

## Improving ROTEM Timings in Major Trauma

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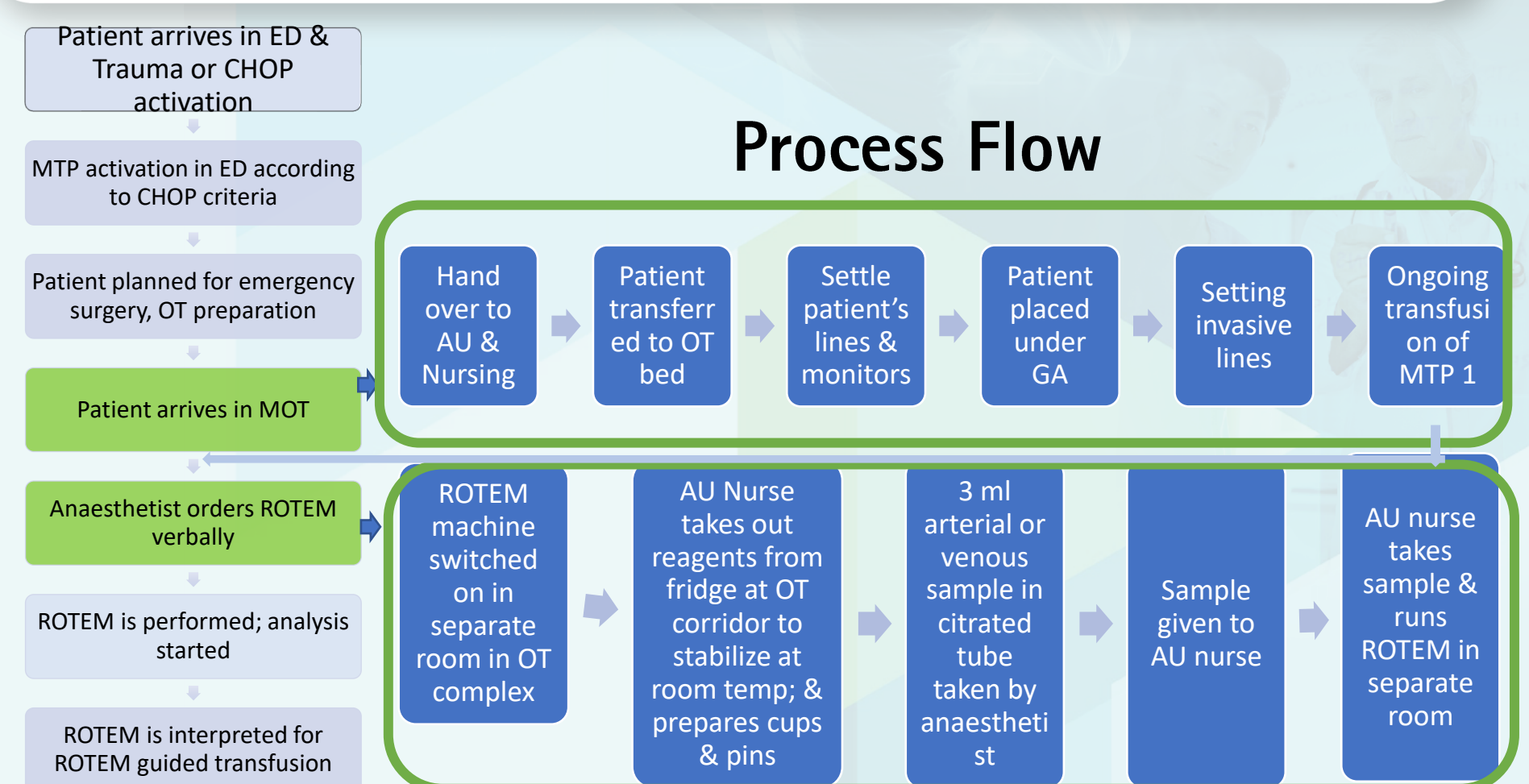
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### Problem Statement

