shm project BOOST

Better Outcomes for Older adults through Safe Transitions

Implementation Guide to Improve Care Transitions

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Better Outcomes for Older adults through Safe Transitions

Hospital discharge is often a stressful and hazardous venture for older adults. Discontinuity and fragmentation of care yields tangible risks of harm to the patient. Recent research documents that up to 49% of patients experience at least one medical error (Moore, Wisnivesky et al. 2003), and 1 in 5 patients discharged from the hospital suffer an adverse event (Forster, Murff et al. 2003; Forster, Clark et al. 2004). Importantly, more than half of these adverse events are preventable or ameliorable. Inadequate communication was identified as a major etiology for such adverse events. We should not be surprised that things do not necessarily go smoothly after discharge from the hospital, especially given the lack of understanding by many patients of their hospitalization diagnosis and treatment plans (Makaryus and Friedman 2005). Additionally, many patients are discharged with test results pending (Roy, Poon et al. 2005), and we often fail to tie up loose ends such as needed follow-up tests (Moore, McGinn et al. 2007). Unfortunately, information transfer and communication deficits at the time of hospital discharge are common with direct communication between physicians occurring less than 20% of the time, and discharge summaries often lack important information or are unavailable when patients present for post-hospitalization follow-up with their primary physicians (Kripalani, LeFevre et al. 2007). The discharge process significantly impacts patient satisfaction, potentially impacts health outcomes and lacks a consistent, coordinated and safe approach.

A common result of a "failed" hospital discharge is subsequent rehospitalization. Reflecting the costs of such a failure, the Medicare Payment Advisory Commission (MedPAC) recommended to Congress in its June 2007 report that hospitals should publicly disclose their own risk-adjusted readmission rates (Med-PAC June 2007) and this information is now posted on the web at www.hospitalcompare.hhs.gov. Research published in the New England Journal of Medicine found that one in five Medicare beneficiaries discharged from the hospital are readmitted within 30 days and this results in potentially $17.4 billion in excess Medicare costs (Jencks, Williams, Coleman. 2009). Not surprisingly, MedPAC suggested that "after a year or two, public disclosure could be complemented by a change in payment rates, so that hospitals with high risk-adjusted rates of readmission receive lower average per case payments"(MedPAC June 2007). President Obama signed the Patient Protection and Affordable Care Act (H.R. 4872) into law on March 30, 2010. This health reform legislation includes such incentives to reduce hospital readmissions.

Why Create BOOST?

Based on the concerns outlined above and worrisome findings from research, we initiated project BOOST© (**B**etter **O**utcomes for **O**lder adults through **S**afe **T**ransitions) to provide resources to optimize the hospital discharge process and mitigate and prevent known complications and errors that occur during transitions. In this workbook you will find expert and evidence-based interventions advocated by The Joint Commission, the National Quality Forum (NQF) and the Agency for Healthcare Research and Quality (AHRQ). We believe that use of this proposed tool-kit will promote a safe and high quality hospital discharge as patients transition out of the hospital setting. Our implementation guide and toolkit embraces the recent movement toward "patient-centered care"(Stewart 2001) suggesting that patients play a more active role in their care, including engagement in medical decision making (Kravitz and Melnikow 2001). Complementing its ethical basis, expanded patient involvement in care yields improved health outcomes (Greenfield, Kaplan et al. 1985).

The Society of Hospital Medicine and The John A. Hartford Foundation hope you will find this implementation guide and the included tools useful as you aim to improve the discharge process at your hospital. SHM is dedicated to the continuous improvement of the products and services that we offer. We encourage and welcome feedback via e-mail to BOOST@hospitalmedicine.org

How to Use the Guide to Implement Project BOOST

Congratulations on your commitment to improving the care of your patients!

This guide is designed to facilitate the implementation, evaluation and maintenance of the BOOST toolkit and its adaptations. In addition to presenting BOOST interventions, the guide is filled with additional resources to manage, organize and document the efforts of your team.

The interventions presented include using a teach back process during discharge education, identifying specific patient readmission risks to better tailor communications and providing outpatient providers and receiving sites with a discharge record. For high-risk patients, scheduling an outpatient follow-up visit and or conducting a 72-hour follow-up call with the patient and/or caregivers is also recommended.

We recognize that each institution is unique in terms of their experience conducting quality improvement programs, available resources, and existing discharge procedures and processes. Therefore, we have designed interventions with the expectation that they will be adapted to facilitate their integration into daily practices at your institution. Having said that, within Section III we have outlined the "core" elements we believe are essential components of a "BOOST intervention". The appendix provides worksheets for needs assessment, planning your intervention and managing the overall process. It also provides clinical tools, an overview of the Teach Back process and an annotated bibliography. **Additional references, resources and expert discussion forums are available online within the BOOSTing Care Transitions Resource Room found at www.hospitalmedicine.org/BOOST.**

Project BOOST and this guide assumes that each site will have unique informational needs. For this reason information has been designed so you can follow a clear linear path to work through it, or skip around as needed. (Refer to the Table of Contents). Sections I & II review key principles applicable to any quality improvement initiative such as gaining support for an intervention and creating a team, and defining key outcomes. Section III will review the BOOST intervention key components and suggest methods to adapt and the launch the intervention at your institution. Section IV of the Guide provides an evaluation plan, and Section IV provides methods/approaches to maintain your improvements.

Look for this icon to identify worksheets that facilitate team planning efforts.

Look for this icon at the end of each section to summarize resources mentioned within the section and provide URLs. A complete listing of all websites mentioned throughout the guide is also provided in Appendix P.

Project BOOST: Sample Project Plan

While all BOOST sites will be working to improve the discharge process using a specific set of interventions, each experience of implementing BOOST will be unique. The practice culture at your institution, characteristics and availability of key team members, fiscal climate, and other site-specific variables will influence who will be involved in your project, how those people interact and in which forums, how work gets done, and the order in which some tasks are undertaken.

The reality of clinical quality improvement is that no two sites are the same. However, there are some common steps along the way that most if not all BOOST teams will take. Certain tasks will have to be completed; certain stakeholders will have to be engaged, no matter the institutional culture or core team composition. The below list of project tasks is meant to serve only as a general framework for your project, Details of the steps involved in tasks listed below are addressed in detail throughout the BOOST implementation guide.

Planning Phase Activities (months 1-3)

1. **Secure institutional support** for the initiative: engage senior leaders, secure needed resources
2. **Assemble a multidisciplinary team** that is focused on improving the quality of care transitions in your institution.
3. **Develop specific aims or goals** that are time defined, measurable, and achievable.
4. **Analyze current processes** and gain a full understanding of the discharge process status quo and how all stakeholders (physicians and hospital staff, housestaff, patients and families, your administration) contribute to or are effected by the current processes.
5. **Assemble baseline data** that describe current performance

Implementation Phase Activities (months 4-6)

1. **Redesign care processes** to incorporate all key features of BOOST into the workflow (see Appendix A for an outline of core BOOST elements.)
2. **Engage in staff education/outreach** to ensure that all stakeholders are aware of your efforts and as appropriate have an opportunity to offer input
3. **Develop policies, procedures, forms, tools, order sets and other documents** needed to support new or redesigned processes
4. **Identify metrics and an evaluation strategy** that address the needs of your various stakeholders. Who will need to know what about your work, when will they need to have this information and what report format will be most useful to them?

Intervention Phase Activities (months 6-9)

1. **Monitor functioning of each core element of BOOST following implementation**

a. Use of the 8P screening tool
b. Offering risk specific interventions for each of the P's
c. Use of the General Assessment of Preparedness (GAP) tool,
d. Use of the Universal Patient Checklist

2. **Reassess your evaluation plan:** verify that data identified in your evaluation plan are being collected and appropriately capture the quality and quantity of your work
3. **Keep stakeholders apprised of progress**

Project Surveillance & Management (months 10-12, and beyond)

1. **Analyze data** to assess project performance
2. **Adjust interventions** to address improvement opportunities identified by frontline staff or in your data
3. **Report data** to key stakeholders
4. Continue to **monitor, improve, and report** on your activities

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Section I:
Essential First Steps in Quality Improvement

Garnering Institutional Support
Assembling a Team and Team Rules
Understanding the Framework for Improvement

Essential elements for improving the discharge transition include:

1. Institutional support for and prioritization of this initiative, expressed as a meaningful investment in time, equipment, informatics, and personnel in the effort.
2. A **multidisciplinary team or steering committee** that is focused on improving the quality of care transitions in your institution.
3. **Engagement of patients and families** and recognition of the central role they play in executing the post–hospital care plan.
4. **Data collection and reliable metrics** that, at a minimum, reflect any relevant Centers for Medicare and Medicaid Services (CMS) core measures and the relevant Physician Quality Reporting Initiative (PQRI) measures. These data should be transformed into reports that inform the team and frontline workers of progress and problem areas to address.
5. **Specific aims, or goals**, that are time defined, measurable, and achievable.
6. **Standardized discharge pathways** that highlight key medications and any medication changes, important follow-up and self-management instructions, and any pending tests
7. **Policies and procedures** that are institution specific and that support the order sets and promote their safest and most effective use. These documents must be widely disseminated and used and when possible embedded in the order set. A high-reliability design should be used to enhance effective implementation. These policies and procedures should outline and guide the care team in:

    a. Team communication;
    b. Content of the discharge summary
    c. Patient education;
    d. Medication safety and polypharmacy;
    e. Symptom management;
    f. Discharge and follow-up care; and

8. **Comprehensive education programs** for health care providers and patients, reinforcing both general and institution-specific information about the discharge process and use of specific tools.

