

# A question of access? Reducing high maternal mortality in Africa

## The MSF experience from rural Burundi

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# Background: Burundi

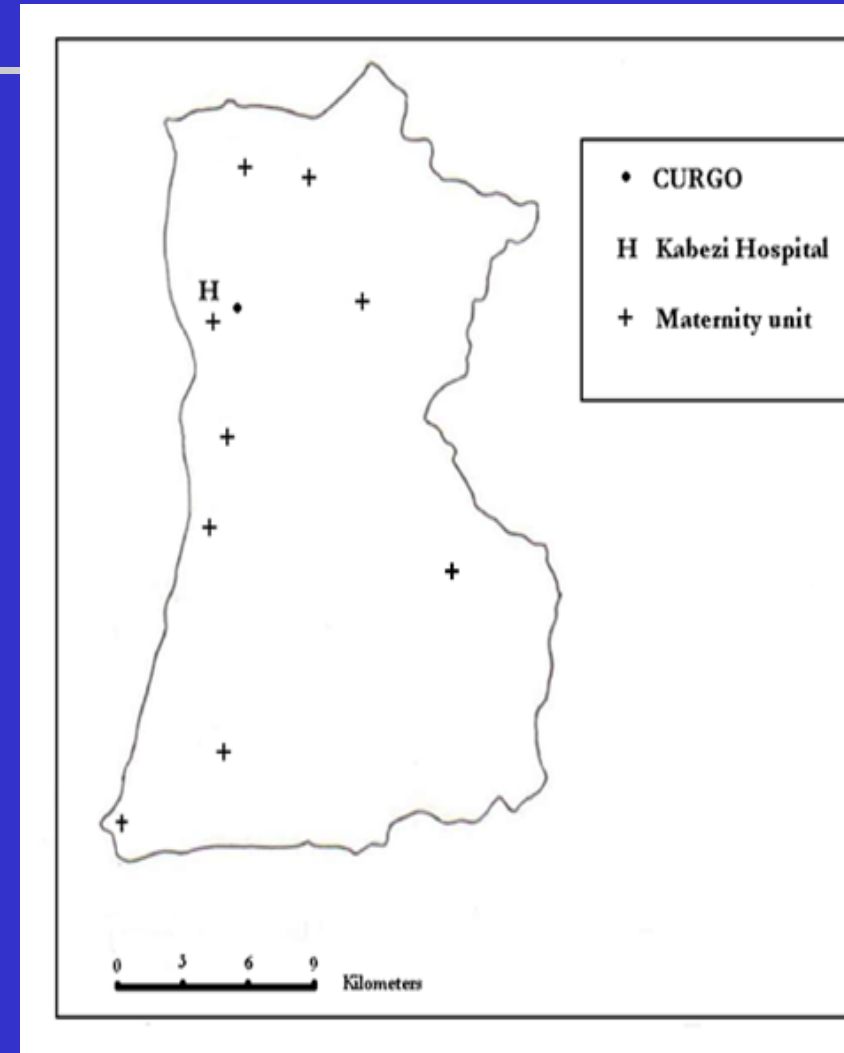
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- High maternal mortality ratio – 800 maternal deaths /100,000 live births (MMEIG, 2012)
- Insufficient progress made towards achieving the MDG 5 target
- Main reasons: Poor access to and availability of Emergency Obstetric Care (EOC)
- Since 2006, MSF has managed an intervention in rural Burundi to reduce maternal mortality



# Study setting Kabezi

- Population ~ 198,000
- ~9900 expected deliveries/yr
- One district hospital
- 9 health centre maternities:  
1-70km from CURGO



# MSF intervention



- i) EOC referral facility (CURGO) & family planning
- i) Emergency patient transfer service from peripheral facilities → CURGO (referral criteria, 3 ambulances, HFR)

# Research question

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Can we rapidly and substantially reduce maternal mortality in rural sub-Saharan Africa by ensuring access to CEmONC?



# Study objectives

- i) Report on the MSF intervention
- ii) Model its impact on reducing maternal mortality



# Methods (1):

## Assessing impact: study description

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- 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

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1. Severe acute maternal morbidity (SAMM): list of criteria: obstructed labour, ectopic, APH, ... (annex)

**Responsible for the majority of maternal deaths : 10.1% risk of death**

2. Death to SAMM ratio:

- Ratio of maternal deaths to cases of SAMM
- Indicator for quality of maternal care  
(if low percentage this is indicating high standard of care)



# Methods (3) Assessing impact

% of all maternal deaths in Kabezi

Total maternal  
deaths in Kabezi

↓  
Burundi MMR x  
expected n° of  
deliveries in Kabezi

Deaths averted by  
the MSF  
intervention

Expected no. of  
deaths among  
obstetric patients  
referred to **CURGO\***  
– (Actual no. of  
deaths + expected  
no. of deaths post  
discharge from  
CURGO)

