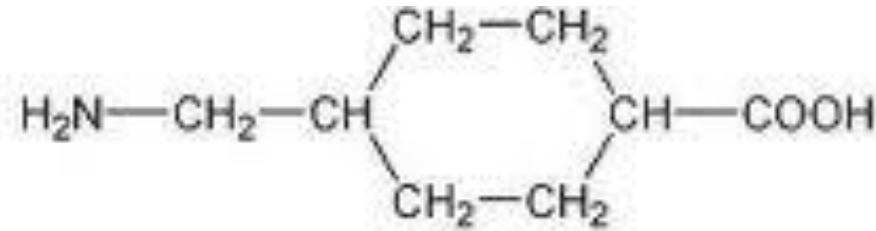


# Tranexamic acid & post partum haemorrhage

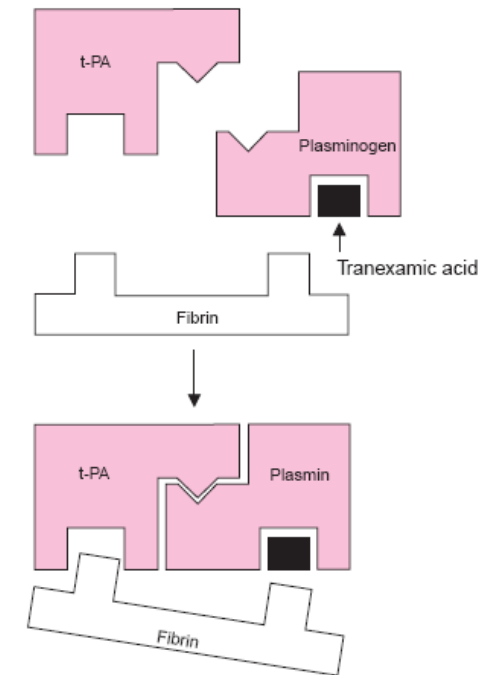
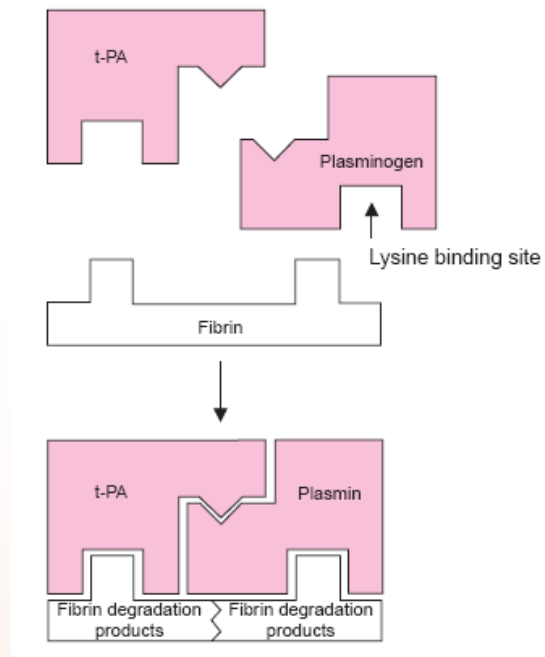
Prof Beverley Hunt,  
Guy's & St Thomas' NHS Foundation Trust  
Kings College, London  
Medical Director of Thrombosis UK  
Twitter: @bhwords

# Tranexamic acid a lysine binding analogue



Empirical Formula:  $\text{C}_8\text{H}_{15}\text{NO}_2$

Molecular Weight: 157.2



# TXA IN TRAUMATIC HAEMORRHAGE

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## CRASH<sub>2</sub>

- 20,211 trauma patients with or at risk of significant haemorrhage randomised to TXA or placebo.
- Results show a 15% relative reduction in death from bleeding, and 9% from all cause mortality in the TXA treated group.
- No evidence of an increase in adverse effects, including thromboembolic events, in the TXA treated group.

