Time is Brain

Dr. Deborah Khoo
Dr. Prakash Rameshchandra Paliwal
Dr. Anil Gopinathan
National University Hospital

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NUHS National University Health System

INTRODUCTION

When a Stroke happens, the clock starts ticking…

Pre-hospital	Arrival in ED	Treatment
Variable length of time from stroke onset	Paramedics activate standby for stroke. Immediate CT brain, diagnosis and stroke team activation	1)tPA **2) EVT**
Difficult to modify, not within our control. May be hours	**Modifiable – has been optimized in a previous CPIP project. Average <10 min**	**Modifiable – time to EVT can be optimized Average 144 min to door to needle (2015 data)**

TIME IS BRAIN!

"Reperfusion should be achieved as early as possible, and when treatment is initiated beyond 6 hours from symptom onset, the effectiveness of endovascular therapy is uncertain." - 2015 AHA/ASA Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment. Stroke. 2015, June 29, 2015

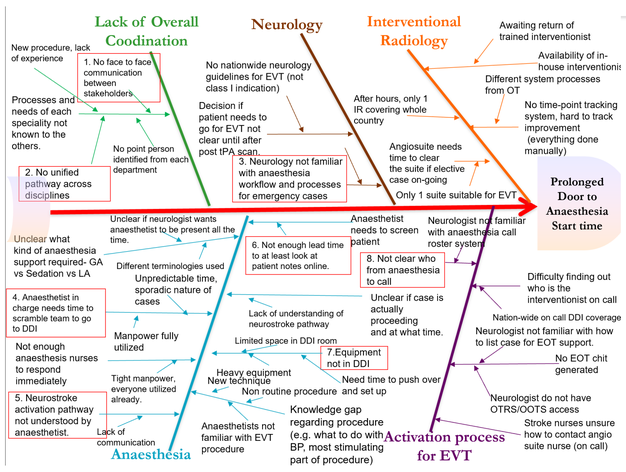
Define the problem:

What can anaesthesia do to make a difference to timing?

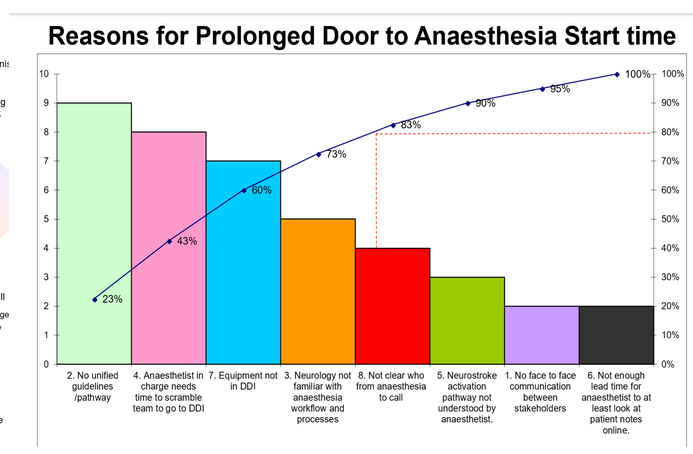
- Anaesthetist needed to administer facilitated conscious sedation, enable faster conversion to GA if required.
- Time is brain – being ready to deliver the anaesthesia rapidly when the patient arrives can help reduce overall time.
- Hurdles: Need time to get manpower and move equipment to angiosuite, screen patient, set lines etc. - can take up to 30 minutes. Could be minimized if everything is ready when the patient arrives.
- **30 minutes is clinically significant**! Translates to improvements in patient's neurological recovery and healthcare burden/costs.

