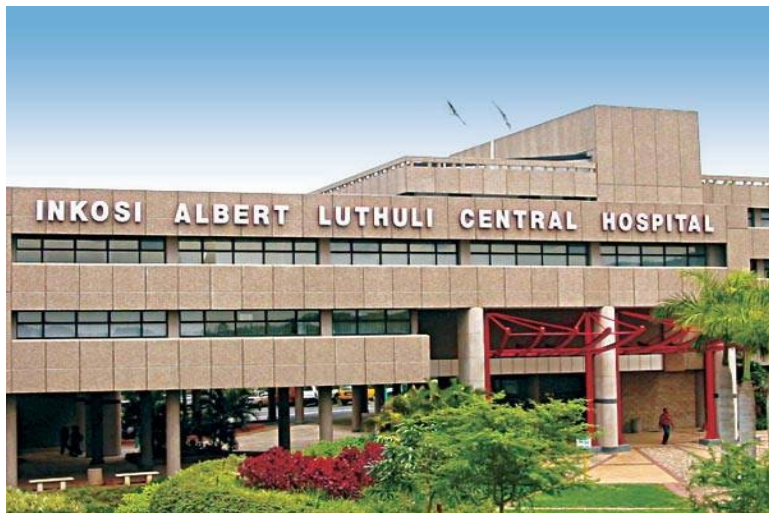


Interventions to reduce PPH at/after Caesarean delivery in South Africa- Has there been progress?

Susan Fawcus

Neil Moran

Justus Hofmeyr



Global concerns about Caesarean Delivery Rates



WHO Statement on Caesarean Section Rates

Every effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate

Lancet 2018: Global Caesarean Delivery (CD) rates vary from less than 1% to over 60%

Improving access to Caesarean Delivery must not compromise on Safety

SOUTH AFRICA: concerns about CD rates and CD safety

Data from National Committee for Confidential Enquiry into Maternal deaths (NCCEMD)

Rates

National: CD rate in Public sector increased from 23% (2011) to 28.1% (2017-2019)
: >75% in Private sector

Safety

NCCEMD: mortality rate in women having CD is 3-4 x for those having Vaginal birth
CD deaths due to Bleeding, Anaesthesia, Sepsis and VTE (contributory?)
CD deaths due to pre-eclampsia, medical and NPRI (associated?)

Near Miss audits show severe morbidity from CD: Bleeding, Sepsis, VTE

Maternal and perinatal mortality and complications associated with caesarean section in low-income and middle-income countries: a systematic review and meta-analysis

Soha Sobhy, David Arroyo-Manzano, Nilaani Murugesu, Gayatri Karthikeyan, Vinoth Kumar, Inderjeet Kaur, Evita Fernandez, Sirisha Rao Gundabattula, Ana Pilar Betran, Khalid Khan, Javier Zamora, Shakila Thangaratnam

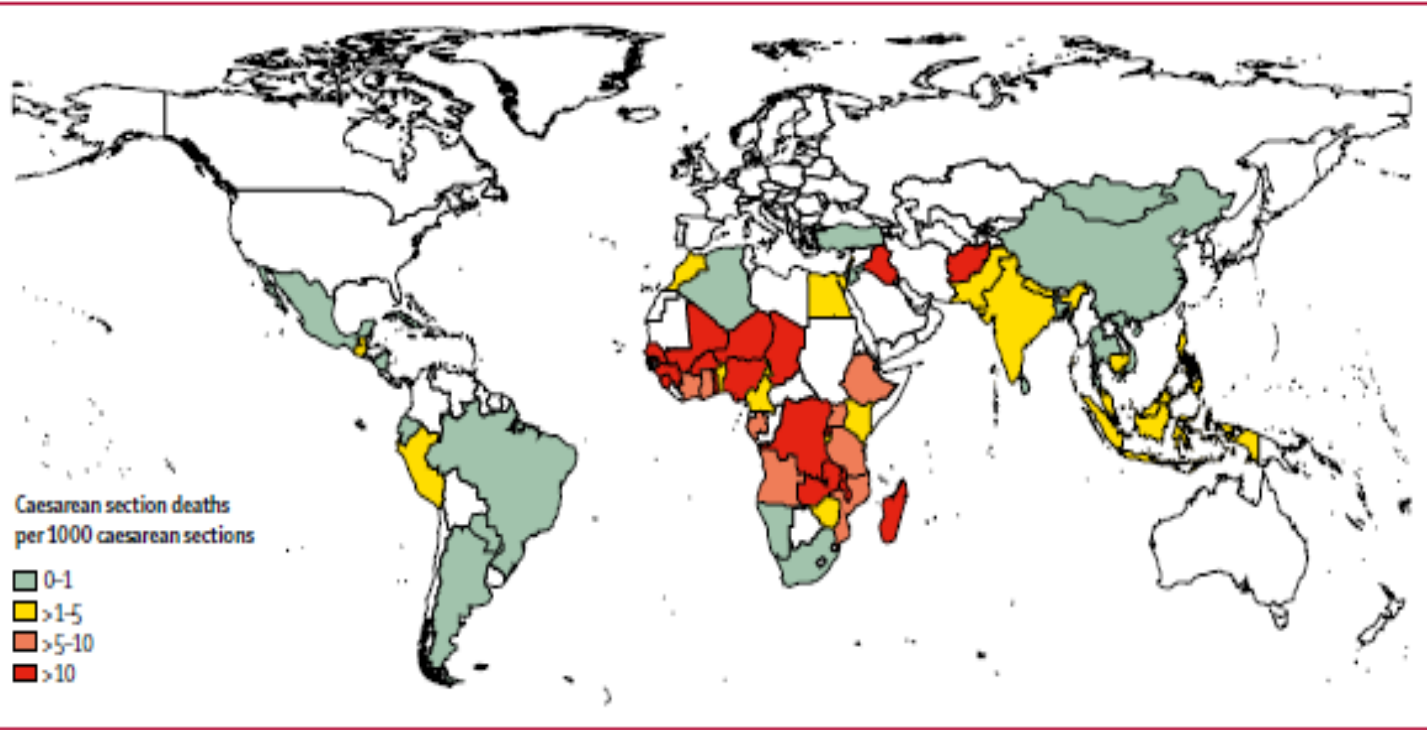


Figure 3: World map of maternal death risk following caesarean section in women from low-income and middle-income countries