# Rough guide to which groups benefit from TA worldwide

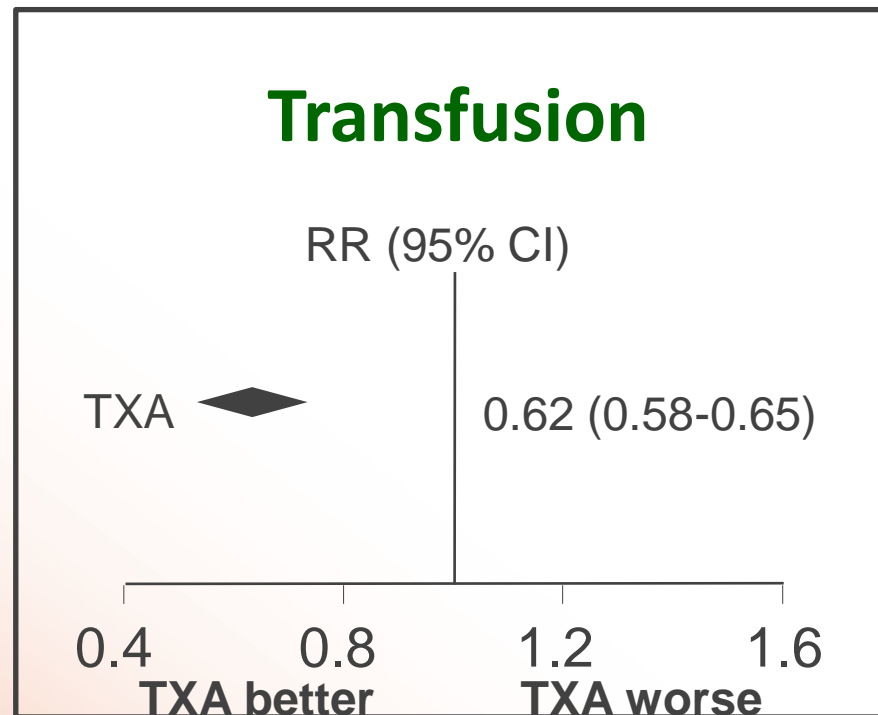
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Number	Preventable trauma worldwide deaths with TA
Those presenting with massive blood loss	20,000
Those presenting with bleeding but not MBL	100,000
TOTAL	120,000



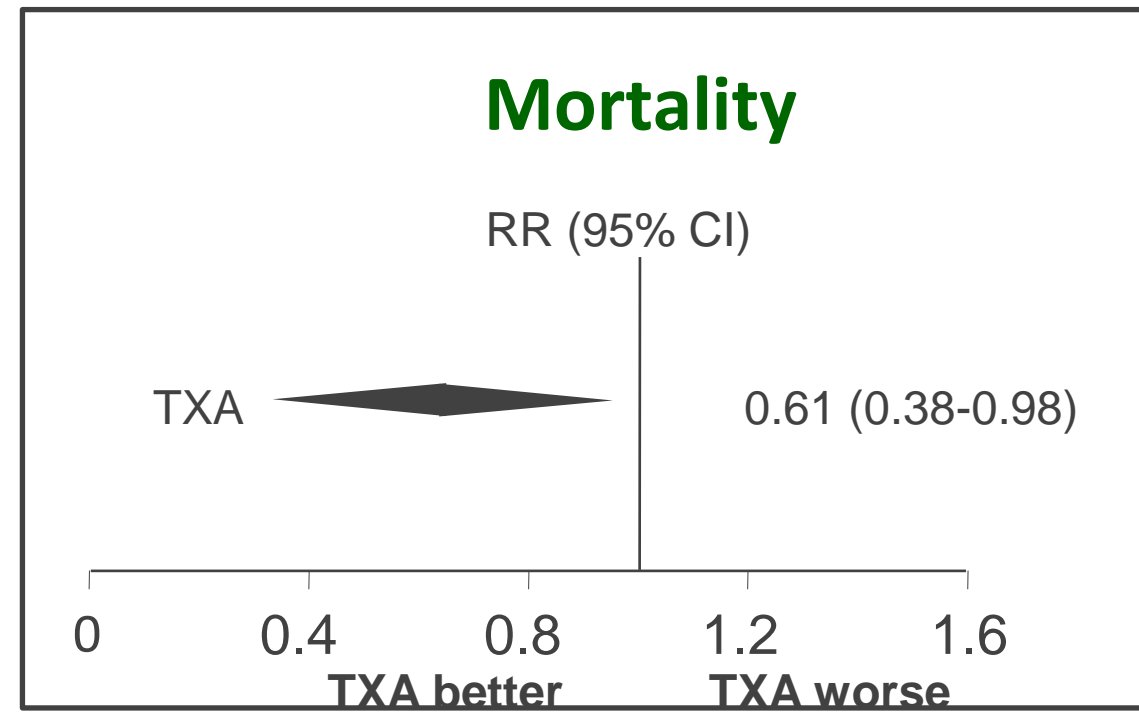
# TXA use in surgery

Systematic review identified 129 trials between 1972-2011 including 10 488 patients



95 trials

*Ker et al. BMJ 2012; 344:e3054*



72 trials



# Tranexamic acid for the treatment of gastrointestinal bleeding: an international randomised, double blind placebo controlled trial

Protocol Code: ISRCTN11225767

# Topical use of tranexamic acid

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S. Alshryda et al, North Tees & Hartlepool Hosp, *J Bone Joint Surg Am*, 2013 Nov  
06;95(21):1961-1968.  
of of

The TRANX-K (Tranexamic Acid in Total Knee Replacement) trial was a double-blind, placebo-controlled trial of the effect of topical (intra-articular) application of TA on blood loss & transfusion following a unilateral total knee replacement.

