

# New Advances for Controlling Obstetric Hemorrhage: A Pilot Study of the Non-pneumatic Anti-Shock Garment (NASG) in Egypt

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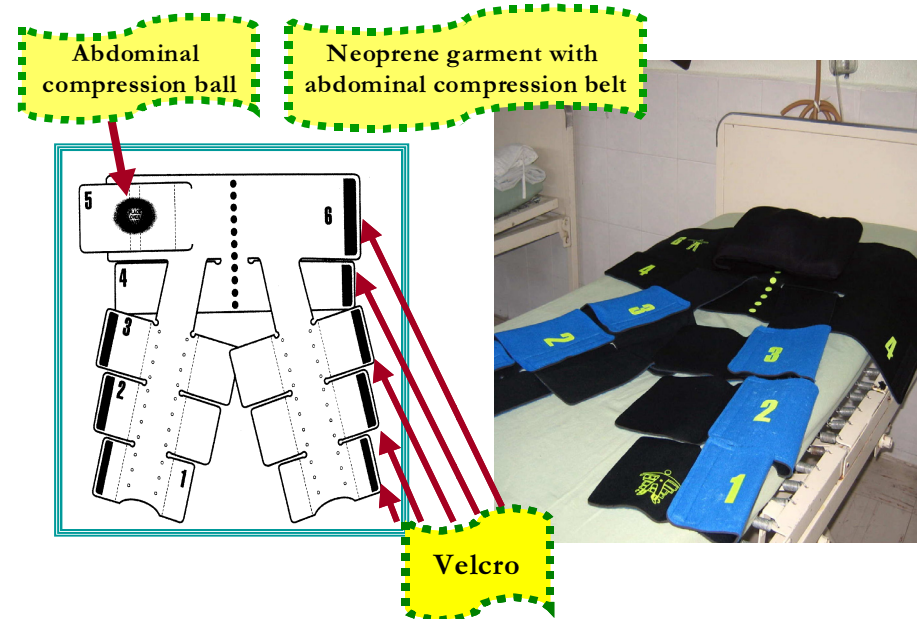
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<sup>1</sup>JSI/Egypt; JSI: John Snow, International; <sup>2</sup>MOHP: Ministry of Health and Population

## Background

- MMR in Egypt : 84/100,000
  - 60% due to obstetric hemorrhage
- The Non-pneumatic Anti-Shock Garment (NASG)
  - Light-weight, reusable compression suit
  - 5 neoprene segments close with Velcro, applying 20-40 mm HG circumferential pressure
  - Shunts blood from lower extremities, pelvis, and abdomen to heart, lungs and brain
  - Resuscitates and restores vital signs
  - Patients can remain in NASG for up to 48 hours until definitive treatment is accessed

## Design of the NASG



## Study Design

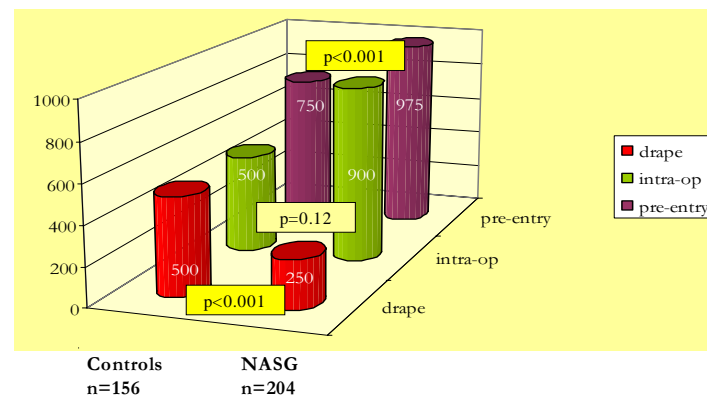
### Hypothesis

Obstetric hemorrhage patients treated with NASG and usual clinical procedures will experience less blood loss than obstetric hemorrhage patients treated with usual clinical procedures alone

### Methodology

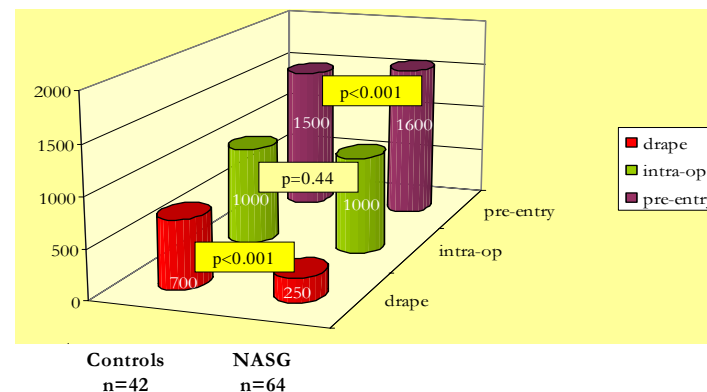
- Entry criteria: Blood loss  $\geq 750$  mL AND pulse  $> 100$  beats/minute OR systolic blood pressure  $< 100$  mm Hg
- 4 University Teaching Hospitals in Egypt, n=360
- Controls: 156, Intervention Cases: 204
- Plastic, closed-end blood collection drape to quantify blood loss

