



Postpartum Hemorrhage
Community of Practice

Safe by Design: Preventing intrathecal tranexamic acid (TXA) errors as postpartum hemorrhage treatment expands globally

April 23, 2026



Welcome / Bienvenue

Cherrie Evans

Technical Consultant, WHO

Meridian Global Health

PPH CoP Co-Chair

Translated Captions

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AGENDA

1. Opening/Welcome
2. Inadvertent Intrathecal Tranexamic acid at CS: Outline and scope of the problem (David Bishop)
3. Interactive Session (Cherrie Evans)
4. Uganda's Steps to Identify and Prevent this error (Joseph Kiwanuka)
5. Q&A
6. Closing

Welcome!

- Please introduce yourself in the chat box.
- Please put all questions in the Q&A box. We will have a Q&A session after the presentation.

Bienvenue !

- Veuillez vous présenter dans la boîte de discussion chat.
- Veuillez poser toutes vos questions dans la boîte de questions et réponses. Une séance de questions-réponses aura lieu après la présentation.




Inadvertent Intrathecal Tranexamic acid at CS:

Outline and scope of the problem



• David Bishop

- MBChB, FCA, PhD
- Associate Professor
- University of KwaZulu-Natal
- 23rd April 2026



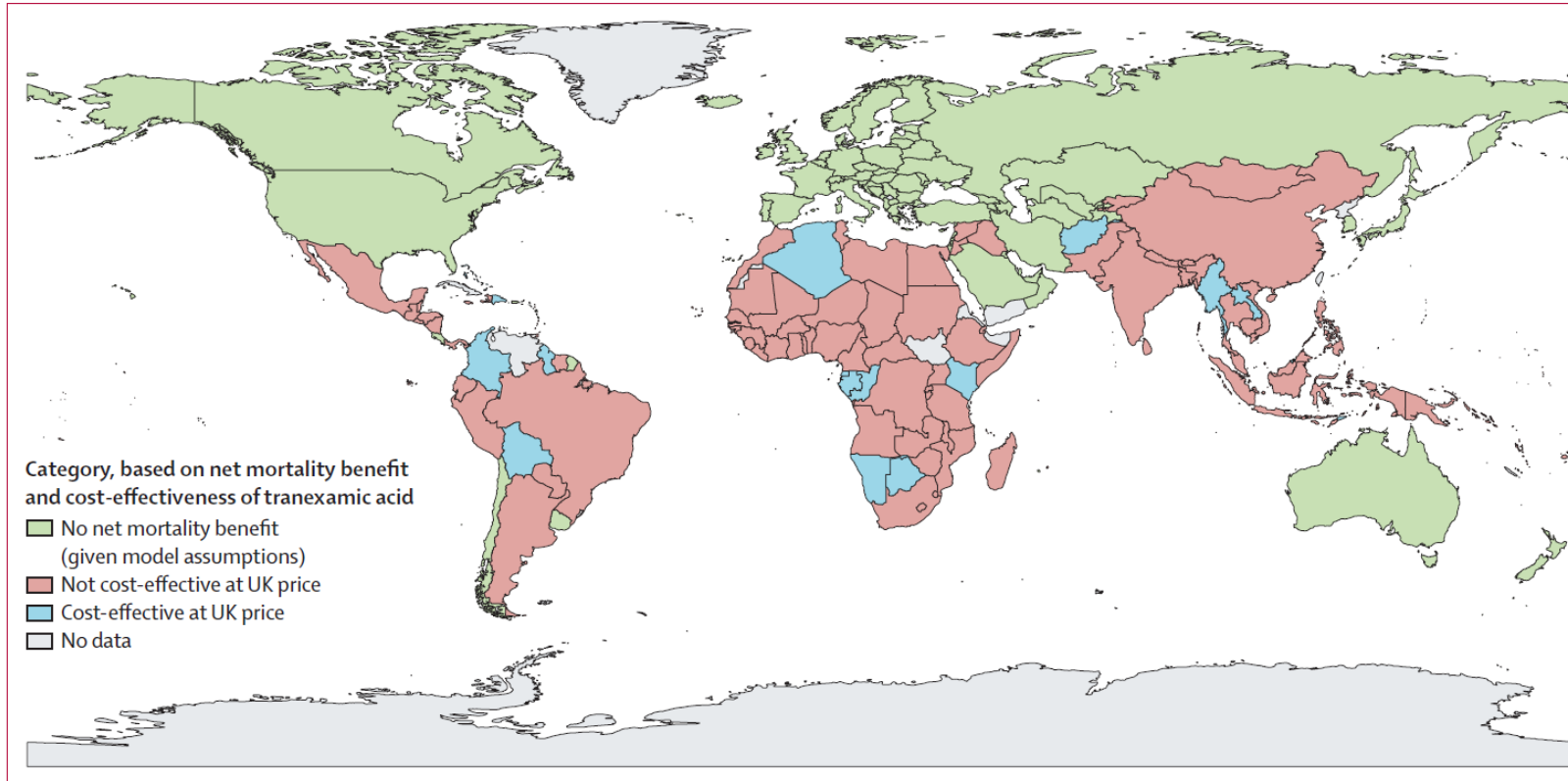
WHO recommendation
on tranexamic acid
for the treatment of
postpartum haemorrhage