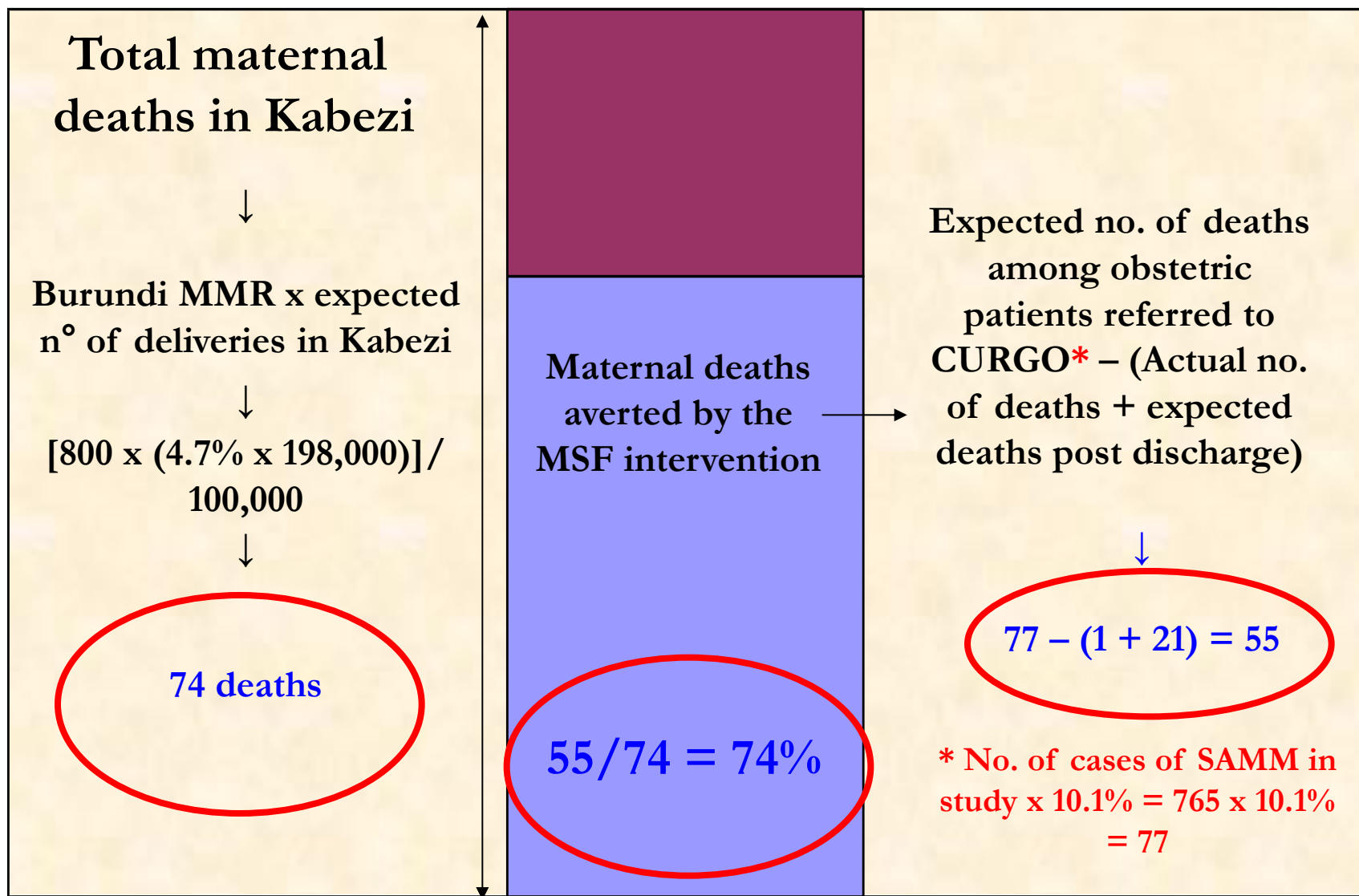
\* No. of cases of SAMM  
in study x 10.1%

# Results (1): Characteristics of the study population

	n (%)
Total transferred to CURGO	1385
Women with SAMM	765 (55)
<b>Main SAMM defining conditions</b>	
Prolonged/obstructed labour needing C-section or instrumental delivery	267 (35)
Complicated abortion	226 (30)
Ante- or post-partum haemorrhage	91 (12)
Dead baby in utero with uterine contractions >48h	46 (6)
Severe Pre-eclampsia/eclampsia	18 (2)
Sepsis	15 (2)

