

The Joint Commission

Journal on Quality and Patient Safety®

Improvement from
Front Office to Front Line

October 2013
Volume 39 Number 10



“Peer physicians can be recruited and, fortified with training and good data, and can effectively and successfully provide feedback to colleagues who stand out with respect to patient complaints, a proxy for risk of lawsuits.”

—An Intervention Model That Promotes Accountability: Peer Messengers and Patient/Family Complaints (p. 442)



An Awareness Intervention For “High-Risk” Physicians

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Teamwork and Communication

Using “Best-Fit” Interventions to Improve the Nursing Intershift Handoff Process at a Medical Center in Lebanon

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Nursing intershift handoff is a daily process that takes place at the beginning of every shift, and involves communicating essential patient information between the outgoing and the oncoming nurses.¹ Any information omission, misinterpretation, or incongruence may lead to deficient or inappropriate patient care.²⁻⁴ The Joint Commission has identified communication failures as the leading cause of sentinel events in the United States, and lists shift reports as a contributing factor.⁵ The Institute of Medicine reported that the first shortfall of safety lies in inadequate nursing handoffs.⁶ The Canadian Ontario Hospital Association stated that approximately 70% of all sentinel events are linked to communication breakdown.⁷ In a 2009 assessment of patient safety culture in 68 hospitals in Lebanon, 57% of the 6,807 responding hospital employees (including hospital-employed physicians, nurses, and clinical and nonclinical staff) agreed that pertinent patient information, such as abnormal vital signs, laboratory values or radiology test findings, pain management, allergy, fall risk, and functional status, is often lost during shift change.⁸ At Labib Medical Center (LMC), one of the 68 hospitals, 17 (23%) of the 76 nurses were concerned about the adequacy of communication during shift changes.⁹ A subsequent review of reported patient safety incidents at LMC showed that medication errors, delay in treatment, wrong treatment, duplication of laboratory tests, and near-miss events were caused by patient information omissions during intershift handoffs.¹⁰ In response, LMC initiated a quality improvement (QI) project using a multifaceted intervention to improve the quality of nursing intershift handoffs, as we describe in this article.

Methods

SETTING

Labib Medical Center is a 130-bed hospital (Saida, Lebanon), approximately 27 miles (43 kilometers) south of Beirut. It admits approximately 8,000 inpatients and 2,000 outpatients yearly.

Article-at-a-Glance

Background: Nursing intershift handoff involves communicating essential patient information between the outgoing and the oncoming nurses during shift changes. A subsequent review of reported patient safety incidents at Labib Medical Center (LMC), Saida, Lebanon, showed that medication errors, delay in treatment, wrong treatment, duplication of laboratory tests, and near-miss events were caused by patient information omissions during intershift handoffs. In response, LMC initiated a quality improvement project using a multifaceted intervention to improve the quality of nursing intershift handoffs.

Methods: The barriers to effective intershift handoff identified in the literature that best fit the current context of intershift handoffs at LMC showed that the following three issues needed to be addressed: (1) the absence of a standardized intershift communication tool, (2) inadequate training of RNs on intershift handoff communication, and (3) the interruptions during the shift reports. Accordingly, a three-faceted intervention was constructed, entailing (1) introduction of a standardized intershift handoff tool, (2) training RNs about effective handoff communication, and (3) decreasing interruptions.

Results: The mean number of omissions per handoff across the three units decreased from 4.96 to 2.29 ($t = 6.29$, $p = .000$), as did the mean number of interruptions per intershift report—from 2.17 to 1.26 ($t = 2.7$, $p = .008$). RNs' knowledge of the criteria to be communicated suggested a greater appreciation of their own role in patient safety.

Conclusion: The intershift handoff communication process can be improved using evidence-based strategies that target internal barriers where the shift report occurs. Regular monitoring and follow-up are essential to maintain the improvement.

INTERSHIFT HANDOFF OMISSIONS

On the basis of the 2009 patient safety survey findings⁸ and the 2010 reported patient safety incidents,¹⁰ intershift handoff omissions occurred mainly in the medical (16 beds), surgical (27 beds), and cardiac (14 beds) units. Nurse-to-patient ratio in these units is 1 registered nurse to 7 patients plus 1 support staff (a practical nurse). Average length of stay was two to three days for surgical and cardiac patients, and four to five days for medical patients. Staff for these three units included a total of 32 RNs, none of whom had received formal training on effective intershift handoff communication. Intershift handoffs occurred at the nursing station and were conducted by face-to-face verbal communication, with reliance on a card-filing system for information such as medication schedule, treatments and procedures, and care plan.

INITIATING THE QUALITY IMPROVEMENT PROJECT

In a January 2011 meeting, the Nursing Executive Committee (headed by the nursing director, with nursing supervisors and nurse managers as members), a standing committee that meets monthly to discuss clinical care and patient safety issues, acknowledged the need to create an evidence-based solution to the problem of omissions in intershift handoff communications.

