

Medicine Updates
Faculty of medicine
October 2020, volume 3,

https://muj.journals.ekb.eg dean@med.psu.edu.eg

vice_dean_postgraduate@med.psu.edu.eg DOI: 10.21608/muj.2020.40303.1019

ISSN: 2682-2741

Submitted: 24/8/2020

Accepted: 52/8/2020 Pages:31-45

Implementation of patient safety international standards quality tools to improve communication in Ophthalmology specialized hospital Port-said governorate

Passent Tarek Said : Pharmacist – Ophthalmology specialized hospital Port-said governorate

Sahar Zakaria Abdelhalem: Pharmacist – El-Zohor general hospital.

Esraa Ali Mahmoud : Physiotherapist – El-Salam general hospital

Shimaa Ali Elsayed: Pharmacist – El-Tadamon general hospital

Nehal Hendam Hassan : Pharmacist – Health Insurance Authority building Doaa nagy Ahmed Abe Elghany : Nurse – El-Mabra general hospital

Tahany Mohamed Mohamed: Nurse – El-Mabra general hospital

Abstract

Thousands of errors occur at healthcare system daily. "To Err is Human" approximates that 44.000 to 98.000 hospitalized patients die every year. In response to "To Err is Human" to decrease medical error and improve the patient safety a major federal initiative was launched. Our aim is to improve effective communication between healthcare providers in "El- RAMAD" specialist hospital to ensure patient safety.

The implementation of quality tools like Brainstorming, Priority matrix, Pareto chart, Fishbone diagram, and the Deming cycle (PDCA) help us to identify the most influential cause in ineffective communication and to

create action plan for problem solving and continuous improvement. From our project we conclude that failure to report critical result in timely manner is the most influential cause so the commitment to implement patient safety standards especially effective communication standards in our hospital according to policies, guidelines, and protocols is the most important recommendation to ensure patient safety.

Key words (patient safety _ Effective communication _ International patient safety Goals _ Quality Tools)

Introduction

It was discovered from a long time ago that medical care can cause harm. However, general recognition that much introgenic injury maybe due to human error or system failures have been arised slower. Thousands of errors occur in the health care system daily. (Donaldson, et.al 2008).

On November 29, 1999 the institute of medicine (IOM) reported and discovered the responsible and the solution of this problem that was often lost in the media attention to hospital deaths from medical errors cited by the report and that was the original intent of the IOM committee on quality healthcare. The committee indicated that it was necessary to address the patient safety not the common quality of care only (Donaldson, et.al 2008)

To err is human estimates that 44.000 to 98.000 hospitalized patients die every year. In the United States . More than 1 million patients are injured because of error in the united state. In response to the report of institute of medicine and to the ensuring report of the health and human services (DHHS) quality interagency coordination task force, a major federal initiative was launched to make the medical error less and to get the patient safety better (Donaldson, et.al 2008).

Aim of the study

The aim of this study is to improve effective communication between healthcare providers in El-RAMAD specialist hospital to ensure patient safety.

METHODOLOGY

The research team used the following quality tools to improve effective communication in AL-RAMAD specialist hospital

<u>Tool one Brainstorming</u>, is a process for giving new creative ideas and solutions through intensive and fluent group discussion (Cambridge Dictionary).

There are six steps to organize a winning brainstorming session.

The first step should be the determination of the problem question that will be addressed by the brainstorming session.

Second, knowing what the participants know about the state of the question and what they want to know.

Third, choose an adequate supporter who can stay on the right track during the session, has experience with brainstorming and is unbiased.

Fourth, choose the suitable people who are influenced by the problem question.

Fifth, set the schedule and assign enough time for display the problem question, outlines, context, and definitions.

Sixth, holding the session (Articles tools).

<u>Tool two priority matrixes</u>, is an effective timely project management tool to focus on order the problems according to the importance and effect and keep critical projects on the top through four steps (lucidchart).

The First step, list your initiatives.