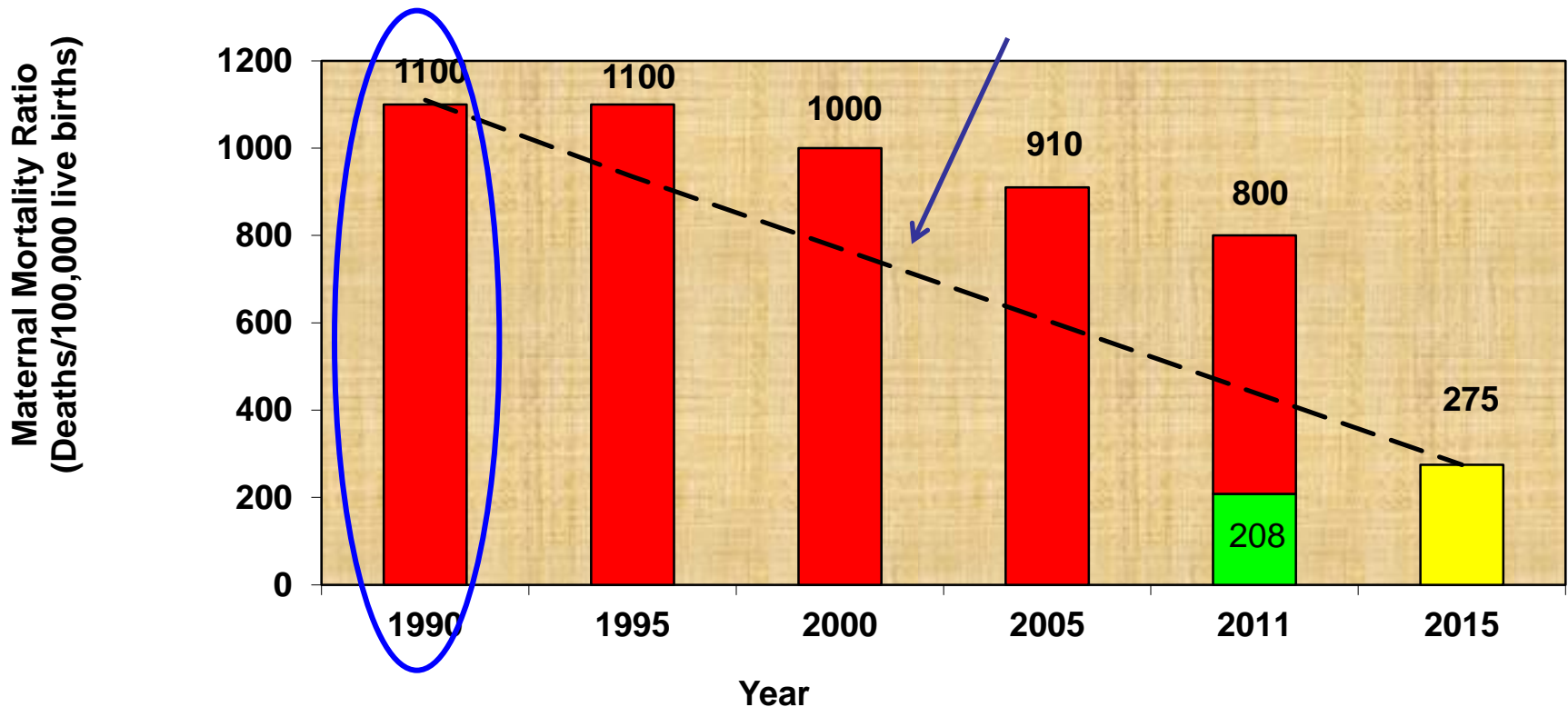
# Results (2): MSF impact in Kabezi

% of all maternal deaths in Kabezi



# Results (3): Impact in relation to MDG 5

Maternal Mortality Ratio 1990-2010 and MDG 5 target in Kabezi district, Burundi



Reduction in maternal mortality ratio = 74% deaths (→ 208/100,000 live births)



# Main factors underpinning the success of the MSF intervention

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1. High coverage of complicated obstetric cases and caesarean sections (80% and 92% respectively)

2. Timeliness of referrals



- Efficient ambulance referral system
- Good surgical capacity at the CEmONC facility (42% of all admitted women underwent a major surgical intervention; 22% underwent minor surgery).

# Feasibility of the MSF intervention

- Operational costs for the CURGO project ~ €2 million  
→ **€ 3.2/ inhabitant / year**
- Cost of ambulance referral system:
  - €0.43 Euros/capita/year
- Non specialist surgical staff:
  - 92% of major procedures performed by general practitioners with surgical skills
  - Anaesthesia provided by nurses in 96% of cases.



# Conclusion

## In a rural district of Burundi

- Providing an efficient patient emergency transfer service with an EOC referral facility, was associated with an 74% reduction in maternal mortality
- This “strategy” offers a possible way forward for achieving the MDG 5 target in rural Africa



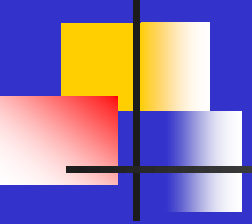


## *Acknowledgements*

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



# Annex: 1. Referral criteria to CURGO

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- 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  $> 38^{\circ}\text{C}$  for  $\geq 24$  hrs)
  - Severe malaria
  - Pre-eclampsia/ eclampsia
  - Prolonged labour ( $> 12$  rs)
  - Premature rupture of membranes (with no contractions for  $\geq 12$  hrs)



# Annex 2: CEmONC

## 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)

# Annex 3: SAMMM criteria

## Assessing impact: definitions

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- **Severe acute maternal morbidity (SAMMM):**
    - 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 : 10.1% risk of death**