ORIGINAL RESEARCH PAPER
Volume-6 | Issue-12 | December-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 93.98
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

"A STUDY ON ENHANCING EFFICIENCY AND IMPROVING WAITING TIME IN THE ENDOSCOPIC DEPARTMENT

Medical Science

Dara Singh
Aditi Sharma
Vidushi Bakshi

ABSTRACT

Aim: To identify and analyse the reason for prolonged waiting time of the patients in the endoscopy department.

Materials and Methods: The study was an observational survey. PDSA (Plan Do Study Act) cycle was the strategy planned to take out the whole study **in endoscopy department, GMC JAMMU**, for 3 months. Secondary data from a manual endoscopy time motion study proforma to develop a discrete event simulation model of the endoscopy department was used.

Results: Patients with the latest scheduled appointment times arrived earliest; for example patients with afternoon appointments (after 1PM) arrived 179 minutes earlier for their appointment compared to patients scheduled at 8AM who arrived 28 minutes earlier

Conclusion: Objective measures of patient access ('feelings are good but measurements are better') are key to lobby government for increased resources to ensure adequate 'supply' of physician and endoscopy resources

KEYWORDS

endoscopy, waiting period, workflow

INTRODUCTION:

Health care quality is "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with the current professional knowledge. Despite extensive research on defining and measuring health care quality ,little attention has been given to patients perspectives of high-quality health care. Feedback collection is one of the prominent techniques that is used to measure the patients perspectives. Feedback collection from the patient is essential for the provider to ascertain patient satisfaction and scope for improvisation (Sugandhi, 2002) [1]. . Understanding satisfaction and health care quality have been recognized as critical to developing many improvement strategies (ACHE, 2006) [2]. The inaugural quality work of Donabedian identified the importance of patient satisfaction as well as provided much of the basis for research in the area of quality in healthcare (Donabedian, 1980) [3]. The concept of satisfaction is complicated, irrespective of the area in which it is studied. It is a multidimensional concept; not yet tightly defined; and part of an apparently yet to be determined complex model. Historically, the health care sectors which are interested in obtaining high levels of patient satisfaction have focused on using knowledgeable, pleasant physicians and staff to deliver high quality care to the patients. Changes in our lifestyles have profoundly altered patient's values. Timely delivery of the service with minimal waiting time has become one of the important Predictor's of quality for the patients. The patients consider waiting as inactive, wasted or lost opportunity time (Katz 1991, Dansky 1997)[4, 5]. To attain higher levels of patient satisfaction, the health care organizations need to focus on making the customers feel that they are wasting as little time as possible.

There has been a dramatic rise in the request for gastrointestinal (GI) specialty care, and in particular endoscopic services in the last decade. A number of factors are involved in endoscopy that occurs both before and after the procedure that may influence quality, efficiency and patient satisfaction [6]. Yet, there is a dearth of information on the study of efficiency in endoscopy centres. Of the scant literature, available there are varying conclusions about how to improve endoscopy centre efficiency with no clear consistent message. Some studies have focused on altering staffing specifically focusing on the endoscopists and utilizing additional staff in the pre-procedure process. While such changes improve physician efficiency and utilization, it does so at a cost of impairing non-physician staff utilization, sub-optimizing facility utilization and increasing patient length of stay. Relatively straight forward changes such as reducing appointment times, standardizing recovery room time and slightly increasing ancillary staff in the prep procedure are significantly improves endoscopy center efficiency without substantially increasing costs nor changing procedure times. This thesis examined patient's waiting in a health care setting, and focused on methods for reducing waiting time in the endoscopy unit of GMC.

MATERIALS AND METHODS:

This preliminary descriptive cross sectional study was carried out in GOVT. Medical College and Hospital for a duration of 3 months. The secondary data was obtained from the data collected by the department of GMC Jammu . Also published as well as unpublished literature on the topic and from Journals, News Papers, Research Articles, Thesis, Websites etc. retrospective observational study method was used to a sample size of 300 from the endoscopy department of GMC Jammu. The representative sampling units in appropriate & justified size has been conveniently drawn from amongst different patients across various heterogeneous socio- economic age groups, occupations, gender. PDSA (Plan Do Study Act) cycle was the strategy planned to take out the whole study. We used secondary data from a manual endoscopy time motion study proforma to develop a discrete event simulation model of the endoscopy department. Operational configurations were compared by varying , the patient arrival times, and procedure room turnaround time. Performance measures included the number of patients served during the clinic day and utilization of key resources. Further analysis included considering patient waiting time trade-offs as well as the sensitivity of the system to procedure room turnaround time.

