Resources for Scale-up
Building Adoptability for Multiple Micronutrient Supplements through Affordability

Facilitating the introduction of MMS by creating an affordable product consistent with international quality standards

Spencer Kirk
Kirk Humanitarian, Salt Lake City, UT, USA

Key messages

- Multiple micronutrient supplements (MMS) have been proven to be more effective than iron and folic acid (IFA) alone for improving the health of pregnant women and pregnancy outcomes in low- and middle-income countries (LMICs).
- In the past two decades, enormous strides have been made to demonstrate that MMS is effective and safe.
- High-quality, USP-verified MMS is now also affordable and available at a price at par with IFA manufactured to a similar international quality. When manufactured at a volume of 3–5 million bottles, and packaged in 180-count bottles, MMS is available at a price of 1 US cent per tablet.
- Demand for MMS is increasing at unprecedented rates as interest in MMS grows. At present, however, manufacturing capacity is insufficient to meet existing – let alone future – demand.
- The time is now to ramp up production of a high-quality MMS product, while focusing on sustainability and the health of the market. Collective action is required to change the status quo and ensure that geography no longer determines accessibility.

Introduction

MMS are now widely known to be a product clinically superior to IFA that can help create a healthier, more equitable world. For this reason, Kirk Humanitarian has worked since 2002 to provide MMS to pregnant women in LMICs through governments and implementing partners, made efforts to drive down the manufacturing costs of MMS in order to create a healthy market, and also supported implementation research.

This is just the beginning, however. In order to increase the availability and adoption of MMS and ensure that MMS is a sustainable intervention, it is crucial to focus on the product pipeline. There are currently few MMS manufacturers: Kirk Humanitarian, via Contract Pharmacal Corp (CPC) USA, is currently the only large-scale producer manufacturing MMS for commercial transactions, and only a handful of other manufacturers are currently equipped to produce MMS.¹

Over the past 15 years, Kirk Humanitarian has donated MMS product for more than 11 million pregnant women; starting in 2020, we have committed to provide MMS to an additional 15 million women over the next 3 years. We are proud of our reach, but we cannot reach all women alone.

“It is an injustice that tens of millions of women do not have access to the highest quality of care”

It is an injustice that tens of millions of women do not have access to the highest quality of care. Given the evidence and cost parity, collective action is now required to accelerate the transition from IFA to MMS.

Highest quality, lowest cost

In the past two decades, enormous strides have been made to demonstrate that MMS is effective and safe. It is also essential to ensure that MMS can reach women who need it most by making it affordable for public health nutrition programs by reducing costs – without sacrificing efficacy, quality or safety. Kirk Humanitarian, in collaboration with CPC, has established benchmark price and quality standards for MMS – crucially, we have created a reference point, showing that high-quality MMS can be manufactured for the same price as IFA manufactured to the same international quality standard. Using the United Nations...
International Multiple Micronutrient Antenatal Preparation (UNIMMAP) formulation for MMS, we found that, at large volumes, CPC can manufacture MMS at US$2.02 per 180-count bottle (approximately 1 US cent per tablet), while at large volumes, DSM can manufacture MMS at US$2.20 per 180-count bottle. This is the cost of manufacturing the tablet to internationally accepted product specifications, including the cost of United States Pharmacopeia (USP) verification and Halal certification.

“We were able to achieve an affordable, high-quality MMS product by negotiating on both price and volume until we found the optimal price point”

We were able to achieve an affordable, high-quality MMS product packaged in a manner that we believe will incur the lowest cost and environmental impact by negotiating on both price and volume until we found the optimal price point – parity with the price of IFA of a similar international quality – for a product that meets international quality standards. In consultation with experts, we chose to package the MMS product in a 180-count bottle, which is consistent with the recommended regimen for pregnant women. While other options to the 180-count bottle exist that may satisfy the packaging preferences of selected large healthcare systems, these alternative packaging options are still in development and testing, have more significant environmental impact and will not be available for at least 2 years (see Figure 1 for a comparison of MMS packaging options, costs and environmental impacts). Without findings from implementation research (which is currently being planned or conducted in multiple countries, including in Bangladesh and Indonesia by Johns Hopkins Bloomberg School of Public Health, and in Myanmar by Harvard University) showing that alternative packaging has a positive incremental effect on uptake, adherence and/or antenatal care visits, the most cost-efficient packaging with the smallest environmental impact should be viewed as the logical choice for MMS introduction programs.

