Preventing Postpartum Hemorrhage with the use of heat-stable carbetocin

Maternal hemorrhage is the leading cause of maternal death worldwide. Deaths due to postpartum hemorrhage (PPH), excessive bleeding after birth, are especially high in low and lower-middle-income countries*, where the vast majority of maternal deaths occur.

Increased focus on preventing hemorrhage has reduced the number of maternal deaths, but PPH still threatens the lives of far too many mothers. Approaches for preventing and treating maternal hemorrhage include identifying women at risk sooner, encouraging women to give birth at a health care facility or with a skilled attendant for active management of labor, and developing low-cost, accessible interventions that help reduce bleeding. To help prevent PPH and save lives, the current recommendation by the World Health Organization is the use of an effective uterotonic during the third stage of labor for all births (WHO 2018). However, oxytocin, which is currently recommended for all births must be refrigerated; otherwise, it may degrade and become less effective. Due to the need for cold chain transport and storage, not all facilities have access to oxytocin. Network Meta-Analysis (Gallos et al. 2018) shows that heat-stable carbetocin for PPH prevention may be more effective than oxytocin, with the added benefit of being stable in tropical climates. Heat-stable carbetocin can be made available in settings where refrigeration is limited or unavailable, potentially making space available for other critical medications requiring cold-chain.

The Institute for Health Metrics and Evaluation modeled the impact of providing heat-stable carbetocin in settings where regulation of temperature is problematic on maternal outcomes, PPH specifically.

* Low and Lower-Middle-Income Countries, as defined by the World Bank in 2020.

** All statistics are for ages 10-54, IHME Global Burden of Disease 2017.

About this project
Goal: Understand the impact of transitioning from the current standard of care for PPH prevention to the use of heat-stable carbetocin for PPH prevention. This report was made possible by IHME Client Services, a social enterprise within the University of Washington that promotes and provides access to IHME’s population health data to private-sector organizations. The design and production of this report was funded by Merck for Mothers, an initiative of Merck (known as MSD outside of the US and Canada). The content is solely the responsibility of the authors and does not necessarily represent the official views of the funders.
KEY FINDING
Swift, targeted adoption of heat-stable carbetocin in health facilities in these settings could help more mothers survive childbirth and avoid suffering from PPH than currently expected by 2030.

THE MODELS
This summary demonstrates the impact that transitioning to use of heat-stable carbetocin (HSC) within 5 years could have on women’s health by 2030. Scenarios presented include transitioning to use of HSC in 20%, 50%, and 80% of facility births.

**Targeted approach**
A targeted approach ensures HSC is available first to those without access to uterotonics before with access.

**Broad approach**
A broad approach makes HSC available to facilities regardless of current access to uterotonics.

**20% transition**
- 4,194 women saved
- 1.3 million fewer cases

**50% transition**
- 6,400 women saved
- 2.3 million fewer cases

**80% transition**
- 8,578 women saved
- 3.2 million fewer cases

Using a targeted approach rather than a broad one saves two times as many women with a 20% transition to use of heat-stable carbetocin.

Increasing coverage to 50% saves an additional 2,000 lives in both targeted and broad approaches.

With an ambitious approach, 8,500 more mothers could survive childbirth and over 3 million more than predicted will avoid suffering.