Second, score each initiative.

Third, plot your initiatives and assigned both an impact and effort score for each task or project.

Fourth, prioritize the initiatives and should you start with the quick win (Eisenhower's Principle).

Tool three pareto chart (80/20 rule). is a diagram that states the frequency of defects, and their cumulative effect.

Pareto charts are beneficial to find the defects to prioritize and observe the greatest common improvement.

Pareto chart is a quality tool which helps analyze and prioritize issue resolution.

Pareto chart can be analyzed with the pareto rule that indicate 80% of the results are determined by 20% of the reasons.

There are eight steps to identify the main reasons you should concentrate on, using pareto analysis;

• Create a vertical bar chart with causes in the x-axis and count (number of occurrences) on the y-axis. (Table 1,2,3)

(The team prepares a form to collect the frequency of causes of ineffective communication during the period from July 2019 to September 2019)

	Reasons											
July	P.1	P.2	P.3	P.4	P.5	P.6						
1	2											
2												
3				1								
4	2	1										
5												
6						1						
7			1									
8		2										
9												
10	2											
11					1							
12		1										
13	1											
14												
15			1									
16	3	1		1								
17						1						
18		2	1									
19												
20	2											
21		1										
22			1									
23						1						
24	1											
25												
26		2										
27					1							
28				1								
29	2		1									
30		2				1						
31												
total	15	12	5	3	2	4						

	Reasons									
August	P.1	P.2	P.3	P.4	P.5	P.6				
1	1									
2										
3		1				1				
4	1			1						
5										
6			1			1				
7	2	1								
8										
9	1			1						
10		2								
11				1		1				
12	3									
13		1								
14			1							
15	1				1					
16		1								
17		2								
18		2		2						
20	1	1		2						
21		1				1				
22		1				1				
23		1								
24			1							
25			-	1						
26										
27		3								
28	2				1					
29			1			1				
30				1						
31		2								
total	12	15	4	7	2	5				

	Reasons											
September	P.1	P.2	P.3	P.4	P.5	P.6						
1												
2												
3	2				1							
4												
5		1		1								
6												
7			1									
8												
9	3											
10		1			1							
11	1											
12												
13		2				1						
14	2											
15					1							
16		2										
17				1								
18	2											
19		1										
20			1									
21					1							
22												
23		2		1								
24												
25		2										
26	2				1							
27				1								
28		1				1						
29	2		1									
30												
total	14	12	3	4	5	2						

- Arrange the bar chart in a descending order of reason importance that is, the reason with the highest count first.
- Count the cumulative value for each reason in descending order.
- Count the cumulative value percentage for each reason in descending order.

(Percentage count: {individual reason count/total causes}*100).

- Make a second y-axis with percentages descending in increments of 10 from 100% to 0%.
- Plot the cumulative value percentage for each reason on the x-axis.
- Match the points to form a curve.
- Draw a line at 80% on the y-axis that runs parallel to the x-axis.

Then drop the line at the intersection point with the curve on the x-axis.

This point on the x-axis differentiates the important reasons on the left (vital few) from the less important reasons on the right (trivial many) (Tulip.co).

Tool four Fishbone diagram or Ishikawa diagram. is a cause –and- effect diagram that helps the mangers to trace the reasons for deficiencies, variations, and defects.

This diagram is just like a fish s skeleton in which the head represents the problem and the bones represent the causes of the problem have been identified.0

Once all the causes of the problem have been identified, managers can start searching for solutions to avoid the recurring of the problem. (Tallyfy).

<u>Tool five PDCA (The Deming cycle).</u> is a continuous quality improvement process consisting of four repetitive steps:

PLAN; plan for changing and predict the results.

DO; run out the plan and taking small steps in controlled conditions.

STUDY; study your results.

ACT; take action to improve the process.

Advantages of the PDCA cycle are day-to-day management for the individual and/or the team, problem solving process, project management, Continuous development, seller development, and personal development (Isixsigma).

