

## **Project Title**

Improvement in Time of A&E P2 Patients Receiving Nebulisation

## **Project Lead and Members**

Project lead: Dr Toh Hong Chuen, Senior Consultant and HOD, A&E

Project members:

- Dr John Chua Kong Yeow, Senior Staff Physician
- Dr Jasminah Begam Binti Kader Mydin, Resident Physican
- NC Tan Sok Keng, Nurse Clinician
- NC Annur Ain Faraliza Binte Razali, Nurse Clinician
- SSN Rebacca Cheng Chew Yiing, Senior Staff Nurse
- Lavine Ye Xinrong, Senior Executive

## **Organisation(s) Involved**

Khoo Teck Puat Hospital

## **Project Period**

Start date: 2018

Completed date: 2019

## **Aims**

See poster attached/ below

## **Background**

See poster attached/ below

## **Methods**

See poster attached/ below

## Results

See poster attached/ below

## Lessons Learnt

The strength of a team lies both in the difference in perspectives each member brings, as well as ability to share to a common goal.

It is crucial during the brainstorming phase to be completely open to ideas and avoid assumptions. Only then can the root cause be identified.

As the Pareto chart attribute the magnitude of each root cause based on voting and not data, the impact of an intervention arising from a root cause might not correlate to actual impact observed during implementation.

A longer period of data gathering could (2 weeks instead of 4 days) in order to measure the actual impact of intervention 2 (since the OTN time is also affected by the "NOW" measure).

A more systematic and structured road-show on the intervention measures prior to the pilot could have reduced initial teething problems.

## Conclusion

See poster attached/ below

## Additional Information

By providing timely treatment, we can prevent deterioration of the existing condition. When patients are given nebulisation faster, they are relieved of the symptoms which can be very distressing to them or NOKs.

In improvement projects, there are often qualitative benefits which are not quantifiable. It's equally important to note those benefits as well as the quantitative aspects, to project a more rounded and fair conclusion on the effectiveness of the projects.

**Project Category**

Care & Process Redesign

**Keywords**

Care & Process Redesign, Access to Care, Waiting Time, Quality Improvement, Clinical Practice Improvement, Gemba, Affinity Diagram, Pareto Chart, Workflow Redesign, Emergency Medicine, Nursing, Healthcare Administration, Khoo Teck Puat Hospital, Nebulisation, Operation, Ned-On-Wheels

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# Improvement in Time of A&E P2 patients receiving Nebulisation

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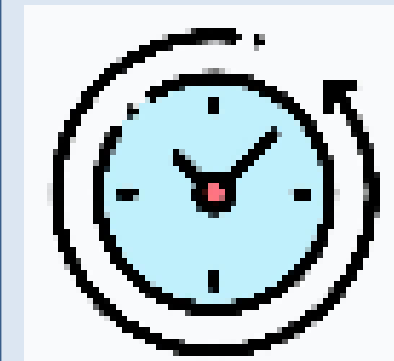
Acute and Emergency Care Centre  
Khoo Teck Puat Hospital

## Background

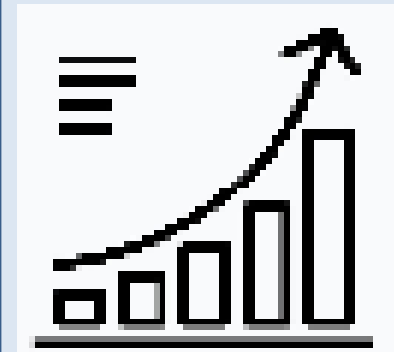


Acute exacerbation of asthma is a common presentation in A&E, with around 2050 attendances annually. Time taken to administer the 1st nebulisation for walk-in patients with symptomatic non-life threatening exacerbations is long (mean time of 44 minutes).

## Aims



Department target for patients to get nebulized is 20 minutes, and only 15% of patients met this target.

