

Creating Safe Handoffs Between Units: Implementation of the I-PASS Handoff Program in Nursing

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Introduction

Patient transition from one unit to another can be a vulnerable time for a hospitalized patient, with potential for error and communication breakdown. These communication failures are a leading cause of sentinel events in hospitals. Nurses are integral in these patient transitions but often lack a standardized handoff approach, putting these transitions at risk for miscommunication errors. This project focuses on implementation of a standardized handoff mnemonic and its impact on nurses' perceptions of efficiency, safety, and quality of patient handoffs.

Purpose

The purpose of this quality improvement project is to educate, implement and evaluate a nursing handoff program using the I-PASS patient handoff system and determine its effect on nurses' perception of patient handoffs between pediatric units.

Methods

Design: Pre-Post prospective intervention design to evaluate implementation of the I-PASS handoff mnemonic in nursing handoffs between units.

Setting: Implemented on two inpatient pediatric units at a large academic children's hospital in Baltimore, MD- one general care unit & one pre/post anesthesia care unit.

Participants: All nurses from both units were given the opportunity to participate and only non-nurse staff and nurse managers was excluded from the study. A total of 58 nurses (from both units) participated in I-PASS education and pre/post intervention surveys.

Table 1. Characteristics of Nursing Subjects by Number of Years Worked, (n= 58)

Characteristics	Total n (%)	<5 yrs n (%)	5-10 yrs n (%)	>10 yrs n (%)
Gender				
Female	56 (96.4)	17 (100)	22 (95.7)	17 (94.4)
Male	2 (3.6)	0 (0)	1 (4.3)	1 (5.6)
Highest Level of Education				
Associate Degree	5 (9.1)	2 (11.8)	2 (8.7)	1 (5.6)
Bachelor's Degree	47 (80.0)	14 (82.4)	18 (78.3)	15 (83.3)
Master's Degree	6 (10.9)	1 (5.9)	3 (13.0)	2 (11.1)
Nurse's Role				
Staff Nurse	30 (50.9)	12 (70.6)	9 (39.1)	9 (50)
Charge Nurse	7 (10.9)	4 (23.5)	1 (4.3)	2 (11.1)
Both Staff and a Charge Nurse	21 (38.2)	1 (5.9)	13 (56.5)	7 (38.93)
Work Schedule				
Majority Day Shift	40 (69.1)	9 (52.9)	15 (65.2)	17 (94.4)
Majority Night Shift	7 (12.7)	1 (5.9)	5 (21.7)	1 (5.6)
Rotator- Day and Night Shift	10 (18.2)	7 (41.2)	3 (13.0)	0 (0)
Level of Nurse Position				
Nurse Clinician I	8 (14.5)	35.3 (6)	0 (0)	11.1 (2)
Nurse Clinician II	33 (74.5)	58.2 (10)	87.0 (20)	72.2 (13)
Nurse Clinician III	7 (10.9)	5.9 (1)	13.0 (3)	16.7 (3)

Study Aims:

- Develop a nurse I-PASS handoff education program-** nursing workgroup modified original I-PASS material
- Educate nurses on the I-PASS handoff system-** education sessions were conducted. Met 80% goal for attendance
- Implement and evaluate compliance with I-PASS handoff mnemonic-** Auditing performed to assess the quality and frequency that each I-PASS element was present at handoff between units.
- Improve nurse perceptions of patient handoffs between units after I-PASS handoff implementation-** Nurse Perceptions of Handoff Survey was completed by participants.