1gm TA in 50mls saline sprayed into the wound at the end of TKR

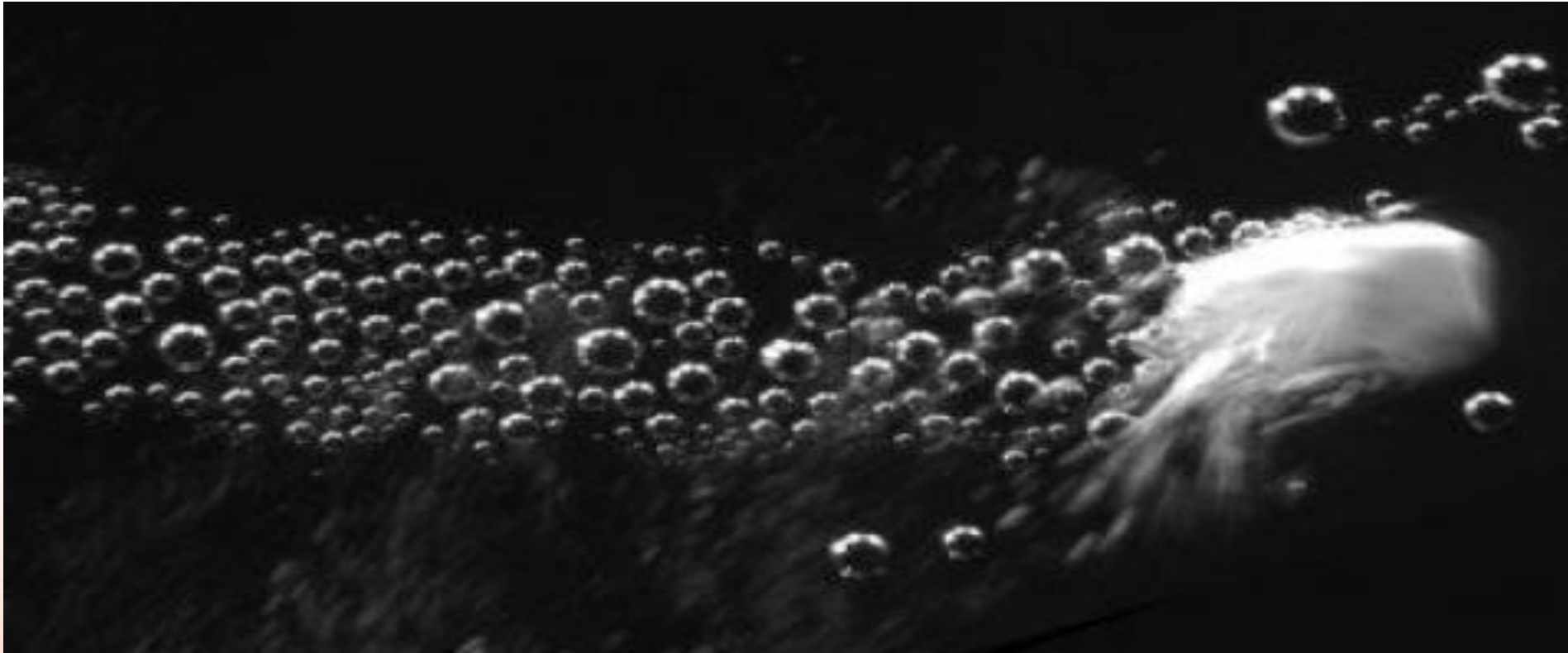
TA reduced

-blood transfusion by 15.4% blood loss by 168 mL the length of stay by 1.2 days

# New patent: self-propelled particles that transport cargo through flowing blood and halt hemorrhage.

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R. Baylis et al. *Science Advances*, 2015; 1 (9): e1500379 DOI:







## THE WOMAN TRIAL OVERVIEW AND PROGRESS



Protocol Code: ISRCTN76912190

# MATERNAL MORTALITY

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An estimated 358,000 maternal deaths occurred worldwide in 2008

- 
- 355,000 (99%) of deaths occurred in developing countries.
  - The range of uncertainty plausibly is as low as 265,000 or as high as 503,000.
  - The maternal mortality ratio highest in developing countries – 290 in developed regions.

WHO, UNICEF, UNFPA and The World Bank (2010). Trends in Maternal Mortality: 1990 to 2008



# SYSTEMATIC REVIEW OF TXA IN PPH

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- Three randomised trials with 461 participants.
- In two trials, TXA was administered before the incision for a caesarean section.
- In one trial, TXA was administered immediately after spontaneous vaginal delivery.

# SYSTEMATIC REVIEW OF TXA IN PPH

REDUCED BLOOD LOSS

but trials quality too poor to confirm or refute moderate effects.

Study

Gai 2004

Gohel 2007

Yang 2001

Total (95% CI)





# RATIONALE FOR THE WOMAN TRIAL

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- Bleeding is a leading cause of postpartum mortality.
- Blood transfusion can be dangerous.
- Antifibrinolytics reduce blood loss after surgery.
- CRASH-2 trial of 20,211 trauma patients showed TXA safely reduces the risk of death from bleeding by a relative 15%.
- Trials in PPH too small to confirm or refute moderate effects.
- A simple, relatively cheap intervention like TXA could prevent deaths and morbidity associated with PPH.

