

# A NATIONWIDE SURVEY OF Healthcare-Providers' Clinical Experiences with the Use and Storage of Oxytocin in Nigeria

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DOI: <https://doi.org/10.1371/journal.pone.0258096> October 6, 2021

## #GivingBirthInNigeria Advocacy

### 1) BACKGROUND

- Nigeria has one of the highest maternal mortality ratios (914/100,000 live births), estimated to account for 19 per cent of the global maternal deaths<sup>1,2</sup>. Every day in Nigeria, about 145 women between the ages of 15 and 45 years die from preventable causes linked to pregnancy and childbirth<sup>3,4</sup>. It is widely acknowledged that obstetric haemorrhage, especially postpartum haemorrhage (PPH), is one of the leading causes of maternal morbidity and mortality in low- and middle-income countries (LMICs) including Nigeria<sup>5,6,7</sup>.
- The World Health Organization (WHO) recommends the use of prophylactic uterotonics during the third stage of labor to reduce the incidence of PPH<sup>8</sup>. According to the UN Commission Report in 2012, oxytocin is among the listed lifesaving commodities for women during pregnancy and childbirth within the continuum of care.<sup>9</sup> PPH is blood loss of 500 mL or more within 24 hours after childbirth, and it accounts for nearly one-quarter of the global maternal deaths<sup>10</sup>.
- The WHO recommends the use of oxytocin to prevent PPH in women having a vaginal birth, and it is advised that oxytocin should be administered immediately after delivery, by intramuscular or slow intravenous bolus injection by a skilled and trained healthcare provider<sup>11</sup>.

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3 National Primary Healthcare Development Agency. Nigeria declares state of emergency on maternal and child health | NPHCDA. 2019. Available from: <https://nphcda.gov.ng/nigeria-declares-state-of-emergency-on-maternal-and-child-health/> Accessed June 30, 2019

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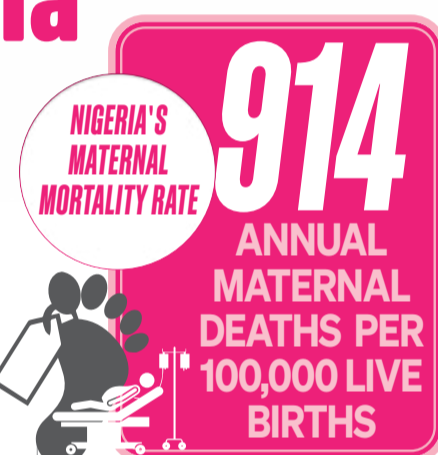
7 <http://aphrc.org/wp-content/uploads/2017/06/APHRC-2017-fact-sheet-Maternal-Health-in-Nigeria-Facts-and-Figures.pdf>

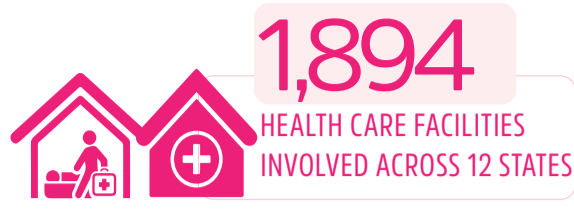
8 World Health Organization. WHO recommendations: Uterotonics for the prevention of postpartum hemorrhage. 2018.

9 United Nations. UN Commission on life-saving commodities for women and children. 2012. Available from: [https://www.unicef.org/media/files/UN\\_Commission\\_Report\\_September\\_2012\\_Final.pdf](https://www.unicef.org/media/files/UN_Commission_Report_September_2012_Final.pdf). Accessed June 30, 2019

10 Muhammad R, Isah A, Agida T, Akaba G, Akaba G. A prospective study to compare the effectiveness of adjunctive rectal misoprostol or oxytocin titration in the prevention of primary post-partum haemorrhage in at risk patients. 2019; 19(1):1517-24. <https://doi.org/10.4314/ahs.v19i1.25> PMID: 31148979

11 World Health Organization. WHO recommendation on Routes of oxytocin administration for the prevention of postpartum hemorrhage after vaginal birth. 2020.