Prior to this section, consider reviewing the Quality Improvement Primer slide presentation in the BOOSTing Care Transitions Online Resource Room in the “QI Basics” section.

ADDITIONAL RESOURCES

BOOSTing Care Transitions Resource Room: Quality Improvement Primer Slide Presentation
www.hospitalmedicine.org/BOOST (Within the section, “QI Basics”)

1. Obtaining Institutional Support

Implementing a successful intervention requires support from your medical center leadership. To obtain support, you will need to clearly explain how your efforts may enhance quality and safety, improve processes and patient satisfaction, and impact on the hospital's bottom line. A direct communication line to a senior administrative officer related for your effort should be in place before you go any farther, either by a direct reporting structure or by involving a senior administrator on the team. One example of an approach is to have an "executive sponsor" (eg, CEO, CMO, CNO) or administrative champion of the project. This sponsor should receive regular updates on the project (or ideally attend committee meetings) and be an advocate of the project to the hospital leadership. **A sample letter** you may want to send to a possible program champion is **included in Appendix M.**

An executive sponsor is invaluable in helping your team focus on critical issues. However, it is equally important that your team understands where it fits in the overall quality improvement structure and priority for your organization. Frequently teams are assembled during a crisis, but need a plan that keeps them connected so that improvements that are made are sustainable and regularly reviewed. It is useful to ask your executive sponsor to whom or what structure your team reports and reviews progress and outlines barriers.

TASK

Meet with members of your administration and have prepared "talking points" (see sample talking points in Appendix N) and, ideally, some preliminary information you have collected demonstrating the need for their attention to this issue. Case vignettes can illustrate specific issues related to the discharge process and can often be a powerful supplement to data regarding the institution's rehospitalization rate or rate of post-hospitalization ED visits that supports the need for resources. Such vignettes can demonstrate how a robust discharge process will reduce the risk of malpractice litigation. In addition, these vignettes can highlight the areas that your initiatives are directed at improving and add the "patient's voice" to your communications.

Task Assignment: _____(Team Leader)

Time Line for Completing: _____

2. Stakeholder/Committee/Special Group Reporting and Approval Process

A stakeholder is a person whose perspective and/or role is critical to a process. For the discharge process there are many stakeholders and it is important to ensure they or their representatives are on your team.

Identifying and including stakeholders in your project team from the beginning is critical for success. In addition, you should identify existing committees or teams in the hospital that are already working to improve care transitions and determine how to link to or integrate existing efforts.

Team Membership May Include:

- **Clinical nursing staff**
- **Physicians involved in the discharge process (including residents if present at your hospital)**
- **Primary care physicians/Geriatricians/follow-up specialty physicians**
- **Physicians who care for patients at subacute and acute rehabilitation facilities**
- Allied health professionals (nurse-practitioners and physician assistants)
- **Social work**
- **Case management**
- **Pharmacists**
- **Medical Records department**
- **Hospital informatics**
- **Home care referral coordinator**
- Data analyst
- **Nutrition/dietary**
- Emergency department (paramedics/ambulance drivers) - has proven valuable for hospital-to-SNF transfers
- Patients who have been hospitalized at your institution in the past
- **Family/caregiver**

At a minimum, you should include the individuals with roles described in **bold** in your core working group.

Because there typically is tremendous variation in how a hospital discharge process is handled, you should be certain to include individuals who are invested in and see the value of standardizing the process. The care transition for older adults also has dimensions that may require the expertise of individuals who work regularly with them (e.g. geriatric nurses or geriatricians). Also, consider including patients/families as content experts on your team, as they have a perspective that is unique and critical to all the efforts of your team.

Each hospital team must determine the skills and team members essential to the development and implementation of the care transition initiative. Ad hoc members, or people whose input will be required only periodically should also be considered. Examples may include representatives from billing/coding services and finance. Appendix C provides a sample form to help you (A) identify key stakeholders, committees and special groups and (B) clarify the reporting structure and approval process for your interventions and resources needed.

3. Pulling the Team Together

In many cases, improvement activities are initiated by a few individuals that identify a big gap between the current and the best-known practices and then recruit others to their improvement team.

TEAM LEADER(S): Team leaders often include both a physician and a non-physician. For a care transition improvement team, it may consist of a hospitalist or other physician and a nursing leader. These leaders are responsible for calling meetings and communicating directly with administrative and appropriate medical staff committees. The physician team leader should be a respected member of the medical staff with some knowledge about care transitions. He or she does need to be a content expert in discharge transitions, but should be familiar with the relevant issues at the institution. Additionally, at least 1 team leader should have a working familiarity with the key literature as presented in the SHM Care Transitions Resource Room. Just as important, the team leaders need to have the commitment and perseverance to drive the entire process forward.

CONTENT EXPERTS: The hospital discharge transition is often excluded as a training topic in medical school and residency, but has recently received considerable national attention in peer reviewed literature (see Appendix I: Content Expert Annotated Bibliography on page 61). Thus, although physicians may not be the recognized "experts" on the subject, they have a central role to play in the discharge process (either in discharging patients themselves or in seeing patients in follow-up after a hospitalization). Someone on the team should review and summarize the relevant literature, including its applicability to your institution and patient population.

TEAM FACILITATOR: The team facilitator's main duties are (1) maintaining team rules, (2) helping the team leader stay on track by utilizing effective techniques for team and project management, and (3) introducing the appropriate quality improvement (QI) tools for practical use by the team. Mastery of QI tools at the onset of the project is not necessary. What is necessary is a willingness to learn QI tools and introduce them to the team as necessary. Mastery of discharge transitions literature is not as important for this position. Sometimes one person can be both team facilitator and team leader, but for more ambitious projects or for projects involving buy-in from disparate physician and nursing groups, a separate facilitator is very strongly recommended.

See Appendix F: Tools for Running an Effective Meeting on page 55 for tools for effectively running a meeting.

PROCESS OWNERS: Participation of frontline personnel (e.g., nurses, social workers, case managers, residents, hospitalists) is essential to having an effective team that succeeds in optimizing the discharge process.

See Appendix D: Tools for Care Transition Improvement Team Roster on page 49 for an example of a form that you can use to document potential team members and develop your team roster.

4. Quality Improvement Resources

Any team that wants to improve transitions at its institution should understand the basics of effective implementation and Quality Improvement (QI). At least one or two hospitalists in your group should become very familiar with the general framework for improvement and with proven QI tools. Resources - such as a patient safety officer, a QI leader, or a QI facilitator - may be available at your institution. You should identify these individuals and learn from their expertise and experience if possible.

The Society of Hospital Medicine (SHM) also offers an array of training and technical support options for both physicians and non-physicians seeking to expand their knowledge and skills related to planning, implementing and evaluating quality improvement programs.

5. Establishing Team Rules

At your very first team meeting, you should establish the team "rules," and everyone needs to explicitly agree to them. It may even be useful to have all team members formally sign a document agreeing to these rules to communicate and stress their importance. The facilitator is usually given the task of gaining consensus on and enforcing the team rules.

Use the team rules in Appendix F on page 55 as a starting point. The team should modify the rules as needed and then officially record and acknowledge them.

To some, these rules may appear a bit preachy. However, our experience is that breakdowns commonly occur when these basic rules are ignored or violated.

KEY PRINCIPLE
Everyone on the team must be encouraged to speak up, and his or her views must be respected. Traditional concepts of rank have to go "out the window." A unit clerk should feel comfortable telling the lead physician, "I don't think that will work because of [reason]. Why don't we consider trying it this way?"

In addition to these rules, it should be made very clear that potential members should notify the leader quickly if they cannot devote the requisite time and effort so a suitable replacement can be found. Timely minutes as well as a quick turnaround for comments/corrections should be the rule.

6. Establish General Aims and Scope

Establishing team supported goals is essential for maintaining focus and motivating the team. Start by creating broad goals that generally define the purpose of your program. For example:

General aim 1: Substantially improve the discharge process for hospitalized patients.
Is converted to **Specific aim**→ In six months, 90% of patients discharged from the hospitalist service will have a phone call to the follow-up clinician (outlining the postdischarge issues) prior to discharge.
General aim 2: Decrease 30-day readmissions.
Is modified to **Specific aim**→ By January 2009, the 30-day readmissions for patients discharged with a principal diagnosis of heart failure will decrease by 50%.
General aim 3: Improve patient satisfaction regarding the discharge process.
General aim 4: Increase the knowledge of nurses and physicians in optimizing the discharge process.

As your team develops, your challenge will be to define many of the terms in your general aim, which will entail developing defined metrics and more mature, specific, time-defined aims. For example, what aspects of the discharge care transition do you want to improve first? What are the factors that lead to a readmission? How do we educate caregivers about the discharge process?

Use the worksheet in Appendix G on page 57 to record your general aims.

A "stretch" goal should be established that is aggressive enough to mandate a change in the design of your current process to achieve it.

You must also determine the target population(s) for improved outcomes and clearly define the scope of your efforts. Consider these questions:

- Will you target one ward or a service?
- Will you target one or more groups of physicians?
- How long will the pilot intervention last?
- Will you focus on one or more aspects of the transition?
- Which patient population(s) will be targeted?

