"Quality improvement program drives successful increase of outpatient continuity and safety in healthcare in Port Said Ophthalmology Hospital"

Yasmin Talaat Elshabrawy: Ophthalmologist-port said ophthalmology hospital

Menna-Tallah Emad-Eldin Mosaad: Pharmacist - dental center

Mohamed Hamid El Ghitany: Dentist – hode badran unit -port said

Karim Abbas Haseeb: Pharmacist -ELgarabaa unit -port said

Marwa Mohamed Mohamed: Pharmacist -kantara gharb unit

Samah Mohammed Elsayed: Pharmacist -EL Naser hospital

Nagwa Nagih Elsayed: Pediatrician -EL Tadamon hospital

Abstract

Waiting time in outpatient clinic consider one of the most important factors which affect patient safety, the long waiting time and high congestion have negative effects on both patients and staff and more waiting times will delay health-care delivery since patients lose days of work and delay medical care for urgent cases. Our aim is to decrease waiting time in Port Said ophthalmology hospital to ensure patient safety.

By implementation of quality tools like brainstorming, priority matrix, Pareto chart, fishbone diagram, PDCA (Deming cycle) help us to identify the most important factors increase waiting time in outpatient clinic and making action plan for problem solving and continuous improvement. From our project we conclude that increase waiting time one of the most important factor affect patient satisfaction and increase waiting time lead to delay in diagnosis and treatment so implementation of guidelines, policies and protocols is our recommendation to ensure patient safety.

Keywords:

Booking, Outpatient clinic, Patient safety, Quality tools, Waiting time

Introduction

Patient safety is defined by World Health Organization (WHO) as 'the prevention of errors and adverse effects to patients associated with health care' and 'to do no harm to patients. (WHO 2009)

There are many factor affecting patient safety in primary care settings include errors in diagnosis, communication breakdown, unsafe medication practices and fragmentation of care. (Bucknall TK, et al 2016)

waiting time in outpatient clinic consider one of factors which affect patient safety and satisfaction as with increase the time it leads to poor outcomes and delay diagnosis and treatment. (Kengy et al., 2009)

Waiting time refers to the time in which the patient wait in the clinic before examined by medical staff. so waiting time is an important indicator of quality of services offered by hospitals. increase waiting time cause stress for both patient and doctor. (Fernandes CM, et al, 1994)

The Institute of Medicine recommends that, at least 90% of patients should be seen within 30 min of their scheduled appointment time however, in most developing countries, several studies have shown that patients spend 2-4 h in the outpatient departments before examined by the doctor. (Ofilli AN, et al ,2007)

As ministry of health and health insurance responsible for treatment most of Egyptian population, so it's important to improve health care services and patient safety in outpatient clinic.

Aim of the work

Quality improvement program drives successful increase of outpatient continuity and safety in healthcare and decrease waiting time in outpatient clinic in port said ophthalmology hospital.

Methodology

The research team use the following quality tools to decrease waiting time in port said ophthalmology hospital.

1- **Brainstorming** is a group creativity technique in which efforts are made to identify a solution for a specific problem by collecting a list of ideas contributed by the group members.

For making brainstorming session effective, follow these steps:

Step 1: First prepare the Group, prepare a suitable meeting room for the session. Consider who will attend the meeting. When everyone is gathered, appoint one person to record the ideas that come from the session. This person shouldn't necessarily be the team manager.

Step 2: Represent the Problem that you want to solve and define it clearly. Give people plenty of quiet time at the start of the session to write down as many of their own ideas as they can. Then, ask them to share their ideas, while giving everyone a fair opportunity to contribute (Diehl, M et al 1987)

Step 3: Once the partner shared the ideas, the leader starts the discussion, first a group discussion to improve partner's ideas, and use them to create new ideas. Building on others' ideas and encourage everyone to contribute and to develop ideas.

