REdesigning SystEms to Improve Teamwork and Quality for Hospitalized Patients: RESET Project Implementation Guide

shm Society of Hospital Medicine

ANA AMERICAN NURSES ASSOCIATION

Northwestern University

Prepared by the RESET Investigators

Version 2.0: September 2019

Funded by AHRQ grant R18 HS25649

Table of Contents

Table of Contents

Introduction

A growing number of hospitals have tested interventions to redesign aspects of the care delivery system for hospitalized medical patients. Research suggests that these interventions can improve patient outcomes when implemented as a set of complementary and mutually reinforcing components.

With funding from the Agency for Healthcare Research and Quality and in collaboration with the Society of Hospital Medicine (SHM) and the American Nurses Association (ANA), we began the *REdesigning SystEms to Improve Teamwork and Quality for Hospitalized Patients (RESET)* project in 2018. During the RESET project, we provide mentorship and resources for four hospitals to adapt and implement a set of complementary interventions based on a clinical microsystems framework. The *Advanced and Integrated MicroSystems (AIMS)* model consists of five interventions:

- Unit-Based Physician Teams
- Unit Nurse-Physician Co-Leadership
- Enhanced Interprofessional Rounds
- Unit-Level Performance Reports
- Patient Engagement Activities

We anticipate the RESET project results to be available in 2022. Because many hospitals are already working on similar interventions, we wish to share this RESET *Implementation Guide* and its accompanying resources to assist hospitals in adapting and implementing the AIMS interventions to meet their local needs. This guide provides detailed information about the RESET project, the AIMS interventions and useful strategies for leading change.

I would like to thank all those who contributed to the development of this *Implementation Guide*. The RESET team comprises an incredible group of clinicians, support staff and advisors whose tireless dedication to this project has made this guide a reality. We hope this guide provides invaluable assistance as you redesign your systems to optimize care for hospitalized patients.

Kevin J. O'Leary, MD, MS
RESET Principal Investigator

Contributors

Kevin J. O'Leary, MD, MS
RESET Principal Investigator
Professor of Medicine
Chief, Division of Hospital Medicine
Northwestern University Feinberg School of Medicine
Chicago, IL

Katie Clepp, MA, MEd
RESET Program Manager
Clinical Research Associate
Northwestern University Feinberg School of Medicine
Chicago, IL

Ronald Estrella, MHA, RN
RESET Mentor
Executive Director, University Health System
University of Texas at San Antonio
San Antonio, TX

Jenna Goldstein, MA
RESET Collaborator
Director, Center for Quality Improvement
Society of Hospital Medicine
Philadelphia, PA

Krystal Hanrahan, MS, MSPH, RN
RESET Mentor
Magnet Program Manager
Northwestern Memorial Hospital
Chicago, IL

Julie K. Johnson, MSPH, PhD
RESET Co-Investigator
Professor of Surgery
Northwestern University Feinberg School of Medicine
Chicago, IL

Luci K. Leykum, MD, MS, MBA
RESET Mentor
Professor of Medicine
Chief, Division of General Internal Medicine
University of Texas at San Antonio
San Antonio, TX

Milisa Manojlovich, PhD, RN
RESET Co-Investigator
Professor of Nursing
University of Michigan School of Nursing
Ann Arbor, MI

Sara Platt, MA
RESET Collaborator
Senior Project Manager, Center for Quality Improvement
Society of Hospital Medicine
Philadelphia, PA

G. Randy Smith Jr., MD, MS
RESET Mentor
Assistant Professor of Medicine
Northwestern University Feinberg School of Medicine
Chicago, IL

Mark V. Williams, MD
RESET Co-Investigator
Professor of Medicine and Director, Center for Health Services Research
University of Kentucky
Lexington, KY

Acknowledgments

RESET Advisory Board

Marie Abraham, MA
Vice President of Programming for the Institute for Patient- and Family-Centered Care

Marjorie Godfrey, PhD, RN
Director of the Dartmouth Institute Microsystem Academy

Eric Howell, MD
COO for Society of Hospital Medicine

Beverly Johnson, BSN
President and CEO of the Institute for Patient- and Family-Centered Care

Christopher Kim, MD, MBA
Associate Medical Director for Quality at the University of Washington

Kendra McMillan, MPH, RN
Senior Policy Advisor for American Nurses Association

Vineeta Mittal, MD
Associate Professor of Pediatrics at the University of Texas Southwestern

Cheryl Peterson, MSN, RN
Director, Nursing Practice and Policy at American Nurses Association

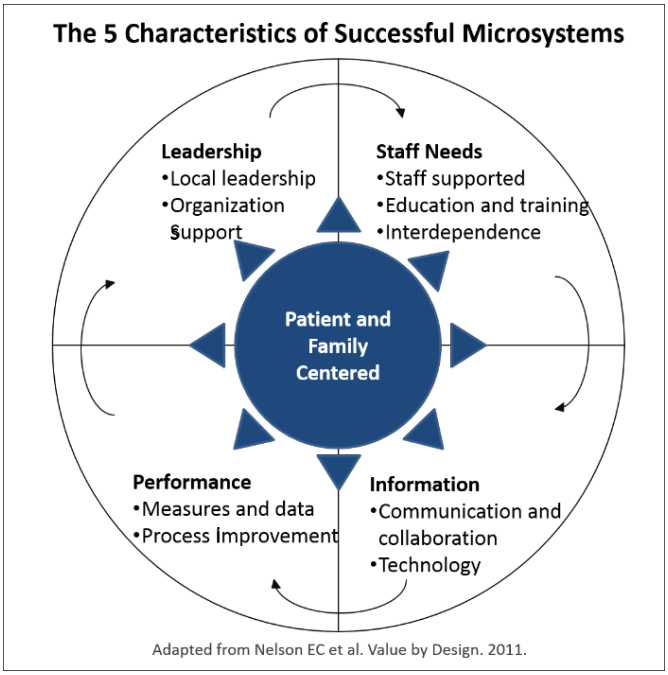
Challenges to Patient Care on Medical Services

A number of challenges impede our ability to provide high-quality care to hospitalized patients on medical services. Teams are large, with membership that continually evolves and is seldom in the same place at the same time. Physicians are often spread across multiple units and floors, giving them little opportunity to develop relationships with nurses and other professionals who work on designated units. Nurse and physician leaders commonly operate in silos, limiting their ability to address challenges collaboratively. Patients and family members are generally poorly informed and lack opportunities to engage in decision making and co-production of their care. As a result, medical services lack the structure, and professionals lack the shared accountability, necessary to optimally coordinate care on a daily basis and improve performance over time.

A growing number of hospitals have tested interventions to redesign aspects of the care delivery system for hospitalized medical patients. Research suggests that these interventions can improve patient outcomes when implemented as a set of complementary and mutually reinforcing components. However, these interventions need to be adapted to account for hospital-specific contextual factors.

Microsystems Framework and AIMS Model

We used a clinical microsystems framework to develop a care model that addresses challenges in providing optimal care to hospitalized medical patients. A *clinical microsystem* is the small group of people who work together in a defined setting on a regular basis to provide care. Effective clinical microsystems have clinical aims, linked processes and a shared information environment, and measure performance outcomes. High-value organizations deliberately design clinical microsystems to optimize their performance. Research has identified five overarching characteristics associated with successful microsystems: local leadership, focus on the needs of staff, emphasis on the needs of patients, attention to performance and a rich information environment.



Adapted from Nelson EC et al. Value by Design. 2011.

The *Advanced and Integrated MicroSystems (AIMS)* model consists of five interventions that incorporate characteristics of successful microsystems (see Table 1). Importantly, many hospitals have implemented some of these interventions, but implementation is often incomplete.

Table 1. AIMS Interventions and Brief Descriptions

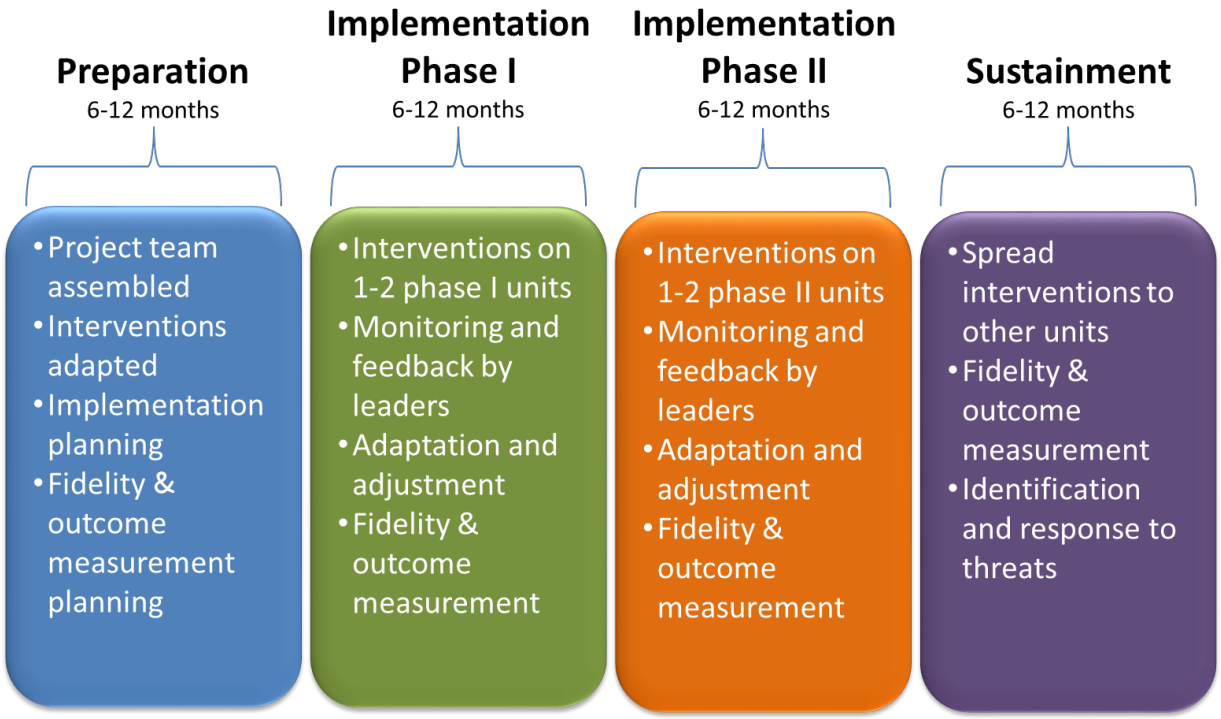
Component	Description
Unit-Based Physician Teams	Localization of physicians to a minimal number of units
Unit Nurse-Physician Co-Leadership	Collaborative model in which a nurse leader and physician leader jointly lead quality improvement on their unit
Enhanced Interprofessional Rounds	Interprofessional rounds (IPR), redesigned with input from frontline professionals to optimize collaboration and patient engagement
Unit-Level Performance Reports	Performance reports designed to give unit leaders and frontline professionals relevant, interpretable, actionable data
Patient Engagement Activities	Methods to continually engage patients and families as partners in care

Detailed descriptions of each component are provided in the **AIMS Intervention Components** section.

Project Design and Timeline

We recommend that hospitals interested in implementing the AIMS interventions use a phased approach over two to three years. The RESET phases include Preparation, Implementation and Sustainment. Our use of a phased approach is based on recommendations from leaders who have led implementation of similar interventions.

- *Preparation* – Hospitals should conduct a formal evaluation of organizational readiness for change, identify potential challenges and create an implementation plan. In preparing the implementation plan, hospitals should select one or two units ideally suited for initial implementation of interventions (Implementation Phase I) and one or two units for later implementation of interventions (Implementation Phase II). Data collection begins during Preparation.
- *Implementation Phase I* – Interventions should be implemented on the phase I units. Hospitals should identify a nurse or performance improvement professional to conduct fidelity measurement for phase I units, which will inform project leaders' adjustment of interventions.
- *Implementation Phase II* – Interventions should be implemented on phase II units, leveraging lessons learned during phase I.
- *Sustainment* – Project leaders should spread interventions onto additional units as appropriate. Project leaders should also identify potential threats to sustainability and contingency plans should threats materialize.



Project Milestones are provided in Appendix A.

Preparation – Setting the Stage for Success

Hospitals will take a number of key steps to ensure success in the Preparation phase, including assembly of teams, integration into hospital quality efforts, and plans for implementation and communication.

