Reducing high maternal mortality in Africa

The MSF experience from rural Burundi

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Burundi

Background: Burundi

- High maternal mortality ratio – 970 maternal deaths /100,000 live births
- Little progress made towards achieving the MDG 5 target
- Main reasons: Poor access to and availability of Emergency Obstetric Care (EOC)
- Since 2006, MSF has managed an intervention in rural Burundi to reduce maternal mortality

Research question

Can we rapidly and substantially reduce maternal mortality in rural sub-Saharan Africa?

Study objectives

i) Report on the MSF intervention

ii) Model its impact on reducing maternal mortality

MSF intervention (1)

i) EOC referral facility (CURGO)

ii) Emergency patient transfer service from peripheral facilities → CURGO

MSF intervention (2): CURGO

Package of activities

- Comprehensive emergency obstetric care (CEmOC)
- Laboratory tests
- Vaccination
- Family planning

MSF intervention (3): Referral & transfer

Communication & ambulance network (24 hours, all days)

- Referral criteria
- HF Radio
- Three ambulances

Study setting (4): Kabezi

- Population ~ 180,000
- ~8500 expected deliveries/yr
- One district hospital
- 9 health centre maternities: 1-70km from CURGO

Methods (1): Assessing impact: study description

Study Design:	Retrospective analysis of CURGO and health centre data
Study Period:	Jan – Dec 2011
Study Setting:	Rural district – Kabezi
Study population:	Women transferred to CURGO with obstetric complications
Ethics Approval:	Burundi Ethics Committee & MSF Ethics Review Board

Methods (2)
Assessing impact: definitions

Definition of Maternal Mortality:

Death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy or its management

Methods (3)
Assessing impact: definitions

- **Severe acute maternal morbidity (SAMM):**
  - Prolonged/obstructed labour
  - Pre-eclampsia/eclampsia
  - Ante- or post-partum haemorrhage
  - Uterine rupture
  - Dead baby in utero > 48 hours
  - Complicated abortion
  - Sepsis
  - Severe malaria
  - Ectopic pregnancy
  - Severe anaemia
  - Emergency hysterectomy
  - Abnormal position of baby/elevated uterus, requiring C-section

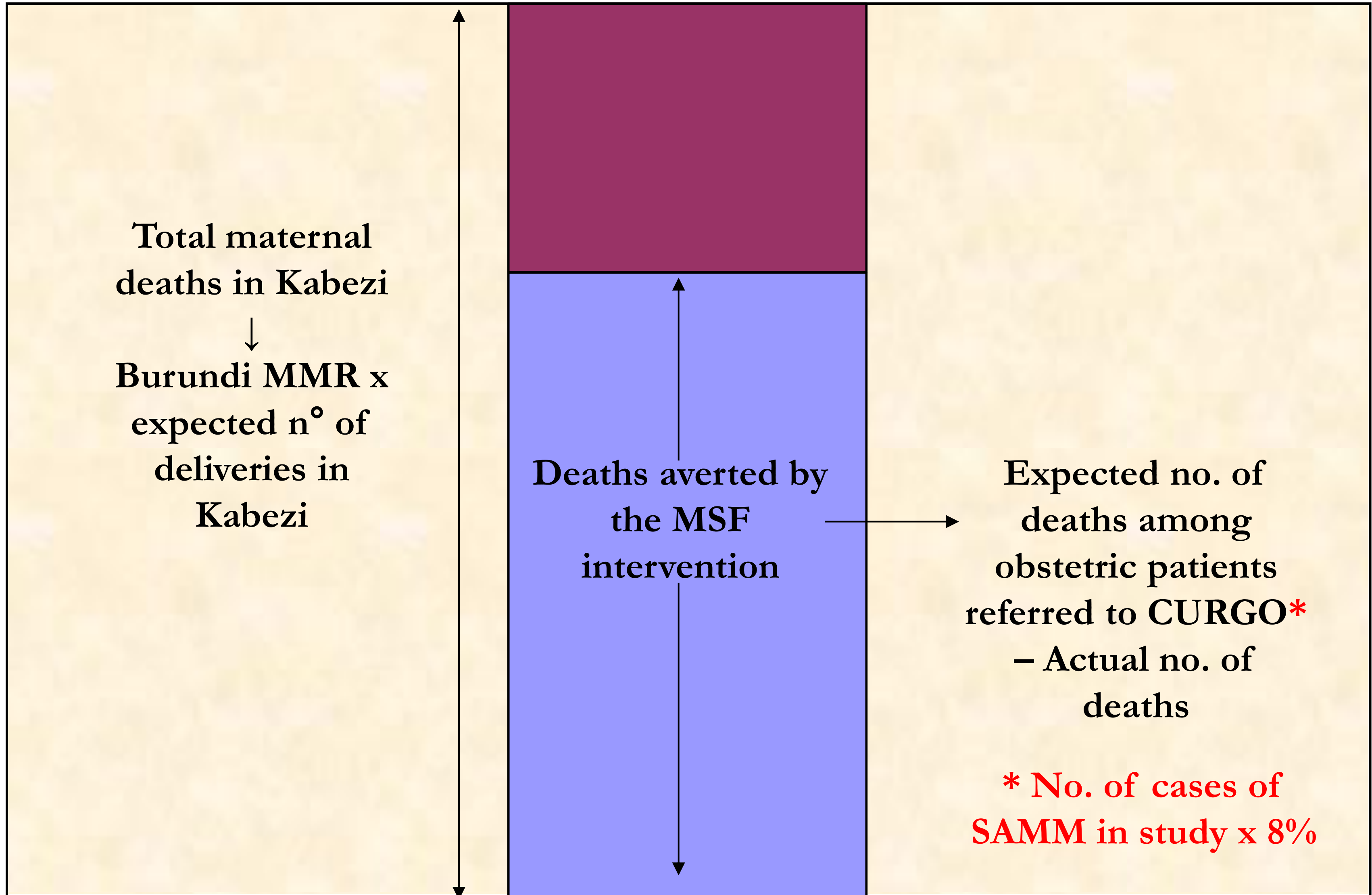
→ **Responsible for the majority of maternal deaths : 8% risk of death**

