



# A Quality Improvement Project: Development and Implementation of a Modified I-PASS Handover in the General Surgery Department of Tertiary Care Hospital in Pakistan

Anis Farooq, Haroon Javaid, Imran Anwar

Department of General Surgery, Shaikh Zayed Medical Complex, Lahore

## ABSTRACT

**Introduction:** In tertiary care settings, multidisciplinary teams are responsible for providing hi-tech, state of the art health care to the patients, which is impossible without a transparent, accountable communication system within and between teams, i.e. the patient handover. **Aims & Objectives:** This project aimed to introduce a handover document, based on handover best practices, in the General Surgery Department of Shaikh Zayed Hospital, Lahore, and improve it over time to make it compatible with the unique local demands. **Place and duration of study:** From 01 October 2019 to 30 March 2020 in General Surgery Department of Shaikh Zayed complex, Lahore, Pakistan. **Material & Methods:** The need for an official and standard handover for the general surgery department was discussed with a few stakeholders. Upon a thorough search of the literature, a slightly modified version of the I-PASS handover system was introduced. It contained items such as Biodata, diagnosis, active complaint, management, tasks to be done, potential risks, verbal handover and severity of the disease. Before the introduction of handover documents, a training session was held with three residents. Six months after the handover was introduced, qualitative feedback was collected from trainee residents and consultants in the General Surgery department. **Results:** Results showed compliance of 80% by residents (n=20), perceived improvement in patient safety standards and better organization of patient data by 95% of respondents (n=20). First Plan, Study, Design, Act cycle was completed. A second PSDA cycle was initiated. A new form of I-PASS handover system, based on feedback, was put in place in the General Surgery Department. **Conclusion:** This undertaking has fulfilled one of the recommendations of the Joint Commission and WHO to improve patient safety, and it also demonstrates that a structured handover improves the transfer of information among residents, minimizes errors and help avoidance of negligence.

**Key words:** I-PASS handover, Handover contextualization, Quality improvement project.

## INTRODUCTION

Patient safety should be the cornerstone of high-quality patient care. Without it, preventable harm can go unchecked and results in avoidable damage to patients' health. WHO defines in its Global Patient Safety Action Plan 2021-2030 as "Patient safety is a framework of organized activities that creates cultures, processes, procedures, behaviours, technologies and environments in health care that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make error less likely and reduce its impact when it does occur.<sup>1</sup> Joint Commission has set six international patient safety goals. It includes identifying the correct patient and

improving effective communication.<sup>2</sup> Patient care requires continuity of supervision from the point of admission to the time of discharge. This chain of care should be maintained by a highly effective handover, used to communicate between teams of health care providers. It is defined as the system by which the responsibility for immediate and ongoing care is transferred between healthcare professions.<sup>3</sup> Due to the implementation of restriction on working hours, the frequency of shift change has increased, which provides a split window for potential medical errors, often severely impacting patient care. They are the weakest link of the patient care chain. The joint commission sentinel database includes inadequate communication between healthcare providers resulting in a delay in treatment, falls,

medication error, wrong patient and wrong-site injury. In 2018, sentinel event statistics released by the joint commission, 39.5 percent of all sentinel events occurred due to communication failure.<sup>4</sup> Adequate communication between health care providers improves patient safety. One of the ways to improve patient safety is to have an effective handover.<sup>5,6</sup> However, handovers are not a one-size-fits-all document. It needs to be tailored to provide local demands of healthcare providers and patient. WHO launched a project to standardize patient handover across five countries in 2006. However, the project was left incomplete, citing that the handover standardization process was influenced by variable factors such as culture and organization environment.<sup>7</sup>

The General Surgery Department did not have an official patient handover protocol in place. Verbal, as well as subjective written handover, was the dominant mode of communication within multidisciplinary teams providing surgical care to patients. In general, our aim was to establish an official and standard handover system in the General Surgery Department with ensuring compliance of 75% in the first six months and then contextualizing it to the local needs of all stakeholders.