Project Leaders, Project Team and Unit Working Groups

- *Assemble the project leadership team*. Each hospital should assemble a local leadership team consisting of a physician leader, a nurse leader and a quality improvement professional. These individuals will oversee all local efforts for the project. The project leadership team should schedule meetings to occur every other week. The frequency of meetings may be adjusted at certain points, depending on project activity.
- *Assemble the project team*. The project team includes the project leaders and other key stakeholders. Some core project team members will be essential at every stage of the project, while others may serve as ad hoc members, joining the team for meetings when their input is needed for certain project activities. Core team members should include project leaders, unit co-leaders, hospital quality improvement leaders, frontline professionals and patient/family member representatives. Ad hoc members may include professionals from bed assignment, emergency medicine, information technology, professional development and patient experience. Project teams should also meet every other week and prepare an agenda for each meeting. Discussion should focus on project status, challenges and next steps. Brief notes should be prepared for each meeting and saved for future reference.
- *Choose phase I units and phase II units*. The project leadership team should select one or two units for initial implementation of the interventions (Implementation Phase I) and one or two units for later implementation of interventions (Implementation Phase II). The phase I unit(s) should be known to have engaged staff, a willingness for change and an ability to navigate challenges.
- *Assemble phase I unit working groups for design of IPR*. During the Preparation phase, project leaders should assemble unit working groups to design IPR for the phase I units. The unit working groups should include frontline healthcare professionals on the phase I units, including physicians, nurses, pharmacists, social workers and other key team members. The unit working groups should meet regularly for 8–12 weeks prior to the planned start date of IPR. Further information is provided in the Enhanced Interprofessional Rounds (IPR) section.

Hospital Oversight and Integration into Local Quality Efforts

- *Obtain health system approval and support*. RESET is a quality improvement project. The project leadership team should seek approval from the appropriate quality committees within their hospital. In most cases, project leaders will not need to seek Institutional Review Board approval.
- *Create a charter and provide updates to local stakeholders*. Many hospitals use an established performance improvement method, such as Plan-Do-Study-Act (PDSA), Lean or Six Sigma/ DMAIC. Whichever performance improvement method a hospital uses, the project leaders should create a project charter using the method embraced by their hospital and give quarterly reports to the appropriate quality committee in their hospital. The most important components of a charter include the problem statement, project measure(s), interventions and goal statement. An **Example Project Charter** is provided in Appendix B.
- *Establish executive sponsors*. An executive sponsor is a senior leader in the hospital who provides guidance and support for the project. For RESET, we recommend that project leaders ask their chief medical officer and chief nurse officer (or equivalent positions) to serve as an executive sponsor team. Project leaders should meet with executive sponsors monthly to provide updates and seek their feedback.
- *Meet with other key stakeholders*. Project leaders should meet with other key stakeholders, early in the project, to understand their perspectives and to partner with them on implementing AIMS interventions. These stakeholders may include leaders in the emergency department, bed assignment, residency program director, leaders of physician groups who also admit/manage adult medical patients and information technology. Even if some of these individuals will be ad hoc members of the project team at some point, it is a good idea for project leaders to meet with all stakeholders early in the project.
- *Make the case for change*. The RESET charter will help project teams create a brief description of the project and its benefit (a.k.a., an elevator speech). A brief, scripted description will help the team promote the project and should include the problems RESET addresses and the expected benefit to patients and the organization. An **Example RESET Elevator Speech** is provided in Appendix C.

Assessing Readiness and Creating Implementation, Communication and Data Plans

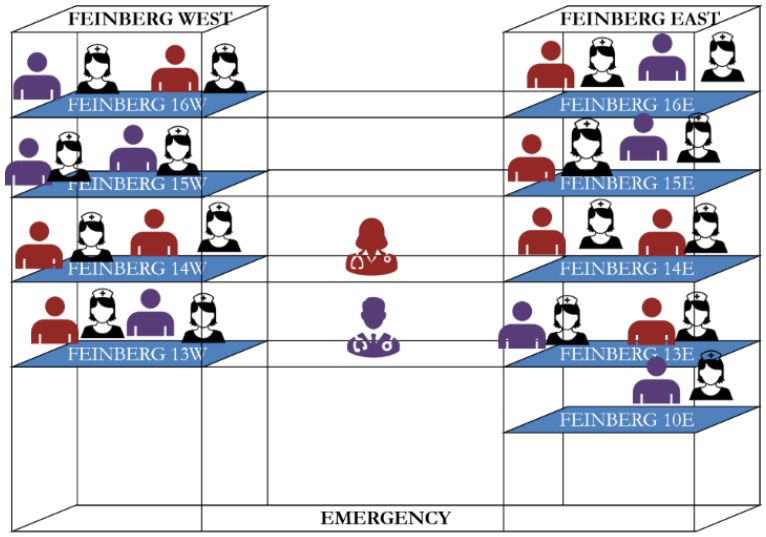
- *Assess current state and readiness*. Project leaders should complete the Assessment of Current State and Readiness to reflect on past efforts, anticipate challenges and identify strategies to ensure success. Project leaders should review the assessment with their project teams. The Assessment of Current State and Readiness Survey is provided in Appendix D.
- *Assess organizational capacity and teamwork climate*. Project leaders should administer a survey to all professionals on study units (both implementation phase I and phase II units) to assess organizational capacity for change and baseline teamwork climate. We recommend using the Organizational Readiness for Implementing Change (ORIC) Survey. ORIC is ideal because it is brief (12 items), reliable and easy to understand. Project leaders should obtain the names, email addresses and professional type (e.g., physician, nurse, etc.) for professionals on study units. The project leaders can use SurveyMonkey, REDcap or other Internet-based tools to administer the survey. Results can be evaluated by professional type to get an understanding of readiness for change by group. The Organizational Readiness for Implementing Change (ORIC) Survey and Teamwork Climate Survey are provided in Appendices E and F.
- *Create an implementation plan*. The project leaders should create an implementation plan. The implementation plan will include information about how each AIMS intervention will be adapted and implemented and the timing of interventions. A critical component of the implementation plan is a list of steps to monitor success and make adaptations during early implementation. The Example Implementation Work Plan Template is provided in Appendix G.
- *Create a communication plan*. Once the implementation plan is created, the project leaders will create a communication plan to ensure that all key stakeholders are informed of the changes that will ensue. The Example Communication Plan Template is provided in Appendix H.
- *Create a data collection plan*. The project leaders should create a plan to collect fidelity data and outcome data. Fidelity measures assess how well the AIMS interventions are being implemented as planned. Outcome measures assess the impact of the AIMS interventions on the quality of patient care. Further information about data collection is provided in the Data Collection and Project Measures section.

In this section, we describe each of the AIMS interventions in detail, providing specific steps for implementation, potential challenges to anticipate and strategies to navigate those challenges.

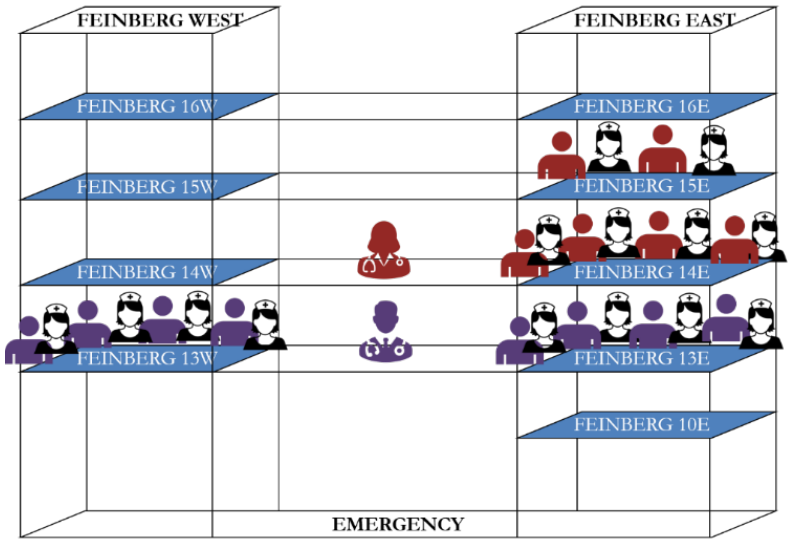
Unit-Based Physician Teams

In many hospitals, a physician may care for patients on multiple units on a given day, making it very difficult to collaborate with nurses, social workers and pharmacists, who are often unit-based. In order to optimize the ability of team members to be in the same place at the same time, physicians should be localized to a minimal number of units on which they provide care.

Physicians not localized to specific hospital units



Physicians localized to specific hospital units



Establishing unit-based physician teams can be very challenging, but it is often transformative in facilitating the implementation of other interventions. Therefore, we recommend the implementation of unit-based physician teams at the same time or shortly before implementation of the other interventions. We recommend against implementation of other AIMS interventions prior to the implementation of unit-based physician teams. Fundamentally, the admission process changes from assigning a physician service first and a bed later to one in which a new admission is assigned a bed first, which then determines the service and specific physician who will care for the patient. Importantly, the assignment of patients to units and physicians involves many interdependencies. That is, it is very hard to pilot localization on one unit. Although the implementation of the other AIMS interventions should involve a phased approach, most hospitals will need to develop a plan to implement localization across the multiple units on which medical patients receive care. Essential steps in the implementation of unit-based physician teams include:

- *Engage key stakeholders*. Partner with key stakeholders, including bed assignment, emergency medicine, nursing and other physician groups who care for hospitalized medical patients.
- *Define success using a SMART goal (specific, measurable, achievable, results-focused and time bound)*. For example, set a goal that ≥80% of physicians will care for patients on ≤2 units on any given day. Do not shoot for perfection. It is very hard to design a system in which all physicians have all their patients on one unit.
- *Calculate projected patient volumes and select units accordingly*. Use hospital admission data to determine the average and range of volumes for services in the hospital, including total daily census as well as the number of admissions and discharges per day. Compare this data to the bed capacity on hospital units and work with hospital leadership to designate an appropriate number of beds on designated units for the physicians the project team wants to localize.
- *Assign physicians to specific units during their time on service*. Most units will have one to three physicians assigned to the unit, depending on the size of the unit. Similarly, each physician should have patients on one or two units. Revisions to physician schedules and/or admission procedures may need to be made to ensure that a physician localized to the unit can accept new patients each day, according to projected volumes.
- *Leverage admission handoffs*. Most hospitalist groups and teaching services have a nocturnist/night float system. In many hospitals, nearly half of the admissions to a service are performed by these night physicians. All of the patients admitted at night can be assigned to physicians localized to the patients' units in the morning.
- *Consider modifications to your admission model*. Some groups and many residency programs have a subset of physicians available to admit on any given day (e.g., call) while other physicians are not available to admit. This model is sometimes called a "bolus" model as opposed to a "drip" model in which most or all physicians are available to admit patients on each day. Localization tends to be easier to achieve under the drip model because the physicians assigned to a particular unit are open to admit patients on each day.
- *Develop a contingency plan*. Many hospitals that have successfully implemented unit-based physician teams have one physician, sometimes called a sweeper, who is not localized. This non-localized physician can be especially helpful if one unit gets a higher volume of patients or if patients are overflowing off of the designated units for medical patients.

- *Consider an admitter-rounder admission model.* Another model that facilitates the localization of physicians to specific units is the admitter-rounder. In this model, admitting activities are separated from rounding and discharge activities. The group assigns one or more physicians to perform admissions on each day while other physicians round on the patients admitted the night or day before. This model introduces extra handoffs in care, which necessitates the creation of high-quality documentation by physicians and strong handoff procedures.
- *Anticipate and navigate challenges*. Common challenges and potential solutions are shown in Table 2. Many hospitals have been successful in localizing physicians despite operating at, or beyond, full capacity. For hospitals with intermediate care units, leaders must decide if continuity should be preserved over localization when patients are internally transferred or whether having physicians designated to those specific areas makes more sense. Historic data on the number of patients admitted to these areas and transferred to and from these areas may help decision makers.
- *Iterate and improve*. Implementing unit-based physician teams requires collaboration with many stakeholders and a redesign of processes that may have been in existence for many years. Expect challenges and continue to meet with key stakeholders during implementation to make iterative changes to optimize localization of physicians.

