# Joint Commission Resources Quality & Safety Network (JCRQSN)

## *Resource Guide*

## Improving Communication, Reducing Medical Errors

**February 23, 2017**

Joint Commission
Resources
Quality & Safety Network

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# Program Summary

This page provides an overview of the program content and learning objectives. Please refer to the Table of Contents and Program Outline for a detailed list of the topics covered. The information included in this Resource Guide is intended to support but not duplicate the video presentation content. There may be additional information available online for this topic.

## *Program Description*

Ineffective hand-off communication is recognized as a critical patient safety problem in healthcare. Serious medical errors often involve miscommunication between caregivers during the transfer of patients. The hand-off process involves "senders," those caregivers transmitting patient information and transitioning the care of a patient to the next clinician, and "receivers," those caregivers who accept the patient information and care of that patient. In addition to causing patient harm, defective hand-offs can lead to delays in treatment, inappropriate treatment, and increased length of stay in the hospital.

Complete, accurate, and timely sharing of patient information is critically important when a patient is transferred from one caregiver to another, whether within the same unit, department, organizational setting, or across settings. Frequently, however, sharing of information has been flawed.

Given the extent of adverse events, readmissions, and associated costs to the healthcare system, there is now increased attention on improving transitions of care. In fact, more and more hospitals understand the importance of this issue and are taking steps related to care transitions that are improving quality of care and having a positive financial impact.

This live, 60-minute activity is designed to guide organizational improvement efforts in the area of improving communication among staff, with the ultimate goal of reducing medical errors. Through expert presentation, and case study examples, this activity demonstrates the patient safety benefits that improved and effective communication can provide.

## *Program Objectives*

After completing this activity, the participant should be able to:

1. Identify The Joint Commission Standards and Requirements and the National Patient Safety Goals related to communication.
2. Discuss the importance of effective communication and its impact on safe patient care.
3. Identify methods for staff to communicate in a uniform and consistent manner within organizational structure.

## *Target Audience*

This activity is relevant to hospital leaders, physicians, nurses, pharmacists, Joint Commission coordinators, patient safety directors/coordinators, QI managers, and risk managers.

# Program Outline

Improving Communication, Reducing Medical Errors

February 23, 2017

I. Introduction
   A. Program Content
   B. Objectives
   C. Faculty

II. The Importance of Effective Communication

III. Joint Commission Requirements

IV. Strategies to Improve Communication

V. Conclusion

VI. Post-Program Live Question and Answer Session
   A. Audio only telephone seminar with program faculty – for 30 minutes following the program.
   B. Call 1-888-206-0090; enter conference code: 7925428.
      Or e-mail your questions or comments to: Questions@jcrqsn.com

| | | |
|---|---|---|
| Program Broadcast Time | **Eastern:** | 2:00 p.m. to 3:00 p.m. |
| | **Central:** | 1:00 p.m. to 2:00 p.m. |
| | **Mountain:** | 12:00 p.m. to 1:00 p.m. |
| | **Pacific:** | 11:00 a.m. to 12:00 p.m. |

## *Program Question and Answer Session*

During the live airing of this program on February 23, 2017, you may be able to talk directly with the faculty when prompted by the program's host. After this date, your message will be forwarded to the appropriate personnel.

Immediately following the program, we invite you to join in a live discussion with the program presenters. Call 1-888-206-0090 and enter Conference Code: 7925428 to be included in the teleconference.

To submit your question ahead of time or for additional details, please send an e-mail to questions@jcrqsn.com. If you submit your questions after this date, your message will be forwarded to the appropriate personnel.

You can also receive answers to your questions by calling The Joint Commission's Standards Interpretation Hotline at 630-792-5900, option 6.

# Continuing Education (CE) Credit

After viewing the JCR Quality & Safety Network presentation and reading this Resource Guide, please complete the required online CE/CME credit activities (test and evaluation form). The test measures knowledge gained and/or provides a means of self-assessment on a specific topic. The evaluation form provides us with valuable information regarding your thoughts on the activity's quality and effectiveness.

## *Prior to the Program Presentation Day*

1. Login to the JCRQSN Learning Management System web site at http://jcrqsn.twnlms.com/
   - Select the course for this program, *Improving Communication, Reducing Medical Errors*
   - When prompted, choose *Access Content* to confirm that you would like to access this program.
2. Display and print the desired documents (Resource Guide, etc.).

## *Online Process for CE/CME Credit*

1. Read the course materials and view the entire video presentation.
2. Login to the JCRQSN Learning Management System web site at http://jcrqsn.twnlms.com/
3. Select *Improving Communication, Reducing Medical Errors* from the courses menu block.
   **Note:** This assumes you have already been enrolled in the program, as described above.
4. If you did not view the broadcast video presentation, view it online.
5. Complete the online post test (see Appendix E).
   - You have up to three attempts to successfully complete the test with a minimum passing score of 80%.
   - Physicians must take the post test to obtain credit.
6. Complete the program evaluation form.
7. On the top-left corner of the main course page, you will see your completion status in the *Status* block.
8. Select *Get Certificate* from within the *Status* block to print your completion certificate.

   **Note:** Certificates for other completed courses can be printed from the "My History" tab, as well.

# Selected Joint Commission Standards Relevant to Communication

### Standard LD.03.04.01

The hospital communicates information related to safety and quality to those who need it, including staff, licensed independent practitioners, patients, families, and external interested parties.

***Rationale for LD.03.04.01***

Effective communication is essential among individuals and groups within the hospital, and between the hospital and external parties. Poor communication often contributes to adverse events and can compromise safety and quality of care, treatment, and services. Effective communication is timely, accurate, and usable by the audience.

***Elements of Performance for LD.03.04.01***

1. Communication processes foster the safety of the patient and the quality of care.
3. Communication is designed to meet the needs of internal and external users.
4. Leaders provide the resources required for communication, based on the needs of patients, the community, physicians, staff, and management.
5. Communication supports safety and quality throughout the hospital. (*See also* LD.04.04.05, EPs 6 and 12)
6. When changes in the environment occur, the hospital communicates those changes effectively.
7. Leaders evaluate the effectiveness of communication methods.

### Standard LD.04.04.03

New or modified services or processes are well designed.

***Selected Element of Performance for LD.04.04.03***

3. The hospital's design of new or modified services or processes incorporates information about potential risks to patients. (*See also* LD.04.04.05, EPs 6, 10, and 11)

   **Note:** *A proactive risk assessment is one of several ways to assess potential risks to patients. For suggested components, refer to the "Proactive Risk Assessment" section at the beginning of this chapter.*

### Standard LD.04.04.05

The hospital has an organization-wide, integrated patient safety program within its performance improvement activities.

***Selected Elements of Performance for LD.04.04.05***

6. The leaders provide and encourage the use of systems for blame-free internal reporting of a system or process failure, or the results of a proactive risk assessment. (*See also* LD.03.04.01, EP 5; LD.04.04.03, EP 3; PI.01.01.01, EP 8)

   **Note:** *This EP is intended to minimize staff reluctance to report errors in order to help an organization understand the source and results of system and process failures. The EP does not conflict with holding individuals accountable for their blameworthy errors.*

12. The leaders disseminate lessons learned from comprehensive systematic analyses (for example, root cause analyses), system or process failures, and the results of proactive risk assessments to all staff who provide services for the specific situation. (*See also* LD.03.04.01, EP 5)

**Standard PC.02.02.01**

The hospital coordinates the patient's care, treatment, and services based on the patient's needs.

***Selected Elements of Performance for PC02.02.01***

1. The hospital has a process to receive or share patient information when the patient is referred to other internal or external providers of care, treatment, and services. (*See also* PC.04.02.01, EP 1)
2. The hospital's process for hand-off communication provides for the opportunity for discussion between the giver and receiver of patient information.

   **Note:** Such information may include the patient's condition, care, treatment, medications, services, and any recent or anticipated changes to any of these.

**Standard PC.04.01.05**

Before the hospital discharges or transfers a patient, it informs and educates the patient about his or her follow-up care, treatment, and services.

***Elements of Performance for PC.04.01.05***

1. When the hospital determines the patient's discharge or transfer needs, it promptly shares this information with the patient, and also with the patient's family when it is involved in decision making or ongoing care.
2. Before the patient is discharged, the hospital informs the patient, and also the patient's family when it is involved in decision making or ongoing care, of the kinds of continuing care, treatment, and services the patient will need.
7. The hospital educates the patient, and also the patient's family when it is involved in decision making or ongoing care, about how to obtain any continuing care, treatment, and services that the patient will need.

**Standard PC.04.02.01**

When a patient is discharged or transferred, the hospital gives information about the care, treatment, and services provided to the patient to other service providers who will provide the patient with care, treatment, or services.

***Element of Performance for PC.04.02.01***

1. At the time of the patient's discharge or transfer, the hospital informs other service providers who will provide care, treatment, or services to the patient about the following:
   - The reason for the patient's discharge or transfer
   - The patient's physical and psychosocial status
   - A summary of care, treatment, and services it provided to the patient
   - The patient's progress toward goals
   - A list of community resources or referrals made or provided to the patient (*See also* PC.02.02.01, EP 1)

**National Patient Safety Goal 2**

Improve the effectiveness of communication among caregivers.

# What is a Transition of Care: Hand-off Communications?

A hand-off is a transfer and acceptance of patient care responsibility achieved through effective communication. It is a real-time process of passing patient specific information from one caregiver to another or from one team of caregivers to another for the purpose of ensuring the continuity and safety of the patient's care.

To further define the roles, the **sender** is responsible for sending or transmitting the patient data and releasing the care of the patient to the **receiver,** who receives the patient data and accepts care of the patient.

The consequences of substandard hand-offs may include delay in treatment, inappropriate treatment, adverse events, omission of care, increased hospital length of stay, avoidable readmissions, increased costs, inefficiency from rework, and other minor or major patient harm.

# Why Tackle Hand-off Communications?

Miscommunication of all kinds is implicated as a major contributing factor of adverse events.

Breakdown in communication was the leading root cause of sentinel events reported to The Joint Commission between 1995 and 2006 (1) and one U.S. malpractice insurance agency's single most common root cause factor leading to claims resulting from patient transfer (2). Of the 25,000 to 30,000 preventable adverse events that led to permanent disability in Australia, 11 percent were due to communication issues, in contrast to 6 percent due to inadequate skill levels of practitioners (3).


*(1) The Joint Commission Sentinel Event Data Unit.*

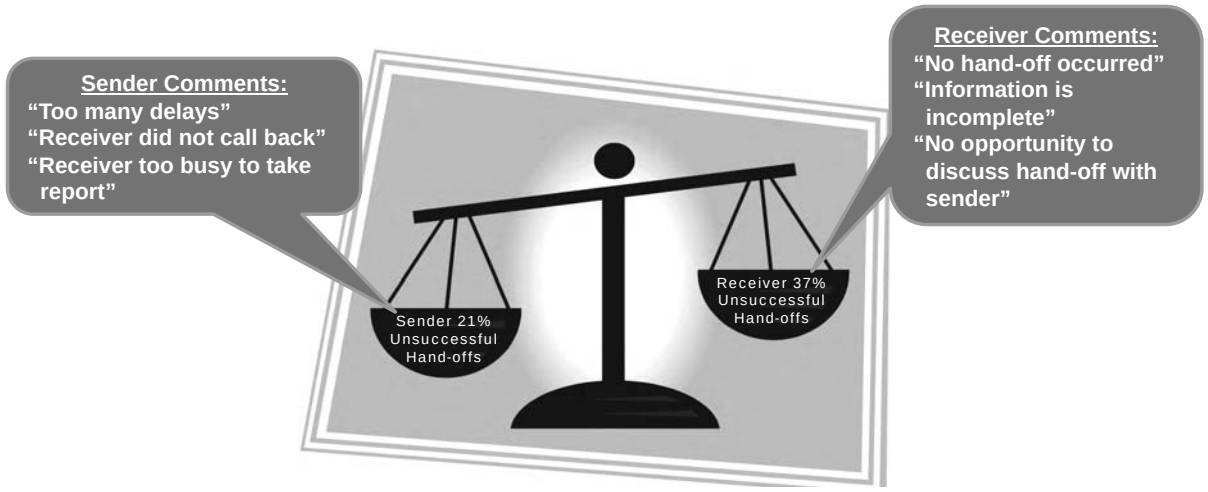
*(2) Andrews C, Millar S. Don't fumble the handoff. MAG Mutual Healthcare Risk Manager, 2005, 11(28):1–2 http://www.magmutual.com/mmic/articles/2005_11_28.pdf.*