2017



**World Health
Organization**



- ***The effect of tranexamic acid during childbirth on maternal mortality: an epidemiological modelling and cost effectiveness study***

- *The Anti-fibrinolytics Trialists Collaborators Obstetric Group*
- **Lancet Glob Health 2026; 14: e560–69; April 2026**

Global increase of tranexamic acid use



Especially in LMIC



Linked to obstetric anaesthesia



Not previously in these theatres



CLINICAL ALERT

Intrathecal tranexamic acid during spinal anaesthesia for caesarean delivery: A lethal drug error

D G Bishop,¹ MB ChB, DA, FCA, PhD; A C Lundgren,² MB, ChB, DA, FFA, PhD, MSc Med (Health Law and Bioethics);
N F Moran,³ BM BCh, MA, FCOG; I Popov,⁴ MD, FCOG (SA); J Moodley,⁵ MB ChB, FRCOG, FCOG, MD



S Afr Med J 2019;109(11):841-844.
<https://doi.org/10.7196/SAMJ.2019.v109i11.14242>





Review Article

Catastrophic drug errors involving tranexamic acid administered during spinal anaesthesia

S. Patel,¹ B. Robertson² and I. McConachie³

1 Consultant, Department of Anaesthesia, Tawam Hospital, Al Ain, UAE

2 Speciality doctor, Department of Anaesthesia, Queen Elizabeth Hospital, Gateshead, UK

3 Consultant, Department of Anaesthesia and Peri-operative Medicine, London Health Sciences Centre, London, ON, Canada

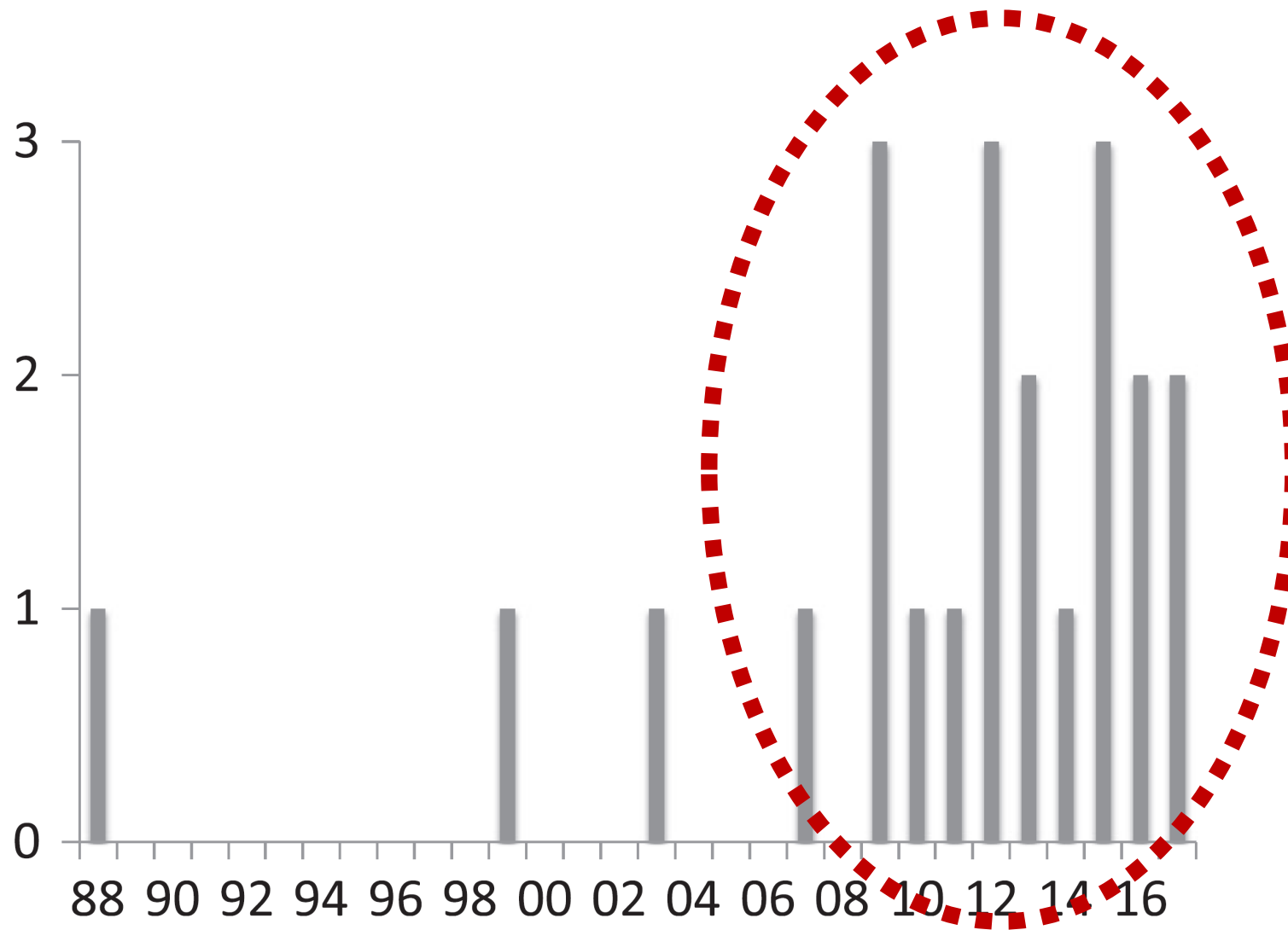
Editorial

Spinal tranexamic acid - a new killer in town

A. Palanisamy¹ and S. M. Kinsella²

1 Assistant Professor, Department of Anesthesiology, Washington University School of Medicine, St. Louis, MO, USA

2 Consultant, Department of Anaesthesia, St Michael's Hospital, Bristol, UK



Palanisamy A, Kinsella SM. Spinal tranexamic acid - a new killer in town. Anaesthesia. 2019 Jul;74(7):831-833. doi: 10.1111/anae.14632. Epub 2019 Apr 15. PMID: 30985919.