## **MATERIAL AND METHODS**

This quality improvement project was carried out in General Surgery Department of Shaikh Zayed Medical Complex, Lahore, Pakistan from 1<sup>st</sup> October, 2019 to 30<sup>th</sup> March, 2020. This project underwent a series of steps such as identifying the problem, taking baseline measurement, designing intervention, implementing it through a PSDA cycle, collecting feedback and implementing the changes in next PSDA cycle.<sup>8</sup>

**Baseline measurement:** Quantitative feedback could not be collected because of the lack of knowledge about handover practice in residents. But baseline measurement was done by doing a sensitization session. Three residents were invited for interviews. They were asked a few specific questions, such as: 1) If they used an official format to transfer responsibility between teams. 2) If they had received training regarding handovers. A common theme came up that they did not have an official handover document and did not receive any training regarding information transfer. When asked if an official handover document, based on international guidelines, was to be introduced, would they use it? Their response was affirmative. After that, a meeting was held with a consultant. It

was agreed to put in place a handover document, based on the I-PASS handover system.

**Design:** It was evident that a handover was needed and its use must be made mandatory by residents must be made mandatory. Three areas were decided to be measured later: 1) Compliance, 2) improvement in patient safety 3) improvement in patient data management.

For it to work, three things needed to be done. 1) Involvement of all the stakeholders 2) It needed to be easily accessible 3) Residents need to be educated on how to use it.

It was agreed for the residents to use this handover document for the next six months from 1<sup>st</sup> October 2019 to 30<sup>th</sup> March 2020.

**Strategy:**

**PSDA cycle 1:** Our initial intervention was to just implement a structured handover with the aim of 75% compliance among surgical residents after six months. Throughout the first cycle, data was collected qualitatively by discussions with residents. At the end of the cycle, quantitative data was collected. Three questions were asked from residents: 1) Do you use an official handover document. 2) Did the new handover system improve patient safety standards? 3) If the organization of the patient data improved?

**PSDA 2:** After six months, our intervention focused on making it General Surgery specific handover. For this purpose, we introduced a set of new boxes in the handover on the basis of qualitative and quantitative feedback collected from residents and consultants. The inconvenience to get handover document was solved by placing printed copies in doctors' office, where they were easily accessible.

**Statistical analysis:**

Data was collected using Google forms and analysis was done using the in-built function of Google forms.

## **RESULTS**

During our base measurement, it was ascertained that there was no handover system and residents were mostly unaware of the working of a handover system. Our main outcome, after six months, was the establishment of a handover system and the education of the residents. The compliance was found to be 80%, against the aim of 75%. The knowledge of the residents was measured indirectly by asking them to give feedback after they use the handover system. Out of twenty-four residents in the department, who used the handover system during their rotation, twenty responded to the feedback

form, and ninety-five percent said that in their view, the safety of the patient and the data management of the patients had improved in the last six months.

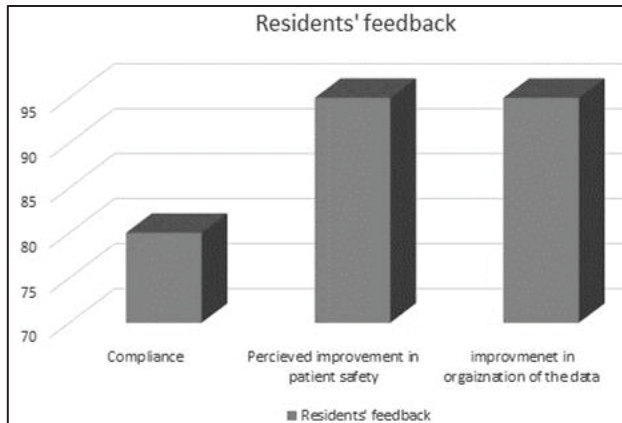


Fig-1: Residents' Feedback.

