

A DMAIC Approach to Streamline the Process and Reduce the Waiting Time of Outpatient Department at Burjeel Hospital, Abu Dhabi



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INTRODUCTION

- An outpatient department or outpatient clinic is the part of a hospital designated for the treatment of outpatients, that is, patients who do not require overnight care or treatment.
 - Outpatient department plays an important role in building patient's impression towards the hospital. Therefore, it is of utmost importance to ensure that the outpatient services provide their clients with an exceptional experience.
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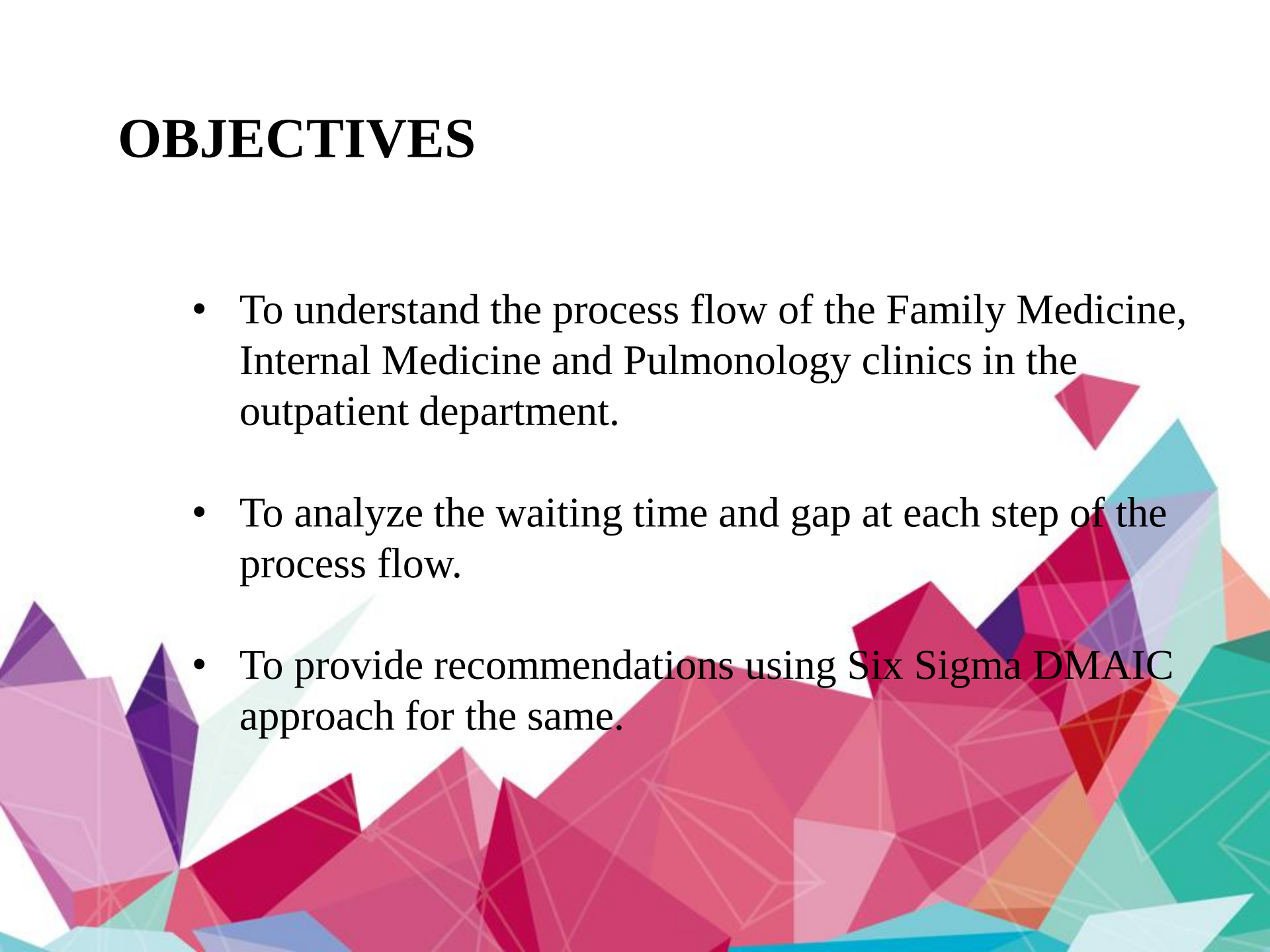
RATIONALE

- The purpose of the study was to estimate the waiting of patients in the outpatient department since it directly affects patient satisfaction.
- It was found that complaint regarding long waiting times was maximally registered in outpatient clinics, which directly affects patient satisfaction.
- As a note to address this issue as priority, OPD of the busy Family Medicine, Internal Medicine and Pulmonology clinics was considered to reduce the waiting time of the patients.

RESEARCH QUESTION

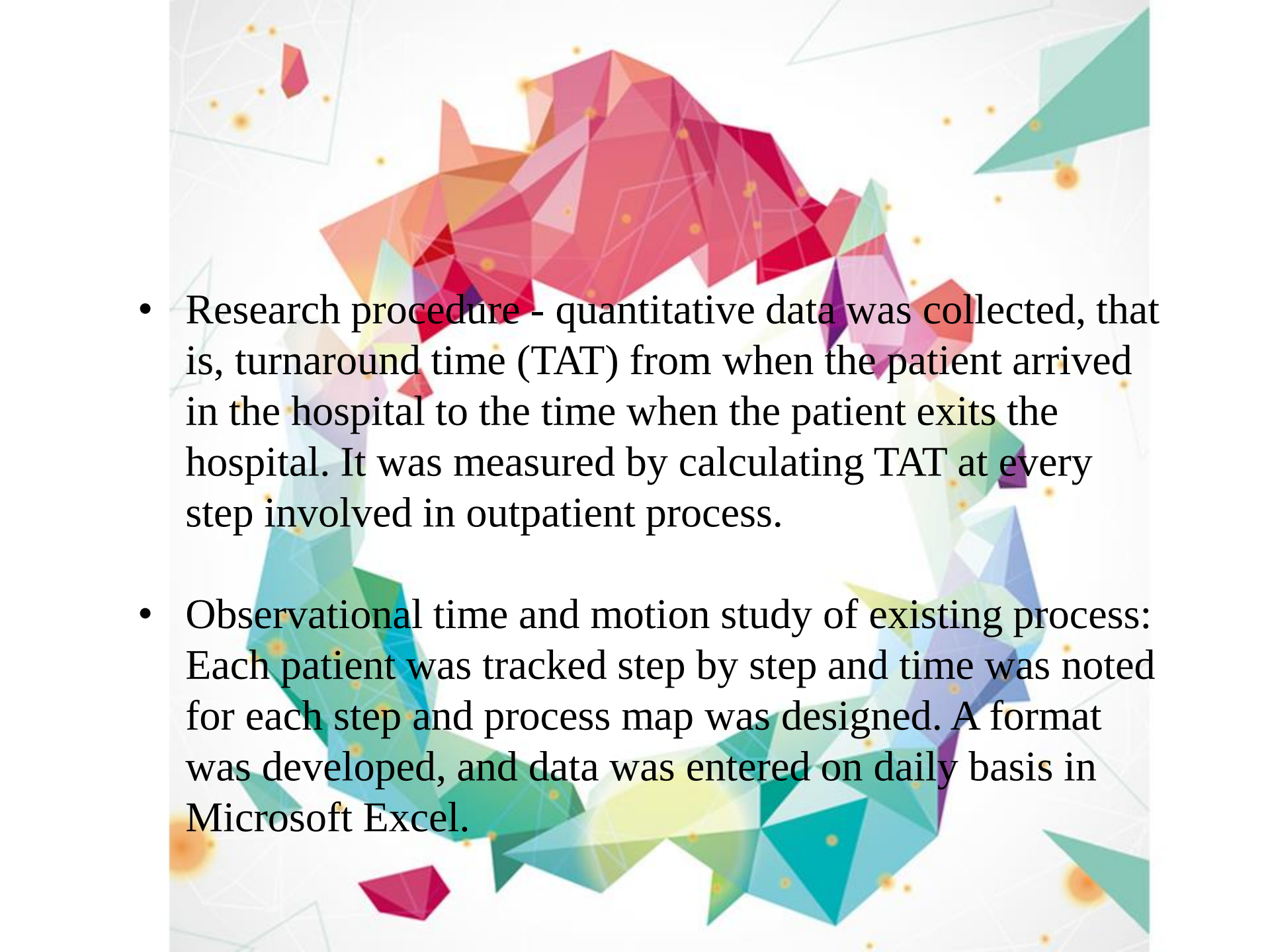
- What is the waiting time for patients at the Family Medicine, Internal Medicine and Pulmonology clinics?
- What are the main steps where possible delay can be eliminated?
- What are the causes of delay and gap in processes?

