Abortion-related near-miss morbidity in Zambia

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Introduction

Background

- Unsafe abortion is a leading cause of maternal morbidity and mortality.
- Obtaining accurate and population-representative data on unsafe abortion (morbidity and mortality) is challenging in high-burden contexts
- Hospital records are the most frequent source of data for unsafe abortion morbidity and mortality
- However utilizing morbidity in hospitals to quantify unsafe abortions has many limitations

Rationale

- Obstetric near-miss aims to address some of these measurement challenges.
- Obstetric near-miss and its criteria as defined by WHO is so severe that it is most likely the result of a termination of pregnancy rather than a miscarriage
- Our hypothesis is that near-misses at health facilities can be assumed to represent all cases within the population.

Aim

- To measure the incidence of abortion-related near-miss at the population level in three provinces in Zambia
- To understand the feasibility of using the WHO near-miss criteria to quantify abortion-related morbidity in Zambia

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Methods

Study setting

- Zambia has one of the most liberal abortion laws in Sub-Saharan Africa.

- Pregnancy termination is legal if: the pregnancy constitutes a risk to the womanôs physical or mental health, or life; involves a risk to the physical or mental health the womanôs existing children; there is substantial risk that the unborn child would suffer from physical or mental abnormalities as to be seriously handicapped or rape occurs (Government of the Republic of Zambia, 2009).

- Implementation is impeded by: a requirement for 3 medical practitioner to sign before elective termination of pregnancy in non-emergency circumstances, low levels of knowledge about the law by women and reluctance by health staff to provide abortions.

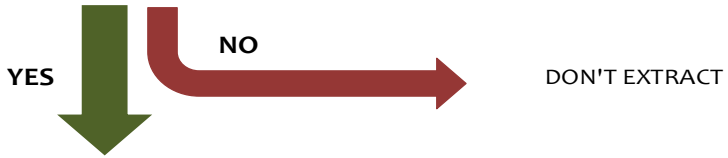
Study design

- Cross sectional study in 3 provinces- Central, Copperbelt and Lusaka from December 2013-April 2014
- All level one (district), level two (provincial), and level three (tertiary and national) hospitals
- Morbidity categories were defined by adapting the prospective morbidity methodology (PMM) and including a near-miss category
- A validation study was conduced in the largest tertiary hospital to verify if all near-miss cases had been included in our study.

Study eligibility criteria

1. DOES THE PATIENT HAVE A PRIMARY DIAGNOSIS OF:

- Incomplete abortion
- RPOCS
- Septic abortion
- Spontaneous abortion
- Post MVA
- Inevitable abortion
- Complete abortion
- Missed abortion



2. HAS THIS WOMAN BEEN ADMITTED FOR 24 HOURS OR MORE?

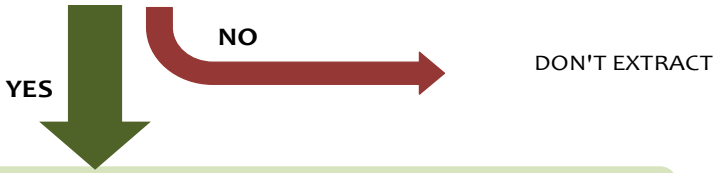
AND/OR

3. DOES THIS WOMAN HAVE COMPLICATIONS? (Even if she wasn't admitted for 24 hours or more) **Example:**

- Infection (e.g. foul smelling discharge, fever, peritonitis, perforated organs)
- Hemorrhage/ Anaemia (e.g. HB <10g/dl, blood transfusion, shock)

AND/OR

4. Did this Woman die?



COMPLETE A DATA EXTRACTION FORM FOR PATIENT

Morbidity classification criteria

	Prospective morbidity methodology	Study classification
LOW	Temperature <37.3 C No signs of clinical infection No system or organ failure No suspicious findings on evacuation	Temperature < 37.3C (but greater than 36C) No clinical signs of infection No suspicious findings on evacuation Haemorrhage not requiring any blood transfusion Haemoglobin 10-10.9g/dl
MODERATE	Temperature 37.3-37.9C Localized peritonitis Offensive products of conception	Temperature >=37.3C* Offensive products of conception Localised peritonitis Hemoglobin 7-9.9g/dl with or without blood transfused
SEVERE(NEAR MISS)	Death Shock Evidence of foreign body or mechanical injury Temperature >37.9C Organ or system failure Pulse >119 beats per minute Generalized peritonitis	Cardiac arrest Hypovolemic shock Septic shock Hysterectomy Massive blood transfusion (>2 units of blood)* Haemoglobin <7g/dl + blood transfusion Haemoglobin Ò4g/dl Oliguria non responsive to fluids and diuretics Generalised peritonitis, tetanus, gangrenous uterus Major trauma (uterine perforation, gut injury or bowel injury)

