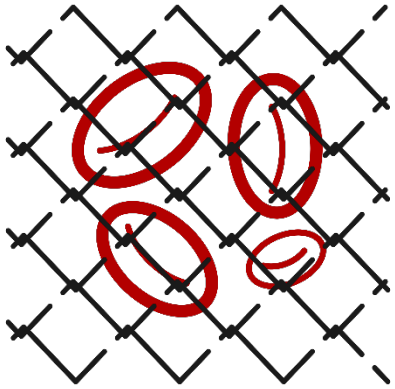
TXA Analytics

Anne Cain-Nielsen, MS

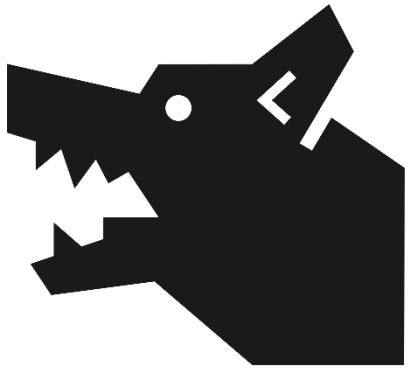
What is TXA?

- **Synthetic derivative of lysine (amino acid)**
- **Antifibrinolytic**

Anti-
Against



Fibrin-
Fibrous mesh

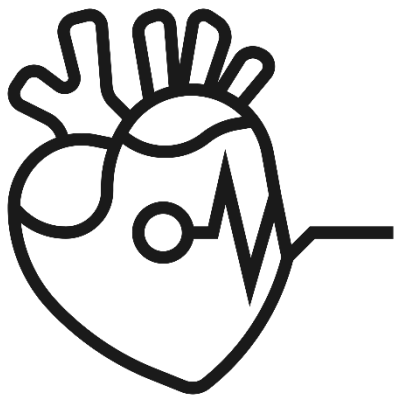


Lytic
Disintegration

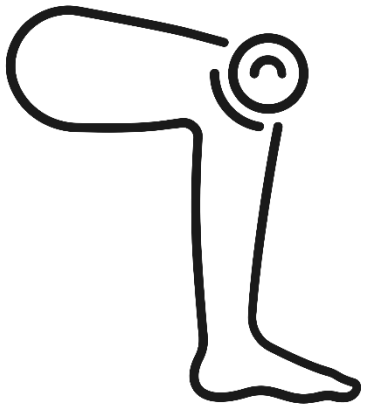
What are the TXA indications?

Prophylaxis

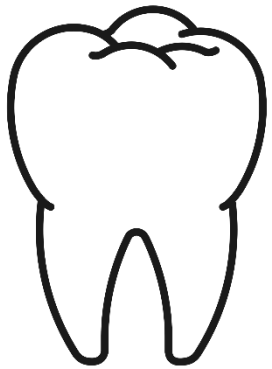
Treatment



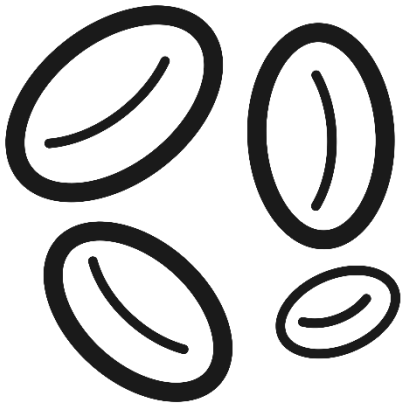
Cardiac Surgery



Knee/Hip Replacement



Dental Bleeding (Hemophilia)



Hemorrhage

All-cause mortality was significantly reduced with tranexamic acid (1463 [14.5%] tranexamic acid group vs 1613 [16.0%] placebo group; relative risk 0.91, 95% CI 0.85-0.97; p=0.0035). The risk of death due to bleeding was significantly reduced (489 [4.9%] vs 574 [5.7%]; relative risk 0.85, 95% CI 0.76-0.96; p=0.0077).