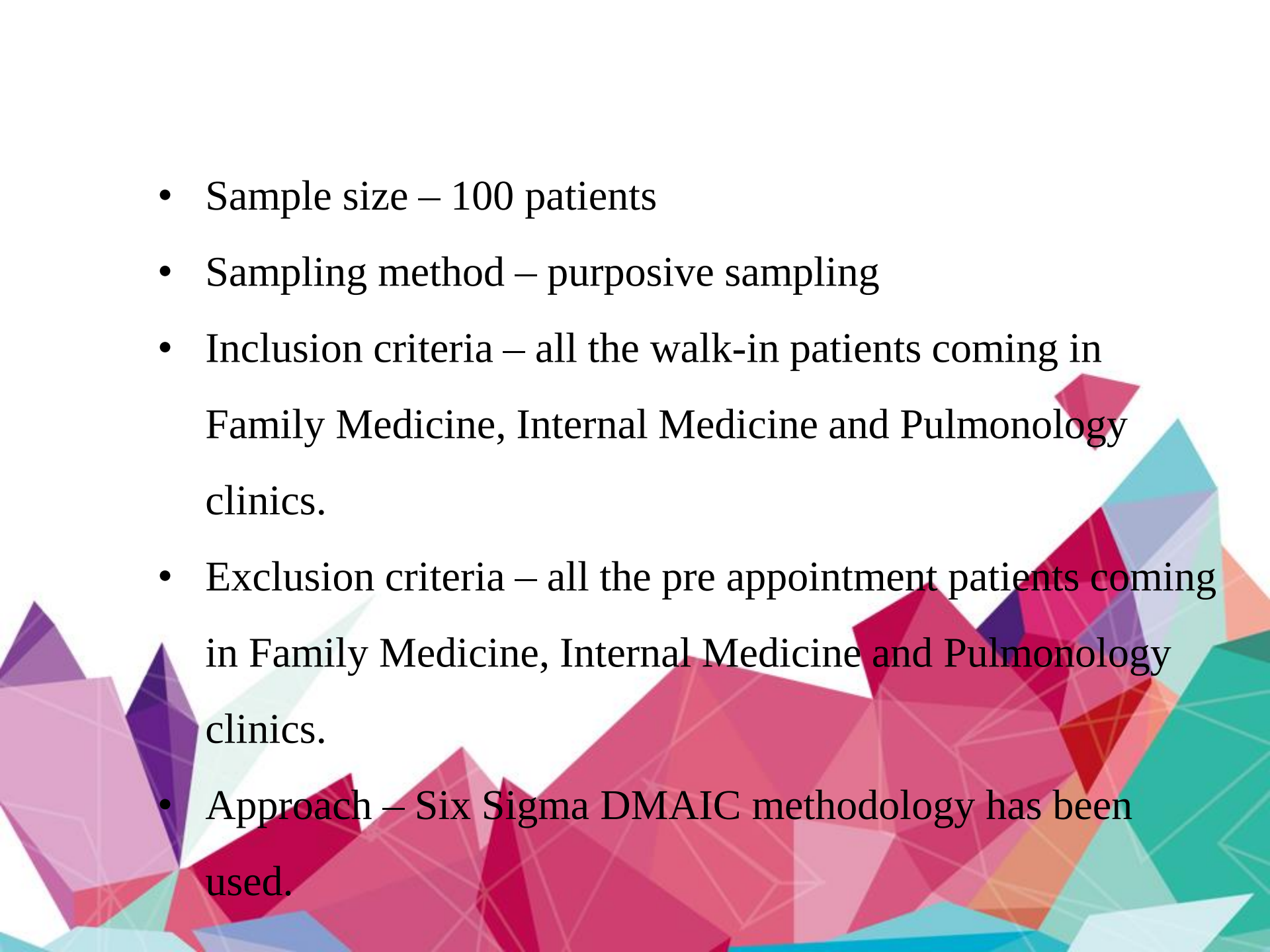
OBJECTIVES

- To understand the process flow of the Family Medicine, Internal Medicine and Pulmonology clinics in the outpatient department.
 - To analyze the waiting time and gap at each step of the process flow.
 - To provide recommendations using Six Sigma DMAIC approach for the same.
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METHODOLOGY

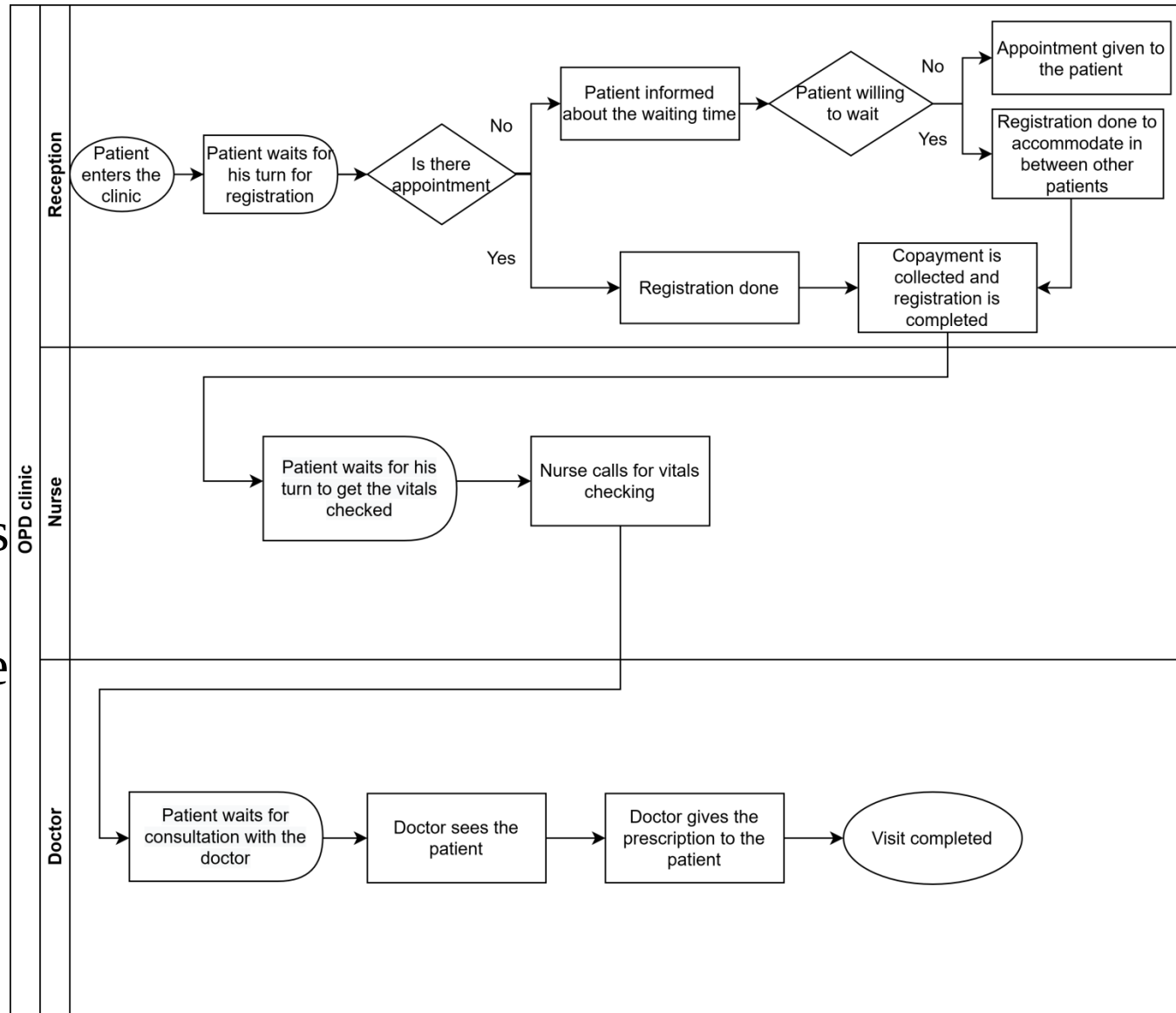
- Study design – cross sectional study
- Study setting – Family Medicine, Internal Medicine and Pulmonology clinics in the OPD of Burjeel Hospital, Abu Dhabi were chosen as they are the busiest clinics in the outpatient department.
- Study population – patients visiting the Family Medicine, Internal Medicine and Pulmonology clinics in the OPD of Burjeel Hospital, Abu Dhabi.

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- Research procedure - quantitative data was collected, that is, turnaround time (TAT) from when the patient arrived in the hospital to the time when the patient exits the hospital. It was measured by calculating TAT at every step involved in outpatient process.
 - Observational time and motion study of existing process: Each patient was tracked step by step and time was noted for each step and process map was designed. A format was developed, and data was entered on daily basis in Microsoft Excel.

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- Sample size – 100 patients
 - Sampling method – purposive sampling
 - Inclusion criteria – all the walk-in patients coming in Family Medicine, Internal Medicine and Pulmonology clinics.
 - Exclusion criteria – all the pre appointment patients coming in Family Medicine, Internal Medicine and Pulmonology clinics.
 - Approach – Six Sigma DMAIC methodology has been used.

DEFINE PHASE

Problem Statement:
Longer patient wait time at the Family Medicine, Internal Medicine and Pulmonology clinics due to delay in outpatient procedure such as registration, nursing assessment and consultation.



MEASURE PHASE

- The waiting time data at the OPD has been collected for a period of two weeks from 9:00 am to 6:00 pm during Saturday to Thursday. Each patient was tracked step by step and time was noted for each step. Timing for each step was classified as: 0-5 minutes, 6-11 minutes, 12-17 minutes and 18 minutes & above. Total time was classified as: 0-15 minutes, 16-30 minutes, 31-45 minutes, 46-60 minutes and 61 minutes & above.

