

# Shortening the CT Examination Time of Emergency Patients Using the Continuous Improvement Process Method

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# Outline

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# Introduction

CIP, which stands for Continuous Improvement Plan, is an ongoing improvement project aimed at enhancing corporate operational efficiency, reducing costs, and improving satisfaction. It involves various stages of the supply chain, including procurement, production, warehousing, logistics, and sales. By optimizing resource allocation, improving processes, innovating technologies, CIP helps to enhance the core competitiveness of the company.

## Function:

- 1、 Enhance corporate competitiveness
- 2、 Optimize supply chain processes
- 3、 Reduce operating costs
- 4、 Improve customer satisfaction
- 5、 Respond to market changes



# Plan Purpose

To shorten the preparation time for CT scans for emergency patients, improve the emergency CT examination process, and provide patients with high-quality and efficient while increasing patient satisfaction.



# Materials and Methods

## Define

- By using the 5W2H method, it can be seen that shortening the preparation time for emergency patients' imaging examinations not only improves examination process for emergency patients but also provides high-quality service to patients while reducing medical disputes.
- By collecting historical data, the waiting time for emergency patients' DR meets the requirements of tertiary hospitals, while the waiting time for CT examinations is 59 minutes, exceeding the standard of 60 minutes.

## Measure

- Calculate the proportion of emergency CT patients who were examined within 60 minutes, 60-90 minutes, 90-10 minutes, and over 120 minutes, as well as those who were examined before payment. The proportion of patients waiting more than 60 minutes identified as 49.37%, which is the focus of improvement.
- According to the statistics of the patient's in-hospital examination process, compare the average waiting time for each process of patients who completed the examination in than 60 minutes with the standard value, evaluate the patient's waiting time in 5 time periods, and focus on improving the time period according to the 80-20 rule, which are small night shift and large night shift.

## Analyze

- By analyzing with fishbone diagram and system diagram, returning to the scene, checking with checklists and asking patients, combining similar items, and determining factors.
- Verification of true causes for the seven factors: patients did not undergo examinations at the scheduled time and place; inpatients needed urgent CT scans due their condition; excessive health check-ups for patients; low usage of self-service payment machines; patients underwent examinations before payment; unclear signs from the emergency payment counter to emergency radiology department; no queuing system in the emergency radiology department, leading to uncertainty about the waiting time for patients.

## Improve

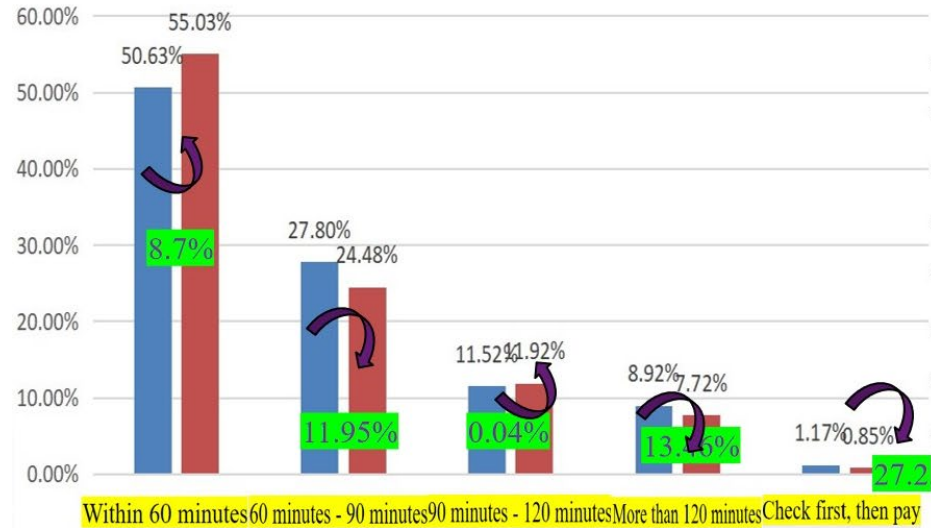
- Targeting the true causes, team members propose improvement measures, and through a scoring system of 5, 3, and 1, measures scores above 171 are considered feasible solutions.
- Seven improvement measures have been formulated.

