Vitamin A Supplementation
Supply Update #2

UNICEF Supply Division

December 2017
1. General Brief and Background

Vitamin A deficiency (VAD) is a form of undernutrition that increases the risk of disease and mortality from severe infections, including diarrhoeal disease and measles.\(^1\) VAD is also the leading cause of child blindness, and can cause night blindness in pregnant women, especially during the last trimester when demand by the unborn child is at its highest, and it may increase the risk of maternal mortality. VAD is a concern in many countries, notably in Africa and South-East Asia, where a third of young children and pregnant women in low-income countries experience VAD.\(^2\)

In order to eliminate VAD and its consequences, the World Health Organization (WHO) recommends breastfeeding, as breast milk is a natural source of vitamin A, as well as vitamin A supplementation, combined with vitamin A-rich diets and food fortification.\(^3\) For those already affected by VAD, two doses a year of high-dose vitamin A supplementation is critical and can significantly reduce mortality and morbidity.\(^4\) WHO includes vitamin A on its List of Essential Medicines (EML).\(^5\) The EML comprises a list of essential medicines that should be available in all functioning health systems.

UNICEF procures vitamin A mostly as retinol, which is the animal form of vitamin A used as a dietary supplement and presented in an Oral Liquid Preparation (OLP). An OLP is a solution containing the active ingredients and can come in capsules. UNICEF procures retinol in two presentations, which are the subject of this Supply Update:

- Retinol 100,000IU soft gelatine capsules /PAC-500 (S1583015).
- Retinol 200,000IU soft gelatine capsules /PAC-500 (S1583000).

2. Current UNICEF supply Situation

UNICEF procurement for programme country deliveries only represents a relatively small volume of total vitamin A procurement. Nutrition International (NI), formerly known as The Micronutrient Initiative (MI), a global health partnership with over 25 years of field experience, providing technical expertise and programme support, addresses micronutrient deficiency in more than 60 countries reaching millions of people.\(^6\) NI procures more than 75% of the global vitamin A requirements for programme countries (approximately 460 to 530 million capsules a year).\(^7\) UNICEF Country Offices and partners procure VA through UNICEF Supply Division for programmes which are not under NI’s scope (such as for post-partum women), for emergencies, and for countries (using UNICEF’s Procurement Services) which have graduated from NI support.

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\(^3\) WHO, *Micronutrient Deficiency, Vitamin A Deficiency*.
\(^4\) In cases of measles, the periodic supply of vitamin A has proven to reduce mortality by up to 23% overall, and by up to 50% for acute cases of measles.
\(^7\) In addition to the two presentations procured by UNICEF, NI procures and delivers through UNICEF retinol 100,000IU soft gelatine capsules in packs of 100 capsules.
Since 2007, UNICEF has procured on average approximately 70 million vitamin A capsules a year (approximately 140,000 bottles) mostly for UNICEF’s Copenhagen warehouse (Figure 1). Annual volume fluctuations represent the quantities procured and delivered to replenish UNICEF’s warehouse. As this is a product used in emergencies and included on UNICEF Emergency Supply List for emergency pre-positioning, UNICEF bases its procurement on several considerations including stock level analysis, buffer requirements, as well as purchase orders and stocks reserved for packing sets. The current lead-times for vitamin A deliveries against UNICEF warehouse purchase orders are between 3 and 5 months.

**Figure 1 UNICEF Vitamin A Procurement through 2007 - Oct 2017**

![UNICEF Procurement Vitamin A Capsules](image)

Source: UNICEF Supply Division

Figure 2 presents the weighted average price (WAP) of UNICEF procurement for both presentations, and excludes the costs of handling, warehousing, transport and delivery. The trend in WAP reflects the impact of API (Active Pharmaceutical Ingredients) prices on the world market, the influence of global exchange rate fluctuations (US$-CA$) and the limited supplier base for this product, which is specifically used to counter Vitamin A Deficiency (VAD), and which is very unstable and difficult to produce.

**Figure 2 UNICEF procurement Vitamin A WAP in US$ 2007 – Oct 2017**
By comparison, Figure 3 shows more stable volumes, and describes UNICEF deliveries to programme countries, mostly from UNICEF’s warehouse stocks. In 2016, UNICEF supplied vitamin A to approximately 40 countries, of which 27% was for use in emergency response to measles outbreaks.

**Figure 3 UNICEF Vitamin A Country Deliveries through 2007 – Oct 2017**
3. Issues and Challenges
Retinol soft gelatine capsules, in the form of Oral Liquid Preparation (OLP), are a niche product and not produced by many manufacturers. The procurement volumes of UNICEF are also relatively modest, representing approximately 70 million capsules per year.

After a period of challenges with the deliveries in 2016, 2 suppliers were awarded a Long-Term Arrangement (LTA) which will expire in January 2019. The issuance of these new LTAs is securing availability of the supplies and timeliness of the deliveries to countries.

The 2013 WHO Updates on the management of severe acute malnutrition in infants and children strongly recommend that children with severe acute malnutrition (SAM) do not require a high dose of vitamin A as a supplement if they are receiving F-75, F-100 or ready-to-use therapeutic food that complies with WHO specifications (and therefore already contains sufficient vitamin A). As more and more countries are adopting the WHO guideline we can expect a decreasing demand for Vitamin A for use in SAM treatment programmes.

4. Steps Forward
- UNICEF and NI will continue to collaborate to expand the supplier base and work with potential suppliers to expand their capacity and maintain regular replenishment of warehouse stocks.
- For the first time, UNICEF has ordered Retinol 100,000 IU and 200,000 IU soft gelatine capsules in packs of 100 capsules, they will be available from the CPH warehouse in May 2018. Smaller pack sizes can be more appropriate (reduce wastage) for supplementation in routine or community settings (non-campaign) and provide an alternative for countries restricting importation and use of bulk (hospital) packs, but they do increase the cost per capsule.

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