to mediate the exchange of goods and services, typically a central authority or secretariat. This factors into when pooled procurement will and will not work, as potential participants have to assess different structures and their institutional capacity for participation. Finally, as the predominant theme of pooled procurement is economies of scale, it is important to examine the transaction costs for the pool (versus non-pooled); in order to determine the potential benefit of a given procurement mechanism. In cases where the transaction cost, i.e. planning, executing, monitoring and adapting the pooled procurement activities exceed the savings derived through negotiated prices, then pooled procurement will not be a desired method.

A non-global health example of pooled procurement, in Flemish sports infrastructure projects in 2008, was presented in the literature, exploring the application of bundled procurement to building projects aimed at solving a severe shortage of sporting facility infrastructure.<sup>9</sup> In his paper, van den Hurk compared theoretical expectations and empirical findings for the bundled procurement in the public-private partnership for sports infrastructure development. He concluded that in this market, the contracting authorities suffered a utility loss as the requirement to align to median preferences was at odds with local interests. Additionally, in this case the bundled procurement was deemed to hamper competition both by the scale of the bundling and the strict financial contractual requirements. As a very different sector, this construction case serves as a brief example of when pooled procurement may not work.

Pooled procurement as introduced earlier— referred to as *passive procurement* – works in healthy markets. As this case study will show, UNICEF had to apply a more advanced form of

pooled procurement --*strategic pooled procurement* – in the vaccine market to address the market shortcomings it discovered.

## **Initial Pooled Procurement at UNICEF**

To support its goal of enabling more of the world's LIC children to receive vaccines, UNICEF implemented pooled procurement to improve vaccine affordability. In the 1980s, UNICEF's and PAHO's use of the pooled procurement method yielded lower prices for vaccines than those paid by individual countries on their own.<sup>10</sup>

UNICEF originally implemented passive pooled procurement in order to gain preferential pricing by aggregating volumes across countries and to reduce transaction costs for suppliers by acting as procurement agent. This pooled procurement method also succeeded in standardizing the procurement process across countries, which reduced the burden on countries and ensured timeliness and reliability in tendering, ordering, receipt and payment.

UNICEF was soon the dominant purchaser in the market for low-income countries and was purchasing over 40% of the global annual doses of vaccines (mainly EPI vaccines). These early stages of pooled procurement were predicated on UNICEF playing a passive purchasing role in the market. Using the same approach as the Centers for Disease Control did in the US prior to 1993,<sup>11</sup> UNICEF awarded contracts to one or two suppliers who were the lowest price bidders in an ad-hoc transactional relationship basis. Although several suppliers were qualified to supply vaccines, UNICEF used a winner-takes-all tendering approach, consistently awarding virtually all of the purchase volume to one or two suppliers.

## **Market Shortcomings**

In the 1990s, the vaccine market evolved in a way that created fundamental structural changes, which ultimately led to vaccine shortages in 2002-2003.

### ***Shift in Economies of Scale***

First, until the 1980s and 1990s, high-income countries (HICs) purchased the same kinds of vaccines as LICs. Therefore, the vaccines could be produced in high volumes, achieving economies of scale. However, innovations during these years led to new formulations of vaccines against diphtheria, tetanus, pertussis and polio. HIC nations moved toward these newer formulations, but the higher prices of the new formulations precluded LICs from purchasing them. Manufacturers could profit from the high prices garnered from the new vaccines but had less incentive to continue manufacturing the low-price EPI vaccines. Manufacturers could put their production capacity to more profitable use by manufacturing the new formulations instead of the EPI vaccines.