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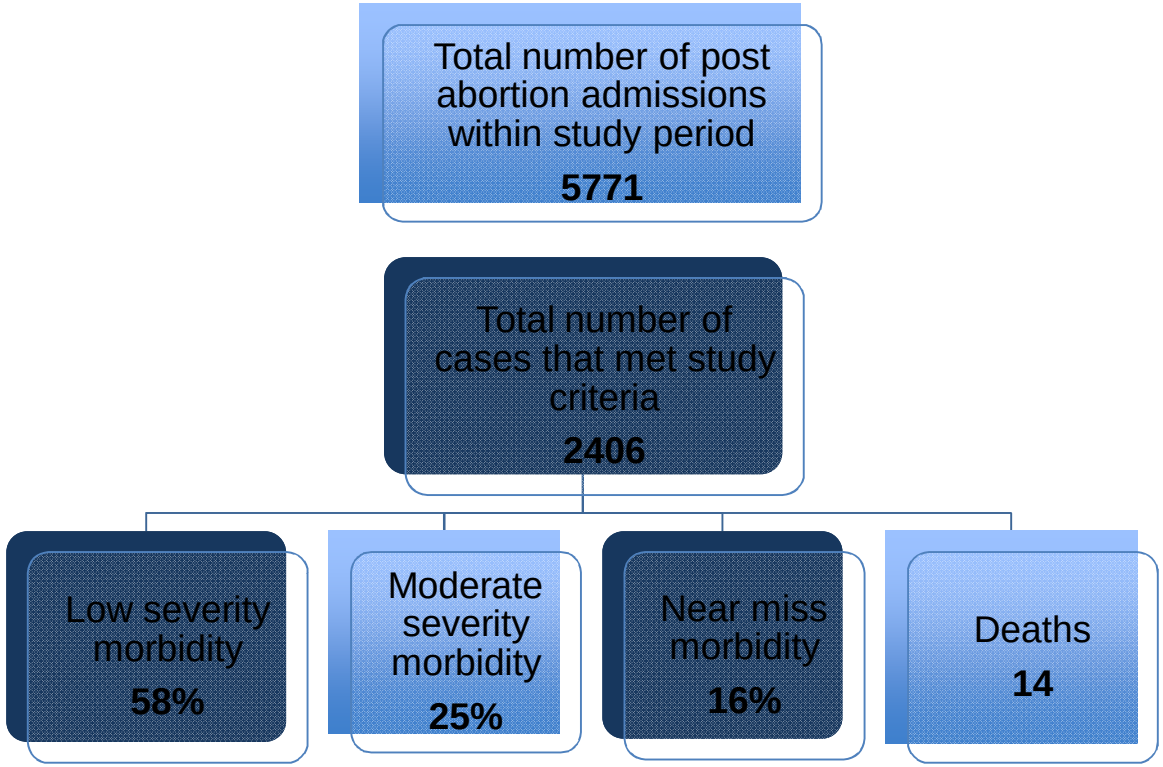
Results

Number of cases and severity of morbidity

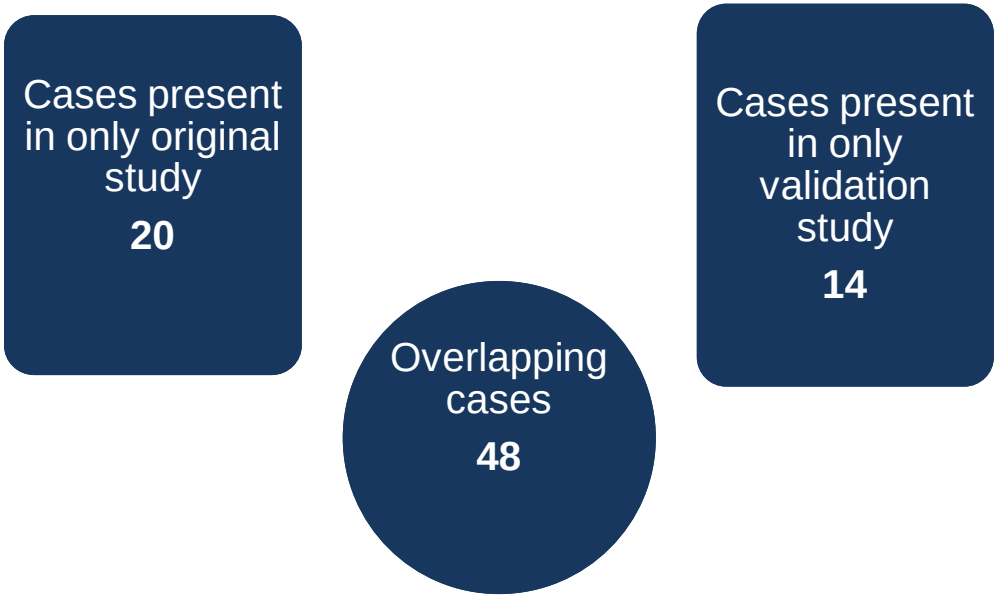
- 35 (81%) of 43 eligible hospitals participated in study