*(3) Zinn C. 14,000 preventable deaths in Australia. BMJ, 1995, 310:1487 http://www.webmm.ahrq.gov/case.aspx?caseID=55.*

# Measuring A Successful Hand-off Between Clinicians: Sender/Receiver

## Expectations Out of Balance

- The expectation of the Receiver is to get the critical information needed in order to safely care for the patient.
- The expectation of the Sender is to be able to communicate the critical information to the Receiver in a timely manner.
- However, there is a disconnect between the critical information the Receiver actually receives versus the critical information the Receiver actually needs to care for the patient.
- Receivers experienced less successful hand-offs than Senders.*




*Statistically significant, P value = .001

Joint Commission Center for Transforming Healthcare®

Update: December 22, 2014

# Targeting Solutions for Specific Causes

| Causes | Solutions |
| --- | --- |
| Culture does not promote successful hand-off, e.g. lack of teamwork and respect | • **Make successful hand-offs an organization priority and performance expectation**<br>• **Teach staff on what constitutes a successful hand-off**<br>• **Standardize training on how to conduct a hand-off**<br>• **Engage staff – real time performance feedback, just-in-time training** |
| Ineffective communication method, e.g. verbal, recorded, bedside, written | • **Sender uses standardized form, tool and method every time a hand-off occurs, e.g. checklists, SBAR tool**<br>• **Identify new and existing technologies to assist in making the hand-off successful and complete, e.g. electronic medical records, PDAs**<br>• **Develop and use standardized forms, tools and methods, e.g. checklists, SBAR tool** |
| Inadequate amount of time provided for successful hand-off | • **Sender identifies and stresses key information and critical elements about patient when talking to receiver**<br>• **Sender synthesizes patient information from disparate sources prior to passing it on to the receiver** |

# Targeting Solutions for Specific Causes (cont'd)

| Causes | Solutions |
| --- | --- |
| Sender provides inaccurate or incomplete information, e.g. medication list, DNR, concerns/ issues, contact information | • **Sender provides details of patient's history and status when speaking with receiver**<br>• **Develop and use standardized forms, tools and methods, e.g. checklists, SBAR tool**<br>• **Sender synthesizes patient information from disparate sources prior to passing it on to the receiver** |
| Receiver has competing priorities and is unable to focus on transferred patient | • **Establish workspace or setting that is conducive for sharing information about a patient; e.g. zone of silence**<br>• **Hold staff managing patient's care responsible**<br>• **Examine the work flow of health care workers to ensure a successful hand-off**<br>• **Focus on the system, not just the people** |

# A Successful Hand-off is Critical

# S H A R E

## Standardize Critical Content

- Provide details of patient's history and status when speaking with receiver
- Identify and stress key information and critical elements about patient when talking with the receiver
- Synthesize patient information from disparate sources prior to passing it on to the receiver
- Develop and use key phrases to help standardized communications

## Hardwire Within Your System

- Develop and use standardized forms, and tools and methods, e.g. checklists, SBAR tool
- Establish a workspace or setting that is conducive for sharing information about a patient, e.g. zone of silence
- Have patient present during hand-off discussion between sender and receiver
- State expectations about how to conduct a successful hand-off
- Focus on the system, not just the people

- Identify new and existing technologies to assist in making the hand-off successful and complete, e.g. electronic medical records, PDAs
- Ensure access to electronic medical record is available to all staff caring for patient
- Integrate process into electronic medical record application
- Provide post acute staff with access to hospital information systems (if part of the same health care system)
- Examine the work flow of health care workers to ensure a successful hand-off

## Allow Opportunity to Ask Questions

- Use critical thinking skills when discussing a patient's case
- Share and receive information--as an interdisciplinary team--about the patient at the same time, e.g. "pit crew"
- Expect to receive all key information and critical elements about the patient from the sender
- Collect sender's contact information in the event there are follow-up questions
- Scrutinize and question the data

## Reinforce Quality and Measurement

- Demonstrate leadership's commitment to implement successful hand-offs
- Utilize a sound measurement system to determine the real score in real time
- Hold staff managing patient's care responsible
- Monitor compliance of standardized form, tools and methods for hand-off between sender and receiver
- Measure the specific, high-impact causes of a poor hand-off and target solutions to those causes
- Use data as the basis for a systematic approach for improvement

## Educate and Coach

- Teach staff on what constitutes a successful hand-off
- Standardize training on how-to conduct a hand-off
- Engage staff--real time performance feedback; just-in-time training
- Make successful hand-offs an organizational priority and performance expectation

Joint Commission Center for Transforming Healthcare®

***Developed by the participating hospitals,this is a compilation of solutions that are linked to specific root causes.***

Update: December 22, 2014

# Quick Safety – Transitions of Care: Engaging Patients and Families

Issue 18 – November 2015

**Issue:**

All health care providers want their patients to have a smooth transition to their next care setting or provider, or to their home. But this doesn't always happen. While many aspects of transitions of care depend on the efforts and actions of health care providers to make for a smooth and successful transition, the involvement of the patient and his or her family also is critical.

Patient/family engagement is one of the seven foundations identified by The Joint Commission to support safe, quality transitions of care from one setting to another.[1] (See the sidebar for the seven foundations.)

**Seven Foundations for Safe, Quality Transitions of Care**

- Leadership support
- Early identification of those at risk
- Thorough psychosocial assessment
- Multidisciplinary team involvement
- Patient and family engagement
- Medication management
- Transfer of information

*Source: The Joint Commission. 2013. "Transitions of Care: The Need for Collaboration Across Entire Care Continuum" – Hot Topics in Health Care, Issue No. 2*

While health care providers may be familiar with the term "patient engagement," there are two more related but distinct terms they need to know: "patient activation," and "patient-centered care." The three terms are not interchangeable.

- **Patient engagement:** Also called patient and family engagement. Patients, families, their representatives, and health professionals working in active partnership at various levels across the health care system – direct care, organizational design and governance, and policy making – to improve health and health care.[2]
- **Patient activation:** An individual's knowledge, skills, ability and willingness to manage one's own health and care.[3]
- **Patient-centered care:** Also called patient- and family-centered care. Conveys a vision for what health care should be: a partnership among practitioners, patients and their families (when appropriate) to ensure that decisions respect patients' wants, needs and preferences, and that patients have the education and support they need to make decisions and participate in their own care.[4]

Sentinel event data compiled by The Joint Commission from January 2014 to October 2015 identified a total of 197 sentinel events – from suicide to falls to wrong site surgery – and the root causes included failures in patient communication (127 incidents), patient education (26 incidents) and patient rights (44 incidents). The majority of the patient education failures were related to not assessing the effectiveness of patient education or not providing education. The patient rights failures included absent or incomplete informed consent, and lack of the patient's participation in their care.

From the literature, some contributing factors to failures in transitions of care specifically related to patient/family engagement include:

- Patient education breakdowns – in which patients, family members or caregivers receive conflicting recommendations or are excluded from the planning process – can lead to a lack of buy-in from the affected parties, who don't understand the importance of the care plan.[5]

- Practitioners may fail to provide the information that patients need to make the best decisions about their care and treatment. Even when patients receive the information, they may be overwhelmed or lack confidence in their choices.[6]
- Patients with low levels of health literacy, who find it difficult to follow instructions on how to care for themselves or to adhere to treatment regimens, such as taking their medicines.[6,7]
- Cultural differences, limited English proficiency, sex, age, education, and economic status, among other factors, may affect a patient's level of engagement.[6,7-9]
- Providers affected by time constraints, insufficient training, a lack of incentives, and information system shortcomings.[6]
- Patients' knowledge, attitudes and beliefs, such as beliefs about the patient role.[2]
- Patients' experience with the health care system.[2]

According to a study of more than 30,000 patients, those with the lowest patient activation scores (i.e., those with the least skills and confidence to actively engage in their own health care) had costs that averaged 8 to 21 percent higher than those who scored at the highest levels of patient activation.10 Studies show that patient activation results in improvements in health outcomes; clinical indicators; adherence to treatment; improved health-related behavior; increased participation in care; and reduced symptoms, hospital readmissions, overnight hospital stays, and use of the emergency department.[11]

A 2013 collaboration among three hospitals and two health insurers in New York reduced readmission rates by building relationships with their patients. The Bronx Collaborative focused on 500 patients; of those who had two or more interventions, just 17.6 percent were readmitted within 60 days of discharge. As a comparison, of a group of 190 patients who received standard care, 26.3 percent were readmitted. The interventions, which combined evidence-based interventions and customized methods, included intensive pre-discharge patient education and post-discharge follow-up calls to review medications, identify concerns and verify the completion of the follow-up physician visit.[12]

**Safety Actions to Consider:**

A number of activities have been identified as having positive effects on care transitions related to patient and family engagement, including:

- Promoting shared decision-making with patients and their families. Shared decision-making involves patients and health care providers working together to go over the patient's condition, treatment options, pros and cons of the options, personal preferences, and a shared determination of how to execute the treatment plan.[2]
- Developing and implementing organizational policies and practices that support patient and family engagement. Some examples include:[2]
  - Organizational policies that enable families to visit 24/7
  - Bedside rounding, i.e., conducting physician and interdisciplinary rounds at the patient's bedside
  - Have nurses who are coming on and going off duty give their change of shift report at the patient's bedside
  - Patient-centered discharge planning
  - Electronic health records (EHRs) that patients can access and edit
  - Involve patients as advisers and decision makers, including on quality improvement teams, patient safety committees, and patient- and family-centered care councils.
- Supporting two-way patient and family education, including teaching the patient and family about their roles and responsibilities in managing a health condition.[1]

**Resources**


1. The Joint Commission. 2013. "Transitions of Care: The Need for Collaboration Across Entire Care Continuum – Hot Topics in Health Care, Issue No. 2"
2. Carman, K.L., et al. 2013. Patient and Family Engagement: A Framework for Understanding the Elements and Developing Interventions and Policies, Health Affairs 32(2):223-31
3. Hibbard, J.H, Mahoney, E. 2010. Toward a Theory of Patient and Consumer Activation. Patient Education and Counseling; 78(3):377-81
4. Institute of Medicine. 2001. Envisioning the National Health Care Quality Report. Washington, D.C.: National Academies Press
5. The Joint Commission. 2012. "Transitions of Care: The need for a more effective approach to continuing patient care – Hot Topics in Health Care, Issue No. 1"
6. James, J. 2013. Health Policy Brief: Patient Engagement, Health Affairs, February 14, 2013
7. The Joint Commission. 2010. "Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals." Oakbrook Terrace, Illinois
8. The Joint Commission. 2011. "Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care for the Lesbian, Gay, Bisexual, and Transgender (LGBT) Community: A Field Guide." Oak Brook, Illinois.
9. The Joint Commission. 2015. Quick Safety, Issue 13. "Overcoming the challenges of providing care to LEP patients"
10. Hibbard, J.H., et al. 2013. Patients with Lower Activation Associated with Higher Costs: Delivery Systems Should Know Their Patients' Scores, Health Affairs 32(2):216-22
11. Hibbard, J.H., and Greene, J. 2013. What The Evidence Shows about Patient Activation: Better Health Outcomes and Care Experiences; Fewer Data on Costs, Health Affairs 32(2): 207-214
12. American Hospital Association. 2013. Care Transitions Program Reduces Readmissions at Three Bronx Hospitals. AHA News, July 26, 2013


**Other Resources from The Joint Commission:**

Transitions of Care (ToC) Portal

Health Equity Portal

Patient Safety Systems Chapter, Comprehensive Accreditation Manual for the Hospital program

Speak Up™: Avoid a Return Trip to the Hospital (patient education resource)

*Note: This is not an all-inclusive list.*

# Design and Hospitalwide Implementation of a Standardized Discharge Summary in an Electronic Health Record

*Shannon M. Dean, MD; Andrea Gilmore-Bykovskyi, PhD, RN; Joel Buchanan, MD; Brad Ehlenfeldt, BBA; Amy J.H. Kind, MD, PhD*

Preventing avoidable rehospitalizations and related care costs is a clear national health care priority. This has led to a focus on identifying strategies for improving transitions of care at the time of hospital discharge. One component of optimizing transitions of care is improving communication between the hospital and postdischarge providers, as inadequate communication contributes to poor posthospital outcomes.[1–7] As the hospital discharge summary is the primary method used for communicating a patient's plan of care to the next provider(s), it is an essential component of any effort aimed at improving discharge communication.[8]

Joint Commission Record of Care, Treatment, and Services (RC) Standard RC.02.04.01, Element of Performance (EP) 3, stipulates that a discharge summary be written for every patient within 30 days of discharge and that it include certain basic elements.[9] More recently, the Centers for Medicare & Medicaid Services has identified core elements that must be included in summary of care documents to meet requirements for Stage 2 Eligible Hospital Meaningful Use.[10] Experts have advocated for the inclusion of additional components to improve patient safety.[11] Despite the existence of these regulations and guidelines, deficits in the quality and content of discharge summaries have been well documented.[5,12–17] This may be due, at least in part, to the lack of a historical best-practice format, limited standardization across inpatient services, limited tools to guide providers in writing complete discharge summaries, and inadequate training for clinicians in creating discharge summaries.[17–20]

The electronic health record (EHR) has been identified as a tool that may assist clinicians in creating high-quality discharge summaries that consistently include guideline-based elements. Previous studies have demonstrated improvements in the quality and timeliness of specialty or disease-specific computer-generated discharge summaries, and recipients have indicated some preference for these over dictated summaries.[16,21–27] However, the feasibility of designing and implementing a standardized discharge summary *hospitalwide* using an EHR, to the authors' knowledge, has not previously been examined.