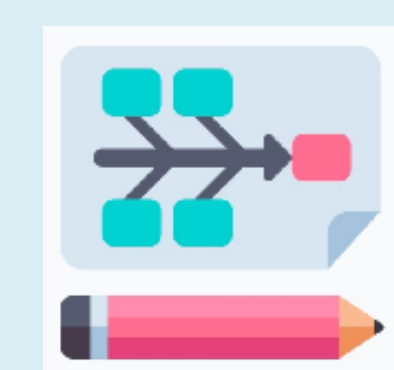


The aim is to **increase this percentage from 15% to 75%** within 6 months.

## Method



The team embarked on a CPIP in Nov 2018.



Following a Gemba walk, the macro and microflow of a patient's journey in A&E was mapped.

The team brainstormed on the potential causes, categorised them on an affinity chart and plotted into a Fishbone Diagram.

Following several series of multi-voting, the Pareto chart was drawn and **4 key interventions** were selected. As the impact could be measured independently, these interventions were executed concurrently.

## What did we do?

4 key interventions were implemented from 1<sup>st</sup> March 2019:



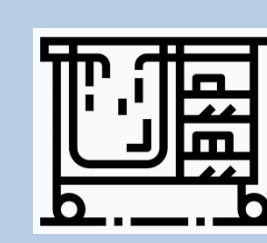
Creation of a triage nurse nebulization protocol with training



Visual triage escalation- Escalate dyspneic patient to immediate triage

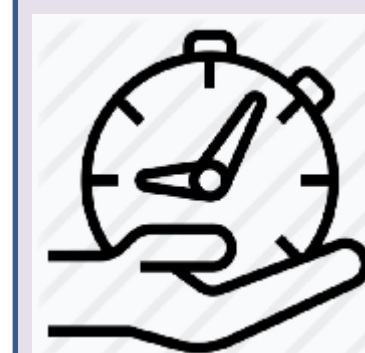


Neb-On-Wheels:  
Nebulization initiated to patient on wheelchair if trolley unavailable

