R&D BLUEPRINT FOR ACCELERATING INNOVATION FOR MOTHERS
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CONTEXT AND REALITY

Improving maternal health has been a global priority since the establishment of the Safe Motherhood movement in 1987.

Globally, focus has been on increasing skilled birth attendance, institutional births, and improving quality of care including the provision of essential, quality-assured medicines. Through these efforts maternal mortality ratio has decreased significantly since 2000. Despite these positive developments, almost 300,000 women still die every year from pregnancy-related conditions and complications. The great majority of these deaths occur in low- and middle-income countries, especially in vulnerable groups within these countries.

Between 1987 and 2020 there has not been any structured and sustainable effort to develop pharmaceutical innovations to prevent or treat pregnancy-specific conditions. There have been a limited number of innovations related to medicines that affect uterine contractility such as prostaglandins, oxytocin analogues and antagonists. Other medicines that are used for pregnancy-specific conditions are re-purposed medicines such as magnesium sulfate, nifedipine, methyldopa and aspirin. Some of these re-purposed medicines are no longer used for their primary indication (nifedipine, methyldopa) and magnesium sulfate, although effective for managing convulsions, is difficult to administer and requires close monitoring. The impact of decades of under-investment is that we do not have a definitive solution for most of the pregnancy-specific conditions. If we start investing now, we may have potential solutions in 10-15 years.

Investment in global maternal health generally has increased since 1990 with overall increases in global health investments (Figure 1). However, compared to infectious diseases like HIV, tuberculosis and malaria the investment remained relatively small (Figure 2), and research and development (R&D) of new products have not been prioritized. According to the Access to Medicine Index 2021, R&D targeting maternal and neonatal health conditions, such as neonatal sepsis and maternal haemorrhage increased, from nine projects in 2018 to 11 in 2021, however they are only accounting for one per cent of all R&D projects. The Global Observatory on Health Research and Development, includes the World RePORT which presents grants data for biomedical grants awarded in 2018 by 11 funders.
FIGURE 1
Total global health budget and maternal health budget (all sources)

Total global health financing
- Maternal health

FIGURE 2
Percentual increase of budget spend on health focus area. Baseline 1990, increase after 10 years (2000) and after 20 years (2019)

The Financing Global Health Tool from the Institute For Health Metrics and Evaluation (IHME), University Of Washington

<table>
<thead>
<tr>
<th>Health Focus Area</th>
<th>Baseline</th>
<th>% increase 10 years</th>
<th>% increase 20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Health</td>
<td>0</td>
<td>2.3</td>
<td>9.7</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0</td>
<td>3.7</td>
<td>25.0</td>
</tr>
<tr>
<td>Malaria</td>
<td>0</td>
<td>2.9</td>
<td>37.1</td>
</tr>
<tr>
<td>Maternal Health</td>
<td>0</td>
<td>1.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Non-communicable diseases</td>
<td>0</td>
<td>1.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Other health focus areas</td>
<td>0</td>
<td>0.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Other infectious diseases</td>
<td>0</td>
<td>6.7</td>
<td>17.1</td>
</tr>
<tr>
<td>SWAps &amp; HSS</td>
<td>0</td>
<td>1.7</td>
<td>3.5</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>0</td>
<td>5.0</td>
<td>60.7</td>
</tr>
<tr>
<td>Unallocable</td>
<td>0</td>
<td>0.8</td>
<td>0.2</td>
</tr>
</tbody>
</table>
In 2018, a total of 69,420 grants were awarded of which 18% (11,805 grants) could be categorized under “communicable, maternal, and perinatal conditions”. Within this, most grants are for the subcategory ‘Infectious and parasitic diseases’ (84%), while maternal conditions received just four per cent of grants.

In addition to lack of R&D, access to quality-assured maternal health medicines in high-burden countries has been woefully inadequate. Maternal health medicines typically have quality issues with multiple sub-standard and even counterfeit medicines; inadequate regulatory standards and oversight; fragmented procurement and distribution; and poorly controlled pricing.