We describe the design and hospitalwide implementation of a standardized discharge summary using an EHR. Because the primary intent of this project was quality improvement, it received exemption status from the University of Wisconsin – Madison Institutional Review Board as "not research."

**Article-at-a-Glance**

**Background:** The hospital discharge summary is the primary method used to communicate a patient's plan of care to the next provider(s). Despite the existence of regulations and guidelines outlining the optimal content for the discharge summary and its importance in facilitating an effective transition to posthospital care, incomplete discharge summaries remain a common problem that may contribute to poor posthospital outcomes. Electronic health records (EHRs) are regularly used as a platform on which standardization of content and format can be implemented. The feasibility of designing and implementing a standardized discharge summary hospitalwide using an EHR was examined—to the authors' knowledge, for the first time.

**Methods:** This large-scale project at the University of Wisconsin Hospital and Clinics was led by a task force that had been assembled to develop best practices for EHR notes. The evidence-based Replicating Effective Programs (REP) model was employed to guide the development and implementation during the project. REP outlines four stages in clinical health service intervention implementation: preconditions, preimplementation, implementation, and maintenance.

**Results:** At 18 months postimplementation, 90% of all hospital discharge summaries were written using the standardized format. Hospital providers found the template helpful and easy to use, and recipient providers perceived an improvement in the quality of discharge summaries compared to those previously sent from the hospital.

**Conclusion:** Discharge summaries can be standardized and implemented hospitalwide with both author and recipient provider satisfaction, particularly if evidence-based implementation strategies are employed. The use of EHR tools to guide clinicians in writing comprehensive discharge summaries holds promise in improving the existing deficits in communication at transitions of care.

## Methods

The University of Wisconsin Hospital and Clinics (UWHC)/American Family Children's Hospital is an academic medical center with 566 beds in Madison,

Wisconsin. The providers use a commercial EHR (Epic Systems Corporation, Verona, Wisconsin) for order entry and documentation.

An existing hospital task force known as QUIPDOC (Quality of Inpatient Provider Documentation) at UWHC led this project. This 24-member task force was assembled in January 2011 to develop best practices for various types of notes in the EHR; it was composed of faculty physicians (3 primary care physicians [PCPs], a pediatric and adult hospitalist, 2 geriatricians, a trauma surgeon, a cardiologist, and 2 anesthesiologists), advanced practice providers (APPs), the director of our Transitions of Care program, residents, and staff from professional billing, hospital coding, Health Information Management, medical informatics, and information services. The objectives for this project included (1) the identification and adoption of standardized discharge summary content guidelines and (2) the development and hospitalwide implementation of a corresponding electronic discharge summary template. This project was initiated in September 2011.

The development and implementation of the standardized discharge summary template was guided by the evidence-based Replicating Effective Programs (REP) implementation science model,[28] which outlines four stages in clinical health service intervention implementation: preconditions, preimplementation, implementation, and maintenance. The following sections describe the key factors or strategies used within each stage, system factors that influenced implementation, and metrics used to measure success—as summarized in Figure 1 (page 20).

**PRECONDITIONS**

Before June 2012, discharge summaries could be either dictated or written using existing EHR tools. Hospital policy specified only that a discharge summary contain the same elements as outlined by The Joint Commission. Providers received no standardized training in the creation of discharge summaries. We observed significant variation in the content and format of discharge summaries across services.

Several existing factors provided a favorable environment for the project. First, optimizing transitions of care and improving the quality of clinical documentation within the EHR were already identified as institutional priorities. Second, there was an established structure for implementing changes within the EHR: the resident "super user" program. The program involved two resident representatives from each discipline selected by program directors/peers who met monthly with informatics leaders to learn about EHR changes and to assist in communicating changes to their colleagues. Resident super users also led annual EHR training for new residents and fellows.

**PREIMPLEMENTATION**

The QUIPDOC task force reviewed published literature, sought local expertise, and surveyed local skilled nursing facilities (SNFs) before implementation to determine the essential components of a discharge summary (Table 1, page 21). Because patients discharged to an SNF might not be seen by a physician for up to 30 days, SNF end users emphasized the importance of each of these items in informing their care plan. Both primary care and SNF end users highlighted the importance of information about medication changes and rationale, medication monitoring requirements, planned follow-up, lab tests pending at discharge, active issues requiring follow-up, and *who* was responsible for that follow-up.

The task force discussed each identified component until consensus was achieved on the best practice for each element. The task force next evaluated existing provider work flows for creation of discharge summaries and developed an initial standardized EHR template that contained both auto-populated elements and free text. The initial template was iteratively refined based on feedback from task force members. When an optimal product was achieved, we created a detailed guideline to support dissemination, "Best Practices for Writing Discharge Summaries in Health Link" (Appendix 1, available in online article).

The task force identified the chairs and residency program directors of each clinical department as key stakeholders and sent the guidelines and corresponding EHR template to those individuals for approval. After achieving unanimous endorsement, task force members met with frontline providers from each of the admitting services to review the guidelines and encourage adoption of the template.

Key metrics for evaluating success of the project were identified: (1) use of the EHR template across all admitting services, (2) hospital provider experience with use of the template, and (3) recipient provider satisfaction with the new discharge summary format.

**IMPLEMENTATION**

The EHR template was initially implemented in May 2012 on two services (orthopedics and rehabilitation medicine) to ensure usability. Rapid Plan-Do-Check-Act cycles were used to solicit end user and recipient feedback, including feedback from SNFs and PCPs, and incorporate changes into the template and initial guidelines. For example, labs, radiology, and other procedures to be performed after discharge were initially included in the "Detailed Discharge Recommendations" section.

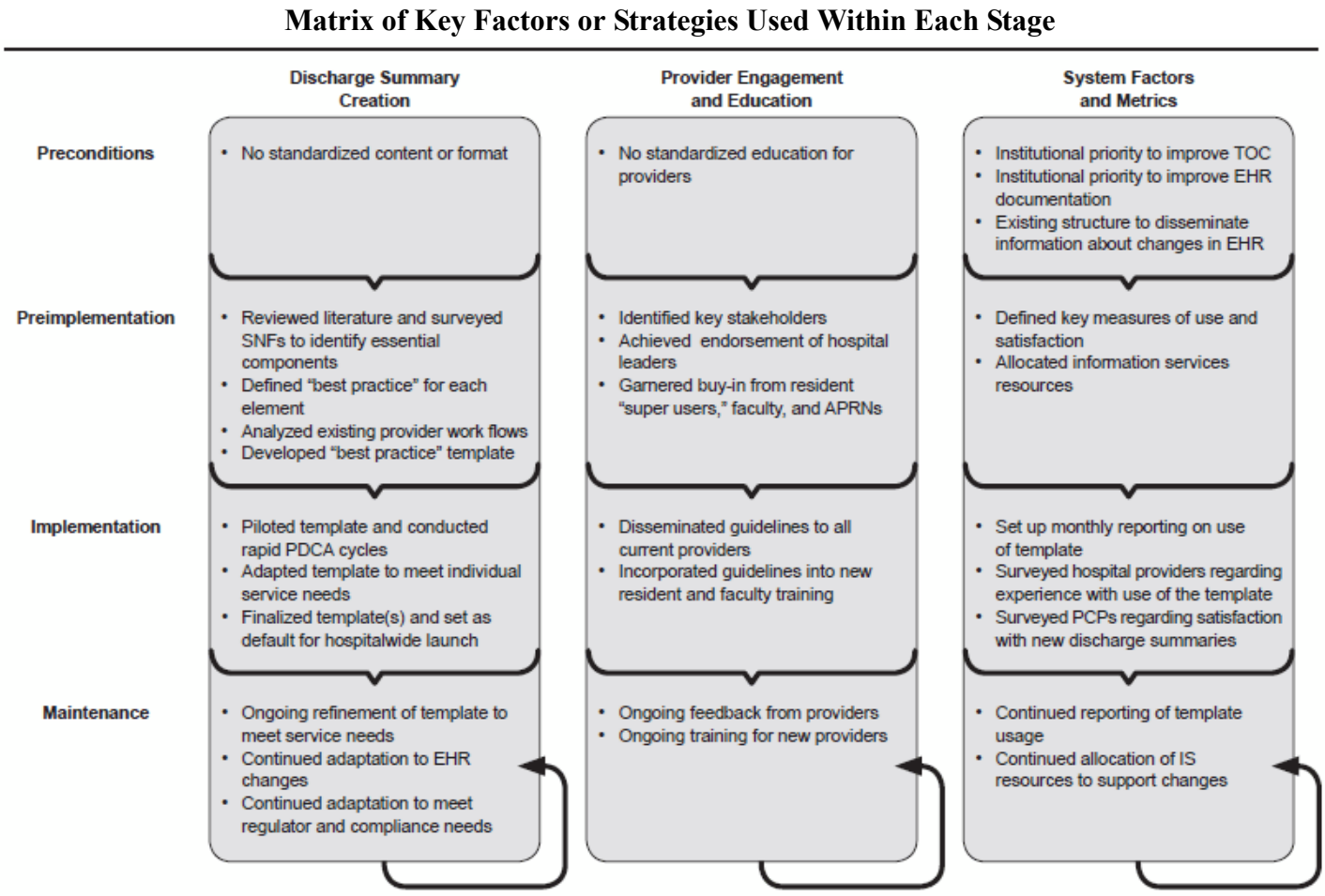



**Figure 1.** *The key factors or strategies used within each stage of the design and implementation of the standardized discharge summary (discharge summary creation, provider engagement and education, and system factors and metrics) are shown. TOC, transitions of care; EHR, electronic health record; SNF, skilled nursing facility; APRN, advanced practice registered nurse; PDCA, Plan-Do-Check-Act; PCP, primary care physician; IS, information services.*

On the basis of early feedback from our PCPs, these recommendations were moved to the "Brief Overview" section. There was recognition soon after implementation that the "Operative Procedures Performed" section was pulling any procedure performed with general anesthesia (for example, an MRI). Therefore a hard stop was added to ensure review by the author for appropriateness. Resident super users and/or APPs from each of the clinical services were also given the opportunity to adapt the template by adding specialty-specific content. For example, the orthopedic service elected to add sections about osteoporosis screening and deep vein thrombosis prophylaxis, as shown in Figure 2 (page 22), and the stroke service added a section outlining the final determination of stroke etiology as well as a risk factor analysis. Services were not permitted to remove any of the essential elements or change the standardized format. Either the general template or specialty-specific template was then tied to the "log in" department for a given service so that the template was routinely displayed when providers on that service selected the "Discharge Summary" note type in the EHR. An individual user could still elect *not* to use the template by deleting the automatically displayed content and instead using his or her own template or free text. Individuals could also still elect to dictate the discharge summary.

During implementation, the "Best Practices for Writing Discharge Summaries" was disseminated via e-mail to all current providers. Resident super users provided additional training for their colleagues during existing educational conferences. Education about the guidelines and new template was also incorporated into EHR training for new faculty and residents.