MEASURE PHASE

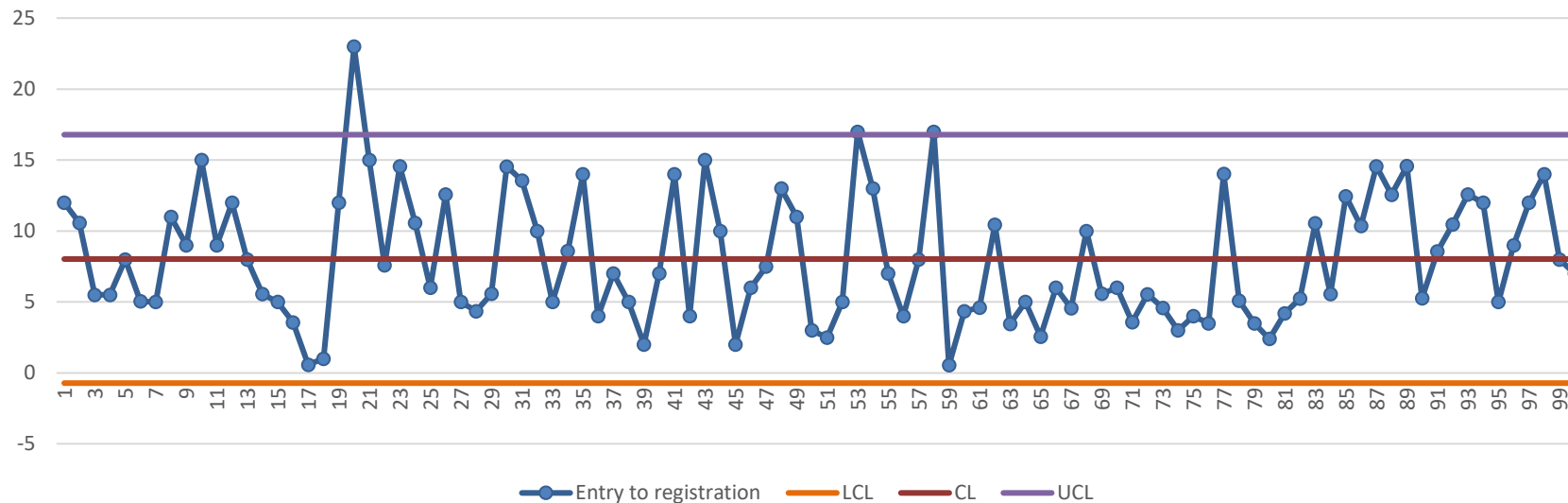
- The average time taken to complete the entire process was considered as 60 minutes, any deviation from ideal time was considered as delay. Time for the following steps was recorded:

Steps	Time limit (minutes)
Time from entry till registration	10
Time from registration till taking vitals	15
Time from vitals till consultation call	15
Time for consultation	20
Total	60

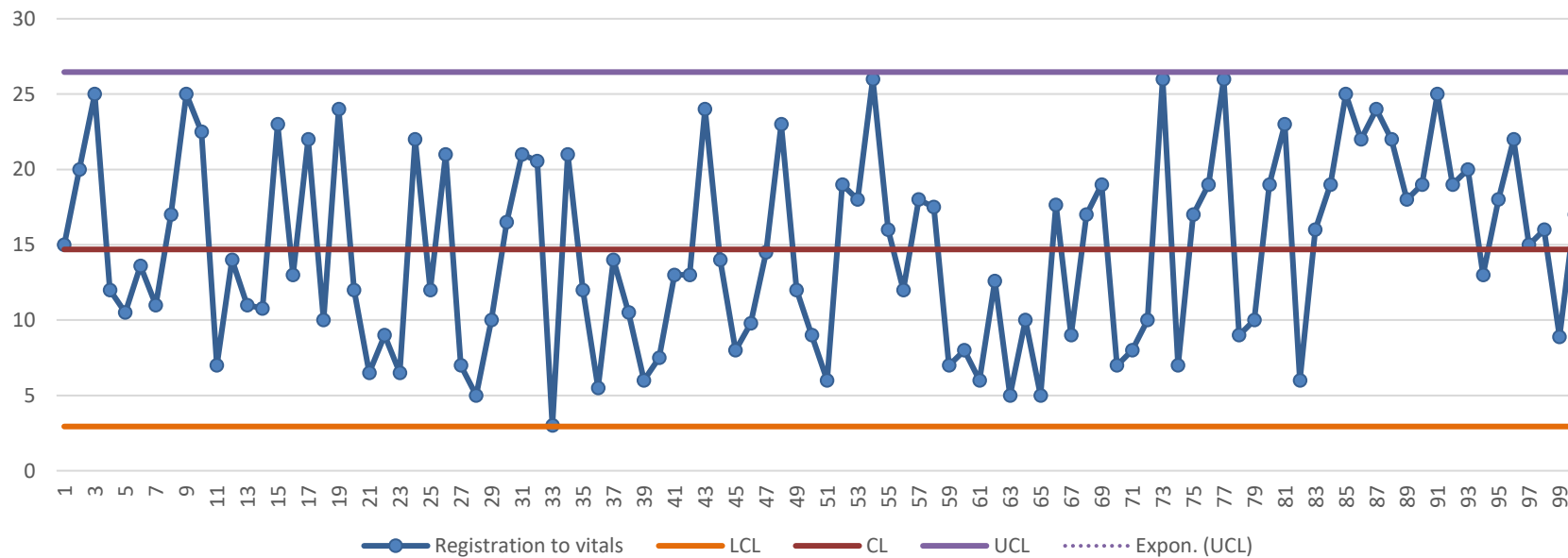
Control charts are prepared based on data collected.

Steps	Mean	Standard deviation	Upper control limit ($UCL = \text{mean} + 3 \times \sqrt{\text{mean}}$)	Lower control limit ($LCL = \text{mean} - 3 \times \sqrt{\text{mean}}$)
Entry to registration	8.03	4.43	16.79	-0.73
Registration to vitals	14.70	6.27	26.46	2.94
Vitals to consultation call	13.80	4.67	24.93	2.67
Consultation finished	20.65	4.64	34.27	7.03
Total time	57.18	11.88	80.07	34.29

