

Delays in Obtaining Treatment for Postpartum and Postabortion Hemorrhage in Low Resource Settings: The Role of the Non-pneumatic Anti-Shock Garment (NASG)

FIGO 2009 XIX World Congress of Gynecology and Obstetrics

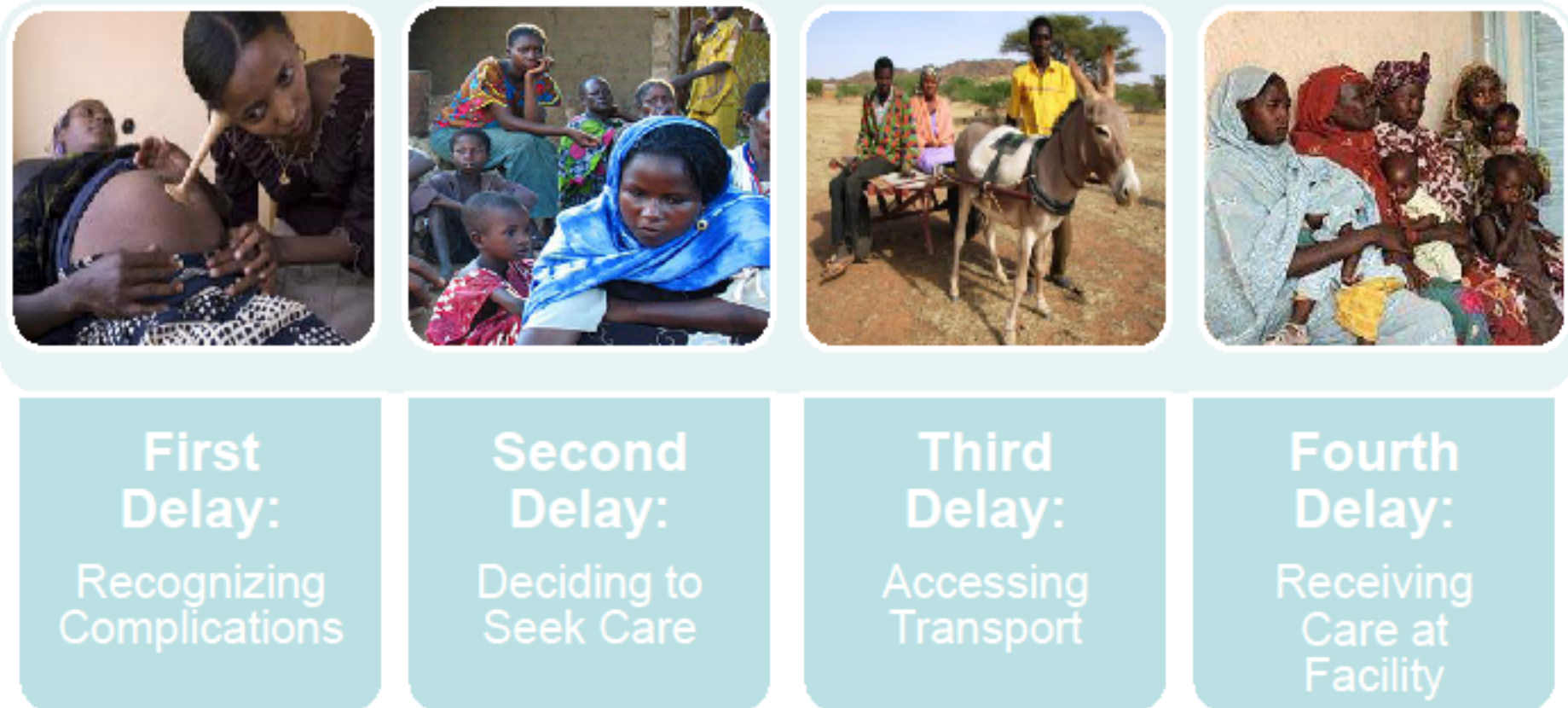
Janet M Turan¹, Oladosu Ojengbede ², Mohammed Mourad-Youssif³, IO Morhason-Bello², Mohammed Fathalla⁴, Hilarie Martin¹, Suellen Miller¹

¹Department of Obstetrics, Gynecology and Reproductive Sciences, University of California San Francisco, USA; ²Department of Obstetrics & Gynaecology, University College Hospital, Ibadan, Nigeria; ³Emergency Department, Obstetrics and Gynaecology, El-Galaa Maternity Teaching Hospital, Cairo, Egypt; ⁴Department of Obstetrics & Gynecology, Assiut University Women's Health Center, Assiut, Egypt

1: Introduction

Pregnancy is the leading killer of women of reproductive age in developing countries. Women in Nigeria face a 1 in 18 chance of dying from pregnancy related causes¹. The main cause of maternal death in Egypt is obstetric hemorrhage (OH), which worldwide claims over 127,000 deaths/year².