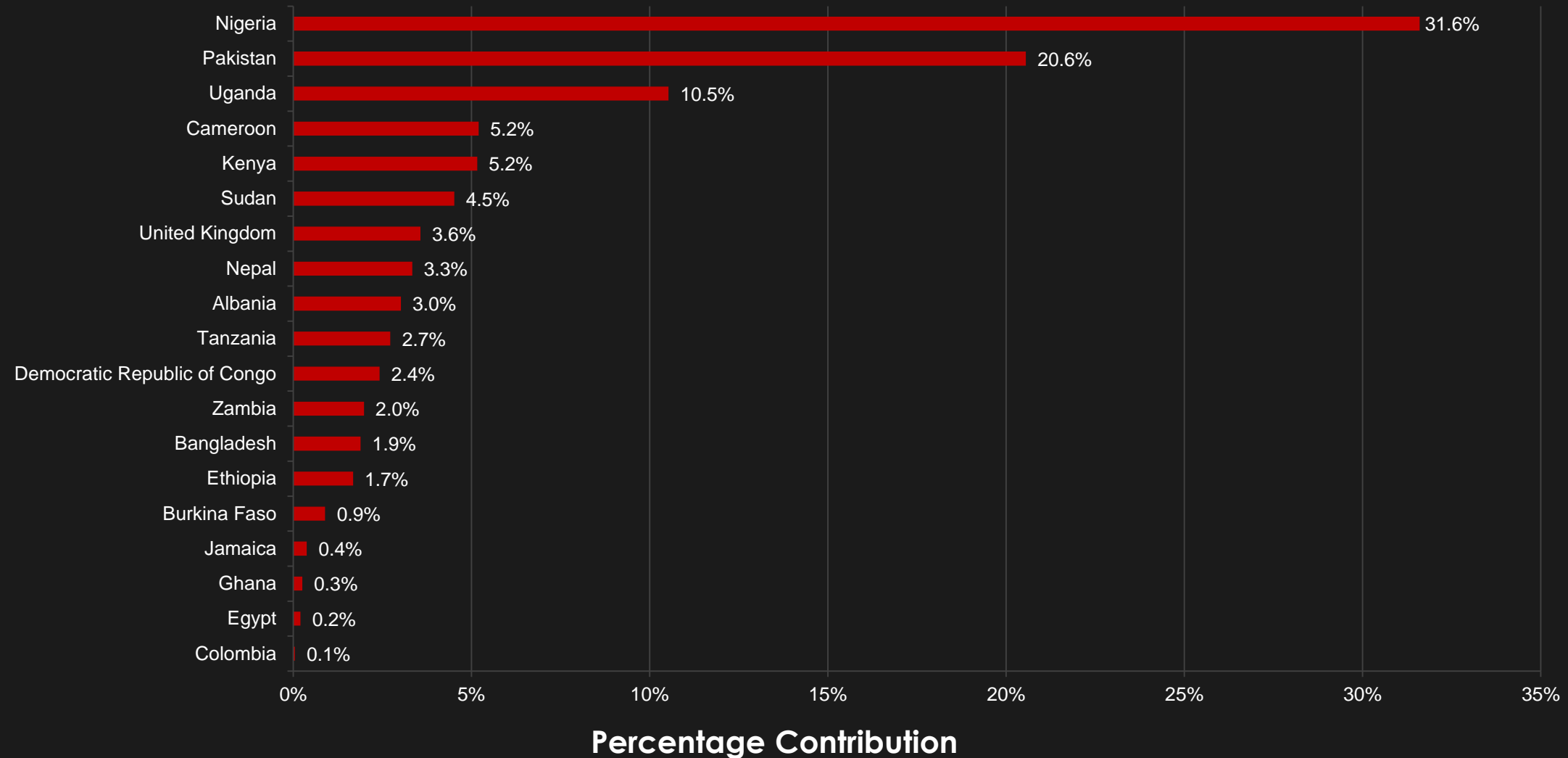
# AIMS

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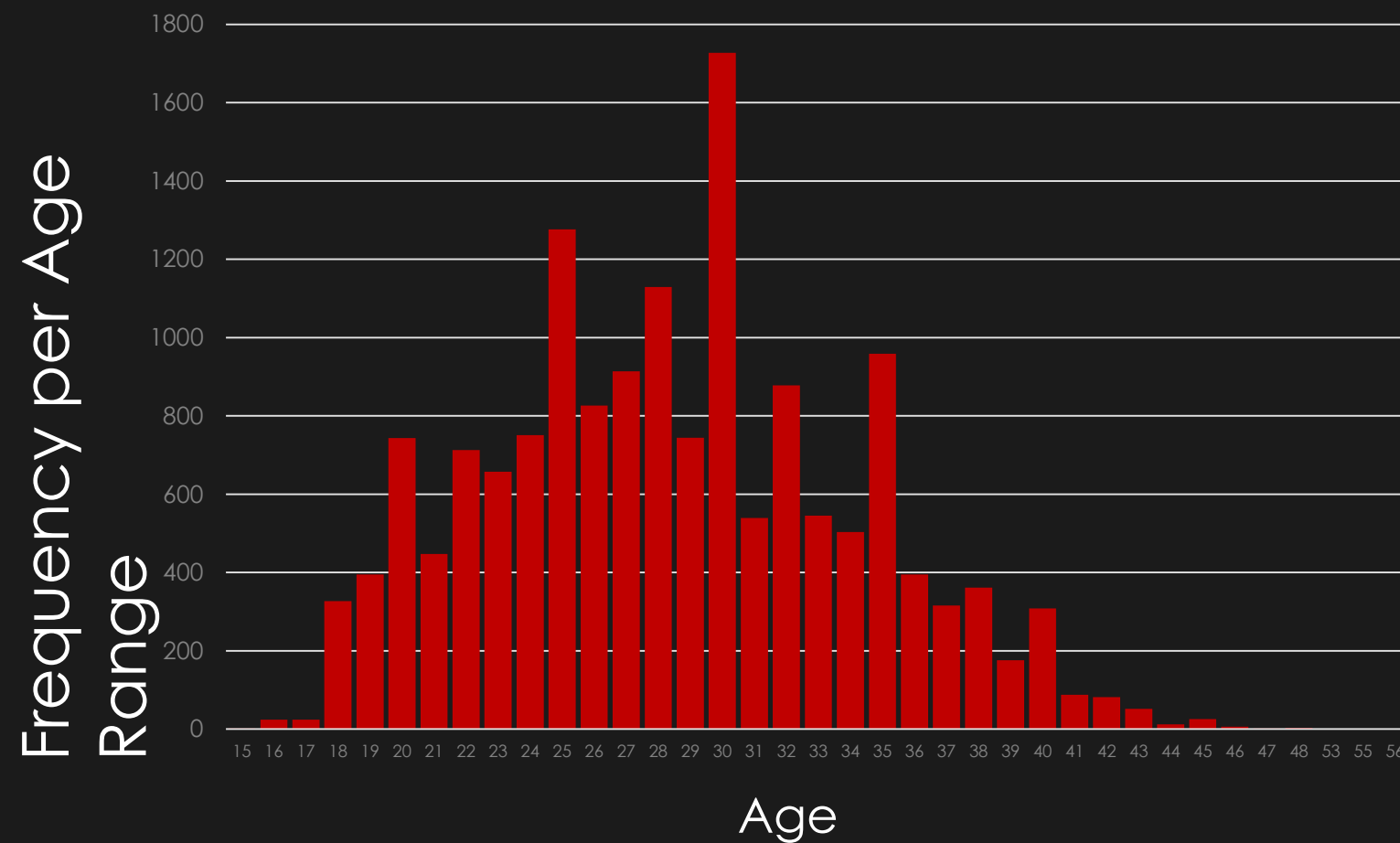
- **Primary outcomes:** To quantify the effect of tranexamic acid (TXA) on **death and hysterectomy** in women with clinician diagnosed PPH.
- **Secondary outcomes** to quantify the effect of TXA on:
  - Death
  - Surgical Interventions
  - Blood transfusion
  - Health status measured using the EQ-5D scale
  - Thromboembolic events
  - Other relevant medical events
  - Length of stay at hospital/time spent in an intensive care unit
  - Receipt of mechanical ventilation
  - Status of breastfed baby/ies