Use of the template was tracked using both an embedded data element and a text search for key phrases found in the template. Information services generated monthly reports showing the number of discharge summaries written using the template as a percentage of all discharge summaries written during that month. Usage by individual service

**Table 1. Discharge Summary Elements**

| | | |
|---|---|---|
| **Brief Overview** | • Brief summary of reason for hospital stay<br>• Admitting/discharging provider(s)<br>• PCP at discharge and contact info<br>• Admission/discharge date<br>• Primary and secondary diagnoses<br>• Discharge disposition and location (if applicable)<br>• Guardian/POA contact information<br>• Code status | • Active issues requiring follow-up (issue, who is managing, what is needed, associated appointments)<br>• Medication monitoring recommendations (e.g., anticoagulation)<br>• Scheduled follow-up appointments<br>• Recommended labs/imaging/other procedures to be performed after discharge<br>• Test results pending at discharge |
| **Details of Hospital Stay** | • Presenting problem/history of present illness<br>• Hospital course<br>• Operative and other procedures performed<br>• Consults<br>• Pertinent lab results | • Pathology results<br>• Physical exam at discharge (including last vitals and weight)<br>• Cognitive status at discharge |
| **Detailed Discharge Recommendations** | • Diet orders<br>• Fall risk status<br>• Activity orders<br>• Wound care instructions<br>• Bladder/bowel care | • Other patient care instructions (e.g., reasons to call/be seen, how to contact provider, specialty-specific instructions such as fever and neutropenia guidelines)<br>• Patient's goals/preferences<br>• Discharge medications<br>• Contact information for discharging provider if PCP has questions<br>• Author of discharge summary |

Source: Adapted from King et al., 2013 (reference 4); Kind et al., 2008 (8); The Joint Commission, 2014 (9); Snow et al., 2009 (11).

PCP, primary care physician; POA, power of attorney.

was also reported. These reports were provided to the Medical Director for Inpatient Informatics and presented to the resident super users during regular monthly meetings. These reports did generate some friendly competition among house staff and served as a feedback mechanism to encourage ongoing adoption within their specialty.

We conducted an electronic survey of hospital providers soon after implementation in late September 2012 to collect usability data. To assess recipient provider satisfaction with the quality of the new discharge summary, we also conducted an e-mail survey 15 months after implementation of internal medicine, family medicine, and pediatric PCPs.

### MAINTENANCE

As upgrades to the EHR occur, organizational work flows change, new regulatory and compliance needs are identified, and additional specialty service requests are made, the standardized EHR templates are appropriately adjusted. Although the QUIPDOC task force no longer meets, approval for requests to change the existing templates are vetted through the original leader of that task force. Training about creation of the discharge summary has been integrated into EHR training for new providers.

## Results

### USE OF STANDARDIZED DISCHARGE SUMMARY TEMPLATE

Since implementation, 69 of 73 (95%) admitting services have adopted the standardized template. At 18 months postimplementation, 90% of all discharge summaries were written using the standardized template, with use at this level sustained.

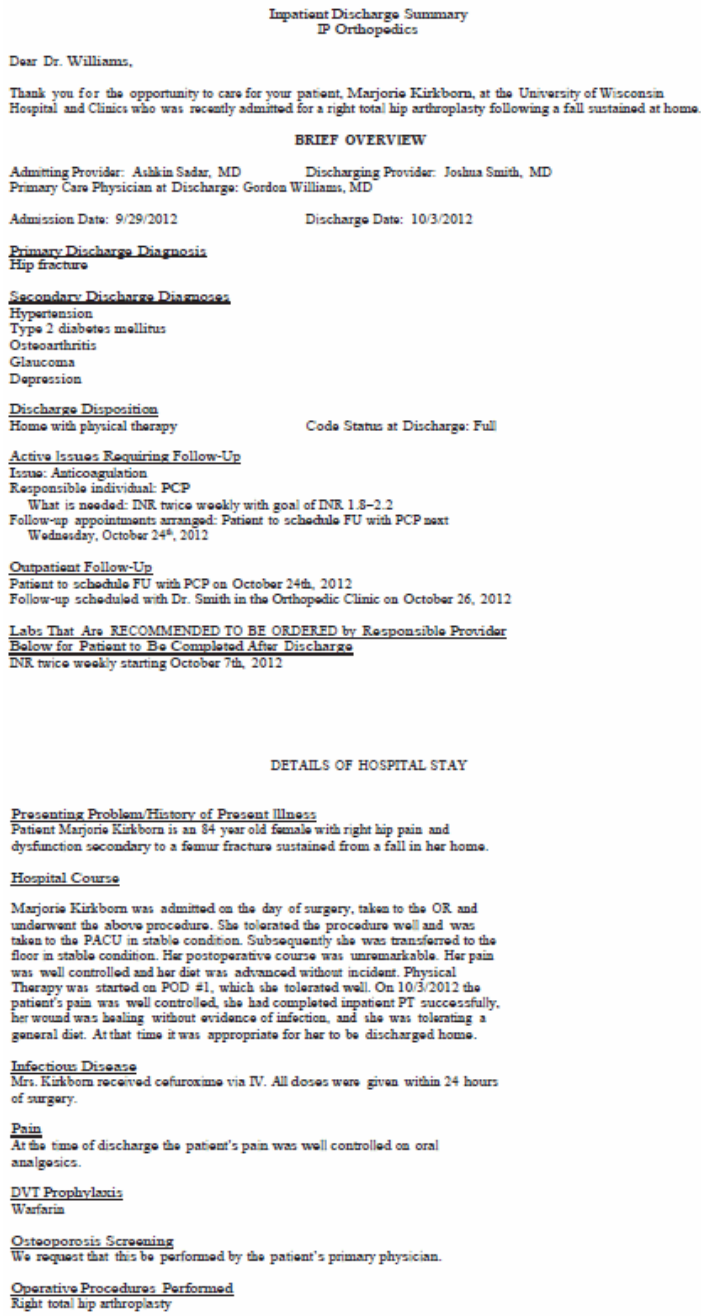
### INITIAL HOSPITAL-USER EXPERIENCE WITH STANDARDIZED DISCHARGE SUMMARY

Soon after tool launch, hospital users were surveyed to assess tool usability. Of the 799 total residents, fellows, APPs, and hospitalist faculty available, 614 (77%) completed the survey. More than half of respondents (312; 51%) reported that they had been exposed to/used the new standardized template. Of these, 65% either agreed or strongly agreed that the new template was helpful in creating a comprehensive discharge summary, and 69% indicated that the standardized discharge summary was easy to use compared to other templates they had used previously.

### RECIPIENT PROVIDER SATISFACTION WITH THE STANDARDIZED DISCHARGE SUMMARY

A total of 119 (34%) of 348 PCPs (60 pediatricians, 200 family medicine physicians, 88 internists)—29 pediatricians (24%), 47 family physicians (39%), 41 internists (34%), and 2 (2%) urgent care physicians—completed the survey. Ninety percent of respondents had received a discharge summary from our hospital within the six months prior to the survey. A sample discharge summary was also included with the survey for review by individuals not familiar with the new template. Most respondents (89%) indicated that they liked the new outline format of the discharge summary. Of the respondents who had received a discharge summary within the last six

## Hypothetical Discharge Summary Generated Using the EHR Template



Inpatient Discharge Summary
IP Orthopedics

Dear Dr. Williams,

Thank you for the opportunity to care for your patient, Marjorie Kirkborn, at the University of Wisconsin Hospital and Clinics who was recently admitted for a right total hip arthroplasty following a fall sustained at home.

BRIEF OVERVIEW

Admitting Provider: Ashkin Sadar, MD Discharging Provider: Joshua Smith, MD
Primary Care Physician at Discharge: Gordon Williams, MD

Admission Date: 9/29/2012 Discharge Date: 10/3/2012

Primary Discharge Diagnosis
Hip fracture

Secondary Discharge Diagnoses
Hypertension
Type 2 diabetes mellitus
Osteoarthritis
Glaucoma
Depression

Discharge Disposition
Home with physical therapy Code Status at Discharge: Full

Active Issues Requiring Follow-Up
Issue: Anticoagulation
Responsible individual: PCP
What is needed: INR twice weekly with goal of INR 1.8–2.2
Follow-up appointments arranged: Patient to schedule FU with PCP next Wednesday, October 24th, 2012

Outpatient Follow-Up
Patient to schedule FU with PCP on October 24th, 2012
Follow-up scheduled with Dr. Smith in the Orthopedic Clinic on October 26, 2012

Labs That Are RECOMMENDED TO BE ORDERED by Responsible Provider Below for Patient to Be Completed After Discharge
INR twice weekly starting October 7th, 2012

DETAILS OF HOSPITAL STAY

Presenting Problem/History of Present Illness
Patient Marjorie Kirkborn is an 84 year old female with right hip pain and dysfunction secondary to a femur fracture sustained from a fall in her home.

Hospital Course

Marjorie Kirkborn was admitted on the day of surgery, taken to the OR and underwent the above procedure. She tolerated the procedure well and was taken to the PACU in stable condition. Subsequently she was transferred to the floor in stable condition. Her postoperative course was unremarkable. Her pain was well controlled and her diet was advanced without incident. Physical Therapy was started on POD #1, which she tolerated well. On 10/3/2012 the patient's pain was well controlled, she had completed inpatient PT successfully, her wound was healing without evidence of infection, and she was tolerating a general diet. At that time it was appropriate for her to be discharged home.

Infectious Disease
Mrs. Kirkborn received cefuroxime via IV. All doses were given within 24 hours of surgery.

Pain
At the time of discharge the patient's pain was well controlled on oral analgesics.

DVT Prophylaxis
Warfarin

Osteoporosis Screening
We request that this be performed by the patient's primary physician.

Operative Procedures Performed
Right total hip arthroplasty

**Figure 2.** *A portion of a hypothetical discharge summary is shown for a patient admitted for a right total hip arthroplasty following a fall sustained at home. The discharge summary in its entirety, including provider names, patient names, admit and discharge dates, and hospital course, is fictional. PCP, primary care physician; INR, International Normalized Ratio; FU, follow-up; OR, operating room; PACU, postanesthesia care unit; PT, physical therapy; IV, intravenous; DVT, deep vein thrombosis.*

months prior to the survey. A sample discharge summary was also included with the survey for review by individuals not familiar with the new template. Most respondents (89%) indicated that they liked the new outline format of the discharge summary. Of the respondents who had received a discharge summary within the last six months, 88% rated the quality of the new discharge summaries as better/much better than discharge summaries sent from our hospital previously.

### Discussion

By convening a task force, engaging hospital leaders, and harnessing expert opinion, we were able to successfully create and garner hospitalwide adoption for a set of best-practice guidelines for writing discharge summaries. Furthermore, we were able to implement these guidelines through the use of a standardized EHR–based template for the discharge summary. To our knowledge, this is the first report of a large-scale implementation of a standardized discharge summary within an EHR.

Given the overall success of service- and disease-specific discharge summary standardization and the inevitable movement toward electronic documentation, it is likely that hospital leaders aiming to meet regulatory requirements for timely and complete discharge communication will seek strategies for successful hospitalwide implementations of electronic discharge summaries. The typical organizational structure of academic and other tertiary care medical centers by department and division makes systemwide implementation of any initiative a challenge. We encountered many challenges during our implementation and learned several important lessons that other institutions may find helpful if embarking on a similar initiative (Table 2, page 23).

The first challenge was to ensure that the guidelines developed by the task force would result in a discharge summary that met the clinical communication needs and the needs of its other users, namely billing and coding staff. This challenge was met by creating a multidisciplinary task force with representation from each of the key stakeholder groups. Garnering buy-in from providers across the system proved challenging and was overcome through the use of both a top-down and grassroots approach. Prior to engaging direct care providers, we first secured the endorsement and support of key hospital leaders and met with individual providers from the various services to explain the rationale for the project and to reassure them that individual service needs could be met. An example of where this proved to be crucial was with our resident super users who were reluctant to encourage the adoption of the new discharge summary template until their program directors endorsed its use. Sustaining use of the standardized template was a

**Table 2. Lessons Learned in Implementing a Standardized Discharge Summary**

| Lessons Learned | Detailed Example |
|---|---|
| Seek multidisciplinary input, particularly from hospital coding and billing, when developing documentation standards. | • First identify all clinically important elements of a discharge summary, then work with hospital coding and billing staff to determine which elements are required and any additional elements that must be included solely for billing/coding purposes.<br>• Create a table outlining required/not required as a reference for providers. |
| Seek endorsement and support from hospital leaders. | • At an academic institution, buy-in from both more direct providers and program directors was critical, as residents looked to them to set expectations and were hesitant to engage in the project without clear evidence of their buy-in. |
| Set standardized discharge summary as default template to promote continued use. | • Previous implementation of standard progress note templates* did not include defaulted template and resulted in varied use among services. The task force used this knowledge in designing the discharge summary to set as the default template. Our rates of adoption directly correlated with the number of services that adopted the template as their default when logged into a specific department. |
| Provide flexibility in tailoring the discharge summary template to meet specialty-specific needs. | • Allowing orthopedics, stroke, and other specialty services to include specialty-specific information led to an enhanced, unique discharge summary for those services that provided additional information commonly applicable to their patient population. |

* Adapted from Dean SM, Eickhoff JC, Bakel LA. The effectiveness of a bundled intervention to improve resident progress notes in an electronic health record. *J Hosp Med*. 2015;10:104–107.

third challenge. This was overcome by creating a template that is set to display by default when providers choose the "Discharge Summary" note type. At our organization, the template has become part of the "way we do things" and is now no longer seen as a change. Finally, providing some flexibility in tailoring the discharge summary to meet individual service needs helped to facilitate adherence to the guideline.

