

A young Black woman with her hair in braids is smiling warmly at the camera. She is wearing a black and grey striped long-sleeved shirt. She is holding a newborn baby wrapped in a white blanket with a red and black patterned blanket over it. The baby is wearing a bright blue knit hat with a pom-pom and a red long-sleeved shirt with black polka dots. The background is a brightly lit room, likely a hospital or clinic, with a blurred figure of another person sitting at a desk in the distance.

The LifeWrap

A maternal health project in Zambia

The Project



SAFE MOTHERHOOD PROGRAM

Bixby Center for Global
Reproductive Health

- Centered around device called the LifeWrap or NASG (Non-pneumatic Anti-Shock Garment)
- Team of four with complimentary backgrounds
- A 4-month consulting project culminating in 3 weeks on the ground in Zambia in 2013

Deliverables:

- End-to-end analysis for national roll-out of device in Zambia
- Universal roadmap for NASG adoption



The Need

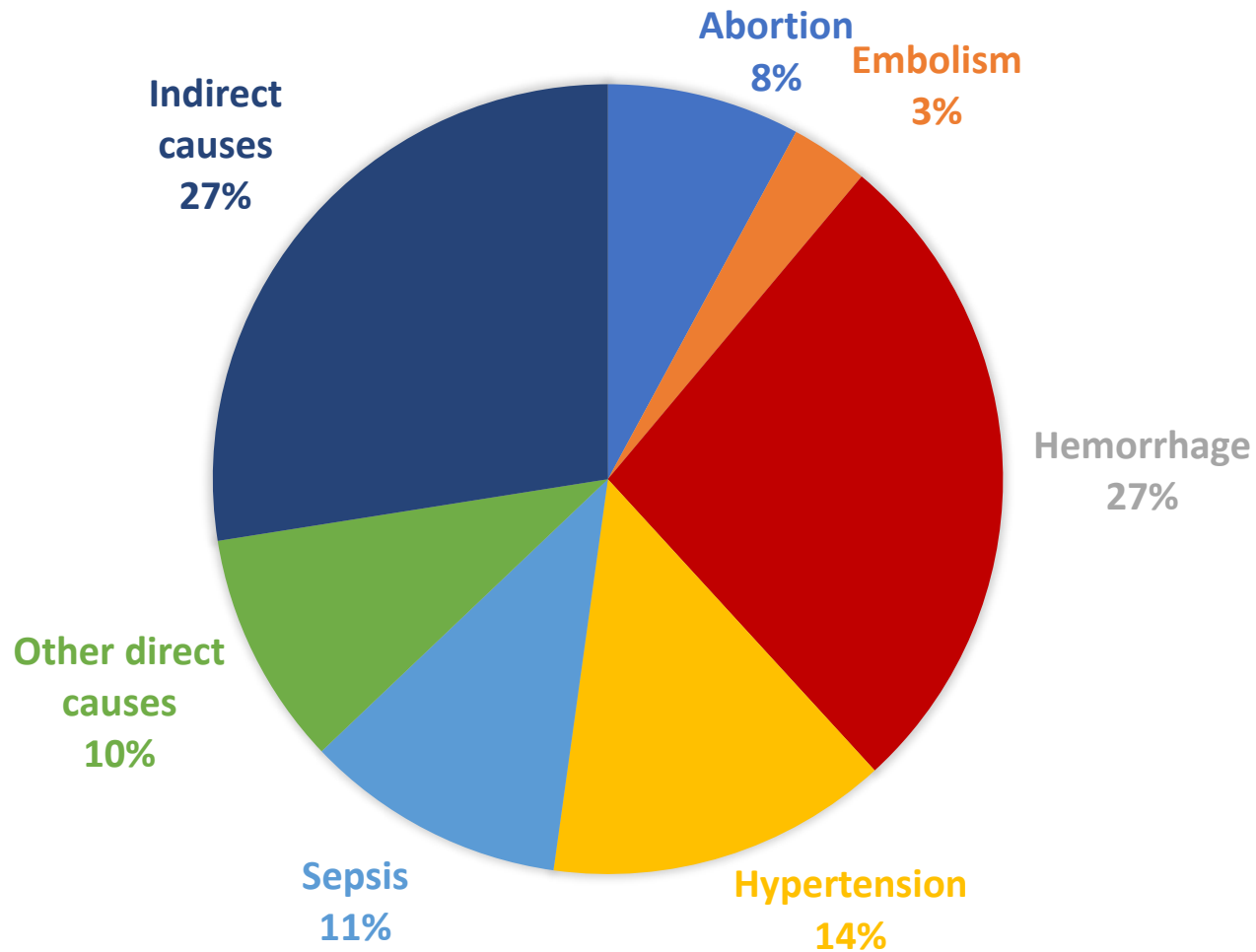
An estimated **532,000 women died** during childbirth or pregnancy in 1990¹