RESULTS:

Baseline Endoscopy Centre Data Utilizing data from the time and motion study, baseline arrival patterns as well as preprocedure, procedure and recovery room times were determined. (FIGURE 1) Patients with the latest scheduled appointment times arrived earliest; for example patients with afternoon appointments (after 1PM) arrived 179 minutes earlier for their appointment compared to patients scheduled at 8AM who arrived 28 minutes earlier. (TABLE 1) Little variation was noted in the pre-procedure time regardless of the planned procedure, although EGD/colonoscopy required more time(31.2minutes). Very little variation was noted with recovery room time and required 34.6 minutes if recovery occurred in the recovery room. Procedure time itself differed significantly depending on the type of procedure performed with EGD requiring 9.5 minutes, colonoscopy 28.5 minutes and combined procedures requiring 36.4 minutes The mean number of procedures performed per week was 53.8. Patients spent 2.3 hours at the endoscopy centre with 22.3% of that time spent waiting. In order to determine the optimal scenario(s) that would increase throughput, optimize utilization and minimize patient wait time a series of simulation models were run. Scenarios included revising the endoscopy appointment times and weekly endoscopy schedule, increasing the number of nurses and providers, standardizing recovering room time and subsequently a combination of these scenarios.

DISCUSSION:

In 2001, the IOM released a second report entitled "Crossing the Quality Chasm" whereby they presented six quality aims – healthcare should be safe, effective, timely, patient-centreed, efficient, and equitable(7). Many of these six quality aims have seen focused attention over the past decade, with the exception of improving efficiency. Discrete event simulation is a powerful tool that can be applied in the patient, healthcare team, organization, and larger socioeconomic environment (8). Despite the emphasis on systems-based learning and suggestions of systems engineering use, DES is underutilized in medicine and specifically gastroenterology. This study demonstrates a calculated approach to model an endoscopy unit and make specific changes to improve the efficiency of the care provided. . Patient entry into the endoscopy room was approximately 51 min behind scheduled time. This was independent of further delay contributed by endoscopist arrival approximately 8 min later than scheduled start. The start time delays begin with the first case of the day and these incremental delays likely perpetuate a downstream effect on the subsequent scheduled patients. From these data, it was notable that factors such as endoscopist arrival and on-time starts for the first case of the day are modifiable and relatively simple to reinforce to optimize patient flow. The interviews with the endoscopy staff reinforced the observational phase finding that a major shortcoming was related to scheduling and procedure durations exceeding allocated times contributing to downstream patient waiting times. Furthermore, there was objective concordance with staff preference for two rooms per endoscopist given that it was associated with significantly shorter delays. . As seen in a simulation model by Day et al.[9], shorter appointment times of 40 min and 35 min are not sustainable without additional resources and unfeasible at 30 min, leading to an infinite patient backlog. While scheduling in the endoscopy unit is a major limiting factor for endoscopy efficiency, there remains insufficient literature in this area. The concept for scheduling for a maximum of 80% utilization of each endoscopy room was forwarded by Katz and Larson remains in place at most endoscopy units [4]. For example, they scheduled 12 to 14 endoscopy units per room per day whereby an EGD was one unit or an equivalent of 30 min, a colonoscopy was two units, and a polypectomy was assigned colonoscopy plus one unit. Similarly, at the HDH endoscopy unit, the scheduling template is based on the allocation of 15 min for a flexible sigmoidoscopy, 30 min for an EGD or colonoscopy, and 60 min for a double procedure. Scheduling reengineering is a complicated arena, and the utilization of discrete event simulation modelling and queuing theory have yielded principles that merit a trial application to balance patient waiting time with optimization of resources.

To address the complexity of variables involved in the endoscopic workflow process, the methodology was specifically designed with a time-motion study to provide a comprehensive assessment of patient flow through the unit. This was supplemented with qualitative information from the entire endoscopy staff to bridge information gaps. This enabled provision of baseline performance metrics and identification of process inefficiencies from multiple perspectives. Some of the limitations of the present study are that it was based at a single ambulatory endoscopy centre and did not directly address some other factors recognized to impact efficiency such as inpatient endoscopic procedures, impact of trainee involvement, or the range of endoscopists proficiencies on the efficiency of the endoscopy unit. Last-minute patient cancellations likely impact efficiency, and prearrival factors are being investigated as a separate study.