Data completeness- validation study results

- Conducted in May 2014 in largest tertiary hospital in study
- Retrospective case file search and extraction for the month of March 2014
- We did not identify any near-miss cases in the validation study.
- One death identified in the main study was missed in the validation study, and the deaths identified in the validation study had been missed in the main study.
- No differences in demographic characteristics, reproductive history, or hospital management between missed cases identified in the validation study and cases collected prospectively.

Summary of number of cases in validity study compared with original study



Number of individual women in both studies=82

Incidence of abortion-related near-miss

Location	Number of women aged 15-49, 2014[1]	Number of near-miss cases, 2014	Incidence of near-miss morbidity per 100,000 women of reproductive age, 2014	Number of live births, 2014[1]	Incidence of near-miss morbidity per 100,000 live births, 2014
Central province	329,506	182	55	65,995	280
Copperbelt province	506,280	329	65	75,747	430
Lusaka province	575,160	509	88	83,933	610
3 provinces	**1,410,945**	**1022**	**72**	**225,674**	**450**

1 Derived from Zambian 2010 Census projections using a medium level multiplier and the Zambia 2013/14 DHS for live births

Clinical conditions amongst near-miss cases and deaths

Causes (Not mutually exclusive)	Near-miss (n=392) n (%)	Deaths (n=14) n (%)
Severe anaemia	173 (44)	4 (29)
Massive blood transfusion	94 (24)	4 (29)
Cardiac arrest	1 (<1)	6(43)
Hypovolemic shock	104 (26)	2 (14)
Septic shock	39 (10)	7 (50)
Oliguria	1 (<1)	3 (21)
Trauma to gut or uterus	3 (1)	0
Generalized peritonitis	0	1 (7)

Major differences between WHO near-miss criteria and adapted criteria

	WHO criteria	Study criteria
Massive blood transfusion	5	94
Severe and very severe anaemia with no other clinical criteria for inclusion	0	86

Overlap between blood transfusion and hemoglobin levels based on WHO criteria and adapted criteria

	Massive blood transfusion according to WHO near-miss criteria (>5 units of blood)	Massive blood transfusion adapted for Zambia near-miss study (>=2 units of blood)
Hemoglobin level	**n (%)**	**n (%)**
Very severe anemia (<=4g/dl)	3 (60)	21 (22)
Severe anemia (4.1-6.9g/dl)	0 (0)	34 (36)
Moderate anemia (7-9.9g/dl)	2 (40)	8 (8)
Missing	0 (0)	31 (33)
Total	**5 (100)**	**94(100)**

Conclusions and Recommendations

Conclusions

- It was feasible to identify abortion-related near-miss cases from routine hospital records in Zambia using the WHO criteria
- There was a high incidence of near-miss morbidity at population level, with the most urbanized provinces having the highest tolls
- Prospective data collection was more effective in identifying near-miss cases
- Clinical and management near-miss criteria were most relevant in Zambia
- The WHO massive transfusion threshold (Ó5 units of blood) excluded many eligible women because many facilities did not have adequate blood banks
- Using anaemia as an indicator improved our ability to identify near-miss cases in the context of limited blood transfusion.

Recommendations

- More studies collecting data on abortion-related morbidity should include near-miss morbidity as a category in their classification

- Some parameters in the WHO near-miss criteria require adaptation to reflect the capabilities of health institutions

- We recommend lowering the threshold for blood transfusion, incorporating severe anemia, and providing a standardized definition of septic shock to reflect the capabilities of health systems in low-resource contexts

Acknowledgments