99% of all maternal deaths occur in developing countries¹

57.5% of maternal deaths worldwide occur among women in Africa²

Today **550 women die every day** from pregnancy-related causes in sub-Saharan Africa²

Global Causes of Maternal Mortality



Low resources and staffing to implement guidelines

Poor transportation links from rural areas

Long delays to definitive treatment

Low availability of blood products

A Call to Action



Millennium
Development
Goals 2000-2015



Development of the NASG

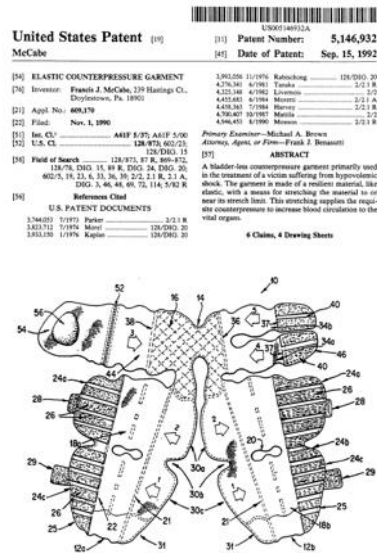
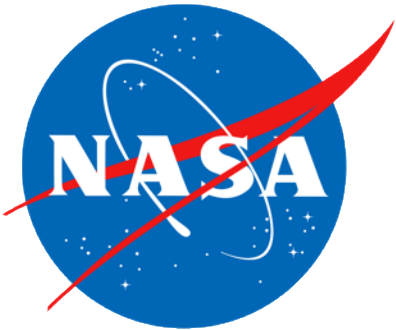
1960s

1992

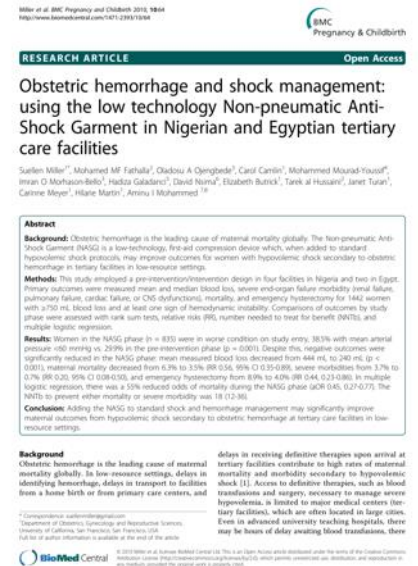
1990s

2001

2000s



A better way to hemodynamically stabilize mothers with heavy post-partum bleeding in low-resource settings to reduce maternal mortality



Sources: [NASA Spin-off Anti-shock Garment](#), [Pressure Garments Save Mother's Lives](#), [Anti-Shock garment provides resuscitation and hemostasis for obstetric hemorrhage](#), [Dr. Paul Hensleigh \(2002\)](#), [Obstetric hemorrhage and shock management: using the low technology NASG in Nigerian and Egyptian tertiary care facilities](#) (2010)



WHO RECOMMENDATIONS ON PREVENTION AND TREATMENT OF POSTPARTUM HAEMORRHAGE

Highlights and Key Messages from New 2012 Global Recommendations

The use of NASGs is recommended as a temporizing measure until appropriate care is available.

- Review national guidelines to ensure NASGs are included.
- Review training curricula to ensure providers are trained to use NASGs.
- Procure NASGs; adapt for low-resource settings as needed.



Innovative

The Lifewrap is a low-cost, low-technology first-aid device to treat hypovolemic shock