Step 4: Taking Action after your individual or group brainstorming session, you'll have a lot of ideas. Although it might seem hard to sort through these ideas to find the best ones (Hill, G, et al 1982)

2- Fishbone

The fishbone diagram is a cause-and-effect diagram that helps managers to follow the reasons for the problem, variations, defects, or failures, the diagram looks just like a fish‟s skeleton in which the problem put at the head and the causes present into the spine. (The Quality Toolbox,2005)

Materials needed:

the major categories of causes of the problem. If this is difficult use generic headings:
- Methods   Machines (equipment)
- People (man power)   Materials
- Measurement   Environment
- Write the categories of causes as branches from the main arrow.
- Suggest causes of the problem. Ask "Why does this happen?". Causes can be written in several places if they relate to several categories (*Nancy R et al,2004)*

A Pareto Chart

is a graph that identify the frequency of defects, and their cumulative impact. Pareto Charts are helpful to identify the defects and prioritize them to observe their improvement.

A Pareto Chart is a combination of a bar graph and a line, each bar usually represents a type of defect or problem. The height of the bar represents the frequency of occurrence graph. The bars were presented in descending order. Therefore, you can see which defects are more frequent to occur.

The line represents the cumulative percentage of defects.

Pareto Charts can be analyzed with the Pareto Principle, also known as the 80/20 rule in which 80% of the results are determined by 20% of the causes (*asq.org,2015)*

Action Priority Matrices

A time management software application that is supported on a number of platforms, show you how to prioritize activities to save the most of your time, energy, and talents.

This is useful, because we rarely have time to complete all of the tasks and projects on our wish lists. so using it to choose activities help us to spend time on the high-value activities.

To use it follow these steps:

Step 1: List the major activities that you want to complete it.

Step 2: Score these on impact (from, say, 0 for no impact to 10 for maximum impact), and on effort involved (from, say, 0 for no real effort to 10 for a major effort).

Step 3: Plot the activities on the Action Priority Matrix, based on your scores.

Step 4: Prioritize appropriately, and delegate or eliminate low-impact activities (The Quality Toolbox,2005)

Result:

Table 1:

Using brainstorming tool, we determine the important causes that affect patient safety in outpatient clinic	**1**-Patient ID
	2-Prevent falling
	3- Critical value
	4-Infection control
	5-Time in outpatient clinic
	6-Unsafe medication practice
	7-Error in diagnosis
	8-Patient privacy
	9-Comunication break down

Table 2: A multi vote is taken for the most important causes of the problem and by using priority matrix tool in mouth

Table 3 : The order of the causes according to priority

Causes	Priority
P.1-Time in outpatient clinic	31
P.2-Communication break down	16
P.3-Patient privacy	14
P.4-Infection control	13
P.5-Patient ID	12
P.6-Critical value	6
P.7-Prevent falling	5
P.8-Unsafe medication practice	4
P.9-Error in diagnosis	3

important causes that affect patient safety in outpatient clinic	1st week	2nd week	3rd week	4th week	Total
Patient ID	3	4	3	2	12
Prevent falling	1	1	2	1	5
Critical value	2	2	1	1	6
Infection control	4	2	3	4	13
Time in outpatient clinic	10	8	11	12	31
Unsafe medication practice	1	0	1	2	4
Error in diagnosis	1	1	0	1	3
Patient privacy	3	4	3	4	14
Communication break down	5	4	4	3	16