- **10-15 Cases**
- **Rising incidence**
- **Under-reported**

Received: 21 April 2022 | Accepted: 22 May 2022

DOI: 10.1111/1471-0528.17292

BJOG An International Journal of
Obstetrics and Gynaecology

RESEARCH ARTICLE

Special Report

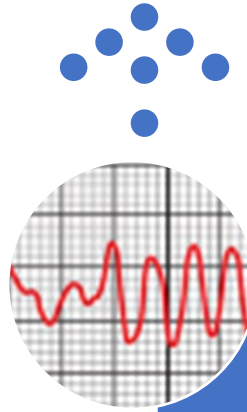
Tranexamic acid at cesarean delivery: drug-error deaths

Neil F. Moran BM, BCh, MA (Cantab), FCOG (SA)^{1,2} | David G. Bishop MB, ChB, DA, FCA (SA), PhD^{1,3} | Susan Fawcus MB, BCh, MA (Oxon.) FRCOG⁴ | Edward Morris MBBS, BSc, MD, FHEA, FRCOG⁵ | Haleema Shakur-Still RN, PhD⁶ | Adam J. Devall BMedSci, PhD⁷ | Ioannis D. Gallos MB, ChB, MD⁸ | Mariana Widmer MSc⁸ | Olufemi T. Oladapo MD⁸ | Arri Coomarasamy MB, ChB, MD⁷ | G. Justus Hofmeyr DSc^{9,10,11}

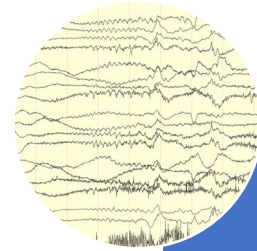
Antagonises GABA and glycine

Potent neurotoxin

Sympathetic stimulation ++



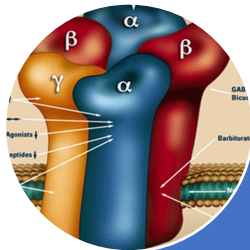
Sympathetic



Seizures



Myoclonus/Pain



Glycine/GABA



Supportive treatment

- General Anaesthesia
- Ventilation/CVS



Seizure management

- Thiopentone
- EEG monitoring



CSF Lavage

- 10mls (?x5)/catheter
- 20mls once off

→
WHO

Box

World Health Organization and US Food and Drug Administration alerts regarding drug administration errors with tranexamic acid

World Health Organization Alert

In 2022 the World Health Organization (WHO) issued an alert⁹: “WHO is alerting health care professionals about the risk of administration errors that can potentially occur with tranexamic acid injection. There have been reports of tranexamic acid being mistaken for obstetric spinal anesthesia used for caesarean deliveries resulting in inadvertent intrathecal administration.