Randomized Controlled Trial > Lancet. 2010 Jul 3;376(9734):23-32.
doi: 10.1016/S0140-6736(10)60835-5. Epub 2010 Jun 14.

Effects of Tranexamic Acid on Death, Vascular Occlusive Events, and Blood Transfusion in Trauma Patients With Significant Haemorrhage (CRASH-2): A Randomised, Placebo-Controlled Trial

CRASH-2 trial collaborators; Haleema Shakur, Ian Roberts, Raúl Bautista, José Caballero, Tim Coats, Yashbir Dewan, Hesham El-Sayed, Tamar Gogichaishvili, Sanjay Gupta, Jorge Herrera, Beverley Hunt, Pius Iribhogbe, Mario Izurieta, Hussein Khamis, Edward Komolafe, María-Acelia Marrero, Jorge Mejía-Mantilla, Jaime Miranda, Carlos Morales, Oluwole Olaomi, Fatos Olldashi, Pablo Perel, Richard Peto, P V Ramana, R R Ravi, Surakrant Yutthakasemsunt

Collaborators + expand

PMID: 20554319 DOI: 10.1016/S0140-6736(10)60835-5

Abstract

Background: Tranexamic acid can reduce bleeding in patients undergoing elective surgery. We assessed the effects of early administration of a short course of tranexamic acid on death, vascular occlusive events, and the receipt of blood transfusion in trauma patients.

Methods: This randomised controlled trial was undertaken in 274 hospitals in 40 countries. 20 211 adult trauma patients with, or at risk of, significant bleeding were randomly assigned within 8 h of injury to either tranexamic acid (loading dose 1 g over 10 min then infusion of 1 g over 8 h) or matching placebo. Randomisation was balanced by centre, with an allocation sequence based on a block size of eight, generated with a computer random number generator. Both participants and study staff (site investigators and trial coordinating centre staff) were masked to treatment allocation. The primary outcome was death in hospital within 4 weeks of injury, and was described with the following categories: bleeding, vascular occlusion (myocardial infarction, stroke and pulmonary embolism), multiorgan failure, head injury, and other. All analyses were by intention to treat. This study is registered as ISRCTN86750102, Clinicaltrials.govNCT00375258, and South African Clinical Trial RegisterDOH-27-0607-1919.

The risk of head injury-related death reduced with tranexamic acid in patients with mild-to-moderate head injury (RR 0·78 [95% CI 0·64–0·95]) but not in patients with severe head injury (0·99 [95% CI 0·91–1·07]; p value for heterogeneity 0·030). Early treatment was more effective than was later treatment in patients with mild and moderate head injury (p=0·005) but time to treatment had no obvious effect in patients with severe head injury (p=0·73).

Randomized Controlled Trial > Lancet. 2019 Nov 9;394(10210):1713-1723.
doi: 10.1016/S0140-6736(19)32233-0. Epub 2019 Oct 14.

Effects of Tranexamic Acid on Death, Disability, Vascular Occlusive Events and Other Morbidities in Patients With Acute Traumatic Brain Injury (CRASH-3): A Randomised, Placebo-Controlled Trial

CRASH-3 trial collaborators

PMID: 31623894 PMCID: PMC6853170 DOI: 10.1016/S0140-6736(19)32233-0
Free PMC article

Erratum in

Department of Error.
Lancet. 2019 Nov 9;394(10210):1712. doi: 10.1016/S0140-6736(19)32641-8.
PMID: 31709997 No abstract available.

Abstract

Background: Tranexamic acid reduces surgical bleeding and decreases mortality in patients with traumatic extracranial bleeding. Intracranial bleeding is common after traumatic brain injury (TBI) and can cause brain herniation and death. We aimed to assess the effects of tranexamic acid in patients with TBI.