Table 2. Potential Challenges and Solutions for Unit-Based Physician Teams

Potential Challenges	Solutions
Multiple physician groups and services	Assign specific units to specific physician services and/or groups based on volume
Hospital operating at or beyond full capacity	Realize that localization is likely to make hospital care more efficient and reduce length of stay
High hospitalist/physician workload	Realize that localization is likely to improve physician efficiency. If needed, reassess and correct staffing levels.
Physicians care for patients in intermediate care, ICU	Consider revising the way admissions are distributed and/or localizing a physician in intermediate care; provide multiple levels of care on same unit
Hospitalist/physician desire for workload equivalence	Emphasize that, in most models, workload may differ on a given day, but is typically equivalent over time
Surges in volume to certain units	Implement a contingency plan such as having one physician on service who is not localized

Unit Nurse-Physician Co-Leadership

In many hospitals, nursing and physician leaders operate in silos, and physician leadership at the unit level may not exist. Unit Nurse-Physician Co-Leadership is a collaborative model in which a nurse leader and physician leader are jointly responsible for quality and quality improvement on their unit. Implementing unit co-leadership can help ensure the success of unit-based physician teams and help with the implementation of enhanced IPR. Essential steps include:

- *Engage key stakeholders*. Partner with key stakeholders, including hospital nursing leadership, physician leadership and the professional development department.
- *Define success using a SMART goal*. For example, set a goal that all intended units have unit nurse-physician co-leadership and/or that training for co-leaders be completed by a set date.
- *Define roles and expectations*. Create a job description, activities and expectations for unit nurse and physician leaders. Compare and contrast the activities of the unit nurse and physician leader and make sure these leaders have a shared understanding of their roles. Specific responsibilities for unit co-leaders may include:
  - Positively reinforcing effective communication and other behaviors that enhance the provision of safe and effective care
  - Providing constructive feedback on individuals' communication skills or other behaviors that interfere with the delivery of safe and effective care
  - Providing an orientation for new staff and physicians rotating onto the unit
  - Facilitating discussion during IPR
  - Scheduling and facilitating ad hoc meetings with patients, their families and team members when especially complex care decisions are required

  Example Roles and Expectations of Unit Co-Leaders are provided in Appendix I.
- *Select co-leaders collaboratively*. In most instances, nursing leadership will exist at the unit level, but physician leadership may not. When adding or replacing unit leaders, applicants for the role should be interviewed by both physician and nurse leaders. Having input from other professions in selecting leaders of interprofessional practice is essential.
- *Support time and effort if possible*. Unit co-leadership is more effective when unit physician leaders have protected time for the role (i.e., a reduction in clinical shift responsibilities so that the individual can dedicate time to unit leader activities). RESET project leaders should advocate for protected time for unit co-leaders. A reasonable goal is to have 10-25% of a physician's time dedicated to the role of unit physician leader. If funding is not available to protect time for a unit physician leader, consider rewarding this person through additional CME funds or through bonus/incentive compensation payments.
- *Develop specific competencies for co-leaders*. For example, co-leaders will be able to:
  - Define and apply principles of patient safety
  - Collaborate effectively with one another, adapting to each other's personality and unique strengths and weaknesses
  - Teach and emulate closed-loop communication skills

- Ensure attendance at IPR by specified disciplines
- Set the expectation that all team members consistently know and use each other's names
- Engage team members and facilitate conversations to create a shared understanding of the plan of care
- Identify and skillfully resolve conflicts that arise among team members
- Elicit systemic safety concerns from staff and formulate plans to address them
- Identify hospital-aligned opportunities for quality improvement in the unit and incorporate hospital resources accordingly

- *Train unit co-leaders*. Develop a plan to train co-leaders for their role. Work with the hospital's professional development or human resources department to identify existing training opportunities. Useful skills for unit co-leaders include providing feedback and coaching, time management and performance improvement. When designing enhanced IPR, simulation can be especially helpful in developing co-leaders' skills in facilitating closed-loop communication.
- *Integrate co-leaders into hospital quality improvement efforts*. Unit co-leaders should be added to the membership of relevant quality management and operational leadership committees and serve on quality improvement project teams working to improve care on their units.

Table 3. Potential Challenges and Solutions for Unit Nurse-Physician Co-Leadership

Potential Challenges	Solutions
Lack of protected time/effort for unit physician leader	Advocate for time/effort for physician leader; acknowledge/reward effort in other ways
Incomplete localization	Optimize localization using the strategies previously described
Lack of resources for training	Identify novel resources (e.g., from departments not initially considered like human resources, simulation)
Role confusion	Define roles and expectations of co-leaders. Ensure that both co-leaders understand the other's role and responsibilities
Co-leaders have competing priorities	Make an effort to limit demands on co-leaders' time (e.g., other meetings) so that they can spend time on their units, especially during enhanced IPR; make regular (e.g., weekly) unit co-leadership meetings a priority

Enhanced Interprofessional Rounds (IPR)

Most hospitals have some form of IPR, but these rounds often do not occur consistently, involve all key individuals or function to create a shared understanding of patient care among team members. In the RESET project, IPR will be redesigned with input from frontline professionals and patients to optimize collaboration and patient engagement. Key steps include:

- *Assemble a unit-based working group to design and implement enhanced IPR*. Include representatives from all team members who will participate in IPR (e.g., physicians, nurses, pharmacists, social workers, patients and family members).
- *Define success using a SMART goal*. For example, IPR will occur ≥5 times a week with the bedside nurse and physician present for patient discussion ≥75% of the time.
- *Distinguish enhanced IPR as a much different, much better process*. As mentioned, many hospitals have some form of IPR. Enhanced IPR functions at a higher level to ensure team members have a shared understanding to ensure provision of safe, effective, patient-centered care.

Table 4. Traditional vs. Enhanced IPR

Feature	Traditional IPR	Enhanced IPR
Leadership	Often missing, inconsistent or representing only one profession	Consistent nurse and physician leadership
Leader preparation	Often none	Trained in patient safety, closed-loop communication and facilitation of discussion
Nurse attendance	Often just the charge nurse	All bedside nurses
Physician attendance	Sporadic	Consistent
Pharmacist attendance	Inconsistent	Consistent
Patient and family involvement	Missing	Designed to engage patient and families to the greatest extent possible
Discussion	Not focused and often relating mainly to discharge planning	Focused using structured communication tools; emphasis on patient safety
Location	Typically in a conference room	Should be at the bedside if at all possible
Frequency	Often ≤3 times a week	Every weekday if not every day
Duration	Often an hour	Bedside: ~2–3 hours Conference room: 30–40 minutes
Feedback	Absent	Co-leaders give positive feedback in IPR, corrective feedback outside IPR
Structured communication tool	Absent	Routinely used to organize discussion and ensure important elements addressed
Coordination between units	Often not present	Emphasized to ensure attendance by all professionals at IPR on all units

- *Determine who should be present for IPR*. Define the team from the patient's perspective. Which professionals need to be on the same page to ensure safe, effective care for the patient? We recommend that the bedside nurse, physician, pharmacist and social worker be present in most cases. Hospitals and units vary in their staffing models and patient populations. Other team members to consider for IPR include physical therapists, dieticians, case managers, respiratory therapy and pastoral care.
- *Determine the format, frequency, duration and location of IPR*. Project leaders should provide guiding principles to unit working groups, but otherwise give them latitude to design IPR. Working groups should select a time for IPR that accommodates unit providers' workflow and priorities of the unit (e.g., early discharge). Involving frontline professionals into the design of IPR will ensure it fits into workflow and provides valuable information for all attendees. IPR should occur at the bedside if possible. Some hospitals hold daily nurse-physician bedside IPR and larger conference room IPR with a larger team (bedside nurses, physicians, pharmacists, social workers, case managers and therapists). A list of online **Videos of Bedside Interprofessional Rounds** and their URLs is available in Appendix J.
- *If you have residents, consider adaptations to teaching*. Conducting IPR at the bedside presents a great opportunity to assess and teach interprofessional collaboration. Lengthy presentations by medical students and residents typically do not work well in bedside IPR. Therefore, consider having learners present newly admitted patients before rounds, especially if the attending uses these presentations to teach clinical reasoning or other clinical topics.
- *Develop a structured communication tool*. The working group should develop a template or script for how conversations in IPR should proceed. This tool will ensure that key elements are routinely discussed. Example elements include those related to patient safety precautions, patient goals, plan of care for the day and discharge plans. Designate specific participants in IPR who will routinely address the elements listed in the structured communication tool. **Examples of Structured Communication Tools Used in Interprofessional Rounds** are provided in Appendix K.
- *Train co-leaders*. The RESET project leaders should provide training to unit co-leaders to develop their skills in facilitating conversations in IPR. Co-leaders need to control the pace and depth of discussion, pull some team members into the conversation and move others along. The overarching goal of IPR is to ensure team members have an opportunity to share clinical information and collaborate to make better decisions on behalf of their patients.
- *Monitor and adjust*. Unit working groups should continue to meet after enhanced IPR is implemented to evaluate success and determine what adjustments need to be made. Project leaders should observe IPR during initial weeks of implementation to see if they are being implemented as planned. Attendance of professionals should be compared with expectations set during planning. If IPR is taking place on more than one unit, then unit co-leaders should occasionally observe IPR on other units to learn and share best practices.

- *Anticipate and navigate challenges*. One common challenge to IPR is poor localization of physicians, making it hard for physicians to attend. Thus, optimizing physician localization will improve the likelihood that IPR succeeds. During initial implementation, expect that IPR may seem inefficient. As team members learn to present information succinctly and how to ask for clarification, efficiency will improve. Another common challenge occurs when a team member routinely has patients on more than one unit, such as when a pharmacist supports two units. Coordinating the timing of IPR across units can often allow team members to attend multiple IPRs. Allowing team members to call into IPR (i.e., using speakerphone) can also be helpful.
- *Coordinate team member presence for IPR*. When IPR occurs at the bedside, it is often helpful to have the charge nurse coordinate the timing of team members' involvement. For example, the charge nurse can alert nurse B when the physician is about to finish with nurse A's patients so that nurse B can seamlessly join the physician for subsequent patients. IPRs occurring in conference rooms often require similar coordination of team members' presence at specific times. In all instances, set the expectation for punctual arrival of team members.
- *Concern related to large teams coming to the bedside.* Some patients may not feel comfortable with large teams coming to the bedside. In our experience, this occurs far less often than hospital leaders might think. One common approach is to have a team member (e.g., bedside nurse) inform the patient that IPR will take place and give the patient the opportunity to opt out.
- *Incapacitated patients.* We encourage hospitals to conduct IPR at the bedside, even for incapacitated patients. These patients are often at especially high risk for adverse events, and observing the patient together can ensure team members are on the same page.

Table 5. Potential Challenges and Solutions for Enhanced IPR

Team members are busy	Emphasize that IPR should improve efficiency due to better communication; give bedside nurses 5-10 minutes "lead" time so they can wrap up current tasks and be present for rounds
Incomplete localization of physicians	Optimize localization of physicians using the strategies previously described
Difficulty coordinating team member workflow	Include frontline professionals in design of IPR
IPR not perceived as value added	Celebrate instances in which patient care was improved as a result of IPR
Attendance by team members is low	Explore challenges to attendance, leverage support of unit co-leaders
Discussion in IPR is inefficient	Train co-leaders to facilitate discussion; consider whether a change in format or structured communication tool is needed

Unit-Level Performance Reports

Most hospitals have performance dashboards, but relatively few have developed performance reports for individual units. Unit-level performance reports are designed to give unit leaders and frontline professionals relevant, interpretable, actionable data. Unit-level performance reports are more impactful if unit-based physician teams and unit nurse-physician co-leadership have been successfully implemented. Essential steps include:

- *Engage key stakeholders.* Include representatives from key stakeholder groups, such as unit nurse and physician leaders and members of the information technology and/or analytics departments. To support engagement of unit staff, consider involvement of select frontline healthcare providers in formulation of performance report metrics.
- *Create real-time reports*. In addition to the unit-level performance reports that are assembled at regular intervals to allow leaders to retrospectively evaluate performance and adjust strategies over time, create other reports to identify opportunities to improve care for patients, in near real-time, during their hospitalization. These reports can be especially helpful during IPR to identify opportunities for team members to discuss potential safety issues (e.g., patients with central lines, not on venous thromboembolism prophylaxis, etc.). An **Example Near-Real-Time Unit Report for Co-Leaders** is provided in Appendix L.
- *Define success using a SMART goal*. For example, unit co-leaders will jointly review the unit dashboard every month and/or real-time unit reports will be used in IPR ≥75% of the time.
- *Align unit-level measures and goals with hospital-level measures and goals*. Improvement efforts should be aligned across all levels of the organization. Leverage existing reports and analytics support. If certain hospital-level measures apply to the project units, the hospital's analytics department can often use the same measures to create a report for patients on the unit.
- *Make unit-level performance reports accessible and relevant to frontline professionals*. Display performance reports on the unit and review performance regularly in staff meetings.