Three task forces were established, one from each participating unit—the medical, surgical, and cardiac units. The task forces were composed of representatives from the stakeholders: (1) RNs, who, as the persons performing the intershift handoffs, would be most directly affected by any changes in the process; (2) nurse managers, who were responsible for optimizing the intershift handoff process on their units; (3) physicians, who had an interest in improving the continuity of care for their patients; (4) the quality manager, as facilitator of patient safety projects; and (4) the clinical educator, as the person responsible for any training to be provided.

Each task force was asked to describe the characteristics and gaps in the current intershift handoff process on the respective unit.

CHOOSING THE “BEST-FIT” INTERVENTIONS

A comprehensive literature search of English-language articles related to nursing intershift handoff was conducted by the project leader (the nursing director [L.A.Y.]). The main question to be investigated was “What is an effective method to decrease patient information omissions during the intershift handoff communication?” The initial review of the literature, conducted between August 2009 and January 2010 in anticipation of the proposed project, showed that barriers to effective intershift

handoffs could include a lack of standardization and inadequate policies and procedures; lack or misuse of time; language problems; limitations associated with the communication medium^{5,11} (telephone, paper, computerized system, audio- or videotape); environmental issues^{5,11,12} (interruptions, distractions, multitasking during report, chaotic environment, too much noise, poor lighting, lack of privacy); and inadequate or absence of handoff training, inadequate number of nurses on shift, or a less cohesive team.^{5,11,13–15} The most common recommended strategies to improve the intershift handoff process included standardizing the handoff content,^{5,11,16–23} education and coaching,^{5,24–26} and environmental strategies.^{3,5,27}

The project leader presented the literature findings in February 2011 at a joint meeting to the three task forces to determine the best-fit intervention for LMC. Because LMC has no electronic medical record, and the information technology system stores only administrative and laboratory data, the information technology solutions were excluded from consideration. The barriers to effective intershift handoff identified in the literature that best fit the current context of intershift handoffs at LMC showed that the following three issues need to be addressed: (1) the absence of a standardized intershift handoff tool, (2) the inadequate training of RNs on intershift handoff communication, and (3) the interruptions during the shift reports. All members agreed that the best-fit strategy must address those barriers. Accordingly, a three-faceted intervention was constructed:

1. Introducing a standardized intershift handoff tool
2. Improving the RN competency level
3. Decreasing interruptions—by reorganizing processes prone to interruption (physicians’ rounds, nursing rounds, patient admission, and patient transfer) that occur during the intershift report (when all patients’ handoffs occur at the end of a shift)

IMPLEMENTING THE INTERVENTIONS

A comprehensive implementation plan detailing the sequence of the activities related to each of the three interventions (Appendix 1, available in online article), a Gantt chart for the activities (Appendix 2, available in online article), and a responsibility matrix (Appendix 3, available in online article) were all developed to guide implementation.

1. Introducing a Standardized Intershift Handoff Tool. In February 2011, different samples of intershift handoff tools, all known by their respective acronyms (for example, SBAR [Situation, Background, Assessment, Recommendation]), SHARQ [Situation, History, Assessment, Recommendation, Questions])²⁸ were circulated to the task force members. Each task force consulted with RNs on the unit to choose an acronym to

be used as a guiding tool during their intershift handoff. SHARQ was chosen by the medical and surgical unit task forces, and SBAR by the cardiac unit task force members. Then each task force listed the patient information criteria that should be added under the acronym categories. Unit members wanted to align the acronym criteria with their unit patients' respective needs. At a joint meeting, the task force members, comparing their criteria lists, decided to design one tool that would integrate their unit-specific criteria and address The Joint Commission's requirements, as first expressed in a National Patient Safety Goal in 2006^{2,19} and in 2010 as a standard²⁹ (Standard PC.02.02.01), concerning the content to be communicated in handoffs—namely, that it include up-to-date information regarding the patient's condition, care, treatment, medications, and services, as well as any recent or anticipated changes to any of these.* After three consecutive meetings to consider proposed drafts and agree on a final version of the new intershift handoff tool, a two-hour training session was provided for RNs about effective handoff communication, the purpose of the new tool, and how to use it.

In September 2011 the tool was introduced; regular rounds were performed by the clinical educator, nurse managers, and the project team leader; and feedback was obtained from RNs on the uses of the tool, possible improvements, and any difficulties regarding its use. For example, we learned that five criteria were missing, that the tool was sometimes perceived as “extra paperwork” and time consuming, and that providing information on the patient's situation and history would constitute repetitive documentation for every shift. To address these comments, we added the missing criteria, and adjusted the tool to integrate all intershift handoffs during a patient stay. This meant that the tool would be completed only at the first intershift handoff, while nurses on the subsequent shifts would need to add only any abnormal findings or changes in patient status. The final version of the tool consisted of five categories: situation and history, critical information, abnormality in physical assessment findings, nursing care, and recommendations (Appendix 4, available in online article). The oncoming RN will receive the tool from the outgoing RN, use it as a base for patient care planning, update its content at the end of the shift, and hand it back to

the oncoming RN in the next shift.