- Even though the WHO recommends the use of oxytocin to prevent and treat PPH, there have been concerns that quality issues in LMICs may have impacted its performance. There is growing evidence showing that when poor-quality oxytocin is used and it fails to prevent PPH adequately, health care providers resort to increasing the doses of oxytocin in an effort to stop severe blood loss<sup>12</sup>.

## 2. WHAT IS THE OBJECTIVE OF THE RESEARCH?

The study aimed to assess the knowledge around oxytocin, usage, storage practices and perceived quality of oxytocin used by healthcare providers who directly administer oxytocin for the prevention of postpartum hemorrhage across Nigeria.

## 3. WHY IS THIS RESEARCH IMPORTANT?

This is important to giving better understanding on the importance of oxytocin and the storage practices so as to establish clinical guidelines and trainings for healthcare providers to safeguard the quality of these lifesaving medicines.

## 4. HOW WAS THE RESEARCH CARRIED OUT?

This was a descriptive cross-sectional study that surveyed a representative sample of 6,299 healthcare providers who deliver babies [doctors, nurses, community health workers (CHWs) who are either Community Health Officers (CHOs) or Community Health Extension Workers (CHEWs)] from 1,894 healthcare facilities that offer obstetrics and gynecological services in 12 States across the six geo-political zones of Nigeria.