The COVID-19 pandemic has been a good example of how some of the R&D barriers can be overcome rapidly, with the development of multiple vaccines at an unprecedented pace. At the same time, it demonstrated how biases and inequalities can be perpetuated by exclusion of pregnant women from the clinical trials and unequal access to vaccines across the world. Whether a pregnant woman should receive the vaccine and if so, what kind of vaccine she should receive have been left to decision-making by expert panels or a discussion between the woman and her care provider without a proper evidence base.

If we do not accelerate innovations for mothers now (in 2021) we will be using the same medications for pregnancy-specific conditions such as preeclampsia, preterm labor, and impaired fetal growth in 2035 – five years after the end of Sustainable Development Goals. Scientific understanding of pregnancy-specific disease processes has improved significantly over the last two decades, and there is sufficient know-how to develop new solutions based on current knowledge. Not acting on this knowledge will mean that more women and their babies suffer needlessly from pregnancy-specific conditions. We need a sustained, comprehensive, and inclusive effort to develop, evaluate and provide access to new pharmaceutical innovations for pregnancy-specific conditions.

Concept Foundation, Policy Cures Research, and Burnet Institute conducted a landscape and market analysis, comprehensive pipeline analysis, and developed target product profiles following extensive consultations in the field, supported by grant funding from the Bill & Melinda Gates Foundation.

Following this research, we present here our blueprint for improving the prevention and treatment of five key pregnancy-specific conditions. This blueprint can play a catalytic role in addressing related ethical (like inclusion of pregnant women in research) and pharmacological (pharmacodynamic and pharmacokinetic profiles of medicines used for other conditions in pregnant women) issues that will support the improvement of care of pregnant women.

WHY DO WE NEED A R&D BLUEPRINT?

We believe that the maternal health field is complex and when priorities are identified at global health and development level, R&D are still not seen as a priority. It is a complex field because:

- it has both health systems and clinical facets;
- it has inherent gender and inequity challenges that are often overlooked;
- it presents innovation challenges for both academia and the private sector; and
- market access to quality-assured medicines has not been addressed at supranational level as it has been done for example for contraceptives.

Arguably, these complexities may have contributed to relative lack of purposeful R&D action. We need a research and development blueprint now because sufficient new knowledge has accumulated for the development of new solutions for key pregnancy-specific conditions. If we start the journey now (in 2021) we could have “game-changing” solutions before 2035. If we do not start the journey now, we will continue using medicines that policymakers, clinicians, regulators, logistics communities and consumer organizations complain about or struggle with for various reasons until after the Sustainable Development Goals period has been completed well into 2030s.

We need new medicines (and devices and diagnostics) for preventing and treating preeclampsia, preterm labor and birth, and impaired fetal growth urgently.

WHERE WE ARE NOW?

Concept Foundation, Policy Cures Research and Burnet Institute conducted three distinct activities to:

- understand the current landscape.
- conduct a comprehensive pipeline analysis.
- develop target product profiles for the most urgent priority needs.

Across stakeholders there is widespread support for an accelerated action plan for the development of new medicines especially for preeclampsia/eclampsia, impaired fetal growth, and preterm labor and birth. Although there was demand for the inclusion of ‘device development’, most stakeholders agreed that new or repurposed ‘medicines’ are the priority.
The market assessment revealed multiple challenges, including that maternal health medicines are not perceived as highly profitable, and carry additional costs and regulatory requirements. The biggest challenge identified was the legal exposure to both financial and reputational liability. The fragmented nature of low- and middle-income country (LMIC) markets and limited presence of “R&D-capable” companies in those markets leads to further reluctance.

