

EDITORIAL

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Caesarean sections in low and middle income countries – the allegory of Africa

WHO estimates that 3 to 6% of all births will result in obstructed labour.¹ Globally the annual incidence of obstetric fistula caused by prolonged obstructed labour is 100,000 and 2 million women have untreated fistulae. In the 21st century obstetric fistula are confined to Africa and South Asia.² Obstetric fistulae could be prevented by timely intervention through Caesarean sections (CS).

Betrán et al summarised the global, regional and national CS rates for the 24 year period 1990 to 2014.³ Trends in CS rates were analysed and countries grouped in regions according the United Nations geographical grouping. A total of 150 countries responsible for 96% of global deliveries were included in the survey. The region with the lowest CS rate was Africa (7.3%) and the second lowest region Asia (19.2%). The CS rates in the sub-regions within Africa were: Northern 27.8%, Eastern 3.9%, Western 3.0% and Middle 5.8%. The Southern sub-region was excluded as data of only 11.7% of deliveries were available.

Globally the CS rate increased from 6.7% to 19.1% over the 24 years.³ In Africa the CS rate increased in the Northern sub-region from 4.5% to 27.8%. The only region with a minimal change was Sub-Saharan Africa that changed from 2.3% to 3.5%. Only 2 countries had a decline in CS rates, Guinea from 3.3% to 2.4% and Nigeria from 2.9% to 2.0%. Egypt was the African country with the highest increase from 4.6% to 51.8%. The unchanged CS rates in Sub-Saharan Africa are ascribed to health system deficiencies and lack of resources limiting expanded quality care. The WHO statement on CS in 2015 emphasized that "Every effort should be made to provide CS to women in need, rather than striving to achieve a specific rate".⁴

Clearly there is an unmet need for CS in Sub-Saharan Africa. The African Surgical Outcomes Study (ASOS) conducted by Biccard et al provided a snapshot of surgical outcomes and needs in Africa.⁵ Of the global population of 7.6 billion, 5 billion people are unable to access safe surgery.⁶ Of those residing in low and middle income countries (LMIC) 94% do not

have timely and affordable access to safe surgical and anaesthetic care. ASOS provide robust epidemiological data describing the volume of surgical activity, perioperative outcomes and surgical workforce density in Africa.⁵

A seven day cohort of 11,422 patients were recruited from 247 hospitals in 25 African countries.^{5,7} The cohort include 14 low and 11 middle income countries. The most common surgical procedure was 3,792 (33.3%) CSs with 531 (26.9%) complications and 20 maternal deaths. Postoperative complications occurred in 18.2% of the entire cohort with infection the most common complication. One in 10 patients that developed postoperative complications died. Perioperative mortality (2.1%) was twice the global average as determined by the International Surgical Outcomes Study (ISOS). The operative volume of 212 operations/100,000 catchment population, is 20 times lower than the required crucial surgical volume to meet essential surgical needs. The surgical workforce density as determined by surgeons, anaesthetists and obstetricians are 30 times lower than the global minimum. Emergency surgery was required in 57% of cases in ASOS compared to 25% in high income countries. Resource deficits were common in Africa with no reliable oxygen supply in 25% of hospitals, no reliable electricity supply (33%), no pulse oximeters (70%) and no dedicated postoperative care (47%). Nearly half of the hospitals were university affiliated and patient outcome may have been underestimated if smaller and more rural hospitals were included.

In South Africa, during the triennium 2005-2007, bleeding associated with CS (BLDACD) have become the most important cause of haemorrhage related maternal deaths.⁸ Of all postpartum haemorrhage (PPH) deaths, 36.8% are BLDACD. In 85% of cases the deaths were clearly avoidable. This disturbing information resulted in the various interventions by the National Committee for the Confidential Enquiries into Maternal Deaths (NCCEMD) to reduce these deaths⁸:

- A module on managing bleeding at CS was included in the Essential Steps in Managing Obstetric Emergencies (ESMOE) training.
- Two NCCEMD monographs on PPH 2010 and promoting safer CS surgery were published by the NCCEMD in 2010 and 2013.

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- A PPH training programme was conducted throughout the country in 2011.
- A CME publication was published in 2012.⁹
- A DVD lecture on PPH was developed by Health Systems Trust and circulated to each district clinical specialist team in 2014 for use during training.
- A scientific publication was published in 2015.⁸
- A special edition of Obstetrics and Gynaecology Forum was dedicated to promote safe CS, including the NCCEMD minimum standards for safe CS.¹⁰

The case fatality rate (CFR) per 100,000 CSs increased from 20.9 in the 2002-2004 triennium to 29.1 in the 2005-2007 triennium.⁸ The CS CFR increased further during the next 2 triennia, during 2008-2010 to 31.8 and during 2011-2013 to 33.6. The national CS rate likewise increase during the mentioned 4 triennia from 16% to 23.2%.

Causes for these deaths were identified as:

- Bleeding due to uterine atony following prolonged labour. CSs are thus often done too late.
- Uterine trauma when CSs are done during the 2nd stage of labour with lateral and downward tears from the uterine incision.
- Placental site bleeding associated with placenta praevia, previous CS and morbidly adherent placentas.
- In addition CSs are done when not indicated for abruptio placentae with intra-uterine deaths.

Avoidable factors often identified are⁸:

- Oxytocin infusion 4 to 6 hours after CS delivery not adhered too.
- Lack of surgical skills especially in rural district hospitals.
- A delay in calling for help.
- No recourse to additional measures i.e. compression sutures and uterine balloon tamponade.
- Insufficient resuscitation.
- Too early discharge from recovery room.
- Poor monitoring in postnatal ward.
- Failure to recognise internal post CS bleed.
- Reluctant to re-operate.
- Supplies and staffing shortages especially blood and fresh frozen plasma as well as under staffed facilities.

The CS allegory pertaining to South Africa do end on a positive note. The efforts of the NCCEMD to reduce BLDACD deaths did reverse the tide! Although the CS rate increased during the 2014-2016 triennium to 25.7%

the CS CFR reduced to 30.7.¹¹ Prof Sue Fawcus from Mowbray Maternity Hospital and University of Cape Town, that retires this year, will be remembered for stating⁸: "CS were introduced in obstetrics to save lives, not to cause additional mortality. They need to be done for appropriate indications and safely for all women, including those who are poor. Women's lives matters!"

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