Concerns about bleeding at/after Caesarean delivery

Maternal deaths from bleeding associated with caesarean delivery: A national emergency

S Fawcus,¹ MB BCh, FRCOG; R C Pattinson,² BSc, MB BCh, FRCOG, MD, FCOG (SA), MMed (O&G); J Moodley,³ MB ChB, FCOG, FRCOG, MD; NF Moran,^{3,4} MB BCh, MA, FCOG; M G Schoon,⁵ MMed (O&G), PhD; R E Mhlanga,⁶ MB ChB, DMCH, FCOG (SA), MPH;

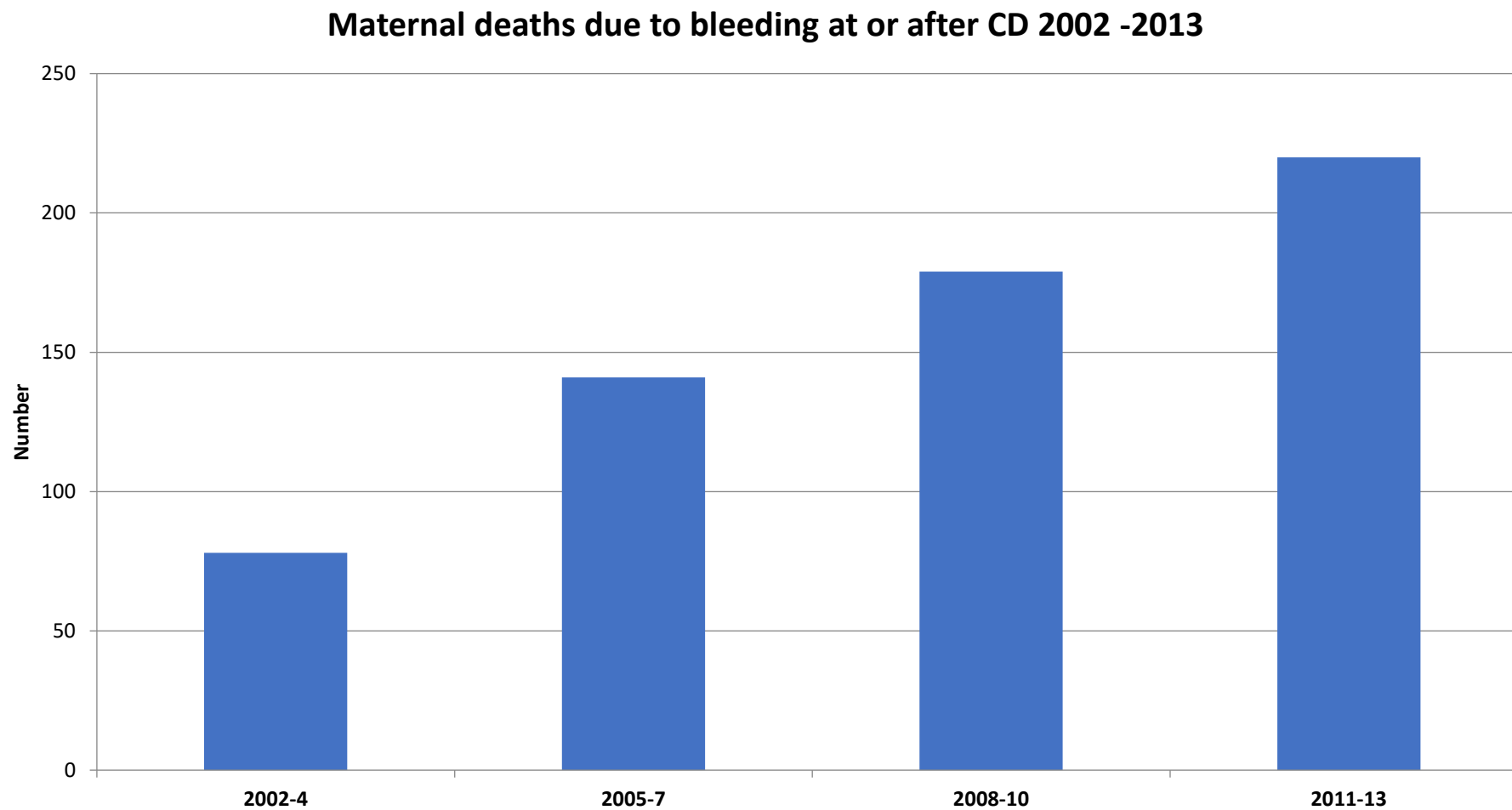
S Afr Med J 2016;106(5):472-476. DOI:10.7196/SAMJ.2016.v106i5.10821

Perioperative patient outcomes in the African Surgical Outcomes Study: a 7-day prospective observational cohort study