# CONTRIBUTIONS



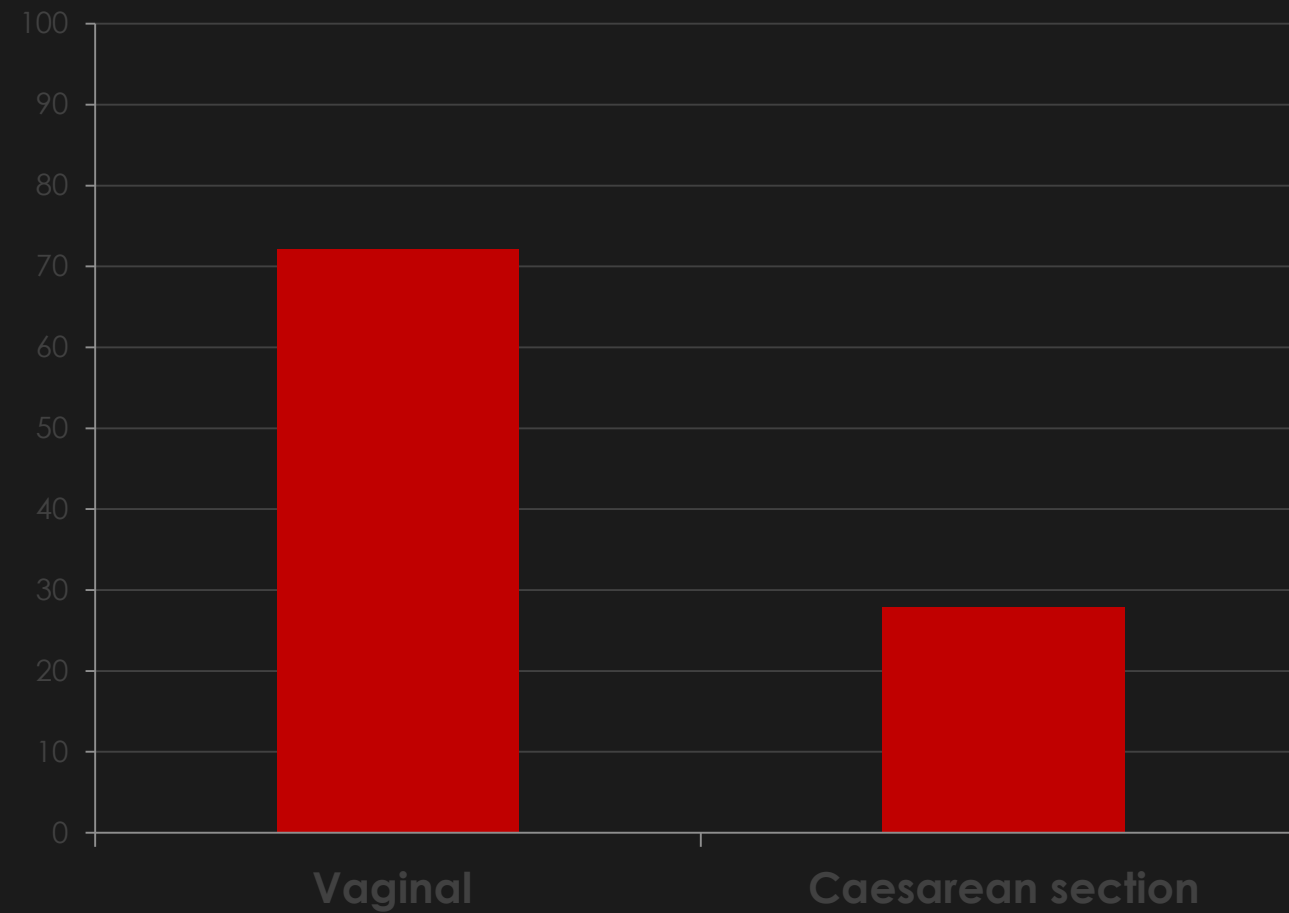
# TRIAL SUMMARY STATISTICS

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# TYPE OF DELIVERY

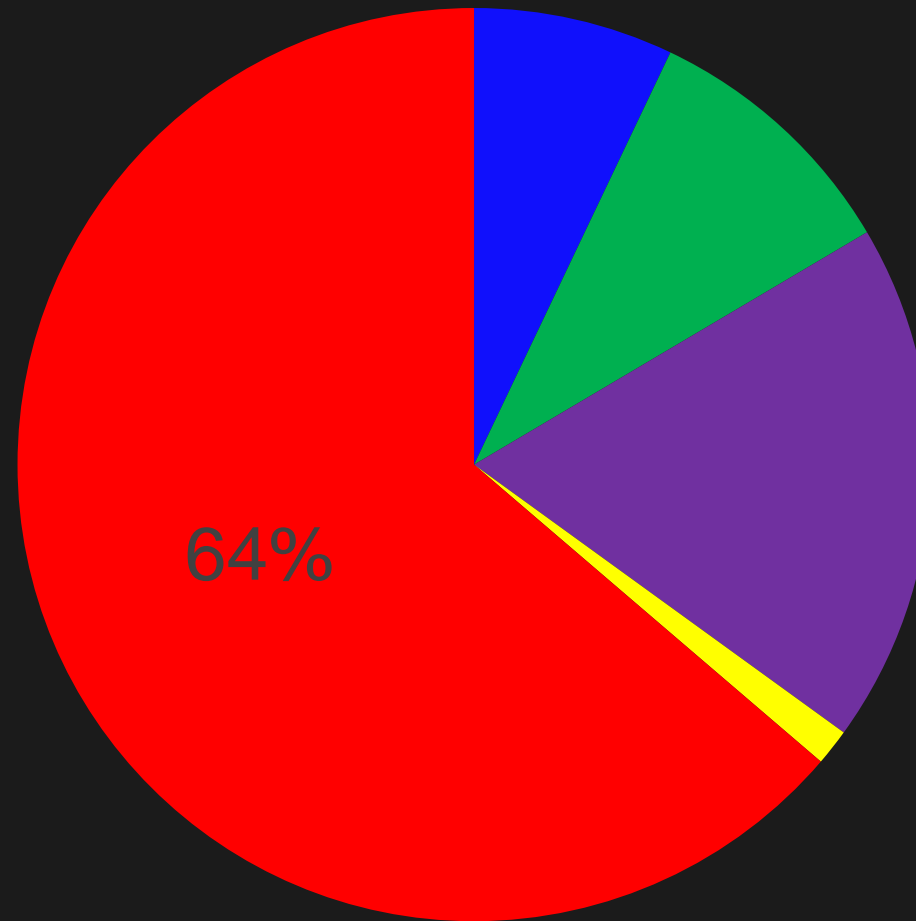
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# TYPE OF DELIVERY

