

Junior Doctors' Education and Training Facilitated by Quality Improvement Project

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Abstract

Quality improvement projects are vital to improve and maintain the quality of care. Focused education and training is one of the most effective interventions to improve quality. We used the quality improvement cycle also called the Shewhart cycles protocol to objectively identify areas requiring focused education and training and measure the effectiveness of our education strategies through the completion of the quality improvement cycle.

This project comprised two phases. In the first phase discharge summaries of surgical patients in a single surgical ward for two weeks were reviewed. Data regarding the accuracy and appropriateness of essential components of discharge summaries were collected. The education session was arranged for doctors involved in making discharge letters.

Considerable (Accuracy / Appropriateness <75%) deficiencies were identified in 7 out of 10 components of the discharge summaries. Most of the doctors felt the educational session was beneficial. There was no component of the discharge letters with considerable deficiencies in the second phase. Significant improvement was seen in 6 out of 7 components which were identified to be deficient.

We conclude that focused education and training of healthcare staff facilitated by the implementation of the Shewhart cycle is an effective way of quality improvement.

Keywords: *Focused Education and Training, Junior Doctors, Quality Improvement Project, quality of care, effective interventions.*

INTRODUCTION

Quality improvement projects are vital to improve and maintain the quality of care [1, 2]. A typical quality improvement project involves the identification of a problem through relevant data collection and analysis, intervention to improve the deficiencies identified, and re-data collection after the intervention to assess the effectiveness of the intervention. This is also called the Shewhart cycle [3]. This is an iterative process to improve quality and objectively differentiate and compare the effectiveness of various improvement measures. Education and training is one of the most effective interventions [4-6].

Education and training without identifying the areas where it is needed can be ineffective. Shewhart cycle plays a very important role in identifying the areas where there is room for improvement and potential measures that can bring about change in the outcome. As there are various methods of training and different modalities may be effective in different situations, measuring the effectiveness of specific teaching methods is valuable to consistently improve clinical outcomes resulting from education and training [7].

We used Shewhart cycles to objectively identify areas requiring focused education and training and measured

the effectiveness of our teachings through the completion of the quality improvement cycle.

METHODS

We conducted quality improvement projects to improve the quality of surgical discharge summaries and used this project to educate and train junior doctors rotating in General Surgery. This project was conducted at General Surgery Department at Scunthorpe General Hospital. We followed the Shewhart Cycle protocol. It comprised two phases. In the first phase discharge summaries of surgical patients on a single surgical ward from the previous two weeks were reviewed. All surgical patients managed and treated during the first phase period were included. Patients who absconded from the ward and hence did not have discharge letters were excluded from the project.

Data were collected about essential components of discharge summaries as recommended by the Royal College of Physicians [8]. Since NHS England requires hospitals to send discharge summaries to General Practitioners (GPs) electronically, much of patient-related information is populated automatically in the discharge summaries. Certain information that relates to the patient's current admission needs to be added manually. Following the Professional Record Standards Body (PRSB) recommendation for eDischarge summary standard and essential elements [9], we collected data about the following components of the discharge summaries.

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Received: February 27, 2023 Revised: April 30, 2023 Accepted: May 2, 2023

DOI: <https://doi.org/10.37184/jlnh.2959-1805.1.5>

1. Accuracy of Diagnosis
2. Relevant Admission Details
3. Relevant Investigations
4. Management Details
5. Accuracy of Operative Procedure If Applicable
6. Instructions to Patient
7. Follow Up Plan
8. Referral Plan If Applicable
9. Instructions to GP
10. Accuracy of Medications

Accuracy and Appropriateness of the assessed elements of discharge letters were decided via the consensus of two independent senior surgeons of at least registrar level.

Based on results from the first phase of the Shewhart cycle, potential areas were identified for the education and training of junior doctors. The education session was arranged for foundation doctors, core trainees, and senior house officers. The session was conducted by the surgical registrar and consultant. Feedback was collected from junior doctors about the need for any specific education and training regarding surgical discharge summaries. Individual mentoring of junior doctors for correction of discharge summaries was also done.

After the completion of the intervention period, data about the same components of the discharge summaries from the ensuing two weeks was collected following the same protocol.

Results are reported in numbers and percentages. Before and after intervention results are compared using the chi-square test. A p-value less than 0.05 is considered significant.

Approval was sought from the hospital audit department before the start of the project with an approval number 7L2020.

RESULTS

Discharge summaries from Aug 15 to Aug 28, 2020, were reviewed in the first phase of the quality improvement project. There were a total of 49 discharges during this period. 1 patient had absconded so did not have a discharge summary and was excluded. 48 discharge summaries were audited. Considerable (Accuracy / Appropriateness <75%) deficiencies were identified in 7 out of 10 components of the discharge summaries. Frequencies and percentages of the individual components are shown in Table 1.

There were a total of 11 junior doctors rotating on the surgical unit. Most of the junior doctors (10 out of 11) felt

the educational session was beneficial and improved their understanding of essential elements of discharge letters. They also felt the need for this to be included in the induction of doctors in surgery. The second phase of the project included a review of discharge letters from September 05 to September 18, 2020. There were a total of 54 discharges, 1 patient had absconded so 53 discharge summaries were reviewed. There was no component of the discharge letters with considerable deficiencies. Significant improvement was seen in 6 out of 7 components which were identified to be deficient. Detailed results are shown in **Table 1**.

Table 1: Accuracy of various components of discharge summary.

