

## **Project Title**

Tranexamic Acid in Hip Fracture Surgery

## **Project Lead and Members**

Project lead: Dr Kevin Yik

Project members: Dr Nazrul Nashi, Dr Ashish R. Satapathy, Fione Gun, Zarina Ahmad,  
Leong Kin Seng

## **Organisation(s) Involved**

Ng Teng Fong General Hospital

## **Healthcare Family Group Involved in this Project**

Medical, Nursing; Allied Health

## **Applicable Specialty or Discipline**

Orthopaedic

## **Aims**

- To reduce haemoglobin drop on postoperative day 1 (POD 1) and postoperative day 3 (POD 3) in patients undergoing hip fracture surgery.
- To reduce need for blood transfusions intra-operatively and post-operatively in patients undergoing hip fracture surgery, and hence enables early mobilisation.
- To increase the percentage of patients undergoing hip fracture surgery who receive Tranexamic Acid (TXA).

## **Background**

See poster appended/below

## **Methods**

See poster appended/below

## Results

Significant results shown in increased Early Ambulation rate and reduction of Blood Transfusion and Haemoglobin rate

## Lessons Learnt

- Standardizing care protocols can improve clinical & patient outcomes.
- Strong support from the multidisciplinary team are essential to the smooth and continued functioning of the hip fracture clinical pathway.

## Conclusion

See poster appended/below

## Project Category

Care & Process Redesign

Value Based Care. Functional Outcome, Quality Improvement, Job Effectiveness

## Keywords

Tranexamic Acid, Hip Fracture Surgery

## Name and Email of Project Contact Person(s)

Name: Fione Gun

Email: [fione\\_gun@nuhs.edu.sg](mailto:fione_gun@nuhs.edu.sg)

# TRANEXAMIC ACID IN HIP FRACTURE SURGERY

- SAFETY
- PRODUCTIVITY
- QUALITY
- COST
- PATIENT EXPERIENCE
- TEAMWORK
- COMMUNICATION

MEMBERS: DR KEVIN YIK (CLINICIAN LEAD), DR NAZRUL NASHI, DR ASHISH R. SATAPATHY, FIONE GUN, ZARINA AHMAD, LEONG KIN SENG, ADJ A/PROF FAREED KAGDA (SPONSOR)

## Define Problem, Set Aim

### Opportunity for Improvement

Blood loss is a common problem in elderly patients undergoing hip fracture surgery. About 40% of such patients require blood transfusions intra-operatively or post-operatively.

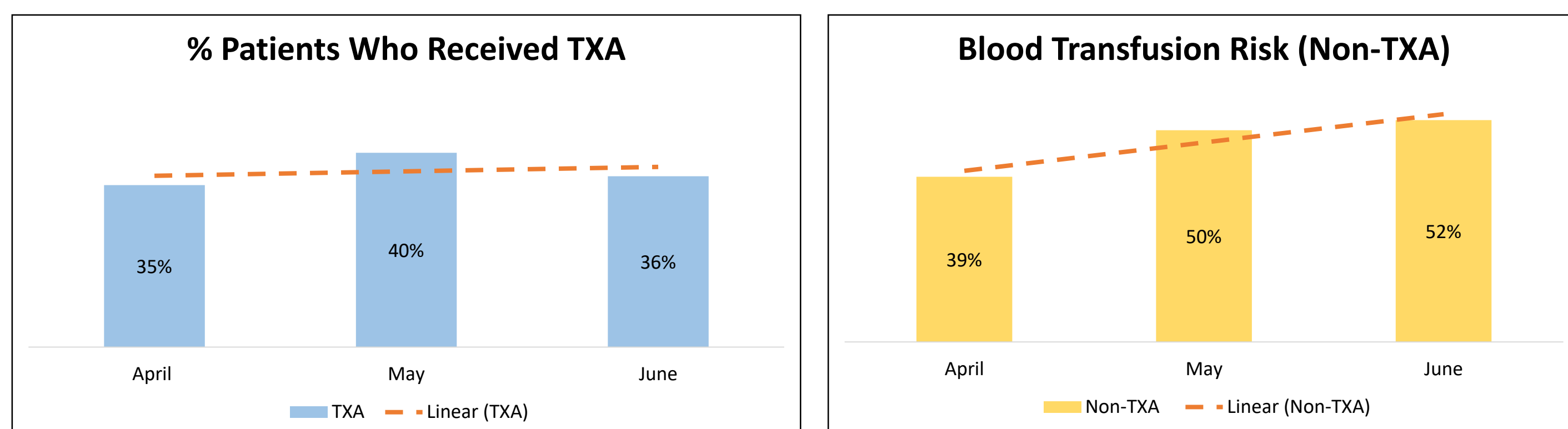
### Aim

- To reduce hemoglobin drop on postoperative day 1 (POD 1) and postoperative day 3 (POD 3) in patients undergoing hip fracture surgery.
- To reduce need for blood transfusions intra-operatively and post-operatively in patients undergoing hip fracture surgery, and hence enables early mobilisation.
- To increase the percentage of patients undergoing hip fracture surgery who receive Tranexamic Acid (TXA).