Table 6. Potential Challenges and Solutions for Unit-Level Performance Reports

Potential Challenges	Solutions
Information technology department has limited time to create/enhance reports	Leverage support from senior leaders and/or executive sponsors
Information systems have limited functionality	Do not shoot for perfection. A good report is better than no report.
Reports are not integrated into workflow	Involve users into the design of reports
Reports are not perceived as valuable	Involve users into the design of reports

Patient Engagement Activities

Patient engagement is associated with fewer adverse events and hospital readmissions, yet many hospitalized patients have a poor understanding of their plan of care and few opportunities to partner with clinicians on decisions. Patient engagement strategies are methods to continually inform and engage patients and families as partners in care. A multifaceted approach, using complementary strategies, is most likely to improve engagement. Essential steps include:

- *Engage key stakeholders*. Include representatives from key stakeholder groups, such as unit nurses, physicians, the hospital's patient experience department and, most importantly, patients and family member representatives.
- *Define success using a SMART goal*. We recommend selecting three to four strategies and setting a goal that they will be used ≥75% of the time. For example, IPR will be conducted at the bedside for ≥75% of patients. Another example is that the whiteboard in patient rooms will have the correct names of team members and patients' goals for the day listed >75% of the time. Once initial engagement goals are achieved, add new strategies or set higher goals for strategies used.
- *Collaborate with the hospital's Patient and Family Advisory Council*. Many hospitals have Patient and Family Advisory Councils. If a council exists, schedule a time to present the RESET project to the council and seek their input, especially with regard to patient and family engagement strategies. If a council does not exist, consider partnering with hospital leaders to develop one.
- *Select three to four patient engagement strategies to implement or enhance*:
    - *Whiteboards.* Many hospitals use whiteboards in patient rooms to convey important information and serve as a memory aid for the patient. If a template does not already exist, create one, with input from professionals, patients and family members to ensure that key items are documented on the whiteboard. Once a template is established, make sure the whiteboards are being used as planned. Define expectations for who is to complete each section. Make sure dry erase markers are easy to find and that no other barriers exist to the use of the whiteboard.
    - *Bedside nurse change-of-shift reports.* Nurse change-of-shift reports vary in their format and location. Conducting nurse change-of-shift reports at the bedside allows the patient and family to get updated, detailed information about the plan of care. The report format should be revised to invite patients and families to ask questions and confirm agreement and understanding of the plan.
    - *Bedside IPR.* Similar to the points made above, conducting IPR at the bedside allows patients and families to partner with professionals. Coordinating the workflow of the professionals who attend bedside IPR can be challenging, but is facilitated with unit-based physician teams and unit nurse-physician co-leadership. Many hospitals have the charge nurse (or similar role) coordinate presence of team members during rounds. As the physician finishes rounds with one nurse's patients, the charge nurse will alert the next nurse to get ready to join the physician for subsequent patients.
    - *Clinician facecards.* Patients have trouble remembering the names and roles of everyone helping to care for them. Some hospitals have created facecards for physicians to provide

to patients. The facecards include the physician's picture, name and brief description of their role. As for all interventions, project leaders should confirm that tools are being used regularly and as intended. An Example Physician Facecard is provided in Appendix M.

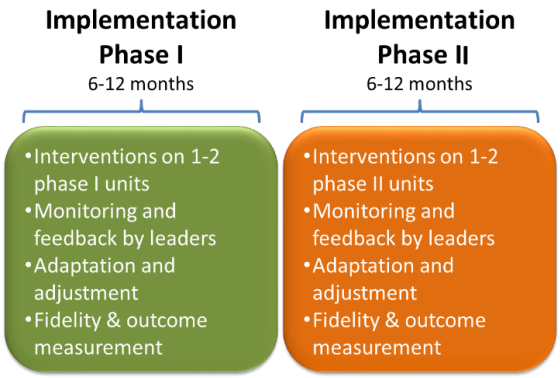
- *Leadership rounds.* Unit co-leaders should conduct leadership rounds every one to two weeks. These rounds differ from IPR. The goal is for unit co-leaders to learn about patient and family experiences. These rounds often identify systemic issues that need to be addressed. Rounds should also focus on the workload and workflow of professionals with a goal to identify ways to support professionals in their work.
- *Point-of-care patient satisfaction surveys.* Post-discharge patient satisfaction surveys are extremely helpful, but are difficult to attribute to individual professionals, who crave feedback on their performance. A variety of survey instruments has been developed to collect data on individuals' communication skills. The tools can be administered by volunteers, students or patient experience staff during patients' hospitalizations. The performance data generated is best used as a formative assessment and coupled with communication skills training and/or coaching.
- *Communication skills training and/or coaching.* Many hospitals have patient experience departments that have developed communication skills training and/or use coaches. Collaborate with patient experience leaders in the hospital to develop training and optimize the use of coaches. A fundamental principle is that communication is a skill that can be improved, but requires deliberate practice and expert feedback to improve performance.

Table 7. Potential Challenges and Solutions for Patient Engagement Activities

Potential Challenges	Solutions
Difficulty selecting which strategies to use	Prioritize strategies based on feasibility and impact
Patient engagement not seen as a priority	Include patient and family representatives on project team; seek input from the Patient and Family Advisory Council, or establish such a council if one does not exist
Hard to integrate strategies into workflow	Involve frontline professionals in selection of strategies and implementation
Limited resources	Partner with key stakeholders, such as quality improvement and patient experience departments
Team members are busy/high workloads	Support professionals in their work; enlist the help of unlicensed nursing personnel and other disciplines (e.g., social work, physical therapy) with patient engagement activities

Implementation - Phases I and II

After the project team has adapted the AIMS interventions and developed the implementation plan, it will be time to put those interventions into place. Anticipate the need for adjustment. Despite rigorous planning, unexpected challenges will arise. Here is a high-level summary of steps during Implementation Phase I and Implementation Phase II.



Implementation Phase I

Project teams will implement interventions on phase I units at the beginning of Implementation Phase I. A performance improvement professional or nurse should collect data on the fidelity of implementation (i.e., measuring how well interventions have been implemented as planned). The project team should create fidelity data reports to monitor progress. An Example Fidelity Data Report is available in Appendix N. The project team should continue to meet every other week to review fidelity data and plan adaptation and adjustment of interventions. Similarly, the unit working groups who designed and implemented enhanced IPR for their units should continue meeting during the first 6–10 weeks of implementation to review fidelity data and plan adaptation and adjustment of IPR.

- *Celebrate success*. Generating and sustaining excitement about the interventions is critical. Use group and staff meetings to highlight successes. Include a summary of accomplishments in newsletters and/or post them on internal webpages. Early on, project leaders can report that interventions are being implemented as planned. Stories of patients who benefited from the interventions can be especially compelling. Outcome data will come later and will be especially important for everyone involved in the project.
- *Preparation for Implementation Phase II*. Project teams will begin to plan implementation of AIMS interventions for phase II units as done in the Preparation phase. As done for Implementation Phase I units, project leaders should assemble unit working groups to design enhanced IPR for phase II units. The unit working groups should include frontline healthcare professionals on the phase II units and meet regularly for 8–12 weeks prior to the planned start date of Implementation Phase II.

Implementation Phase II

Project teams should implement the AIMS interventions on phase II units at the beginning of Implementation Phase II. A performance improvement professional or nurse should continue to collect data on the fidelity of implementation, and the project team should create fidelity data reports. The project team should continue to meet every other week to review fidelity data and plan adaptation and adjustment of interventions. Similarly, the Implementation Phase II unit working groups who designed enhanced IPR for their units should continue meeting during the first 6–10 weeks to make adjustments to interventions.

Sustainment

During Sustainment, project leaders will continue to monitor fidelity measures and make needed adjustments to phase I and II units. Project leaders will continue to spread the interventions to other units, as appropriate. Project leaders should also consider collaborating with other hospitals within their system to implement interventions across other sites. An essential feature of Sustainment is the identification of potential threats to interventions and the creation of plans for response. Common threats and strategies to mitigate risk include the following:

- *Bed capacity constraints*. Operating at or beyond full capacity threatens unit-based physician teams. If unit-based physician teams erode, other intervention components are at risk. Track trends in patient volume and calculate projected needs far into the future. If bed capacity is, or will be, constrained, work with hospital leaders to determine whether revisions to bed allocation need to be made or whether bed expansion should be considered.
- *Development of new clinical services*. New services may need dedicated space. Collaborate with leaders of new services to determine whether patients for the new service will come from an existing service or growth in patient volumes. Work to define shared interests and solutions and consider extending AIMS interventions onto the new service.
- *Refurbishment and changes to the hospital facility*. Hospitals continually update and change their facilities. Collaborate with hospital leaders to ensure planned changes are known long before they occur. Partner with hospital leaders to develop plans to preserve and enhance AIMS interventions.
- *Staffing shortages*. Recruitment and retention is a challenge for many categories of healthcare professionals. Make sure that leaders within each profession are communicating regularly about potential staffing challenges and working together to make adaptations to AIMS interventions accordingly.
- *Competing priorities*. A variety of competing priorities can threaten interventions, including hospital mergers, leadership turnover and financial pressures. RESET project leaders should be communicating with hospital leaders regularly to identify upcoming challenges and create contingency plans. Project leaders can also mitigate risk related to competing priorities by giving regular updates to hospital leaders about the benefits seen with the AIMS interventions. If hospital leaders perceive the AIMS interventions to be having a positive impact on patient care, they will be more likely to help preserve and strengthen them.

Data Collection and Project Measures

The ability to collect data locally, to assess both the fidelity of implementation and patient outcomes, is essential to the success of RESET.

Measures collected for RESET include fidelity measures, teamwork climate and patient outcomes related to patient safety, patient experience and efficiency. We believe the measures most likely to improve as a result of the AIMS interventions are those related to teamwork climate and patient safety.

Fidelity measures. A number of measures will assess the fidelity of implementation across each phase (see Table 8). Fidelity data should be collected by a performance improvement professional or nurse during brief interviews of physicians and direct observations.

Teamwork climate and organizational readiness for change. The RESET project team should administer an annual survey to all nurses, physicians, pharmacists, social workers and case managers on study units to assess teamwork climate. The initial survey will also include an assessment of organizational readiness for change. The project team should obtain the names, email addresses and professional type for individuals on both phase I and phase II units. The survey can be administered using SurveyMonkey or another Internet-based survey tool. Project leaders should promote completion of the survey, and non-responders should receive up to five reminder emails to optimize response rates.

- *Organizational Readiness for Implementing Change (ORIC).* As mentioned earlier in the Preparation section, ORIC is a 12-item instrument that measures two core constructs: change commitment and change efficacy. The **ORIC** survey is provided in Appendix E.
- *Teamwork Climate Survey.* Project teams should assess teamwork climate using the Safety Attitudes Questionnaire (SAQ). The SAQ teamwork climate domain includes 14 questions and generates a score from 0-100. The **Teamwork Climate Survey** is provided in Appendix F.

Patient outcome measures. Project teams should assess adverse events, patient experience and efficiency outcomes.

- *Adverse events*. Most hospitals collect and report many types of adverse events (e.g., catheter-associated urinary tract infections, falls with injury, etc.) as part of regulatory requirements. The project team should determine what types of adverse events are being collected and work to create reports of these measures for the phase I and phase II units. These reports should evaluate rates of adverse events before, during and after implementation of the AIMS interventions. Run charts and control charts can be especially helpful to assess changes in performance for each unit over time.
- *Patient experience*. The project team should create reports using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) global ratings of hospital care to assess the AIMS interventions impact on patient experience. Other items within the HCAHPS survey may also be of interest, depending on the hospital's priorities and goals for the AIMS interventions. These reports should evaluate patient experience before, during and after implementation of the AIMS interventions. Run charts and control charts can be especially helpful to assess changes in performance for each unit over time.
- *Efficiency measures*. The project team should create reports to assess efficiency of care using hospital length of stay (LOS) and 30-day readmissions. These reports should evaluate LOS and readmissions before, during and after implementation of the AIMS interventions. Run charts and control charts can be especially helpful to assess changes in performance for each unit over time.