Again, we encourage a broad scope of efforts that affects all hospital discharges, but it may be reasonable to start small and spread your improvement methods to other areas.

Even if the scope of your effort includes all patients in your hospital or system, the interventions you choose should be piloted on a small scale when possible. The bottom line is this: Think BIG, but start small. Don't bite off more than you can chew initially, but serial testing and learning on a small scale can make even very large projects more manageable

7. Going from General Aims to Specific Aims

Two examples of converting a general aim to a more specific and time-limited aim are:

General aim 1: Substantially improve the discharge process for hospitalized patients.
Is converted to → In six months, 90% of patients discharged from the hospitalist service will have a phone call to the follow-up clinician (outlining the postdischarge issues) prior to discharge.
General aim 2: Decrease 30-day readmissions
Is modified to → By January 2009, the 30-day readmissions for patients discharged with a principal diagnosis of heart failure will decrease by 50%.

Progress toward core aims should be tracked, trended, and publicly reported in run charts (see Section IV, Trending Data Over Time: Run Charts and Statistical Process Control on page 31, with frequent reiteration of the ultimate goals. After you have collected baseline data, revisit general specific aims you established (Appendix G) and for each one, create more specific aims. These aims should be reviewed and revised quarterly based on the progress of your intervention and what you learn to be achievable and realistic.

Recall general aims from Section I: Establish General Aims on page 7.

TASK

Your team must now refine the general aims. To do this, you'll add an expectation of time to achieving the aim and define the inpatient subpopulation in question, following the SMART criteria:

SMART Goals
Specific
Measureable
Achievable
Realistc
Time Defined

8. Financial Considerations

Implementation of the components of the BOOST toolkits may impact utilization of inpatient resources - either positively or negatively. Attending to the logistical issues outlined in the toolkit could help eliminate unnecessary beds days if your hospital currently does not address patients' post-hospitalization needs until at the time of discharge. Alternately, assessing and intervening on the wide range of issues that influence discharge preparedness might actually increase hospital stays for some patients. Creating a generally higher quality discharge should (we hope!) reduce readmissions. Because of these potential effects, it will be useful for you to develop an understanding of the financial impact of changing length of stay (LOS) and admission patterns for the patients who will likely be touched by BOOST. To do so, you should partner with hospital staff who are expert in cost and reimbursement issues. In this partnership it will be the clinical team's job to articulate what you are trying to achieve (i.e., "reduce unnecessary readmissions") and identify the patients you are targeting (i.e., "all patients discharged from the medical service.") Your partner in Decision Support, or the CFO's office, or even staff in Utilization Review or Performance Improvement will have access to the utilization, cost and revenue information you will want to analyze to understand the financial issues pertinent to your proposed project.

Payer mix and occupancy rate are two variables that will influence the financial consequences of your proposed project. Since BOOST is specifically designed to address the special needs of older adults, it is quite likely that the patients you are targeting will be significantly older than the general hospital population, or even the medical service as a whole. Given that most older patients have Medicare as a primary payer, the impact of your efforts should consider this. The significance relates to the mechanism of Medicare payment - such cases are reimbursed through the prospective payment system, so your hospital gets a fixed amount of money for each admission determined by the DRG to which the case is assigned. Most of the time, the size of the payment will not change, no matter how much it actually costs your hospital to provide care. Your partner in administration will know the details of the prospective payment system, but interventions that reduce LOS will in general carry a financial benefit, interventions that increase LOS will cost your hospital money.

The other key payer mix issue is if your hospital is part of an integrated system (i.e. the Veterans Administration or Kaiser) where a single entity is financially at risk for providing all types of care for a population of patients. Hospitals in such systems typically operate on a fixed, global budget, so they do not gain extra revenue for each admission - rather they have to stretch their resources to take care of as many patients as are admitted to the hospital in a given period of time. In such systems, it might be that reducing utilization of inpatient resources (by reducing readmissions) would always carry a financial benefit because doing so avoids costs without having significant influence on revenues. Preliminary research indicates that readmission of Medicare patients often cost hospitals more than the reimbursement.

Another issue to consider is your site's occupancy rate. If your hospital is typically full then reducing readmissions could be considered fiscally neutral, (someone else will fill that bed, so there will be no net loss of revenue) or it could convey financial benefits (reducing readmissions might making room for more complex patients, which might be more profitable than the general medical admissions your project is preventing.) Alternately, reducing the number of readmissions might help your site make more efficient use of inpatient resources. Many public hospitals have very high occupancy rates, so while there may be no direct financial benefit associated with reducing readmissions, doing so might help the hospital make more efficient use of scarce inpatient beds.

Keep in mind that readmission rate is an outcome in which many payers are quite interested. Your site might be able to reference BOOST outcomes as evidence that your hospital is doing all it can

to prevent readmissions, data that can be used in negotiations with payers. Similarly, your hospital administrators will be interested to know that the MedPAC recommended to Congress in June 2007 that hospital readmission rates be reported publicly, and that these rates eventually be tied to hospital reimbursement ((MedPAC. Payment policy for inpatient readmissions. In: Report to the Congress: Promoting Greater Efficiency in Medicare. Washington, DC: MedPAC; June 2007:103-20. http://www.medpac.gov/documents/Jun07_EntireReport.pdf).

Generally speaking, the more dedicated resources your project needs (i.e., staff time needed to carry out interventions) and the more patients you expect to impact the more interested your site will be in evaluating expected financial outcomes for your project. Partnering with appropriate representatives in hospital administration to explore financial issues is an important job for your project team, a role that is commonly tackled by the project director. You do not need to become an expert in health economics, you just need to develop a basic understanding of the financial variables your hospital administrators will consider when deciding if they can afford to fund and support your project.

Additional information on determining the return on investment from Project BOOST for your hospital or health system is provided in Appendix Q on page 87.

Section II: In-Depth Analysis of Current Processes and Opportunities for Improvement

1. Performing an Institutional Assessment of Current Care

This section contains a series of important headings under which are several questions related to that heading. You should first review the headings and determine whether these represent the critical areas of care delivery related to care transitions, and then review the accompanying questions. Use the questions as a starting point for dialogue and discussion. You may find that some questions are more central to your organization's care transition issues than others. You may also find that there are other questions your team wants to include. These headings and questions should be used as a starting point for your team's work related to understanding your current discharge care transition processes.

One of the first steps to improve care is conducting a thorough survey of your current care environment, order sets, critical pathways and guidelines, and care processes central to the discharge transition process. The following section provides a framework for such an assessment. You may wish to focus on selected portions of the assessment initially, but eventually all items need to be assessed and enhanced to achieve optimal care. Use the questions below as a starting point for dialogue and discussion. You may find that some questions are more central to your organization's care transition issues than others. You may also find that there are other questions your team wants to include.

Note: You might find it helpful to use process mapping (see Section II, Process Flow Mapping: A Critical QI Tool on page 15, for more information and examples) when you do your assessment of selected areas of interest.

Assessment Item 1: Institutional Support

- What is the institutional buy-in (from administration) and do you understand how your team fits into the organization's clinical quality improvement structure and priorities?
- Do you have the resources available for forming a team and supporting its efforts in formulating order sets, protocols, educational programs, and metrics to optimize the discharge process?
  A team working on an improvement effort this large is doomed to fail without recognition by hospital administration and medical staff committees of the importance of improving care transitions. If you haven't already done so, Section I, Obtaining Institutional Support, will assist you in enrolling the administration in your cause and in defining the medical staff entities to whom your team needs to report.

Assessment Item 2: Presence of a Multidisciplinary Team to Address Issues

- Have you formed a truly multidisciplinary team or steering committee that works on the front lines of health care delivery, as outlined in Section I, Pulling the Team Together (page 4)
  If not, do so now! You won't be able to complete the assessment without the knowledge of representatives from a variety of disciplines. However, you also want to be mindful of not waiting for every area to be represented prior to initiating your process. You can always add team members and review membership along the way. The key is to engage and include the key multidisciplinary stakeholders.

Assessment Item 3: Reliable Data Flow and Metrics

- What is the dashboard of measures that your institution uses to assess the quality of its discharge processes?
- Is the methodology for acquiring and recording discharge measures standardized and reliable (that is, are there any concerns about data integrity and accuracy)?
- Are potential gaps in patient care identified in real time, or is the process retrospective?
- Are the data communicated to the front-line caregivers, and if so, how?
  Help on data flow, formulating metrics, and presenting data is available in Section III: BOOST Interventions to Improve the Care Transition, Particularly for Older Adults, page 17.

Understanding Your Institution's Discharge Transition Processes

Assessment Item 4: Standardized Discharge Processes

- What standardized processes for discharge transitions and monitoring already exist, particularly for older adults?
- What elements of the discharge process can/should be standardized?
- What elements of the discharge process need to be more customized to a specific patient population?

Visit the American Society for Quality (ASQ) website for information on process analysis tools.

Assessment Item 5: Patient/Family Caregiver Preparedness

- How are patients/family/caregivers assessed regarding understanding of medical issues (i.e., diagnoses, treatment, testing, and results) and follow-up plan/care?
- Are there tools to assist in this process?
- When does this process start?

Assessment Item 6: Medication Safety

- How is medication reconciliation accomplished?
- How are high-risk medications addressed? What kind of standardized monitoring is in place for medications that are high risk?
- How is patient understanding of medication administration assessed?
- How are issues related to medications and polypharmacy assessed and managed?