Intrathecal tranexamic acid is a potent neurotoxin and neurological sequelae are manifested, with refractory seizures and 50% mortality. The profound toxicity of intrathecal tranexamic acid was described in 1980. A 2019 review identified 21 reported cases of inadvertent intrathecal injection of tranexamic acid since 1988, of which 20 were life-threatening and 10 fatal. Sixteen were reported between 2009 and 2018.

WHO recommends early use of intravenous tranexamic acid within 3 hours of birth in addition to standard care for women with clinically diagnosed PPH following vaginal births or caesarean section. Tranexamic acid should be administered at a fixed dosage of 1g in 10 ml (100 mg/ml) IV at 1 ml per minute, with a second dosage of 1g IV if bleeding continues after 30 minutes.

Tranexamic acid is frequently stored in close proximity with other medicines, including injectable local anesthetics indicated for spinal analgesia (eg, for caesarean section). The presentation of some of the local anesthetics is similar to the tranexamic acid presentation (transparent ampoule containing transparent solution), which can erroneously be administered instead of the intended intrathecal anesthetic resulting in serious undesirable adverse effects.

Recently, obstetricians from several countries have reported inadvertent intrathecal tranexamic acid administration and related serious neurological injuries.

Tranexamic acid is a lifesaving medicine, however, this potential clinical risk should be considered and addressed by all operating room staff. Reviewing of existing operating room drug handling practice is required to decrease this risk, such as storage of tranexamic acid away from the anesthetic drug trolley, preferably outside the room.”

US Food and Drug Administration Alert

In 2020 the US Food and Drug Administration (FDA) issued an alert¹⁰: “The FDA is taking action to address tranexamic acid injection medication errors. This includes revising the tranexamic acid injection container labels and carton labeling to highlight the recommended intravenous route of administration; and strengthening the warnings in the tranexamic acid prescribing information to include the risk of medication errors due to incorrect route of administration.

Careful handling of tranexamic acid injection is important to prevent medication errors that could result in serious injury or death. Healthcare professionals should consider the following steps:

1. Store tranexamic acid injection vials separately from other drugs, in a way that makes the labels visible to avoid reliance on identifying drugs by the vial cap color.
2. Add an auxiliary warning label to note that the vial contains tranexamic acid.
3. Check the container label to ensure the correct product is selected and administered.
4. Utilize barcode scanning when stocking medication cabinets and preparing or administering the product.”

*PPH, postpartum hemorrhage.
Moran. Tranexamic acid at cesarean delivery: drug-error deaths. Am J Obstet Gynecol 2022.*

→
FDA



Information Sharing

- Health workers and Management



Implementation

- Oversight and audit



Protocols

- Physical separation of drug



Never with Bupivacaine



Not on the same trolley



Sealed if possible



Al-Kadhimi S, Patel AD, Plaat F. Intrathecal tranexamic acid - an accident waiting to happen? Int J Obstet Anesth. 2018 May;34:116-117.



Marshall SD, Chrimes N. Medication handling: towards a practical, human-centred approach. Anaesthesia. 2019 Mar;74(3):280-284