## Control

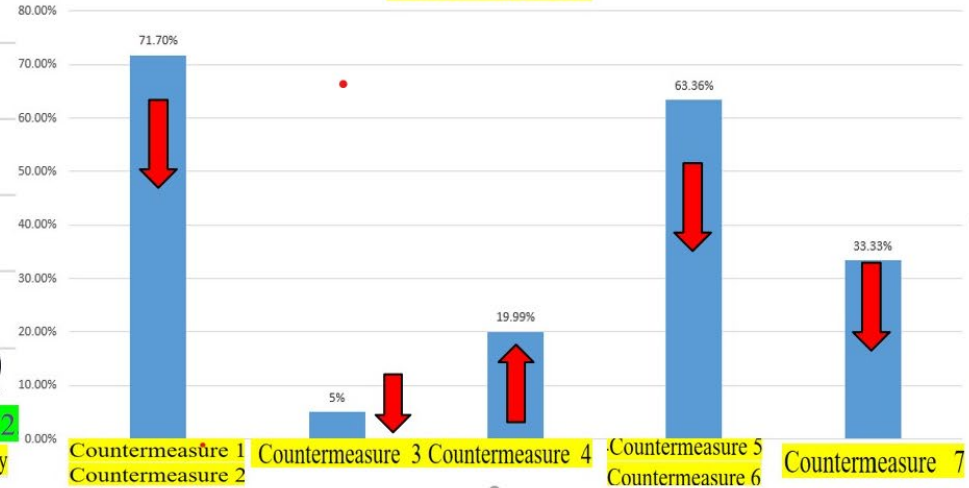
- After improvement, the CT waiting time for small night and large night emergency patients was significantly reduced. Countermeasure 5 shortened the doctors' order to 15 minutes, countermeasure 4 shortened the patients' payment time to 27 minutes, and countermeasures 1, 2, 3, 6, and 7 shortened the patients' examination time to 5 minutes. Through a series of measures, the radiologists' report time was to 30 minutes. Each improvement was statistically significant, with  $P < 0.05$ , indicating significant improvement
- There are also tangible benefits from improvements, such as an increase in the number of patients treated per unit of time, a reduction in missed charges, an avoidance of refunds due to long waiting times for CT scans.

# Results

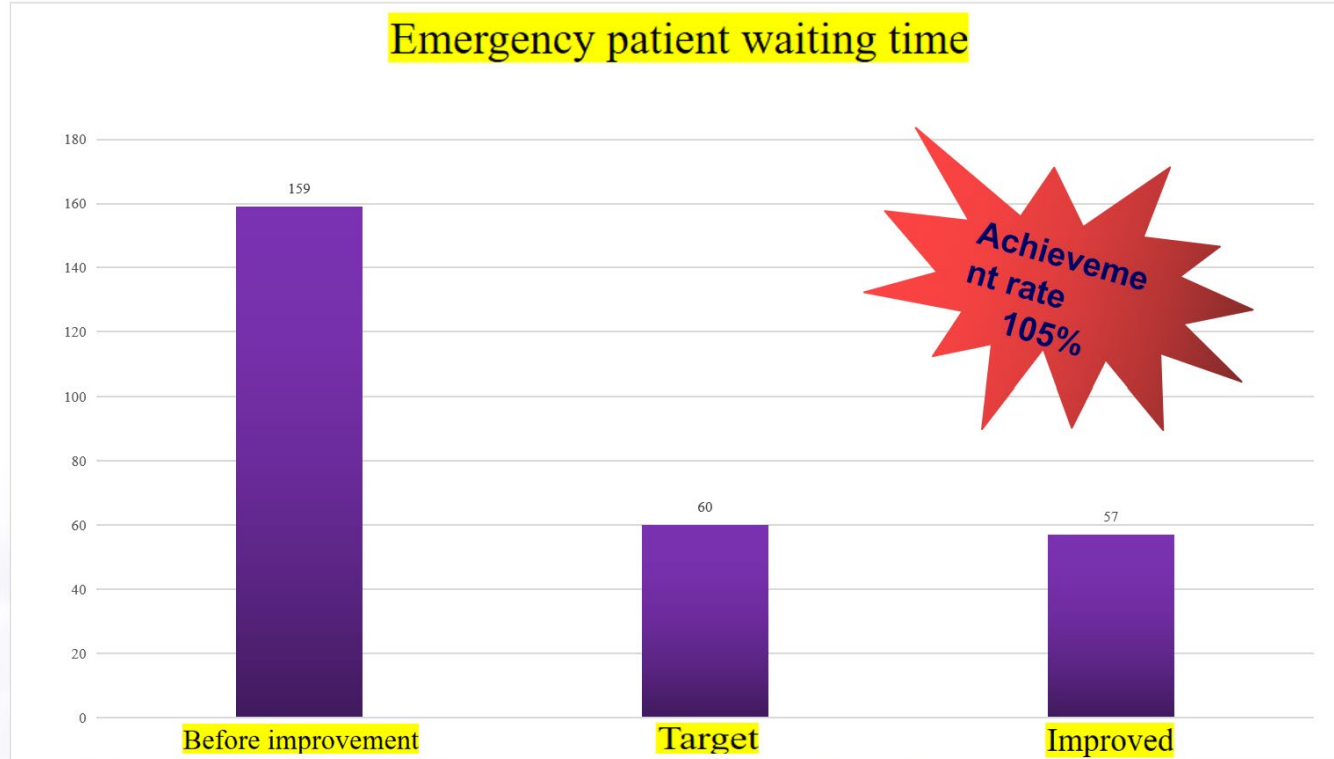
## Emergency CT patients



## Effectiveness



# Results





Thank You

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