Assessment Item 7: Follow-Up Care

- What is the quality of the discharge communication to the outpatient follow-up clinician?
- What is the timing of this communication?
- How is quality assessed regularly?
- Is follow-up standardized?
- Are there any programs available for self-management after discharge?
- How is care coordinated with the follow-up physician? What information is transmitted to the follow-up physician?
- What are the most common reasons for readmission?
- What is the relationship between readmission and the quality of the care transition?

Assessment Item 8: Educational Issues

- What is the current discharge education process?
- Is there a template in place for the discharge process?
- Who is responsible for teaching?
- Do you routinely assess the learner as part of the educational process?
- Do you include information on community resources and further outpatient education if needed?
- Is up-to-date and comprehensive written information provided as appropriate?
- Do you have a reliable method for educating the patient whose primary language is not English?

Assessment Item 9: General Staff Education and Certification

- What educational resources are routinely used to educate your staff about new topics or skills?
- What resources are available to hospital staff to provide education regarding optimizing the hospital discharge transition.
- Is it widely available via intra- or Internet access?
- Is it interactive in the form of learner-based modules?
- Are the modules tailored to nurses? Tailored to physicians and other providers?
- If you are at a teaching institution, is education appropriately targeted at house staff?
- Is there mandatory participation by key providers?
- Is the educational program case based?
- Is there any method for tracking participation or competence/understanding of the most important concepts?

Assessment Item 10: Pharmacy Issues

- How are pharmacists involved in medication safety?
- Is the expertise of the pharmacist optimally used?
- Have formulary issues between the inpatient and outpatient setting been identified and resolved?

Performing an institutional assessment can be daunting at first. Remember, you do not have to fix or assess everything at once, and prioritizing an area of care is important and can narrow the scope of the initial assessment. **Appendix H** can help you through this process.

Your team should reconvene to discuss the assessments as they become available, and review the assessments as you move to improve each of the focus areas. Some assessment assignments may require additional team member support and may need to be broken down into smaller assignments. For example, the assignment related to understanding the current discharge process will involve a variety of team members connected with different areas of the hospital.

ADDITIONAL RESOURCES

American Society for Quality (ASQ) website:
www.asq.org

2. Process Flow Mapping: A Critical QI Tool

Achieving your quality improvement goals likely require that substantial changes be made to whichever process you target. Although you may assume you understand the gaps between your current process and best practices, formally mapping the process will almost certainly reveal gaps that would otherwise be overlooked. Mapping will also provide your team with a better understanding of the process in general.

Once the process is mapped, the gaps between the current process and the best practice will become apparent. The members of the team with the most detailed understanding of the best practice will be able to recognize the gaps and highlight them for the team. The assessment questions, presented earlier in this section, can also help team members to recognize the gaps.

Ideally, this process will leave the team with a list of gaps that need to be addressed in order to achieve the team's goals, and this list will be used to create interventions.

For more information on process flow mapping visit the American Society for Quality (ASQ) website.
View an example of a process map by going to **www.hospitalmedicine.org/BOOST** (within the section "analyze care delivery").

TASK

Complete a process map
Process mapping requires writing down everything that happens in a given process. The American Society for Quality Web sites provide more in-depth information about process mapping. Often, the major steps of the process are defined first, and then each step is analyzed in detail (see Appendix H: Tool for Performing Institutional Assessment). In some cases the major steps in a process can be accurately defined by a single individual (such as the team leader). However, usually, no individual is able to complete a detailed analysis of all the steps. This highlights the importance of the multidisciplinary team in completing this exercise. Creating a process flow map at one of your initial team meetings also serves as a terrific opportunity to engage all team members in the process and gain their buy-in as the group identifies problems and then naturally begins to look for solutions.

ADDITIONAL RESOURCES

American Society for Quality:
www.asq.org

Section III: BOOST Interventions to Improve the Discharge Care Transition, Particularly for Older Adults

1. Developing Interventions

Now that you have made a case for improving the discharge transition, pulled together your multidisciplinary team, and understand your current processes regarding discharge, you are ready to think about interventions for improving the discharge process for older adults. Your team may consider a variety of interventions for improving the discharge transition, and the BOOST team offers the following toolkit that addresses many dimensions of the discharge process that your team has identified for improvement.

In thinking about interventions to improve discharge, the BOOST team first identified core principles as central to the interventions. They are:

Patient centeredness: This concept implies that the intervention focuses on identifying the needs, abilities, and desires of patients and their immediate caregivers (in addition to their outpatient physicians) about safe transition out of the hospital and the abilities of these parties to address those needs. Also, embodied in this principle is the idea that all materials and educational efforts are targeted at the language and literacy levels of patients and their caregivers.

Empowerment: During the discharge transition preparation process, the hospital care team should address patients' identified needs and also empower patients and their caregivers to advocate for themselves in the event that further needs arise. Patients and/or caregivers should be provided information about and access to available resources that can assist patients after leaving the hospital. In addition, patients and/or caregivers should be alerted to predictable adversities and their warning signs and symptoms along with a response plan to manage such events. Additionally, patients and caregivers should be given tools for coping with unexpected adverse events and access information to caregivers who can assist with them.

Risk Appropriateness: Risk implies the chance that a patient will suffer an undesirable experience after discharge (e.g., medication error, missed therapy, unplanned rehospitalization, etc.). The literature has identified several risk factors that portend increased risk, and the discharge intervention should be able to help adjust resource utilization around the transition process for patients at higher versus lower risk.

Team Oriented: The successful transition of a patient out of the hospital typically requires the coordinated efforts of nurses, case managers, social workers, therapists, physicians, and patients and their caregivers. Clear communication throughout the hospitalization is paramount and notably also includes the outpatient medical providers on admission to the hospital, throughout the stay, and during the planning and execution of the transition out of the hospital. Multidisciplinary tools are important to ensure that role delineation and communications occur smoothly. Of note, however, is that it is important that an identifiable role oversees and takes ownership of the process. The role need not be a process/content expert in all elements of the discharge process, but rather someone serve as a coordinator to ensure all parts of the process are completed.

Bridging: The transition does not end at the time of hospital discharge. Indeed, medical research clearly indicates patients are at high risk of complications immediately after leaving the hospital and before being seen by outpatient providers. A clear linkage to an accessible care provider after leaving the hospital helps bridge this transition to address issues and questions that arise.

The intervention developed by Project BOOST attempts to incorporate each of these principles.

2. Tool for Addressing Risk: A Geriatric Evaluation for Transitions: TARGET

The TARGET is a 4-part tool that includes:

1. Risk stratification process (the 8P tool).
2. Risk-specific intervention plan linked to the 8P risk score summary.
3. Universal set of expectations for all patients being discharged from the hospital to home (the Universal Checklist)
4. General Assessment of Preparedness (GAP), a component list of issues important to providers and patients (and their caregivers) surrounding the readiness of patients tor transition out of the hospital.

Each of the elements of the TARGET are discussed individually (also see Appendix A: TARGET Tool). It should be noted that by its nature, the TARGET is a multidisciplinary tool. Elements may be assessed by different members of the inpatient care team (e.g., nursing, case management, physicians, pharmacists, and social workers), and the tool can then act as a central repository of the information. The "Confirmed by" signature should be completed by whoever at the institution has final ownership of the transition process (e.g., the discharge planner or nurse). Determining the individual (or preferably the role of the individual) who has ultimate ownership of the process is a critical step in improving the transition of care process.

3. Utilizing the Risk Assessment Tool: The 8Ps

Numerous risk factors have been identified in the literature as being associated with increased risk of re-hospitalization, emergency department visits, or other adverse event. Researchers have developed a 20-item tool that predicts readmission to the hospital(Coleman, Min et al. 2004). There are, however, no externally validated, easily replicated tools to risk-stratify older patients transitioning out of the hospital. In light of this deficit, Project BOOST has compiled and refined the dominant patient-specific risk factors and created a user-friendly tool called the 8P scale (see Appendix A, for a copy of the tool). This risk assessment tool is completed at admission highlighting the need to identify patients at increased risk of adverse events post-hospitalization, and utilizing the duration of the hospitalization to mitigate these risks as much as possible. Of course, all risks identified and efforts put forth should be communicated with the patient's post-hospitalization providers.

The 8Ps Are:

- **Problem medications** (Forster, Clark et al. 2004; Forster, Murff et al. 2005; Budnitz, Pollock et al. 2006; Budnitz, Shehab et al. 2007; van Walraven and Forster 2007): Some medications increase the likelihood of adverse events after discharge. Although the list of these medications is quite long, the most risky appear to be: warfarin, insulin, digoxin, and aspirin when used in combination with clopidogrel. It is not clear yet from research whether this risk is only associated with new or changed prescriptions for these medications or if it is associated with any prescription. As such, we recommend including all patients with prescriptions for these medications and perhaps focusing extra attention on patients newly started on them.