## All Obstetric Hemorrhage Median Blood Loss



## Severe Hemorrhage at Entry

(Blood loss  $\geq 1500$  mL) Median Blood Loss



## Risk of $\geq 150$ mL Blood Loss

NASG vs. Controls	Odds Ratio	95% CI
Controls	1.00	(--, --)
NASG	0.26	(0.14, 0.47)

Patients treated with the NASG had a 74% reduced risk of blood loss  $\geq 150$ mL

\* **NNT = 5**

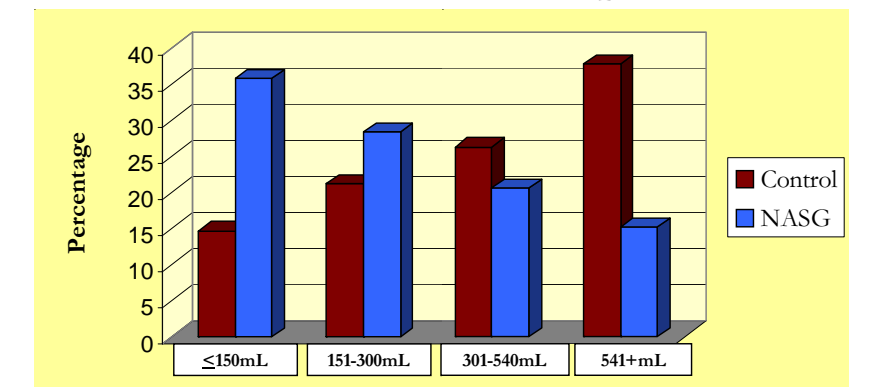
\* **Number Needed to Treat:** For every 5 patients with obstetric hemorrhage who are treated with the NASG, 1 case of  $\geq 150$ mL blood loss will be averted

Severe Hemorrhage			Moderate Hemorrhage		
NASG vs. Controls	Odds Ratio	95% CI	NASG vs. Controls	Odds Ratio	95% CI
Controls	1.00	(--, --)	Controls	1.00	(--, --)
NASG	0.39	(0.15, 1.07)	NASG	0.21	(0.10, 0.44)

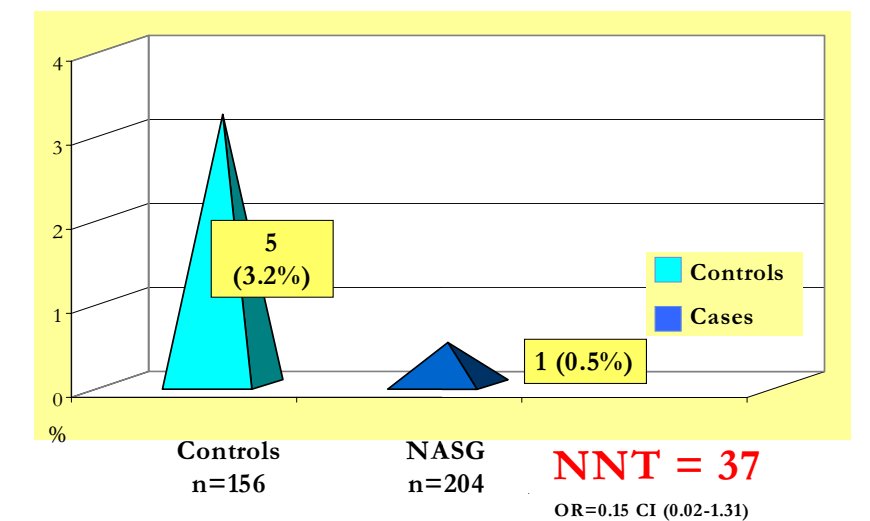
NNT = 7

NNT = 5

## Percentage of Patients at Each Quartile of Blood Loss in Drape



## Morbidity and Mortality



## Conclusions

- NASG significantly decreased blood loss particularly for those with severe hemorrhage
- Higher intra-operative blood loss with NASG
  - More research needed on hemodynamics with NASG during surgery
- Promising preliminary results, but more studies needed
  - Community and primary care level for effect of NASG during long transports and delays
  - Efficacy trials to demonstrate statistically significant differences in morbidity and mortality