RESULTS

Table4

	I. Lab physician doesn't follow the critical value						
	policy						
	II. The inpatient nurses aren't aware with critical						
	value policy						
	III. The lab technical hasn't been trained with						
	critical value policy						
	IV. No documentation in critical value record						
	V. Failure to report critical value results in a timely						
	manner						
	VI. Critical value list is not distributed in the						
Using brainstorming tool we determine	inpatient department						
the causes of ineffective communication:	VII. No complying for verbal order policy						
	VIII. Lack of knowledge of verbal order policy						
	between physician and nurses						
	IX. No documentation in verbal order forms						
	X. The nurses don't confirm the verbal orders with						
	the doctor						
	XI. The physician doesn't review the						
	documentation for his order						
	XII. Not applying the handover policies between						
	nurses and doctors						
	XIII. Handover form is not complete.						

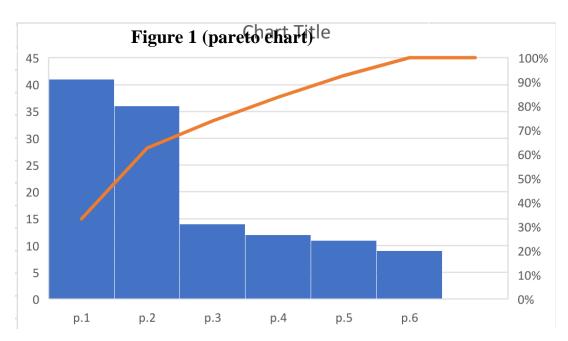
Table5:

A multi vote is taken on the most important causes of the problem and by using priority matrix tool t causes will arranged according to their importance								
Causes of ineffective communication	M-1	M-2	M-3	Total				
Lab physician doesn't follow the critical value policy	2	3	3	8				
The inpatient nurses aren't aware with critical value policy	3	5	4	12				
The lab technical hasn't been trained with critical value policy	2	3	2	7				
No documentation in critical value record	5	3	4	12				
Failure to report critical value results in a timely manner	5	5	4	14				
Critical value list is not distributed in the inpatient department	4	4	3	11				
No complying for verbal order policy	2	1	2	5				
Lack of knowledge of verbal order policy between physician and nurses	3	2	2	7				
No documentation in verbal order forms	4	4	2	10				
The nurses don't confirm the verbal orders with the doctor	3	4	2	9				
The physician doesn't review the documentation for his order	2	3	3	8				
Not applying the handover policies between nurses and doctors	4	3	2	9				
Handover form is not complete	5	4	2	11				

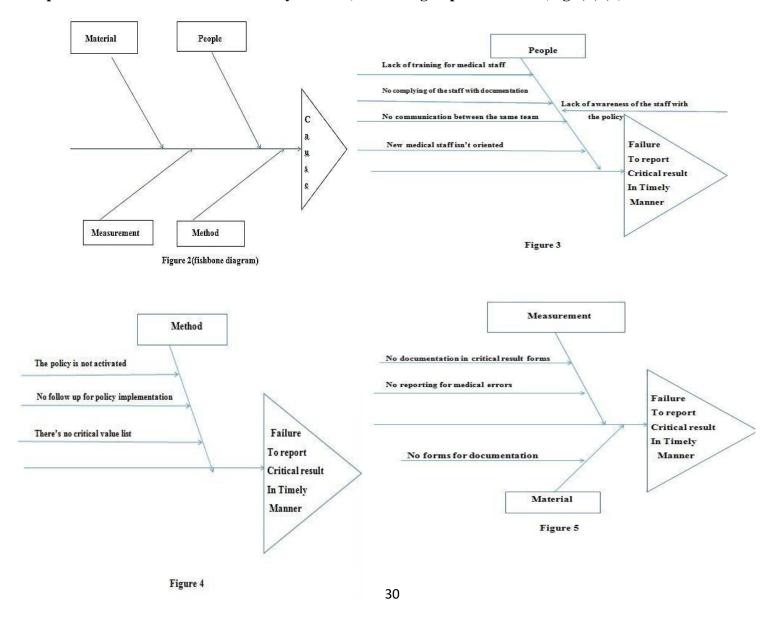
The order of the causes according to priority					
Causes	priority				
P.1 Failure to report critical value results in a timely manner	14				
P.2 No documentation in critical value record	12				
P.3 The inpatient nurses aren't aware with Critical value policy	12				
P.4 Critical value list is not distributed in the inpatient department	11				
P.5 Handover form is not complete	11				
P.6 No documentation in verbal order forms	10				
P.7 Not applying the handover policies between nurses and doctors	9				
P.3 The nurses don't confirm the verbal orders with the doctor	9				
P.3 The physician doesn't review the documentation for his order	8				
P30 Lab physician doesn't follow the critical value policy	8				
P.11 Lack of knowledge of verbal order policy between physician and nurses	7				
P.32 The lab technical hasn't been trained with critical value policy	7				
P.13 No complying for verbal order policy	5				