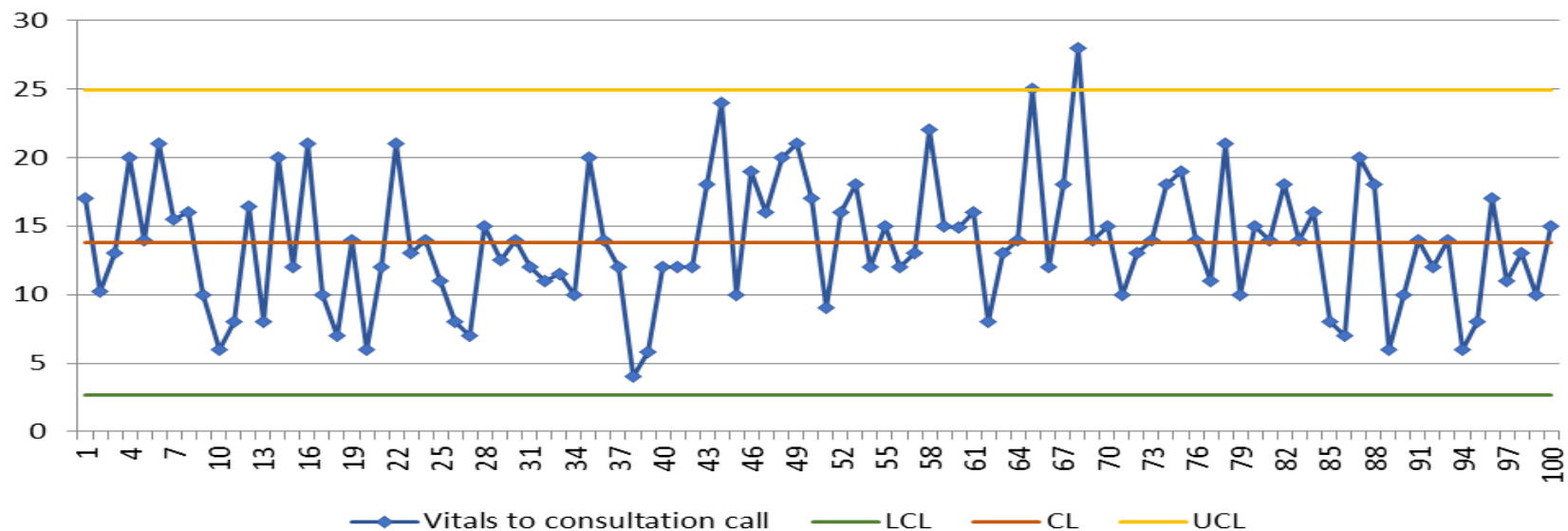
Time from entry to registration



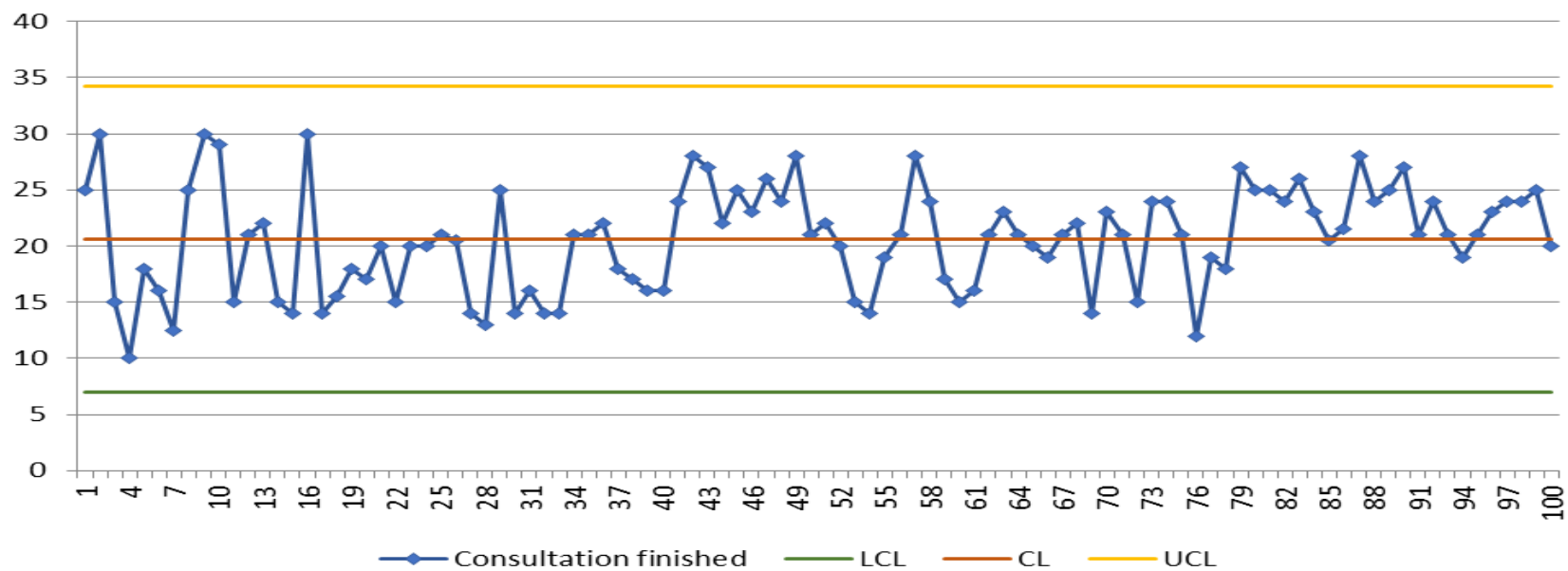
Time from registration to vitals



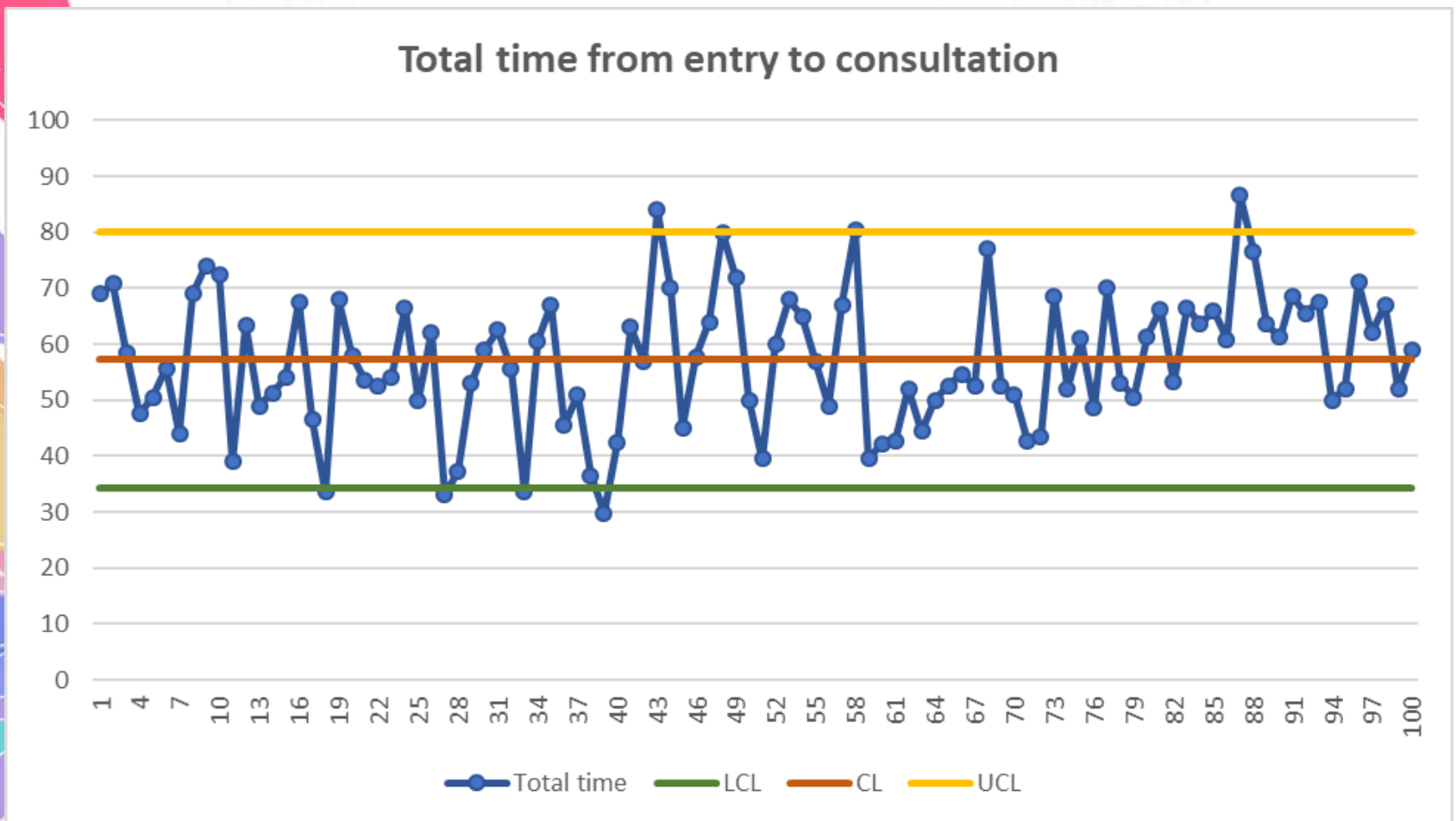
Time from vitals to consultation call



Consultation time

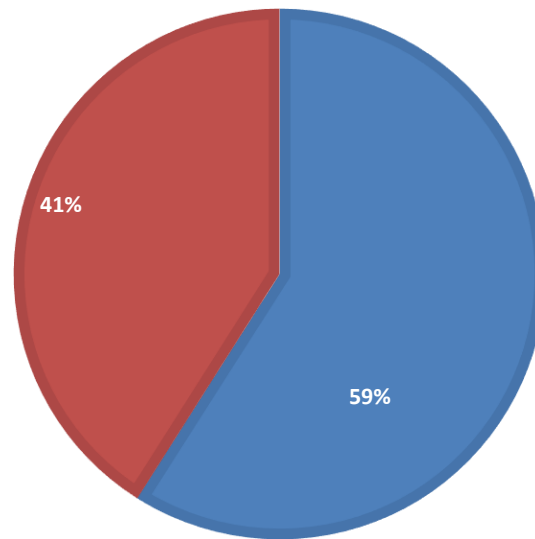


It was observed that some values in a few steps crossed the UCL and LCL and also the turnaround time set by the management. The process requires improvement for increasing patient satisfaction.



