

## Effectiveness of the quality improvement program (QIP) implemented in Superspeciality hospitals

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### **Abstract:**

**Introduction:** *The medication tracker sheet documentation with time intervals between the activities can provide vital information regarding the time delay aspects during the clinical care processes. A gap seen between the actual quality of service delivered and the expected quality of service delivery in terms of time and accuracy of documents. Closure of the gap was initiated by innovative and team in-built strategies.*

**Objectives:** *To streamline and implement the medication turnaround time tracker sheet for the in-patient ward area. The medication errors were minimized. The documentation process is monitored regularly in a conducive manner for accuracy and effectiveness.*

**Methods:** *The random sample size of 40 patients was determined to be tracked on each floor area. For the ease of staff who were working, every 3rd patient was selected for tracking. Process improvisation was the strategy incorporated for betterment. The average mean time was calculated. The Student T-test was incorporated to understand whether the process was statistically significant.*

**Results and discussion:** *As we have two independent samples taken before and after the implementation of quality improvement program, for the statically significant results, the unpaired form of the t-test was incorporated. There is a significant difference between the meantime of pre-QIP and post-QIP.*

**Application:** *Betterment Process flow from indenting of the drugs and medication along with consumables till administration of medications were streamlined.*

**Conclusion:** *The importance of administering the drugs at the right time and in the right way was executed to the patients. Documentation was accurate and timelines maintained.*

**Keywords:** *Quality improvement program, tracker sheet, patient safety concepts.*

**Introduction:** Quality improvement program in the health care service sector plays a pivotal role in improves patient satisfaction by providing quality of care (1)(2). Patient awareness and perception of health care have been dynamically changing (3). To improve the trust and faith of the patients during their stay at the hospital, it is vital to rendered appropriate care and timely services in the right manner. Quality improvement program creates awareness for patients (4). In multidisciplinary tertiary care hospitals, where care has to provided appropriately along with timely interventions (5). These timely intervention plays an integral role to improve patient satisfaction(1)(6). It caused improvement in internal customer's job satisfaction (7). By sharing the results and discussing with the team members regarding the process improvement(8) will help in developing hospital-specific solutions (9).

Tracking each of the activities performed considering the touchpoints in the care delivery process was a challenge and robust mechanism had to be laid down. Activities such as consultant's medication orders till documentation drugs and medications provided to patients in a series with a sequence of events help in optimally managing standard operating procedures (10). It ensures in implementation of 10 rights in

medication management protocols and administering the medication to patients and also educating the caregivers too (11) (6).

Quality improvement program is incorporated for the betterment of services and job enrichments of the staffs (10). The essential component of quality care in the delivery aspect has to be the patient-centric approach. By incorporating patient centricity, the people's satisfaction as patients and by standards are essential. Every client satisfaction leads to a positive impact on society which in turn the success of the company(12).