- Trauma induced coagulopathy is common and major cause of mortality in major trauma patients
- POC viscoelastic hemostatic assays eg ROTEM give rapid, real-time information on clot kinetics
- Allows individualized transfusion of blood products & potentially reduces blood product wastage compared to traditional fixed ratio MTP
- Evidence shows that goal directed ROTEM guided MTP improves survival after injury, promotes appropriate use of blood products while favorably impacting ICU stay
- Use of VHAs has been recommended in international Trauma Guidelines to guide acute bleeding management
- KTPH has developed ROTEM-guided MTP for Trauma since 2021 but the proportion of patients getting early ROTEM done was only 17%

### Potential Solutions

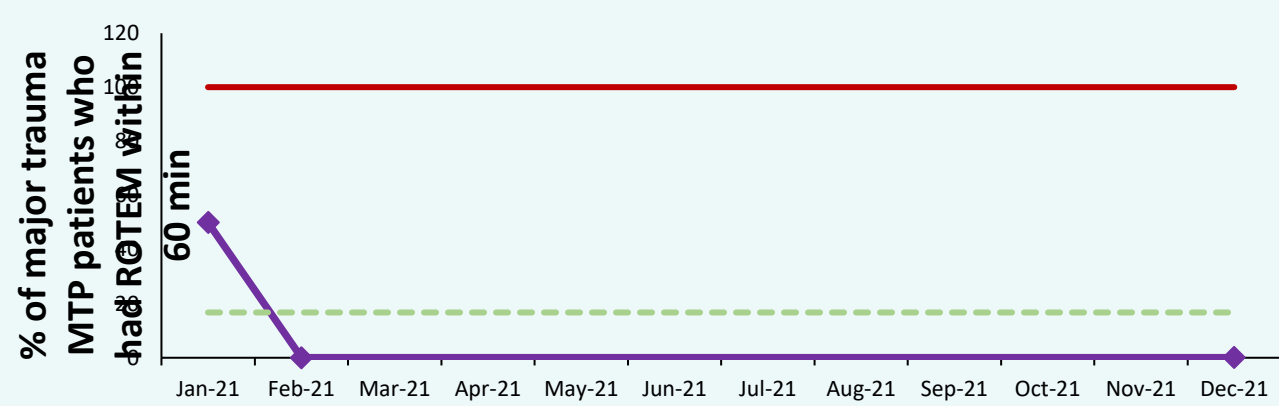


Following brainstorming, affinity diagram and Pareto Chart, the following interventions were implemented

	Problem	Plan	Do	Study	Act
PDSA 1.1 May '22	Unfamiliarity with Existing ROTEM-Guided Protocol	Increase awareness of ROTEM within Anaesthesia Dept	Re-education at M & M presentation	Compliance 100% (2/2 cases) over a month	Continue regular reminders
PDSA 1.2 Jul '22		Increase awareness for new staff through simulation practice	Team-based simulation done	Compliance 66% (2/3 cases); positive feedback from participants	Continue regular simulation training
PDSA 2 Aug '22	Lack of Training on Results Interpretation	Training on interpretation on results	Formal department teaching & quiz	75% compliance rate (3/4 cases)	Regular teaching & algorithm placed at ROTEM machine
PDSA 3 Sep '22	ROTEM too Far	Train nurses to bring ROTEM analyzer into EOT & switch on	Trial of moving ROTEM during simulation	100% (1/1 case) compliance Good feedback	Incorporate into our guidelines/workflow
PDSA 4 Oct '22	Patient too Sick	Get Lab medicine to help give reminder during MTP activation	Verbal prompt created during MTP activation	100% (1/1 case) compliance	Updated into SOP