We found the cumulative time spent in the endoscopy room was within the allocated time frame for an EGD but far exceeded the allocated times for colonoscopy, flexible sigmoidoscopy, and double procedure. This was despite the procedure times for all except colonoscopies being within reasonable expectations, indicating that non-procedure-related factors are strong determinants of time consumption. This concurs with findings from previous studies that procedure time is rarely rate-limiting and that nonprocedural operational flow processes are instead crucial targets for improvement.

Recent studies have reinforced that the preprocedure and recovery room are key areas in the endoscopy centre. Given that the average time spent in the preprocedure room was found to be 71 min, reinforcing strategies already in place such as parallel processing of tasks or increasing staff in the preparation room will need to be evaluated. While consent has frequently already been obtained in previous appointments, other approaches, such as sedation by nonendoscopist personnel, are not adopted given that it limits the endoscopistpatient interaction and attenuates the patient-centred model of endoscopic care at SJMC. The estimated mean recovery time of 56 min did not account for transportation issues as identified by the staff interviews. For example, at times patients do not arrange for transportation, suggesting the need for reinforced patient education. Limiting recovery time to 30 min did increase procedure volume and provider utilization in the study by Day et al. [9] but was found to be at the expense of increased patient wait time. Hence, there is no consensus on strategies to improve the endoscopy recovery process and it warrants further investigation. Room turnover, often considered to be a critical factor for efficiency, was found to be approximately 8 min in our unit, far less than reported times in the literature.

CONCLUSION:

Increasingly, GMC gastroenterologists will need to be accountable to patients, payers and one another, with objective and accurate measures of wait times and, thus, access to outpatient consultations and endoscopic procedures. Objective measures of patient access ('feelings are good but measurements are better') are key to lobby government for increased resources to ensure adequate 'supply' of physician and endoscopy resources.

There is increased assurance that the sickest patients are seen first and target patient populations may be prioritized. Physician workload may be reduced, with nurse assignment of referral priority. Innovations within Single Entry Method to improve access can occur, including assurance of referral appropriateness for consultation and endoscopy, telephone consultations, development of specialized clinics, and streamlining pathways for patients with uncomplicated problems utilizing nurse-based education and support. Improving access to GI care in the hospital is of paramount importance and, in the face of resource constraint, innovations to support patients, improve efficiencies and limit cost within the existing system are key to success.

Waiting time

Waiting time (Minutes)	Doctors	Doctor/ queue	queue	room	scope	Blank *	Grand total
Appointment	13	1	16	12	1	36	79
41-60	4		7	3		15	29
61-80			4	3		4	11
81-100	5		2	3		6	16
101-120	1		2		1	3	7
121-140		1				2	3
141-160						3	3
161-180	1			1		2	4
201-220	1			2			3
261-280	1		1			1	3
Walk in	6		9	4		11	30
41-60	4		5	2		7	18
61-80	1		2	1			4
81-100	1		1			3	5
101-120						1	1
141-160			1				1
161-180				1			1
Grand Total	19	1	25	16	1	47	109

*Blank = no specified reason

REFERENCES:

1. Sugandhi, R.K. (2002). Customer Relationship Management. New age International Publishers, New Delhi, India.
2. Derek Yu MD, Wilma M Hopman MA, William G Paterson MD. Wait time for endoscopic evaluation at a Canadian Tertiary Care Centre: comparison with Canadian Association of Gasteroenterology targets, Can J Gasteroenterol (2008), 22, 7, 621-626.
3. Donabedian A. (1980) Explorations in Quality Assessment and Monitoring, Vol. 1: The Definition of Quality and Approaches to Its Assessment. Ann Arbor, Michigan: Health Administration Press.
4. Katz, K., Larson, B., et al. (1991). Prescription for the waiting line blues: entertain, enlighten, and engage. Sloan Management Review, 32(2), 44-53.
5. Dansky, K.H., Miles, J. (1997). Patient Satisfaction with ambulatory healthcare services: waiting time and filling time. Hospital Health Service Administration, 42(2), 165-177.
6. Taylor, S. (1994). Waiting for service: the relationship between delays and evaluations of service. Journal of Marketing, 56-69.
7. Washington, DC: National Academies Press; 2001. Crossing the quality chasm: a new health system for the 21st century.
8. Reid P P Compton W D Grossman J H Fanjiang G et al. eds.Building a better delivery system: a new engineering/health care partnership Washington, DC: National Academies Press; 2005
9. Day L W, Belson D, Dessouky M. et al. Optimizing efficiency and operations at a California safety-net endoscopy center: a modeling and simulation approach. Gastrointest Endosc. 2014;80:762–773.