Policy Cures Research investigated the historic and current pipeline of drugs, biologics, and dietary supplements for the five pregnancy-related conditions. The database includes any identified drug, biologic or dietary supplement that has been investigated (preclinically and/or clinically) for these pregnancy-related conditions since the year 2000. A total of 444 candidates were identified, including 11 candidates for fetal distress and 178 candidates for preterm labor (Figure 3). Of these 444 candidates, 50% currently have an active status with a publication or new development in the past three years, and approximately 60% are repurposed medicines. Half of the candidates are in preclinical development (48%), followed by Phase II and III (21-22%), and a total 24 and 17 candidates can be found in respectively Phase I and IV (4-5%) (Figure 4).

We conducted key informant interviews and international surveys to develop four target product profiles for preeclampsia prevention, preeclampsia treatment, secondary prevention of preterm birth and treatment preterm labor treatment.

These contacts and analyses provided us with the basis for the R&D blueprint that is articulated in this document.
VISION

We envision a world where medicines and technologies are developed and made accessible to pregnant women for the prevention and treatment of pregnancy-specific conditions.

MISSION

Our mission is to define and implement the pathways for accelerating development and introduction of innovative products for pregnancy-specific conditions through global partnerships.

We aim to create a partnership that links the development of a new solution with access for those with greatest need. A rigorously designed and executed research project for a promising medicine is essential and researchers will focus on those projects. However, we also need to plan and strategize all the steps from research to normative guidance, manufacturing, quality assurance, distribution, pricing, purchasing, distribution, training, and monitoring of implementation. Additionally, we need to advocate for this neglected area from the beginning and must address the challenges that have made investing in this area difficult, such as market access challenges.

Our pipeline analysis suggests that there is significant research available in this area. However, efforts are inconsistent and lack end-to-end thinking, planning, and execution.

‘End-to-end thinking’ means planning for all components will take place when clinical R&D starts, including intellectual property management, public sector pricing, normative and regulatory strategy, manufacturing, procurement, and supply components.’

The following three strategic pillars will help us to operationalize this vision and create a collaboration that is essential for overcoming the challenges.
PRINCIPLES

Accelerating Innovation for Mothers (AIM) will be based on the following principles for it to succeed.

1. INCLUSIVENESS

For AIM to succeed it needs to be inclusive. Academia, private sector, United Nations organizations, consumer organizations, civil society organizations, nongovernmental organizations, donors, and national ministries of health especially in high-burden countries should participate. We will identify the need through a systematic and transparent process. We need support and contributions from all the organizations and stakeholders to succeed.

2. COLLABORATION AND PARTNERSHIP

We will facilitate the development of a partnership structure that is clear, transparent, and results oriented. We will learn from the successes and challenges of initiatives in the neglected infectious diseases field experienced. AIM cannot be delivered by one donor or partner. As has been the case with product development partnerships in infectious diseases, a multisectoral partnership will be essential.

We will create public-private partnerships that will bring the private sector into research collaborations that will address liability and reputational risks that have prevented them from entering this space by creating risk-sharing and de-risking initiatives, while ensuring access in high burden settings is not compromised.

The fact that improving maternal health has been a global health priority, but yet the development of new medicines has been left so far behind means that the whole maternal health community must advocate for R&D in this space. Over the last 20 years, there has been an emergence of new and effective networks of civil society organizations and women-led groups advocating for change. We will work with these organizations globally and in countries with the maternal mortality and morbidity burden to advocate for R&D to tackle this urgent issue.

3. RESPECT FOR GENDER AND CLIMATE

Concept Foundation has articulated its values and commitment to gender equality and climate change through its policies. We believe the COVID-19 pandemic highlighted the fact that global health collaborations can be successfully conducted with more considered use of travel and other activities that negatively impact on the climate. The AIM initiative will reflect gender equality and other related rights-based considerations in its governance, project committees, and other activities.
Based on our landscape assessment and our articulated vision, an initiative with three strategic pillars is needed to accelerate innovation for mothers.