### Project Aim

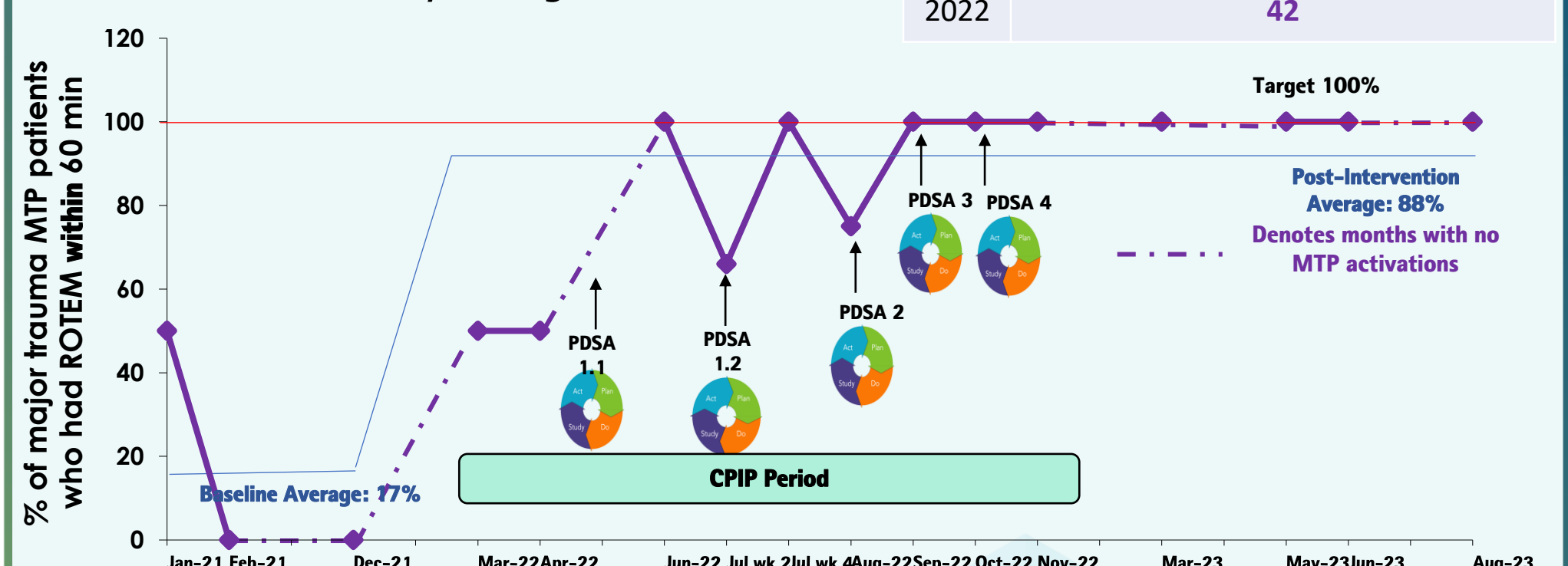
To increase the proportion of **major trauma patients** requiring **MTP** activation who had **ROTEM** done within **60 min** of MOT arrival from monthly average of **17%** (2021) to **100%** at KTPH within **6 months**



### Outcomes & Impacts

Run Chart of the % Major Trauma Patients with ROTEM done in 60 minutes shows improvement from baseline monthly average of 17% to 88%

Year	Average Time ROTEM done (minutes)
2021	84
2022	42



### Lessons Learnt

1. Getting buy-in to institute change:
  - Need a like-minded multidisciplinary team to work towards a common goal and to help spread the message to the rest
  - Celebrate small wins along the way and keep focused on the target
2. Project involving small and sporadic events:
  - Think out of the box eg Try using simulation scenarios to perform PDSA cycles
  - Simulations also serves as interventions where appropriate

#### Sustain

- Regular teaching sessions / simulation practice / reminders
- Standardization: Interventions incorporated into the actual workflow & SOP
- Annual Reviews / Monitoring
- Regular department updates on better clinical outcomes, cost savings to hospital / patient

#### Spread

- Multidisciplinary trauma simulation drills involving ED, GS & Anaesthesia
- Work with other surgical departments to include other cases which may potentially benefit from use of ROTEM Presentation at Hospital Trauma Committee (multidisciplinary)
- Sharing at local / international trauma & surgical courses /conferences as well as QI conferences