Methods: This randomised, placebo-controlled trial was done in 175 hospitals in 29 countries. Adults with TBI who were within 3 h of injury, had a Glasgow Coma Scale (GCS) score of 12 or lower or any intracranial bleeding on CT scan, and no major extracranial bleeding were eligible. The time window for eligibility was originally 8 h but in 2016 the protocol was changed to limit recruitment to patients within 3 h of injury. This change was made blind to the trial data, in response to external evidence suggesting that delayed treatment is unlikely to be effective. We randomly assigned (1:1) patients to receive tranexamic acid (loading dose 1 g over 10 min then infusion of 1 g over 8 h) or matching placebo. Patients were assigned by selecting a numbered treatment pack from a box

In intertrochanteric fracture surgery performed using PFNA, intravenous administration of TXA significantly reduced the risk of intraoperative, total and hidden blood loss, in addition to the need for allogeneic transfusion, without increasing the rate of complications.

Randomized Controlled Trial > Orthop Surg. 2019 Aug;11(4):635-642. doi: 10.1111/os.12511. Epub 2019 Aug 16.

Efficacy and Safety of Tranexamic Acid in Intertrochanteric Fractures: A Single-Blind Randomized Controlled Trial

Xin-Die Zhou [1], Yi Zhang [1], Li-Feng Jiang [2], Jun-Jie Zhang [1], Dong Zhou [1], Li-Dong Wu [2], Yong Huang [1], Nan-Wei Xu [1]

Affiliations + expand

PMID: 31419080 PMCID: PMC6712408 DOI: 10.1111/os.12511

Free PMC article

Abstract

Objective: To investigate the efficacy and safety of tranexamic acid (TXA) in the reduction of bleeding and the need for transfusion in elderly intertrochanteric fracture patients.

Methods: A total of 100 patients with intertrochanteric fractures undergoing surgery were enrolled and randomly allocated to the TXA group in which patients (75.10 ± 8.27 years old) were treated with 1 g of TXA, or the control group (77.82 ± 6.42 years old) treated with a placebo. Surgery was performed by two senior orthopaedic surgeons from two institutions. The proximal femoral nail antirotation (PFNA) was conducted using the standard procedure. Three outcome measures, including blood loss, transfusion, and complications, were recorded. Blood loss and transfusion were investigated to assess TXA's effectiveness, while complications were investigated to assess TXA's safety. Statistical indicators for blood loss included total, intraoperative, postoperative, and hidden blood loss volumes, calculated by hemoglobin levels, hematocrit levels, and drainage volume. The number and amount of blood transfusions were recorded. Complications associated with surgery, including deep vein thrombosis, pulmonary embolism, wound hematoma, wound infection, cardiovascular and cerebrovascular accidents, and respiratory infections, were also recorded.

TXA Data Elements

TRANEXAMIC ACID ADMINISTRATION (0-24 HOURS)

Tranexamic acid (Cyklokapron, Lysteda) and aminocaproic acid (Amicar) are drugs that prevent clot breakdown (antifibrinolytic). Enter “YES” if patient received tranexamic or aminocaproic acid administration within 0-24 hrs after arrival to index hospital, where index hospital is the hospital absctracting the data. Report if administered regardless of the indication for administration. Do not include topical route of administration.

Collection Criterion: All patients.

Def. Source: MTQIP

Data Base Column Name: MTQIP_TXA
Type of Field: Yes/No
Length:

TXA Data Elements

TRANEXAMIC ACID DATE (0-24 HOURS)

The date tranexamic acid was administered.

• Collected as MM/DD/YYYY.

Collection Criterion: All patients.

Def. Source: MTQIP

Data Base Column Name: MTQIP_TXA_DT
Type of Field: Date
Length:

TRANEXAMIC ACID TIME (0-24 HOURS)

The time tranexamic acid was administered.

• Collected as HH:MM.
• HH:MM should be collected as military time.