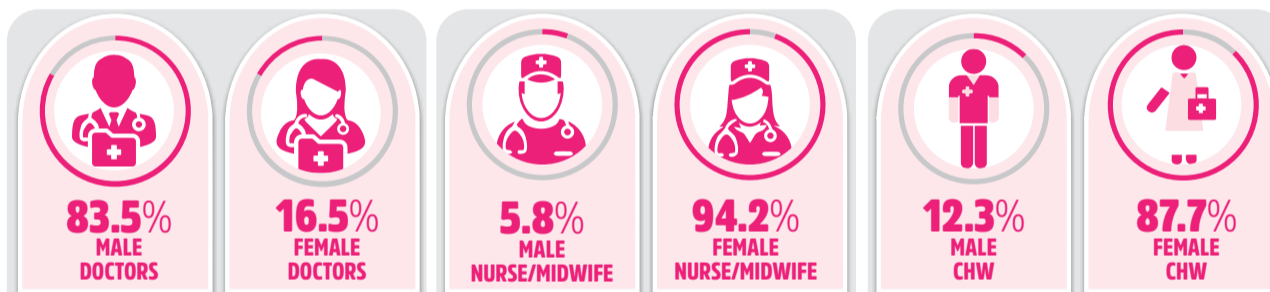


FIGURE 1: Background Characteristics of Respondents by Sex

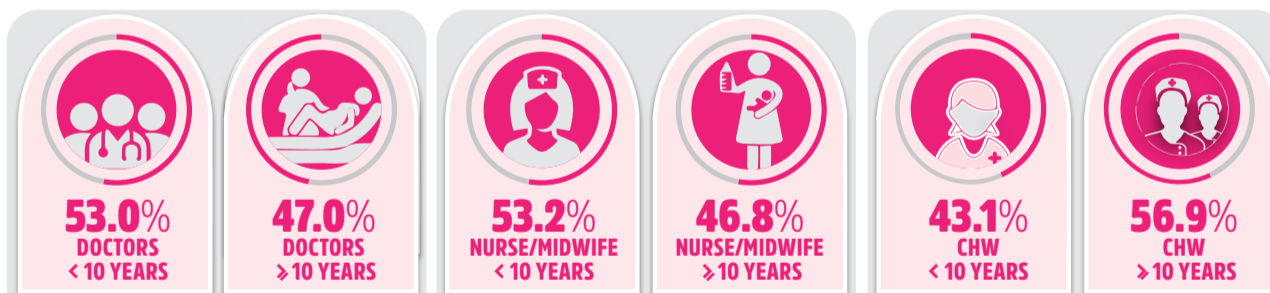


FIGURE 2: Background Characteristics of Respondents by Years of Experience

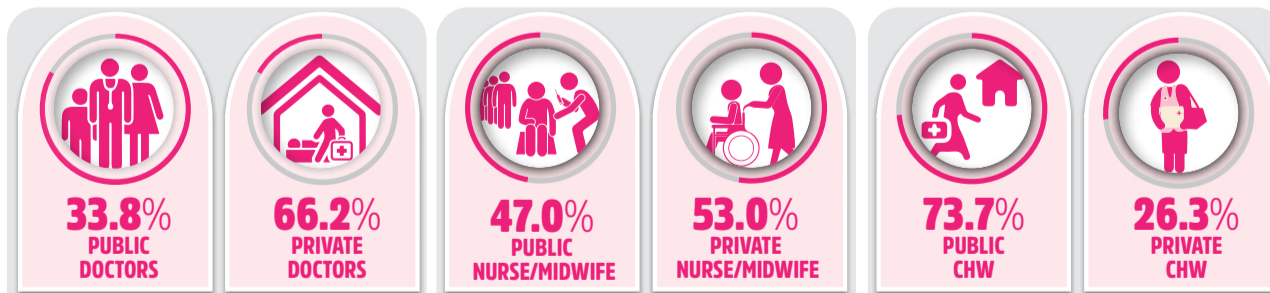


FIGURE 3: Background Characteristics of Respondents by Health Facility Type

12 Hagen N, Khuluza F, Heide L. Quality, availability and storage conditions of oxytocin and misoprostol in Malawi. BMC Pregnancy Childbirth. 2020; 20(1):184. <https://doi.org/10.1186/s12884-020-2810-9> PMID: 32223759

## 5. WHAT ARE THE FINDINGS?

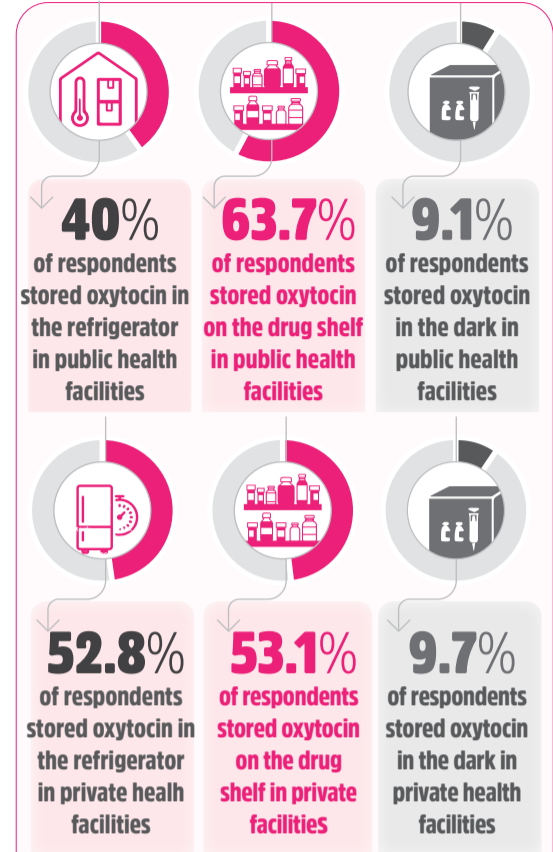


FIGURE 4: Respondents' knowledge about storage of oxytocin by Health Facility type