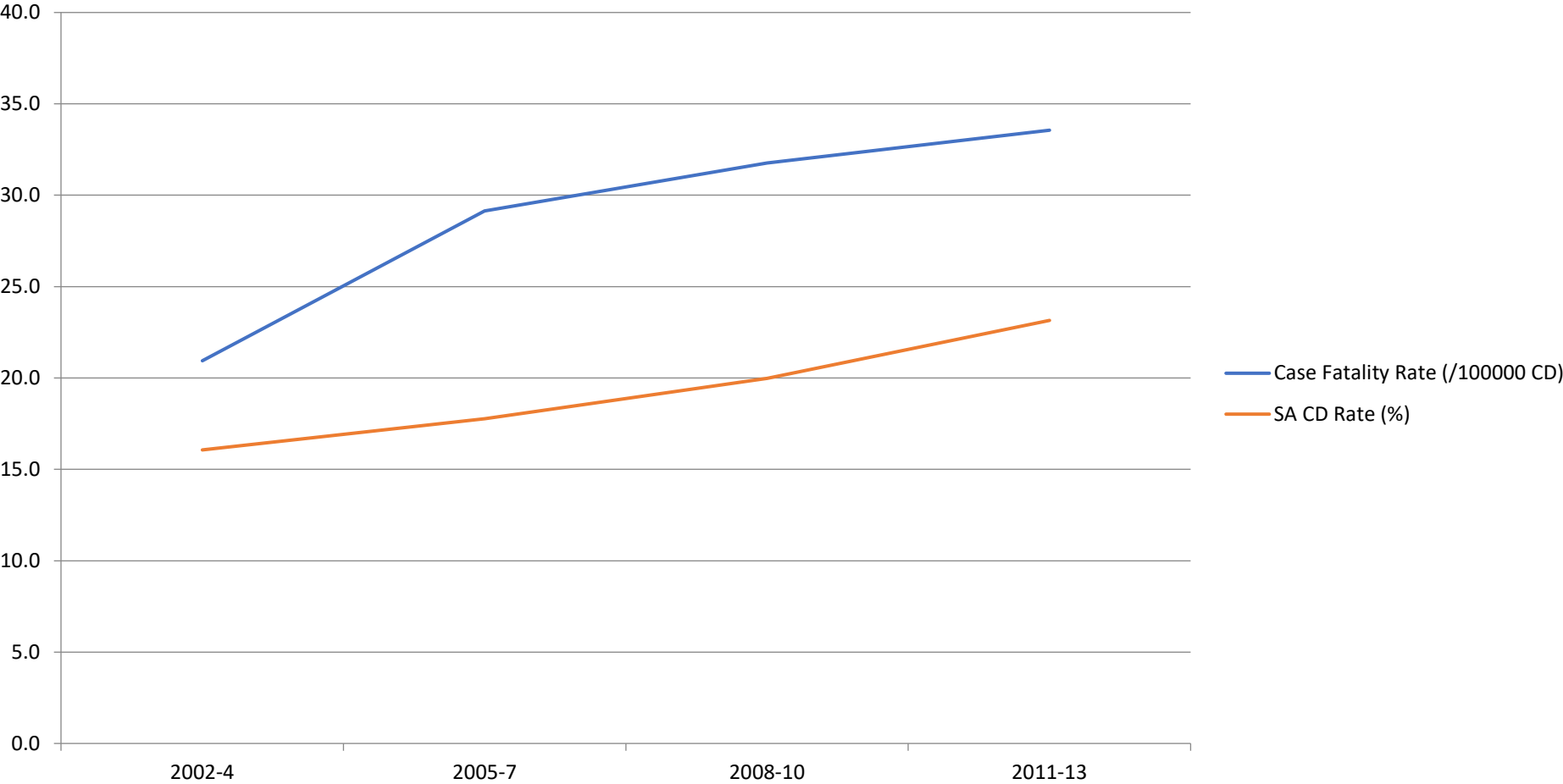
Prof Bruce M Biccard, PhD; Prof Thandinkosi E Madiba, PhD; Hyla-Louise Kluyts, MMed
Dolly M Munlemvo, MD; Farai D Madzimbamuto, FCA [ECSA]; Apollo Basenero, MBChB et al.

Lancet :January 03, 2018 DOI:[https://doi.org/10.1016/S0140-6736\(18\)30001-1](https://doi.org/10.1016/S0140-6736(18)30001-1)

Increasing number of women were dying from CD bleeding in South Africa



Case Fatality rate for bleeding at CD was increasing



Progress since 2014?