Fig. 1: Pareto chart we could determine the 20% of causes that will have great impact if solved
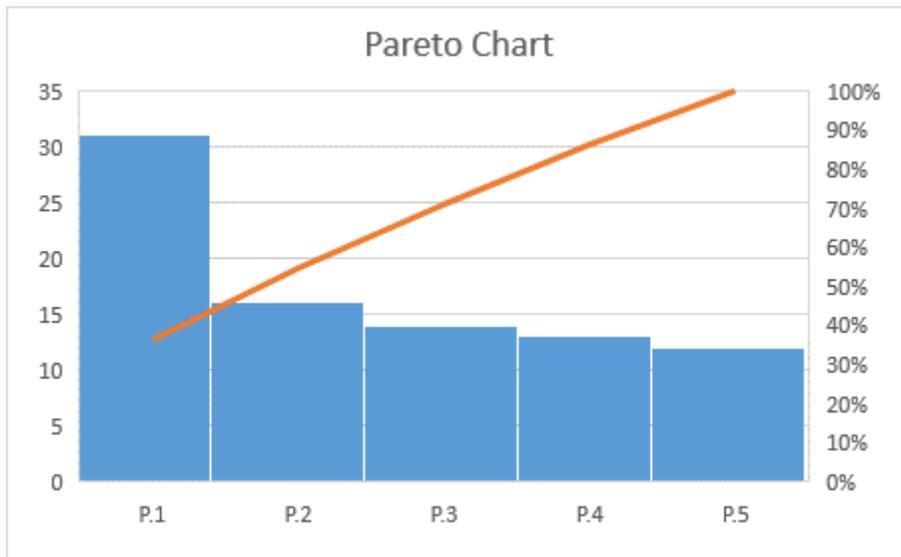

Pareto Chart

Fig. 2,3,4,5,6: Using fishbone diagram we could determine the sub-causes of the most influential cause (p.1Failure to report critical value results in a timely manner) according to pareto chart
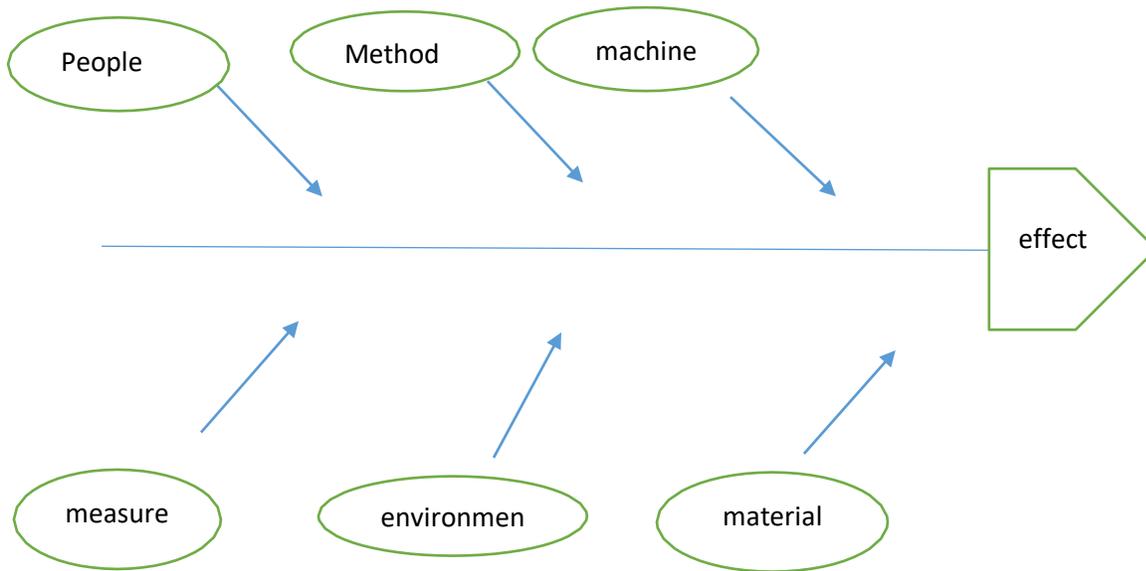
Fig 2: Fishbone diagram