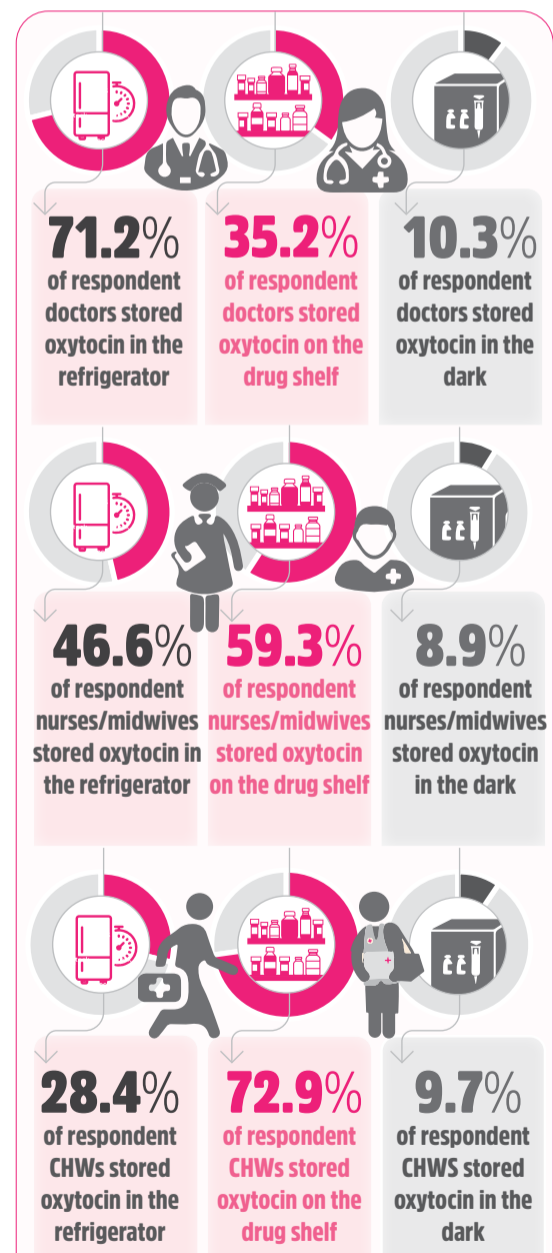


FIGURE 5: Respondents' knowledge about storage of oxytocin by Profession



FIGURE 6: Respondents' knowledge about storage of oxytocin by Years of Experience

