Care Initiation Treatment (CIT) in DEM by Resident Nurses (RN)

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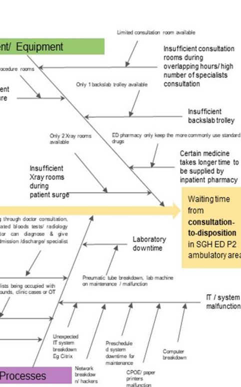
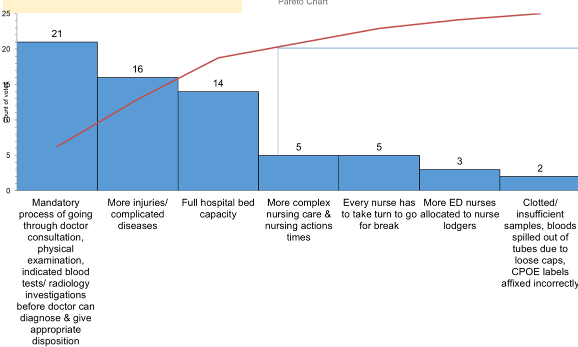
INTRODUCTION

Long waiting time at emergency department (ED) has been associated with increased morbidity, mortality and decreased patients' satisfaction for years. In SGH ED, Priority 2 (P2) patients requiring intermediate or urgent care would need to receive timely interventions within two to four hours, failure to do so may lead to early deterioration of their medical status. In 2019, P2 95th percentile wait time for consultation is three hours. This is hitting near the four hours mark which can potentially lead to poorer outcomes for the higher acuity patients and greater patient dissatisfaction. Thus, ED Resident Nurses (RN) initiated protocolized care initiation treatment (CIT) which aims to enhance ambulatory P2 patient's safety by identifying patients with risk of deterioration and improving patients' satisfaction via reducing their overall length-of-stay in ED.

METHOD

With the utilization of fishbone diagram which analyses the problem based on four main aspects of staff, patients, environment/equipment and process, the root causes contributing to waiting time from consultation-to-disposition for ambulatory P2 patients were identified.





With the determination of final root causes, drawing of Driver Diagram helps to develop the proposed solution of allocating a designated resident nurse to initiate CIT interventions for the targeted group. This has enabled effective shortening of waiting time from doctor consultation to final disposition. RN achieves this via performing CIT interventions which include initiating indicated laboratory/ radiology investigation, analgesia administration and screening to up-triage potentially deteriorating cases. The interventions bring forward timing of laboratory /radiology test results and minimize duration of pain/discomfort for patients still awaiting to see doctor. In terms of feasibility, ease of execution and sustainability, the solution of RN initiated CIT intervention takes precedence over other solutions generated for 2nd and 3rd top root causes, as solutions such as activating additional medical and nursing manpower for assistance from another area might not be feasible in the event when every area is also equally overwhelmed with ill patients.

OBJECTIVES

To reduce median waiting time from consultation to disposition by 60% from 167.56 mins to 67 mins within 1 month through RN protocolized CIT for ambulatory P2 patients.

RESULTS

	Pre CIT	Post CIT
Sample size (n)	380	118
Median waiting time (min)	167.56	90.76

Fig.4 Comparison of consultation-to-disposition waiting time for P2 ambulatory patients pre- and post-implementation

A 30-days pre and post implementation data collection for consultation-to-disposition duration was collated for April 2019 and April 2021, Year 2020 has been omitted for fair comparison of data due to Covid 19 pandemic, which has an impact on the number of patients visiting DEM. As per t-test analysis, a statistically significant result with a p-value of 3.28×10^{-16} ($p < 0.05$) has been generated based on the 2 sample sizes of n=380 and n=118. The data analysis shows that there was a marked statistical improvement in consultation-to-disposition waiting time post implementation as evidenced by the reduction from a median waiting time of 167.56 mins for pre-CIT patients to a median waiting time of 90.76 mins for post-CIT patients. Though the initial target of 60% reduction was not met, 46% reduction has produced a relatively significant improvement in the waiting time for the targeted group within emergency department.

Through voting by the team, the pareto chart (Fig.2) shows that the top root causes contributing to waiting time from consultation to disposition for ambulatory P2 patients are:

1. Having to go through ED mandatory consultation process of doctor consultation -> physical examination -> indicated laboratory/radiology tests -> diagnosis -> disposition of admission/ discharge/ specialist's referral
2. Having increased number of complex cases involving multiple premorbid conditions or more injuries requiring more investigations/interventions and treatment plans discussion with senior doctor
3. Full hospital bed capacity

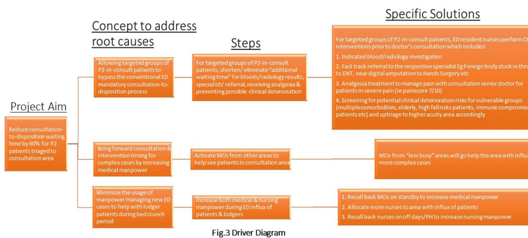


Fig.3 Driver Diagram

SUSTAINABILITY PLANS

With the existing department CIT protocols, the RNs would continue the project aims of reducing consultation-to-disposition waiting time via CIT intervention. Moving forward, as resident nurses practice and initiate CIT interventions strictly based on protocolized policies, more CIT policies based on other chief complaints such as dengue fever, pyelonephritis, blocked dialysis access etc have also been formulated by the team to expand the targeted groups of patients receiving CIT intervention. The newly formulated policies and workflows have been submitted and awaiting approval from department HOD, nursing management, nursing specialty care management as well as institution medical board. For cases with CIT intervention rendered, the team would continue to monitor their consultation-to-disposition waiting duration via continuous tracking of data. The anomaly cases of long waiting time despite CIT intervention would also be gathered and reviewed to ensure that CIT intervention in place is effective.