Table 8. Fidelity Measures by AIMS Intervention Component

Intervention Component	Description	Data Collection (Frequency)
Unit-Based Physician Teams		
Physician units	Number of units each physician cares for patients	Unannounced interviews of physicians (10/mo.)
Percent localized	Percentage of physicians' patients on designated unit	Unannounced interviews of physicians (10/mo.)
Enhanced Interprofessional Rounds (IPR)		
Frequency of IPR by unit	Number of times IPR is completed per week	Direct observations (10/mo.)
Presence of physicians	Presence of physicians at IPR for no, some or all patients	Direct observations (10/mo.)
Presence of nurses	Presence of nurses at IPR for no, some or all patients	Direct observations (10/mo.)
Presence of pharmacists	Presence of pharmacists at IPR for no, some or all patients	Direct observations (10/mo.)
Location of IPR	Location of IPR (bedside, hallway, conference room, other)	Direct observations (10/mo.)
Patient Engagement Activities		
Provider names on whiteboard	Correct names of nurse and primary physician on whiteboard	Direct observations (10/mo.)
Goals on whiteboard	Presence of ≥1 patient goal on whiteboard	Direct observations (10/mo.)
Nursing bedside reports	Shift reports at bedside (never, sometimes, always)	Direct observations (10/mo.)

Appendix A: Project Milestones

Milestone	Month									
	1	2	3	4	5	6	7	8	9	10
Project Team Meetings (2x/mo.)	X	X	X	X	X	X	X	X	X	X
Complete Readiness Assessment	X									
Identify Phase I & II Units	X									
Develop a Charter	X									
Teamwork Climate Survey of Professionals	X					X				X
Develop Data Collection Plan		X								
Develop Implementation Plan for Phase I Unit(s)		X								
Develop Communication Plan		X								
Collect Outcomes Data		X								
Interventions Implemented on Phase I Unit(s)			X	X	X	X	X	X	X	X
Fidelity and Outcome Measure Collection			X	X	X	X	X	X	X	X
Adaptation/Adjustment of Interventions			X	X						
Develop Implementation Plan for Phase II Unit(s)						X				
Interventions Implemented on Phase II Unit(s)							X	X	X	X
Develop Plan to Implement AIMS Interventions on Remaining Units									X	
Adaptation/Adjustment of Interventions									X	X
Identification of Threats to Sustainment									X	X

Appendix B: Example Project Charter

Project Overview

Problem Statement: Multiple challenges impede optimal care for hospitalized medical patients. Physicians care for patients on numerous units and have few opportunities to collaborate with other team members and partner with patients and family members. As a result, teamwork (include results of baseline teamwork climate scores) and patient outcomes (include data for outcomes important to your hospital) are suboptimal.

Goal/Benefit: We will improve teamwork climate by X% on (phase I units) by spring YYYY. We will improve (outcomes important to your hospital) by X% by (reasonable time frame).

Scope: The RESET project will implement 5 AIMS interventions on (phase I unit) in phase I. The AIMS intervention will be implemented on (phase II units) in phase II.

System Capabilities/Deliverables: The RESET project will involve the implementation of 1) Unit-Based Physician Teams, 2) Unit Nurse-Physician Co-Leadership, 3) Enhanced Interprofessional Rounds (IPR), 4) Unit-Level Performance Reports and 5) Patient Engagement Activities.

Resources Required: Space for RESET project meetings, support for revision of admission procedures and potential bed reallocation, effort support for unit physician leaders, information technology support for performance reports and project data and patient experience support. A quality improvement professional or nurse is needed and will receive external funding for data collection and project management activities.

Key Metrics

Outcome Metric(s):

- Teamwork Climate
- Adverse Events
- Patient Satisfaction
- Length of Stay
- 30-day Readmissions

Process Metric(s):

- % physician with patients on ≤2 units
- % time physician and nurse present for IPR
- % time IPR done at bedside

Milestones

Description	Date (MM/YY)
• Define	04/20-05/20
• Measure	05/20-06/20
• Analyze	07/20-09/20
• Improve	10/20-09/21; Phase I
	10/21-09/22; Phase II
• Control	10/23

Project Team

Exec Sponsor: (Chief Medical and Nurse Officers or equivalent)

Sponsor(s): (Mid-level leaders)

Process Owner(s): (Unit co-leaders)

Improvement Leader: (Project physician and nurse leaders)

Team Members: (Members of RESET project team)

Appendix C: Example RESET Elevator Speech

Colleague, senior leader or patient asks you about RESET:

RESET addresses system challenges we face in caring for hospitalized medical patients. Doctors, nurses and other team members have few opportunities to effectively collaborate with one another and few opportunities to engage patients and families as partners in care. We are redesigning aspects of the system to make sure that team members are in the same place at the same time and having collaborative discussions to provide better, more patient-centered care. We are measuring teamwork and patient outcomes to assess the benefit of our interventions.

Appendix D: Assessment of Current State and Readiness Survey

To help you prepare for implementing the AIMS interventions, please complete this RESET Assessment of Current State and Readiness Survey. The information will help you reflect on past efforts, anticipate challenges and identify strategies to ensure success. This information will also serve as a starting point for the development of your implementation plan.

1. Please provide the first and last name(s) of the individual(s) completing this assessment:

   _____

Hospital Characteristics

Certain characteristics of your hospital may influence how you will adapt the AIMS interventions for implementation in your hospital.

2. Which statement best describes your hospital's occupancy level?
   - ○ We have open beds almost all the time
   - ○ We are nearly full most of the time
   - ○ We are full (i.e., at or beyond 100% occupancy) most of the time

3. What is the staffing model for your medical intensive care unit (ICU)?
   - ○ Closed unit. Intensivists staff all ICU patients
   - ○ Open unit. Non-intensivists staff their patients in the ICU
   - ○ Other, please describe: _____

4. What are your hospital's strategic priorities for the coming year? _____

5. What major changes are planned for your hospital in the coming year? _____

6. Does your hospital provide care to general medicine patients through a hospitalist service without residents?
   - ○ Yes
   - ○ No (Skip to question 13)

7. For how many patients per day does a physician normally provide care on the hospitalist service without residents?
   - ○ ≤10
   - ○ 11-13
   - ○ 14-16
   - ○ 17-19
   - ○ 20-22
   - ○ ≥23

8. Do physicians work with Advanced Practice Providers (i.e., nurse physicians or physician assistants) on the hospitalist service without residents?
   - ○ Yes
   - ○ No

9. Does your hospital provide care to general medicine patients through a teaching service with residents?
   - ○ Yes
   - ○ No

10. For how many patients per day does a physician normally provide care on the teaching service with residents?
    - ○ ≤10
    - ○ 11-13
    - ○ 14-16
    - ○ 17-19
    - ○ 20-22
    - ○ ≥23

11. Do physicians work with Advanced Practice Providers (i.e., nurse physicians or physician assistants) on the teaching service with residents?
    - ○ Yes
    - ○ No

12. Do traditional internists/family practice physicians also care for their own hospitalized medical patients in your hospital (i.e., without hospitalists or residents)?
    - ○ Yes
    - ○ No

13. Are there staffing shortages for nurses, physicians or other healthcare professionals at your hospital?
    - ○ Yes, please describe: _____
    - ○ No

AIMS Interventions

In the RESET project, hospitals will implement the Advanced and Integrated MicroSystems interventions. The AIMS interventions include:

- Unit-Based Physician Teams: Localization of physicians to a minimal number of units
- Unit Nurse-Physician Co-Leadership: Nurse and physician leaders are jointly responsible for quality of care on their unit
- Enhanced Interprofessional Rounds: Interprofessional rounds redesigned to optimize collaboration and patient engagement
- Unit-Level Performance Reports: Performance reports designed to give relevant, actionable data at the unit level
- Patient Engagement Activities: Methods to inform and engage patients and families

The following questions assess the hospital's experience with each AIMS intervention.

Unit-Based Physician Teams

14. What experience, if any, have you had with implementing unit-based physician teams? (please be brief, 2–3 sentences will suffice) _____

    _____

15. What challenges do you anticipate in implementing unit-based physician teams? _____

    _____

16. What factors will serve to assist in the successful implementation of unit-based physician teams?

    _____

Unit Nurse-Physician Co-Leadership

17. What experience, if any, have you had with implementing unit nurse-physician co-leadership? (please be brief, 2–3 sentences will suffice) _____

    _____

18. What challenges do you anticipate in implementing unit nurse-physician co-leadership? _____

    _____

19. What factors will serve to assist in the successful implementation of unit nurse-physician co-leadership? _____

Enhanced Interprofessional Rounds

20. What experience, if any, have you had with implementing enhanced interprofessional rounds? (please be brief, 2–3 sentences will suffice) _____

21. What challenges do you anticipate in implementing enhanced interprofessional rounds?

_____

22. What factors will serve to assist in the successful implementation of enhanced interprofessional rounds? _____

Unit-Level Performance Reports

23. What experience, if any, have you had with implementing unit-level performance reports? (please be brief, 2–3 sentences will suffice) _____

24. What challenges do you anticipate in implementing unit-level performance reports?

_____

25. What factors will serve to assist in the successful implementation of unit-level performance reports? _____

Patient Engagement Activities

26. What experience, if any, have you had with implementing patient engagement activities? (please be brief, 2–3 sentences will suffice) _____

27. What challenges do you anticipate in implementing patient engagement activities? _____

_____

28. What factors will serve to assist in the successful implementation of patient engagement activities? _____

Phase I and Phase II Units

RESET requires that 1–2 units be designated for implementation of the AIMS interventions in phase I and an additional 1–2 units be designated for implementation in phase II.

The following questions are about the phase I units.

29. Which unit will serve as the FIRST phase I unit? _____

30. How many beds are on this unit? _____

31. For how many patients does a nurse typically provide care during a weekday shift?
    - ○ 3
    - ○ 4
    - ○ 5
    - ○ 6
    - ○ Other, please describe: _____

32. What types of shifts do nurses on the unit work?
    - ○ 8 hour
    - ○ 12 hour
    - ○ Combination

33. Do nurse manager(s) for the unit have responsibilities beyond serving as the unit nurse manager?
    - ○ Yes, please describe: _____
    - ○ No

34. Do you have a SECOND phase I unit?
    - ○ Yes
    - ○ No (Skip to question 40)

35. Which unit will serve as the SECOND phase I unit? _____

36. How many beds are on this unit? _____

37. For how many patients does a nurse typically provide care during a weekday shift?
    - ○ 3
    - ○ 4
    - ○ 5
    - ○ 6
    - ○ Other, please describe: _____

38. What types of shifts do nurses on the unit work?
    - ○ 8 hour
    - ○ 12 hour
    - ○ Combination

39. Do nurse manager(s) for the unit have responsibilities beyond serving as the unit nurse manager?
    - ○ Yes, please describe: _____
    - ○ No

The following questions are about the phase II units.

40. Which unit will serve as the FIRST phase II unit? _____

41. How many beds are on this unit? _____

42. For how many patients does a nurse typically provide care during a weekday shift?
    - ○ 3
    - ○ 4
    - ○ 5
    - ○ 6
    - ○ Other, please describe: _____

43. What types of shifts do nurses on the unit work?
    - ○ 8 hour
    - ○ 12 hour
    - ○ Combination

44. Do nurse manager(s) for the unit have responsibilities beyond serving as the unit nurse manager?
    - ○ Yes, please describe: _____
    - ○ No

45. Do you have a SECOND phase II unit?
    - ○ Yes
    - ○ No (Skip to end of survey)

46. Which unit will serve as the second phase II unit? _____

47. How many beds are on this unit? _____

48. For how many patients does a nurse typically provide care during a weekday shift?
    - ○ 3
    - ○ 4
    - ○ 5
    - ○ 6
    - ○ Other, please describe: _____

49. What types of shifts do nurses on the unit work?
    - ○ 8 hour
    - ○ 12 hour
    - ○ Combination

50. Do nurse manager(s) for the unit have responsibilities beyond serving as the unit nurse manager?
    - ○ Yes, please describe: _____
    - ○ No

Appendix E: Organizational Readiness for Implementing Change (ORIC) Survey

Introduction: To improve the quality of care, the hospital is planning to implement a set of complementary interventions to redesign the system in which hospitalized medical patients receive care. These interventions include: 1) Unit-Based Physician Teams, 2) Unit Nurse-Physician Co-Leadership, 3) Enhanced Interprofessional Rounds, 4) Unit-Level Performance Reports, 5) Patient Engagement Activities. We need your help in assessing the hospital's readiness for change. Please rate your agreement to the following statements.