## LIMITATIONS

There were several limitations to the evaluation of this project. As the focus of this evaluation was on the uptake and end users' experience both as authors and recipients of the discharge summary, neither the educational components of the implementation nor measures of discharge summary quality in terms of content, timeliness, or transmission were evaluated. Hospital users of the standardized discharge summary template may have been surveyed prematurely. At the time of the survey, only about 50% of respondents indicated they had used the new discharge summary template, and responses may not be reflective of end user experiences further into the implementation. We did not examine end user (resident, APP, hospitalist) or recipient satisfaction with discharge summaries prior to implementation, and it is possible that survey responses are subject to recall bias. The response rate for PCPs was low (34%), and this study did not examine differences between responders and nonresponders.

## Conclusion

Discharge summaries can be standardized and implemented hospitalwide with both author and recipient satisfaction. The use of EHR tools to guide clinicians in writing comprehensive discharge summaries holds promise in improving the existing deficits in communication at transitions of care.

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## Online Only Content

http://www.ingentaconnect.com/content/jcaho/jcjqs

See the online version of this article for Appendix 1. Best Practices for Writing Discharge Summaries in Health Link

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# PSYCH: A Mnemonic to Help Psychiatric Residents Decrease Patient Hand-off Communication Errors

*Maria Theresa Mariano, MD; Victoria Brooks, MD; Michael DiGiacomo, MD*

The Joint Commission has consistently cited miscommunication as one of the most frequently identified root causes for all sentinel events.[1] Relevant to psychiatry, communication errors were cited as the top root cause of elopement, and the second most frequently identified root cause of restraint and suicide-related events resulting in death or permanent loss of function for the past nine years.[1] The substantial adverse impact of miscommunication during transitions in care has highlighted the importance of teaching proper patient handoff practices.[2–4] Handoff standardization has been suggested in the literature[5–8]; however, a universal system has been difficult to adopt, given the unique characteristics of the different fields of medicine. Thus, a form of standardization that has emerged is a discipline-specific handoff mnemonic: a memory aid that can serve to assist a provider in communicating pertinent information to the succeeding treatment team. A systematic review of handoff mnemonics literature cited mnemonics in various medical and surgical fields but none specific to psychiatry.[9] The pilot study described in this article involved teaching residents a mnemonic to use during their psychiatric emergency room post-call patient handoff. Our hypothesis was that teaching the residents a relevant and easy-to-remember mnemonic would help decrease communication errors during transition-in-care.

**Article-at-a-Glance**

**Background:** The substantial adverse impact of miscommunication during transitions in care has highlighted the importance of teaching proper patient handoff practices. Although handoff standardization has been suggested, a universal system has been difficult to adopt, given the unique characteristics of the different fields of medicine. A form of standardization that has emerged is a discipline-specific handoff mnemonic: a memory aid that can serve to assist a provider in communicating pertinent information to the succeeding treatment team. A pilot study was conducted in which psychiatry residents were taught a mnemonic to use during their post-call patient handoffs.

**Methods:** The PSYCH mnemonic was introduced as a guide to help residents identify key information needed in a psychiatric emergency room handoff: *P*atient information/background, *S*ituation leading to the hospital visit, *Y*our assessment, *C*ritical information, and *H*indrance to discharge. Resident post-call patient handoffs were voice recorded and transcribed for 12 weeks. The transcriptions were divided into three time periods: Time 1 (baseline resident handoff performance), Time 2 (natural progression in resident handoff performance with experience), and Time 3 (resident handoff performance after training in use of the PSYCH mnemonic).

**Results:** There was a statistically significant decrease in the mean number of omissions after the intervention ($p$ = 0.049). The decrease in time spent on handoffs after the intervention was not statistically significant. On the basis of a rating scale ranging from 1 (not clear) to 4 (very clear), the residents' rating of their clarity of expectations increased from a mean of 2.79 to 3.83, and their confidence rating increased from a mean of 2.57 to 3.42.

**Conclusion:** The mnemonic helped decrease the residents' handoff omissions. It also helped improve their efficiency, clarity of expectation, and confidence during handoffs.

## Methods

### DEVELOPMENT OF THE PSYCH MNEMONIC

A quality improvement (QI) project, which was approved by the institution's Institutional Review Board, was conducted by its primary investigator [M.T.M.], a resident in General Psychiatry, State University of New York at Buffalo, in 2012. As part of the project, a meeting was held that included the psychiatric emergency room medical director, faculty resident supervisor (who served as the primary investigator's faculty mentor) [V.B.], other psychiatric emergency room attending physicians, and the primary investigator to discuss handoff challenges. During the meeting, the PSYCH mnemonic was introduced as a guide to help residents identify key information needed in a psychiatric emergency room handoff. This mnemonic stands for the following:

- ***P***atient information/background
- ***S***ituation leading to the hospital visit
- ***Y***our assessment
- ***C***ritical information
- ***H***indrance to discharge

The primary investigator and faculty mentor adapted the PSYCH mnemonic from the SBAR (Situation, Background, Assessment, Recommendation) handoff system,[10,12] as follows:

- **S**ituation corresponds to the S component of the *PSYCH* mnemonic

- ***B***ackground corresponds to the P component
- ***A***ssessment corresponds to the Y component
- ***R***ecommendation corresponds to the H component

Given the complexity of psychiatric patients, the C component would allow the presenter to provide critical information that does not fit into the other components.

**RESIDENT WEEKLY POST-CALL HANDOFFS**

Resident weekday post-call handoffs were voice recorded and transcribed for a 12-week period (August 6, 2012, to October 26, 2012) for three phases:

- Time 1: Initial 4 weeks—baseline resident handoff performance
- Time 2: The next 4 weeks—the natural handoff performance progress without any training (with experience).
- Time 3: Final 4 weeks—resident handoff performance after training in use of the PSYCH mnemonic

Holiday and weekend handoffs were excluded because the time and place of on-call physician handoffs varied, making it difficult to record the process, and introducing the potential for deviations from the standard.

The residents were trained at the end of the eighth week. The training consisted of a one-hour presentation given by the primary investigator and her faculty mentor. The training consisted of the following:

- Discussion of the importance of proper patient handoffs
- Provision of data on adverse events as a result of improper handoffs
- Discussion of the challenges of the psychiatric emergency room handoff system
- Introduction of a standardized handoff format.the PSYCH mnemonic

A reference poster that served as the standard for subsequent handoffs (Figure 1, above right) was made available in the designated psychiatric emergency handoff room.

**RATING OF HANDOFF TRANSCRIPTIONS AND OUTCOMES**

The primary investigator rated all transcriptions after 12 weeks. The primary outcome measured was the change in number of omissions (that is, pertinent patient information not communicated). A point was counted for information missed on each component of the mnemonic PSYCH (with Figure 1 as the guide). For example, if a resident failed to provide the patient's substance history, a point was deducted under "P," and if a resident failed to mention why the patient was still in the emergency room (for example, collateral information [received from other sources], housing, or an inpatient bed needed), a point was deducted under "H." All components of the mnemonic were

**PSYCH Handoff Mnemonic**

**P** atient information: [age], [race], [sex], [psychiatric history], [substance history]

**S** ituation leading to the hospital: [How] ex: self, brought by family, ambulance, police; [Why] ex: for suicidal ideation, homicidal, agitation, bizarre behavior; [brief statement of events leading to hospital visit]

**Y** our assessment: ex: delusional, disorganized, agitated, manic, depressed, suicidal [brief statement to describe patient]

**C** ritical information: ex: intoxicated, substance withdrawal, pertinent medical history (seizure disorder, uncontrolled blood pressure or blood sugar, etc.), violent history, awaiting test results (labs, imaging), medication clarification

**H** indrance to discharge: ex: collateral, outpatient linkage, placement/ housing, awaiting inpatient bed, transfer to another hospital

**Figure 1.** *A reference poster, as shown, which served as the standard for subsequent handoffs, was made available in the designated psychiatric emergency handoff room.*

counted as a point, except for the C component, for which multiple points could be counted, depending on the number of missed pieces of critical information found on chart review (for example, unstable vital signs, critical laboratory values). The primary investigator monitored omissions on all components of the mnemonic. However, because critical information data could vary with each patient, the relevant proportions of the transcription were sent to the faculty mentor and psychiatric emergency room medical director for review, who were blinded to the date of transcription and reached consensus regarding each piece of missed critical information, which was considered an omission.

The change in time spent on handoffs pre- and postintervention was used as a secondary outcome. The residents were also asked to fill out an anonymous questionnaire that asked them to rate the clarity with which they understood what was expected of them and their confidence during handoffs before and after the intervention.

**Table 1. Number of Handoff Omissions for Each Time Period,* Weeks 1–12**

| | P | S | Y | C | H |
|---|---|---|---|---|---|
| Time 1 | 54 | 40 | 13 | 59 | 58 |
| Time 2 | 46 | 26 | 7 | 55 | 69 |
| Time 3 | 25 | 23 | 0 | 41 | 25 |

* Time 1, Weeks 1–4; Time 2, Weeks 5–8; Time 3, Weeks 9–12.

**STUDY SAMPLE**

The residency program's on-call system was designed such that the same set of residents were present during weekday morning handoffs for a given residency year. All seven second–postgraduate year (PGY-2) and two PGY-3

residents (who, assigned according to the on-call system, conducted one handoff) involved in morning weekday handoffs participated in the study; no incentives were provided. Seven PGY-2 residents each performed between five and nine handoffs during the study; two of the seven PGY-2 residents did not have any handoffs during one of the time periods because of scheduling (rotation/vacation). PGY-3 resident was assigned to each of the three time periods; one resident was on call for Times 1 and 3, while the other resident was on call for Time 2.

### STATISTICAL ANALYSES

All handoffs were included in the calculation of total omissions and time. However, only results for the PGY-2 residents' results were included in the paired t-test analysis to enable a comparison between pre- and postintervention data.

## Results

### OUTCOMES

The breakdown for the number of omissions for each time period is shown in Table 1 (page 26). The number of patients handed off by residents per time period was 171 in Time 1, 159 in Time 2, and 123 in Time 3. The resident handoff omissions totaled 224 in Time 1, 203 in Time 2, and 114 in Time 3. Of note, there were other students (that is, nonresidents) rotating in the psychiatric emergency room during the study period. Because "other students" were not included in the training, the patients they handed off were excluded in calculating the omissions. However, because the data recorded included "total minutes" per morning handoff, we were unable to isolate the residents' time from the other students' time. Thus, all patients handed off were taken into account in calculating the time. The total number of patients handed off (by residents and other students) per time period was 247 in Time 1, 196 in Time 2, and 187 in Time 3. The total time spent on patient handoffs was 391 minutes during Time 1, 288 minutes during Time 2, and 229 minutes during Time 3.

SPSS software (IBM Corp.; Armonk, New York) was used for the comparison of paired t-tests of each resident handoff performance before and after the intervention. There was a statistically significant decrease in omissions after the intervention ($p = 0.049$; effect size = 0.8). The decrease in time spent on handoffs after the intervention was not statistically significant ($p = 0.083$; effect size = 0.7).

### QUESTIONNAIRES

The pre- and postintervention resident questionnaire showed that after the intervention, residents' rating of their clarity of expectations increased from a mean of 2.79 to 3.83 (1 = "not clear," 2 = "somewhat clear," 3 = "mostly clear," 4 = "very clear"). The residents' confidence rating also increased from a mean of 2.57 to 3.42. All seven PGY-2 residents involved in weekday morning handoffs answered the questionnaire. Two residents were excluded from the questionnaire because their schedule did not allow them to participate in the entire study.