2. Improving the RN Competency Level. RNs in the medical, surgical, and cardiac units were invited to attend a training session on effective intershift handoff communication; three two-hour in-service sessions, one in each unit, were held, and a total of 32 RNs attended. The training introduced the intershift handoff as a key patient safety process and instructed RNs on the appropriate knowledge and skills for effective intershift communication.

3. Decreasing Interruptions. Reorganizing interrupted processes (physicians' rounds, nursing rounds, patient admission, and patient transfer) started by negotiating with physicians not to conduct rounds during the intershift report. To provide a “win-win” solution that suits physicians and helps nurses perform an uninterrupted intershift handoff communication, the Shapiro and Jordan preparation principles checklist³⁰ was used to plan the negotiation process. We were successful in persuading the medical director to send a memorandum to all physicians, in which he asked them not to round during the nursing intershift report.

To minimize patient calls during the intershift report, nurses were asked to regularly inform patients about shift change during every end-of-shift round. To minimize interruptions caused by nonurgent admissions or transfers, the admissions office and the recovery room staff were asked to avoid sending patients during the intershift report except for urgent cases. We encountered some resistance during crowded days, which we took into consideration so as not to impede patient flow.

EVALUATION METHOD

A pre-post data collection process was used to address data for the following three outcome indicators (Figure 1, page 463):

1. The mean number of information omissions per patient handoff before and after introduction of the standardized handoff tool
2. The mean number of interruptions during the intershift report before and after reorganization of the concurrent processes
3. The percentage of criteria listed by RNs as essential to be exchanged during the patient handoff communication before and after the training

Data were entered on SPSS software (IBM, Armonk, New York).

Information Omissions. Daily audiotaping of intershift handoffs (7 A.M., 7 P.M.) on the three units was conducted in a one-month period. All improvement strategies were then implemented, and after six months, another audiotaping of intershift handoffs (7 A.M., 7 P.M.) on the three units was con-

* Handoff (handover) communications are also addressed by International Patient Safety Goal IPSG.2.2: The hospital develops and implements a process for handover communication. Measurable elements of IPSG.2.2: 1. Standardized critical content is communicated between health care providers during handovers of patient care; 2. Standardized forms, tools, and methods support a consistent and complete handover process; and 3. Data from handover communications are tracked and used to improve approaches to safe handover communication. **Source:** Joint Commission International. *Joint Commission International Accreditation Standards for Hospitals*, 5th ed. Oak Brook, IL: Joint Commission Resources, 2013. (Standards effective April 1, 2014.)

Unit of Analysis, Data Collection Methods, and Tools

Outcome of Interest	Number of omissions	Number of interruptions	RN knowledge of handoff criteria
Unit of Analysis	Patient handoffs	Intershift reports	RNs
Data Collection Method	Audiotaping	Observation	Questioning
Data Collection Tool	Checklists	Log sheets	Answer sheets
Sample	n = 180 (90 pre, 90 post*)	n = 84 (42 pre, 42 post)	N = 42 (19 pre, 23 post)

Figure 1. The unit of analysis, data collection method, and data collection tool are shown for each of the outcomes of interest. pre, preintervention; post, postintervention.

ducted in a one-month period. The audiotaped handoffs were evaluated for critical information omissions. To prevent bias, nurses were not informed which handoffs were selected for audit. For every intershift recording, two or three patient handoffs were randomly selected and evaluated by two reviewers, who used a checklist to identify omission of critical information. Every criterion checked as “not mentioned” was discussed by the two reviewers to decide whether it was a real omission or not valid information for the patient. In cases when there was any doubt, the reviewers went back to the file or the patient to verify the issue (for example, to determine if the patient had pain during the night). All validated omissions were marked in red, and checklists were sent to the project team leader for analysis.

Because the nurse manager and nurse director were members of the project team, the audiotaping of intershift handoffs could potentially make nurses feel they were at risk for being penalized or poorly evaluated during their performance appraisal by their supervisors. Audiotaping also included confidential patient information. Steps taken to minimize the risks included obtaining permission from the Ethics Committee of the hospital before beginning the audiotaping, informing nurses on participating units about the aim and duration of the audit, and issuing reminders that confidentiality was to be maintained throughout. Before submitting the data to the project leader, the reviewers coded the unit name and erased any identifying data from the recordings.

RN Knowledge of Handoff Criteria. To assess nurses’ knowledge of important handoff criteria, a questionnaire was distributed to all RNs before and five months after the training session, in which they were asked, “What, in your opinion, are the criteria that should be exchanged during intershift handoff?” All criteria mentioned by RNs were summarized in a checklist,

which was then used to record the answers of every RN separately to be able to enter the data on SPSS.

Interruptions. To compare the number of interruptions before and after the reorganization of the concurrent processes, the nurses in charge of participating units used log sheets to record the number and specific reasons for interruptions for the observed intershift reports for two weeks (one week preintervention and one week postintervention).