Pareto chart we could determine the 20% of causes that will have great impact if solved (F (Table 7)

Reason	count	Cumulative count	Cumulative %
Failure to report critical value results in a timely manner	41	41	33%
No documentation in critical value record	36	77	63%
Critical value list is not distributed in the inpatient department	14	91	74%
The inpatient nurses aren't aware with Critical value policy	12	103	84%
No documentation in verbal order forms	11	114	92%
Handover form is not complete	9	123	100%
	123		



Using <u>fishbone diagram</u> 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 2,3,4,5)



using PDCA (the Deming cycle), we can create a plan for problem solving and continuous

Improvement

1-plan (use Gant chart) time frame 30days (Table 8)

Table 8

Activities	Responsible person	Т	2	4	6	8	10	12	14	16	18	20	22	24	26	28	3
Declaim the medical director to make policies for (verbal order, critical values and handover) according to the guidelines	Medical director																
Declaim the lab manger to submit the list of laboratory critical values	Lab manger																
Review and evaluate the policies	Quality manger																
The policies must be approved by the chef manger office after the quality manger approval	Chef manger Quality manger																
Prepare the forms and the records and distribute them to sections	Quality manger																
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 manger																

2- DO (Apply the proposed solutions to one month of the improvement period, which is six months).

- 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 9)

Table 9

Goals	Activities	Responsible Person	Time	Resources
Raise the percent age of the medical team's	1/activate policies And standards	Medical Director	1/10/19 To 10/10/19	-official declaim (regulatory)
commitment to apply critical results & verbal Orders standards	2/prepare a list of Laboratory critical Value according to Guidelines	Lab manager	11/10/19 To 13/10/19	-Evidence based guidelines (informatics)
	3/prepare and print Documentation Form	Quality Manager	14/10/19 To 16/10/19	-documentation material (financial)
	4/ Medical team Training to apply The standard	-Medical director -Nurse head	17/10/19 To 24/10/19	-Manpower (Human R)
	5/arrange the training hall	Training officer	16/10/19 To 17/10/19	Facilities

3- CHECK (Ensure reaching the desired results).

- A comparison is made between the percentage of medical errors related to medical follow-up, medication errors, unnecessary readmission and preventable malpractice before and after implementation(Increase Percentage of documentation from 20% 80% from October 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 within six months.
- Check any unexpected resistance factors.
- Collect data to verify solution effectiveness.
- Willingness to expand implementation.

4- ACT (Implementing the plan on the set scope for six months after making sure of its effectiveness). (Fig 6)

- 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.