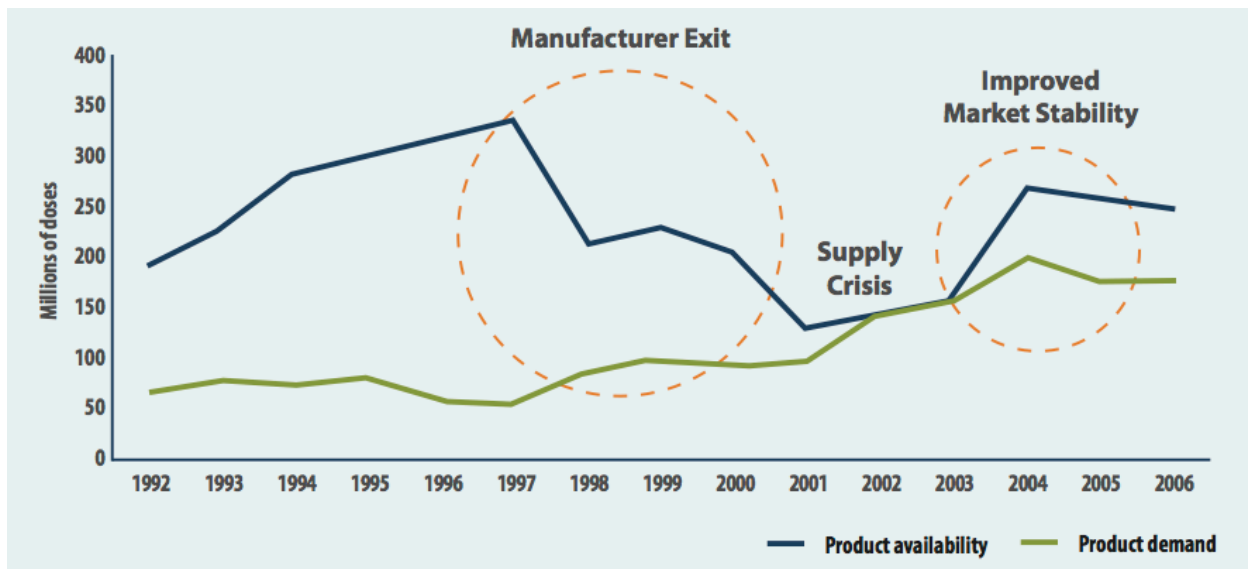
### *Few Suppliers*

Second, the number of vaccine manufacturers began to decrease due to acquisitions and supplier exit. In 1967, 26 companies made vaccines. By 1980, there were only 17 and by 2004 there were only five.<sup>12</sup> Pharmaceutical companies, in particular, acquired vaccine manufacturers. By the 2002-2003 timeframe, only a small number of innovative multinational firms participated in any vaccine market.

### *Vaccine Supply Insecurity 2002-2003*

In early 2000, UNICEF started experiencing early symptoms of supply shortages for two vaccines: measles vaccine and tetanus toxoid (TT) vaccines. During the period between 1992 and 1997, production capacity for all UNICEF-qualified suppliers of measles vaccine had been well in excess of demand, leading to downward price pressure. During 1997-2001, several suppliers exited the market due to mergers and the market's low price points. As a result, production capacity dropped for EPI vaccines dramatically.

Figure 1: Measles Vaccine Availability vs. Demand, 1992-2006<sup>13</sup>



In 2002, a shortage of measles vaccine occurred. As shown Figure 1, global production capacity (availability) from all UNICEF suppliers dropped due to suppliers exiting the market. These exits resulted in the level of supply being below the level of demand, creating a shortage.

Similar to the measles vaccine shortage, in 2000 UNICEF was left with only one supplier of TT vaccine. To increase supply availability, UNICEF renegotiated with one of the suppliers who had exited, explaining the market potential of TT. The supplier reentered the market in 2003, but with a price that had doubled. As shown in Figure 2 below, that second supplier charged a substantially higher price than the first supplier, in part to recoup costs and in part because