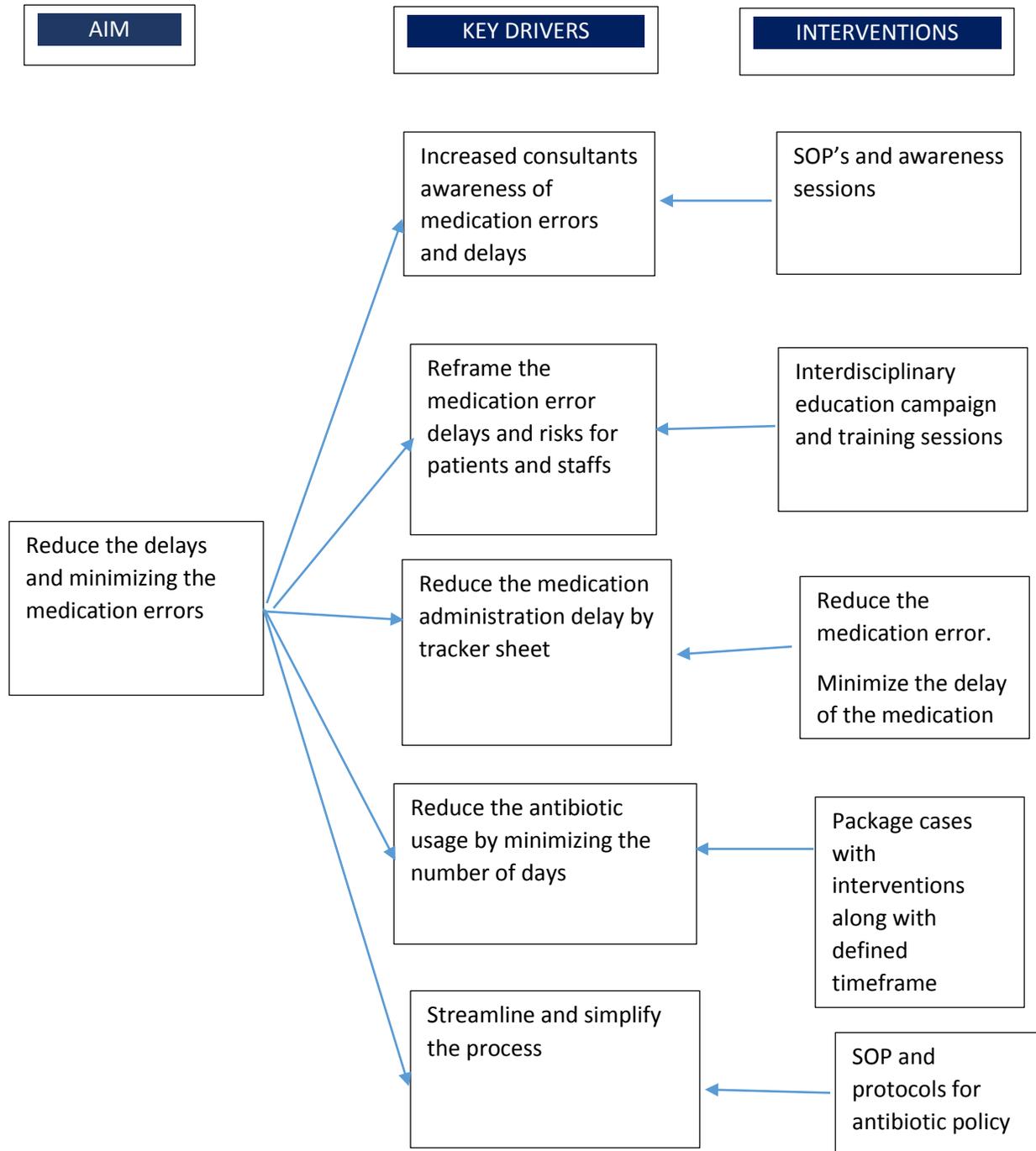
The routine quality concepts are to be initiated by innovative methods. Quality programs can bring transformation as well as initiate well-structured strategies which are time-bound(13). For better productivity, with minimal fund allocation, by utilizing minimum staff's time. The aim is to get better patient satisfaction (14). This leads to sustainable quality improvement of standards of the care delivery of services(15).

The advantage of the quality improvement program is not only patient satisfaction but also better employee engagement. The factors such as diversity of works, job re-engineering are predictors of employee loyalty and minimizes attrition levels. A variety of jobs if provided will enhance the versatility of the employees in the job area(16). In Superspeciality hospital, there multiple systems and processes that are incorporated which need to be constantly monitored for betterment. With concepts of quality diamond comprises of 4 components such as a customer being the top priority, services are to be delivered with commitment, as per expectation and keeping in mind the continuity of care (17). For the implementation of the quality improvement program, the planning stage is crucial. Here, we intend to quote-"Planning brings the future into the present so that we can do something about it at the now". Communication in a reciprocal way regarding the patient's information becomes an integral part of planning (18).