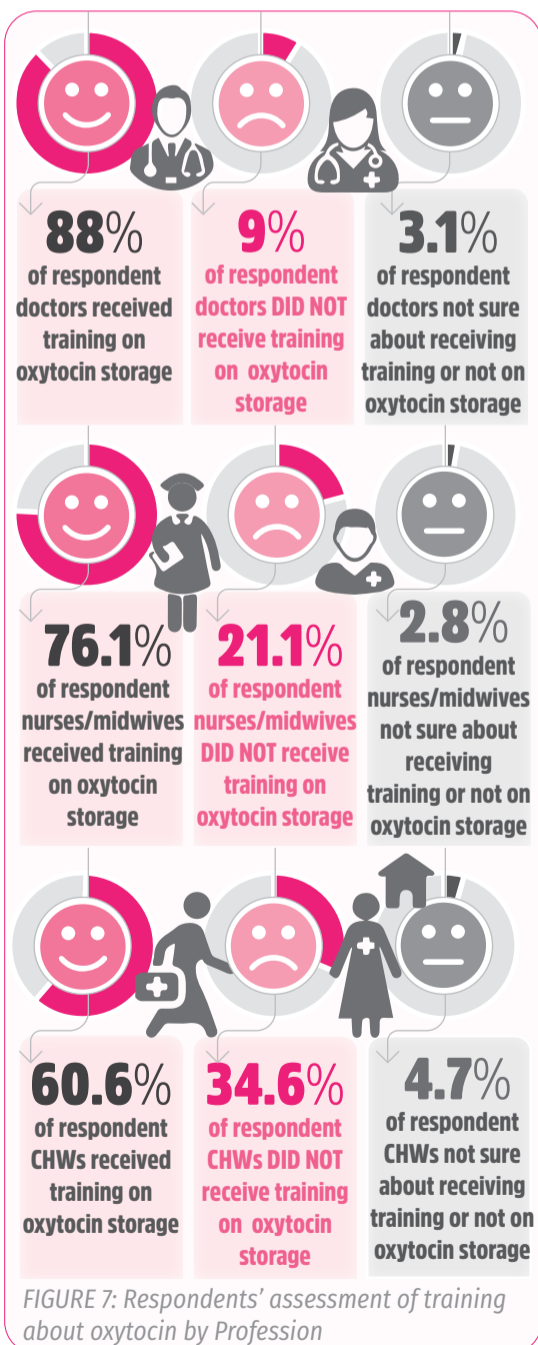
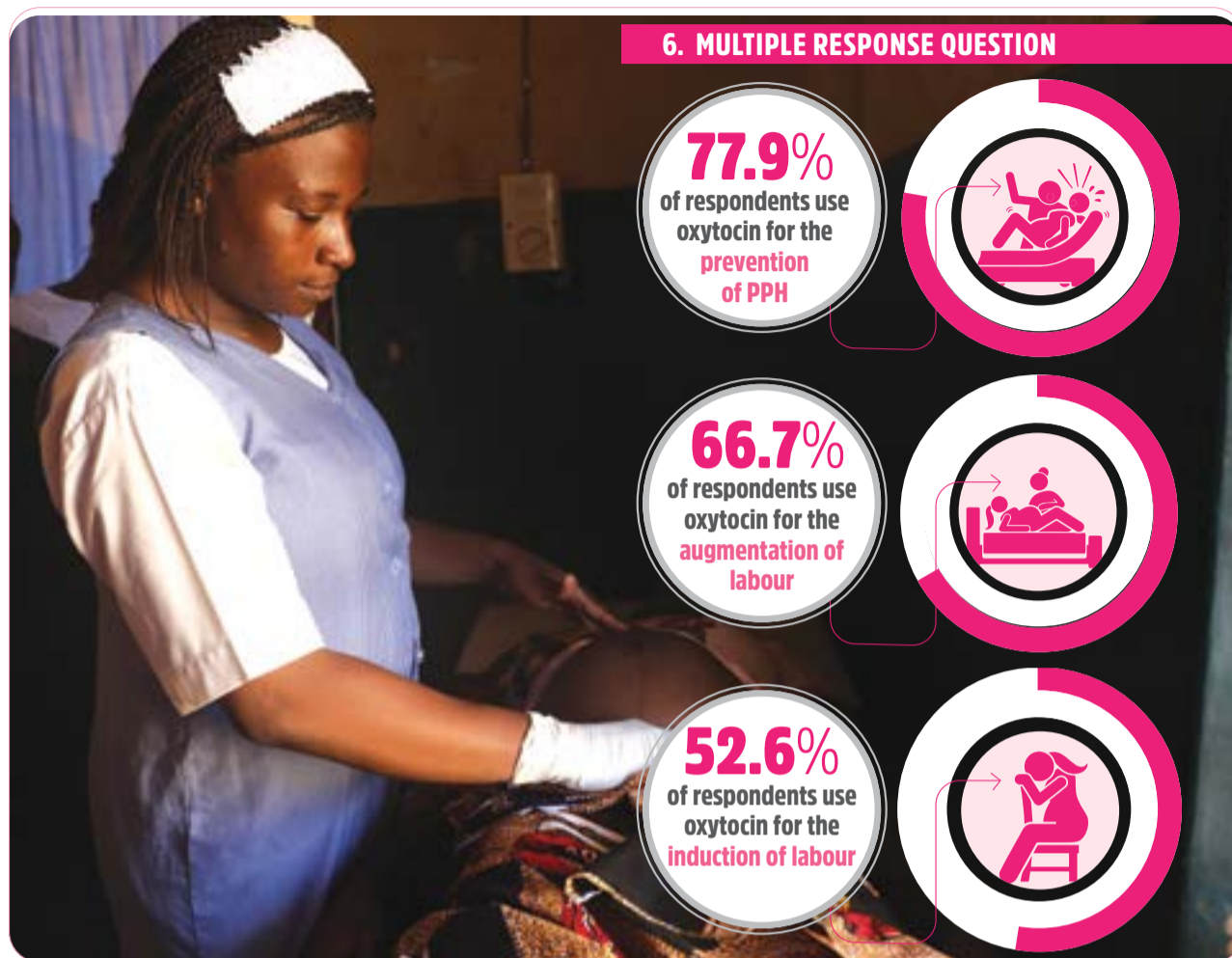