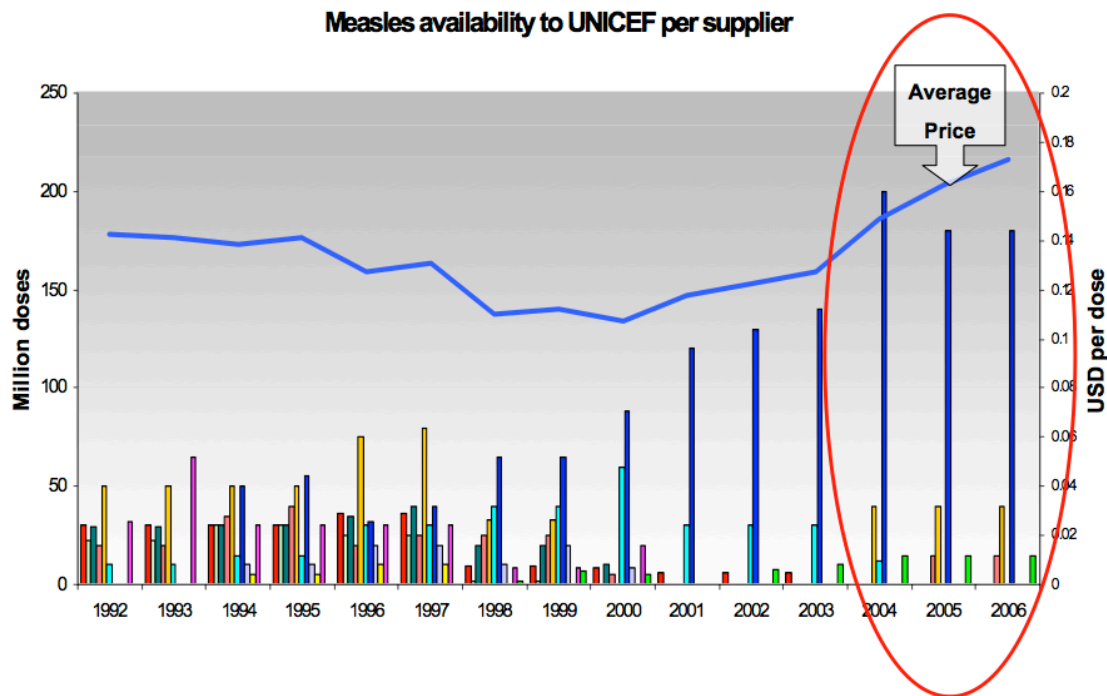
UNICEF was buying virtually all of the volume from the first supplier, resulting in a low purchase volume with the reentering supplier.

The traditional winner-take-all tendering approach of pooled procurement brought supplier risk and uncertainty. Suppliers were reluctant to invest in vaccine manufacturing capability if they couldn't predict whether they would be able to sell the vaccines. This led to insufficient capacity in 2002-2003.

### Price Escalation

UNICEF responded to the shortage by negotiating with additional suppliers to incentivize market entry. These negotiations resulted in the reentry of some suppliers and a better matching of capacity and demand starting in 2004. However, following these negotiations, the average price paid by UNICEF to all suppliers increased by about 25%.

Figure 2: Measles Vaccine Availability to UNICEF per Supplier<sup>14</sup>



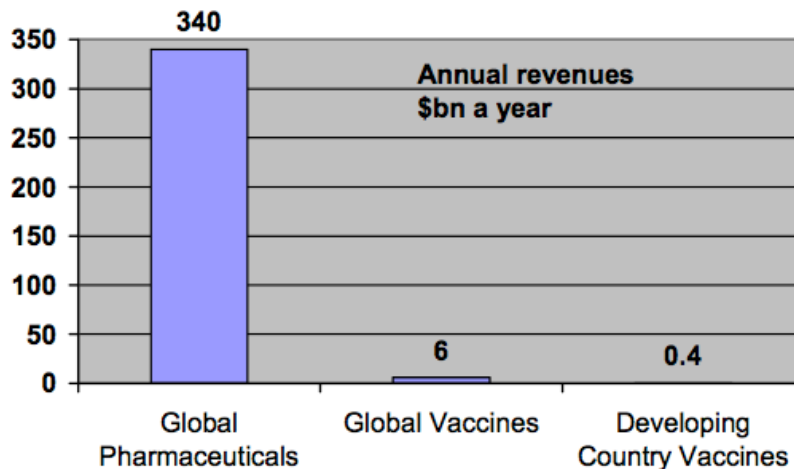
### Root Cause Analysis

Supply and price instability forced UNICEF and the global vaccine community to examine the vaccine market supply dynamics more carefully. A number of consultations among industrial economics experts and vaccine industry specialists were initiated. The establishment of Gavi and the subsequent shaping of Gavi's procurement strategy facilitated some of these consultations.

Analyses carried out by Mercer Consulting in 2002 for Gavi highlighted several important characteristics of the vaccine market.<sup>15</sup> Specifically, these analyses led to a better understanding of the market evolution that had created the 2002 supply shortage.

First, analysis showed that manufacturers had more profitable investment alternatives than to manufacture vaccines for LICs. For example, the total market size of vaccines for developing countries in 2004 was a mere \$0.4 billion, compared to a \$340 billion for global pharmaceuticals, and \$6 billion for global vaccines.<sup>16</sup> (See Figure 3 for the larger pharmaceutical market compared global and vaccines for LICs.) Because pharmaceutical companies had acquired many of the vaccine manufacturers, the choice to devote production capacity to pharmaceutical production rather than EPI vaccines for LICs was compelling.