People

Lack of training of medical staff

Decrease number of medical staff

No communication between team

Lack of awareness with policy

Increase time of the patient in the clinic

Fig 3: People

method

Lack of planning

Lack of priorities

No follow up of the policy

Increase time
of the patient
in the clinic

Fig 4: Method

environment

Overcrowded clinic

Noisy corridors

Bad arrangement of equipment in the
Clinic

Slow computers

Poor internet connection

Increase
time of the
patient in
the clinic

Machine

Fig 5: Environment and Machine

Measure

No time sheet

No short term policy

Lack of accountability

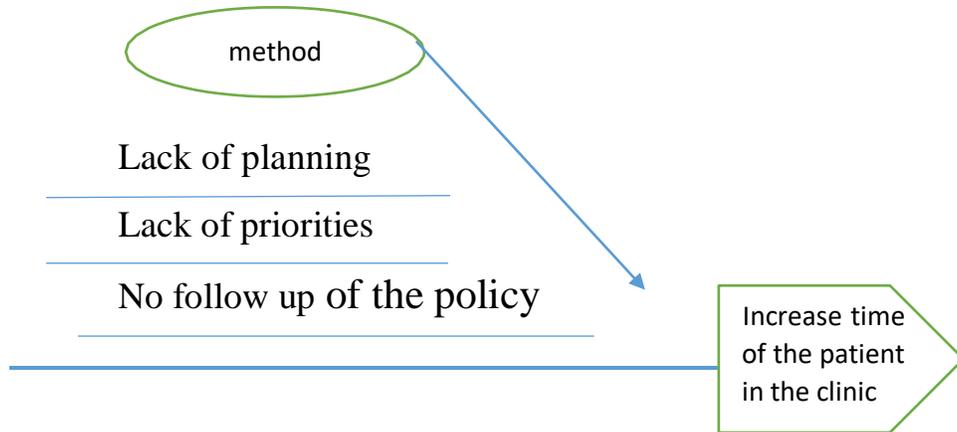Increase time of the patient in the clinic
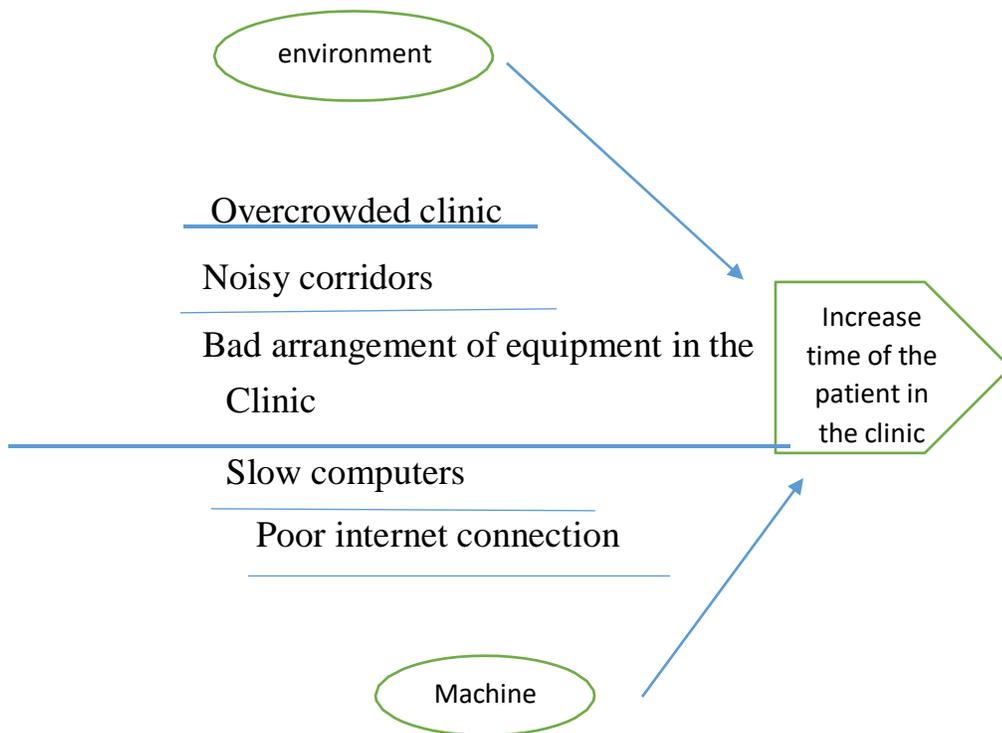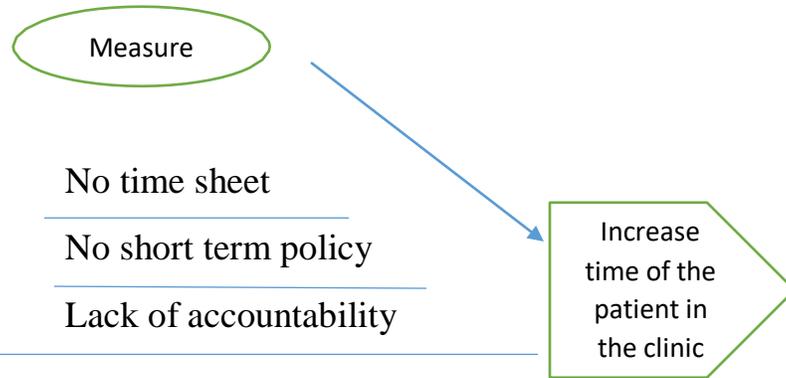
Fig 6: Measurement