TOTAL TIME OF PATIENTS AT OPD

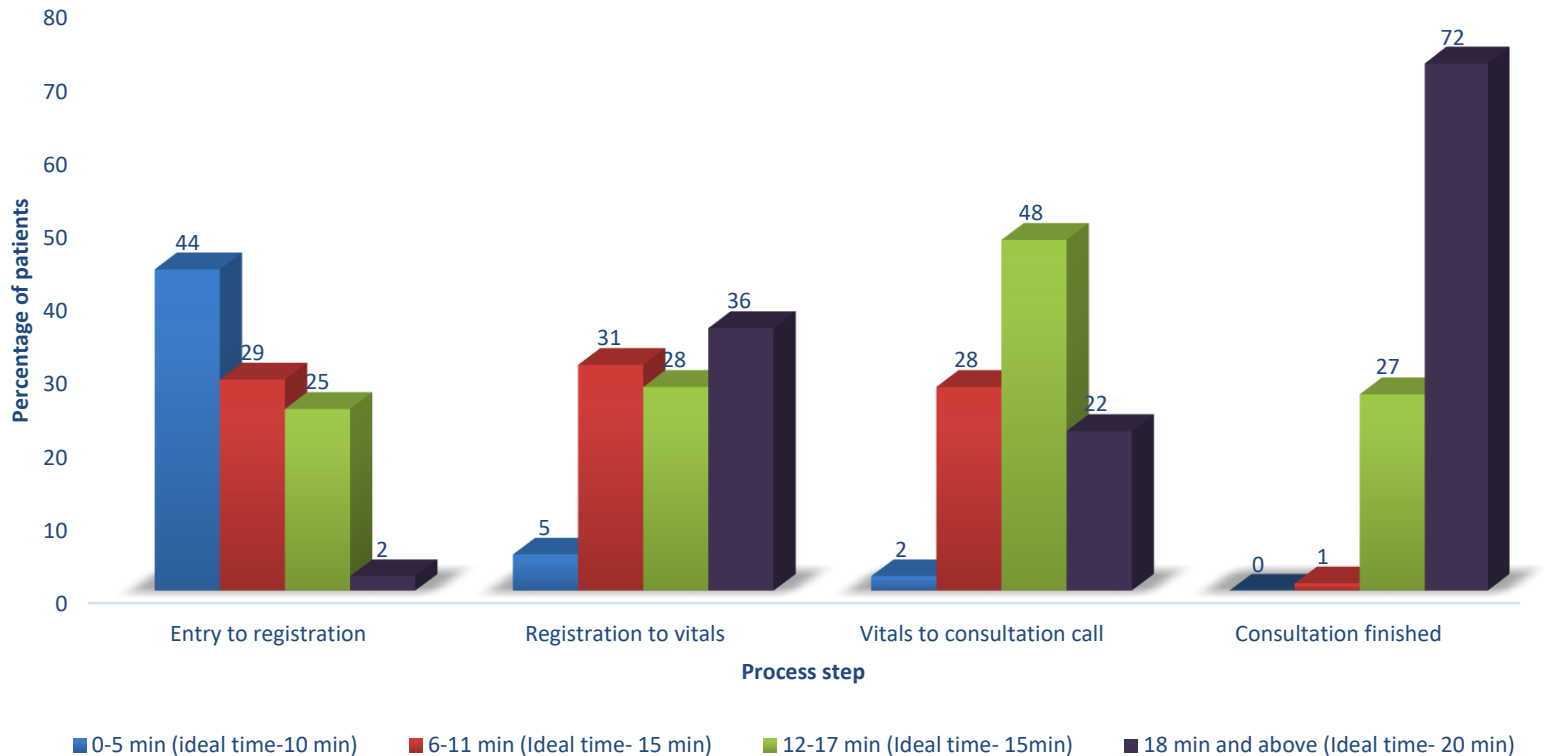
■ Less than or equal to 60 min ■ More than 60 min



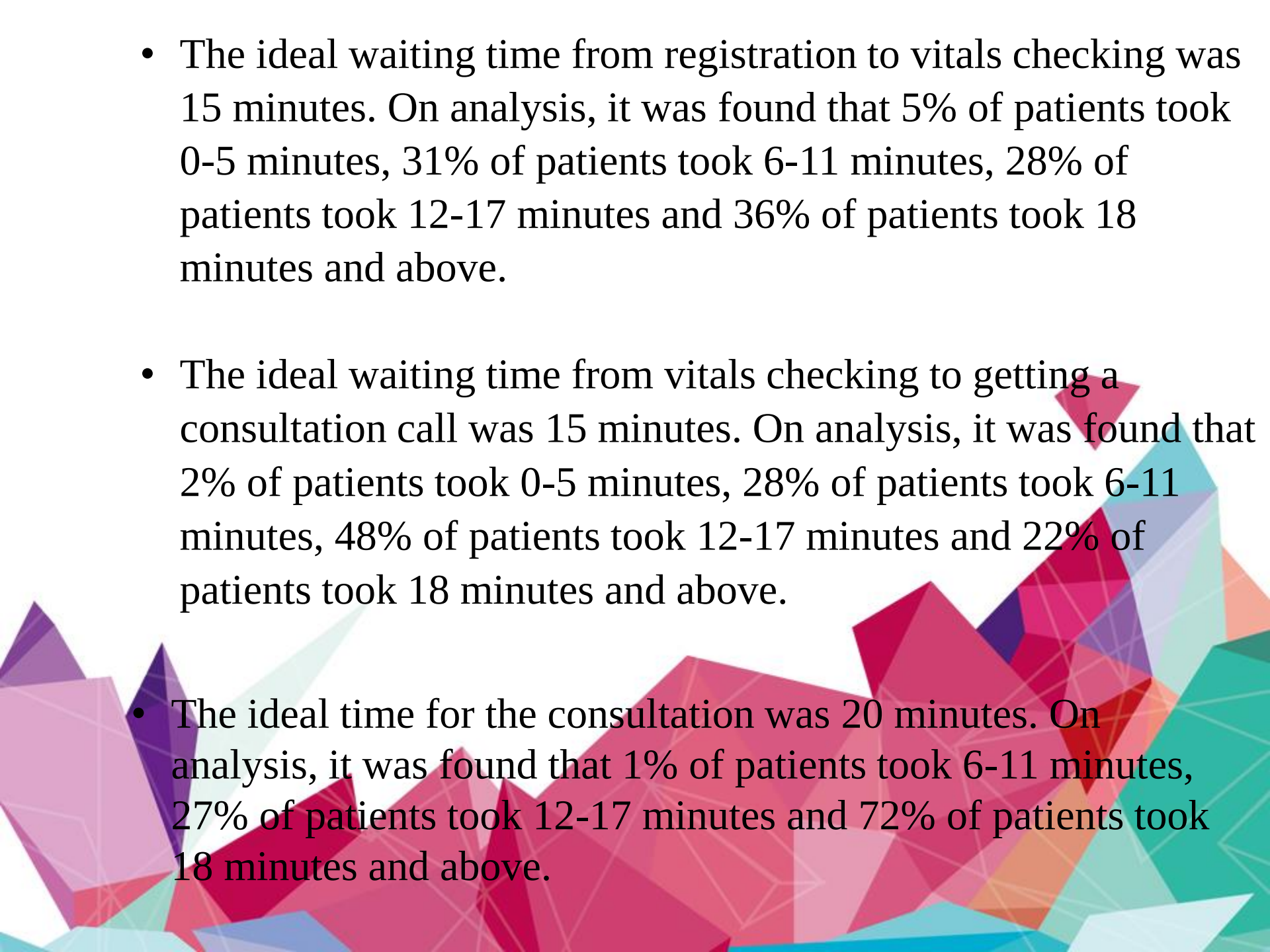
Graphical representation

When total time taken by the patients at the OPD was analyzed, it was found that 41% of the patients took more time than ideal, while 59% of the patients finished the consultation within the ideal time.

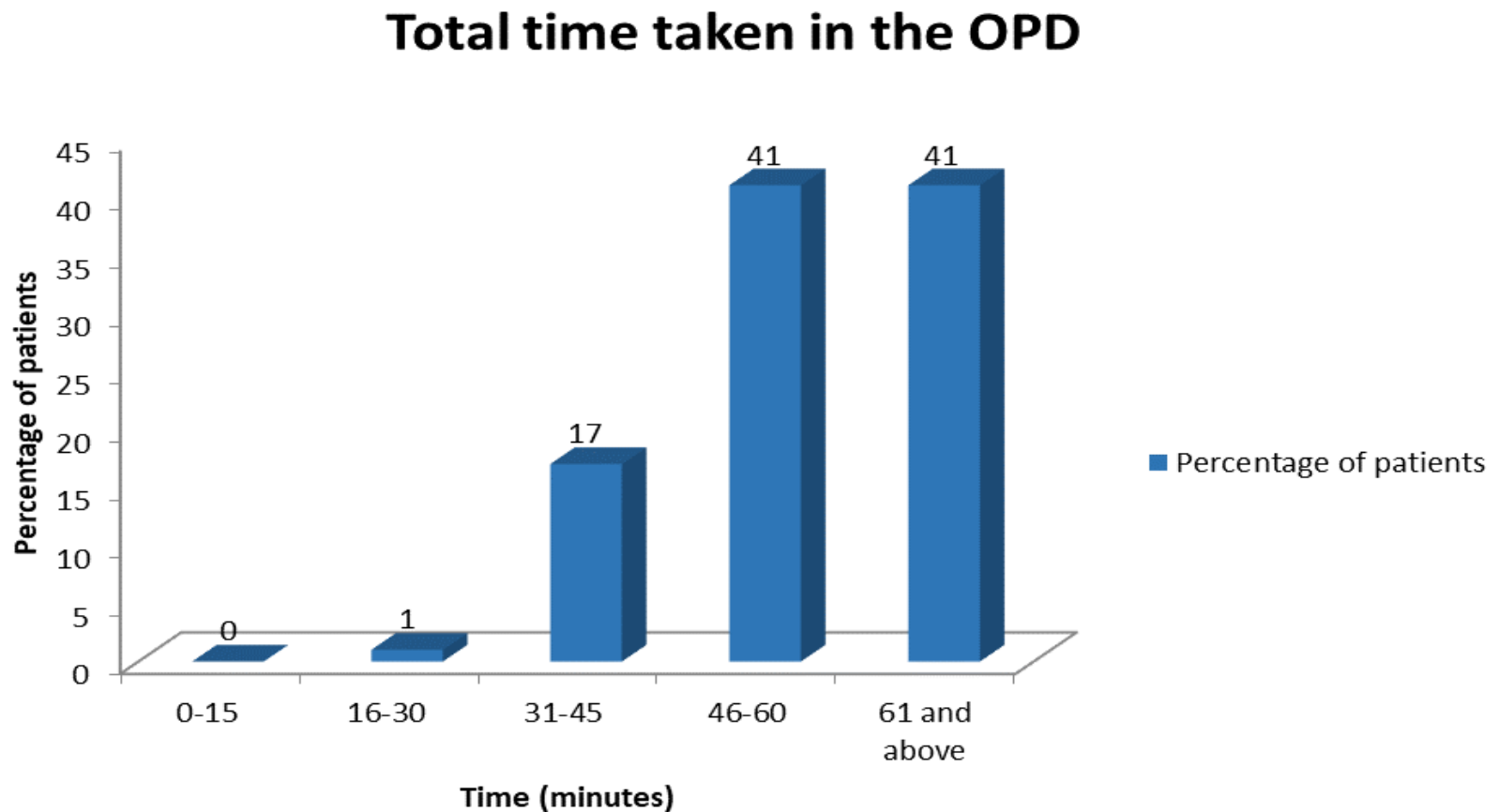
Process responsible for waiting time



- The ideal time waiting time from entry till registration was 10 minutes. On analysis, it was found that 44% of patients took 0-5 minutes, 29% of patients took 6-11 minutes, 25% of patients took 12-17 minutes and 2% of patients took 18 minutes and above.

