



# International Journal of Maternal and Child Health and AIDS

## SPECIAL COLLECTION

### EDITORIAL POSTPARTUM HEMORRHAGE PREVENTION

## Special Collection: Implementation Research Evidence for Prevention and Treatment of Postpartum Hemorrhage in High-Burden Low- and Middle-Income Countries

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### ABSTRACT

Postpartum hemorrhage (PPH), defined as a blood loss of 500 mL or more within 24 hours after birth, remains the leading cause of maternal mortality globally, accounting for over 20% of all maternal deaths. The burden of mortality from PPH is predominantly in low- and middle-income countries and demands coordinated accelerated efforts from the global maternal health community to meet the Sustainable Development 3 maternal health target by 2030. The International Journal of Maternal and Child Health and AIDS and the Concept Foundation are proud to present this Special Collection demonstrating the evidence for introducing heat-stable carbetocin and tranexamic acid, showcasing the feasibility and acceptability of their utilization for PPH prevention and management in resource-limited high-burden settings.

Keywords: Postpartum Hemorrhage, Maternal Health, Heat-Stable Carbetocin, Tranexamic Acid, Low-and Middle-Income Countries

In 2015, leaders of 193 countries under the umbrella of the United Nations committed to a set of 17 Sustainable Development Goals (SDGs) which were aimed at building a 'greener, fairer, and better world,' and charting the course for improved global health outcomes.<sup>[1]</sup> The third of the 17 SDGs calls on nations and stakeholders to promote health and well-being across the lifespan. Specifically, SDG target 3.1 calls for the reduction of "global maternal mortality ratio to less than 70 per 100,000 live births,"<sup>[2]</sup> However, halfway into the target year of the SDGs (in 2024), a group of leaders of global health and development organizations wrote to the G20 leaders lamenting that the SDG was way off track, with only 15% of the global goals on target.<sup>[3]</sup> Their sense of urgency deserves global attention.

Low- and middle-income countries (LMICs) bear the greatest burden of SDG 3 adversities. A major challenge that is defying a myriad of solutions for maternal mortality, which remains persistently high. It is estimated that globally about 800 women die daily from preventable causes related to pregnancy and childbirth, and 95% of these maternal deaths occur in LMICs.<sup>[4]</sup>

Postpartum hemorrhage (PPH), defined as a blood loss of 500 mL or more within 24 hours after birth, affects millions of women annually, with most deaths occurring in LMICs, particularly

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in sub-Saharan Africa and South Asia.<sup>[5]</sup> In fact, PPH is the number one cause of maternal mortality in LMICs and is responsible for over 20% of all maternal deaths worldwide.<sup>[6]</sup> While deaths from PPH have been nearly eradicated in high-income countries, women in LMICs continue to suffer disproportionately from this preventable condition. Addressing PPH in these regions is critical to reducing maternal mortality globally.

Right from its inception more than a decade ago, the mission of the International Journal of Maternal and Child Health and AIDS (IJMA) has been to elevate research and programs with potential solutions to intractable needs impacting the maternal and child health (MCH) populations in LMICs. Despite improvements since IJMA's inception, the dissemination of solution-oriented research on MCH issues in LMICs remains poor. Consistent with this mission, IJMA Editors were pleased to collaborate with Concept Foundation, Geneva, Switzerland in the publication of a set of highly impactful articles demonstrating the real-life practical use of heat-stable carbetocin (HSC) and tranexamic acid (TXA) as novel and lesser utilized PPH commodities in LMICs. The articles in this Special Collection overseen through the leadership of our Executive Editor, an Obstetrician and Gynecologist; our African Regional Editor, a Practicing Physician and Field Epidemiologist, and our Co-Editor-in-Chief, a Global Health Leader and Scientist, merit the readership of any advocate, researcher, practitioner, or policymaker interested in addressing maternal mortality in LMICs head-on.