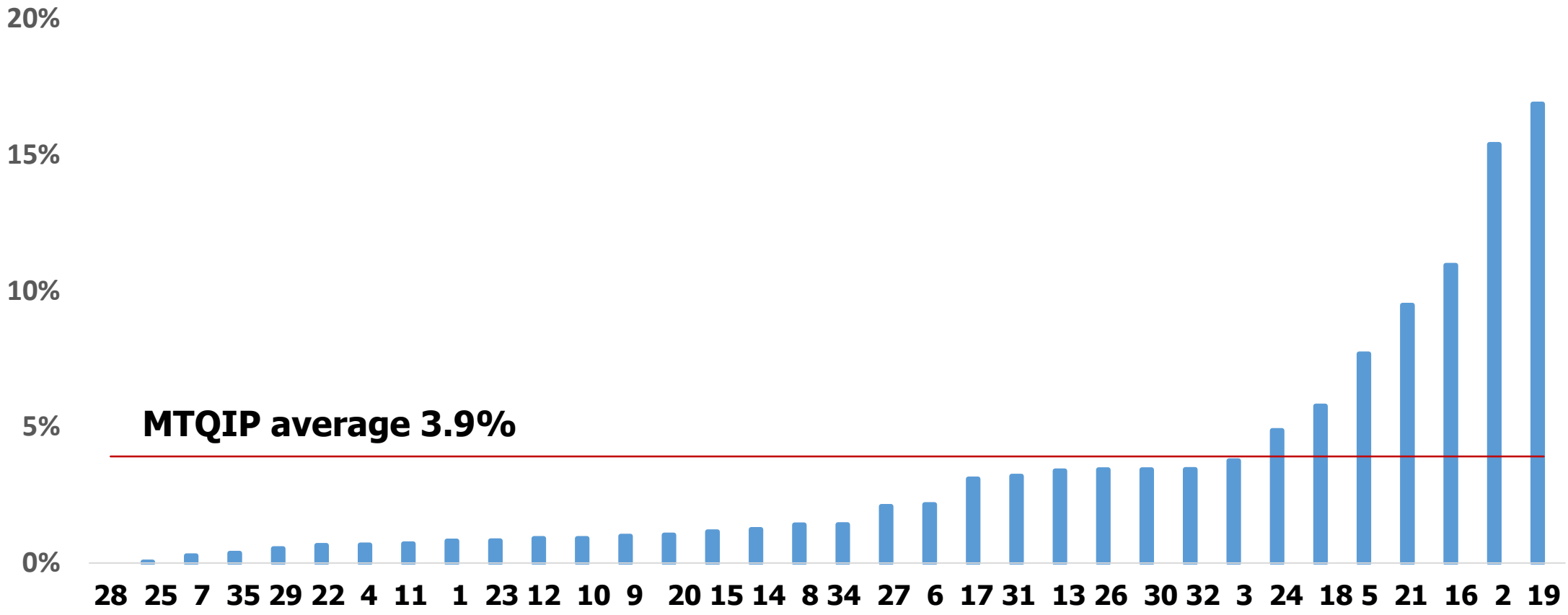
Collection Criterion: All patients.

Def. Source: MTQIP

Data Base Column Name: MTQIP_TXA_TM
Type of Field: Time
Length:

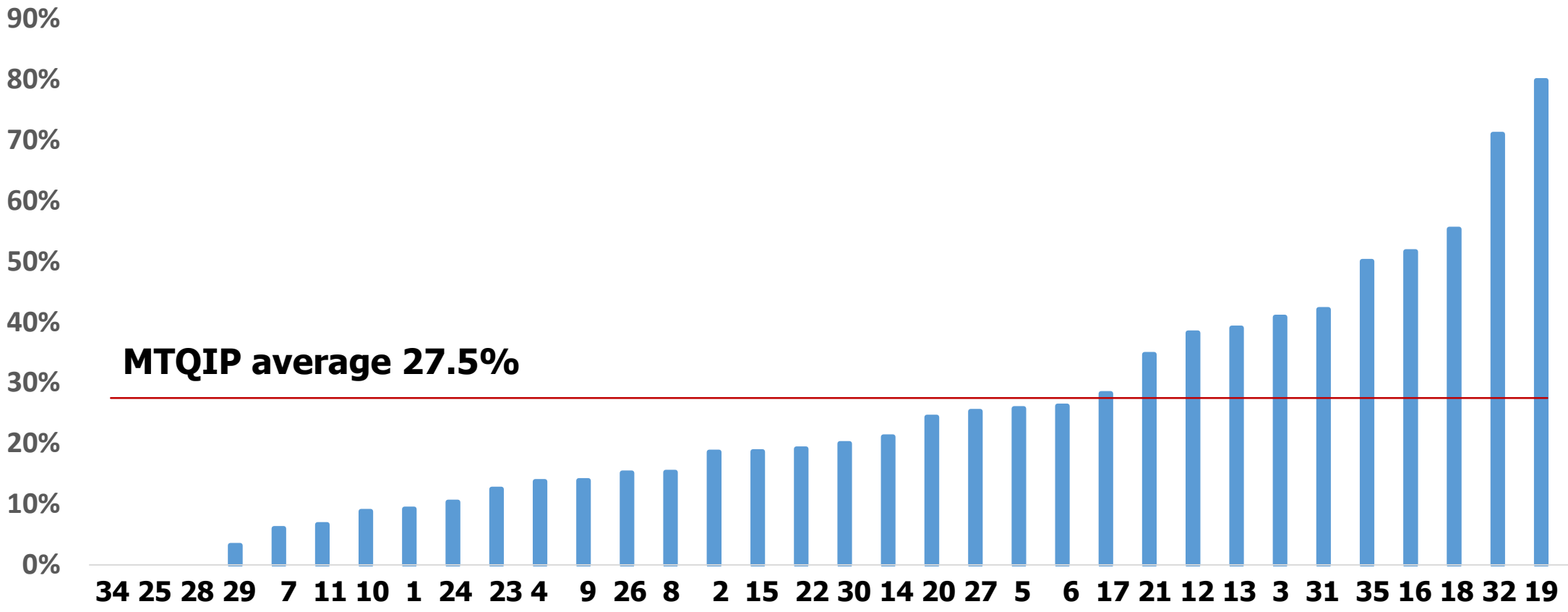
TXA Use

Overall



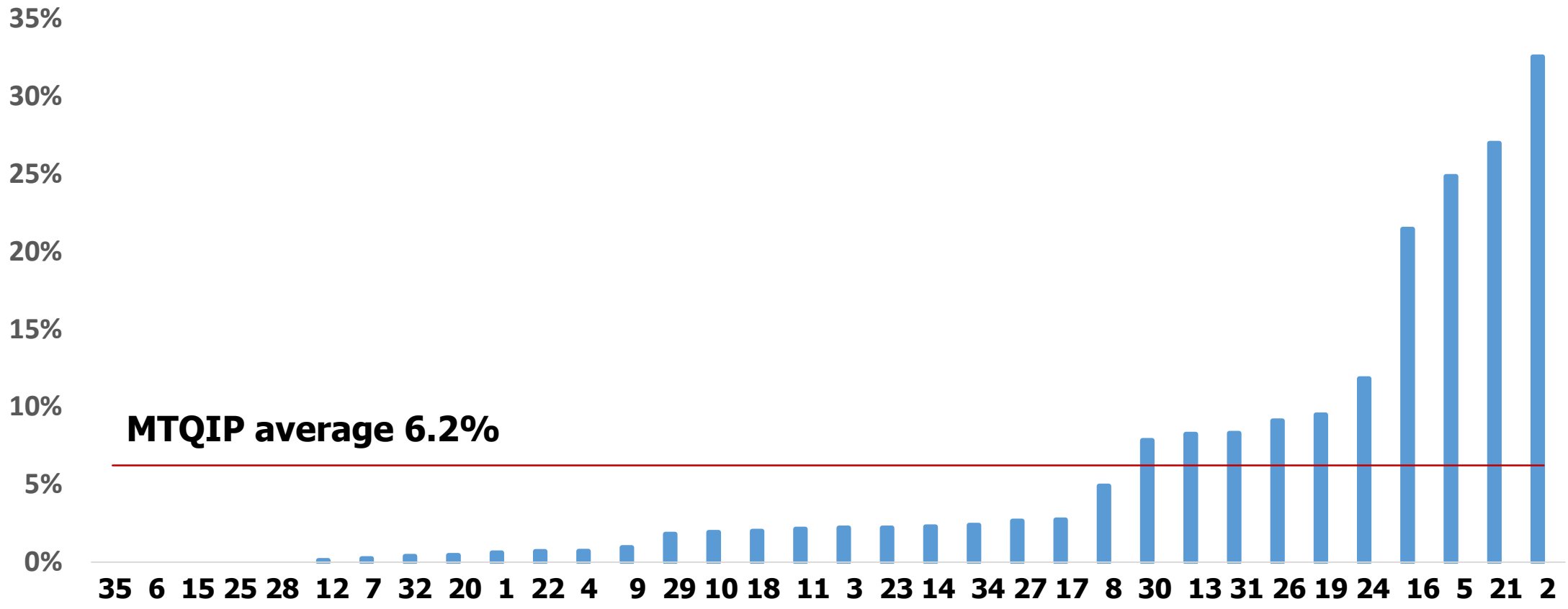
TXA Use