Results

INFORMATION OMISSIONS

The preintervention sample consisted of 90 patient handoff checklists (30 from every unit), 46 (51%) of which represented patient handoffs chosen from the day-duty’s intershift reports, and 44 (49%) from the night-duty intershift reports. There was a mean of 4.96 omissions (standard deviation [SD] = 3.62) per patient handoff across the three participating units, with the percentage of omission varying from 10% to 50% per criterion. For the 90 patient handoff checklists in the postintervention sample, the mean number of omissions decreased to 2.29 ($t = 6.29$, $p \leq .000$) (Table 1, page 464). The percentage of omissions showed a significant decrease for 18 of the 36 criteria, including, for example, risk for fall (from 24% to 8%), pain status (from 10% to 1%), and home medication (from 38% to 9%) (Table 2, page 465). A linear regression analysis undertaken to assess the impact of type of shift (day, night) and type of unit (medical, surgical, cardiac) on the decrease in the mean number of omissions showed no significant effect (Appendix 5, available in online article). The decrease in omissions after the tool introduction was still significant ($p < .0001$) as before, controlling for these two variables.

Table 1. Differences in Outcomes of Interest Between Pre- and Postintervention Groups*

Outcome	Preintervention (August–September 2011)	Postintervention (January–February 2012)	
Mean Number of Omissions per Patient Handoff per Unit	Mean (SD) N = 90	Mean (SD) N = 90	P Value
Medical	5.77 (4.89)	2.77 (1.88)	.080 [†]
Surgical	4.37 (2.63)	1.60 (1.56)	
Cardiac	4.73 (2.87)	2.50 (1.57)	
Total	4.96(3.62)	2.29 (1.73)	.000[‡]
Mean Number of Interruptions per Intershift Report per Unit	Mean (SD) N = 42	Mean (SD) N = 42	
Medical	1.79 (1.71)	1.64 (1.27)	.178 [†]
Surgical	1.64 (1.08)	1.00 (1.41)	
Cardiac	3.07 (1.59)	1.14 (1.65)	
Total	2.17 (1.59)	1.26 (1.44)	.008[‡]

* SD, standard deviation.

[†] One-way analysis of variance (ANOVA) was performed to compare means between units.

[‡] *t*-test was performed to test the differences in means between pre- and postintervention groups.

RN KNOWLEDGE OF HANDOFF CRITERIA

The response rate of RNs who answered the questionnaires was 59% pre- and 72% posttraining, respectively, yielding 42 questionnaires (19 pre- and 23 posttraining). The two criteria that were listed pretraining by RNs most often were abnormal laboratory (90%) and abnormal radiology (74%) results, decreasing posttraining to 48% ($p = .004$) and 30% ($p = .005$). Among the other criteria that were listed more often post- versus pretraining were isolation precautions (0% versus 35%, $p = .000$), level of consciousness (0% versus 35%, $p = .000$), fall risk (5%, versus 35%, $p = .020$), and pressure ulcer risk (5% versus 35%, $p = 0.020$) (Appendix 6, available in online article). Whereas before the training, nurses generally focused on the physician's role and what physicians need to know, after the training their responses suggested a greater appreciation of their own contribution to patient safety.

INTERRUPTIONS

Baseline observations were conducted for 42 intershift reports (14 on each of the three units), with a mean of 2.17 interruptions per report (SD = 1.59) (Table 1). The reasons for interruptions included patient calls (27%), physician rounds (25%), phone calls (24%), and side talks between nurses (16%) (Table 3, page 466). For the 42 postintervention intershift reports, the mean number of interruptions decreased to 1.26 ($t = 2.7$, $p = .008$) (Table 1), and interruptions due to physician rounds decreased significantly—from 25% to 4% ($p = .001$)—as did interruptions due to side talks between nurses—from 16% to 4% ($p = .033$) (Table 3). Interruptions due to patient calls (27% preintervention to 56% postintervention) and phone calls (25% preintervention to 30% postintervention) increased. The distri-

bution of interruptions in patient handoff samples or observed shift reports did not show any significant difference in terms of type of shift and type of units (Table 1). In a linear regression analysis, the decrease in interruptions was still significant ($p = .009$) as before, controlling for type of shift and unit.

PROJECT CLOSURE

The project leader presented the results to all stakeholders in a project closure meeting in April 2012; to the Hospital Executive Committee the following month; and, finally, during the March 2012 meeting of the Medical Records Committee, which approved the standardized handoff tool as a permanent part of the patient file.

Discussion

Following a multifaceted intervention in a QI project designed to improve the quality of nursing intershift handoffs, we found that nurses encountered fewer interruptions and were less prone to omit important patient information, including patient safety criteria—with possible implications for decreased risks for delay, duplication, or discontinuity of patient care. Furthermore, as reported by nurse managers (although data were not available), the shift report became shorter, and less overtime was spent during the shift change.