## Establish Measures

### Baseline Performance

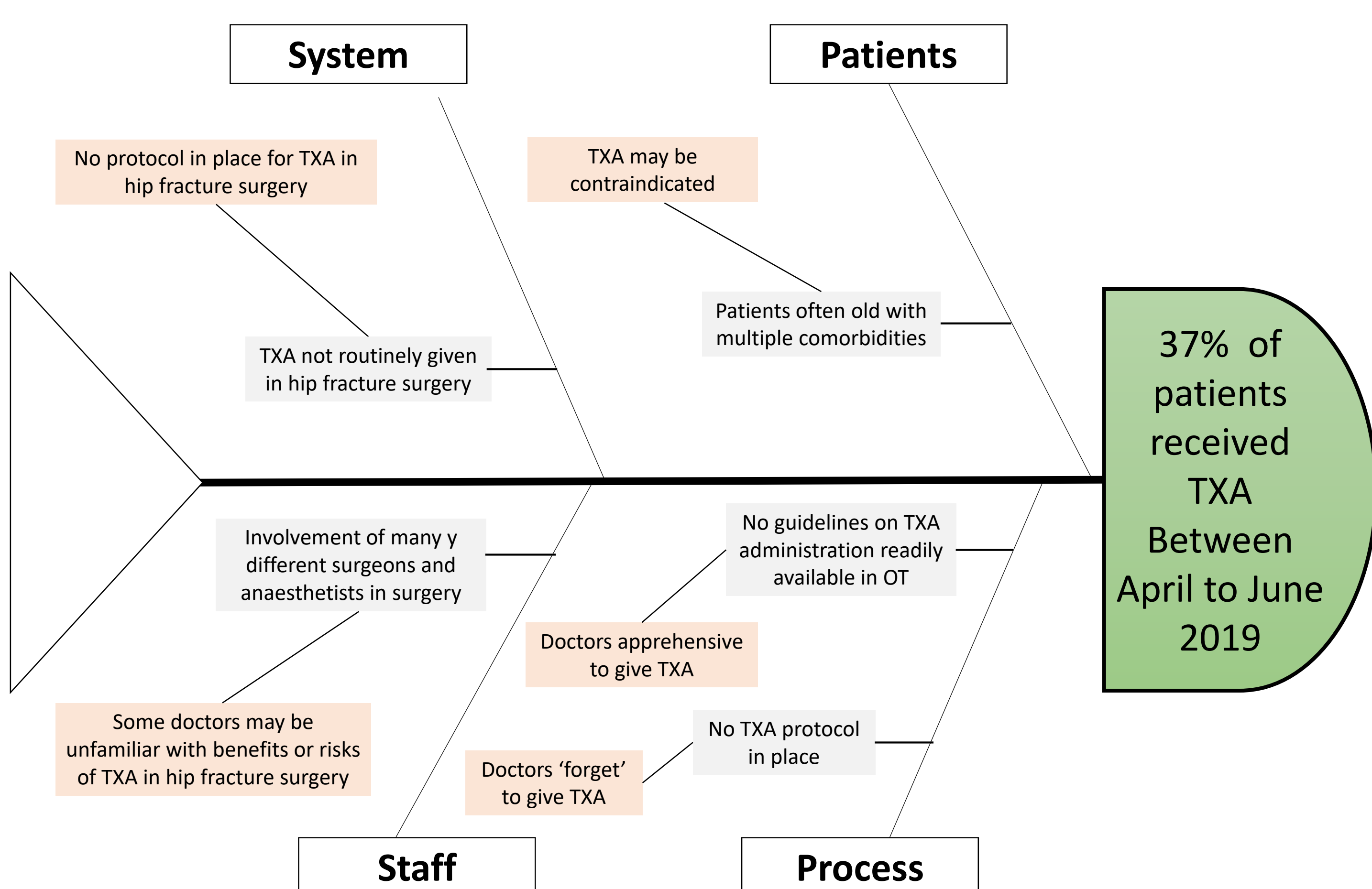
- All operated hip fracture patients who underwent hip fracture clinical pathway were included.
- % of operated hip fracture patients who received TXA prior to implementation of the protocol (April to June 2019).
- % of patients with Non-TXA who required blood transfusion.