1	2	3	4	5
Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree

1.	People who work here feel confident that the organization can get people invested in implementing this change.	1	2	3	4	5
2.	People who work here are committed to implementing this change.	1	2	3	4	5
3.	People who work here feel confident that they can keep track of progress in implementing this change.	1	2	3	4	5
4.	People who work here will do whatever it takes to implement this change.	1	2	3	4	5
5.	People who work here feel confident that the organization can support people as they adjust to this change.	1	2	3	4	5
6.	People who work here want to implement this change.	1	2	3	4	5
7.	People who work here feel confident that they can keep the momentum going in implementing this change.	1	2	3	4	5
8.	People who work here feel confident that they can handle the challenges that might arise in implementing this change.	1	2	3	4	5
9.	People who work here are determined to implement this change.	1	2	3	4	5
10.	People who work here feel confident that they can coordinate tasks so that implementation goes smoothly.	1	2	3	4	5
11.	People who work here are motivated to implement this change.	1	2	3	4	5
12.	People who work here feel confident that they can manage the politics of implementing this change.	1	2	3	4	5

Shea CM, Jacobs SR, Esserman DA, Bruce K, Weiner BJ. Organizational readiness for implementing change: a psychometric assessment of a new measure. *Implement Sci.* 2014;9:7.

Appendix F: Teamwork Climate Survey

Introduction: We are interested in learning about teamwork in the area in which you work. Please rate your agreement to the following statements

1	2	3	4	5	NA
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable

1.	Nurse input is well received in this clinical area.	1	2	3	4	5	NA
2.	In this clinical area, it is difficult to speak up if I perceive a problem with patient care.	1	2	3	4	5	NA
3.	Decision-making in this clinical area utilizes input from relevant personnel.	1	2	3	4	5	NA
4.	The physicians and nurses here work together as a well-coordinated team.	1	2	3	4	5	NA
5.	Disagreements in this clinical area are resolved appropriately (i.e., not who is right, but what is best for the patient).	1	2	3	4	5	NA
6.	I am frequently unable to express disagreement with the attendings/staff physicians here.	1	2	3	4	5	NA
7.	It is easy for personnel here to ask questions when there is something that they do not understand.	1	2	3	4	5	NA
8.	I have the support I need from other personnel to care for patients.	1	2	3	4	5	NA
9.	I know the first and last names of all the personnel I worked with during my last shift.	1	2	3	4	5	NA
10.	Important issues are well communicated at shift changes.	1	2	3	4	5	NA
11.	Briefing personnel before the start of a shift (i.e., to plan for possible contingencies) is important for patient safety.	1	2	3	4	5	NA
12.	Briefings are common in this clinical area.	1	2	3	4	5	NA
13.	I am satisfied with the quality of collaboration that I experience with the staff physicians in this clinical area.	1	2	3	4	5	NA
14.	I am satisfied with the quality of collaboration that I experience with the nurses in this clinical area.	1	2	3	4	5	NA

Sexton JB, Helmreich RL, Neilands TB, et al. The Safety Attitudes Questionnaire: psychometric properties, benchmarking data and emerging research. *BMC Health Serv Res.* 2006;6:44.

Appendix G: Example Implementation Work Plan Template

Last updated: [date]

Work plan to be used for implementation and sustainment of the RESET project

Status Key:	
Complete	Concerns
On Track	At Risk

Redesigning Systems to Improve Quality for Hospitalized Patients Project

#	Action/Milestone	Notes	Start Date	Due Date	Owner	Status
1.0	**Project Leadership, Project Team, Working Groups**					
1.1	Have Project Leadership Meetings (every other wk)	Scheduled	4/02/20	Ongoing	Project leaders	On Track
1.2	Meetings with Project Team (every other wk)	Scheduled	4/09/20	Ongoing	Project leaders	On Track
1.3	Identify Phase I and Phase II Units	Project leaders to discuss with CNO and CMO	4/02/20	4/27/20	Project leaders	Concerns
1.4	Assemble Phase I and Unit Working Groups to Design Enhanced IPR	Need to confirm Phase I Units	4/02/20	4/27/20	Unit co-leaders	Concerns
1.5	Read RESET Implementation Guide and Appendices	Distributed to project team	4/02/20	4/27/20	Project team	On Track
2.0	**Hospital Oversight/Integration into Quality**					
2.1	Obtain Institutional Approval and Support	Present to Medicine and Nursing Quality Committees	5/01/20	5/31/20	Project leaders	On Track
2.2	Create a RESET Project Charter	Determine whether we can add QI staff to project	5/01/20	5/31/20	Project leaders	On Track
2.3	Establish Executive Sponsor	Meet with CMO and CNO	4/02/20	4/27/20	Project leaders	On Track
2.4	Meet with Other Key Stakeholders	Bed assignment, other hospitalist group, etc.	4/15/20	5/31/20	Project leaders	On Track
3.0	**Assessing Readiness**					
3.1	Complete Current State and Readiness Assessment	Need to start	4/02/20	4/27/20	Project leaders	On Track
3.2	Assist in Administration of Baseline Teamwork Climate and ORIC Survey	Get info for physicians, RNs, SW, Rx	4/15/20	5/31/20	Project leaders	On Track
4.0	**Etc.**					
4.1	Etc.					

Appendix H: Example Communication Plan Template

Audience	Message/ Takeaway	Frequency	Delivery Method	Delivery Date(s)	Sender
Hospitalists	RESET project updates	Monthly	Regular group meeting	Last Friday of each month	Group leader
Hospitalists	RESET project updates	Twice a month	Emailed newsletter	1st and 2nd Mondays	Group administrator
Nurses on phase I unit	RESET project updates	Weekly	During daily huddle	Rotating to hit all nurses	Nurse manager
Nurses on phase I unit	RESET project updates	Twice a month	Emailed newsletter	1st and 2nd Mondays	Nurse manager
etc.	etc.	etc.	etc.	etc.	etc.
etc.	etc.	etc.	etc.	etc.	etc.

Appendix I: Example Roles and Expectations of Unit Co-Leaders

Unit Nurse-Physician Co-Leadership is a collaborative model in which a nurse leader and physician leader are jointly responsible for quality and quality improvement on their unit. In many hospitals, implementation of Unit Nurse-Physician Co-Leadership involves creation of new roles or revision of existing roles. Below is an example list of expectations for unit co-leaders.

Unit Physician Leader Role

- Physician Leadership
  - Engage physicians toward common unit goals
  - Provide orientation of new physicians to unit
  - Provide guidance on escalation/conflict resolution
- Patient Care/Clinical Leadership
  - Co-lead daily interprofessional rounds
  - Provide informational continuity for patients whose hospitalizations cross physician rotations
  - Co-lead weekly meetings addressing patients with long lengths of stay
  - Identify key metrics critical to patient care on the unit
  - Proactively address roadblocks to meet unit goals
  - Co-lead incorporation of ancillary staff/departments into the co-leadership model
- Quality of Care
  - Engage in active measurement and action planning using unit dashboards
  - Sponsor/Lead unit-based quality improvement initiatives
  - Champion for patients for securing support for unit-focused services

Unit Nurse Leader Role

- Nurse Leadership
  - Engage unit staff (RN, patient care technicians, Unit Secretary) toward common unit goals
  - Provide guidance on escalation/conflict resolution
- Patient Care/Clinical Leadership
  - Co-lead daily interprofessional rounds
  - Provide informational continuity for patients whose hospitalizations cross physician rotations
  - Co-lead weekly meetings addressing patients with long lengths of stay
  - Identify key metrics critical to patient care on the unit
  - Proactively address roadblocks to meet unit goals
  - Co-lead incorporation of ancillary staff/departments into the co-leadership model
- Quality of Care
  - Engage in active measurement and action planning using unit dashboards

- Sponsor/Lead unit-based quality improvement initiatives
- Champion for patients for securing support for unit-focused services

Unit co-leaders should have regularly scheduled activities/meetings, including the following:

- Meetings with one another to review unit performance and discuss improvement efforts
- *Patient experience rounding*: Unit co-leaders jointly round on a sample of unit patients to learn about patient experience issues, perform service recovery and identify systemic issues to address
- *Long length-of-stay meetings*: Unit co-leaders meet every other week with the social worker +/- case manager, +/- physicians to discuss and navigate barriers for patients on the unit with long lengths of stay
- *Medicine Interprofessional Council*: All medicine unit physician leaders and unit nurse leaders meet every other week to review unit performance for medicine units and discuss improvement efforts

Appendix J: Videos of Bedside Interprofessional Rounds

University of Cincinnati

Patient Centered Care: Menu of videos related to interprofessional bedside rounds

The Value of Interprofessional Rounds (IPR): Vignettes without bedside IPR (usual care) and with bedside IPR

Patient-Centered Bedside Rounds (PCBR) Overview-University of Cincinnati Internal Medicine Residency: Complete overview of patient-centered bedside rounds

Internal Medicine Project RENEW Part 1: Example of bedside IPR with patient highlighting team introduction, role assignments, case presentation and physical exam

Internal Medicine Project RENEW Part 2: Example of bedside IPR highlighting use of computer and checklist

Internal Medicine Project RENEW Part 3: Example of bedside IPR highlighting review of plan, teachback and order readback

Virginia Commonwealth University (VCU)

Structured Interdisciplinary Bedside Rounds (SIBR): Testimonials from patients and professionals

SIBR Video Training 1: VCU SIBR training video with real patient interaction highlighting scripts/ assignments for each role

Emory

Accountable Care Unit - Structured Interdisciplinary Rounds (SIDR): Description/example of SIDR

Florida Hospital

Physician Nurse Rounding: Description of implementation with a lot of humor, but no example

Kaiser Permanente South Sacramento

Multidisciplinary Rounding Movie: Description and brief example of multidisciplinary rounds

Clinical Excellence Commission (Australia)

Structured Wards Rounds – Patricia's Story (Jan 2015): Patient and professional testimonials and description, but no example

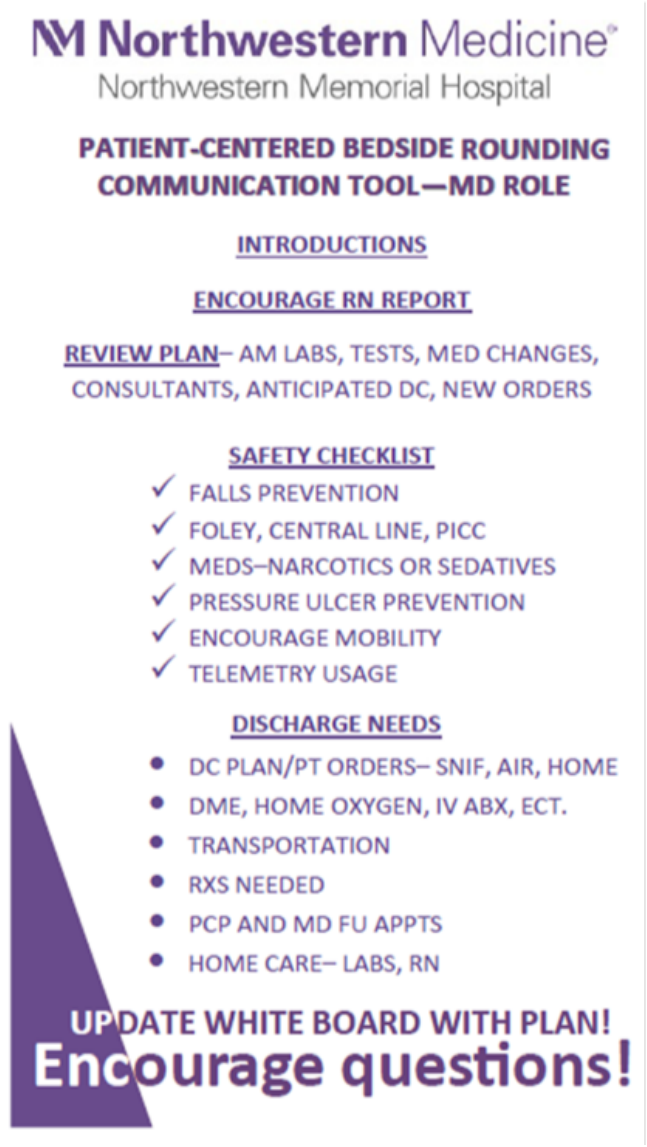
Northwestern Memorial Hospital

Video for SIDR Hospitalist Service and Teaching Service: Example of SIDR not at bedside

PCBR Video (password=resetproject): Example of PCBR including physician and nurse

Appendix K: Examples of Structured Communication Tools Used in Interprofessional Rounds

Northwestern Medicine Patient-Centered Bedside Rounding Communication Tool



Northwestern Medicine®
Northwestern Memorial Hospital

PATIENT-CENTERED BEDSIDE ROUNDING COMMUNICATION TOOL—MD ROLE

INTRODUCTIONS

ENCOURAGE RN REPORT

REVIEW PLAN– AM LABS, TESTS, MED CHANGES, CONSULTANTS, ANTICIPATED DC, NEW ORDERS

SAFETY CHECKLIST

- ✓ FALLS PREVENTION
- ✓ FOLEY, CENTRAL LINE, PICC
- ✓ MEDS–NARCOTICS OR SEDATIVES
- ✓ PRESSURE ULCER PREVENTION
- ✓ ENCOURAGE MOBILITY
- ✓ TELEMETRY USAGE

DISCHARGE NEEDS

- DC PLAN/PT ORDERS– SNIF, AIR, HOME
- DME, HOME OXYGEN, IV ABX, ECT.
- TRANSPORTATION
- RXS NEEDED
- PCP AND MD FU APPTS
- HOME CARE– LABS, RN

UPDATE WHITE BOARD WITH PLAN!