Using PDCA (Deming cycle) we can create a plan for problem solving and continues improvement

1- Plan use Gant chart in time frame 30 days (table 4)
Table4:

Activates	Responsible Persons	Time														
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
make policies for decrease patient time in the clinic according to guidelines	Medical director	█	█	█												
make policies for patient privacy, infection control	Medical director		█	█	█											
Review and evaluate policies	Quality manager					█	█									
Approve the policies by chef quality manager	chef quality manager							█	█							
Prepare the form and record and send them to the clinic	Quality manager								█	█						
Arrange the training hall	Training officer										█	█				
Elaborate the training program	Training officer											█	█			
Produce a scientific material and print the training forms	Training officer												█	█		
Form a team to commit the time frame of the plan	Quality manager														█	█

2- Do:

- Following up the percentage of commitment in implementing the policies.

- Monitoring the percentage of documentation in forms and records.

- Follow up the training activity and the rate of progress.

Action plans; outline action needed to search the identified goals as project work through the step up to quality process.

Table :5

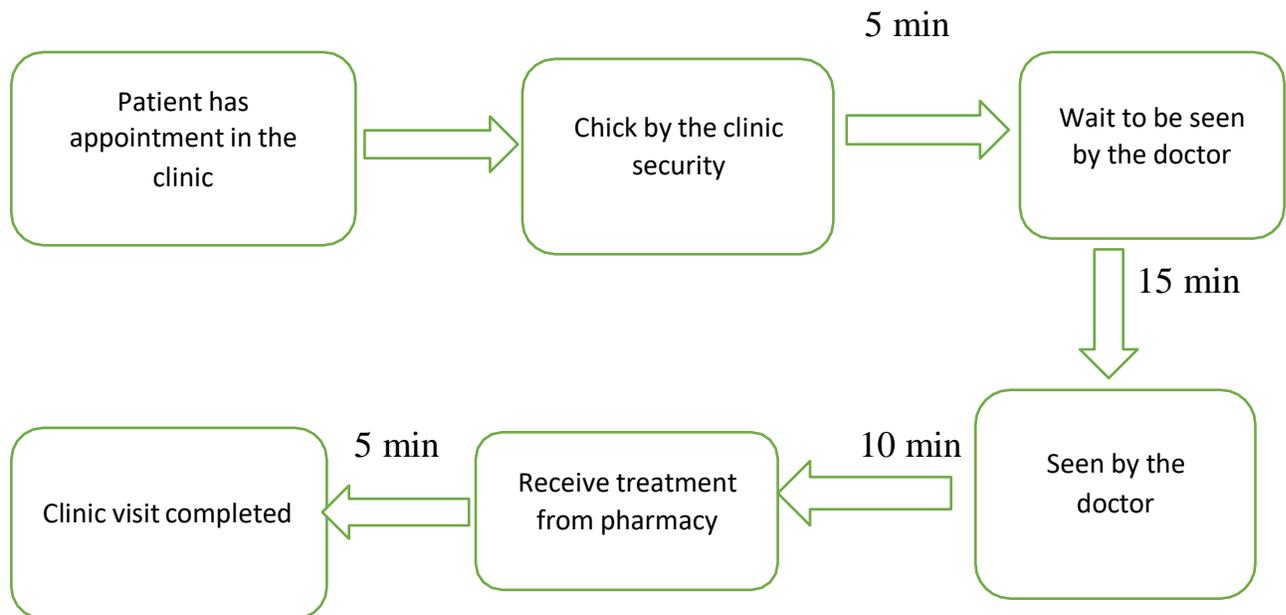| Goals	Activities	Responsible Person	Time
Decrease patient time in outpatient clinic	Activate policies and stander	Medical Director	1-12 to 10-12 2020
	Activate booking system	Reception officer	10-12 to 20-12 2020
	Increase number of medical staff	Medical manager	15-12 to 30-12 2020
	Good internet connection	IT officer	10-12 to 30-12 2020
	provide a comfortable reception	Training officer	20-12 to 30-12 2020
	prepare and print Documentation Form	Quality Manager	15-12 to 20-12 2020
	Medical team Training to apply The standard	Medical director	21-12 to 25-12 2020
	arrange the training hall	Training officer	26-12 to 30-12 2020