- **Improving access**
  - Understanding and improving the regulatory environment
  - Measures to ensure medicine quality
  - Re-modelling supply structures
  - Managing intellectual property to inform LMIC pricing strategies

- **Catalyzing R&D**
  - Research partnerships
  - Continuous assessment of candidates
  - Capacity strengthening in research and research norms

- **Coordination and enabling environment**
  - Coordination and governance
  - Risk management and mitigation
  - Advocacy and awareness raising
## A IMPROVING COORDINATION AND FOSTERING AN ENABLING ENVIRONMENT

### A1 COORDINATION AND GOVERNANCE

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>● There are many for-profit and not-for-profit groups conducting pre-clinical and clinical research.</td>
<td>Set of principles for global coordination and collaboration framework will be agreed upon.</td>
</tr>
<tr>
<td>● Except for 1-2 examples for PPH prevention, there is no project or initiative that includes an End-to-End Thinking approach.</td>
<td>Based on the commitment for support received in the current AIM project, a global collaboration platform will be defined and established.</td>
</tr>
<tr>
<td>● There is increasing recognition of the need for R&amp;D for pregnancy-specific conditions, especially with COVID-19 drug and vaccine R&amp;D highlighting the inequalities.</td>
<td>Key global stakeholders will be convened for implementing a functional coordination platform.</td>
</tr>
<tr>
<td>● There is no platform that brings together researchers, pharmaceutical companies, donors, advocacy organizations and high burden</td>
<td></td>
</tr>
</tbody>
</table>

### What are the outcomes?

Research & Development, market access communities, and other relevant stakeholders for improving the health of mothers and babies will be convened under a coordination platform.

AIM governance mechanism established.
A2  RISK MANAGEMENT AND MITIGATION

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Innovating in medicines for pregnancy-specific conditions</td>
<td>Explore the development of an insurance mechanism that will reduce the liability risk related to reluctance for investment.</td>
</tr>
<tr>
<td>o has low profitability;</td>
<td>Collaborate with stringent regulatory bodies who have already developed or are in the process of developing mechanisms to facilitate regulatory processes that will accelerate the approval process.</td>
</tr>
<tr>
<td>o requires high investments; and</td>
<td>Engagement with WHO and regional regulatory platforms to explore special provisions for the approval of medicines for pregnancy-specific conditions.</td>
</tr>
<tr>
<td>o medicines take longer to get to the market.</td>
<td></td>
</tr>
<tr>
<td>• Product liability, both during research and post-introduction, leading to litigation and financial compensation, together with the accompanying reputational damage, is suggested to be the most significant barrier to investment.</td>
<td></td>
</tr>
</tbody>
</table>

What are the outcomes?

De-risking (insurance) mechanism developed and procedures to implement it outlined.

A3  ADVOCACY / AWARENESS RAISING

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is increasing acknowledgement of the lack of new products but, still insufficient action</td>
<td>Strategic advocacy and communication efforts planned to raise public and professional awareness.</td>
</tr>
<tr>
<td>• Some evidence that clinicians discourage pregnant women from taking part in clinical research</td>
<td>Research to identify the knowledge and attitudes of care providers and pregnant women towards the need for and risks associated with the development of new products for pregnancy-specific conditions.</td>
</tr>
<tr>
<td>• Low public awareness of the issues</td>
<td></td>
</tr>
</tbody>
</table>

What are the outcomes?

The need for developing dedicated products for pregnancy-specific conditions and participation of pregnant women in research will be normalized through advocacy.