By discussing with the clinical care providers and supportive personnel, the method that was incorporated was brainstorming sessions(19). Multiple ideas and views were brought in. As ideas are easy, execution is and are everything, it takes a team to win, multiple teams were structured and enrolment of the team members was made voluntary.

The teams comprised of multiethnic and multicultural personnel. For execution, many briefing sessions were undertaken with the dissipation of knowledge, skills, and attitude towards patient care areas(20). Execution is a systematic process of rigorously discussion hows, and whats and tenaciously following the thoughts, and enduring accountability(21). Execution can be described as a combination of implementation and monitoring. To implement changes, execution has to be performed by setting the care processes, workflow, technology and based on valid data analysis (22).

Keeping patient safety concepts at utmost priority as the culture of the health care organization and maintaining the leadership commitment, the quality improvement program was performed. A key driver diagram (KDD) analysis ensured that the intervention contained components to address each crucial barrier.

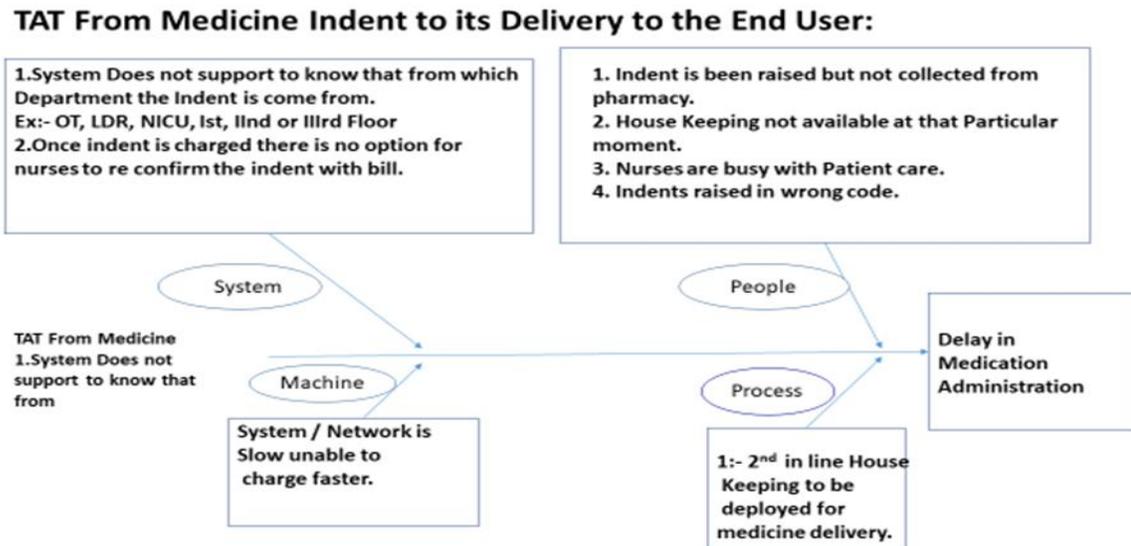


**Fig.1: Key driver diagram for analysis for intervention to address the barriers.**

**Methods:** Management of medications in a health care organization is crucial and it is important to monitor regularly. The turnaround time was monitored from medicine indent to delivery to the end-user.

To understand the systems better, a brainstorming session was conducted with the multidisciplinary team members (21). We noted the causes of delay in administering medication. We used the fishbone quality tool to find the cause and effect of the delay in medication administration. The problem statement was identified and by involving the team of professionals, the discussion was undertaken for the delay in

medications administered to ambulatory patients at the ward areas. Brainstorming sessions were conducted at regular intervals to get all their ideas and suggestions as inputs. The collective leadership style was incorporated throughout the phases of a quality improvement program. The identified problems were sorted, segregated and a root cause analysis was undertaken (23). Causes and effects in a diagrammatic representation were depicted. Timely drug delivery in proper doses along with precautionary measures are of utmost importance in a tertiary care hospital.