- **Psychological**, or depression (Marcantonio, McKean et al. 1999; Bula, Wietlisbach et al. 2001; Kartha, Anthony et al. 2007; Ng, Niti et al. 2007; Strunin, Stone et al. 2007): Depression in older patients is common and frequently underdiagnosed. The presence of depression, either in screening evaluations or by history, has been associated with increased risk of rehospitalization. The status of depressive symptoms has not been studied. Therefore, we recommend you include any patient with a history of depression (i.e., formally diagnosed) as well as patients who screen positive for depressive symptoms (using the PHQ-2, http://www.commonwealthfund.org/usr_doc/PHQ2.pdf developed by the Common Wealthfund with information from Information from Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. Med Care 2003; 41:1284-92.), which is highly suggestive of this diagnosis.

- **Principal diagnosis:** If patients have any of the following main reasons for hospitalization (i.e., their principal diagnosis), they are at increased risk of adverse events after discharge including re-hospitalization: **cancer** (Coleman, Wagner et al. 1998), **stroke** (Bravata, Ho et al. 2007)), **diabetes or glycemic complication** (Coleman, Wagner et al. 1998; Billings, Dixon et al. 2006), **COPD**, (Coleman, Wagner et al. 1998; Smith, Giobbie-Hurder et al. 2000; Westert, Lagoe et al. 2002; Billings, Dixon et al. 2006) and **heart failure** (Coleman, Wagner et al. 1998; Westert, Lagoe et al. 2002; Gwadry-Sridhar, Flintoft et al. 2004; Phillips, Wright et al. 2004; Billings, Dixon et al. 2006).

- **Polypharmacy** (Coleman, Smith et al. 2005): It appears that patients on 5 or more medications (scheduled, not as needed) are at increased risk of adverse event after discharge. It is also clear that with an increasing number of medications, adherence also decreases.

- **Poor health literacy** (Williams, Parker et al. 1995; Gazmararian, Baker et al. 1999; Baker, Gazmararian et al. 2002; Gazmararian, Williams et al. 2003): Many validated tools evaluating general and health literacy have been published in the literature. However, most are cumbersome. Given that adherence and adverse events are increased among patients with poor health literacy, a simple screening tool is useful to clinicians to assess this risk factor for adverse events. We suggest clinicians use the teach back method (see Appendix B: Teach Back Process) as their predominant method of patient preparation and education. It is patient centered, easy, and magnifies areas of poor understanding by patients, allowing you to correct misunderstandings while not taking excessive time (Schillinger, Piette et al. 2003).

- **Patient support** (Boult, Dowd et al. 1993; Mistry, Rosansky et al. 2001; Rodriguez-Artalejo, Guallar-Castillon et al. 2006; Strunin, Stone et al. 2007): Social support is critical to many older patients transitioning from the hospital. The absence of a formal or informal care giver has been associated with higher rehospitalization rates.

- **Prior hospitalizations in the last 6 months** (Soeken, Prescott et al. 1991; Smith, Katz et al. 1996; Coleman, Wagner et al. 1998; Comette, D'Hoore et al. 2005; Billings, Dixon et al. 2006; Forsythe, Chetty et al. 2006): Prior hospitalizations have been shown in multiple studies to be the single most predictive risk factor for future hospitalizations. A patient should thus be viewed automatically as high risk if an unplanned hospitalization has been identified in the six months (some authors studied up to twelve months) prior to the current admission.

- **Palliative care.** (Davis MP, Walsh D, Nelson K, Konrad D, LeGrand SB. The business of palliative medicine: management metrics for an acute-care inpatient unit. Am J Hospice & Palliative Care 2001;18(1);26-29. Axelsson B, Christensen SB. Evaluation of a hospital-based palliative support service with particular regard to financial outcome measures. Palliat Med 1998;12:41-49.): Only the minority of patients qualifying for palliative care services receive them. Engaging these services actively has been shown to improve symptom management, patient satisfaction and limit resources, including rehospitalizations for patients nearing end of life.

The admission 8P score should be generated at the time of admission and may be completed by a multidisciplinary team; however, the role of one specifically identified team member should be to ensure that the assessment is completed (see Appendix J: 8P Scale). Once risk factors are identified, the Risk Specific Interventions should be reviewed and addressed and the risk factors should be identified specifically to healthcare professionals assuming the patient's care after discharge. Additional risk specific resources are provided in Appendix K and should be coordinated with those your organization may already have in place or may need to consider developing (see Appendix K: Resources for Addressing Specific Risk Factors for a list of possible intervention linked to 8P risk assessment).

4. Risk Specific Interventions

Once you have completed 8P risk assessment and identified the patient's high risk characteristics, you should begin planning the patient's transition. This process highlights that transition planning begins on admission and progresses throughout the hospitalization. Of note, additional risk factors may be identified during the hospitalization (e.g. initiation of a high risk medication or development of a high risk principal diagnosis). If this occurs, institutions are encouraged to review the 8P risk specific interventions and consider implementing them during the hospitalization or prior to discharge, as feasible and appropriate.

In addition to risk specific interventions, all patients should receive all the components of the Universal Patient Discharge.

Checklist:

- **General Assessment of Preparedness (GAP) assessment completed with issues addressed.**
  The GAP is a list largely derived from a study of patient preferences of common logistical and psychological areas that, when not addressed, may act as barriers to a patient's ability to receive or obtain the care the patient needs (Grimmer K, Moss J, Falco J, Kindness H. Incorporating patient and caregiver concerns in discharge plans: the development of a practical patient-centered checklist. Internet Journal of Allied Health Sciences and Practice 2006:4(1).). This section might be addressed by a combination of the case manager, the nurse, and the social worker (see Section III, General Assessment of Preparedness: the GAP on page 25).

  The QI team should address the following questions:
  - When should this be completed?
  - How are issues identified linked back to the care team resolved?
  - Who has responsibility for resolution?
  - Is this a final pre-discharge list or one that should be addressed periodically during the patient's stay?

- **Medications reconciled with preadmission list.**
  It is important that a patient's pre-hospital medications are reviewed at admission, during transfers in the hospital, and at discharge and that changes to the medication list are reconciled; In fact, this is mandated by The Joint Commission. Many institutions have created mechanisms for completing this process, and examples of forms used for this process can be found on the Massachusetts Coalition for the Prevention of Medical Errors Website. You should feel free to modify these as needed for your institution. The Medications at Transition Changes and Handoffs (MATCH) project focuses on medication reconciliation, and its Website provides a thorough explanation of how to approach the process and has useful tools.

- **Medication use/side effects reviewed using teach back with patients/caregivers.**
  Among medical patients, medication-associated complications, so-called adverse drug events (ADEs), are the most common type of adverse event after discharge (Forster, Murff et al. 2003; Forster, Clark et al. 2004; Forster, Murff et al. 2005). Using the teach back technique, ensure that patients and their caregivers understand how, when and why to use their medications, what key side effects they should look out for, and what to do if they arise.

- **Teach Back used to confirm patient/caregiver understanding of diagnosis, prognosis, self-care requirements, and symptoms of complications requiring immediate medical attention.**
  As above, using teach back (See Appendix B: Teach Back process), work with patients and their caregivers to educate them about the care requirements they should expect after discharge, about potential complications of their illness they should anticipate, and about how to address them if they arise.

- **Action plan for management of symptoms/side effects/complications requiring medical attention established and shared with patient/caregiver using Teach Back.**
  Empowerment of the patient and caregiver to be knowledgeable regarding how to manage predictable events after discharge is important. Part of this process is ensuring they understand why, when, and how to access medical attention. In doing so, you may result in a reduction in inappropriate hospital utilization.

- **Discharge education plan completed, taught, provided to patient/caregiver at discharge.**
  This element is usually completed just prior to discharge but should be started much earlier during the hospitalization. Take advantage of the opportunity for repetition and reinforcement when time affords it in order to highlight key messages (e.g., for the patient initiated on warfarin, begin the teaching process about the medication when it is begun, not just at discharge). In the section six, the Written Discharge Instructions, you will find further instructions on the quality, elements, and literacy issues relevant to the discharge plan. See also the Patient PASS in Appendix J and Discharge Patient Education Tool (DPET) in Clinical Tools section of the BOOSTing Care Transitions Resource Room for examples and the Massachusetts Coalition for the Prevention of Medical Errors Website for an example of a patient-centered medication list, a critical element to include in all patient preparation processes.

- **Discharge communication provided to post-hospitalization care providers.**
  Ample literature identifies the frequent delays between the time of patient discharge and written communications regarding the hospitalization reaching the principle care providers. Often, the discharge summary fails to arrive before follow-up visits and is surprisingly inadequate or incomplete for the needs of these providers.(Kripalani, et al. 2007) Discharge summaries or letters should be provided to the patient's outpatient providers within 48 hours of discharge, if not at the time the patient is leaving the hospital.
  The Clinical Tools section of the BOOSTing Care Transitions Resource Room provides a template for the discharge summary, which includes necessary information that should be sent to the patient's principal outpatient provider. Of note, 8P associated risk factors should be communicated to principal care providers in the discharge summary as an outstanding issue.

- **Documented receipt of discharge information from principal care providers.**
  As recommended by the National Quality Forum's Safe Practice on Discharge (2006), hospitals should confirm that the patient's principal outpatient provider receives the discharge summary. This requires a tracking mechanism and may be in any format viable in your organizational structure, from a phone call (documented in your record) to a secure e-mail or a return fax.
  For those patients who are felt to be at particularly high risk and may or may not have been otherwise identified by the 8P scale, institutions may choose to include the following strategies to reduce the risk to the patient of an adverse event after discharge:

- **Direct communication with principal outpatient provider at discharge.**
  Communications between inpatient and outpatient providers often occurs via mailed or faxed materials. Given the busy schedules of both parties, bidirectional conversations (e.g. phone communication) may prove complex. Nonetheless, in high risk subsets of patients, this type of communication is encouraged as a way of closing the communications gap while the patient prepares for discharge. This should take place in addition to sending the patient home with a patient-oriented discharge plan and the creation of the formal discharge summary to be mailed out later This brief communication should address the identified risk factors, the primary issues of the hospitalization (including therapies initiated and discontinued), and outstanding issues, tests, appointments, and follow-up plans for the patient.