Our findings reinforce reports from the literature that standardizing the handoff communication tool, decreasing interruptions, and training nurses on effective intershift handoff communication, are effective strategies to improve the intershift handoff communication. However, whereas most of the QI projects described in the literature used indirect evaluation measures, such as RN and/or patient satisfaction, we were able to evaluate

Table 2. Patient Information Omissions per Criterion

Criterion	Omissions per Criterion		P Value*
	Preintervention	Postintervention	
Demographics and History			
1. Patient name	0% (0/90)	1% (1/90)	1.00†
2. Patient age	3% (3/90)	0% (0/90)	.121†
3. Admitting physician	0% (0/90)	0% (0/90)	1.00†
4. Admission date	3% (3/90)	0% (0/90)	.105†
5. Mode of admission	6% (5/90)	0% (0/90)	.013†
6. History of present illness	6% (5/90)	0% (0/90)	.027†
7. Surgical history	17% (15/90)	2% (2/90)	.001
8. Medical history	14% (13/90)	1% (1/90)	.004
9. Home medication	38% (34/90)	9% (8/90)	.000
10. Diagnosis/intervention	8% (7/90)	0% (0/90)	.014†
Abnormal Values and Risks			
11. Abnormal lab values	10% (9/90)	0% (0/90)	.003†
12. Abnormal radiology	10% (9/90)	1% (1/90)	.027
13. Abnormal vital signs	7% (6/90)	2% (2/90)	.070†
14. Allergy	6% (5/90)	1% (1/90)	.649†
15. Isolation	2% (2/90)	0% (0/90)	.500†
16. Risk for or existing pressure ulcer	16% (14/90)	8% (7/90)	.261
17. Risk for fall	24% (22/90)	8% (7/90)	.010
Abnormalities in Physical Assessment			
18. Neurologic assessment	14% (13/90)	1% (1/90)	.003
19. Respiratory assessment	24% (22/90)	9% (8/90)	.020
20. Cardiovascular assessment	27% (24/90)	8% (7/90)	.002
21. Gastro intestinal assessment	14% (13/90)	7% (6/90)	.236
22. Genitourinary assessment	20% (18/90)	6% (5/90)	.001
23. Skin condition, color, temperature	21% (19/90)	4% (4/90)	.004
Nursing Care			
24. Diet type	29% (26/90)	19% (17/90)	.000
25. Oxygen therapy	13% (12/90)	8% (7/90)	.420
26. Surgical site	20% (18/90)	11% (10/90)	.015
27. Infusion line	51% (46/90)	24% (22/90)	.000
28. Hygiene	27% (24/90)	29% (26/90)	.731†
29. Mobility	30% (27/90)	32% (29/90)	.000
30. Activity	27% (24/90)	32% (29/90)	.000
31. Traction	0% (0/90)	1% (1/90)	.375†
32. Cast or gypsona	1% (1/90)	0% (0/90)	1.00†
33. Pain status	10% (9/90)	1% (1/90)	.004
Recent Recommendations			
34. Recommended tests	0% (0/90)	0% (0/90)	.118
35. Treatment plan	3% (3/90)	7% (6/90)	.330†
36. Consultations	1% (1/90)	0% (0/90)	1.00†

* Chi-square test.

† For cells with an expected count of < 5, the p value of Fisher's exact test is instead reported.

the direct process outcomes—the mean number of omissions per patient handoff and the mean number of interruptions during the shift report—associated with the intervention. Nevertheless, further studies are needed to empirically measure possible improvements in patient safety outcomes resulting from improvements in the intershift handoff report.

The fact that we concurrently conducted the QI project on three different units enhances the generalization of the findings.

LIMITATIONS

In this QI project, we did not analyze whether the decrease in interruptions had an impact on the number of omissions, or if the change resulted only from the use of the new tool. In terms of the test of RN knowledge, the sample size was smaller than intended because the cardiac unit nurses' answers were excluded from the preintervention group; they answered "Situation, Background, Assessment, Recommendation" without listing the cri-

Table 3. Reasons for Interruptions, Pre- and Postintervention

Reason for Interruption	Preintervention (n = 93) % (n)	Postintervention (n = 50) % (n)	P Value*
Patients calls	27% (25)	56% (28)	.001
Physician rounds	25% (23)	4% (2)	.001†
Phone calls	25% (23)	30% (15)	.550†
Side talks between nurses	16% (15)	4% (2)	.033†
Nonurgent admissions	3% (3)	2% (1)	1.00†
Nonurgent transfer	3% (3)	0% (0)	.552†
Laboratory technician coming to withdraw blood	1% (1)	4% (2)	.280†

* Chi-square test.