- The ideal waiting time from registration to vitals checking was 15 minutes. On analysis, it was found that 5% of patients took 0-5 minutes, 31% of patients took 6-11 minutes, 28% of patients took 12-17 minutes and 36% of patients took 18 minutes and above.
 - The ideal waiting time from vitals checking to getting a consultation call was 15 minutes. On analysis, it was found that 2% of patients took 0-5 minutes, 28% of patients took 6-11 minutes, 48% of patients took 12-17 minutes and 22% of patients took 18 minutes and above.
 - The ideal time for the consultation was 20 minutes. On analysis, it was found that 1% of patients took 6-11 minutes, 27% of patients took 12-17 minutes and 72% of patients took 18 minutes and above.
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The overall ideal time set by the management was 60 minutes in the OPD. On analysis, it was observed that only 1% of patients completed the OPD visit within 16-30 minutes, 17% of patients visited the visit within 31-45 minutes, 41% of patients completed the visit within 46-60 minutes and 41% of patients completed the visit in 61 minutes or above.

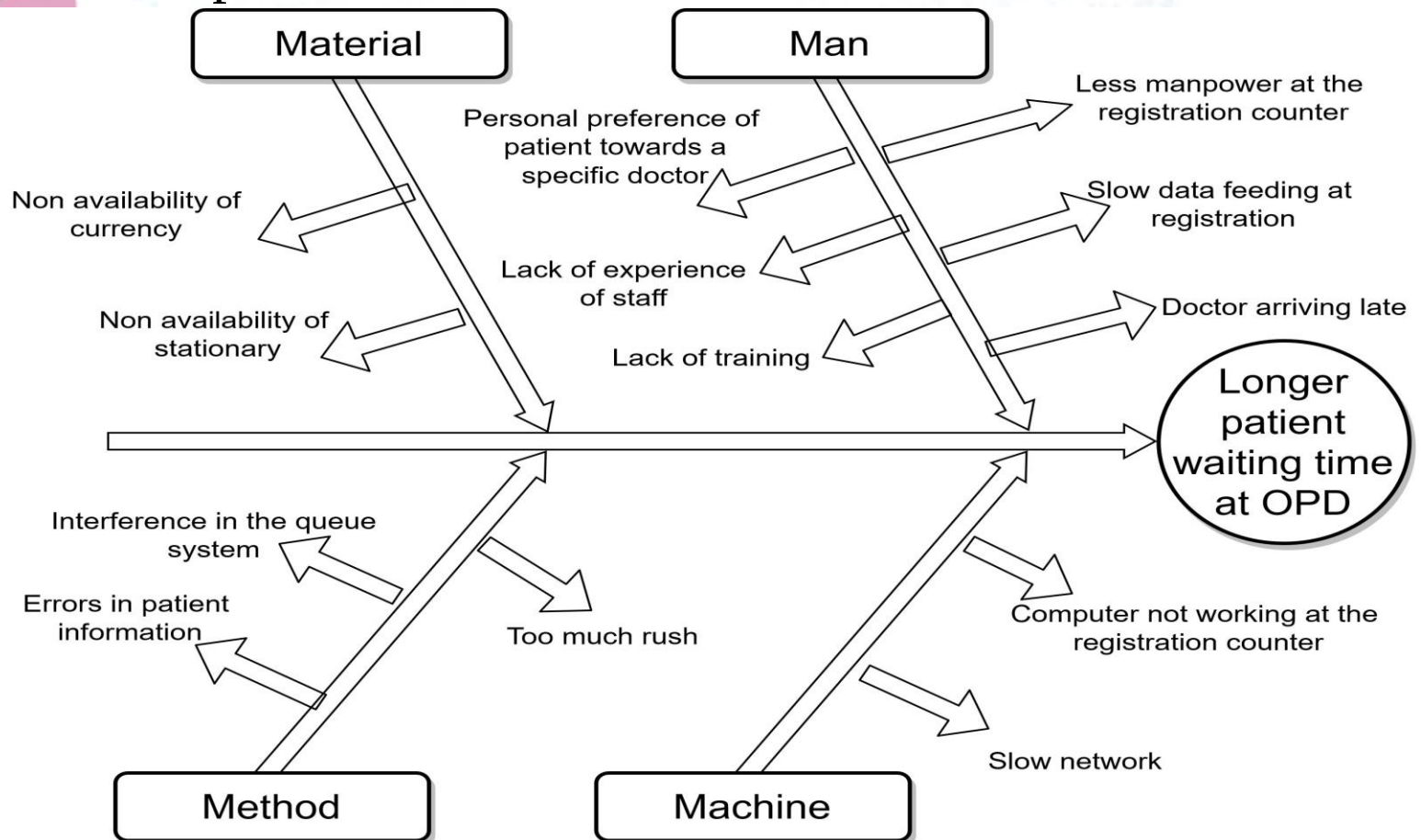


Results and Findings

- It can be seen that maximum (36%) of people experience delay in the second step of the process, that is, after registration to checking of vitals.
- The second highest (27%) of people experience delay in the first step only, that is, from entry till the completion of registration.
- Hence, the main steps where the possible delay can be eliminated are the first and second steps of the OPD consultation process.
- 41% of patients had a total time in the OPD of 61 minutes or above, which is more than the time set by the management.