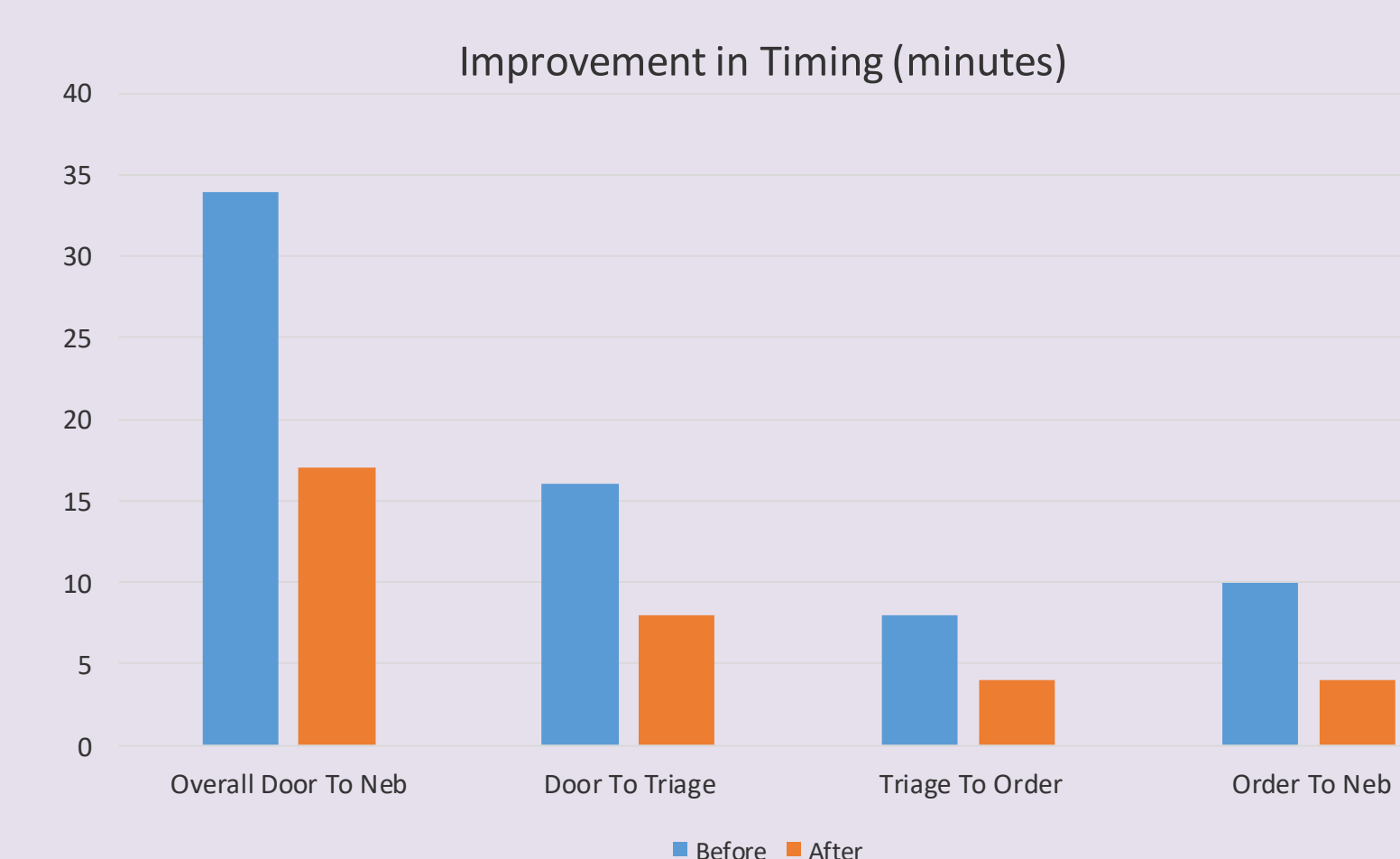


Protocol set up for topping up of medication in Nebulisation trolley

## Results



Data collected between March – May 2019 showed an improvement in Door-To-Nebulisation time from **34 minutes to 17 minutes**.

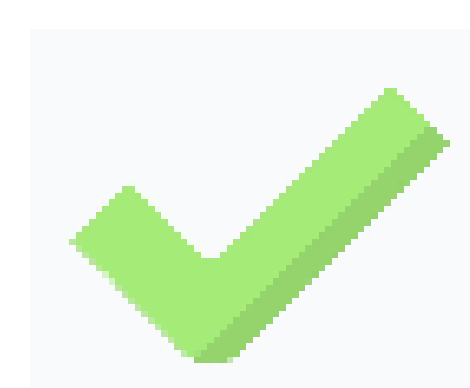


## Project Impact

Following training, nurses reported increase in confidence level in implementing the protocol (4.43 to 7.71,  $p < 0.001$ ; response rate 43.8%). All reported that they could empathize better with patients with acute asthmatic exacerbation.

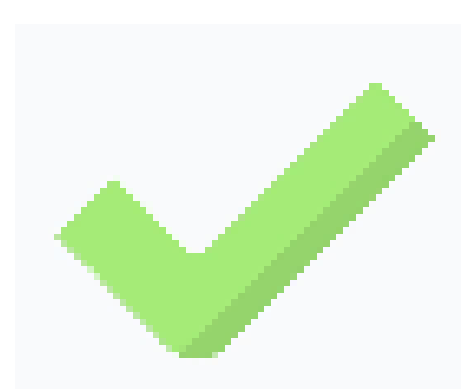
Patient care is improved as they received their nebulization much quicker than before.

Triage nurses can order medication on a per-protocol basis for the first time in A&E, improving their ability to care for patients.



## Sustainability

This QI initiative is protocolized. Triage nebulization forms are evaluated to identify areas for continuous improvement, such as validity triage nebulization criteria and nurses' auscultation capability.



## Conclusion

Significant improvement in timing was achieved and sustained after the Kaizen was implemented in March 2019, while maintaining patient safety. Staff confidence and knowledge improved with the training and empowerment.