METHODOLOGY

1. Stakeholder team identifies problems.

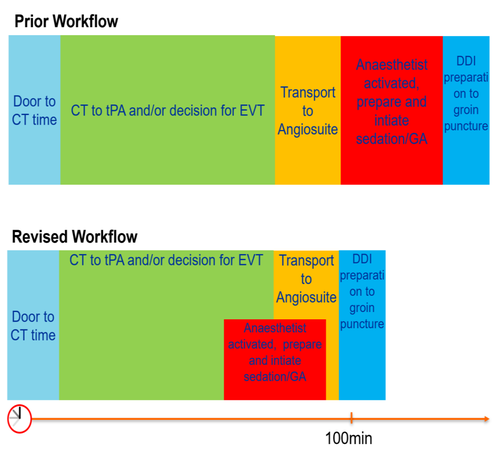


2. Pareto Charting



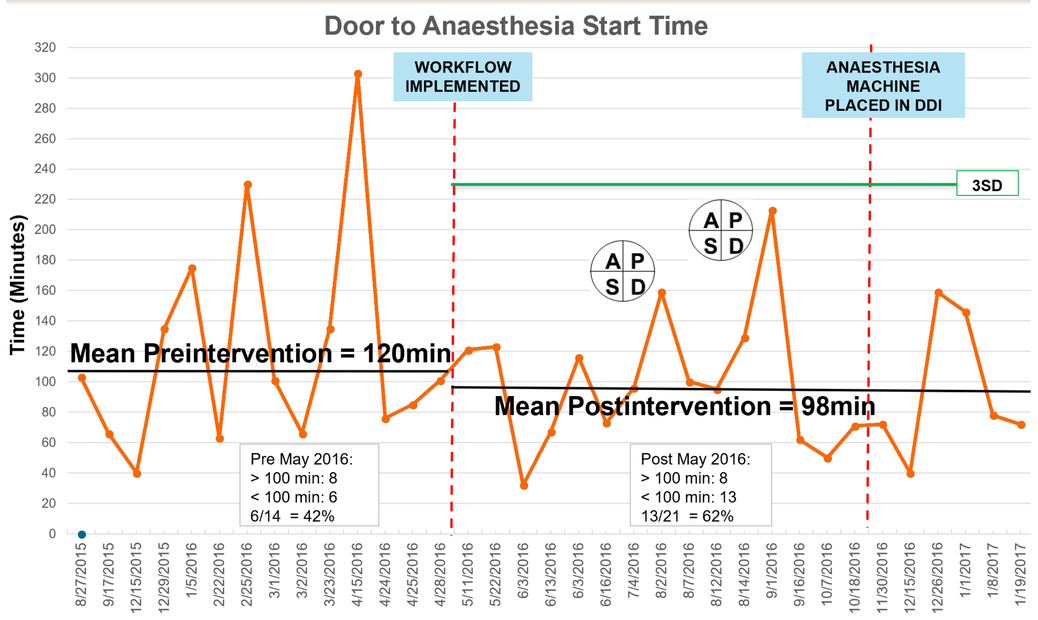
3. Implementation of solutions

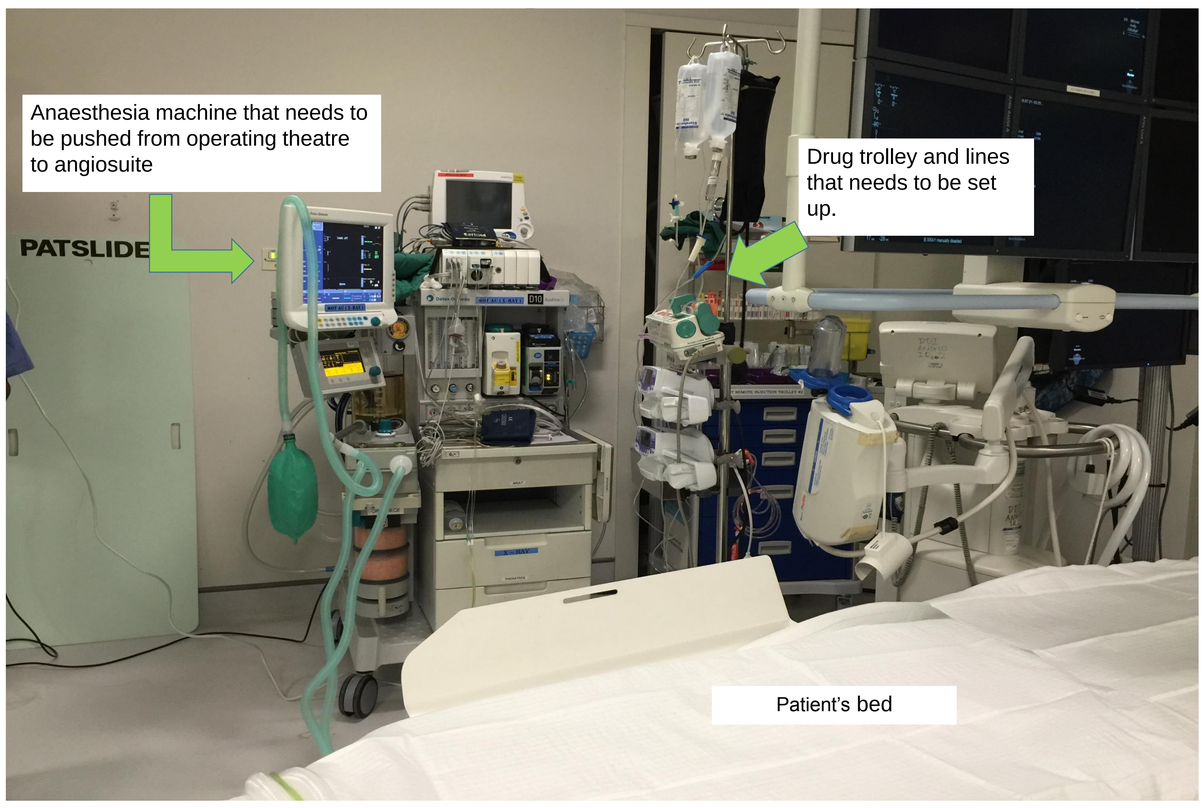
PROBLEM	INTERVENTION	DATE OF IMPLEMENTATION
No unified guidelines/pathway	• Problem identified • Stakeholders gathered • Formulated, reviewed and agreed on workflow. • Workflow presented to relevant departments prior to implementation.	9 May 2016
Neurology not familiar with anaesthesia workflow and processes		
Not clear who from anaesthesia to call		
Neurostroke activation pathway not understood by anaesthetist		
Anaesthesia equipment not in DDI	DDI agreeable for Anaesthesia machine placed into DDI room	8 Nov 2016



RESULTS

Run Chart





Cost Savings – Implementation of Workflow

	Pre-intervention	Post-intervention
Mean Length of Acute Inpatient Stay	18 days	14 days
Modified Rankin Scale for Neurologic Disability 0 = no symptoms at all 1 = no significant disability 2 = slight disability 3 = moderate disability 4 = moderately severe disability 5 = severe disability 6 = dead	3	3

Note:
- Door to anaesthesia time is only one of many contributing factors. This is a continuous team effort, led by the Neuro-stroke department, and greatly helped by the expertise of the Interventional Radiologist.
- Length of stay and patient outcomes are impacted by many other factors, e.g. pre-existing comorbidities, age of patient.

"This project put in place a system that allowed everyone to be ready within minutes of activation. When I witnessed for myself how a patient improved tremendously after a clot retrieval, I realised how big an impact a few crucial minutes and our teamwork could make on the patient's outcome." - Ms. Mary Rose Gomez Calderon, Assistant Nurse Clinician, Anaesthesia Unit Operating Theatre.

CONCLUSION

- EVT caseload is increasing year on year, with growing international interest and data.
- This project helps us be future ready and better able to cope with caseload.
- Constant reassessment, mutual avenues for feedback and suggestions for improvement when needed.
- Celebrate improvements and good patient outcomes!
- Positive feedback and encouragement to individuals.

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