## Analyse Problem

### Root Cause Analysis

Targeted areas of improvement were:



## Acknowledgements

The authors would like to thank the contributions of the multidisciplinary team in the success of TXA implementation in hip fracture surgery, without whom this would not have been possible.

## Test & Implement Changes

### Probable solution

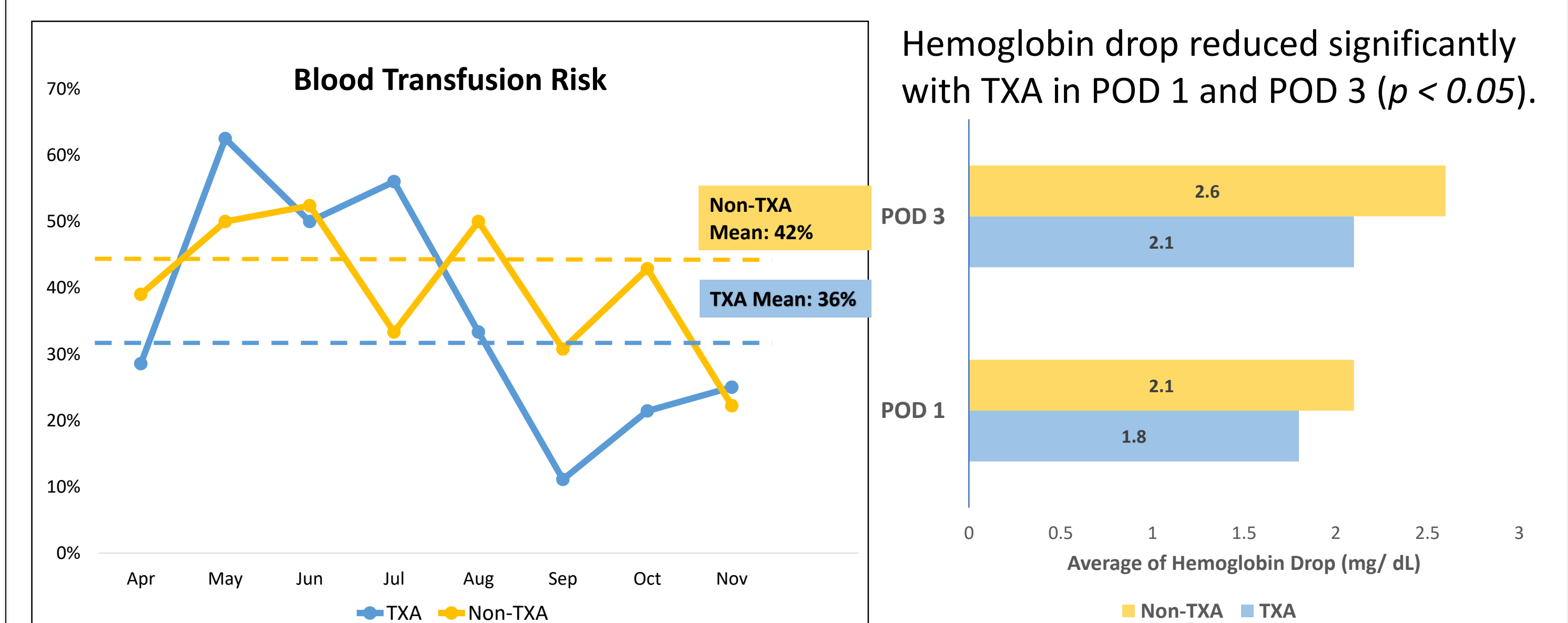
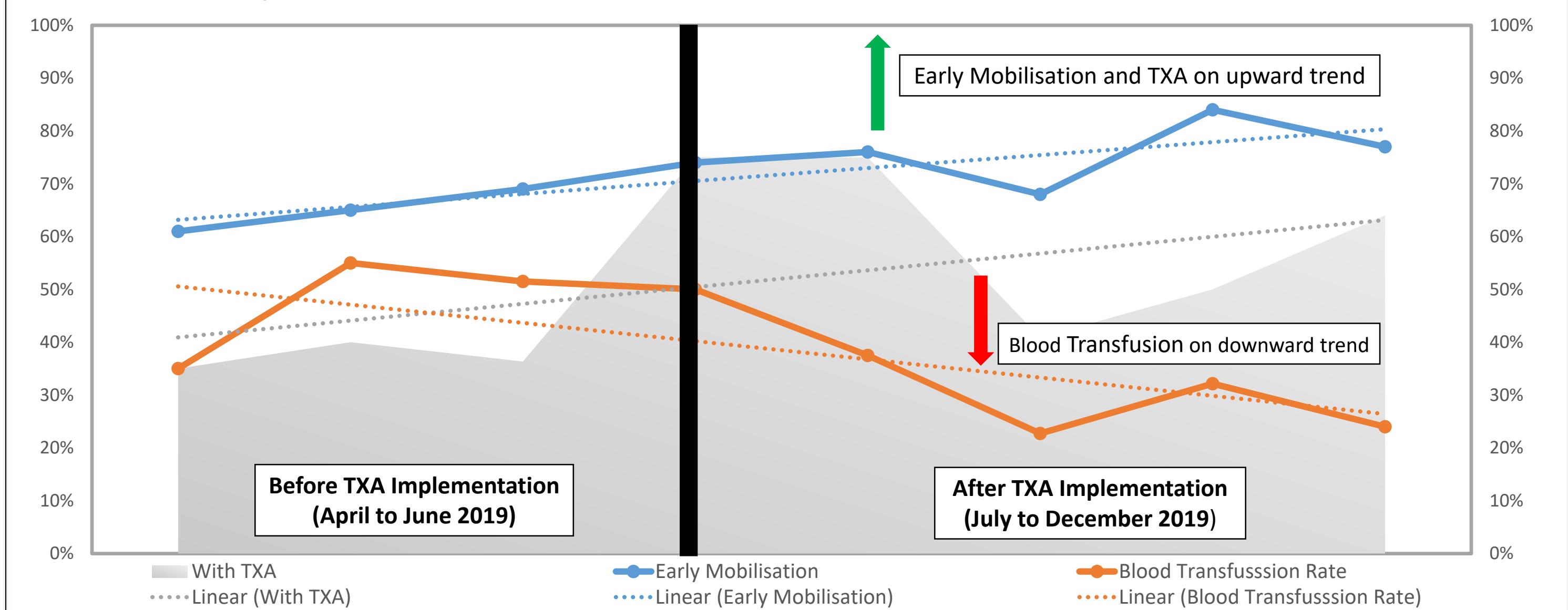
TXA protocol was established to improve problem identified.