NCCEMD / DOH data

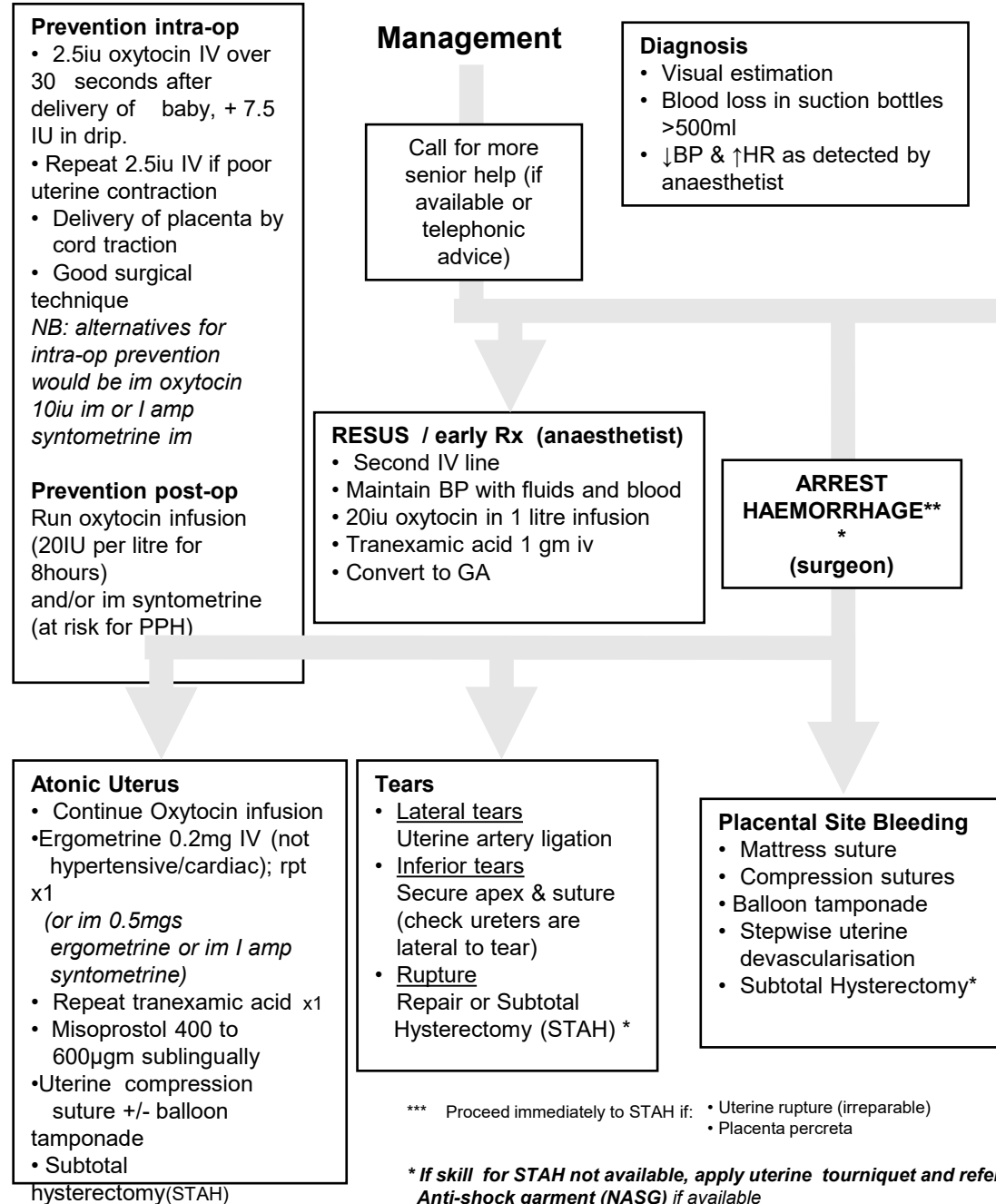
National strategies

- Advocacy work
- Minimum standards for CD safety devised by consensus from national consultation
- All facilities performing CD to be audited for compliance
- Continue ESMOE training combined with in-reach/out-reach for surgical/anaesthetic training. (NB:PPH algorithms for CD developed)
- Implement other safe CD practices: PPH management (uterotonics and surgical /anaesthetic skills); Thromboprophylaxis; Antibiotics; Referral strategies.

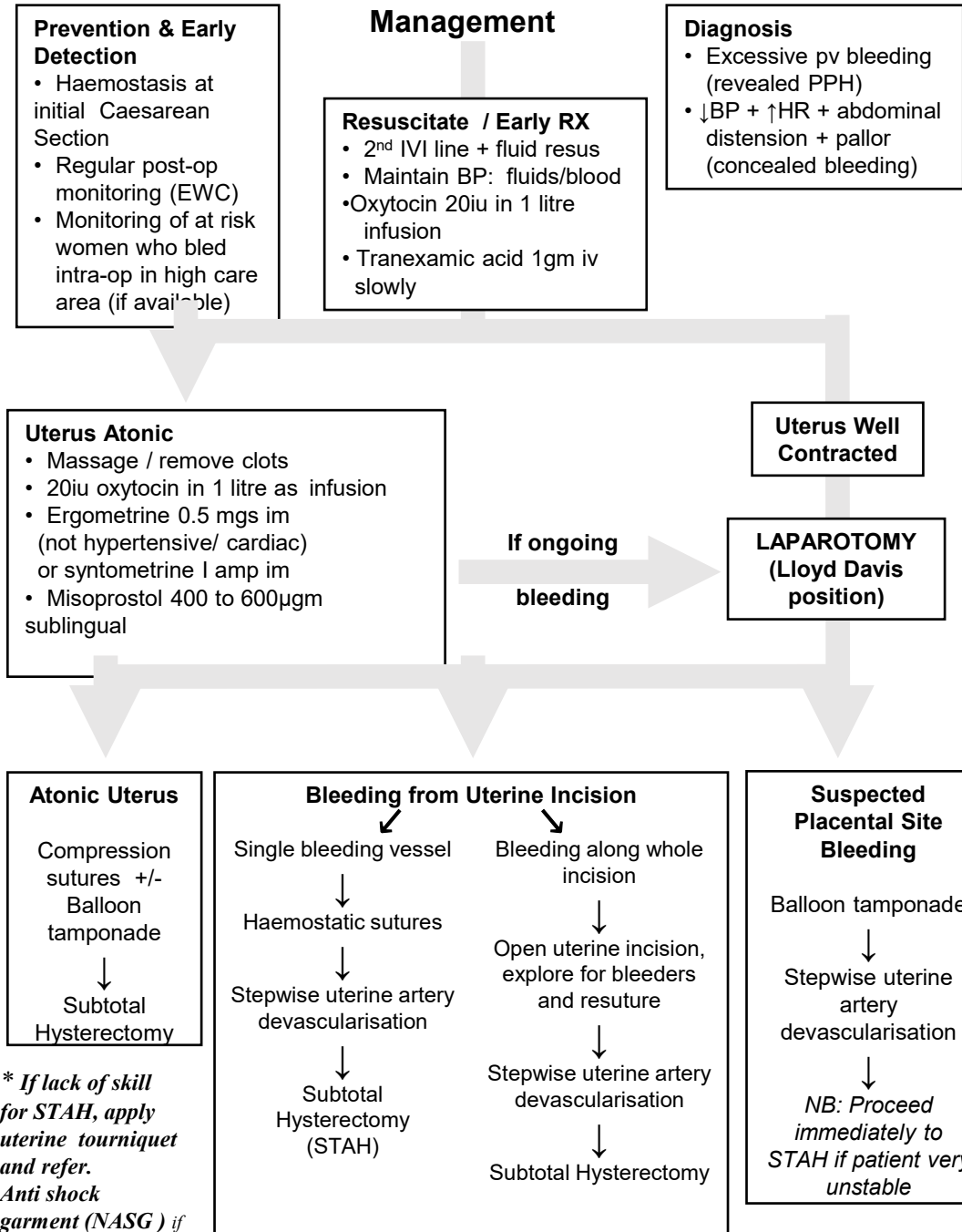
Minimum standards for Caesarean Delivery