The other aim was the contextualization of the handover as per the recommendations of residents and other stakeholders involved in the project. For this purpose, suggestions were sought from three consultants in interviews and from twenty-four residents in the form of a feedback form. Based on their recommendations, a new handover document was introduced.

#	Items	Simplified I-PASS handover	Contextualized handover SZH-I-PASS handover
1	Biodata	✓	✓
2	Diagnosis	✓	✓
3	Active complaint	✓	✓
4	Management	✓	✓
5	Task	✓	✓
6	Potential risks	✓	☒
7	severity of the disease	✓	☒
8	verbal handover	✓	☒
9	surgical status	☒	✓
10	Co-morbid	☒	✓
11	Radiological finding	☒	✓
12	special note	☒	
13	Drains	☒	✓
14	Operation name	☒	✓
15	vitals status	☒	✓
16	wound status and day	☒	✓
17	Covid-19	☒	✓
18	Pre-op fitness	☒	✓
19	Dressing	☒	✓
20	Assessment and plan	☒	✓
21	Responsible doctor's name	☒	✓

Table-1: Comparison of Simplified I-PASS and Contextualized handover SZH-I-PASS handover.

## DISCUSSION

This project aimed to establish a handover system in the General Surgery Department which was achieved, surpassing the set compliance marker. It was a significant change in a system relying on old and unexamined routines, but we approached it with a humbler approach. The boxes to be filled in the handover were an extension of the basic ideas of information transfer which made it easier for residents to use it. The key lesson we learned is, despite good intentions and well laid out plans for improvement, the changes that last should be built on structures that are readily accessible, gradual and easy to use. This is why, six months later, a large majority of the residents were using the handover document.

However, when it came to intermittent data gathering during PDSA cycles, it was not possible to audit the handovers. The data storing system of the hospital was a manual system, and using it required a considerable workforce. This is why we relied on the residents' feedback rather than on the audit of the handovers.

Additionally, the effects of the COVID-19 pandemic cannot be understated. Due to this, the services of the hospital was fairly limited, and the workload had decreased more than 70 to 80% during six months from April 2020 to August 2020. This is why we could not collect feedback data for the second PDSA cycle.

If we had to take this project again, one thing we would do is more involvement of residents and employing them in our quality improvement team. The other thing is the conduction of workshops to educate the importance of quality handover. We did educate a few residents, but feel that every resident who works in the department currently or in future needs this departmental orientation.

## CONCLUSION

In a broader healthcare ecosystem, quality handovers are considered essential in providing consistent and safe care. They are recommended by the Joint Commission as well as WHO. It was pertinent to introduce a solid but simple handover model in the general surgery department to bring to international standards in terms of patient care. Our results have shown that it has improved patient safety. Our aim to establish a handover system in the general surgery department was fulfilled completely; however, our second aim to make it contextualized was only completed partially. We had introduced the contextualized handover with the

feedback from trainees and consultants, but the loop of the PDSA-2 could not be closed due to pandemic wrecking the normal functioning of the hospital. Initially, we intended to only establish a simple handover system, but as we moved along, we added a second goal to make it general surgery specific. We plan to add a quality contribution to the growing body of quality improvement projects with further audits of handovers.

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### The Authors:

Dr. Anis Farooq  
House Officer,  
Department of General Surgery,  
Shaikh Zayed Medical Complex, Lahore.

Prof. Haroon Javaid Majid  
Head, Department of Surgery & Surgical Oncology,  
Shaikh Zayed Medical Complex, Lahore.

Prof. Imran Anwar  
Head, Department of Surgery (Unit-II),  
Shaikh Zayed Medical Complex, Lahore.

### Corresponding Author:

Dr. Anis Farooq  
House Officer,  
Department of General Surgery,  
Shaikh Zayed Medical Complex, Lahore.  
E-mail: ansfarooq96@gmail.com