Lowest ED SBP <90



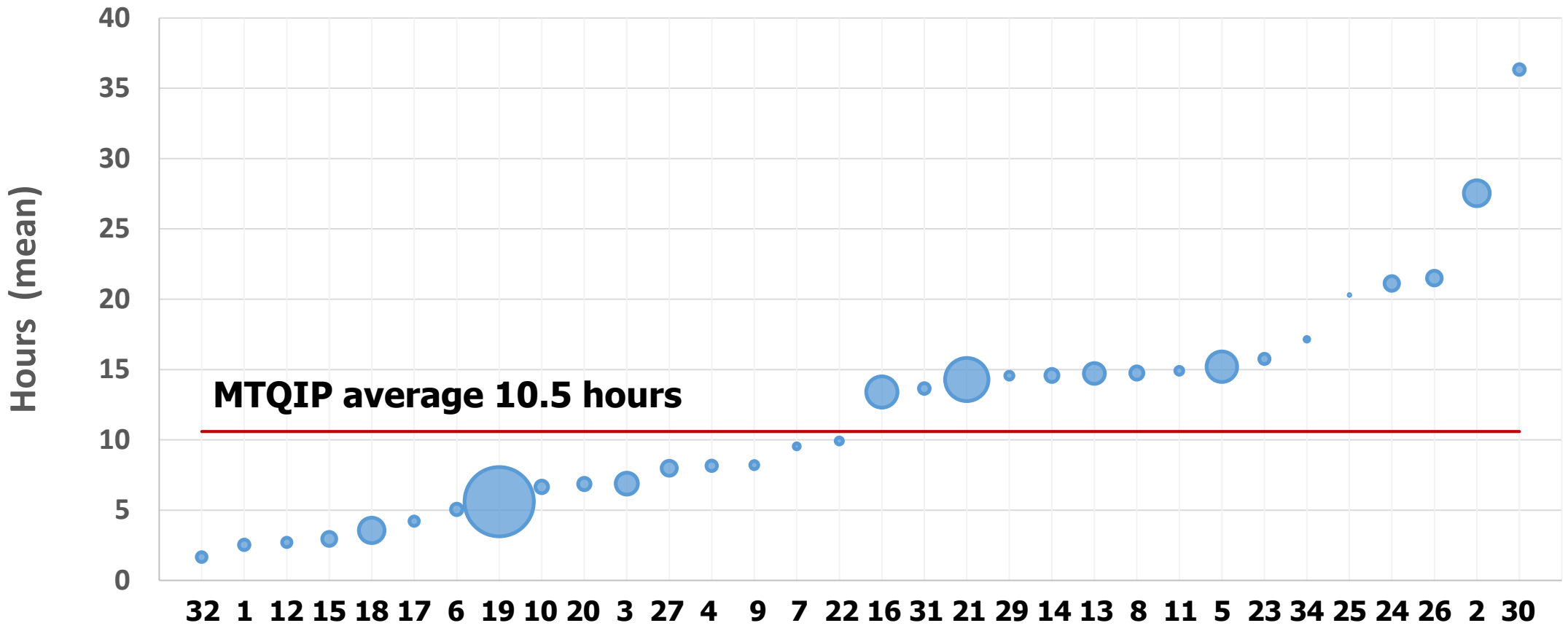
TXA Use

Isolated Hip Fracture