Component of Discharge Summary	First Phase	Second Phase	P Values
Accuracy of Diagnosis	27/48 (56.3)	50/53 (94.3)	<0.001
Relevant Admission Details	21/48 (43.8)	52/53 (98.1)	<0.001
Relevant Investigations	21/48 (43.8)	51/53 (96.2)	<0.001
Management Details	24/48 (50.0)	50/53 (94.3)	<0.001
Accuracy of Operative Procedure If Applicable	12/16 (75.0)	14/14 (100)	0.048
Instructions to Patient	29/46 (63.0)	38/39 (97.4)	<0.001
Follow Up Plan	37/48 (77.1)	49/53 (92.5)	0.030
Referral Plan If Applicable	4/6 (66.6)	23/25 (92.0)	0.108
Instructions to GP	11/24 (45.8)	14/14 (100)	<0.001
Accuracy of Medications	44/48 (91.7)	52/53 (98.1)	0.140

DISCUSSION

Our results demonstrate the effectiveness of education and training facilitated by quality improvement projects. Shewhart cycle helped us in the identification of areas that needed improvement. A focused, outcome-oriented educational session and training resulted in significant improvement in the quality of care. This helped with the training of junior doctors as well as improvement in the quality of healthcare.

We completed one cycle of the quality improvement plan, but the Shewhart cycle is an iterative process to continuously improve the quality of care. Implementation of this strategy in healthcare is known to be effective in bringing about positive change and improving patients' experience [10].

We chose surgical discharge summaries for this project as the quality of care for patients and their satisfaction after hospital visits is largely dependent on effective

communication between physicians at different levels of care. Discharge summaries are often the only form of communication that occurs during the transition of care from hospital to primary care. Any lapses in the quality of the discharge summary can impact patient management. Poor discharge summaries correlate with adverse outcomes as well as re-hospitalization rates [11]. Furthermore, inadequate information results in heightened insecurity among patients on discharge; they have a lack of knowledge about possible complications to look out for and how to deal with them, or the most appropriate mechanism for seeking help [12].

Post-graduate training is often the first opportunity for doctors to learn to draft discharge letters. Unfortunately, discharge summaries are created by foundation doctors who have minimal training in this area, resulting in poor-quality discharge summaries. Effective education and training in this area can potentially improve the quality of care.

CONCLUSION AND RECOMMENDATIONS

Focused education and training of healthcare staff facilitated by the implementation of the Shewhart cycle is an effective way of quality improvement.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

Declared none.

AUTHOR'S CONTRIBUTION

All the authors contributed equally to the publication of this article.

REFERENCES

- Esposito P, Dal Canton A. Clinical audit, a valuable tool to improve quality of care: General methodology and applications in nephrology. *World J Nephrol* 2014; 3: 249. DOI: <https://doi.org/10.5527%2Fwjn.v3.i4.249> PMID: 25374819
- Szecsényi J, Campbell S, Broge B, Laux G, Willms S, Wensing M, *et al.* Effectiveness of a quality-improvement program in improving management of primary care practices. *CMAJ* 2011; 183: E1326-33. DOI: <https://doi.org/10.1503%2Fcmaj.110412> PMID: 22043000
- Harrington HJ. Plan–Do–Check–Act (Shewhart Cycle). *The Innovation Tools Handbook, Volume 2: Evolutionary and Improvement Tools that Every Innovator Must Know*. 2016 Aug 19. DOI: <https://doi.org/10.1201/9781315367699>
- Mosadeghrad AM. Factors influencing healthcare service quality. *Int J Health Policy Manag* 2014; 3(2): 77-89. DOI: <https://doi.org/10.15171%2Fijhpm.2014.65> PMID: 25114946
- Reeves S, Perrier L, Goldman J, Freeth D, Zwarenstein M. Interprofessional education: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 2013; 2013(3): CD002213. DOI: <https://doi.org/10.1002/14651858.cd002213.pub3> PMID: 23543515
- Shi L, Zhang J. Recent evidence of the effectiveness of educational interventions for improving complementary feeding practices in developing countries. *J Trop Pediatr* 2011; 57(2): 91-8. DOI: <https://doi.org/10.1093/tropej/fmq053> PMID: 20558381
- Berkhof M, van Rijssen HJ, Schellart AJM, Anema JR, van der Beek AJ. Effective training strategies for teaching communication skills to physicians: an overview of systematic reviews. *Patient Educ Couns* 2011; 84(2): 152-62. DOI: <https://doi.org/10.1016/j.pec.2010.06.010> PMID: 20673620
- Improving discharge summaries – learning resource materials [Internet]. RCP London. 2019 [cited 2020Sep29]. Available from: <https://www.rcplondon.ac.uk/guidelines-policy/improving-discharge-summaries-learning-resource-materials>
- eDischarge summary 2.1 [Internet]. PRSB. [cited 2020Sep29]. Available from: <https://theprsb.org/standards/edischargesummary/>
- Taylor MJ, McNicholas C, Nicolay C, Darzi A, Bell D, Reed JE. Systematic review of the application of the plan-do-study-act method to improve quality in healthcare. *BMJ Qual Saf* 2014; 23: 290-8. DOI: <http://dx.doi.org/10.1136/bmjqs-2013-002703> PMID: 24025320
- Hansen LO, Strater A, Smith L, Lee J, Press R, Ward N, *et al.* Hospital discharge documentation and risk of rehospitalisation. *BMJ Qual Saf* 2011; 20(9): 773-8. DOI: <https://doi.org/10.1136/bmjqs.2010.048470> PMID: 21515695
- Lin R, Gallagher R, Spinaze M, Najoumian H, Dennis C, Clifton-Bligh R, *et al.* Effect of a patient-directed discharge letter on patient understanding of their hospitalisation. *Intern Med J* 2014; 44(9): 851-7. DOI: <https://doi.org/10.1111/imj.12482> PMID: 24863954