- **Telephone contact arranged within 72 hours of discharge in order to assess the patient's condition and adherence and to reinforce follow-up.**
  Several researchers have found that despite excellent in-hospital discharge planning, numerous issues arise once the patient leaves the hospital. For patients at increased risk, we recommend a phone call to patients (or caregivers) within 48-96 hours of discharge to assess patients' clinical status, their ability to receive planned treatments (e.g., Could they get their medications? Did the visiting nurse come to help them with their dressing changes?), their recall of follow-up plans, and any other issues they may have. To optimize the effectiveness of these calls for identifying actionable problems, scripts should be used to ensure all critical areas of the phone call are completed reliably.

  Who makes this call depends on the infrastructure and organization of the hospitals or health system. Researchers and practitioners, utilizing the post-discharge follow-up phone calls, have had this performed by nurses, pharmacists, and, less commonly, physicians. (Dudas, 2001; Schnipper, 2006) Another question is whether the hospital-based team should initiate the call or whether this should this be done by the outpatient care provider to reforge the therapeutic bond after the hospitalization. Because of insufficient research in this area, we believe the best approach is a local decision. What is clear is that the individual making the call should have some clinical expertise and be familiar with the issues faced by the patient at the time of discharge.

ADDITIONAL RESOURCES

Joint Commission
www.jointcommission.org

Massachusetts Coalition for the Prevention of Medical Errors
www.macoalition.org

The MATCH (Medications at Transition Changes and Handoffs):
www.medrec.nmh.org

BOOSTing Care Transitions Resource Room
www.hospitalmedicine.org/BOOST (within the section "Clinical tools")

5. General Assessment of Preparedness

As noted above, the General Assessment of Preparedness (GAP) is a list of potential psychosocial and logistical barriers to patients being able to secure and engage in the intended care plan. This list of concerns largely derives from those raised by patients and their caregivers (Grimmer K 2006). Your QI team should assign ownership to the review of this list, or it will not get done routinely. Following completion of the risk assessment (8P) at admission and on the day of discharge, components of this list should be addressed as needed during the hospitalization. For example, transportation to subsequent follow-up appointments may be a day-of-discharge checklist item, whereas functional status and cognitive status may have to be addressed daily as these may change over time.

Unlike the Universal Patient Discharge Checklist, not all elements of the GAP will pertain to all patients, and as such, some elements may be not applicable. It is intended more as a checklist to remind users of issues to consider and address with patients and their caregivers. Different GAP elements may be addressed during different phases of the hospitalization. Suggested times to consider each are provided, though many will overlap and require ongoing evaluation.

On Admission

- Caregivers and social support circle for patient identified.
- Functional status evaluation completed.
- Cognitive status assessed.
- Abuse/neglect presence assessed.
- Substance abuse/dependence evaluated.
- Advanced Care Planning documented

Nearing Discharge

- Functional status evaluation completed.
- Cognitive status assessed.
- Ability to obtain medications confirmed.
- Responsible party for ensuring medication adherence identified and prepared (if not patient).
- Home preparation for patient's arrival (eg, medical equipment, safety evaluation, food).
- Financial resources for care needs assessed.
- Transportation home arranged
- Access (eg, keys) to home ensured.
- Support circle for patient identified.

At Discharge

- Understanding of diagnosis, treatment, prognosis, follow-up, and postdischarge warning signs and symptoms confirmed with teach back.
- Transportation to initial follow-up arranged.
- Contact information for home caregivers obtained and provided to patient.

ADDITIONAL RESOURCES

Appendix K: Resources for Addressing Specific GAP Risk Factors, page 73, shows examples of tools that institutions may use or modify for their own purposes in order to address areas identified through the GAP checklist.

6. Written Discharge Instructions

In addition to creating a discharge letter or summary for principal care providers, it is important that patients leave the hospital with printed reminders of key aspects of their aftercare plan to use as a reference. They do not require many of the elements of the discharge summary, although there will be some overlap (See Universal Patient Discharge Checklist, page 41).

When generating an older patient's post-hospitalization care plan, the following principles should be remembered (Williams, Davis et al. 2002):

- The print must be large enough to be read by patients. In general, at least 14-point font size is desirable. Avoid using all capital letters and italics. If handwritten, ensure legibility and large printing.
- Avoid jargon, technical words, and medical abbreviations.
- Lists are helpful.
- Keep sentences simple and short.
- Highlight important elements in bold.

Creating the correct balance of information to include on the patient care plan is difficult. Too much information may be confusing or unnecessary. Insufficient information may lead to confusion or misunderstanding. The following elements of the patient care plan are essential:

- A statement about the reason for the hospitalization (i.e., the principal diagnosis).
  A list of medications with name (brand or generic or both, as appropriate), dose, route, frequency, and when relevant, reason for prn, written in lay terminology. Ideally, the list would indicate which medications were old, new, or changed and which medications the patient was on prior to admission that he or she should no longer take.
- Statements about what types of complications (e.g., related to their principal diagnosis or medication side effects) may occur and what to do if they happen (i.e., warning signs and symptoms).
- A list of follow-up appointments for tests and clinical visits, with their dates, times, and locations.

A list of relevant contact information (e.g., principal care providers, the VNA, the pharmacy, the hospitalist).

See Appendix J: Patient PASS and the DPET Tool in the BOOSTing Care Transitions Resource Room for examples of written discharge instructions which you may want to adapt for your use.

Ideally, the hospital's information system can be used to create the patient care plan in order to avoid the redundancy of creating this form in addition to the discharge summary and also in an effort to avoid errors related to inaccurate copying of patient information (e.g., medications or follow-up appointments).

Section IV: Evaluation: How Will You Know You Are Making A Difference?

Data Collection, Analysis and Presentation

Introduction

Data collection, analysis, and presentation are essential to the success of any quality improvement program. As Brent James (a nationally recognized leader in quality improvement) says, *"People improve what they measure."*

The Project BOOST team plans to provide a practical approach to data collection and measurement of variables potentially affected by improving the quality of the discharge care transition. We will primarily address issues related to:

1. Outcome Measures

a. Length of stay
b. 30-Day rehospitalization rates
c. Patient satisfaction
d. Completion rate of discharge summary within 48 hours

2. Process Measures

a. Patient or caregiver understanding of diagnosis, treatment, follow-up appointments, and warning signs or symptoms and response
b. Rate of implementing components of the discharge tool kit

1. Data Collection and Reporting - Quantitative

Prior to implementing the BOOST discharge tool-kit intervention, the team must assess the current state of the discharge process at the hospital. This requires obtaining and analyzing data at your hospital.

- **Baseline preintervention:** For the preceding year (*monthly data as available*).
  You should develop data collection worksheets that you can use to collect baseline information on the following measures:

  - **Length of stay** (LOS) - Monthly average among general medicine patients for the preceding 12 months. The ability to identify "outliers" (5% of patients with longest LOS) and separate from your analysis will be helpful. Alternatively, you can measure your *median* instead of *mean* LOS.

  - **Rehospitalization rate** - Monthly average among general medicine patients for the preceding 12 months.

  - **Discharge Summary** - Completion rate within 48 hours of discharge.

  - **Patient satisfaction** - Monthly average among general medicine patients for the preceding 12 months.
    - Overall and specific to the discharge process. These will vary based on your survey vendor (i.e., Press Ganey, Gallup). Listed below are examples of questions that your vendor may use to assess the discharge process. You will want to track the proportion of patients reporting the highest level of satisfaction to example items such as these:
      - "Extent felt ready for discharge"
      - "Speed of discharge process"
      - "Instructions for care at home"
      - "Explanations for taking medicines at home"
    - Results from H-CAHPS questions (required by CMS) available from your survey vendor. You need to track the proportion of patients reporting "yes" to the following questions contained in the HCAHPS survey.
      - "During this hospital stay, did doctors, nurses, or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?" Yes or no.
      - "During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?" Yes or no.

  - **Patient or caregiver understanding** - Utilizing a measurement tool (e.g. Discharge Knowledge Assessment Tool (DKAT), available through SHM's Project BOOST Web Site) each hospital will survey a convenience sample of 50 patients (or their caregivers) prior to implementation of the intervention to determine their understanding of their:
    - Diagnosis that was primary cause of hospitalization
    - Treatment in the hospital
    - Follow-up appointment(s)
    - Warning signs or symptoms and response
    - OPTION: Hospitals may also wish to assess patients' understanding of their medications (i.e., name, dosing, purpose, side effects)

- **Postimplementation:** After piloting and fully implementing the tool kit, data should be collected and reported on a monthly basis using data sheets

In this project, for example, a run chart could display length-of-stay averages or rehospitalization rates on a monthly basis. Variables measured will include:

- Length of stay - Monthly average among general medicine patients for the subsequent 6 months
- Rehospitalization rate - Monthly average among general medicine patients for the subsequent 6 months
- Discharge summary - Completion rate within 48 hours of discharge
- Patient satisfaction - Monthly average among general medicine patients for the subsequent 6 months
- Patient or caregiver understanding
- Implementation rate of the discharge tool kit

ADDITIONAL RESOURCES

SHM's Care Transitions Website
www.hospitalmedicine.org/BOOST

2. Data Collection and Reporting - Qualitative

Describe your activities from a qualitative perspective.