Furthermore, the use of uterotonic is important in the prevention and management of PPH, and oxytocin is recommended by the World Health Organization (WHO) as the first drug of choice. However, oxytocin is heat-sensitive and must be stored under refrigeration (2-8°C). Even when the cold chain is maintained during shipment, there is no assurance that local distribution will maintain this medicine within the acceptable cold temperature ranges due to generally poor power supply, competing demands by other medications (e.g., life-saving insulin), and the limited space and number of cold maintenance facilities. This is notwithstanding potential sub-optimal manufacturing that also contributes to substandard quality.

Given the difficulties in maintaining a cold chain for oxytocin, HSC is a WHO-recommended uterotonic for PPH prevention when the quality of oxytocin is compromised.<sup>[7]</sup> As for PPH treatment, TXA has also been recommended by the WHO given its efficacy.<sup>[8]</sup> However, translation of these recommendations into, and adoption by, high-burden countries has been limited. Registration of HSC in LMICs is ongoing but requires a concerted endeavor, and national availability of TXA (as evidenced by registered products)

is scarce. In this Special Collection of articles, the authors provide a rich array of findings demonstrating the safety and acceptability of using HSC to prevent PPH, and TXA to treat PPH. The authors conducted eight original implementation research studies capturing a combined total of 126,882 women who delivered in 103 facilities and gathered insights from 678 healthcare providers across nine LMICs with varied contexts: Burkina Faso, Ethiopia, Ghana, India, Kenya, Nigeria, Sierra Leone, South Sudan, and Uganda. Data was collected on safety, acceptability, feasibility, and appropriate use of HSC and TXA yielding high provider acceptance and adherence to the PPH recommendations. These are promising findings, particularly for cold-chain challenged settings, that warrant implementation strategies for monitored introduction and scale-up.

We would like to thank the various teams that made this Special Collection a reality. We thank Dr. Metin Gülmezoglu, Executive Director of Concept Foundation; Dr. Sara Rushwan, Program Manager at Concept Foundation; Dr. Tesfaye Tufa, Associate Professor in Obstetrics and Gynecology; our Journal Manager, Ms. Rowena Saplala; and our Editorial Assistant, Ms. Rose Munyoki for their incredible support of this endeavor. We thank all peer reviewers who invested their time and expertise in reviewing these papers and offering thoughtful feedback. Finally, we thank the authors of Special Collection articles for enduring several rounds of reviews aimed at enriching the scientific literature with high-quality research studies.

## CONCLUSION AND GLOBAL HEALTH IMPLICATIONS

The range of studies performed in several LMICs and reported in this open-access Special Collection supports the feasibility of introducing HSC and TXA into various types of facilities and LMIC contexts. We believe more implementation studies need to be performed in diverse settings to expand the evidence base.

### Key Messages

- Despite improvements in maternal health outcomes globally, women in low- and middle-income countries (LMICs) bear the greatest burden of maternal mortality from postpartum hemorrhage (PPH), which is defying a myriad of solutions due to pervasive barriers to quality care.
- Strategies aimed at addressing the unacceptably high prevalence of maternal mortality should be homegrown and adapted to address the needs of practitioners in LMICs that are in tune with in-country realities.

- The introduction of heat-stable carbetocin to prevent, and tranexamic acid to treat, PPH is feasible to be implemented and scaled up in high-burden settings.

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#### COMPLIANCE WITH ETHICAL STANDARDS

##### Conflicts of Interest

The authors serve as Editors of the journal.

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Nothing to declare.

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##### Ethics Approval

Not applicable.

##### Declaration of Patient Consent

This is an editorial article. Patient consent is not required.

##### Use of Artificial Intelligence (AI)-Assisted Technology for manuscript preparation

The author(s) confirms that there was no use of Artificial Intelligence (AI)-Assisted Technology for assisting in the writing or editing of the manuscript and no images were manipulated using the AI.

##### Disclaimer

None.

#### Special Collection

This article is published as part of the special collection on prevention and treatment of postpartum hemorrhage in high-burden low- and middle-income countries: building cross-national evidence through implementation research.

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