Encourage questions!

Northwestern Medicine®
Northwestern Memorial Hospital

PATIENT-CENTERED BEDSIDE ROUNDING COMMUNICATION TOOL—RN ROLE

INTRODUCTIONS

UPDATE TEAM ON WHITE BOARD

REVIEW RN REPORT FROM OVERNIGHT

SAFETY CHECKLIST

- ✓ FALLS PREVENTION
- ✓ FOLEY, CENTRAL LINE, PICC
- ✓ MEDS–NARCOTICS OR SEDATIVES
- ✓ PRESSURE ULCER PREVENTION
- ✓ ENCOURAGE MOBILITY
- ✓ TELEMETRY USAGE

DISCHARGE NEEDS

- DC PLAN/PT ORDERS– SNIF, AIR, HOME
- DME, HOME OXYGEN, IV ABX, ECT.
- TRANSPORTATION
- RXS NEEDED
- PCP AND MD FU APPTS

UPDATE WHITE BOARD WITH PLAN!

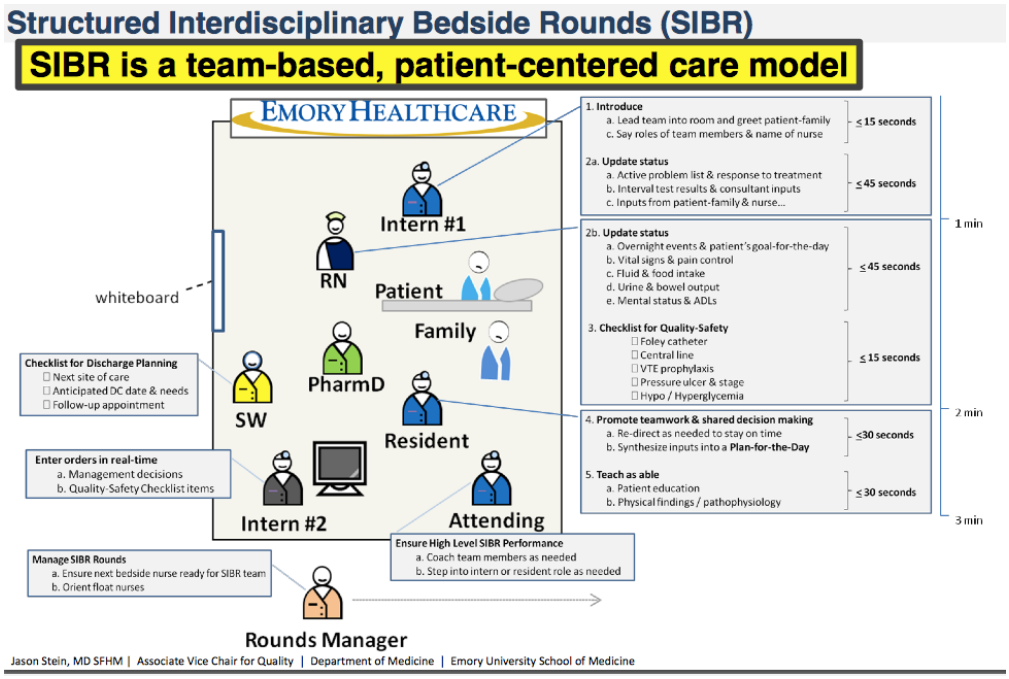
Encourage questions!

O'Leary KJ, Killarney A, Hansen LO, et al. Effect of patient-centred bedside rounds on hospitalised patients' decision control, activation and satisfaction with care. *BMJ Qual Saf.* 2016;25(12):921-928.

Standard Communication Protocol Used in Structured Interdisciplinary Bedside Rounds (SIBR) at Emory

1. Introduce (15 seconds) a. Greet patient and family b. Introduce team members by names & roles 2. Update hospital course (45 seconds) a. List active problems & response to treatment b. Discuss interval test results & consultant inputs c. Invite inputs from patient & family	Physician
3. Update current status (45 seconds) a. Overnight events and patient goal for the day b. Any concerns related to: Vital signs or pain Fluid or food intake Bladder or bowel output Mental or functional status 4. Review each item in Quality-Safety Checklist (15 seconds) □ Urinary catheter □ Central venous catheter □ Venous thromboembolism prophylaxis □ Pressure ulcer & stage □ Hypo- or hyperglycemia	Nurse
5. Invite inputs from allied health (15 seconds) 6. Synthesize plan using all inputs (45 seconds) a. Verbalize plan for the day b. Verbalize plan for discharge	Physician

.



Stein J, Payne C, Methvin A, et al. Reorganizing a hospital ward as an accountable care unit. *J Hosp Med.* 2015;10(1):36-40.

Appendix K: Examples of Structured Communication Tools Used in Interprofessional Rounds *(continued)*

Mobile Interdisciplinary Care Rounds (MICRO) Script and Patient Safety Checklist at Mt. Sinai Hospital

The MICRO script is designed to take <3 minutes per patient, involve key team members and engage the patient in a focused manner.

Script

- Hospitalist (30-60 seconds) – Summarizes diagnosis and plan
- Nurse (30-60 seconds)
  - Reports overnight events (e.g., diarrhea, pain)
  - Reviews patient safety checklist (see below)
- Social Worker (30-60 seconds) – Discusses disposition issues
- Hospitalist – Asks patient for their "main goal for the day." This phrase was developed to prompt patient engagement while focusing the discussion given the time limitation.
- Patient (30-60 seconds) – Reports their main goal
- Team – Thanks the patient for their time

MICRO script, initial encounter modification:

It was noted the full script was intimidating for some patients at the initial encounter. To address this concern, a modified version was developed for the first encounter for each patient:

- The plan of care is discussed outside the room (60-90 seconds).
- The hospitalist prompts the team members to introduce themselves and their role and the patient is informed of the purpose of daily team rounds (60 seconds).
- Hospitalist – Asks patient for their "main goal for the day"
- Patient (30-60 seconds) – Reports their main goal
- Team – Thanks the patient for their time

Patient Safety Checklist – Reviewed verbally by nurse

- Urinary catheter – present or absent
- Central venous line – present or absent
- Falls risk – As assessed by the Morse score; includes whether the patient is currently on "falls precautions"
- VTE prophylaxis – Modality ordered (e.g., subcutaneous heparin, sequential compression device)
- Diarrhea – present or absent
- Pressure ulcer risk – As assessed by the Braden score; includes whether any pressure ulcers are present

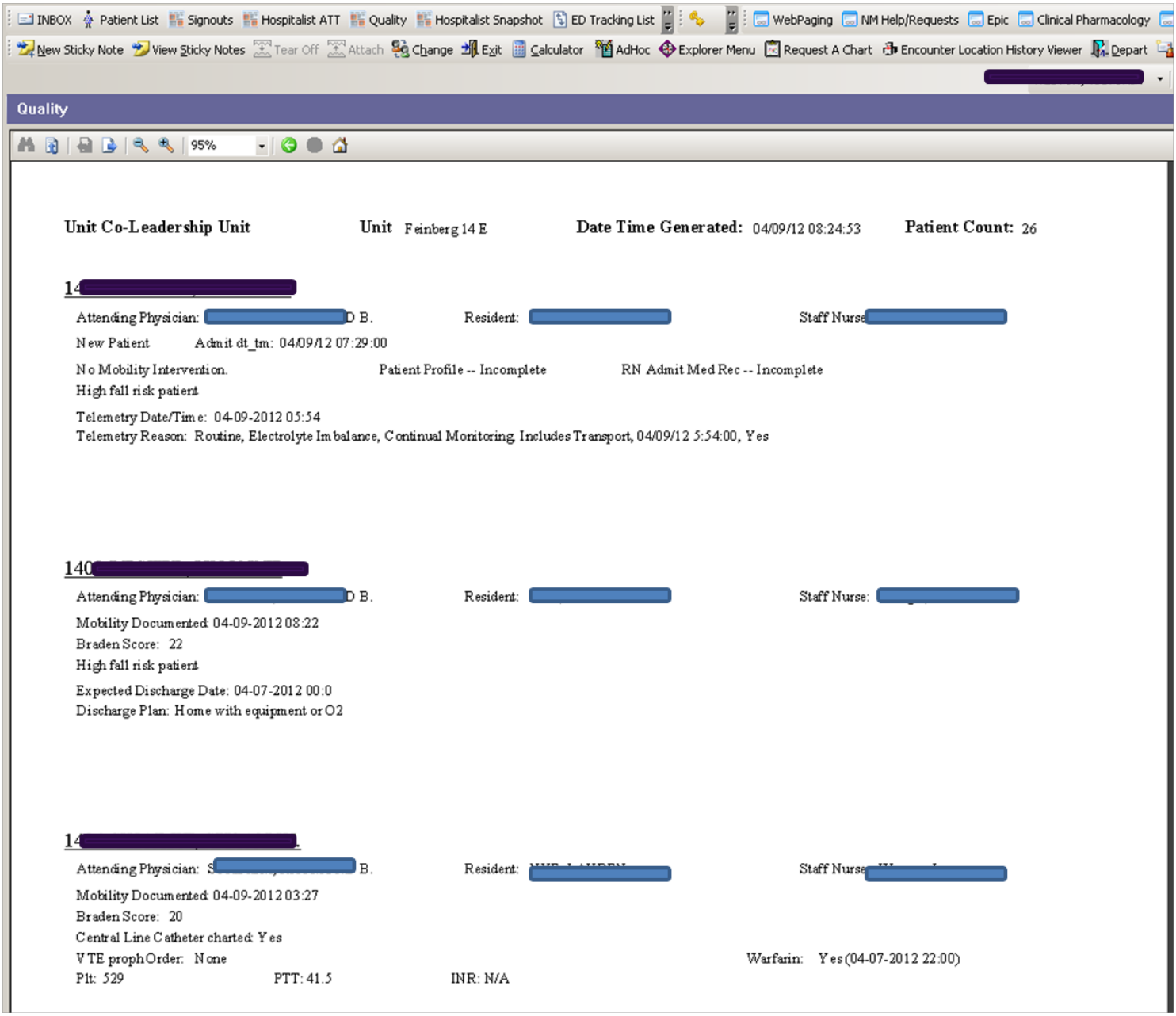
Dunn AS, Reyna M, Radbill B, et al. The Impact of Bedside Interdisciplinary Rounds on Length of Stay and Complications. *J Hosp Med.* 2017;12(3):137-142.

Daily Checklist Used by RN During Bedside Interprofessional Rounds at Mayo

Daily checklist: to be utilized by bedside RN and discussed during bedside rounds	
Updates from nights:	
Vital signs: trends, baseline versus current, weights	
Pain:	
Safety concerns: activity, PT/OT, safety eval needed	
Cognition: baseline versus current	
Respiratory: wean O_2, home O_2, new rx, nebulizer/inhaler needs	
Wounds, drains, tubes: pressure ulcers, wound care	
Nutrition/hydration: fluids, intake, current/future diet orders, NPO for tests, nausea	
Elimination: diarrhea, constipation, urinary retention, incontinence	
Plan: for the day/stay, tests, consults, anticipated discharge date/needs, education needs	
Questions from patient/family:	

Henkin S, Chon TY, Christopherson ML, Halvorsen AJ, Worden LM, Ratelle JT. Improving nurse-physician teamwork through interprofessional bedside rounding. *J Multidiscip Healthc.* 2016;9:201-205.