Figure 3: 2004 Market Sizes for Pharmaceuticals and Vaccines<sup>17</sup>



### *Market Incentives*

From the deeper market analysis, it became clear that, historically, market incentives in HICs had driven the investments for the development and capacity investments in vaccine manufacturing plants. When there was significant over-capacity in vaccine manufacturing in industrialized countries, suppliers utilized this excess capacity to fulfill developing-country market demand through UNICEF. But even though UNICEF was the dominant global purchaser in terms of doses, its purchases represented less than 5% of the value of global annual vaccine purchases.<sup>18</sup> Thus, from a revenue standpoint, UNICEF was not a dominant purchaser, and sales of EPI vaccines to UNICEF were barely profitable by industry standards.<sup>19</sup> UNICEF was not a customer of choice for many of the suppliers: the total volume was too low, UNICEF was buying on too short a timeline, and it was too focused on low price.

### *Price Points*

Furthermore, as industrialized countries began moving away from the basic EPI vaccines toward more sophisticated vaccine presentations, manufacturers in HICs strategically focused their

manufacturing capacity on the new vaccine presentations because those garnered higher prices. Vaccine schedule divergence between high-income and low-income countries meant that if UNICEF were to keep the suppliers engaged to supply the EPI vaccines, it would have to be prepared to bear a larger portion of the fixed cost than before.

Coincident to the exit of HIC-based manufacturers from vaccine markets, a promising new trend was developing. Since 1992, the number of suppliers from emerging countries had increased. The number of LIC and MIC-based suppliers qualified by the WHO to produce vaccines grew, and their volume of production also increased. Although these emerging suppliers lacked R&D and the patents to produce the new vaccine formulations, they could produce the older off-patent EPI vaccines at much more affordable prices than their HIC counterparts.<sup>20</sup>

### ***Risks of Winner-Takes-All***

Deeper examination of the vaccine market also revealed that the high risk arising from demand uncertainties added to the problem of low return for vaccine suppliers. Although future demand for established vaccines (for which high levels of coverage have been reached) was fairly predictable, UNICEF's short-term ordering cycles and winner-takes-all approach were not creating revenue stability for the suppliers. Suppliers' need to absorb risks associated with the "feast or famine" ordering approach used by UNICEF at that time resulted in higher prices, as was observed with the renegotiated prices of TT and measles vaccines in 2002-2003.

UNICEF realized that it needed to adjust its approach to vaccine supplier management and pooled procurement. The nature of the market intervention needed was clear. UNICEF had to incorporate supplier marketplace dynamics into its procurement strategy. This included preparing should-cost information for the major components of the key products and proactively watching for and analyzing both risks and opportunities as they arose in the supply market. UNICEF needed to shift from being a passive purchaser to an active market shaper.

### **Market Intervention: Strategic Pooled Procurement**

With the supply shortage and deeper reflection on the root causes of vaccine supplier exits, UNICEF was now prepared to make significant changes in its approach to contracting for vaccines. UNICEF had learned that: 1) a good demand forecast can be helpful in guiding suppliers to maintain capacity that is well matched to demand; 2) a healthy market is one in which supply and demand are in good balance and pricing is sufficient to motivate supplier participation; and 3) a winner-takes-all tendering practice creates huge capacity risk for suppliers, reducing profitability and incentivizing exit, because only one supplier will be able to use its capacity well while others will receive no orders.

UNICEF changed its pooled procurement method from passive to more active and strategic, prioritizing *market health* as a critical component. UNICEF began to think about achieving prices that would be affordable to governments and donors while reasonably covering manufacturers' minimum requirements. The expanded objectives for vaccine supply became: 1) continued, sustainable supply; 2) quality vaccines; 3) multiple manufacturers per vaccine; and 4) affordable prices.

For its pooled procurement strategy moving forward, UNICEF made several changes that would enable better matching of supply and demand and more predictable and sustainable “share of UNICEF business” for the main vaccine suppliers. Key elements of UNICEF’s strategic pooled procurement included:

- Better long-term and more accurate forecasting to support pooled procurement
- Having manufacturers share their long-term capacity and production plans with UNICEF
- Implementation of two-year Supply Arrangements and Long Term Contracts with flexibility for changing quantity and flexibility for including additional manufacturers
- A shift to multiple awards per vaccine instead of a single award to the lowest-cost supplier.