New knowledge will be generated to improve professional behavior towards research during pregnancy.
## CATALYZING RESEARCH AND DEVELOPMENT

### RESEARCH PARTNERSHIPS

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>- There are no established partnerships linking innovators to research groups with LMIC focus.</td>
<td><strong>LMIC country leadership will be sought bringing together multiple research partners.</strong></td>
</tr>
<tr>
<td>- Existing research partnerships often focus on implementation research or pragmatic trials that are not linked to regulatory approval.</td>
<td><strong>Active partnerships with other PDPs and HRP Alliance will be sought to strengthen research capacity especially for the conduct of research for regulatory submission.</strong></td>
</tr>
<tr>
<td>OR,</td>
<td></td>
</tr>
<tr>
<td>- A pharmaceutical company conducts the trial in HIC without an access plan in LMIC.</td>
<td><strong>Companies/innovators will be matched with research groups for pivotal research projects</strong></td>
</tr>
<tr>
<td>- Except for HRP Alliance at WHO, research partnerships are not linked to local research capacity strengthening.</td>
<td></td>
</tr>
<tr>
<td>- LMIC partners are mostly recipients and implementers of the projects rather than being lead organizations</td>
<td></td>
</tr>
</tbody>
</table>

### What are the outcomes?

Research projects that are particularly challenging for patient selection and recruitment will be facilitated and made feasible.

More pivotal phase III trials conducted in countries of high burden, managed by LMIC research leads.

There are well-functioning research partnerships in other areas of health care especially in neglected infectious diseases. Collaboration with existing partnerships both at the global level and at national levels will be sought to maximize the use of resources and increase efficiency.
### B2 CONTINUOUS ASSESSMENT OF RESEARCH CANDIDATES

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
</table>
| • The pipeline analysis for medicines for pregnancy-specific conditions are being completed for the first time in the AIM project.  
• Target product profiles for four key targets are being finalized using a rigorous methodology for the first time in maternal health. | Pipeline analyses for key pregnancy-specific conditions, such as preeclampsia and preterm labor, will be regularly updated, and additional conditions will be added as needed.  
The target product profiles will be published, and new ones added. |

**What are the outcomes?**

Pipeline analysis for specific maternal health conditions will be regularly updated like other neglected disease pipeline updates in the global health field. Target product profiles will become a prerequisite for any key maternal health product development.

### B3 CAPACITY STRENGTHENING IN RESEARCH AND RESEARCH NORMS

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
</table>
| • While several large Phase III trials have been conducted successfully, these have mostly been led by high income country-based research groups  
• There is no functional cross-thematic research capacity-strengthening collaboration between maternal health and other neglected diseases organizations  
• Ensuring trials are compliant with stringent regulatory authority standards in LMIC is challenging | Collaboration with existing research networks specifically for AIM objectives will be explored.  
Cross-thematic, regional, or country-based collaboration with PDPs will be explored.  
Collaboration with HRP-Alliance centrally and with their regional hubs will be discussed. |

**What are the outcomes?**

Research projects aimed at stringent regulatory authority submission will be planned, developed, and implemented by LMIC institutions.  
Collaboration between AIM and selected Product Development Partnerships will be established.
C

C1

UNDERSTANDING AND IMPROVING THE REGULATORY ENVIRONMENT IN LMIC

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Research institutions, start-ups, and R&amp;D pharmaceutical companies lack knowledge and resources for navigating the disparate regulatory environment in LMIC.</td>
<td>Developing a set of global regulatory strategies to determine the optimal registration pathway/s for achieving LMIC marketing authorizations in terms of timeline, cost, and long-term life-cycle management. Strategies will be designed on a product-specific basis.</td>
</tr>
<tr>
<td>• R&amp;D pharmaceutical companies have limited operational presence and legal status in LMIC for marketing, distribution, and compliance with national requirements for marketing authorization and pharmacovigilance.</td>
<td>Identification and documenting the regulatory requirements for all LMIC.</td>
</tr>
<tr>
<td>• Regulatory standards and capacity at national levels varies widely.</td>
<td></td>
</tr>
<tr>
<td>• Reliance mechanisms and mutual recognition procedures are not systematically implemented.</td>
<td></td>
</tr>
</tbody>
</table>

What are the outcomes?