Methods (4)
Assessing impact: definitions

Death to SAMM ratio:

- Ratio of maternal deaths to cases of SAMM
- Indicator for quality of maternal care (a high ratio indicating a high standard of care)

Methods (5) Assessing impact



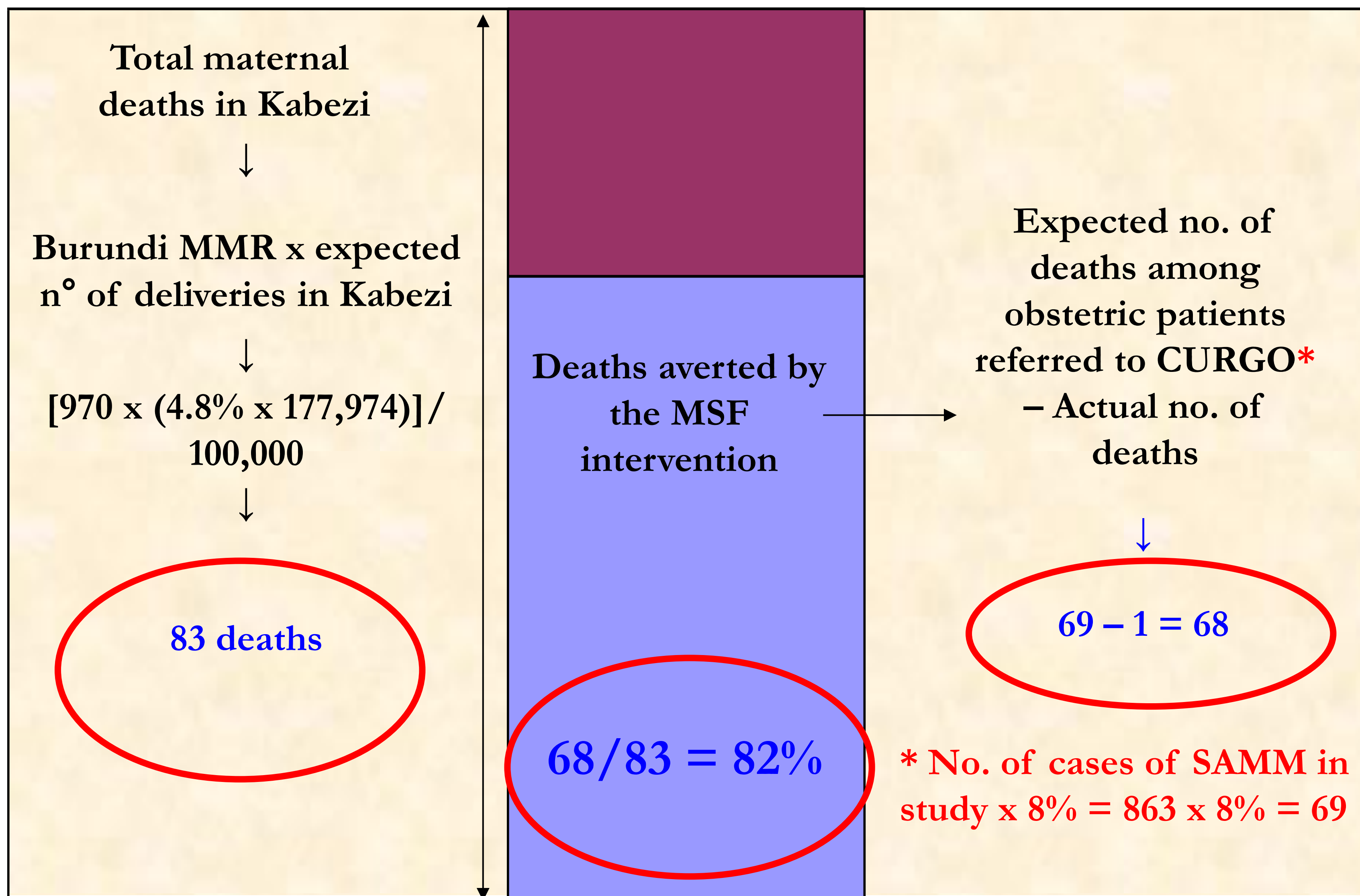
Results (1): Characteristics of the study population