In many low-resource settings a sequence of delays from slow recognition of complications to receiving appropriate treatment, contribute to maternal deaths³.



The Non-pneumatic Anti-Shock Garment (NASG) is a low-cost, easy to use first-aid tool to help women survive delays in getting definitive treatment for OH^{4,5}.



2: Methods

Pre intervention / intervention studies of the NASG for treatment of OH conducted at hospitals in four sites:

- Cairo, Egypt; Upper Egypt
- Northern Nigeria; Southern Nigeria

Comparisons of different delays for women with diagnosis of PPH or PAH (N=805) were conducted using ANOVA:

- Hemorrhage to study admission
- Study admission to IV fluids / blood transfusion
- Hemorrhage start to blood transfusion

Relationships between delays, key predictors and **Extreme Adverse Outcomes (EAO)**, mortality or severe morbidity (cardiac, respiratory, renal & cerebral dysfunctions lasting >24hrs after resuscitation) were examined using odds ratios and multivariate logistic regression



4: Conclusions

Length of delays corresponded with resource level of the setting with shortest delays in relatively higher resourced urban Cairo (where most women started hemorrhaging within the hospital) and longest in the very low resource setting of Northern Nigeria (where the majority of women started hemorrhaging at home/clinic).

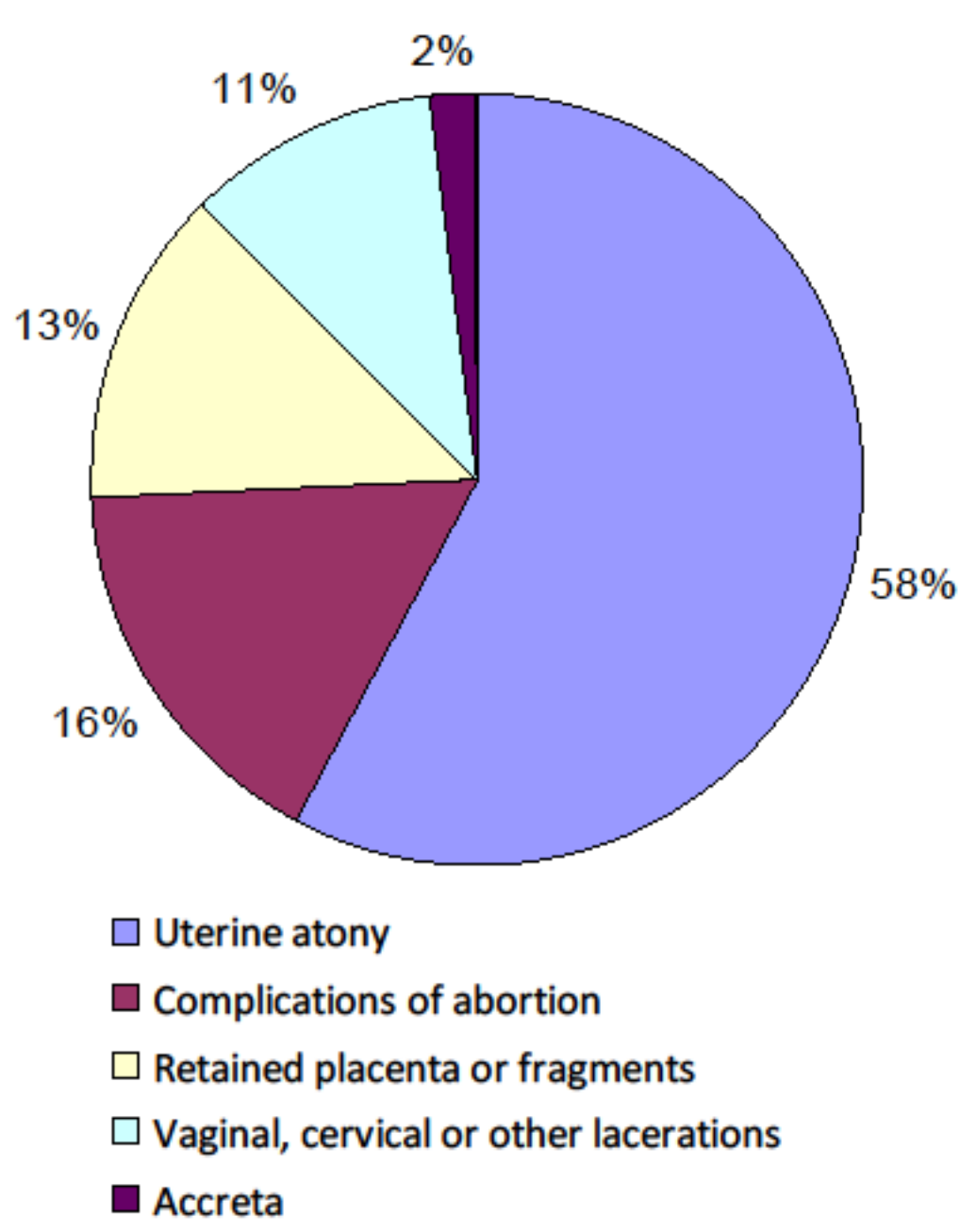
Findings support the hypothesis that the **NASG helps women with PPH and PAH survive delays** with fewer Extreme Adverse Outcomes.