Requirement	Standard	Protocol
Surgeon	Doctor, accredited	Minimum of 2 accredited doctors in theatre throughout procedure: <ul style="list-style-type: none"> An accredited doctor on duty and on-site available at all times for obstetric emergencies. A 2nd accredited doctor, available within 30 minutes before intended anaesthetic starts.
Anaesthetist	Doctor, accredited	
Surgeon's Assistant (must not be the same person as the anaesthetist)	Doctor, intern, medical student, Clinical Associate, student Clinical Associate, Nurse or student nurse.	On-site and present in theatre throughout procedure (or available within 30 minutes). Should preferably not be the scrub nurse.
Newborn care	Nurse, doctor or clinical associate with newborn resuscitation skills (must have completed Help Babies Breathe training or equivalent).	On-site to receive baby (must be a separate person from the anaesthetist and the surgeon).
Theatre nursing team	Scrub nurse, anaesthetic assistant, floor nurse, (minimum requirement)	On site or on-standby to be on-site within 30 minutes
Dedicated recovery area	Adequate recovery and observation with a person dedicated for the purpose of post-operative care.	Follow protocol for post-CD care.
Supplies	At least 2 units emergency blood. At least 2 bottles of Freeze dried plasma (FDP). TXA not to be kept on anaesthetic trolley	On-site. (See monographs for Safe CD and PPH, template). Immediate action to replace any units of emergency blood used.
Safe care procedures	Surgical safety checklist. Safe CD protocols (CS Monograph). CD audits (including indications and outcomes and EMS delays).	Use safety checklist for every CD. Display posters on walls. Second opinion sought for every CD. Reporting of all CD-related deaths Regular review of CD indications, timing and procedure (at least weekly).