Statistical Analysis

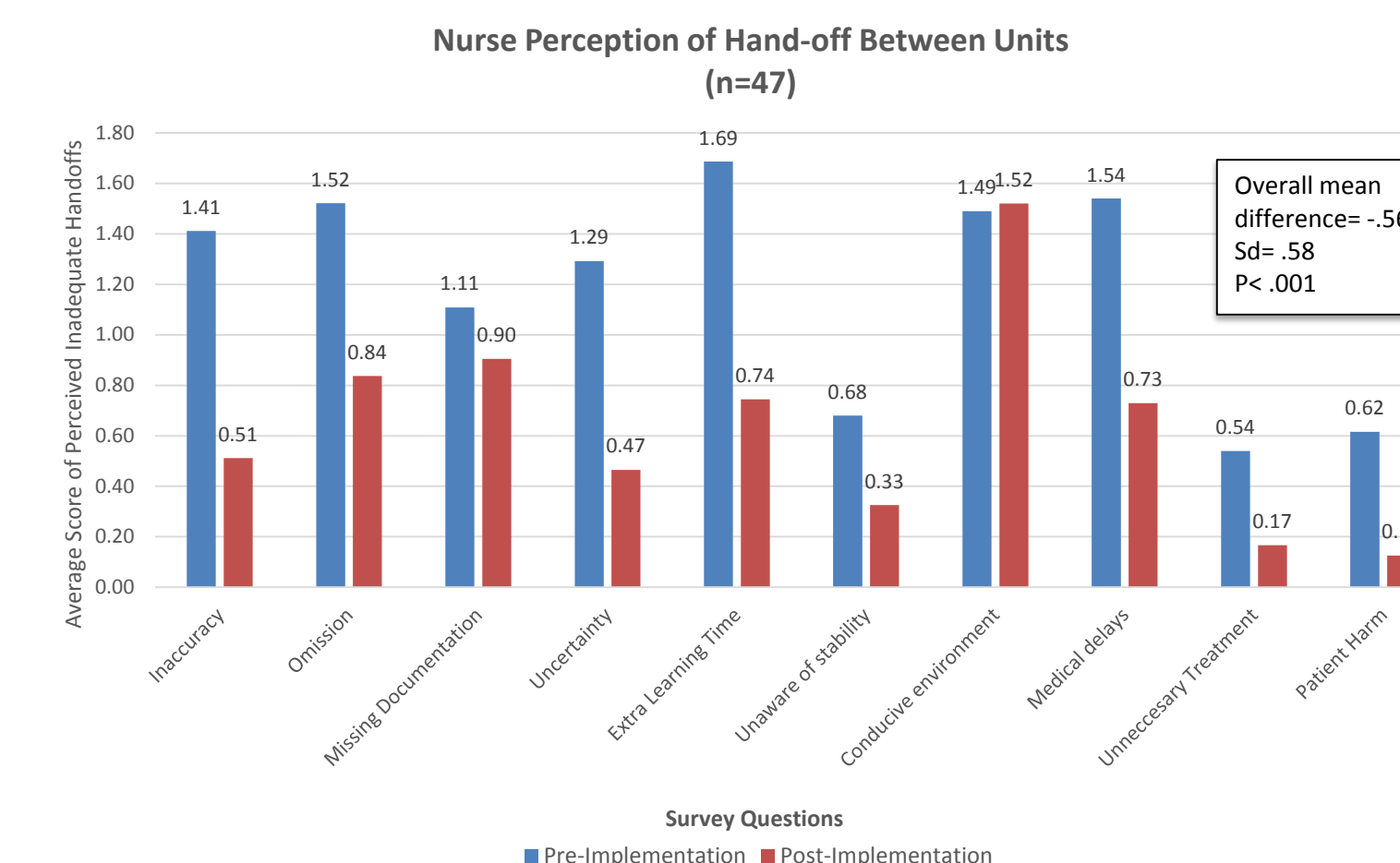
Descriptive statistics were used to summarize frequencies comparing nurse characteristics by years worked in the institution. Primary outcome data was analyzed using a paired t-test to compare pre and post nurse perception scores of handoff. Also performing a one-way ANOVA test, the amount of difference in perception scores by number of years nurse worked was also assessed.

Secondary outcome of interest- Adherence to I-PASS mnemonic was captured by the percentage of all elements present during nurse handoff. Chi square and Mann-Whitney U test were used to compare rater group (direct observer or peer to peer) with scoring adherence to I-PASS mnemonic. Statistical analysis was conducted in IBM SPSS Statistics for Windows, version 24.