	n (%)
Total transferred to CURGO	1385
Women with SAMM	863 (62)
Main SAMM defining conditions	
Prolonged/obstructed labour	365 (42)
Complicated abortion	226 (26)
Ante- or post-partum haemorrhage	91 (11)
Elevated uterus/abnormal presentation of baby requiring caesarean section	73 (8)
Dead baby in utero > 48 hours	46 (5)

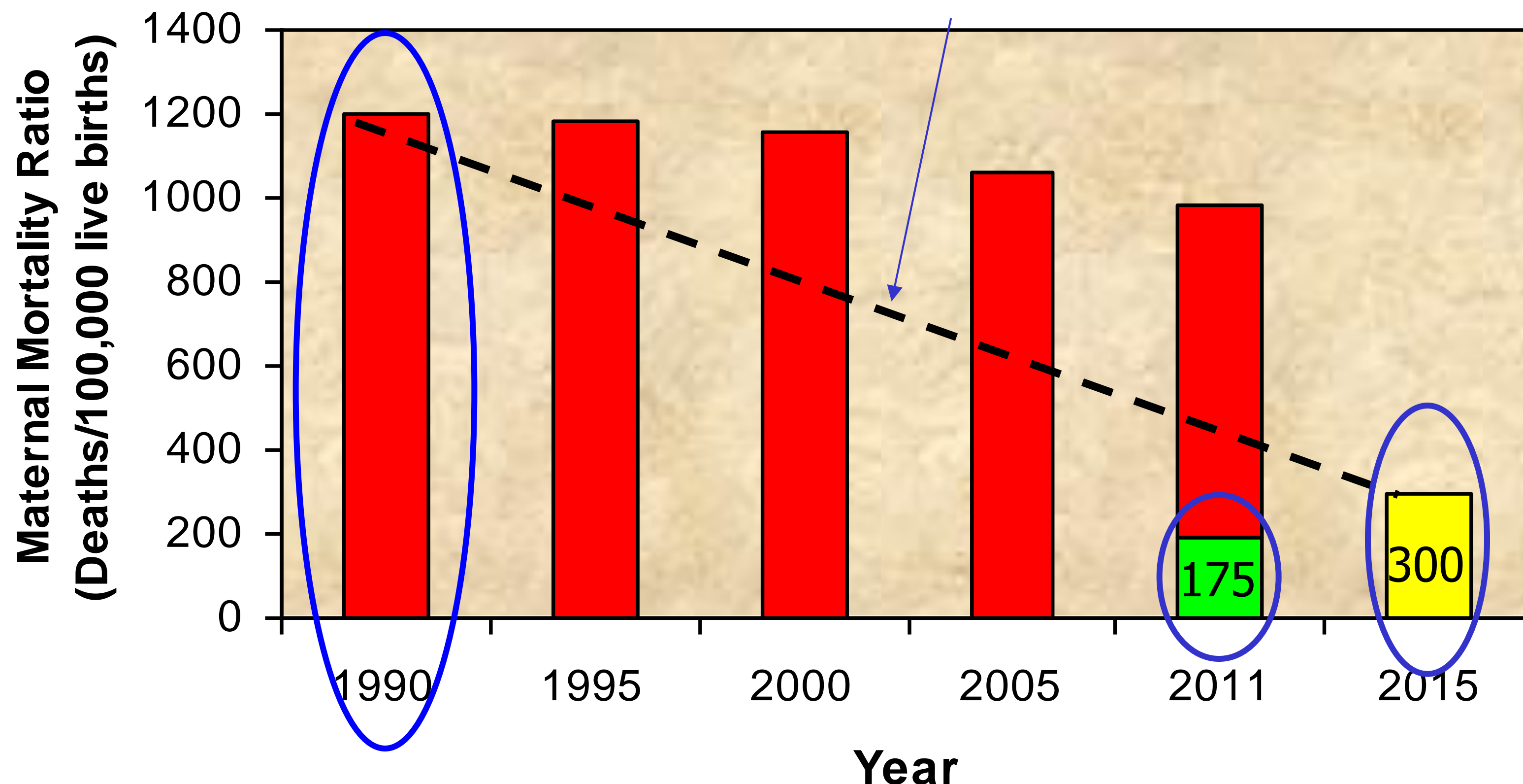
Results (2): Death to severe morbidity ratio