Integrated

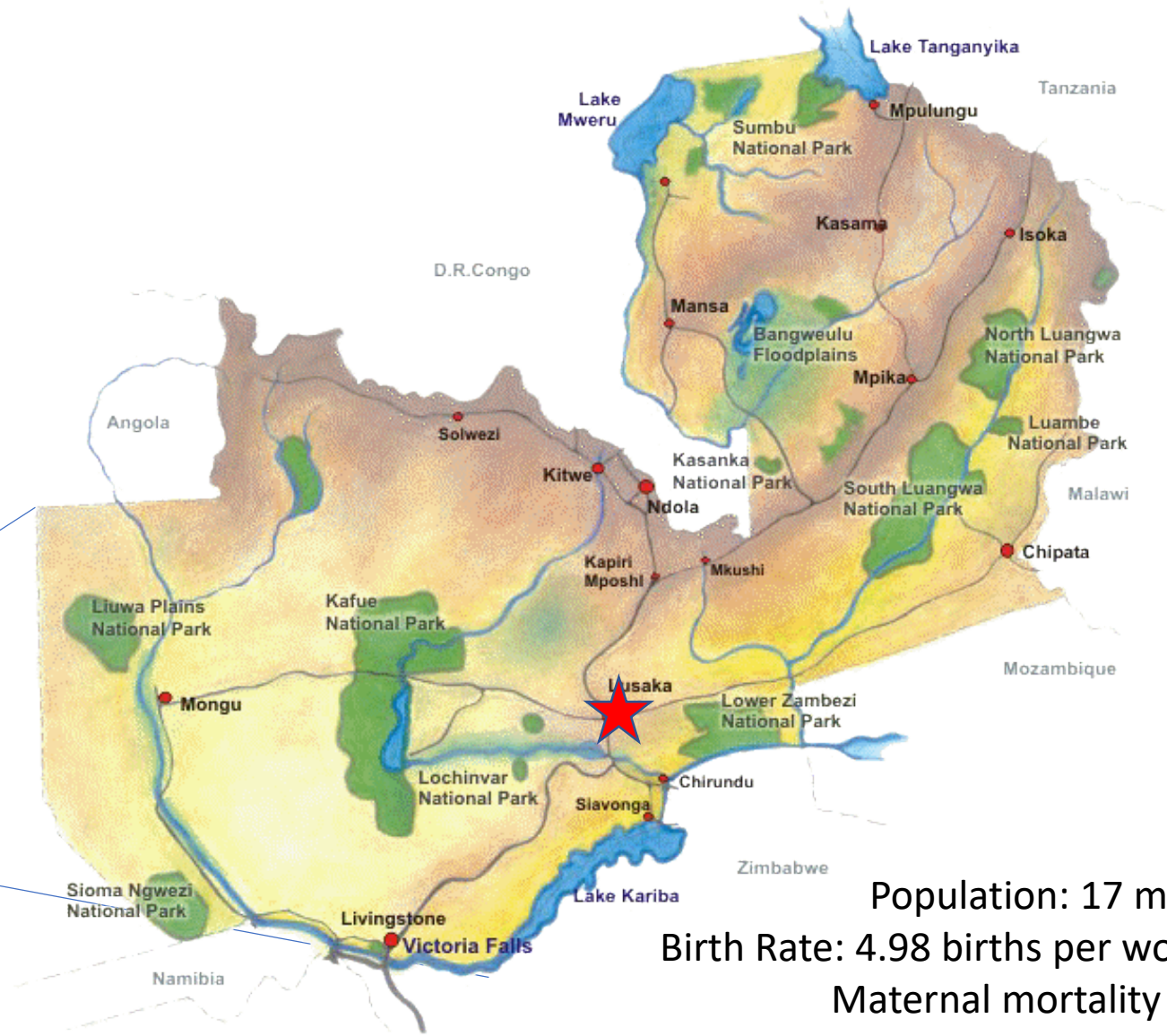
Can be used with other interventions, kept on during transportation, procedures, and surgery



Practical

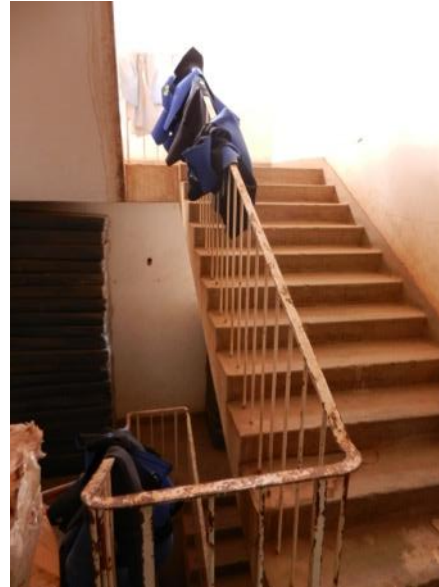
The suit is affordable, safe, and accessible ideal for low-resource settings

Zambia



Population: 17 million
Birth Rate: 4.98 births per woman
Maternal mortality ratio
2000: 541 per 100,000
2015: 224 per 100,000 (58% ↓)

Central Teaching Hospital



- Highly trained staff
- Experienced using NASG through trial
- Busy and overcrowded wards
- Difficulty maintaining stock of clean NASGs

Urban Health Clinic



- Experienced staff with basic supplies
- Volatile and sometimes overwhelming demand
- NASG being actively used

Rural Health Clinic



- Minimal resources and skills shortage
- Challenges overcoming cultural beliefs
- Relatively low frequency of PPH cases



Funders



Many potential funders

All had several, often uncoordinated initiatives and competing priorities

All were switching focus to sustainable capacity building within the MOH by funding programs through MOH

Manufacturers



\$61.50



US/Taiwan

\$650.00



India

\$65.00



USA reseller

\$71.00

Fright on Board price for a single NASG, based on order quantity of 1,000

Distribution



Medical Stores Limited provides distribution for supplies to all government and faith-based health care facilities in Zambia