Bleeding At Caesarean Section

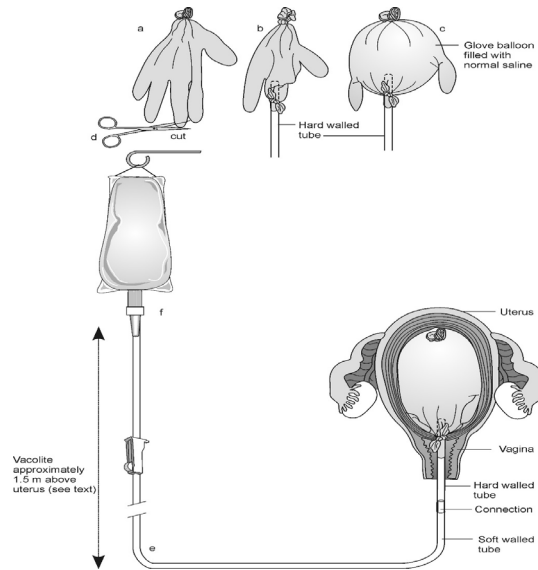


Bleeding After Caesarean Section

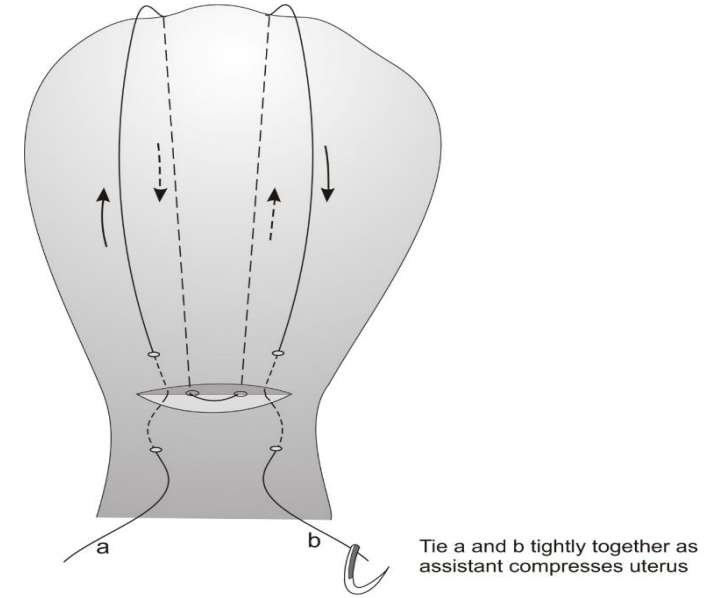


Appropriate surgical interventions at District hospitals

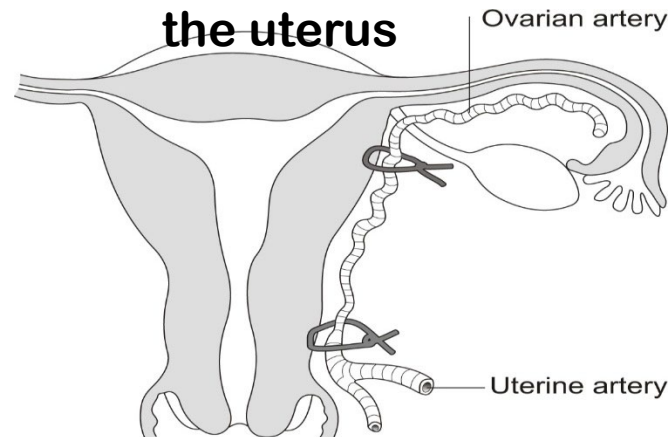
Glove balloon tamponade



Uterine compression suture



Stepwise devascularisation of the uterus



Foley's catheter tourniquet

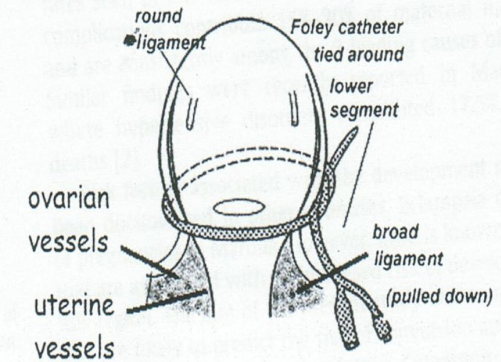
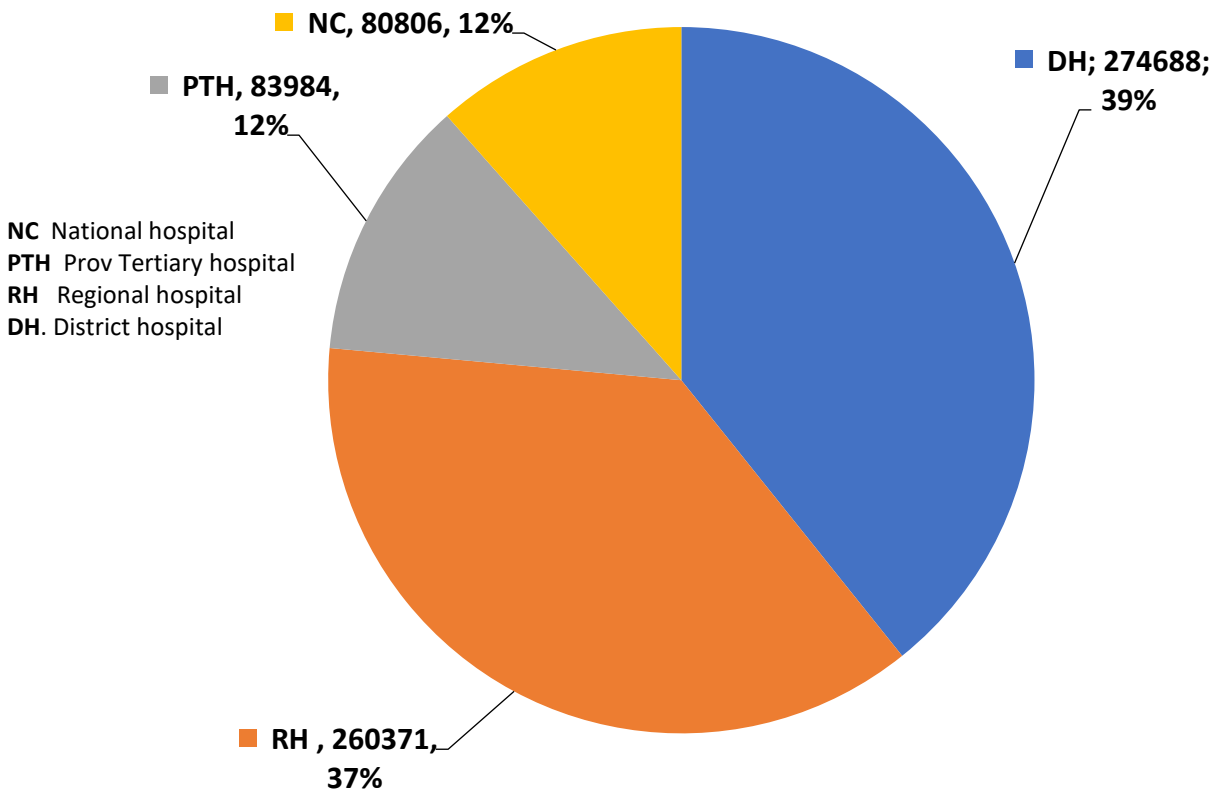


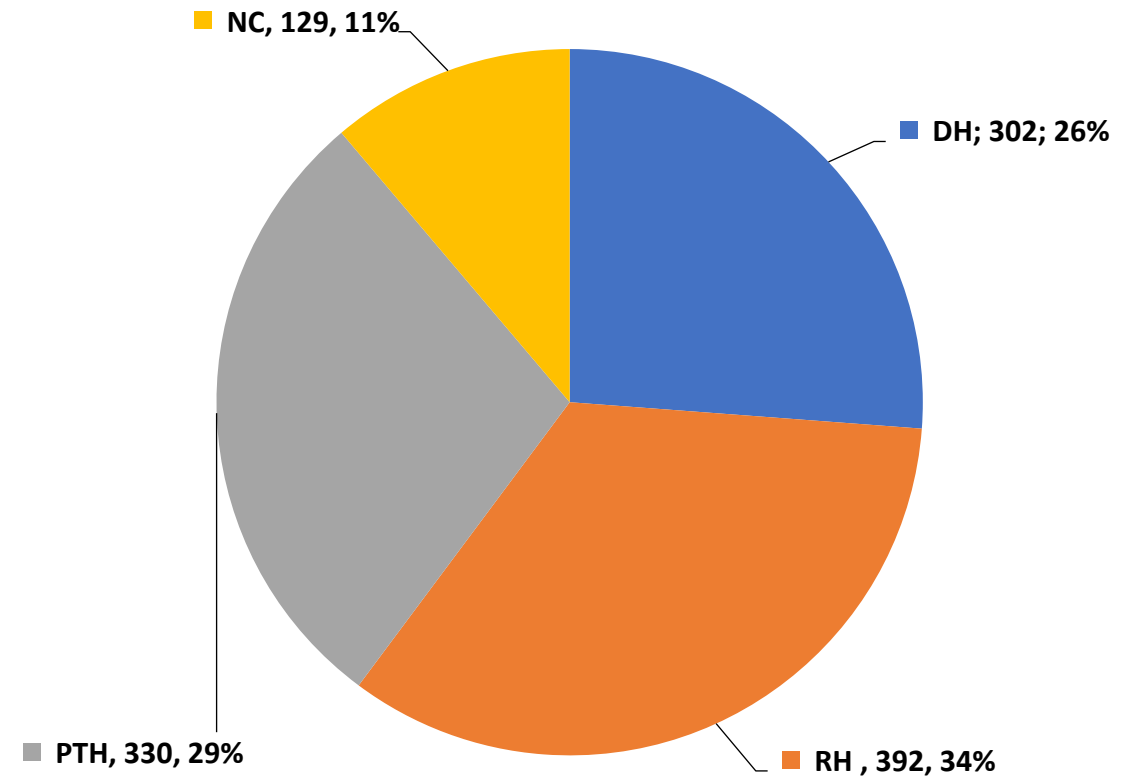
Fig. 1. Diagram of the tourniquet position.