Study population	No. of obstetric cases	No. with severe morbidities	Severe morbidity/ 1000 obstetric cases	Maternal deaths	Death to severe morbidity ratio
CURGO-MSF Kabezi	1385	863	623	1	1:863
9 hospitals in Benin, Cote d'Ivoire, Morocco	33,478	2864	86	197	1:15

Results (3): MSF impact in Kabezi



Results (4): Impact in relation to MDG 5



Reduction in maternal mortality ratio = 82% deaths: 175/100,000 live births

Results (5): Global costs of the MSF intervention

- Operational costs for the CURGO project ~ €2 million
- Population ~ 630,000
- Extrapolating this to Kabezi district with a population of ~ 180,000

→ € 3.2/ inhabitant / year

Conclusion

In a rural district of Burundi

- Providing an efficient patient emergency transfer service with an EOC referral facility, was associated with an 82% reduction in maternal mortality

- This "strategy" offers a possible way forward for achieving the MDG 5 target in Africa

Acknowledgements

Many thanks to the patients and clinical staff at CURGO and the health centres in Kabezi and to the relevant Health authorities

- First pregnancy and aged > 35 yrs
- Previous deliveries > 5
- Women's height < 1.5 m
- Previous uterine intervention e.g. caesarean section
- Excessively high uterus
- Abnormal presentation of baby/umbilical cord
- Bleeding during pregnancy
- Post-partum hemorrhage
- Prematurity < 37 weeks gestation
- History of difficult delivery
- History of obstetric fistula
- Baby dead in utero & uterine contractions lasting > 48 hours
- General medical pathologies: severe anaemia, malnutrition, asthma, diabetes, cardiovascular or renal pathologies, infections (fever > 38 °C for ≥ 24 hrs)
- Severe malaria
- Pre-eclampsia/ eclampsia
- Prolonged labour (> 12 rs)
- Premature rupture of membranes (with no contractions for ≥ 12 hrs)

Box: Standard package of Comprehensive Emergency Obstetric care in CURGO

- Antibiotics
- Oxytocin and anticonvulsants
- Manual removal of the placenta
- Removal of retained products following abortion
- Assisted vaginal delivery
- Surgery (caesarean section, hysterectomy, laparotomy)
- Safe blood transfusion
- Newborn care including care for sick and low birth weight newborns (Essential medicines, blood transfusion, oxygen, basic and advanced resuscitation)