Results

Perceptions of Nurse Handoffs between Units

Seventy percent of total nurses from both study units completed a pre and post handoff perception survey (n=58) in which eighty-one percent (n=47) were paired by de-identifying information. For the entire sample, there was a statistically significant difference in scores for pre intervention (mean= 1.30 SD= .421) and post intervention scores (mean= .74 SD=.377), using a paired samples t test, $t(47) = -6.617, p < .001$. Post Hoc analysis using a one-way ANOVA measured the amount of difference in perception of nurse handoff by years nurse worked as well. There was a statistically significant difference in the amount of change in I-PASS scores by years nurse worked, $F(2, 44) = 3.741, p = .032$. Improvement in nurse perceptions regarding handoffs between units was shown in our <5 year and 5-10 year experienced nurse groups.



Nurse Perceptions of Frequency of Inadequate Handoffs

Years Nurse Worked	Pre I-PASS Implementation Mean Score	SD	Post I-PASS Implementation Mean Score	SD	Mean Difference	p-value
<5 years (n = 14)	1.13	.405	0.67	.375	-0.49	
5-10 years (n = 20)	1.41	.435	0.62	.257	-0.79	
>10 years (n = 13)	1.28	.394	1.01	.420	-0.27	
Total (n = 47)	1.30	.421	0.74	.377	-0.56	.032

Note: One-way ANOVA, $F(2, 44) = 3.74, p = .032$
 Level of significance $p < .05$
 5-point Likert scale questions, 0=never, 4= five or more times/week
 Survey tool included 10 questions; lower scores indicate a more adequate handoff.

Adherence to I-PASS mnemonic

A total of 36 handoffs were observed and audited by either investigative team or peer to peer and adherence rates were collected. The element with the lowest adherence were contingency plan (63.9%). Patient summary, in contrast, was adhered to in almost all handoffs (94.4%). Total adherence reflects successfully completing all five elements in the handoff and as seen, 47.2% of handoffs met all five elements. Ratings done by the investigative team were compared to ratings done in peer-to-peer audits by using Pearson's Chi Square test. There were no significant differences in rating of any of the elements by type of rater.

Frequency of I-PASS mnemonic inclusion at time of handoff between units

I-PASS mnemonic elements	Rating by All Raters (n = 36)	Rating by Investigator Team Observers (n = 18)	Rating by Peer to peer Audits (n = 18)	p-value
Illness of Severity	86.1%	95%	75%	.085
Patient Summary	94.4%	100%	87.5%	.104
Action Plan	83.3%	85%	81.3%	.764
Situation Awareness/Contingency Plan	63.9%	60%	68.8%	.587
Synthesis by Receiver	88.9%	90%	87.5%	.813
Total Adherence to all five I-PASS elements	47.2%	45%	50%	.765

Level of significance $p < .05$

Summary

Through implementation of this project, this study found statistically significant improvement in overall nurse perception mean score regarding the frequency of inadequate handoff and specifically with those nursing groups with < 5 years and 5-10 years of experience after I-PASS implementation. As the healthcare environment is changing with the baby boomer generation retiring and new millennial workforce coming in, there are many new nurses at the bedside. Nurses with less than five years of experience will soon be the majority of the workforce for this academic medical children's center study site. The need for a more structured process that the newer nurse can hold herself and others accountable with giving and receiving a safe and efficient patient handoff is becoming essential as the complexity of patient care escalates.

The I-PASS handoff proved to be a predictable way to transfer patient information in a clear and concise fashion that focuses on patient's stability, medical summary, anticipation of needs thereby lessening variability and potential risk for medical errors and adverse events. In addition, we saw potential for adherence to the entire I-PASS mnemonic during nurse handoff, which was encouraging. There was no significant difference when audited by "in person" observation or peer-to-peer evaluation, so the ability to use peer auditing methods for compliance sustainability is imperative for wide spread use.

Conclusions

The impact of a standardized communication handoff process was found to be most beneficial to our newer nurses by empowering them to hold those giving and receiving report accountable to each I-PASS element. Our findings support that this evidence based strategy shows promise with standardizing our communication throughout nursing and potentially for other healthcare disciplines as patients transfer from one unit to another. The goal of having all caregivers speaking a consistent language when handing off vital patient information offers an environment in which patient safety and quality is a priority.



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