A comprehensive global regulatory strategy and pathways are prepared at the beginning of medicine development process, containing all the information required to support national product registration in LMIC.
### C2

**MEASURES TO ENSURE MEDICINE QUALITY**

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>● The majority of existing drugs for pregnancy-specific conditions (PPH prevention and treatment/eclampsia/pre-eclampsia) in LMIC markets are not demonstrably quality-assured.</td>
<td><em>Regulatory approval by a Stringent Regulatory Authority and/or prequalification by WHO to ensure medicine quality for each manufacturing site.</em></td>
</tr>
<tr>
<td>● Routine distribution and use of sub-standard oxytocin and misoprostol is common in many LMIC, evidenced by numerous quality studies over many years.</td>
<td><em>Technical due diligence and inclusion of quality criteria in contracted licensing arrangements with third-party manufacturers serving LMIC markets if local lower-cost production is necessary to meet access objectives.</em></td>
</tr>
<tr>
<td>● At country level, purchasing decisions are driven by unit price and not overall cost-effectiveness. Given the prevalence of poor-quality medicines at low price points, procurement of quality-assured alternatives is uncommon.</td>
<td></td>
</tr>
<tr>
<td>● Adherence to required storage conditions and maintaining product integrity is inconsistent.</td>
<td></td>
</tr>
</tbody>
</table>

**What are the outcomes?**

All new medicines for pregnancy specific conditions in LMIC are demonstrably quality-assured.
## C3 RE-MODELLING SUPPLY STRUCTURES FOR MATERNAL HEALTH MEDICINES

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Procurement and supply chains for maternal health medicines are fragmented, myriad, and opaque.</td>
<td>Consultation with international procurement agencies to explore establishing a dedicated best practice supply channel for maternal health medicines.</td>
</tr>
<tr>
<td>• The supply of maternal health medicines by international agencies is limited and is not systematic.</td>
<td>Additional research and engagement with emerging regional supply chain mechanisms in LMIC to assess opportunities for local solutions.</td>
</tr>
<tr>
<td>• Unlike in other therapeutic areas, no dedicated international supply mechanisms exist for maternal health medicines.</td>
<td>Develop guidance for national procurement agencies/functions on the procurement and management of maternal health medicines.</td>
</tr>
<tr>
<td>• Donor funding for maternal health medicine procurement is negligible.</td>
<td>Compile initial market estimates and forecasting for new medicines developed under the initiative in support of the R&amp;D investment case.</td>
</tr>
<tr>
<td>• National supply chain structures lack capacity both in terms of skilled personnel and facilities (e.g., cold chain)</td>
<td></td>
</tr>
</tbody>
</table>

**What are the outcomes?**

Supply chain strategy developed, and functional structures identified for pregnancy specific medicines.
### MANAGING INTELLECTUAL PROPERTY TO INFORM LMIC PRICING STRATEGIES

<table>
<thead>
<tr>
<th>Current situation</th>
<th>What is planned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>● LMIC markets have significantly lower purchasing power which is reflected in medicine prices.</td>
<td>Configure LMIC access price arrangements within R&amp;D investment planning from the outset for each new medicine, considering and exploring:</td>
</tr>
<tr>
<td>● LMIC markets are not considered attractive/profitable by companies domiciled in western countries and are not usually included in R&amp;D investment planning.</td>
<td>● External R&amp;D subsidies.</td>
</tr>
<tr>
<td>● Prevalence of poor-quality/low price alternatives is a competitive disadvantage, even if a novel medicine is superior.</td>
<td>● Advanced market commitments.</td>
</tr>
<tr>
<td>● Availability of novel medicines in LMIC through second phase introduction or access not considered until patent expiry.</td>
<td>● Cross-subsidization approaches - high income market pricing and revenues to support LMIC pricing.</td>
</tr>
</tbody>
</table>

#### What are the outcomes?

An access price arrangement is configured for LMIC markets from the outset for each new medicine developed for pregnancy specific conditions.
IV WHAT WILL SUCCESS LOOK LIKE?