FIGURE 7: Respondents' assessment of training about oxytocin by Profession

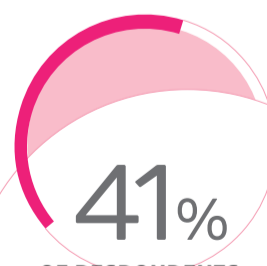
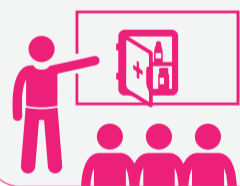


## 7. FINDINGS

- 74.0% of respondents reported that they have had training on the use or storage of oxytocin. Eighty-eight per cent of doctors, 76.1 per cent of nurses/midwives and 60.6 per cent of CHWs have had training on the use or storage of oxytocin. A marginally higher proportion of healthcare providers in private healthcare facilities (78.3%) reported having received training on the use or storage of oxytocin compared to those in public healthcare facilities (70.1%).
- Only 46% of respondents (52.8% in private; 40.0% in public sector) had proper knowledge that oxytocin storage is in the refrigerator. The health care workers in the private sector had better knowledge compared to the public sector; those who were < 10 years in practice had better knowledge compared to those >10 years in practice but only 34% reported that they actually store oxytocin in the refrigerator in their facilities (in practice)
- About 5% of the respondents used 15IU above the WHO-recommended oxytocin dose of 10IU while 41% used double or more (20IU or more) the recommended dose.
- 70% of the community health workers administer oxytocin at the public health facilities yet, this cadre of respondents had the least knowledge of proper storage requirement for oxytocin. Expectedly, the nurses/midwives were the most cadre of respondents that administered oxytocin in the facilities, yet they have limited knowledge of proper storage requirement.



OF RESPONDENTS IN PRIVATE HEALTH CARE FACILITIES REPORTED RECEIVING TRAINING ON THE USE OR STORAGE OF OXYTOCIN - 8% MORE THAN THOSE IN PUBLIC FACILITIES

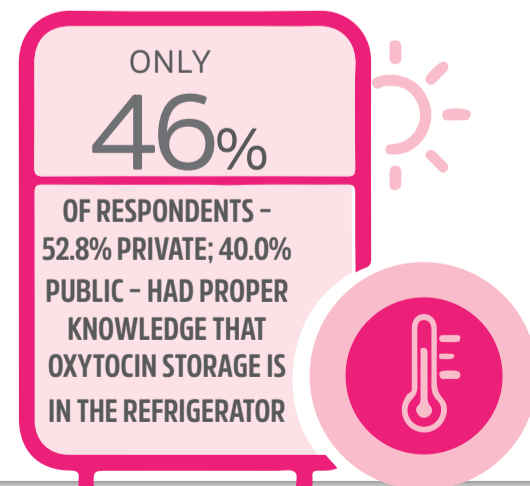


OF RESPONDENTS USED DOUBLE -20IU- OR MORE THAN THE WHO-RECOMMENDED DOSE OF OXYTOCIN



| DOSAGE OF OXYTOCIN | PREVENTION OF PPH IN WOMEN |      |
|--------------------|----------------------------|------|
|                    | N                          | %    |
| 5IU                | 477                        | 9.7  |
| 10IU               | 2102                       | 42.8 |
| 15IU               | 241                        | 4.9  |
| 20IU or more       | 2018                       | 41.1 |
| Not sure           | 70                         | 1.4  |