### ***Improved Forecasts***

UNICEF now works to maintain high global aggregate forecast accuracy, accounting for various dimensions: the type of vaccine, the presentation (vial size), and the quantity and timing of delivery of the vaccine. UNICEF has found that while country-level forecasts vary in their level of accuracy, particularly for new vaccines, aggregate forecasts are considered to be more accurate and more useful to guide suppliers in their capacity and production decisions.

The formal UNICEF 5-year Vaccine Forecast is carried out annually. Country offices are required to submit their inputs, using the Vaccine Forecast Spreadsheet, to UNICEF’s Supply Division. The Supply Division reviews the forecast and takes other factors -- such as campaign plans, projected funding levels and historical actual purchases -- to determine the Supply Division forecast that is issued to manufacturers. UNICEF then compares its forecast with production planning information from suppliers, to promote supply security. From that, UNICEF projects the delivery schedule, timing, and amount of funds required. It also projects from which suppliers it will purchase vaccines, thereby decreasing supplier uncertainty when planning capacity.

Throughout the year, UNICEF’s Supply Division updates plans and coordinates with suppliers and countries. In order to maintain regular dialogue with the suppliers, UNICEF organizes an industry consultation day for each of its key vaccine markets. This creates a forum to exchange

information about demand with the suppliers and to learn about trends in supply side market dynamics in order to proactively adjust procurement strategies accordingly.

### ***Long Term Agreement (LTAs)***

In addition to creating longer-term strategic forecasts, UNICEF also moved to longer-term contracting in its strategic pooled procurement method for select vaccines. Previously, UNICEF had purchased using a one-year Invitation to Bid tender focusing on the lowest price. After 2003, UNICEF transitioned to a more strategic procurement approach that took into account the vaccine market development stage, the number of prequalified suppliers, and the demand profile (i.e., quantity, activity split, urgency of need, reliability of demand forecast, anticipated duration of demand, and funding profile) before deciding the exact procurement instrument to be used for a vaccine product. For most vaccines, UNICEF transitioned to a three-year Long Term Agreement (LTA) with manufacturers. The LTAs are based on the forecasts described above, and they commit UNICEF to procure over a set time period while also requiring supplier commitments about their supply capacity. Actual orders under the LTA are then placed as needed, and the LTAs are for a negotiated fixed price.

### ***Split-Tendering Replaces Winner-Takes-All***

UNICEF now procures each vaccine presentation from multiple suppliers, many of them from emerging countries, where production costs are lower.<sup>21</sup> This approach encourages multiple manufacturers to stay in the market and maintains long-term market health. In addition, it also builds resilience in the supply system. Procuring from multiple manufacturers protects against supply gaps if or when batch failure occurs at a particular manufacturer. Ordering from multiple manufacturers across different countries also reduces risk of regulatory suspension from any particular country. In instances when the WHO suspends the National Regulatory Authority of a country not meeting safety and quality standards, all manufacturers approved by that regulatory authority would become ineligible for supply.

## **Benefits of Strategic Pooled Procurement and Lessons Learned**

Benefits accrue from both passive as well as strategic pooled procurement, and they accrue to buyers like UNICEF as well as to the vaccine suppliers. First, consider the main benefits of passive pooled procurement.

### ***Passive Pooled Procurement Benefits***

- Aggregated volumes across countries enable economies of scale for manufacturers and opportunity to leverage volumes for buyers, in order to obtain reduced unit prices<sup>22</sup>
- Lower transaction costs for suppliers through processing fewer tenders and orders
- Minimum batch volumes imposed by manufacturers are reached more rapidly
- Improved forecast accuracy, allowing better matching of supply and demand

- Standardization of the procurement process across countries to reduce the burden on countries and to ensure timeliness and reliability in tendering, ordering, receipt and payment.

Although passive pooled procurement may have advantages, particularly better price and lower procurement transaction costs, its use creates risk of supplier exit and/or poor investment in capacity, which can lead to supply shortages and/or higher prices in the long term. Passive pooled procurement may work in healthy markets, but some public health markets, such as those for vaccines, require a strategic pooled procurement method that includes the use of multiple awards, long term awards with flexibility, global forecasting, and sharing of production plans by manufacturers.