They would require instruction from the MOH to add the NASG to their stock item list

Regulatory Approval

- The NASG would need to be incorporated in to the national EmOC (emergency obstetric care) guidelines
- The MOH and MCDMCH (Ministry of Community Development, Maternal and Child Health) would need to include the NASG in their strategic and annual plans for funders to allocate budget
- EU funders may need CE mark in order to fund NASG



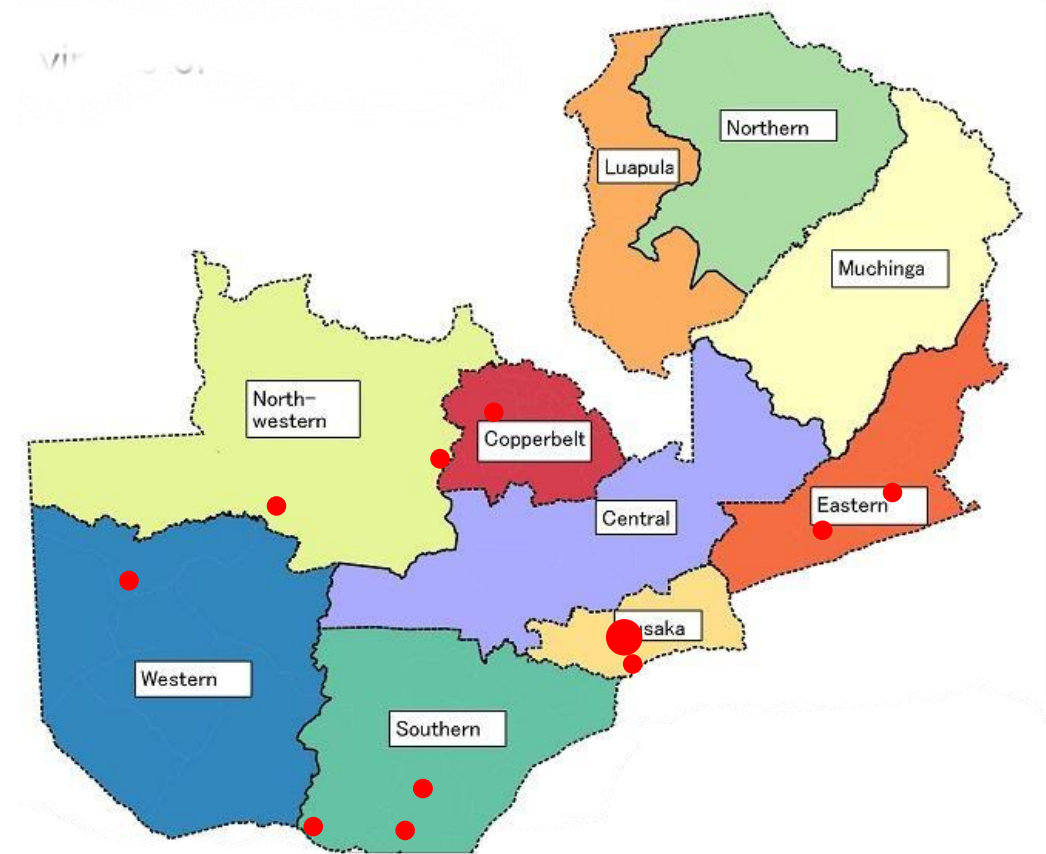
Training

- Pre-service training
 - UTH and Medical School curricula
 - General Nursing Council: nursing and midwifery curricula
 - DfID and CHAI programs: incorporate in to Community Health Assistant and Skilled Birth Attendant training
- In-service training
 - Training of Trainers
 - General Nursing Council skills update courses
 - Incorporate in to EmOC training modules
 - Incorporate in to Jhpiego Saving Mothers Giving Life training
 - Introduce device to Safe Motherhood Action Groups



Roll out

- Recommended a top down approach, starting at provincial hospitals and urban health clinics, then rural clinics with higher case volumes
- Implement a NASG cleaning and exchange program
- Communications strategy that included leveraging recent results of clinical trial in Zambia and first lady's involvement
- Monitoring and evaluation plan



Outcomes

- Raised awareness of the device and its potential impact by getting out there and meeting people
- Happy client who could use our materials to continue to advocate for national Zambia roll-out and other international projects
- Further adoption regionally but no national roll out in Zambia yet



Reflection

- Gained a lot of momentum through our meetings, disappointing we couldn't continue to be there to push things forward
- Challenge of grant and NGO funding as past NASG projects were time-limited and not self-sustaining
- The NASG is just one part of a continuum of care
- Even with strong evidence and high-profile recommendations, there is no guarantee of adoption – you still have to make it happen
- Zambia is a beautiful country, easy to get around with incredibly welcoming and friendly people