- Document team member participation and meetings with your senior hospital administration
- Local media reports about your project.
- Describe barriers you encountered and how they were handled

As you implement the discharge intervention, your team will need to assess if your efforts are leading to the desired changes in practice.

When you uncover a change in tool use, it is important to investigate its root causes. Perhaps the definitions have changed, the staff previously assigned to this area has been reassigned, or the tool itself needs revision. Such qualitative assessment will allow you to understand better why implementation is working or not.

3. Trending Data Over Time: Run Charts and Statistical Process Control

A **Run Chart** displays data in a graph format as results occur over time. The y axis (vertical) represents the result you are measuring, and the x axis (horizontal) represents time. In this project, for example, a run chart could display length-of-stay averages or rehospitalization rates on a monthly basis (see Appendix O).

Run charts allow the opportunity to readily identify variation in data that suggest changes in a process over time. A run chart may contain a straight line showing the average in order to more readily visualize deviations. Run charts can be modified into control charts using statistical process control by placing the control limits of the process.

ADDITIONAL RESOURCES

Statistical Process Control:
http://en.wikipedia.org/wiki/Statistical_process_control

Section V: Continuing to Improve

1. Monitoring and Learning from Variation in the Process

After the launch of your interventions: Just the beginning!

At this point you should have launched your interventions to improve the discharge transition at your center. What you do after this point is equally critical to the long-term success and sustainability of the initiative. The team needs to devise a way to track barriers and issues encountered during the implementation process. Practice that varies from your expectations of the intervention process may occur for any of several reasons:

- The new interventions do not adequately address the special needs of a given patient
- Old habits/ignorance/unwillingness to change
- The new interventions are too hard to use
- More familiar, well-known, or simpler routes of providing care are available
- End users may not agree with a standardized approach to care

As you track variation, it will become important to determine which variation is appropriate variation and which is not. There will be patients who do not fit into your intervention process. If you are finding that this is occurring more frequently than expected, it may be worth building in methods for end users to clearly document why these patients are "different." This documentation will allow you to more easily identify appropriate variation as well as to assure that the reasons given for being "different" are appropriate. If you find that some of the tools are difficult to use or that some processes are cumbersome, your team may need to reexamine the intervention and determine what components may need to change. Some behaviors will require incentives to bring care into compliance with your standardized approach. A combination of positive and negative incentives may be required to improve compliance. Improving appropriate use of the intervention also may require increased educational efforts by your team to improve understanding of the rationale behind the standardized recommendations.

However, if you do not look for variation, you will not find it. Similarly, if you do not determine why there is variation, you will not be able to adequately address issues that will improve compliance. With ongoing monitoring of the intervention, you will be able to better respond to valid issues by adjusting tools and processes and reducing inappropriate variability by a combination of correction methods.

TASK

Devise methods to track deviation from your intervention bundle. Revise your intervention on the basis of feedback from users and patient needs.

Task Assignment: _____

Time Line for Completing: _____
Repeat in a continuous manner.

2. Holding the Gains and Spreading Your Improvement

Holding the Gains

Once you have redesigned the process of the discharge care transition throughout your target area, it may be tempting to move on to other issues and to stop monitoring the process. But if you don't want all your hard work to go to waste, you need to resist this temptation. Do not assume the discharge process is "fixed" simply because you implemented your intervention. To hold and spread the gains you've accomplished, you must keep monitoring the process so your improvements will not erode. Although you may be able to reduce the intensity of the monitoring and modification process, some ongoing assessment of how the process is functioning is absolutely necessary. In addition, new findings from research publications, new therapies, and new patient situations arise frequently. The team should remain responsible for monitoring these issues, updating your tools and processes, and revising the intensity of scrutiny based on the stability of your metrics.

TASK A

Schedule regular assessments to monitor and trend your metrics. Schedule interval reviews of the literature. Schedule sessions to update the protocol/order set.

Task Assignment: _____

Time Line for Completing: _____

Spreading the Improvement

Creating breakthrough levels of improvement is hard work, but it also can be exciting and rewarding. Ideally, others will learn from your experience and implement your interventions in their own environment at an accelerated pace while still allowing for customization to account for their own unique setting. The improvement in the discharge transition in your target population can serve as a model for other areas in your organization. The IHI Web site has a detailed discussion of a framework to enhance spread of innovations through-out an organization.

TASK B

Identify the priority areas to "spread" the improvements you have achieved. Review the framework for spread on the IHI Web site. Don't overlook this significant opportunity.

Task Assignment: _____

Time Line for Completing: _____

ADDITIONAL RESOURCES

Statistical Process Control:
Institute for Healthcare Improvement
www.ihi.org

Appendices

Appendix A: TARGET Assessment Tool - The 8Ps

Tool for Addressing Risk: a Geriatric Evaluation for Transitions

Risk Assessment: 8P Screening Tool (Check all that apply.)	Risk Specific Intervention	Signature of individual responsible for insuring intervention administered
Problem medications (anticoagulants, insulin, aspirin & clopidogrel dual therapy, digoxin, narcotics) ☐	☐ Medication specific education using Teach Back provided to patient and caregiver ☐ Monitoring plan developed and communicated to patient and aftercare providers, where relevant (e.g. warfarin, digoxin and insulin) ☐ Specific strategies for managing adverse drug events reviewed with patient/caregiver ☐ Follow-up phone call at 72 hours to assess adherence and complications	
Psychological (depression screen positive or h/o depression diagnosis) ☐	☐ Assessment of need for psychiatric aftercare if not in place ☐ Communication with aftercare providers, highlighting this issue if new ☐ Involvement/awareness of support network insured	
Principal diagnosis (cancer, stroke, DM, COPD, heart failure) ☐	☐ Review of national discharge guidelines, where available ☐ Disease specific education using Teach Back with patient/caregiver ☐ Action plan reviewed with patient/caregivers regarding what to do and who to contact in the event of worsening or new symptoms ☐ Discuss goals of care and chronic illness model discussed with patient/caregiver	
Polypharmacy (≥5 more routine meds) ☐	☐ Elimination of unnecessary medications ☐ Simplification of medication scheduling to improve adherence ☐ Follow-up phone call at 72 hours to assess adherence and complications	
Poor health literacy (inability to do Teach Back) ☐	☐ Committed caregiver involved in planning/administration of all general and risk specific interventions ☐ Aftercare plan education using Teach Back provided to patient and caregiver ☐ Link to community resources for additional patient/caregiver support ☐ Follow-up phone call at 72 hours to assess adherence and complications	
Patient support (absence of caregiver to assist with discharge and home care) ☐	☐ Follow-up phone call at 72 hours to assess condition, adherence and complications ☐ Follow-up appointment with aftercare medical provider within 7 days ☐ Involvement of home care providers of services with clear communications of discharge plan to those providers	
Prior hospitalization (non-elective; in last 6 months) ☐	☐ Review reasons for re-hospitalization in context of prior hospitalization ☐ Follow-up phone call at 72 hours to assess condition, adherence and complications ☐ Follow-up appointment with aftercare medical provider within 7 days	
Palliative care (Would you be surprised if this patient died in the next year? Does this patient have an advanced or progressive serious illness?) Yes to either: ☐	☐ Assess need for palliative care services ☐ Identify goals of care and therapeutic options ☐ Communicate prognosis with patient/family/caregiver ☐ Assess and address bothersome symptoms ☐ Identify services or benefits available to patients based on advanced disease status ☐ Discuss with patient/family/caregiver role of palliative care services and benefits and services available	

Appendix A: TARGET Assessment Tool

The Universal Patient Discharge Checklist

Complete TARGET by insuring the Universal Patient Discharge Checklist is completed for all patients.		Initials
1. GAP assessment completed with issues addressed	❒ Yes ❒ No	
2. Medications reconciled with pre-admission list	❒ Yes ❒ No	
3. Medication use/side effects reviewed using Teach Back with patient/caregiver(s)	❒ Yes ❒ No	
4. Teach Back used to confirm patient/caregiver understanding of disease, prognosis and self-care requirements	❒ Yes ❒ No	
5. Action plan for management of symptoms/side effects/complications requiring medical attention established and shared with patient/caregiver using Teach Back	❒ Yes ❒ No	
6. Discharge plan (including educational materials; medication list with reason for use and highlighted new/changed/discontinued drugs; follow-up plans) taught and provided to patient/caregiver at discharge	❒ Yes ❒ No	
7.Discharge communication provided to principal care provider(s)	❒ Yes ❒ No	
8. Documented receipt of discharge information from principal care provider(s)	❒ Yes ❒ No	
9. Arrangements made for outpatient follow-up with principal care provider(s)	❒ Yes ❒ No	
For increased risk patients, consider	❒ **Not Applicable**	
1. Face-to-face multidisciplinary rounds prior to discharge	❒ Yes ❒ No	
2. Direct communication with principal care provider before discharge	❒ Yes ❒ No	
3. Phone contact with patient/caregiver arranged within 72 hours post-discharge to assess condition, discharge plan comprehension and adherence, and to reinforce follow-up	❒ Yes ❒ No	
4. Follow-up appointment with principal care provider within 7 days of discharge	❒ Yes ❒ No	
5. Direct contact information for hospital personnel familiar with patient's course provided to patient/caregiver to address questions/concerns if unable to reach principal care provider prior to first follow-up	❒ Yes ❒ No	