“A significant spike in demand can be expected”

The pricing noted here can only be illustrative, as we cannot anticipate the impact of local/regional regulatory and pharmacopeia differences that will apply as MMS manufacturing
**FIGURE 1:** Comparison of the features, costs, environmental impacts and availability of MMS by product packaging

<table>
<thead>
<tr>
<th>UNIMMAP MULTIPLE MICRONUTRIENT SUPPLEMENTS (MMS) FOR PREGNANT WOMEN</th>
<th>PACKAGING OPTIONS, COSTS AND ENVIRONMENTAL IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="180 count" /></td>
<td><img src="image2" alt="30 count" /></td>
</tr>
<tr>
<td><strong>Packaging features</strong></td>
<td>Child-resistant and tamper-proof HDPE bottle</td>
</tr>
<tr>
<td><strong>Product cost</strong></td>
<td></td>
</tr>
<tr>
<td>Per tablet²,³</td>
<td>1.1 cents</td>
</tr>
<tr>
<td>Palletization costs an added 0.05 cents per bottle</td>
<td>Palletization costs an added 0.01 cents per bottle</td>
</tr>
<tr>
<td><strong>Environmental implication</strong></td>
<td>Total waste: 22,900 kg</td>
</tr>
<tr>
<td>Per million women (180 doses each)⁴</td>
<td></td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td>Available now</td>
</tr>
</tbody>
</table>

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1. MMS shipped in bulk requires repackaging below dissemination (business-to-business [B2B] option)
2. Prices are based on high-volume production; product cost is higher for customers who buy the MOQ (minimum order quantity) of 100,000 bottles
3. The current MMS Taskforce recommendation for MMS dosing is 180 tablets per pregnancy, beginning as early as possible
4. Prices are based on high-volume production; product cost is higher for customers who buy the MOQ (minimum order quantity) of 100,000 bottles
5. Data provided by Contract Pharmacal Corporation (CPC), 2019
6. Total waste: 38,856 kg
7. Repackaging costs are variable

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Capacity is built around the world. Nevertheless, what it illustrates is clear: it is possible to produce MMS – a clinically superior product as compared with IFA – at cost parity with IFA, and manufactured to the same international quality standards. This makes the choice to transition from IFA to MMS an easy one for governments, large healthcare systems, and implementing partners and advisors.

### Demand ramps up; supply is needed

As awareness and interest in MMS increases, we face growing demand from LMICs. MMS advocacy initiatives, including global and regional conferences and initiatives with major presentations devoted to updates on MMS use, raise awareness and lead to increased demand. As global guidelines are expected be updated to an unqualified recommendation of MMS, a significant spike in demand can be expected to ensue. Even in the absence of an unqualified global recommendation for MMS, demand is expected to at least double, and possibly even triple, in the next few years. In 2019, despite record MMS production, only about 5 million pregnant women in LMICs benefited from access to UNIMMAP-formulated MMS, including about 1 million women who received UNIMMAP-MMS originating from UNICEF. To meet the needs of the more than 195 million pregnancies each year in LMICs, at least 35 billion MMS tablets per year will be needed.
As MMS is expected to be part of public health nutrition programs around the world, substantial new manufacturing capacity will need to be added locally and globally. Currently, very few manufacturers have the capacity or know-how to manufacture and sell an MMS product that meets international quality standards. Adding this capacity globally is a complicated task, and assisting even existing qualified manufacturers to produce MMS will take years to accomplish.

**The time is now: creating a vigorous market for MMS**

To create a sustainable product pipeline for MMS, we must act now to ramp up global production while ensuring that manufacturers can produce high-quality MMS at an affordable price. Efforts are also needed to create a strong global market for MMS based on competition among high-quality manufacturers, and to monitor the supply chain to ensure that quality is maintained, environmental impact is minimized and supplies are readily available as MMS is scaled to national coverage. Finally, there is a need to continue and expand support for implementation and implementation research to improve access for women, inform manufacturing best practices and ensure effective and efficient approaches to scaling MMS use in large health systems.

Kirk Humanitarian is prepared to do its part to accelerate the availability, access, uptake and use of MMS among women at risk of undernutrition during pregnancy, furthering our mission to create a healthier and more equitable world.

Spencer Kirk has more than three decades of leadership experience in the private sector. Before founding Kirk Humanitarian in 2002, he co-founded Megahertz, a laptop modem manufacturing company. He was also CEO of Extra Space Storage until he stepped down in 2016. Spencer Kirk applies his experience in manufacturing, distribution and supply chain management to manufacturing and marketing MMS in LMICs, ensuring access to the highest-quality product at the lowest cost.

**Correspondence:** Spencer Kirk,
2755 E Cottonwood Parkway, Suite 450, Salt Lake City, UT 84121, USA Email: skirk@kirkhumanitarian.org

**References and notes**

1. Manufacturers from which UNICEF has sourced MMS include Lomapharm, Lekapharm and Laboratorios Wolfs.
For a world free from malnutrition.

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