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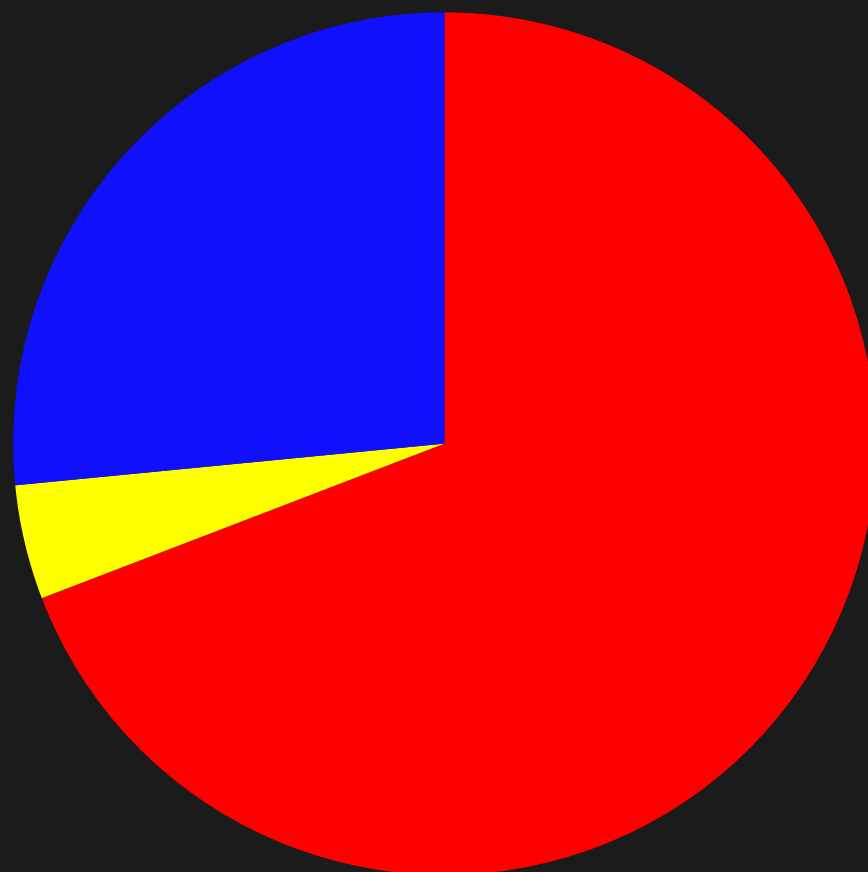


## Percentages

- Other
- Placenta praevia/accreta
- Surgical trauma/tears
- Unknown
- Uterine atony

# CAUSE OF DEATH

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## Percentages

■ Bleeding 69

■ Pulmonary embolism 4

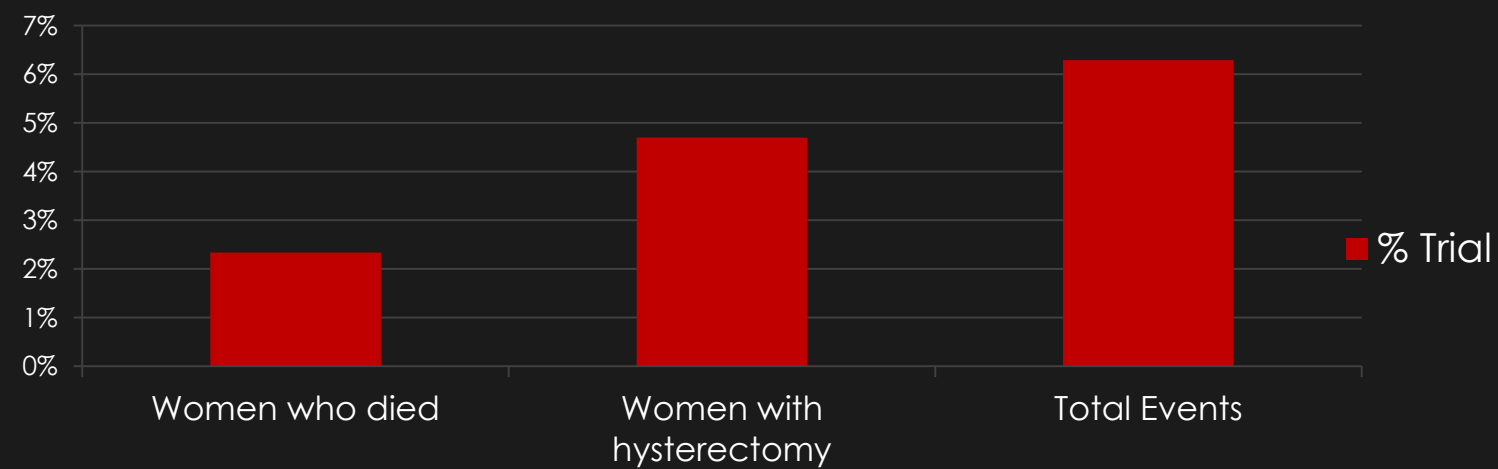
■ Other 27

Other cause	%
DIC	24
Sepis	19
Acute renal failure	5
Eclampsia	7
Cardiac arrest/failure	5
Multi-organ failure	8