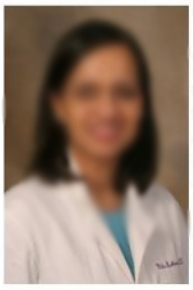
Appendix L: Example Near-Real-Time Unit Report for Co-Leaders



Appendix M: Example Physician Facecard

Northwestern Memorial® Hospital

[redacted], MD
Hospitalist
Hospital Medicine Service



The hospital medicine attending physician (hospitalist) manages your care while you are in the hospital and works with your primary care physician and other specialists as necessary during your stay. This physician also oversees care provided by medical residents and students who are training at Northwestern Memorial Hospital.

Address: 251 E. Huron St., Feinberg 16-738
Chicago, Illinois 60611
Phone: 312-926-5924
www.medicine.northwestern.edu/hospitalmedicine

Appendix N: Example Fidelity Data Report

	Hospital A						
	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19
Physician Interviews	**9**	**10**	**9**	**10**	**10**	**10**	**10**
Average # units MD has patients on	4	3	3	3	3	3	3
Average # patients cared for on phase I unit	6	10	14	13	13	15	14
Average # patients cared for across all units	11	15	17	16	16	17	15
% patients localized to phase I unit	58%	65%	82%	79%	79%	85%	92%
IPR Observations	**10**	**10**	**9**	**10**	**10**	**10**	**10**
% IPR occurred as planned	75%	83%	95%	100%	100%	100%	100%
% IPR occur on time	80%	97%	89%	100%	100%	100%	100%
Average % of phase I unit patients discussed	62%	75%	80%	70%	75%	81%	71%
Average IPR duration in minutes	48	72	64	53	62	60	60
Physician presence >75% of the time	90%	95%	80%	100%	75%	100%	100%
Nurse presence >75% of the time	80%	85%	80%	90%	100%	100%	100%
Pharmacist presence >75% of the time	60%	60%	75%	90%	100%	90%	100%
IPR location (majority of the time)	Conf Rm	Conf Rm	Bedside	Bedside	Bedside	Bedside	Bedside
Whiteboard Observations	**15**	**33**	**35**	**39**	**38**	**40**	**40**
% accuracy with MD name on whiteboard	70%	91%	92%	82%	90%	92%	100%
% accuracy with RN name on whiteboard	90%	94%	96%	98%	98%	100%	100%
% patient goal displayed	60%	65%	61%	71%	77%	86%	93%

Annotated Reference List

This AIMS model was informed by prior research. The reference list that follows is intended to provide available research related to the AIMS components.

Clinical Microsystems

The small group of people who work together in a defined setting on a regular basis to provide care:

1. Bohmer RM. The four habits of high-value health care organizations. *N Engl J Med.* 2011;365(22):2045-2047.

2. Nelson EC, Batalden PB, Godfrey MM, Lazar JS. *Value by Design: Developing Clinical Microsystems to Achieve Organizational Excellence.* Jossey-Bass; 2011.

3. Nelson EC, Batalden PB, Huber TP, et al. Microsystems in health care: Part 1. Learning from high-performing front-line clinical units. *Jt Comm J Qual Improv.* 2002;28(9):472-493.

Models with Complementary Interventions

There are relatively few studies evaluating the effect of models that incorporate complementary interventions that redesign clinical microsystems. The few studies include the following:

1. Kara A, Johnson CS, Nicley A, Niemeier MR, Hui SL. Redesigning inpatient care: Testing the effectiveness of an accountable care team model. *J Hosp Med.* 2015;10(12):773-779.

2. O'Leary KJ, Buck R, Fligiel HM, et al. Structured interdisciplinary rounds in a medical teaching unit: improving patient safety. *Arch Intern Med.* 2011;171(7):678-684. (This study focused on SIDR, but units also had co-leadership and localization was already in place.)

3. O'Leary KJ, Johnson JK, Manojlovich M, Astik GJ, Williams MV. Use of Unit-Based Interventions to Improve the Quality of Care for Hospitalized Medical Patients: A National Survey. *Jt Comm J Qual Patient Saf.* 2017;43(11):573-579. (This study shows that few hospitals have implemented these complementary interventions.)

4. O'Leary KJ, Johnson JK, Manojlovich M, Goldstein JD, Lee J, Williams MV. Redesigning systems to improve teamwork and quality for hospitalized patients (RESET): study protocol evaluating the effect of mentored implementation to redesign clinical microsystems. *BMC Health Serv Res.* 2019;19(1):293. (This is the RESET study protocol.)

5. Stein J, Payne C, Methvin A, et al. Reorganizing a hospital ward as an accountable care unit. *J Hosp Med.* 2015;10(1):36-40.

Unit-Based Physician Teams

Localization of physicians to a minimal number of units:

1. Fanucchi L, Unterbrink M, Logio LS. (Re)turning the pages of residency: the impact of localizing resident physicians to hospital units on paging frequency. *J Hosp Med.* 2014;9(2):120-122.

2. Mueller SK, Schnipper JL, Giannelli K, Roy CL, Boxer R. Impact of regionalized care on concordance of plan and preventable adverse events on general medicine services. *J Hosp Med.* 2016;11(9):620-627.

3. O'Leary KJ, Wayne DB, Landler MP, et al. Impact of localizing physicians to hospital units on nurse-physician communication and agreement on the plan of care. *J Gen Intern Med.* 2009;24(11):1223-1227.

4. Singh S, Tarima S, Rana V, et al. Impact of localizing general medical teams to a single nursing unit. *J Hosp Med.* 2012;7(7):551-556.

Unit Nurse-Physician Co-Leadership

A collaborative model in which a nurse manager and physician medical director jointly lead quality improvement on their unit:

1. Clark RC, Greenawald M. Nurse-physician leadership: insights into interprofessional collaboration. *J Nurs Adm.* 2013;43(12):653-659.

2. Kim CS, Calarco M, Jacobs T, et al. Leadership at the front line: a clinical partnership model on general care inpatient units. *Am J Med Qual.* 2012;27(2):106-111.

3. Kim CS, King E, Stein J, Robinson E, Salameh M, O'Leary KJ. Unit-based interprofessional leadership models in six US hospitals. *J Hosp Med.* 2014;9(8):545-550.

4. Rich VL, Brennan PJ. AHRQ health care innovations exchange: improvement projects led by unit-based teams of nurse, physician, and quality leaders reduce infections, lower costs, improve patient satisfaction, and nurse-physician communication; 2010. Available at: https://protect-us.mimecast.com/s/7nEeCM8WNQHzoM4cwh1y4" https://innovations.ahrq.gov/profiles/improvement-projects-led-unit-based-teams-nurse-physician-and-quality-leaders-reduce. Accessed October 10, 2017.

5. Rich V, Brennan PJ, Riley-Wasserman E, May L. Unit Clinical Leadership Model: A Successful Partnership between Front-Line Clinicians, Quality, and Senior Leaders. Institute for Healthcare Improvement (IHI) National Forum on Quality Improvement in Health Care. 2009.

Enhanced Interprofessional Rounds

Interprofessional rounds (IPR), redesigned with input from frontline professionals to optimize collaboration and patient engagement:

1. Bhamidipati VS, Elliott DJ, Justice EM, Belleh E, Sonnad SS, Robinson EJ. Structure and outcomes of interdisciplinary rounds in hospitalized medicine patients: A systematic review and suggested taxonomy. *J Hosp Med.* 2016;11(7):513-523.

2. Gonzalo JD, Kuperman E, Lehman E, Haidet P. Bedside interprofessional rounds: perceptions of benefits and barriers by internal medicine nursing staff, attending physicians, and housestaff physicians. *J Hosp Med.* 2014;9(10):646-651.

3. Gonzalo JD, Wolpaw DR, Lehman E, Chuang CH. Patient-centered interprofessional collaborative care: factors associated with bedside interprofessional rounds. *J Gen Intern Med.* 2014;29(7):1040-1047.

4. Khan A, Spector ND, Baird JD, et al. Patient safety after implementation of a coproduced family centered communication programme: multicenter before and after intervention study. *BMJ (Clinical research ed).* 2018;363:k4764.

5. Kuo DZ, Sisterhen LL, Sigrest TE, Biazo JM, Aitken ME, Smith CE. Family experiences and pediatric health services use associated with family-centered rounds. *Pediatrics.* 2012;130(2):299-305.

6. Mittal VS, Sigrest T, Ottolini MC, et al. Family-centered rounds on pediatric wards: a PRIS network survey of US and Canadian hospitalists. *Pediatrics.* 2010;126(1):37-43.

7. O'Leary KJ, Buck R, Fligiel HM, et al. Structured interdisciplinary rounds in a medical teaching unit: improving patient safety. *Arch Intern Med.* 2011;171(7):678-684.

8. O'Leary KJ, Haviley C, Slade ME, Shah HM, Lee J, Williams MV. Improving teamwork: impact of structured interdisciplinary rounds on a hospitalist unit. *J Hosp Med.* 2011;6(2):88-93.

9. O'Leary KJ, Killarney A, Hansen LO, et al. Effect of patient-centred bedside rounds on hospitalised patients' decision control, activation and satisfaction with care. *BMJ Qual Saf.* 2016;25(12):921-928.

10. O'Leary KJ, Wayne DB, Haviley C, Slade ME, Lee J, Williams MV. Improving teamwork: impact of structured interdisciplinary rounds on a medical teaching unit. *J Gen Intern Med.* 2010;25(8):826-832.

11. Pannick S, Davis R, Ashrafian H, et al. Effects of Interdisciplinary Team Care Interventions on General Medical Wards: A Systematic Review. *JAMA Intern Med.* 2015;175(8):1288-1298.

12. Rappaport DI, Ketterer TA, Nilforoshan V, Sharif I. Family-centered rounds: views of families, nurses, trainees, and attending physicians. *Clin Pediatr (Phila).* 2012;51(3):260-266.

13. Ratelle JT, Sawatsky AP, Kashiwagi DT, et al. Implementing bedside rounds to improve patient-centred outcomes: a systematic review. *BMJ Qual Saf.* 2019;28(4):317-326.

14. Rosen P, Stenger E, Bochkoris M, Hannon MJ, Kwoh CK. Family-centered multidisciplinary rounds enhance the team approach in pediatrics. *Pediatrics.* 2009;123(4):e603-608.

15. Zwarenstein M, Goldman J, Reeves S. Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database Syst Rev.* 2009(3):CD000072.

Unit-Level Performance Reports

Performance reports designed to give unit leaders and frontline professionals relevant, interpretable, actionable data:

1. de Vos M, Graafmans W, Kooistra M, Meijboom B, Van Der Voort P, Westert G. Using quality indicators to improve hospital care: a review of the literature. *Int J Qual Health Care*. 2009;21(2):119-129.

2. Fox LA, Walsh KE, Schainker EG. The Creation of a Pediatric Hospital Medicine Dashboard: Performance Assessment for Improvement. *Hosp Pediatr.* 2016;6(7):412-419.

3. Hwa M, Sharpe BA, Wachter RM. Development and implementation of a balanced scorecard in an academic hospitalist group. *J Hosp Med.* 2013;8(3):148-153.

4. Ivers N, Jamtvedt G, Flottorp S, et al. Audit and feedback: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev.* 2012(6):CD000259.

5. Ramsay AI, Turner S, Cavell G, et al. Governing patient safety: lessons learned from a mixed methods evaluation of implementing a ward-level medication safety scorecard in two English NHS hospitals. *BMJ Qual Saf.* 2014;23(2):136-146.

Patient Engagement Strategies

Methods to continually engage patients and families as partners in care:

1. Banka G, Edgington S, Kyulo N, et al. Improving patient satisfaction through physician education, feedback, and incentives. *J Hosp Med.* 2015;10(8):497-502.

2. Herrin J, Harris KG, Kenward K, Hines S, Joshi MS, Frosch DL. Patient and family engagement: a survey of US hospital practices. *BMJ Qual Saf.* 2016;25(3):182-189.

3. Mitchell SE, Gardiner PM, Sadikova E, et al. Patient activation and 30-day post-discharge hospital utilization. *J Gen Intern Med.* 2014;29(2):349-355.

4. Morton JC, Brekhus J, Reynolds M, Dykes AK. Improving the patient experience through nurse leader rounds. *Patient Exp J.* 2014;1(2):53-61.

5. Simons Y, Caprio T, Furiasse N, Kriss M, Williams MV, O'Leary KJ. The impact of facecards on patients' knowledge, satisfaction, trust, and agreement with hospital physicians: a pilot study. *J Hosp Med.* 2014;9(3):137-141.

6. Weingart SN, Zhu J, Chiappetta L, et al. Hospitalized patients' participation and its impact on quality of care and patient safety. *Int J Qual Health Care.* 2011;23(3):269-277.


shm
Society of Hospital Medicine
Empowering hospitalists. Transforming patient care.