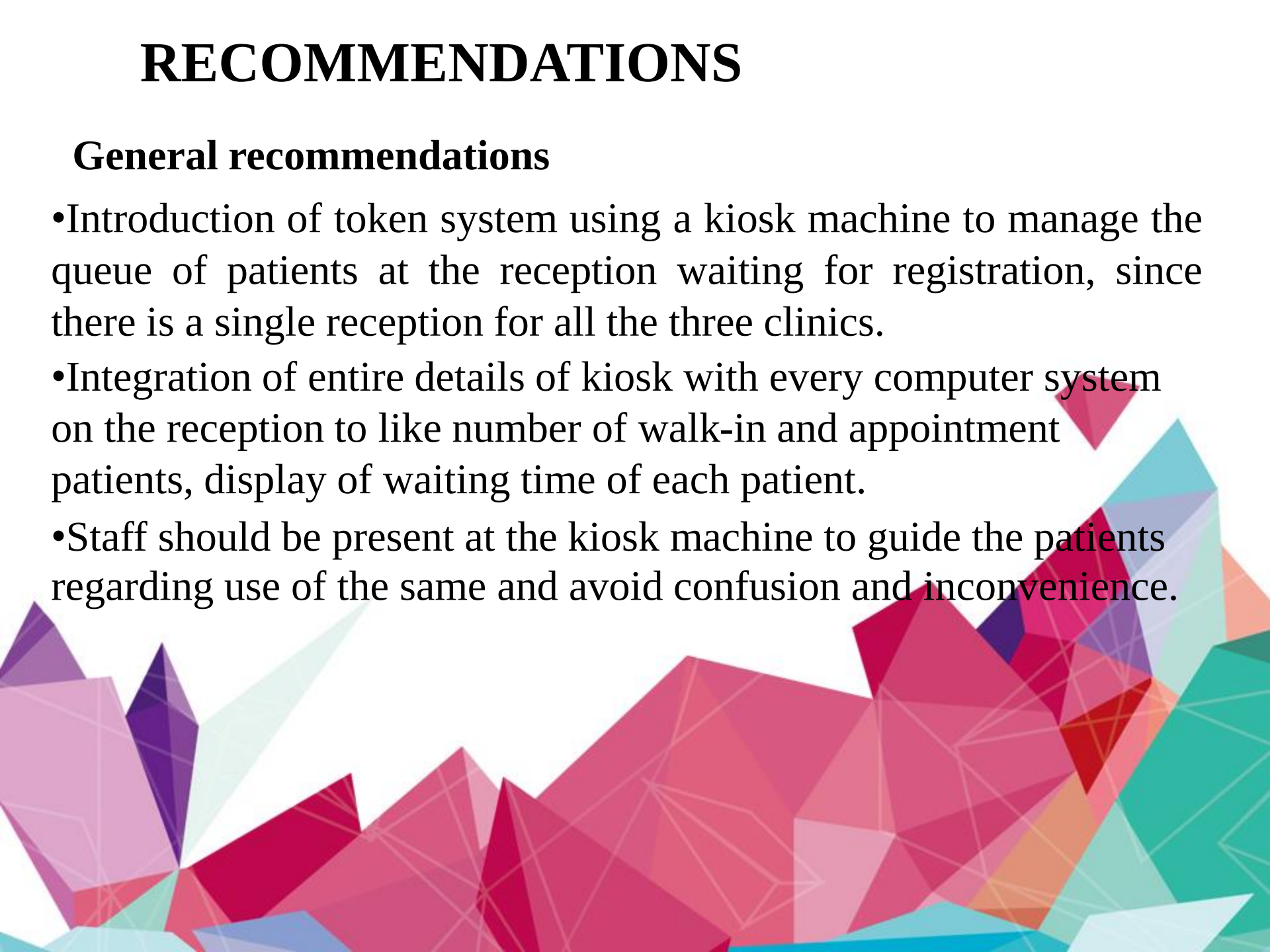
ANALYSE PHASE

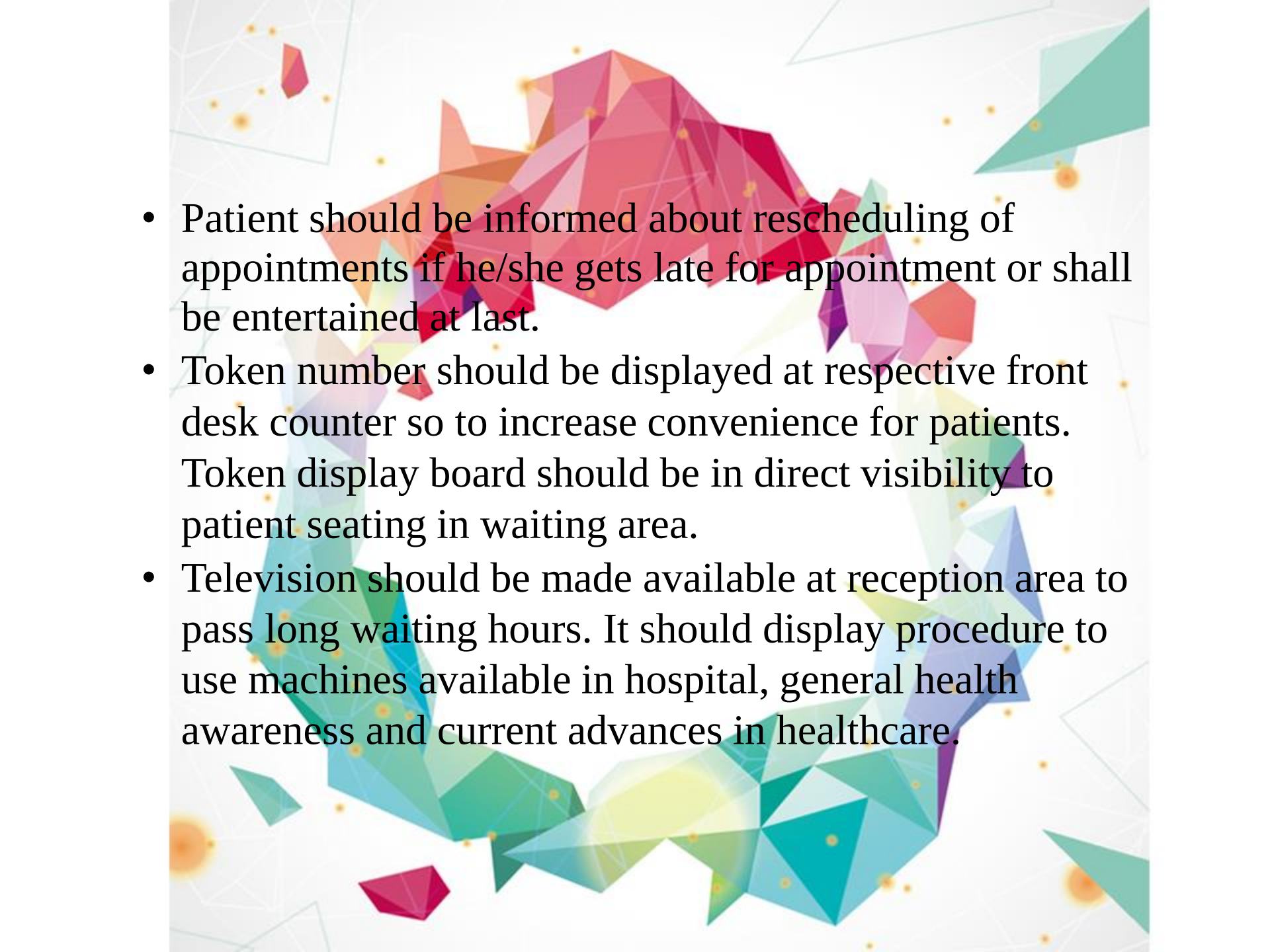
- It identifies the gaps between actual performance and target performance, determines the causes and opportunities for its improvement. This phase starts with exploring all possible causes to the main problem.