3- Check to ensure reaching the decided result

- A comparison is made between the percentage of time that the patient spend in outpatient clinic, patient privacy and infection control before and after implementation (Increase Percentage of documentation from 20% - 80% from November to December).

- Review what has been implemented.

- Analysis of the results.

- Determine the closeness to the objective set, which is compliance with policies and documentation.

- Check any unexpected resistance factors.

- Collect data to verify solution effectiveness.

- Willingness to expand implementation

4- Act implementing the plan after making sure of its effectiveness

- Take action based on experience.

- If the change does not succeed in achieving the goal, we will repeat the previous steps.

- If successful, the change will be enforced over a wider time scale.

- Continuing the improvement process

- ## **The diagram indicates the improvement**

```
[Patient has          →    [Chick by the clinic    →    [Wait to be seen
appointment in the          security]        5 min        by the doctor]
clinic]
                                                                │ 15 min
                                                                ↓
[Clinic visit      ←    [Receive treatment   ←    [Seen by the
completed]    5 min       from pharmacy]   10 min     doctor]
```

5 min

15 min

10 min

5 min

Discussion

From Result 1(brainstorming), it is clear that there are many causes that affect patient safety in outpatient clinic, Infection control, Patient ID, Unsafe medication practice, Error in diagnosis, Critical value and Time in outpatient clinic. (Jha AK,2019, Bleustein, C et al 2014)

We describe the results of (priority matrix – pareto chart), which show that increase time in outpatient clinic is the most important factor which affect the patient‟s safety. Time is measured by clinic secretary‟s record of patient‟s check-in and check-out. The time lapse between these two signatures is measured as „actual clinic time (Dinesh, T.A, et al 2013)

From result 4 (fishbone diagram), we identify the main causes that lead to increase the time in outpatient clinic, in which the most important causes are Lack of training of medical staff, decrease number of medical staff, lack of planning, Lack of priorities, Overcrowded clinic, Noisy corridors, slow computers, poor internet connection (Bleustein, C et al 2014).

Using PDCA (Deming cycle) we can create a plan for problem solving and continues improvement.

The plan activates are make policies for decrease patient time in the clinic according to guidelines then review and evaluate this policy then do action plan to reach our goal by activate policies and stander, activate booking system,
Gather patient information before their scheduled appointment. Create a policy for no-shows and late arrivals and stick to it (McHugh, M, et al 2011).

Design a survey to identify bottlenecks and provide a comfortable reception area', then we Check to ensure reaching the decided result and finally implementing the plan after making sure of its effectiveness (Michael, M, et al 2013)

<u>Conclusion</u>
From this project we conclude the following points:

There are many causes that affect patient safety in outpatient clinic include Infection control, Patient ID, Unsafe medication practice, Error in diagnosis, Critical value, Time in outpatient clinic, prevent falling and Communication breakdown (brainstorming).