## Discussion

Two types of error mentioned in the literature on transition of care are (1) content omissions, which occur when pertinent patient information is not communicated, and (2) commission of information, which occur when irrelevant information is provided during handoffs.[13,14]

Our study demonstrated that the introduction of the PSYCH mnemonic to residents performing post-call handoffs was followed by a statistically significant decrease in content omissions. Providing a mnemonic helped residents recognize key information that they were missing on their previous handoffs. The largest decrease in omissions from Time 2 to Time 3 (after the introduction of the mnemonic) was in communicating the component "H" ("the hindrance to discharge"), which can substantially affect the flow of patients in a psychiatric emergency room. This may account for the larger decrease in patient volume handed off by residents from Time 2 to Time 3 (after intervention), compared with Time 1 to Time 2 (with experience alone). Although the decrease in omissions might be interpreted as merely reflecting participants' compliance with the mnemonic, the improvements corresponded to improvements on the components of SBAR, a standardized handoff technique recommended by various organizations, including the Joint Commission and the World Health Organization.[2]

Although it is more difficult to assess the mnemonic's effect on commission of information, it is possible that the residents' (non–statistically significant) decrease in time spent on handoffs would have reflected their ability to focus on key information, making them more efficient. Ultimately, less time spent on handoffs could mean more time spent on patient care.

Finally, the residents reported that their handoff clarity of expectations and confidence improved after the PSYCH mnemonic was introduced. Besides serving as a memory aid, mnemonics create a common language and can thereby clarify the nature of the information that is expected to be passed on. Mnemonics can lessen ambiguity, which could potentially improve confidence.

There are several potential limitations to this study. The first is the possible effect of the residents knowing that they are being voice recorded. Taking this into consideration, the voice recorder was introduced a couple of weeks before the actual start of the study, and the residents were unaware

 

of the start and end date of the transcriptions. They were also unaware of the study design, which included four weeks in three time periods.

Second, the variability of patient volume across the three time periods should be considered in interpreting the results. The consistent decrease in omissions and time spent on handoffs (although the latter was not statistically significant, likely reflecting insufficient power because of the small sample size) throughout the study was accompanied by a consistent decrease in patient volume. However, the latter would not have been applicable at the level of the individual resident because some residents were scheduled for more weekday handoffs in the later time period, and total handoff time was confounded by participation of other students. As stated, the statistically significant difference in resident omissions after the intervention was introduced was found on the level of the individual resident's performance.

Third, it is also possible that the decrease in omissions and time may be due to the natural progress in resident handoff performance, which could occur with experience alone. To account for this, a paired t-test of the results from Time 1 to Time 2 (that is, without the intervention) was performed. Neither the difference in mean omissions ($p = 0.335$; effect size = 0.49) and mean time spent ($p = 0.920$; effect size = 0.05) was statistically significant, and the effect sizes were smaller than in the pre- versus postintervention comparison.

Fourth, although there was a consistent improvement in all the four components of the PSYCH mnemonic that corresponded with those of SBAR, a substantial number of critical information omissions was still missed by Time 3. Given the complexity of psychiatric patients, the C component of the mnemonic allowed for some flexibility of information presented—but also resulted in less consistent results. This component will likely require more clarification and training.

Fifth, it is also worth noting that our training included other components. Increasing resident awareness on the importance of proper handoffs and involving them in the discussion of the handoff system challenges, which were included in the training session, may have motivated residents to improve their handoff performance. Stakeholder buy-in can have an effect in culture change but is difficult to measure.[15] However, these non-mnemonic training effects would not have directly resulted in a decrease in omissions if the expectations on handoff information had not been clarified.

Finally, an important question in quality improvement lies in the effects on patient outcome, which we did not assess in this pilot study. Like the "SIGNOUT" mnemonic study,[16] which served as the starting point for the I-PASS study[17] in pediatrics, this study can serve as a foundation for a multisite handoff study in psychiatry that would focus on patient outcomes.

Overall, the PSYCH mnemonic helped improve residents' handoff effectiveness, efficiency, clarity of expectations, and confidence. After the completion of the study, the PSYCH mnemonic poster was placed in the resident/student conference room.

Although the PSYCH mnemonic was originally intended to be used in the psychiatric emergency room setting, the residents work in other settings (inpatient psychiatry wards, consult-liaison in medical and surgical wards, outpatient clinics) in which the PSYCH handoff mnemonic could be used. The mnemonic could also be adapted to the outpatient setting (for example, "Situation leading to the hospital visit" changed to "Situation leading to the clinic visit" or "Hindrance to discharge" changed to "Hindrance to recovery"). The information included in "Critical information" also allows for flexibility within different settings. A multisite handoff study of the mnemonic's adaptability in various clinical settings and its effect on patient outcomes is a potential focus for future research in psychiatry.

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# Improving Transitions of Care for Hospitalized Patients on Warfarin

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Warfarin is an effective and necessary therapy for the treatment of many conditions. However, its narrow therapeutic index, daily dosing, multiple drug and food interactions, and needs for collaboration across medical providers and frequent monitoring cause significant challenges with the potential for patient harm. Since 2008 The Joint Commission has required institutions to "reduce the likelihood of patient harm associated with the use of anticoagulant therapy."[1*] Transitions in care create challenges for warfarin management, including dosing errors, medication nonadherence, and/or insufficient monitoring. Kriplani et al. reported that following hospital discharge, half of the patients experienced at least one error related to medications, diagnostic work-up, or test follow up. About 20% of patients in their study suffered an adverse drug event (ADE).[2]

ADEs from warfarin following transitions have been documented in several important studies and found to have serious consequences. In a study by Budnitz et al., which evaluated hospitalization following an emergency department (ED) visit for patients 65 years of age or older for a condition attributed to a drug-specific adverse effect, the adverse effects of warfarin—most commonly, gastrointestinal hemorrhage—were estimated to be responsible for 33,171, or 33%, of 99,628 estimated national annual emergency hospitalizations. In contrast, adverse effects of medications on the Beers list caused 6,607, or 7%, of the emergency hospitalizations.[3]

Gandara et al. reported that only 16% of discharge documentation packets for 342 patients contained all required essential information—indication, target International Normalized Ratio (INR) range, dates, dosing information, and provider or clinic responsible for follow-up monitoring for warfarin management.[4] Interventions to improve the discharge information, which included technological improvements, discharge templates, feedback, and education, increased the inclusion rate of essential items to 87%–97%.[5]

**Article-at-a-Glance**

**Background:** Transitions in care create challenges for warfarin management, including dosing errors, medication nonadherence, and/or insufficient monitoring. Adverse drug events from warfarin following transitions have been found to have serious consequences. Before the intervention, at the time of hospital discharge, individual physicians identified warfarin management plans on paper forms on the basis of their personal practice preferences. With the implementation of a computerized physician order entry in the electronic health record (EHR) in November 2010, the paper form became obsolete. A modification to the EHR created an order prompting physicians to include five key elements for warfarin management on discharge. A study was conducted to assess the impact of this intervention as a communication tool for patients and health care providers.

**Methods:** Discharge documentation was retrospectively reviewed for warfarin patients discharged from University of Missouri (MU) Health Care (Columbia). Frequencies of documentation in the EHR of five key elements of warfarin management were calculated (indication for anticoagulation, target International Normalized Ratio (INR) range, anticipated duration of therapy, date of next INR, and posthospital provider to manage warfarin therapy) pre– and post–EHR modification.

**Results:** All five key elements were included in the discharge documents for 268 (42%) of the charts for 633 patients in the preintevention (baseline) period, for 297 (78%) of the 382 charts in the first postintervention period (September 15, 2013–March 15, 2014) and for 574 (61%) of the 943 charts in the second postintervention period (March 16, 2014–August 5, 2015).

**Conclusions:** Although limited to one health care system's experience, this study demonstrates the EHR's potential value in assisting with anticoagulation therapy between outpatient and inpatient settings and across multiple providers.

In 2011, the University of Missouri-Columbia initiated a quality improvement project by introducing a modification to the electronic health record (EHR) that prompts physicians to enter five key elements when ordering warfarin management at patient discharge. The research questions guiding this study were (1) Do EHR order

* National Patient Safety Goal (NPSG) NPSG.03.05.01. Reduce the likelihood of patient harm associated with the use of anticoagulant therapy. Element of Performance 8. Evaluate anticoagulation safety practices, take action to improve practices, and measure the effectiveness of those actions in a time frame determined by the organization.

 

prompts result in documentation of essential key elements in the discharge paperwork? (2) Are users satisfied with the intervention?

## Methods

### SETTING

MU Health Care in Columbia, Missouri, is mid-Missouri's only Level 1 Trauma Center. More than 500 physicians trained in more than 75 specialties and subspecialties, along with 5,500 nurses and health care professionals serve patients from all of Missouri's 114 counties. Annually, MU Health Care has more than 600,000 outpatient visits, 70,000 ED and trauma-center visits, and 1,800 births; performs more than 23,000 procedures; and has 20,000 admissions in its 477-bed hospital.

### BEFORE THE INTERVENTION

Before the intervention, individual physicians managed anticoagulation needs of their patients in both inpatient and outpatient settings. At the time of hospital discharge, providers identified warfarin management plans on paper forms on the basis of their personal practice preferences. MU Health Care sponsors a phone-based anticoagulation service staffed by a doctorate pharmacist to assist with outpatient management. However, utilization of the service is at the discretion of individual providers.

With the implementation of a computerized provider order entry in the EHR in November 2010, the paper form used in the former process became obsolete in the daily work environment. Challenges with this process included not only the lack of confirmation of receipt of a paper form in the pharmacy but also the inability for providers to be able to later obtain that information. Finally, there was often confusion between the phone service pharmacist, physicians, and patients regarding the communication of the ever-changing posthospital warfarin plan. Concurrent to our project, pharmacy services independently instituted a plan to expand the anticoagulation services to include a point-of-care anticoagulation clinic. These challenges and the expansion opportunity led us to design this EHR intervention to improve communication among providers.

### OVERVIEW OF THE INTERVENTION

Work began on this project in September 2011, with the creation in January 2012 of an interdisciplinary research team, led by one of the authors [M.D.] and consisting of a transformation strategist; an EHR training coordinator; two pharmacologists (including a coordinator of dosing services), and two other authors [A.B., K.D.] During the next 12 months we teamed with the Tiger Institute for Health Innovation, a Cerner division partnering with MU Health Care, to approve and build the EHR interventions requested. Institutional Review Board approval was granted in October 2012. Additional improvements were made to the intervention until summer 2013. Education was provided to providers in August 2013 in preparation for intervention implementation in September 2013.

### IDENTIFICATION OF FIVE KEY ELEMENTS

Our identification of five key elements important to managing warfarin therapy began with a literature search. We based our decisions on two studies[4,6] as well as a Kaiser Permanente protocol7; this evidence is summarized in Table 1 (page 32). The team reached consensus on the following elements: indication for anticoagulation, target INR range, anticipated duration of therapy, date of next INR, and posthospital provider to manage warfarin therapy.

### CREATION OF THE OUTPATIENT WARFARIN MANAGEMENT ORDER

MU Care uses a Cerner (Kansas City, Missouri) EHR that generates a comprehensive discharge summary following an inpatient hospital stay. The research team believed that this discharge summary provided a valuable opportunity to communicate in writing the key elements needed for patients and other health care providers to manage warfarin therapy. Our intervention involved creation of an order in the EHR titled "Outpatient Warfarin Management." From this screen (Appendix 1, available in online article), the physician orders the INR and chooses from four options for patient disposition, as follows:

1. Internal provider
2. External provider
3. Pharmacy anticoagulation telephone service
4. Pharmacy anticoagulation point-of-care clinic service.

In addition, providers are strongly encouraged to contact the posthospital provider to discuss warfarin management prior to discharge.

The fields in the EHR Outpatient Warfarin Management Order, which was implemented on September 2, 2013, were designed to serve as prompts for consideration of the key elements of warfarin management. The information entered into these order fields is visible to the patient and posthospital providers in the discharge documentation. An electronic message is sent to pharmacy when the phone management or point-of-care anticoagulation pharmacy services are selected. At the same time, a laboratory order for the next prothrombin (PT)/INR is arranged with appropriate diagnoses codes, indicated lab draw date, and instructions for who is to receive the test results. Finally, the posthospital physician responsible for the management of the patient's anticoagulation receives a notification in the EHR, which requires a signature on receipt. This process not only provides notification about the transition of care to the posthospital provider but also facilitates collaborative care with our pharmacy colleagues.