However, women with PPH and PAH who experience very long delays are still at risk of Extreme Adverse Outcomes, even with NASG use.

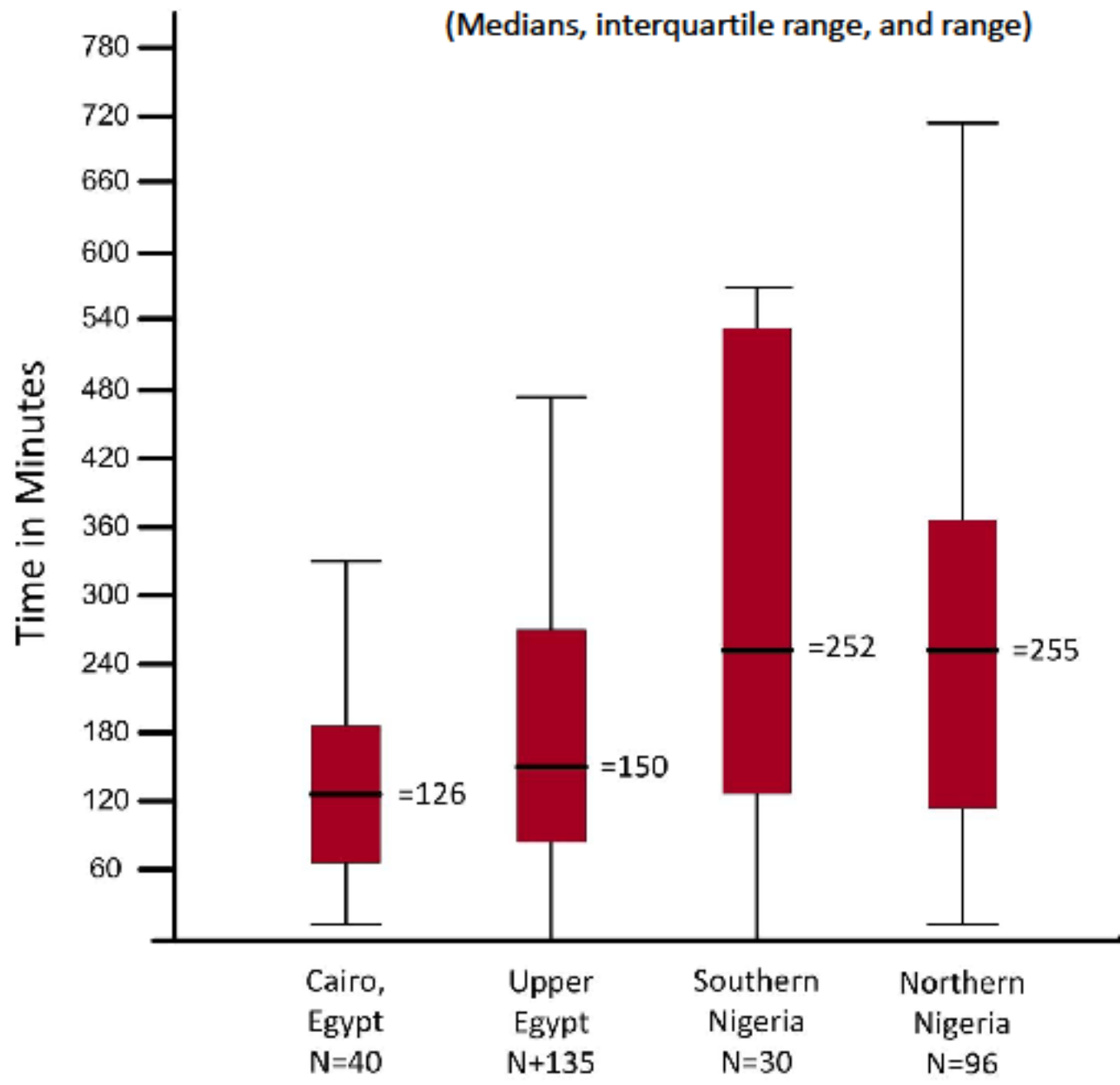
Need for a cluster randomized controlled trial set at the primary health care center level, to determine if earlier application of the NASG affects morbidity and mortality.