Place of death different from place of CD: Referral issues 2014-2016

Number of CD



Number of Maternal Deaths having CD



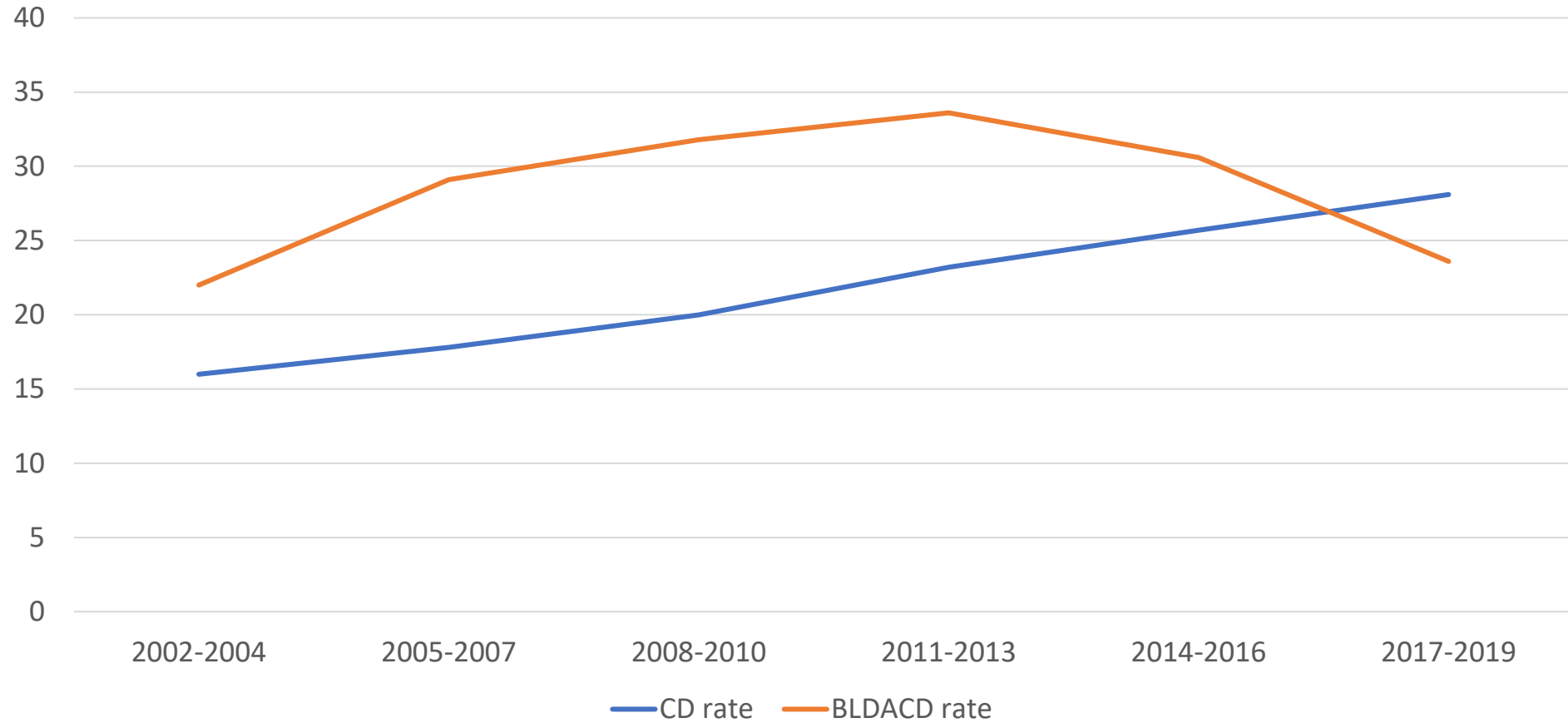
Delay in inter-facility transport occurred in 24% of the 624 women who died from obstetric haemorrhage, 2014-2016.

Non-pneumatic anti shock garment (NASG)



IMPACT ?