Root Cause	Potential Solutions
Surgeons are unfamiliar with TXA administration	<ol style="list-style-type: none"> <li>1. Introduce TXA protocol in hip fracture surgery</li> <li>2. Educating on benefits and risks of TXA</li> </ol>
No standard protocol of TXA in place	<ol style="list-style-type: none"> <li>1. Provide clear guidelines / contraindications on TXA administration in Orthopaedic OTs.</li> <li>2. Reminder for TXA to be given during Time Out.</li> <li>3. Implementation of TXA protocol in hip fracture surgery enables early mobilisation.</li> </ol>

## Test & Implement Changes

CYCLE	PLAN	DO	STUDY	ACT
1	Compare hemoglobin drop on POD 1 and POD 3 in TXA vs Non-TXA patients	TXA Protocol implemented July 2019	Reduction of hemoglobin drop in POD 1/ POD 3	Continue TXA protocol in hip fracture surgery
2	Compare performance of "Blood Transfusion Rate before and after TXA implementation	TXA Protocol implemented July 2019	Improvement in Blood Transfusion Rate	Continue TXA protocol in hip fracture surgery
3	Compare performance of "Early Mobilisation Rate" before and after TXA implementation	TXA Protocol implemented July 2019	Improvement in Early Mobilisation Rate	Continue TXA protocol in hip fracture surgery

Overall, **Early Mobilisation Rate increased by 11%**, **Blood Transfusion Rate decreased by 14%** (with the TXA Rate increased from 37% to 61% after its implementation).



## Spread Changes, Learning Points

### Spread Change

- Educating and familiarising doctors with the benefits and risks of TXA in hip fracture surgery.
- TXA protocol improves blood transfusion rate, and hence enables early mobilisation in hip fracture surgery.

### Learning Points

- Standardising care protocols can improve clinical & patient outcomes.
- Strong support from the multidisciplinary team are essential to the smooth and continued functioning of the hip fracture clinical pathway.