3: Results

Distribution of Primary Definitive Diagnoses among PPH and PAH Cases (N=805)



Minutes from start of hemorrhage to study admission for women who started bleeding outside the hospital (Medians, interquartile range, and range)



- Median minutes from study admission to 1st blood transfusion shorter in Egypt (30mins Cairo; 33mins Upper Egypt) than Nigeria (182mins Northern Nigeria; 209mins Southern Nigeria) (p=.001)
- Longer delays after study admission in obtaining IV fluids and blood transfusions in NASG phase compared to the Pre-intervention Phase
- Women with ≥ 60 minute delays from hemorrhage start to study admission were more likely to have an Extreme Adverse Outcome (EAO) OR=5.3, 95%CI: 2.6–10.6
- An initial delay of ≥60 minutes from hemorrhage start to study admission was no longer significantly associated with EAO after controlling for NASG use and other key predictors in multivariate logistic regression analysis

Adjusted Odds of Extreme Adverse Outcome (EAO)

Variable	Adjusting for all variables except NASG use OR (95% CI)	Adjusting for all variables including NASG use, OR (95% CI)
Country (Nigeria)	2.43 (1.12 – 5.30)	1.77 (0.79 – 3.95)
Started bleeding outside the hospital	1.20 (0.36 – 4.01)	1.14 (0.33 – 3.88)
≥ 60 minutes delay from hemorrhage start to study admission	3.58 (1.03 – 12.47)	2.82 (0.79 – 10.08)
PPH diagnosis (vs PAH)	4.68 (1.04 – 20.96)	4.27 (0.92 – 19.67)
MAP <60 at study admission	14.00 (5.73 – 34.19)	13.49 (5.49 – 33.13)
NASG use		0.28 (0.14 – 0.58)

References

- ¹ UNICEF (2005) Information by Country - Statistics - Women's Health. Available at: <http://www.unicef.org/infobycountry/index.html>
- ² World Health Organization (2007) A newsletter of Worldwide Activity - Reducing the Global Burden: Postpartum Haemorrhage. Available at: http://www.who.int/making_pregnancy_safer/documents/newsletter/mps_newsletter_issue4.pdf
- ³ McCarthy, J; Maine, D (1992) A Framework for Analyzing the Determinants of Maternal Mortality. Studies in Family Planning, Vol. 23, No. 1 (Jan. - Feb., 1992), pp. 23-33
- ⁴ Miller, S; Martin, H. B; Morris, J. L (2008) Anti-shock garment in postpartum haemorrhage, Best Practice & Research in Clinical Obstetrics & Gynaecology 22 (6) 1057-1074
- ⁵ Miller, S et al (in press) A Comparative Study of the Non-Pneumatic Anti-Shock Garment (NASG) for the Treatment of Obstetric Hemorrhage in Nigeria, International Journal of Gynecology and Obstetrics & Gynecology