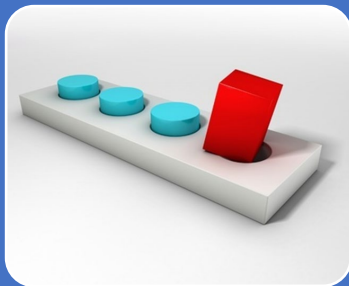
Medication error is common

- 1 in 20 drug administrations
- 1 in 2 operations



Medical error is complex

- 138 recommendations for systems
- Multifactorial

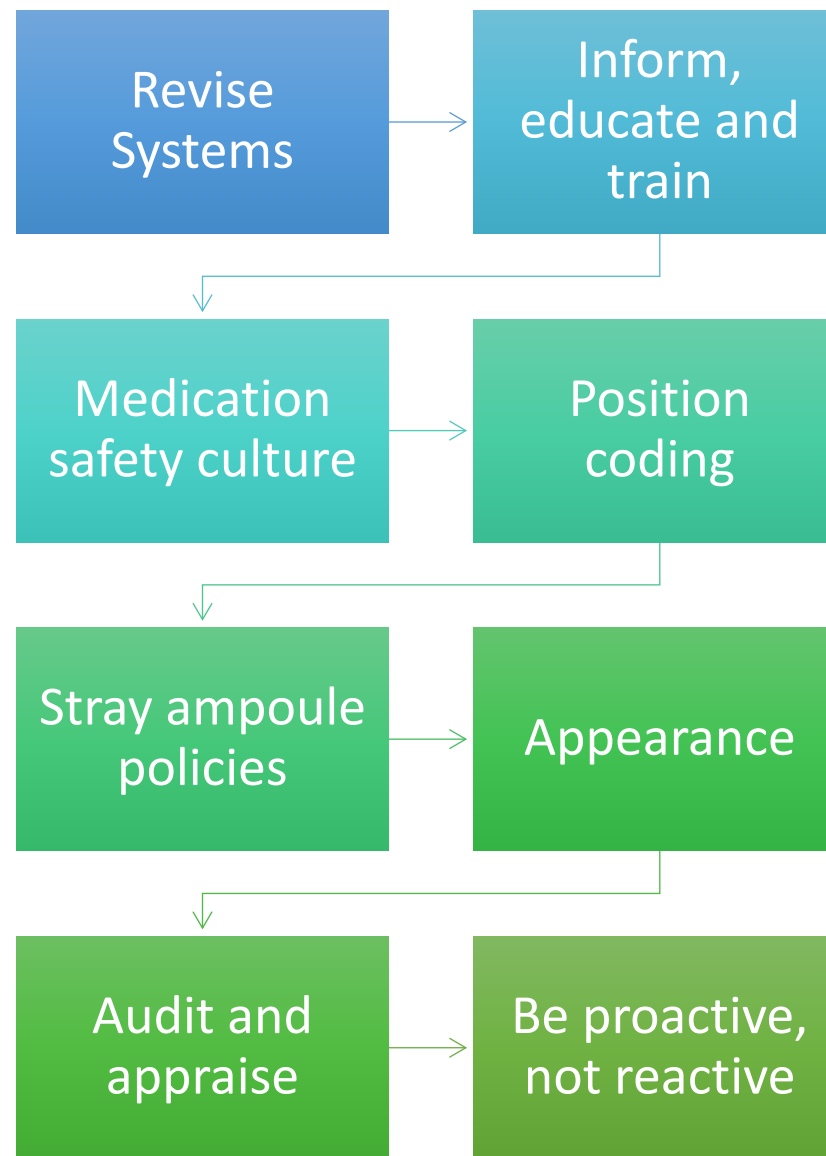
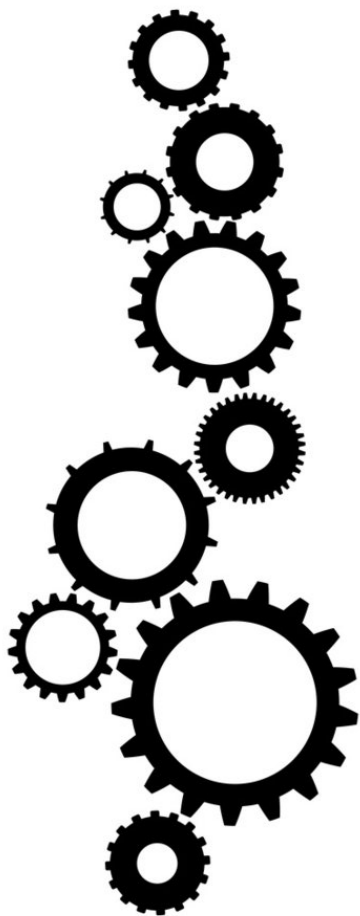


Make it easy to get it right

“As with all safety management interventions, systemic changes that produce conditions that prevent unintended actions are preferable to local and individual practitioners inventing unique workarounds.”



Marshall SD, Chrimes N. Medication handling: towards a practical, human-centred approach. Anaesthesia. 2019 Mar;74(3):280-284. doi: 10.1111/anae.14482. Epub 2018 Oct 30. PMID: 30375644.





Inadvertent Intrathecal Tranexamic acid at CS:

Outline and scope of the problem



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AUDIENCE SURVEY

**We want to hear from
you!**

INTRATHECAL TRANEXAMIC ACID: UGANDA'S EXPERIENCE

Dr. Joseph Kyobe Kiwanuka
Mbarara University of Science and Technology
Mbarara Regional Referral Hospital
Association of Anaesthesiologists of Uganda

Questions & answers

Please type your questions into the Q&A box

Questions et réponses

Veillez poser toutes vos questions dans la boîte de questions et réponses

Moderator/Modérateur: Cherrie Evans

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Postpartum Hemorrhage
Community of Practice

THANK YOU

MERCI





Align**MNH**

COLLECTIVE ACTION FOR
MATERNAL NEWBORN HEALTH