† For cells with an expected count of < 5, the p value of Fisher's exact test is instead reported

teria for which information needed to be provided. This could have been prevented if the question had been stated more clearly. In addition, only 65% of the RNs were in both the pre- and postintervention groups. During the implementation period, new service lines were opened, and some of the nurses in the medical, surgical, and cardiac units were transferred. Another limitation concerned data labeling in relation to specific reasons for interruptions. The patient calls, the visitors' questions, and the family inquiries were all labeled under "interruptions related to patient calls." The observed increase in "patient calls" as an interrupting factor postintervention reflected the increase in visitors' questions and not patient calls; we should have provided the "visitors' questions" item as a separate reason. As for the increase in "phone calls," it needs to be addressed further by either sending memorandums to all units asking them to limit the use of phone calls during the intershift report to urgent inquiries or redirecting all unit calls during the shift report to a central station which would forward only pressing issues to concerned units. Finally, there was also the potential for a Hawthorne effect from the extra attention that RNs were receiving while they started using the new tool.

SUSTAINING THE IMPROVEMENT

We built in efforts to sustaining the improvement from the beginning of the QI project by involving all stakeholders and keeping them updated with the progress of the project. Since the project's completion we have deployed three strategies:

1. To maintain the standardized intershift handoff process, we updated the handoff communication policy and procedure to include the new tool and made the tool a permanent part of the patient medical record.
2. To maintain the adopters' knowledge of effective handoff communication, we incorporated the intershift handoff training into the orientation program and the yearly competency pro-

gram of RNs.

3. To continuously monitor the process, we performing regular audits on the use of the new tool.

The final version of the tool (as shown in Appendix 4) was introduced in October 2011. The audit on the completion of the tool, conducted in January–February 2012, showed a 98.5% (n = 133) completion rate. Two additional follow-up audits completed in 2012 showed completion rates of 96% (n = 127) in the second quarter and 98.5% (n = 133) in the third quarter.⁹

A regular review of the quality incidents reports is performed to identify those related to ineffective intershift handoff communication. The most recent report by the Quality Department—for 2012—revealed 2 incidents related to a communication breakdown during unit-to-unit transfer³¹; 11 such incidents had occurred in 2010. In the first incident, ER RNs did not inform cardiac unit RNs of the patient's need of telemetry monitoring; in the second incident, a surgical patient was transferred from the operating room to the cardiac ICU without any handoff communication between physicians of the related units.

The same approach of improving unit-to-unit patient handoff was incorporated as an objective in the 2013–2015 nursing department strategic plan.³²

LESSONS LEARNED

Three key elements helped in directing the success of this QI: knowing where to go, what direction to choose, and how to get there.

1. Where to Go. The aim of this QI project was to translate evidence-based knowledge about what constitutes a safe intershift handoff into current practice at LMC.

2. What Direction to Choose. An assessment of barriers reported in the literature and solutions was explored, followed by an assessment of the barriers at LMC and then the selection

of the best-fit interventions. Knowing what worked well at other organizations helped direct and design an implementation plan for our own efforts.

3. How to Get There. Involving stakeholders, enabling front-line staff to assess and design their own intershift handoff processes, and following a scientific method in collecting data and evaluating the outcomes were essential steps in improving the nursing intershift handoff.

Sustaining the improvement is an ongoing process that starts by involving all stakeholders, standardizing the introduced interventions, regularly monitoring and measuring the expected outcomes, and adjusting the interventions accordingly. **1**

The work represented in this article would not have been possible without the efforts of Labib Medical Center nursing department staff and project task force members, in particular, Hiba Kanawati, RN, BS, Clinical Educator, and Rola Deeb, MD, Floor Physician, who conducted data collection. The authors extend special thanks to Labib AbouZahr, MD, CEO, who provided invaluable support during the initiation, implementation, and evaluation of this project.