Use the time chart to monitor performance (Run chart)

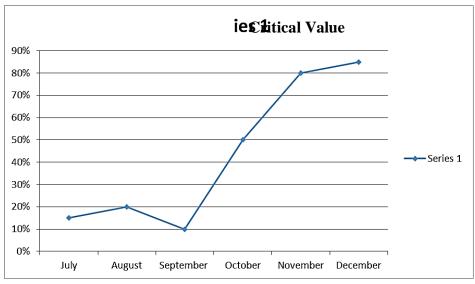


Figure 6

Discussion

From Result 1(brainstorming), it is clear that there are many causes for ineffective communication due to the absence of a patient safety culture concept, the presence of resistance to change by the medical team, failure to assess the risks of medical errors resulting from non-application of patient safety standards, and no leadership commitment (Kohn, et.al 1999) (Shojania, et.al 2001).

We describe the results of (priority matrix – pareto chart), which show that critical value is defined as a life-threating laboratory result requiring immediate reporting to physician. Safe patient outcomes occur with communication of critical values in timely manner. The joint commission and the college of American pathologists (CAP), define critical values as life-threating results and require a rapid response from healthcare providers.(LumG, 1998).

From result 4 (fishbone diagram), it is clear that laboratories need to improve both the reporting of critical values in timely manner and notifying the responsible healthcare providers. (The Joint Commission, 2013).

Communication is a major barrier in the reporting of critical values. (plibani, et.al 2012).

The laboratory must address the critical value notification policy.

A well written policy for critical value that includes the list of critical value to be notified should be available.

Increasing awareness of laboratory personnel and caregivers regarding the addressed policy and procedure of critical value notification led to improving communication of critical value in timely manner (Dighe, et.al 2006).

CONCLUSION

From this project we conclude the following points:

- There are many causes impeding effective communication using (brainstorming).
- Arrange the causes according to priority determines the most important causes influencing the achievement of effective communication using (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 (failure to report critical results in timely manner) 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.
- Effective communication is the cornerstone of patient safety culture.
- Implementation of effective communication standards leads to significant reduction in medication errors, unnecessary readmission, and preventable malpractice.
- Implementation of quality standards provides effective and efficient healthcare services free from harm and injuries.

List of Abbreviations

IOM: e institute of medicine

DHHS: epartment of health and human services

CAP: llege of American pathologists

PDCA: e Deming cycle (plan do check act)

REFERENCES

- Cambridge Dictionary
- Donaldson MS. An Overview of To Err is Human: Re-emphasizing the Message of Patient Safety. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter
- Eisenhower's Urgent/Important Principle
- https://tallyfy.com/definition-fishbone-diagram
- https://tulip.co/blog/manufacturing/what-is-a-pareto-chart-definition-and-examples
- https://www.bdc.ca/en/articles-tools/business-strategy-planning/innovate/pages/how-to-organize-successful-brainstorming-session.aspx
- https://www.isixsigma.com/dictionary/deming-cycle-pdca
- https://www.lucidchart.com/blog/priority-matrix-project-management
- Kohn LT, Corrigan JM, Donaldson MS, eds. To Err is Human: Building a Safer Health System. Report from the Committee on Quality of Healthcare in America, Institute of Medicine. Washington, DC: National Academies press; 1999.
- plibani M, Zaninotto M, Sciacovelli L, Piva E, Saw S. critical laboratory results: communication is just one of the problems. Am JC lin Pathol. 2012; 137:164. Doi: 10.1309/AJCptcJQA01SV81J.
- Dighe AS, RaoA, coakleyAB, Lewandrowski KB. Analysis of laboratory critical value reporting at a large academic medical center. AmJpathol. 2006; 125:758-764.
- LumG. Critical limits (alert values) for physician notification: universal or medical center specific limits? Ann Clin Lab Sci 1998 sep-oct; 28(5):261-71.
- Shojania KG, Dun Can BW, McDonald KM, Wachter RM, Markowitz AJ. Making healthcare safer: a critical analysis of patient safety practices. Evid rep Technol Assess (Summ) 2001: i-x.1-668.
- The Joint Commission. National Patient Safety Goals: 2013 National Patient Safety Goals. http://www. Jointcommission.org/Patient Safety / National Patient Safety Goals.