**Table 1. Information on Warfarin Management**

| Gandara et al.* | Tan et al. | Kaiser Permanente |
|---|---|---|
| Indication | Indication | Indication for anticoagulation therapy |
| Duration of therapy | Expected duration of treatment | Anticipated duration of anticoagulation therapy |
| Target INR Range | Date anticoagulation started | PT/INR history |
| Recommended dosing until next INR testing | Current anticoagulation dose | INR corresponding to indication |
| Date of last 3 INR tests | Date of latest INR | Previous anticoagulation history |
| Last three INR values | Result of latest INR | Pertinent follow-up instructions to patient |
| Provider or clinic responsible for follow-up monitoring | Who to stop anticoagulation | Physician supervising anticoagulant therapy |
| Last 3 warfarin doses | Other medical problems | |
| | Concurrent treatment | |

INR, International Normalized Ratio; PT, prothrombin time.

* Gandara E, et al. Deficits in discharge documentation in patients transferred to rehabilitation facilities on anticoagulation: Results of a systemwide evaluation. *Jt Comm J Qual Patient Saf*. 2008;34:460–463; Tan, et al. Referral of patients to an anticoagulant clinic: Implications for better management. *Qual Health Care*. 1993;2:96–99; Kaiser Foundation Health Plan of Georgia. Clinical Pharmacy Protocol for Outpatient Pharmacy Anticoagulation Service (OPAS) 2008. Atlanta: Kaiser Foundation Health Plan of Georgia, Inc.

## PROVIDING EDUCATION ABOUT THE INTERVENTION

Education about the intervention was provided through various strategies. A systemwide e-mail from the chief medical information officer sent on August 19, 2013, to all providers introduced the new process. The next day, a work-flow handout was e-mailed to providers and posted in the extranet Web-based residency management system New Innovations (Uniontown, Ohio). Presentations were also given at resident didactics and faculty meetings in the Department of Family and Community Medicine.

## DATA COLLECTION AND ANALYSIS

***Patient Sample.*** All patients from medical and surgical services with warfarin on the discharge medication list were included. Patients continuing previous warfarin therapy, as well as those starting treatment with warfarin, were included. The Office of Clinical Effectiveness used the Cerner electronic data warehouse to identify patient charts.

***Record Review.*** The record review team consisted of the authors and pharmacy students. Postdischarge orders and the discharge summary were reviewed for each patient to identify whether the agreed-on five key elements for warfarin management were included on the patient's transition of care to posthospital settings.

***Review of Pre- and Postintervention Charts.*** Preintervention records were reviewed for patients discharged from the health system from January 1, 2012, through June 30, 2012. Postintervention discharge documents from all patients discharged on warfarin from September 15, 2013, to March 15, 2014, were obtained for postintervention data collection. These 382 charts were obtained by the same electronic data search with the same filters as the preintervention data charts. A second postintervention review of 943 charts from March 16, 2014, through August 5, 2015, was performed using the same criteria to assess the sustainability of the intervention.

***User Satisfaction Survey.*** A three-question semistructured user satisfaction survey was administered via Survey Monkey in June 2014 to assess physicians' and pharmacists' experience with the intervention nine months following implementation. Space for comments was available accompanying each question. Descriptive statistics for the structured survey were used to assess the user experience.

## Results

### REVIEW OF PRE- AND POSTINTERVENTION CHARTS

Preintervention data showed that all five key elements were included in 42% (268) of the discharge documents in the charts for 633 patients. As shown in Table 2 (page 33) and Figure 1 (page 33), the most frequently included element was indication for anticoagulation (559 [88%]) of the charts), and the least frequently included elements was target INR range (364 [58%]), followed by duration of therapy (427 [67%]). The first postintervention data (September 15, 2013–March 15, 2014) showed that all five key elements were included in the discharge documents for 297 (78%) of the 382 charts. Individual elements were included in the charts 84% to 91% of the time. For the second post intervention data (March 16, 2014–August 5, 2015), all five key elements were included in the discharge documents for 574 (61%) of the 943 charts. Each individual element was again included at least 83% of the time.

### USER SATISFACTION SURVEY

The survey was e-mailed to 114 physicians and 2 pharmacists, of whom 28 persons responded, resulting in a response rate of 25%. The results are outlined in Table 3 (page 34). Seven teen (61%) of 28 providers responded

**Table 2. Key Elements Included in Discharge Documents**

| Element | Preintervention (*N* = 633) January 1, 2012–June 30, 2012 | First Postintervention (*N* = 382) September 15, 2013–March 15, 2014 | Second Postintervention (*N* = 943) March 16, 2014–August 5, 2015 |
|---|---|---|---|
| Indication | 559 88% | 347 91% | 827 88% |
| Target INR Range | 364 58% | 326 85% | 794 84% |
| Duration of Therapy | 427 67% | 320 84% | 782 83% |
| Provider | 518 82% | 343 90% | 821 87% |
| Next INR | 466 74% | 327 86% | 802 85% |
| All Elements | 268 42% | 297 78% | 574 61% |

INR, International Normalized Ratio.

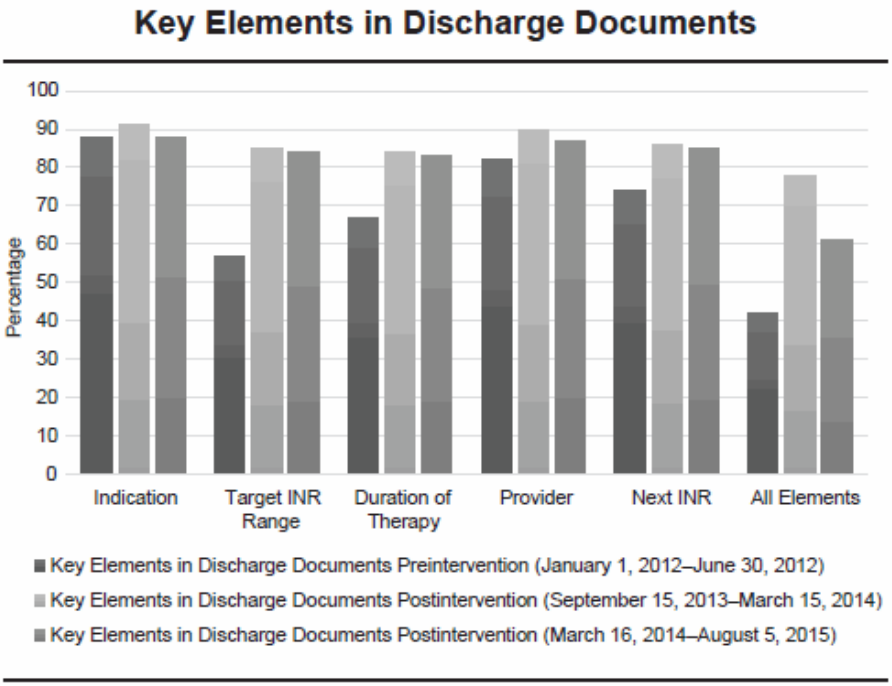


**Figure 1.** *Preintervention data showed that all five key elements were included in 42% (266/633) of the discharge documents in the charts for 633 patients, as compared to 78% (297/382) for the first postintervention period and 61% (574/943) for the second postintervention period.*

that the new warfarin order was "user friendly and accessible" (ratings 4 or 5 on a 5-point Likert scale). A majority of the respondents found that it improves warfarin management in terms of "inclusion of pertinent management data (that is, INR goal, diagnosis) (18 [64%)] and "clear expectation of warfarin management team and supervising physician at discharge" (19 [68%]). The open-ended responses from physicians were overall complimentary of the intervention. For example, one physician stated, "I think this has been a very smooth transition and has helped several of my patients on coumadin receive better care," while another commented that the intervention caused the physician to "stop warfarin in a patient when it became clear that there was not a good indication for it." A third physician cited "multiple episodes in which this prevented outpatient warfarin management from being overlooked."

Feedback about improvement opportunities was also noted; for example, 14 (50%) respondents indicated that they would prefer to have the supervising physician be directly notified of the order, as opposed to the current process, whereby additional steps must be taken for this to occur. As one physician wrote, "The order needs to route to the physician either to notify them, or get their co-signature for the pharmacists' legal requirements"; another physician stated, "Discharging providers select the wrong option [for patient disposition], ...creating patient confusion at the discharge transition."

**Discussion**

A concerted systemwide effort involving use of the EHR to improve the documentation of elements required for effective management of patients on warfarin was implemented at MU Health Care. Although limited to the experience of only one health care system, this study demonstrates the potential value of the EHR in assisting with anticoagulation therapy between outpatient and inpatient settings and across multiple providers. Moreover, we have demonstrated sustainability of this intervention during a two-year period. We found that using an interdisciplinary team, which included pharmacy members, was mutually beneficial, as our project gained momentum in the system with the concurrent pharmacy goal to open a point-of-care anticoagulation clinic.

In implementing this intervention we encountered a variety of challenges. For example, information from the discharge summary needs to be stored in a location convenient for posthospital providers, including those both internal and external to our health system, to be able to access. Also, to ensure a successful handoff to posthospital providers for warfarin management, patients must have

**Table 3. Responses ($N$ = 28) to the Three Survey Questions at Six Months Postimplementation**

| Answer Choice | Responses (%) |
|---|---|
| **What has improved since the development of the "outpatient warfarin order"?*** | |
| I do not feel it has improved | 4 (14) |
| Transition of care from one provider to another provider | 12 (43) |
| Patient education and understanding of their medication | 4 (14) |
| Inclusion of pertinent warfarin management details (i.e., INR goal, diagnosis) | 18 (64) |
| Clear expectation of warfarin management team and supervising physician at discharge | 19 (68) |
| **"What do you feel needs to be fixed or changed with the order?"** | |
| I do not feel it needs to be changed | 8 (28) |
| Broaden search criteria within powerchart (e.g., order found when type in outpatient, not warfarin alone) | 8 (29) |
| Clarification of the first choice of the method of management (e.g., phone management, internal provider) | 6 (21) |
| Ability to send the order and PT/INR to the supervising physician automatically | 14 (50) |
| Embed the order within the current depart/ discharge process | 8 (29) |
| **"On a scale from 1-5 (with 5 being the highest), how user friendly and accessible is the new warfarin order?"** | |
| 1 | 1 (4) |
| 2 | 2 (7) |
| 3 | 8 (29) |
| 4 | 15 (54) |
| 5 | 2 (7) |

PT, prothrombin time; INR, International Normalized Ratio.

active PT/INR laboratory orders. One significant challenge that we continue to address is how to communicate posthospital PT/INR laboratory results to the posthospital provider, as opposed to the provider who completes the patient's discharge orders. Despite the original inclusion of instructions of how to accomplish this within the work flow, it remains awkward for providers who do not follow it in their routine use of the EHR. Finally, providing education about the project and the intervention to all providers in our large organization remains an ongoing, difficult task.

Although initially designed for use during transition from the hospital to posthospital settings, the warfarin order is being successfully used in outpatient settings as well. We are currently working with a multidisciplinary team to create a powerform, an EHR tool that can enable more real-time provider guidance and a more algorithmic approach better suited to addressing work-flow concerns. The assessment of the impact of the intervention on potential cost savings or patient adverse events remains to be addressed.

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## Online Only Content

http://www.ingentaconnect.com/content/jcaho/jcjqs

Appendix 1. Screen Shots of Outpatient Warfarin Management Orders in the Electronic Heath Record

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# Appendix A: Resources

## *Print Resources*

*JCR periodical articles can be purchased on PubMed via Ingenta (*http://www.ingentaconnect.com/*).*

## *Electronic Resources*

The Joint Commission: http://www.jointcommission.org

Joint Commission Resources: http://www.jcrinc.co

**NOTE:** The Internet is an ever-evolving environment and links are subject to change without notice.

# Appendix B: Faculty Biographies

***NOTE:*** *These presenters do not have any financial arrangements or affiliations with corporate organizations that either provide educational grants to this program or may be referenced in this activity. These presenters have also attested that their discussions will not include any unapproved or off-label use of products.*

**Patricia Conway-Morana, PhD, RN, CJCP, CPHQ, NEA-BC, CENP, RNC-OB, FACHE**
Green Belt
Continuous Service Readiness, CSR Lead Consultant
Joint Commission Resources, Inc

Patricia Conway-Morana started her career, and has over 10 years of experience as a Labor and Delivery Staff Nurse. She has held multiple positions in accreditation/regulatory preparation and nursing leadership; including Nurse Manager, Risk Management Consultant, Director of Accreditation and Licensure, and Chief Nurse. She has worked in large, complex health systems and has led two organizations in their journey to American Nurses Credentialing Center (ANCC) Magnet Designation. Dr. Conway-Morana's interests are patient quality/safety and nursing leadership.