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Online-Only Content

See the online version of this article for

- Appendix 1. Implementation Plan, January 2010–May 2012
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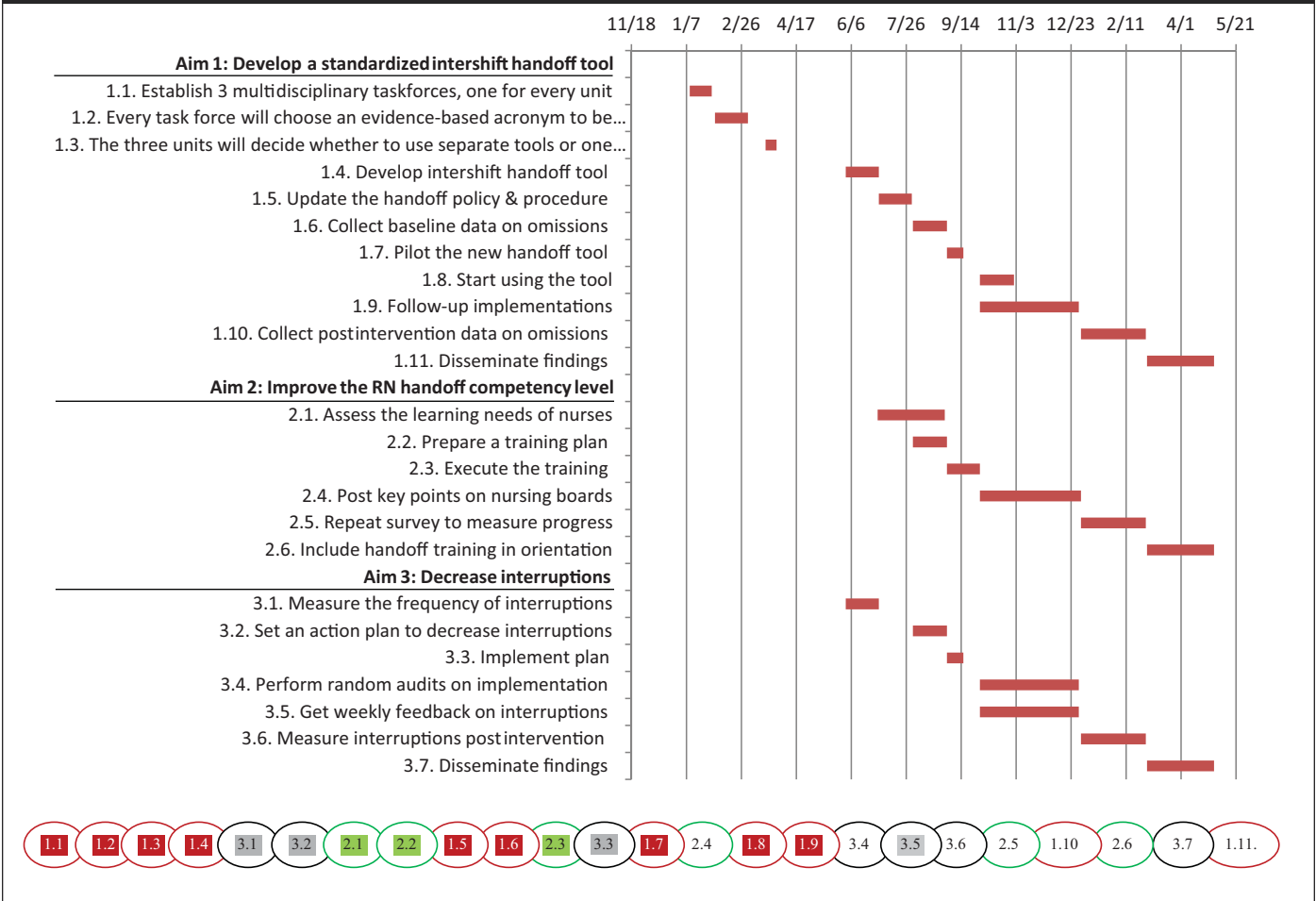
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Appendix 1. Implementation Plan, January 2010–May 2012

	Project Initiation January 2010	Preimplementation Activities, Summer 2011			Implementation Activities Fall 2011		Postimplementation Activities, Spring 2012		Project Completion, May 2012
		Jun	Jul	Aug	Sep	Oct–Dec	Jan–Feb	Mar–Apr	
Aim 1. Develop a Standardized Intershift Handoff Tool	Establish 3 multidisciplinary task forces, one for every unit. The task forces will choose an acronym to be used as a guideline for the new handoff tool.	Develop intershift handoff tool.	Update the handoff policy and procedure.	Collect baseline data on frequency of omissions (by criteria by unit) during the intershift handoff.	Pilot the new handoff tool.	Send a memo to concerned unit and start using the tool. Perform daily rounds the first week, bi-weekly the second week, and weekly the third week to follow up on implementation.	Collect post-intervention data on frequency of omissions to evaluate improvement.	Disseminate findings to stakeholders.	Celebrate success and learn from failures. Close the project.
Aim 2. Train RNs About Effective Handoff Communication		Conduct a survey to assess the learning needs of nurses related to handoff communication.		Prepare a training plan based on identified needs.	Execute the training plan.	Perform one-to-one training for RNs who have difficulty in filling the tool. Post key points on nursing board.	Repeat the survey to compare and measure the nurse satisfaction rate with the new handoff process.	Adjust the orientation program to include handoff training.	
Aim 3. Decrease Interruptions		Measure the frequency of interruptions.	Develop a policy and procedure on hourly rounding to decrease interruptions related to patient calls.	Create an action plan to decrease interruptions.	Implement plan: 1. Negotiate with physicians. 2. Develop the nursing hourly rounding policy. 3. Send memo to restrict admissions and transfers during shift report.	Obtain weekly feedback on whether interruptions during intershift handoff decreased.	Measure frequency of interruptions postintervention.	Disseminate results to stakeholders.	


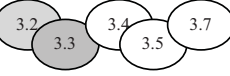











Appendix 2. Gantt Chart Activities Time Line, November 18, 2011–May 21, 2012



Online-Only Content 

Appendix 3. Responsibility Matrix

A filled circle means the activity (as shown in Appendix 2) is completed. Circles are colored according to related Aim (Aim 1: Red; Aim 2: Green; Aim 3: Gray).