In public health markets characterized by a trifecta of issues – 1) a limited supply base, 2) little incentive for suppliers to remain in the market, and 3) potentially disastrous supply shortages if suppliers do exit -- strategic pooled procurement is needed to ensure continuity of supply at a reasonable price. Consider the additional possible benefits of strategic pooled procurement.

#### *Strategic Pooled Procurement Benefits*

- Ensuring supply sustainability (security) and appropriate competition
- Encouraging new suppliers to enter the market through long-term funding and secured financing
- Encouraging existing manufacturers to remain in the market or to expand capacity
- Reduced uncertainty and increased predictability for buyers and suppliers alike
- Strategic planning for both manufacturers and purchasers is improved

With LTAs, UNICEF gained security of price and supply over a defined period, while manufacturers gained security of demand. Other strategic contracting practices such as volume guarantees and prepayment have been shown to delay exit of a polio vaccine manufacturer by more than two years.<sup>23</sup>

Examining the evolution of UNICEF's pooled procurement also shows that Gavi proved notable as a key stabilizing factor in restoring the health of the vaccine market. The funding and commitment provided by Gavi meant that additional countries were able to initiate immunization programs and order vaccines; as a result, manufacturers were incentivized to increase production scale.

Research conducted to explore the adoption of new vaccines in LMICs included interviews with multinational and developing country manufacturers (MNM and DCMs), in which both groups of manufacturers reported support for pooled procurement.<sup>24</sup> The authors reported that DCMs

saw pooled procurement as providing access to markets, and MNMs noted the reduction of transaction costs and more-reliable forecasting that results from procurement pools.

## Summary

UNICEF's pooled procurement for EPI vaccines is an instructive case study for market shaping in global health. UNICEF Supply Division provides the oldest example of central contracting and procurement in vaccines, and the method used by UNICEF has evolved over the years from passive to strategic pooled procurement. As described in this retrospective case study, strategic pooled procurement includes elements to ensure supply sustainability and to better coordinate matching of supply and demand. This requires ensuring that the buying power and price-reducing effects of pooled procurement do not shift market balances and endanger the health of the market. UNICEF's application of strategic pooled procurement will likely continue to evolve, to reflect changing market conditions such as rollout of new vaccines for middle-income countries and pricing structure issues.

This case study explored one potential disadvantage of pooling, that being the potential for an over-emphasis on price without balanced attention to healthy competitive conditions and supplier retention. Other disadvantages could include the forfeiting of individual country (participant) interests, reducing country ownership in decision-making and execution expertise, hampering the potential for differential pricing, and finally the potential for transaction costs to outweigh the potential savings and other benefits from pooling.

As a demand consolidation and negotiating power intervention, pooled procurement addresses the market imperfection of excessive fragmentation due to multiple buyers. This procurement architecture is valuable when carried out with constant focus on adapting procurement methods to ensure market health. The price and non-price benefits of pooled procurement require vigilant attention to market intelligence and supplier sensitivity in order to obtain a consistent, affordable and sustainable supply of the product in question, particularly so for vaccine supply complexities. Utilizing pooled procurement in a way that maximizes use of limited resources but also avoids undue supply risk is critical to its sustainable application.



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<sup>13</sup> USAID, *Healthy Markets for Global Health: A Market-Shaping Primer*, Fall 2014

<sup>14</sup> Nov 2003 presentation by Steve Jarrett, UNICEF. Vaccines included: DTP, BCG, TT, OPV, Measles, MR, MMR, DT, Td, Meningitis, Hepatitis B and Hep B based vaccines, Hib based vaccines, Yellow Fever, others.

<sup>15</sup> Mercer Management Consulting, *Lessons Learned: New Procurement Strategies for Vaccines*, Final Report to the Global Alliance for Vaccines and Immunization (Gavi) Board, June 2002, [www.vaccinealliance.org/resources/FinalMercerRept\\_2.doc](http://www.vaccinealliance.org/resources/FinalMercerRept_2.doc) (1 March 2005).

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<sup>22</sup> “Strategies to reduce risks in ARV supply chains in the developing world”  
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<sup>23</sup> UNICEF Supply Division DCVMN meeting November 2012

<sup>24</sup> Marty Makinen, Miloud Kaddar, Vivvka Molldrem and Lara Wilson, “New Vaccine Adoption in Lower-Middle-Income Countries,” HEALTH POLICY and PLANNING, 2012; 27:ii39-ii49.