Success for AIM will depend on the realization of a broad-based collaboration and partnership. Although differences exist, the CHAMPION collaboration between HRP/WHO, MSD for Mothers and Ferring Pharmaceuticals on ‘heat-stable carbetocin’ is a current example to guide us to contemplate how success will look (Box). Briefly, in 2012 the three entities agreed that the heat stable formulation of an already existing, marketed drug (Carbetocin) will address an important need for PPH prevention. The project was implemented under a tri-partite memorandum of understanding which ran until 2021. While the project has been successful with most objectives achieved it is informative on several points:

1. With all the commitments and contributions and without major setbacks the process for a re-formulation drug to enter the market took almost 10 years.

2. If the access planning (pricing, manufacturing for the estimated volume, and regulatory strategy) had not been completed in parallel to the trial, the process would have taken much longer.
Success for AIM will have to be more than that of the CHAMPION project because if we replicate the CHAMPION project in another area it would only mean one more project done. It would not be a success in terms of achieving advocacy objectives, creating a partnership between donors, NGOs, researchers, United Nations, and high-burden countries. It would also mean leaving the achievements of AIM 1.0 in terms of pipeline analyses and TPP development a one-off project outcome. And, in a few years, we would be searching for the same or similar solutions again.

### CHAMPION PROJECT

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-2018</td>
<td>Research</td>
</tr>
<tr>
<td>2013-2018</td>
<td>- Stability study</td>
</tr>
<tr>
<td>2013-2018</td>
<td>- Intramuscular PK study</td>
</tr>
<tr>
<td>2013-2018</td>
<td>- Pivotal phase III study</td>
</tr>
<tr>
<td>2018</td>
<td>WHO guideline inclusion</td>
</tr>
<tr>
<td>2019</td>
<td>EML inclusion</td>
</tr>
<tr>
<td>2020</td>
<td>Swissmedic approval</td>
</tr>
<tr>
<td>2021</td>
<td>UNFPA product catalogue inclusion, Tanzania approval</td>
</tr>
</tbody>
</table>

We should keep in mind that investment in multiple products is essential since R&D success of new products has a relatively high failure rate. We need to accept that less than half of the promising leads will end up in final stages of development and find their way into the market. This is not something to discourage investment since it is the same for all other areas of health care.

The main indicator of success will be the initiation of research within the collaborative framework outlined above. The support structures, governance, liability de-risking and the research implementation will be built around a promising and exciting pipeline that have been put through scientific due diligence.
V MILESTONES

We identified tentative milestones for the three strategic pillars needed to accelerate innovation for mothers, that can be reached within the next five years.

A IMPROVING COORDINATION AND FOSTERING AN ENABLING ENVIRONMENT

1 Defined principles for global coordination and collaboration framework (Year 1).

2 Established AIM governance (with executive and advisory committees) with support from different stakeholders (Year 1).

3 Developed and implemented a mechanism for de-risking liability for product development and introduction (Years 1-2).

4 Developed and implemented a ‘Communication and Advocacy strategy’ in place to raise public and professional awareness (Year 1).

B CATALYZING RESEARCH AND DEVELOPMENT

1 Shortlist/select at least five products as priority for funding (Year 1).

2 Maternal health pipeline analysis extended with additional maternal health conditions (Year 2-3)

3 Every two years, two new TPP will be developed based on pipeline analysis, meetings with experts and stakeholders, and changes in the field (Year 2-4).

4 One prioritized preeclampsia medicine (based on the pipeline and TPP) research path agreed upon and initial research funded (Year 1-2).

5 One prioritized preterm labor medicine (based on the pipeline and TPP) research path agreed upon and initial research funded (Year 1-2).

C IMPROVING ACCESS

1 Review and evaluation of SRA-based and regional platform-based approaches to regulatory approval (Year 1)

2 Development of an overall regulatory strategy and pathway to support national product registration in LMIC (Year 1-2).

3 One new product ready for international normative approval [depending on the research path and success] (Year 3-5).

4 Innovative procurement and distribution modalities for quality-assured medicines developed (Year 3-5).