Arrange the causes according to priority determines the most important causes are increase time in clinic and infection control Communication breakdown and patient privacy (priority matrix).

We can identify 20% of the causes which have great impact if solving using (pareto chart).

We can find out sub-causes of the most influential cause (increase time of patient in outpatient clinic) using (fishbone diagram).

We can create action plan for problem solving and continuous improvement using the Deming cycle (PDCA).

Recommendations

From This Project we recommend the following points

- ➢ Implementation of patient safety culture in healthcare organization according to policies, guidelines, and protocols.

- ➢ Commitment to implement patient safety standards provides high quality healthcare services to the patients.

- ➢ Commitment to implement patient safety standards achieves high profit with low cost of services.

- ➢ the time spend in the hospital is the cornerstone of patient safety.

- ➢ decrease the patient time in clinic lead to improve infection control.

- ➢ Implementation of quality standards provides effective and efficient healthcare services free from harm and injuries.

References

- Bleustein, C., Rothschild, D.B., Valen, A., Valaitis, E., Schweitzer, L., & Jones, R. Wait times, patient satisfaction scores, and the perception of care. American Journal of Managed Care, 20(5), 393-400(2014).

  Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25181568.

- 2- Bucknall TK, Hutchinson AM, Botti M, McTier L, Rawson H, Hewitt NA, et al. Engaging patients and families in communication across transitions of care: An integrative review protocol. J Adv Nurs. 2016; 72:1689–700.
- Diehl, M. and Stroebe, W. (1987) 'Productivity Loss in Brainstorming Groups: Toward the Solution of a Riddle,' *Journal of Personality and Social Psychology*, Vol. 53, No. 3. 1987.

- Dinesh, T.A., Singh, S., Nair, P., & Remya, T.R. Reducing waiting time in outpatient services of large university teaching hospital-A six sigma approach. Management in Health, 17(1), 31-37. (2013) Retrieved from http://journal.managementinhealth.com/index.php/rms/article/viewFile/259/822

- Fernandes CM, Daya MR, Barry S, Palmer N. Emergency Department patients who leave without seeing a physician: The Toronto Hospital experience. Ann Emerg Med. 1994; 24:1092–6

- Hill, G. (1982) 'Group Versus Individual Performance: Are N + 1 Heads Better Than One?,' *Psychological Bulletin*, Vol. 91, No. 3. 1982.

- Jha AK. Presentation at the "Patient Safety – A Grand Challenge for Healthcare Professionals and Policymakers Alike" a Roundtable at the Grand Challenges Meeting of the Bill & Melinda Gates Foundation, 18 October 2018 (https://globalhealth.harvard.edu/qualitypowerpoint, accessed 23 July 2019).

- Kengy et al., 1999)k engy, E. & Thomas, M.,. A cost effective way of reducing outpatient clinic waiting times : How we did it. 2009 , 7(1), pp.6–9.

- McHugh, M., Van Dyke, K., McClelland, M., & Moss, D. (2011, October). Improving patient flow and reducing emergency department crowding: A guide for hospitals. Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from http://www.ahrq. gov/research/findings/final-reports/ptflow/index.html.

- Michael, M., Schaffer, S.D., Egan, P.L., Little, B.B., & Pritchard, P.S. Improving wait times and patient (2013).

- *Nancy R. Tague (2004). "Seven Basic Quality Tools". The Quality Toolbox. Milwaukee, Wisconsin: American Society for Quality. p. 15. Retrieved 2010-02-05*

- . Ofilli AN, Ofowve CE. What patients want: A content analysis of key qualities that influence patient satisfaction. J Med Pract Manage. 2007;22:255–61

- *Priority Matrix templates". appfluence.com. Retrieved 12 April 2011 The Quality Toolbox, Second Edition*

- What is a Pareto Chart? Analysis & Diagram | ASQ". *asq.org*. Retrieved 2019-05-10.

- World Health Organization. G. Conceptual framework for the international classification for patient safety. Version 1.1 final technical report January. 2009