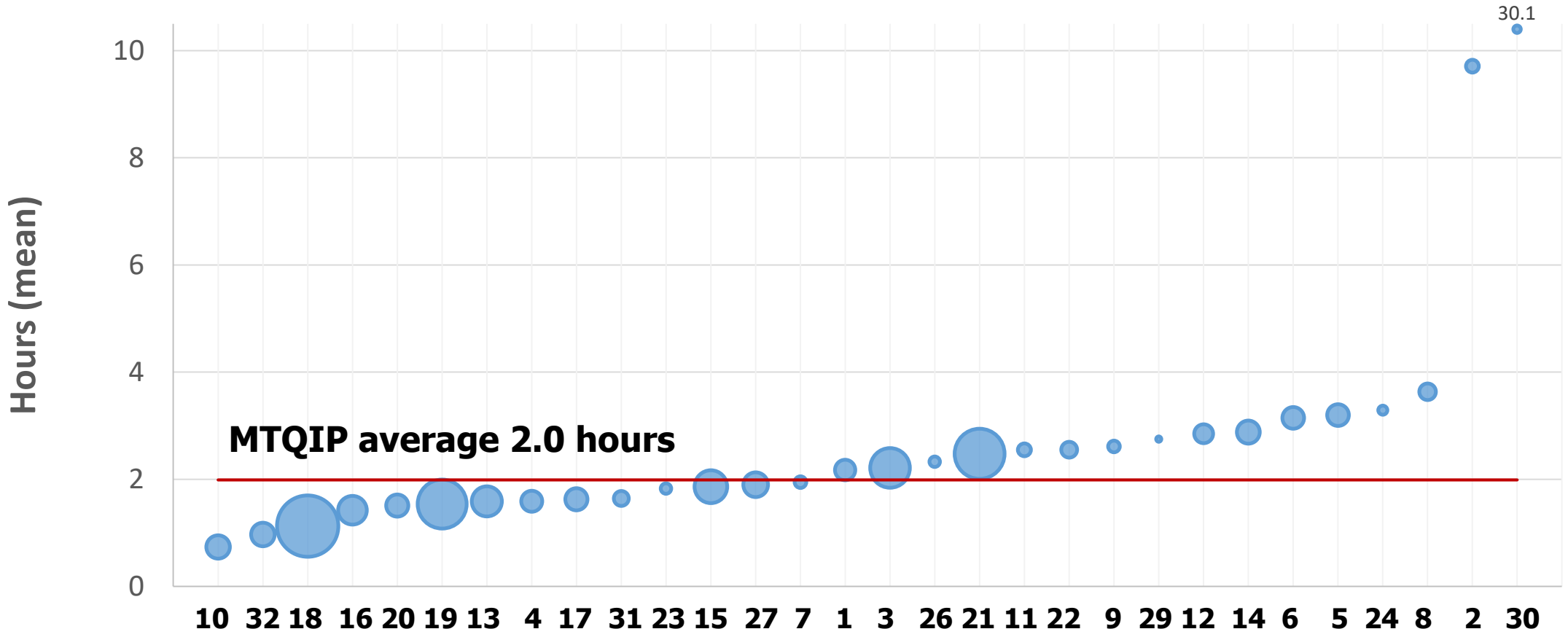
Time from ED to TXA

Overall



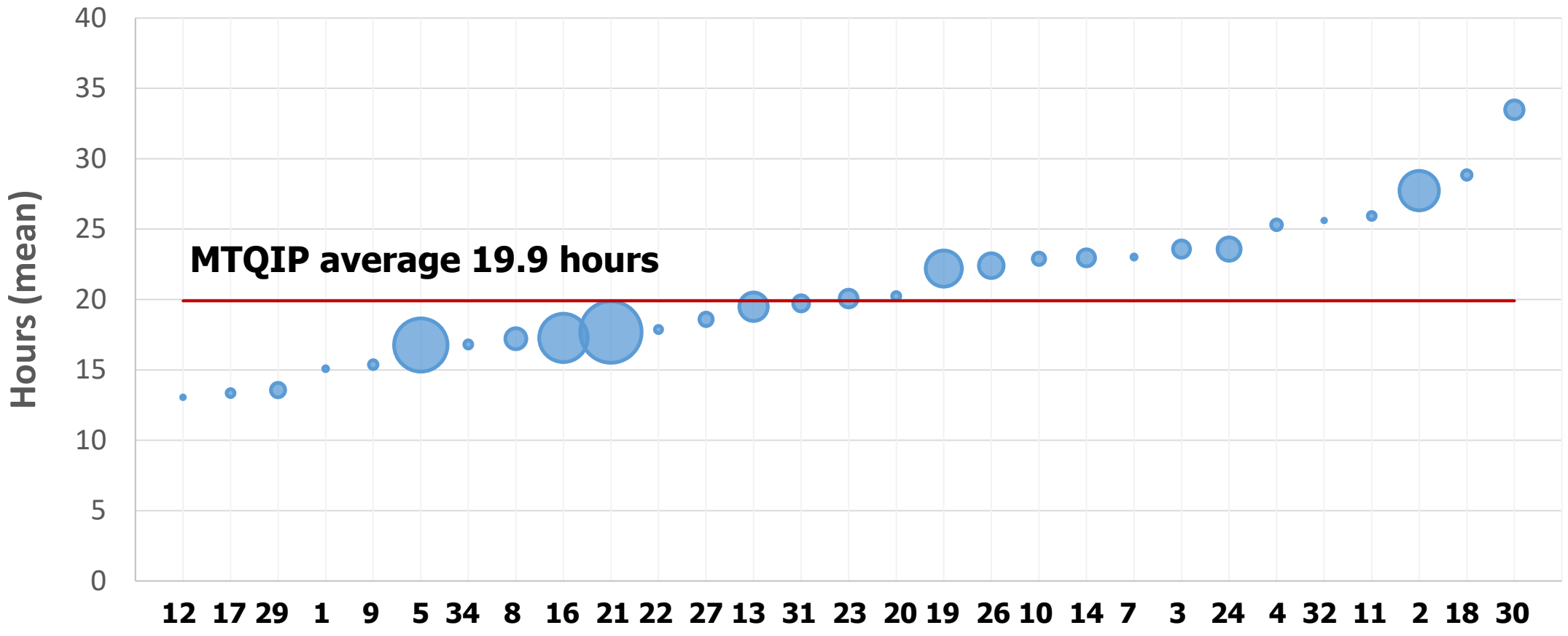
Time from ED to TXA

Lowest ED SBP <90



Time from ED to TXA

Isolated Hip Fracture



What would you like to see?