**Fig 2. : Root cause analysis for delay in TAT from medicine indent to its delivery to the end users.**

The blueprint of medication management was set as per standards and protocols. To improve the quality of the processes of medication TAT, a tracker sheet was introduced to monitor (24). The tracker sheet data was collected before and after the implementation of the quality improvement program for 3 consecutive months.

A random sampling of the medication indenting was recorded at a different time of the day and different shifts. Sample data included the following: the time of medication advised by the doctors, time of medicine indented on the system, time of medicine received, time of medication administered by a nurse, time of documentation in hard copy, whether medication used from sub-stock situated at the floors or from the pharmacy as indent supply.

Monthly twice meetings and discussions on implementation strategies were discussed in-depth. Members of the committee were multidisciplinary and multi-ethnic and from different languages were preferred. A sample size of TAT from medicine indent was determined as 20 patients per month in a ward at multiple sectors of the floor. Random sampling was collected. Every third patient is tracked and monitored. By identifying the gaps, Analysis of the problem (GAP Analysis) was performed(25). The set processes were critically evaluated. Process improvisation was undertaken as task-based and time-bound. Specific outcomes were measures. The average mean time in minutes was calculated for each tabulated time duration. The T-Test was incorporated and the results were tabulated. By critically analyzing the Average meantime and incorporating the T-test, the validity of the score can be confirmed.

**Results:** To determine the usefulness statistically and for measuring a small sample of 20 in each group which is taken randomly and determine if there is any significant difference between the data taken by the two groups, student T-test is incorporated.

Hypothesis:

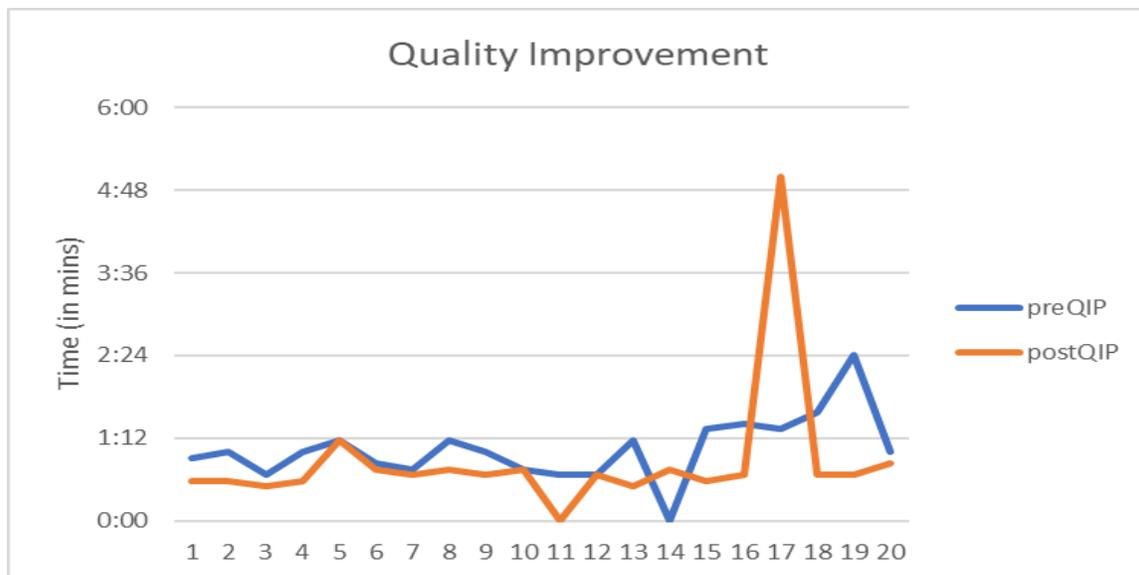
H0: There is no significant difference between the meantime of the pre-QIP and the post QIP.

H1: There is a significant difference between the meantime of the pre-QIP and the post QIP.