Trends in CD* and BLDACD** rates 2002 -2019



CD rate: %; BLDACD rate: per 100,000 CDs

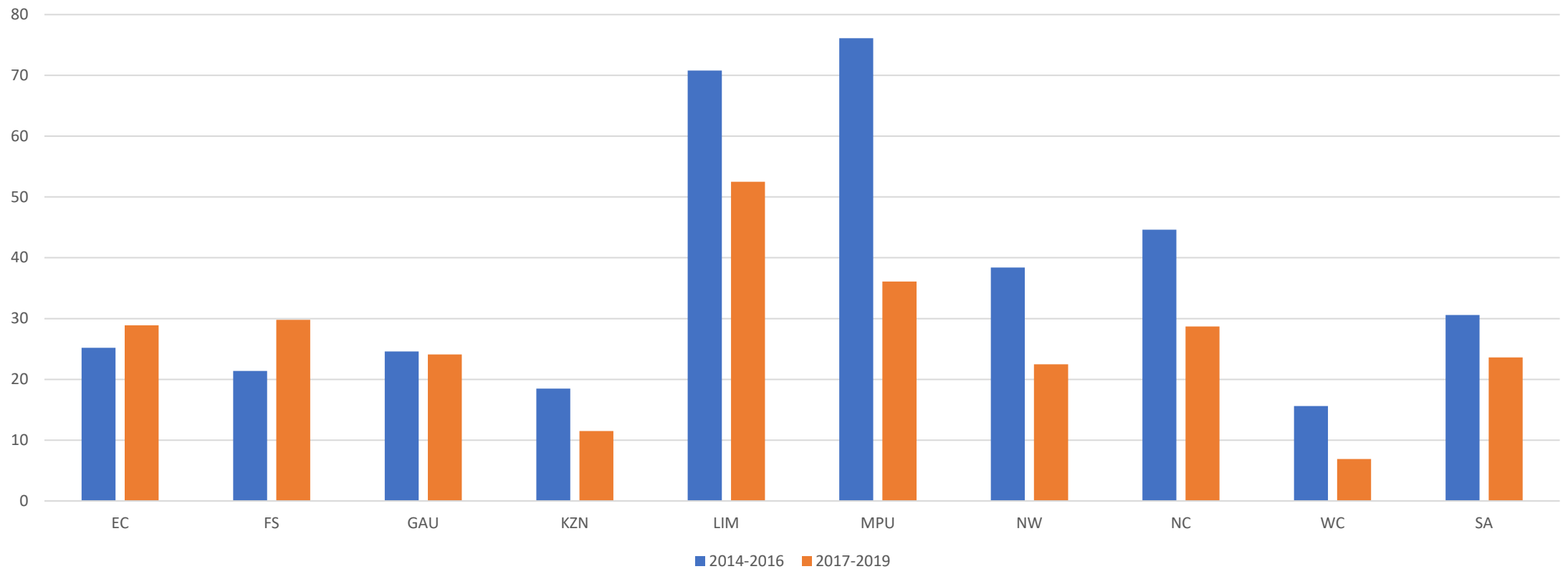
Underlying cause of death in women who had CD 2017 - 2019

Underlying cause of death	Numbers	(%MD CDs)
Non Pregnancy related infections	91	(8.6)
Medical and Surgical disorders	144	(13.6)
Hypertensive disorders	289	(27.3)
Obstetric Haemorrhage	284	(26.8)
Pregnancy related sepsis	80	(7.6)
Anaesthesia	64	(6.0)
Embolism/acute collapse	66	(6.2)
Other/unknown/coincidental	18	(1.7)
Total Maternal deaths with CD	1059	
Total CDs	800499	

} 47%

Trend in CFR from Bleeding at/after CD 2014-2019, per province

Trends in BLDACD CFR (Deaths per 100,000 CDs)



Post script: New challenges in 2020

1. Impact Covid on CD outcomes:

- The CD rate (SA) for 2020 - **28.3%** (28.1% for 2017-2019)
- CDCFR **145.7 per 100,000 CDs** (132.4 for 2017-2019)
- BDLACD **26.3 per 100,000 CDs** (23.6 for 2017-2019)
- Decline in CD safety- collateral effect of Covid pandemic?)

2. Adverse effects of TRANEXAMIC ACID given intrathecally for regional anaesthesia instead of bupivacaine



- D G Bishop, A C Lundgren, N F Moran, I Popov, J Moodley
Intrathecal tranexamic acid during spinal anaesthesia for caesarean delivery: A lethal drug error.
SAMJ 2019,109: 841-843
- WHO: <https://www.who.int/news/item/16-03-2022-risk-of-medication-errors-with-tranexamic-acid-injection-resulting-in-inadvertent-intrathecal-injection>
- Moran NF, Bishop DG, Fawcus S, Mpehle C, Morris E, Shakur-Still H, Devall AJ, Gallos ID, Wimer M, Loadapo OT, Coomarasamy A, Hofmeyr GJ. Tranexamic acid at caesarean delivery: drug error deaths. AJOG, BJOG, IJGO, submitted for simultaneous publication.

Recommendations

- Implement interventions to reduce CD rates (*WHO Guidance on 'Non-clinical interventions to reduce CD rates' 2018: Second opinion for CD, respectful and effective midwife led intrapartum care, assisted vaginal delivery where appropriate*)
- Complete national Safe CD facility audit with a final evaluation
- Continue ESMOE training combined with in-reach/out-reach for surgical/anaesthetic training (*includes safe CD practices: thromboprophylaxis; antibiotics, PPH management, AVOID prophylactic TXA at CD*)
- Develop auditable indicators for CD safety (*CD CFR per district/facility, BLDACD per district/facility; and monitor CD rates*)
- Address inequities between provinces; and public vs private sector by appropriate resource allocation and management. Can proposed National Health Insurance plan be harnessed to remedy this?

Summary

- National CD rate increasing in public sector; now at 28.1%
Estimate about 75% in the private sector.
- There was a trend towards reduction in CD and BLDACD case fatality rates across most provinces from 2014 to 2019.
The decline in CD CFR could be due to better treatment of primary conditions such as eclampsia, heart disease, HIV. The decline in BLDACD CFR could be due to the targeted interventions by NCCEMD
- A major CONCERN is the wide variations between provinces (and mirrored in districts) re provision of Safe CD. Correlates with lack of skilled staff
- Covid 19 pandemic impacted collaterally on CD safety

THANK YOU

Trends in CD Rates and Case Fatality Rates: South Africa

	2005-7	2008-10	2011-13	2014-2016	2017 -2019
Number deaths with CD	946	1230	1243	1184	1059
Number deaths BLDACD	141	180	221	218	189
Total Number CDs	483944	563508	655705	699850	800499
CD CFR	195.5	218.3	189	169.6	132,4
BLDACD Case Fatality Rate (/100000 CD)	29.1	31.8	33.6	30.6	23.6
SA CD Rate (%)	17.8	20.0	23.2	25.7	28.1