Her specific experience with healthcare facilities includes the following:

- Director of Accreditation and Licensure and System Chief Nurse Executive, Carilion Health System, Roanoke, VA
- Chief Nursing Officer, Columbus Regional Medical Center, Columbus, GA
- Chief Nurse Executive, Inova Fairfax Hospital, Fairfax, VA
- Staff Nurse, L&D, Riverside Hospital, Newport News, VA
- Nurse Manager, L&D, Sentara Norfolk General Hospital, Norfolk, VA
- Chairman of the Board of Trustees Spotsylvania Regional Medical Center, Fredericksburg, VA

Dr. Conway-Morana's professional affiliations or certifications include:

- Certified Joint Commission Professional
- Inpatient Obstetric Nursing, National Certification Corporation
- National Association of Healthcare Quality, Certified Professional in Healthcare Quality
- American Nurses Credentialing Center, Nurse Executive, Advanced-Board Certified
- American Organization of Nurse Executives, Certified in Executive Nursing Practice
- American College of Healthcare Executives, Fellow
- American Organization of Nurse Executives, Member
- American Nursing Association, Member
- Sigma Theta Tau International Nursing Honor Society, Member

Highlights of her educational background include:

- Master of Administration, Lynchburg College, Lynchburg, VA
- Bachelor of Science, Business Administration, Christopher Newport University, Newport News, VA
- Doctor of Philosophy, Nursing, George Mason University, Fairfax, VA
- Bachelor of Science, Nursing, Jefferson College of Health Sciences, Roanoke, VA
- Diploma in Nursing, Riverside Hospital School of Nursing, Newport News, VA

 

**Erin Lawler, MS**
Human Factors Engineer
Office of Quality and Patient Safety
Division of Healthcare Improvement
The Joint Commission

As Human Factors Engineer for The Joint Commission, Ms. Lawler supports the division and enterprise-wide need for knowledge and expertise in human factors and ergonomics related to healthcare, and responds to patient safety events identified by the Office of Quality and Patient Safety. Ms. Lawler serves as the Human Factors Subject Matter Expert for proactive risk assessment, root cause analysis, and other risk assessment methodologies. She provides education and consultation on human factors analysis in incident investigations, process improvement, and the development of sustainable interventions.

Prior to joining The Joint Commission, Ms. Lawler served as the Human Factors Engineer for the Department of Defense Patient Safety and Analysis Center, where she provided human factors consultation and data analysis. She also designed patient safety curricula in systems thinking and human factors, performing root cause analyses and proactive risk assessment, and understanding harm classification.

Ms. Lawler earned her Bachelor of Arts degrees in Psychology and Sociology from Oklahoma State University, and her Masters of Science degree in Human Factors and Ergonomics from Cornell University in Ithaca, New York.

 

# Appendix C: Continuing Education (CE) Accrediting Bodies

To be eligible for CE credit from any of the following accrediting bodies, you MUST view the video presentation and read the Resource Guide first. Then, complete the post test at http://twnlms.com/ by the due date listed online. See Appendix E.

The Joint Commission is accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

**NOTE:** No ACPE credit was provided for this program.

The Joint Commission is provider approved by the California Board of Registered Nursing, provider number CEP 6381, for 1 contact hour.

The Joint Commission is authorized to award 1.0 contact hour of pre-approved ACHE Qualified Education credit for this program toward advancement or recertification in the American College of Healthcare Executives. Participants in this program wishing to have the continuing education hours applied toward ACHE Qualified Education credit should indicate their attendance when submitting application to the American College of Healthcare Executives for advancement or recertification.

This activity has been approved by the National Association for Healthcare Quality (NAHQ) for 1.0 Certified Professional Healthcare Quality (CPHQ) credit.

The Joint Commission Enterprise has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET).

This education offering qualifies for 1.0 Certified Joint Commission Professional (CJCP) credit hours towards CJCP recertification. In order to obtain CJCP credit hours, an individual must first be certified before they start acquiring CJCP credit hours. CJCP credit hours will not be retroactive.

Full attendance at every session is a prerequisite for receiving full continuing education credits. If a participant needs to leave early, his or her continuing education credits will be reduced.

Successful completion of this CE activity includes the following:

- View the presentation and read the accompanying Resource Guide.
- Complete the online Evaluation Form and Post Test.
- A CE certificate/statement of credit can be printed online following successful completion of the Post Test and the Evaluation Form

**NOTE:** This information applies to The Joint Commission Resources Quality & Safety Network program titled, *Improving Communication, Reducing Medical Errors*, originally presented on Thursday, February 23, 2017 from 2:00 – 3:00 p.m. ET. There is no individual participant fee for this educational activity.

 

# Appendix D: Discipline Codes Instructions

Some of our programs are accredited for more than one discipline. To ensure that we issue each participant a certificate by the appropriate accrediting body, we ask that you supply us with the following information: 1) two-digit discipline code. 2) followed by the position code (example: for a medical doctor, use 10 MD).

| Discipline | Discipline Code | Position Code | Position |
|---|---|---|---|
| **Physician (CME)** | 10 | MD | Medical Doctor |
| | | MDFP | MD-Family Practice |
| | | MDPS | MD-Psychiatrist |
| | | MDPH | MD-Public Health Certificate |
| | | MDPP | MD-Public Psychiatry Certificate |
| | | MDAC | MD-Area Clinical Needs |
| | | MDMF | MD-Medical Faculty Certificate |
| | | MSP | MD-Medical Staff Physician |
| | | MDLL | MD-Limited License |
| | | DO | Doctor of Osteopathy |
| | 40 | PHA | Physician Assistant |
| | | DDS | Doctor of Dental Science |
| | | OP | Other Medical Professional |
| **Administration** | 12 | HA | Hospital Administrator |
| | | ADM | LTC Administrator |
| | | OA | Other Administrator |
| **Pharmacy** | 13 | PH | Pharmacist (PharmD) |
| | | PHN | Pharmacist, Nuclear |
| | | PHC | Pharmacist, Consultant |
| | | PA | Pharmacy Technician |
| **Dietary** | 14 | RD | Registered Dietitian/Nutritionist |
| | | NC | Nutrition Counselor |
| | | DTR | Dietetic Technician |
| **Dietary Manager** | 15 | DOD | Dietary Manager |
| **Counseling** | 16 | MHC | Mental Health Counselor, Licensed |
| | | SW | Social Worker, Licensed |
| | | OCT | Other Counselor/Therapist |
| | | MFT | Marriage/Family Therapist, Licensed |
| **Laboratory** | 17 | LTG | Laboratory Technologist/ Professional |
| | | LT | Laboratory Technician |
| | | LS | Laboratory Supervisor |
| | | LD | Laboratory Director |
| **Physical Therapy** | 18 | PT | Physical Therapist |
| | | PTA | Physical Therapy Assistant |
| **Occupational Therapy** | 19 | OT | Occupational Therapist |
| | | OTA | Occupational Therapy Assistant |

| Discipline | Discipline Code | Position Code | Position |
|---|---|---|---|
| **Respiratory Therapy** | 20 | RT | Respiratory Therapist, Registered |
| | | RTC | Respiratory Therapist, Certified |
| | | RPNC | Resp. Practitioner, Non-Critical Care |
| | | RPCC | Resp. Practitioner, Critical Care |
| **Medical Records** | 21 | RHA | Health Information Administrator |
| | | RHT | Health Information Technician |
| | | CCS | Coding Specialist |
| | | CCP | Coding Specialist, Physician-Based |
| **Radiology** | 22 | RAD | Radiologic Technologist |
| **Sonography** | 23 | MS | Medical Sonographer |
| **Athletic Training** | 24 | AT | Athletic Trainer |
| **HC Quality** | 25 | HQP | Healthcare Quality Professional |
| **Activity Professional** | 26 | ADP | Profession Activity Director |
| | | ADC | Activity Director |
| | | AAC | Activity Assistant |
| | | ACC | Activity Consultant |
| **Nurse (CNE)** | 30 | RN | Registered Nurse |
| | | ARNP | Advanced RN Practitioner |
| | | NP | Nurse Practitioner |
| | | LPN | Licensed Practical Nurse (or LVN) |
| | | ON | Other Nursing Professional |
| **Psychology** | 33 | PSY | Psychologist (non-MD) |
| | | PSYL | Psychologist, Limited License |
| **Case Mgmt** | 35 | CCM | Certified Case Manager |
| **Nursing Assistant** | 45 | C N A | Certified Nursing Assistant |
| | | RA | Restorative Care Aide |
| | | H S A | Health Support Aide |
| | | NA | Nurse Aide, Non-certified |
| | | NT | Nursing Technician |
| **Emergency Medical Services** | 46 | CFR | First Responder |
| | | EMTB | EMT, Basic Level/EMT1 |
| | | EMTI | EMT, Intermediate Level/EMT2/EMT3 |
| | | EMTP | EMT, Paramedic Level/EMT4 |
| | | OTH | Other |
| **Health Unit Coor** | 55 | CHUC | Health Unit Coordinator, Certified |
| **Other** | 27 | OTH | Other |

# Appendix E: Post-Test

To be eligible for CE credit, you MUST view the video presentation and read the Resource Guide first. Then complete the post-test at http://jcrqsn.twnlms.com/ by the due date listed online.

1. Serious medical errors often involve miscommunication between caregivers during the transfer of patients.
   a. True
   b. False
2. Which Joint Commission hospital accreditation standard states, The hospital communicates information related to safety and quality to those who need it, including staff, licensed independent practitioners, patients, families, and external interested parties?
   a. LD.01.01.01
   b. PI.03.04.01
   c. LD.03.04.01
   d. LD.04.04.05
3. A performance improvement project at the University of Wisconsin Hospitals and Clinics examined the feasibility of designing and implementing a standardized discharge summary using the electronic health record _____.
   a. in the Intensive Care Unit
   b. hospitalwide
   c. for patients with diabetes
   d. in the Pediatrics Unit
4. The hand-off communication process involves senders, those caregivers transmitting patient information and transitioning the care of a patient to the next clinician, and receivers, hose caregivers who accept the patient information and care of that patient.
   a. True
   b. False
5. Which Element of Performance (EP) under standard LD.04.04.05 states, The leaders provide and encourage the use of systems for blame-free internal reporting of a system or process failure, or the results of a proactive risk assessment?
   a. EP 1
   b. EP 6
   c. EP 8
   d. EP 11
6. The keys to success for the University of Wisconsin Hospitals and Clinics' discharge summary standardization project include _____.
   a. convening a task force
   b. engaging hospital leaders
   c. harnessing expert opinion
   d. All of the above.

 

7. Joint Commission standard PC.04.02.01 states, _____.
   a. The hospital discharges or transfers the patient based on his or her assessed needs and the organization's ability to meet those needs
   b. Before the hospital discharges or transfers a patient, it informs and educates the patient about his or her follow-up care, treatment, and services
   c. When a patient is discharged or transferred, the hospital gives information about the care, treatment, and services provided to the patient to other service providers who will provide the patient with care, treatment, or services
   d. The hospital assesses and reassesses its patients
8. Joint Commission communication requirements apply to patient hand-offs _____.
   a. between hospital departments
   b. between healthcare organizations
   c. when discharging a patient back home
   d. All of the above.
9. One of the strategies that Rochester General Hospital uses to improve communication is a Daily Safety Check.
   a. True
   b. False
10. Joint Commission standard PC.02.02.01, Element of Performance 2, states, _____.
    a. The hospital has a process to receive or share patient information when the patient is referred to other internal or external providers of care, treatment, and services
    b. The hospital coordinates the patient's care, treatment, and services based on the patient's needs
    c. The hospital's process for hand-off communication provides for the opportunity for discussion between the giver and receiver of patient information
    d. The hospital assesses and reassesses its patients

 

# Appendix F: JCRQSN Contact Information

**General information, customer service issues, or program reception issues**

JCRQSN Customer Service Team
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**Questions about standards**

Joint Commission Standards Interpretation Group
1-630-792-5900

**Questions about JCR education or other resources**

JCR Customer Service Center
1-877-223-6866