T-Test: Two-Sample Assuming Equal Variances

t-Test: Two-Sample Assuming Equal Variances		
	<i>d5(pre QIP)</i>	<i>d10(post QIP)</i>
Mean	0.045687	0.028549
Variance	0.000303	3.91E-05
Observations	19	18
Pooled Variance	0.000175	
Hypothesized Mean Difference	0	
df	35	
t Stat	3.940177	
P(T<=t) one-tail	0.000186	
t Critical one-tail	1.689572	
P(T<=t) two-tail	0.000371	
t Critical two-tail	2.030108	

**Table.1: t-Test: Two-Sample Assuming Equal Variances.**



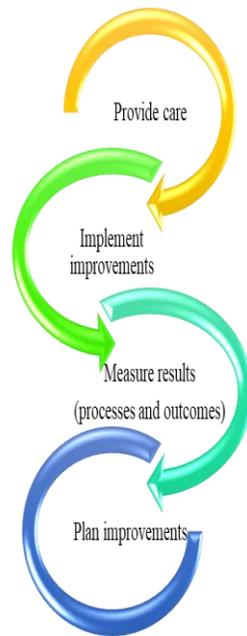
**Fig.3. Quality improvement program results depicted in graph with timelines.**

Inference of the results: Since the t-Stat value > t-Critical two-tail value, we reject our null hypothesis and conclude that there is a significant difference between the meantime of pre-QIP and post QIP. Point 17 of post QIP is an outlier with a time of 5mins.

**Discussion:** The strategies were to monitor and evaluate the inventory management of drugs and medications, stock mobilization was to be re-engineered(25). The sub-store had an excess of stock which was not adequately utilized. There was a considerable delay from the time the medication was prescribed by the consultants to dispensing the medications to the end-user. There were errors and delay in the documentation of medication charts. A cause and effect chart was initiated(26).

For the identified problems, strategies were incorporated with monthly committee meetings with the involvement of multidisciplinary team members (27). By brainstorming methods(28), inputs and suggestions were taken from each member to sort out the problems professionally and formally. The sample size was determined as 20 per month. Random sampling method was suggested by the members of the committee and was incorporated. Every third patient who was admitted to the Inpatient area (IP) was tracked and monitored. Monitoring was performed at frequent intervals and gaps were identified in the process. Analysis of problems was performed with a gap analysis. Gap closures were undertaken with valid suggestions from the team members (29).

The intention was to set the systems by process improvisation. The outcomes were measured for sustaining the level of continuous quality improvement of the services (30).



**Fig.4: Implementation of set processes with the insight of continuous improvement.**

**Conclusions:** By implementing this medication tracker sheet, we were able to create awareness for all the members of the quality improvement committee. Regarding the strategies for medication management, better adherence and compliance with medication order was seen. There was the minimization of medication errors.

The average turnaround time (TAT) for medication was reduced. The importance of administering the drugs at the right time was executed to the patients. Not only to the patients included in the sample but also to all the patients who were admitted it the IP area, the medication administration was performed promptly. By implementation of this quality improvement program, we were able to create awareness for all the members

of the quality improvement committee. Better adherence and compliance with medication orders, minimization of medication errors were seen. Betterment of Process flow from indenting of the drugs and medication along with consumables till administration of medications were streamlined. Documentation was accurate and timelines maintained.

The culture of better quality in terms of safety was imbibed in the health care organization. The patient-centric approach was inculcated by all the tasks performed by the care providers. The medication delivery was effective and efficiently performed to all the ambulatory patients in the ward areas. The timely delivery of the drugs and medications was streamlined. The equitable care concept was promoted in all the sectors of wards. The set process was well coordinated and in a smooth manner. The benefits were felt among the patients, staff and as well with the management too.

**Conflict of interest:** Nil.

**Source of funding:** Nil.

**Ethical clearance:** Not applicable (As these are Turnaround time information, and not patient's data, ethical clearance is not required.)

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