FIGURE 8: Respondents' dosage use of oxytocin for prevention of PPH in women





## 8. WHY DO THE FINDINGS MATTER?

- Oxytocin requires cold chain supply for it to maintain its effectiveness, however, most facilities in LMICs especially those at the primary healthcare level have no refrigerators or reliable electricity supply, these are some of the factors outside the ability of the health workers to improve.
- Findings from these studies have also generated questions on whether the use of oxytocin above the WHO recommended dose reflects limited knowledge among health care providers and their suspicion that the oxytocin medicine they are using are not effective, an indication of poor quality.
- Poor Pharmacovigilance (PV) practice: Suspicion and reporting of therapeutic ineffectiveness is one of the scopes of pharmacovigilance and the recommendation is to document this in the pharmacovigilance form (individual case safety report- yellow form). However, findings showed that health workers do not suspect poor quality of oxytocin and consequently do not report. They keep increasing the dose until they achieve the desired contraction to stop the bleeding.
- Findings showed that about a third of the respondents documented their perceived ineffectiveness of the oxytocin used. Of this, only 4.6 per cent documented it in the pharmacovigilance form, and this is similar to the findings of the Lagos study.

## 9. LIMITATIONS

The study has the following limitations:

- Since the responses were self-reported, this potentially introduced recall bias on past events.
- A qualitative aspect to complement the quantitative data was not conducted to help probe further on concerns around use of oxytocin during labour and delivery.
- The sample targets in some of the northern states were not reached due to fewer qualifying facilities that offer obstetrical and gynecological services.

## 10. RECOMMENDATIONS FOR ACTION

- a. The evidence calls for key stakeholders to take urgent actions on the management of cold chain constraints and other steps along the supply chain in terms of ensuring quality manufacturing, organized procurement and distribution, and guidelines for oxytocin storage at the facility level.
- b. There is a need for the dissemination and the use to continuously train healthcare providers especially nurses/midwives.
- c. Regular post-marketing surveillance of quality of medical products including oxytocin should be conducted in Nigeria and other LMICs to save lives.
- d. The Nigerian Government or other LMICs should provide alternative sources of energy to ensure availability of electricity especially in the remote public health facilities to appropriately store oxytocin.
- e. Since 2018, WHO has recommended Carbetocin as an alternative uterotonic for the prevention of PPH on tropical climates where refrigeration is limited. Hence the governments should encourage the availability of this alternative.

## 11. FUNDING STATEMENT

The project was supported by funding from MSD, through MSD for Mothers, the company's \$500 million initiative to help create a world where no woman dies giving life. MSD for Mothers is an initiative of Merck & Co., Inc., Kenilworth, NJ, USA. The funders had no role in study design, decision to publish, or preparation of the manuscript.

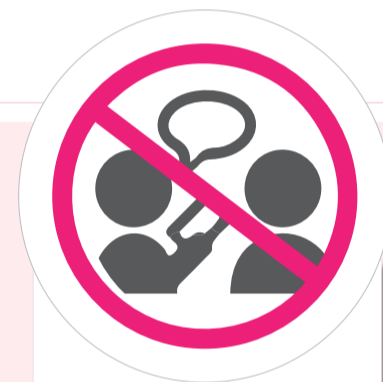


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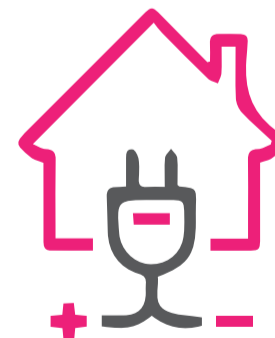


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respondents documented their perceived ineffectiveness of the oxytocin used. Of this, only 4.6% documented it in the pharmacovigilance form



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