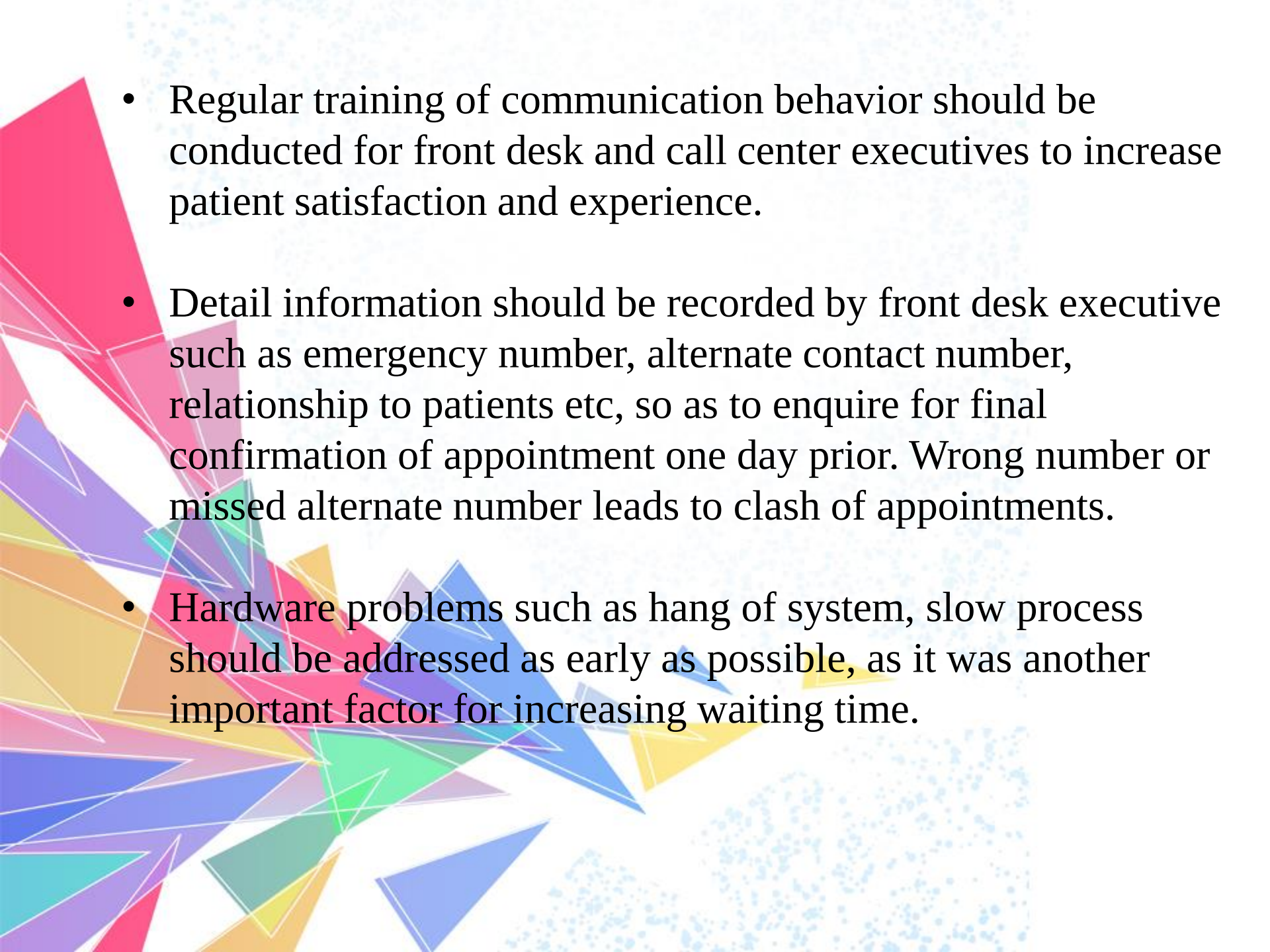


RECOMMENDATIONS

General recommendations

- Introduction of token system using a kiosk machine to manage the queue of patients at the reception waiting for registration, since there is a single reception for all the three clinics.
 - Integration of entire details of kiosk with every computer system on the reception to like number of walk-in and appointment patients, display of waiting time of each patient.
 - Staff should be present at the kiosk machine to guide the patients regarding use of the same and avoid confusion and inconvenience.
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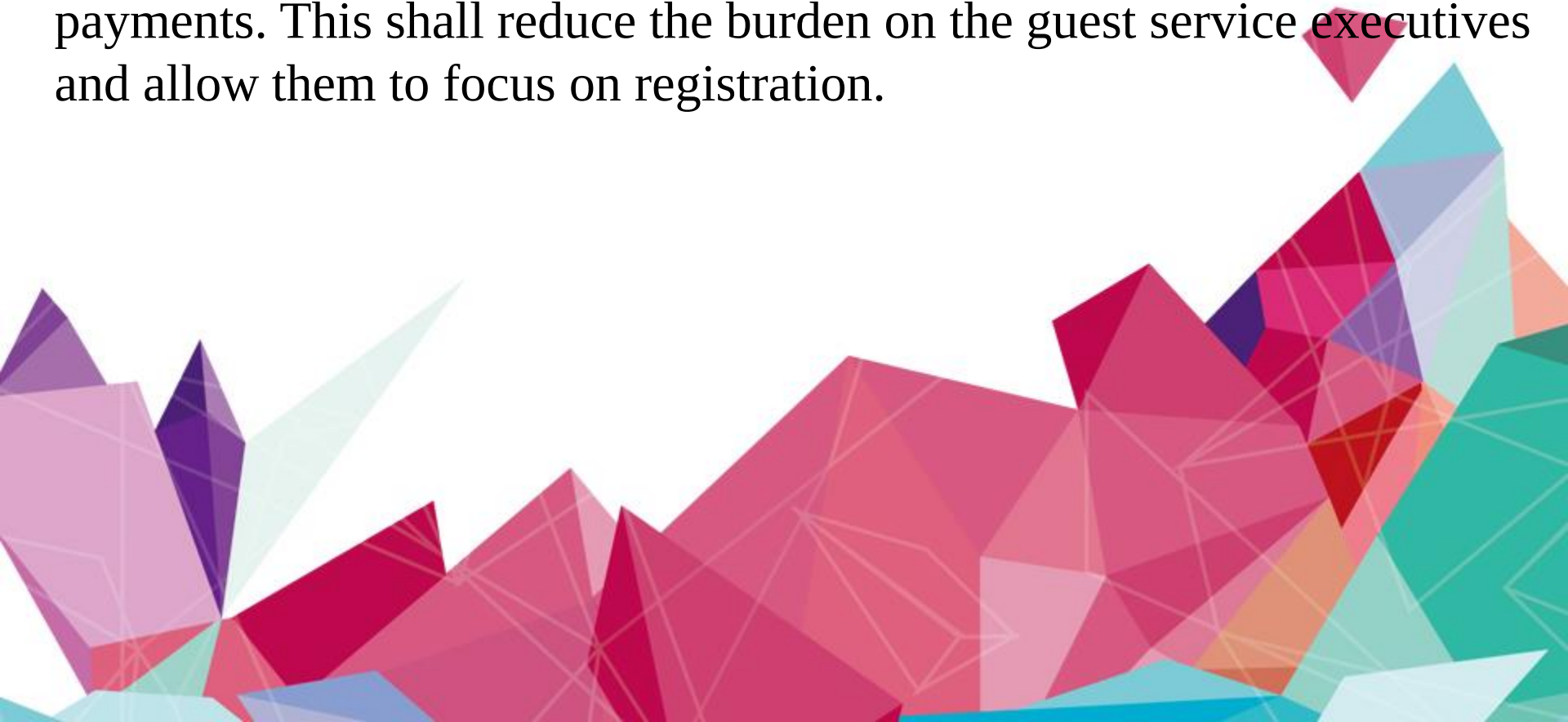
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- Patient should be informed about rescheduling of appointments if he/she gets late for appointment or shall be entertained at last.
 - Token number should be displayed at respective front desk counter so to increase convenience for patients. Token display board should be in direct visibility to patient seating in waiting area.
 - Television should be made available at reception area to pass long waiting hours. It should display procedure to use machines available in hospital, general health awareness and current advances in healthcare.

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- Regular training of communication behavior should be conducted for front desk and call center executives to increase patient satisfaction and experience.
 - Detail information should be recorded by front desk executive such as emergency number, alternate contact number, relationship to patients etc, so as to enquire for final confirmation of appointment one day prior. Wrong number or missed alternate number leads to clash of appointments.
 - Hardware problems such as hang of system, slow process should be addressed as early as possible, as it was another important factor for increasing waiting time.

Front desk:

Reshuffling of staff according to peak hours would help in managing crowd.

Availability of a separate staff at the reception to handle the billing and payments. This shall reduce the burden on the guest service executives and allow them to focus on registration.



Consultation:

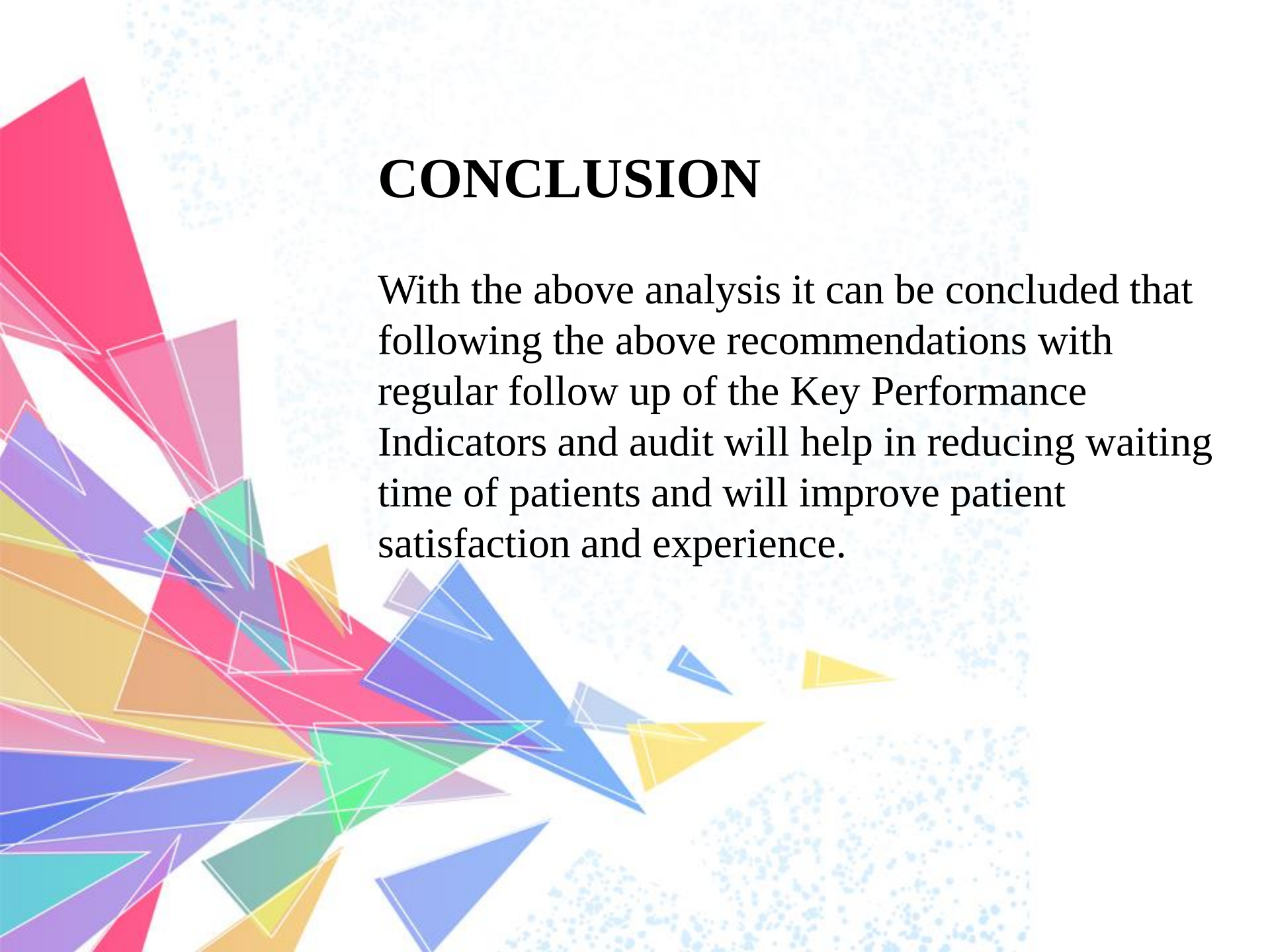
Doctors should be encouraged to follow the consultation times fixed in the HIS as strictly as possible to avoid lining up of patients.

Any non-availability of physician should be informed to patient immediately and re-scheduling of appointment should be done to avoid chaos.

Visiting time of the doctors in the inpatient wards should be fixed and the doctors' schedule for appointments should be blocked for that time.

Doctors should be provided with a medical transcriptionist to aid them in entering of physicians' notes and prescriptions in the HIS.

Tele-consultation time slots of the doctors should be blocked for physical consultations to avoid clashes between the two types of patients and resulting chaos.



CONCLUSION

With the above analysis it can be concluded that following the above recommendations with regular follow up of the Key Performance Indicators and audit will help in reducing waiting time of patients and will improve patient satisfaction and experience.



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