# EVENT RATES

The primary outcomes for the WOMAN TRIAL are:

- 1. Death
- 2. Hysterectomy

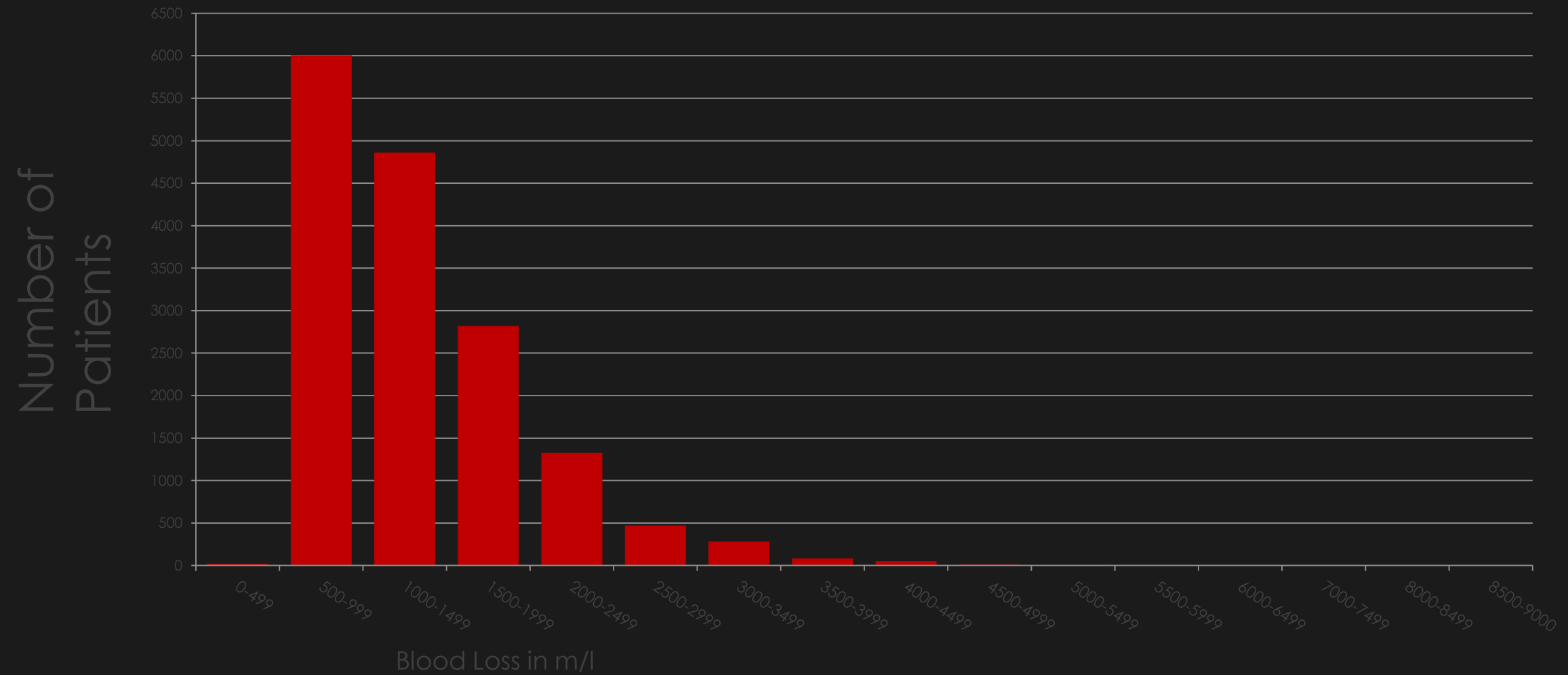


	Numbers for the Trial
Women who died	373
Women with hysterectomy	750
Total events	1004

Total event rate = [Death] + [Hysterectomy] – [Woman who had a hysterectomy then died]

# BLOOD LOSS DISTRIBUTION

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# PROGRESS SUMMARY

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- The trial is completed with 20,000 women recruited from 202 sites in 20 countries.
- 88% women gave birth at the recruiting hospital.
- 96% received prophylactic uterotonics.
- Primary causes of PPH were:
  - Uterine atony in 65%
  - Surgical/ trauma/tears in 19%
  - Placenta previa/accretes in 10%
  - Other causes 7%
  - Unknown cause 1%
- 2% died and 5% had a hysterectomy.
- Of those who had a hysterectomy, 0.8% died.
- The majority (71%) who died, delivered in the randomising hospital.





# CONCLUSIONS

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- Women continue to die from PPH even when they deliver in hospital.
- More effective treatments are needed to improve outcomes.
- The WOMAN trial will resolve the uncertainty regarding the effectiveness and safety of TXA as a treatment for PPH.

Make sure you **know the result** by registering  
your interest at

**[www.womantrial.LSHTM.ac.uk](http://www.womantrial.LSHTM.ac.uk)**

Follow the trial and join the discussion



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