	Project Team Leader	Task Force Members	Clinical Educator	Nurse Managers	RNs on Medical, Surgical, & Cardiac Units	Floor Physician
Activities	 	 	   	 		 

Appendix 4. Intershift Report Tool

Labib Medical Center
Patient Handoff Tool
CN-FO-019

PATIENT LABEL

Situation & History Admission / Date/ Time: _____ / ____: ____ From: _____ To: _____
Transfer / Date/ Time: _____ / ____: ____ From: _____ To: _____

Cause of hospitalization Primary Diagnosis: _____ Planned Intervention: _____

Past medical history

Past surgical history

Home medication

Labs & Tests on Admission:

Critical Values:

DATE	___/___/___		___/___/___		___/___/___		___/___/___	
Critical Information	D	N	D	N	D	N	D	N
Abnormal vital signs & Action taken								
Abnormal lab values & Action taken								
Abnormal x-ray values & Action taken								
Allergy: If yes, indicate the type								
Isolation: If yes, indicate the type								
-Risk for pressure ulcer -Has a pressure ulcer (type, stage)								
-Risk for fall -Preventive measures								
Restrictions								

(continued on page AP5)

Appendix 4. Intershift Report Tool (continued)

Labib Medical Center
Patient Handoff Tool
CN-FO-019

DATE	___/___/___		___/___/___		___/___/___		___/___/___	
Abnormality in physical assessment findings	D	N	D	N	D	N	D	N
1. Neurological • LOC • Behavior • Mood • Speech • Reflexes								
2. Respiratory • Respirations • Breath sound • Cough • Sputum								
3. Cardiovascular • Pulse • Edema • Capillary refill								
4. Gastrointestinal • Abdomen • Nausea • Vomiting • Bowel								
5. Genitourinary • Urine: color, amount, elimination • Discharge								
6. Skin assessment (condition, color, temp)								

(continued on page AP6)

Appendix 4. Intershift Report Tool (continued)

Labib Medical Center
Patient Handoff Tool
CN-FO-019

DATE	___/___/___		___/___/___		___/___/___		___/___/___	
Nursing Care	D	N	D	N	D	N	D	N
1. Diet • PO • NPO • N/G(quantity ____, Q __h)								
2. Tracheostomy: • Dressing • Suctioning								
3. Oxygen therapy • Method ___L/min								
4. Chest tube • Number • Location • Suction • Underwater seal • Oscillation (Yes, No)								
5. Surgical site • Dressing time • Drain, quantity ____, color ____ • Sign of infection, if yes indicate								
6. Infusion line • Peripheral • Central (dressing time) • Site integrity (Intact, pain, swelling) • Transfusions DATE								
7. Hygiene • Self • Assisted • Foley catheter care done								
8. Mobility (self, assisted)								
9. Activity (positioning, dangling)								
10. Traction If yes, Site _____, Weight _____								
11. Cast /Gypsona (edema, pain)								
12. Pain (location, intensity, time, intervention, evaluation)								
Current medications								
Other								

(continued on page AP7)

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Appendix 4. Intershift Report Tool (continued)

Labib Medical Center
Patient Handoff Tool
CN-FO-019

DATE	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___	___/___/___
Recommendation							
Lab							
ECG							
Radiology							
Consultations							
Reason							
Informed (I)							
Not informed (NI)							
DONE							
Treatment plan:							
-							
-							
-							
-							
-							
-							
-							
Pending issues							
RN Signature							

Appendix 5. Differences in Descriptive Characteristics Between Pre- and Postintervention Groups

	Unit of Analysis 1: Patient Handoffs*			Unit of Analysis 2: Intershift Reports†			Unit of Analysis 3: Registered Nurses‡		
	Pre (n = 90)	Post (n = 90)	P Value§	Pre (n = 42)	Post (n = 42)	P Value§	Pre (n = 19)	Post (n = 23)	P Value§
Shift % (n)									
Day	51% (46)	50% (45)	.881	50% (21)	52% (22)	.827			
Night	49% (44)	50% (45)		50% (21)	48% (20)				
Unit % (n)									
Medical	33% (30)	33% (30)	1.000	33% (14)	33% (14)	1.000	42% (8)	35% (8)	.740
Surgical	33% (30)	33% (30)		33% (14)	33% (14)		58% (11)	35% (8)	
Cardiac	33% (30)	33% (30)		33% (14)	33% (14)		excluded#	excluded#	

* Patient handoffs were randomly chosen from the audiotaped intershift reports to be checked for omissions.

† Intershift reports were observed for one week to record the number and type of interruptions.

‡ Registered nurses answered the question about important criteria to be exchanged during patient handoff.

§ Chi-square test.

|| For cells with an expected count of < 5, the *p* value of Fisher's exact test is instead reported.

Data excluded from the preintervention group because the nurses responded, "Situation, Background, Assessment, Recommendation" without listing the criteria for which information needed to be provided.

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