Confirmed by: _____ _____ ____/ ____/ ___

Signature Print Name Date

Appendix A: TARGET Assessment Tool

The General Assessment of Preparedness (GAP) Tool

General Assessment of Preparedness (GAP)

Prior to discharge, evaluate the following areas with the patient/caregiver(s) and ambulatory medical care providers: A = Beginning upon admission; P = Prior to discharge; D = At discharge

Logistical Issues

1. Functional status assessment completed (P) ❒ Yes ❒ No
2. Access (e.g. keys) to home insured (P) ❒ Yes ❒ No
3. Home prepared for patient's arrival (e.g. medical equipment, safety evaluation, food) ❒ Yes ❒ No
4. Financial resources for care needs assessed (P) ❒ Yes ❒ No
5. Ability to obtain medications confirmed (P) ❒ Yes ❒ No
6. Responsible party for insuring med adherence identified/prepared, if not patient (P) ❒ Yes ❒ No
7. Transportation to initial follow-up arranged (D) ❒ Yes ❒ No
8. Transportation home arranged (D) ❒ Yes ❒ No

Psychosocial Issues

1. Substance abuse/dependence evaluated (A) ❒ Yes ❒ No
2. Abuse/neglect presence assessed (A) ❒ Yes ❒ No
3. Cognitive status asserted (A) ❒ Yes ❒ No
4. Advanced care planning documented (A) ❒ Yes ❒ No
5. Support circle for patient identified (P) ❒ Yes ❒ No
6. Contact information for home caregivers obtained and provided to patient (D) ❒ Yes ❒ No

Confirmed by: _____ _____ ____/____/___

Signature | Print Name | Date

Appendix B: Teach Back Process

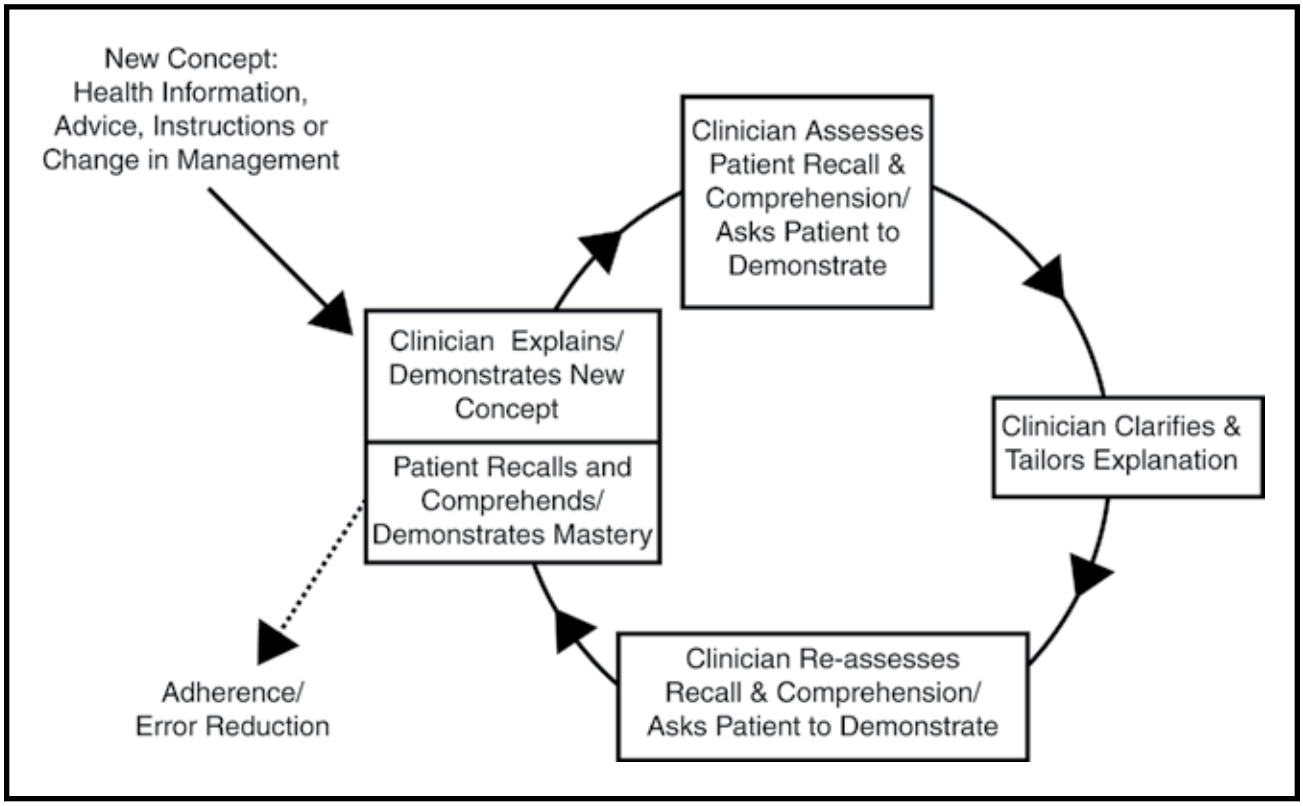
Step 1: Using simple lay language, explain the concept or demonstrate the process to the patient/caregiver. Technical terms should generally be avoided. If the patient/caregiver has limited English proficiency, a professional translator should be utilized to reduce miscommunication.

Step 2: Ask the patient/caregiver to repeat, in his or her own words, how they understand the concept explained. If a process was demonstrated to the patient, ask the patient/caregiver to demonstrate it, independent of assistance, for the clinician.

Step 3: Identify and correct misunderstandings or incorrect procedures for the patient/caregiver.

Step 4: Ask the patient/caregiver to demonstrate their understanding or procedural ability again to insure the
above-noted misunderstandings are now corrected.

Step 5: Repeat Steps 4 and 5 until the clinician is convinced the patient/caregivers comprehension about the concept or ability to perform the procedure accurately and safely is ensured.



Schillinger, D, Piette J, Grumbach K, et al. Closing the loop: physician communication with diabetic patients who have low health literacy. **Arch Intern Med. 2003; 163:83-90**

Reprinted with permission from:
Dean Schillinger, MD,
Associate Professor of Clinical Medicine
University of California, San Francisco
San Francisco General Hospital

Appendix C: Tool for Identifying Key Stakeholders, Committees, and Groups

TASK A

Identify key stakeholders, committees, and special groups that need to be aware of your efforts to improve the discharge care transition. You also need to understand where your team fits into the organization's quality improvement structure. This understanding is critical, especially if the group identifies barriers that require broader organizational support to overcome. In addition, clarifying this relationship will assist other QI teams and will help to standardize the approach to clinical care improvement.

Stakeholders:

Committees:

Special Groups (including consumer groups):

Assignment for Task A _____ (Team Leader)

Time Line for beginning and completing: _____

TASK B

Clarify the reporting structure and approval process for your interventions, and resource approval (include names, titles, and if helpful, an organizational chart that reflects the process).

Reporting Structure:	**Approval Process:**

Assignment for Task B _____ (Team Leader)

Time Line for beginning and completing: _____

Appendix D: Tools for Care Transition Improvement Team Roster

TASK

Fill out the names and contact information of members of your care transition team* and construct a team roster and group e-mail to help the team communicate.

*You may identify only 3 or 4 key personnel at the outset but may draft others onto the team as additional team member needs become clear.

Task Assignment: _____

Time Line for Completing: _____

We recommend trying to enroll a range of personnel early, within 2-3 weeks.

Team Leader
(Physician)

Name: _____
E-mail: _____
Phone: _____ Pager: _____
Team leader is often, but not always, a hospitalist

Team Leader
(Non-Physician)

Name: _____
E-mail: _____
Phone: _____ Pager: _____

Team Facilitator

Name: _____
E-mail: _____
Phone: _____ Pager: _____

Content Expert

Name: _____
E-mail: _____
Phone: _____ Pager: _____
Local expert with expertise in the management of care transitions

Hospitalist 2

Name: _____
E-mail: _____
Phone: _____ Pager: _____

AHP - PA or NP

Name: _____
E-mail: _____
Phone: _____ Pager: _____

Appendix D: Tools for Care Transition Improvement Team Roster

TASK

PCP
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Home Care
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Subacute Physician
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Data Analyst
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Nurse Supervisor
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Nurse
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Social Worker
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Nutrition/Dietary
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Appendix D: Tools for Care Transition Improvement Team Roster

TASK

Case Manager
Name: _____
E-mail: _____
Phone: _____ Pager: _____

ED Personnel
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Patient Representative
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Health Information
Name: _____
E-mail: _____
Phone: _____ Pager: _____

Your team roster may vary from this, and you should be flexible as you address different aspects of achieving optimal management of the hospital discharge transition. Typically, the larger the team, the harder it can be to move forward and ensure accountability. Thus, a core group of 4 to 8 people should drive the process with involvement of others on an as-needed basis. Regardless, senior administration buy-in and support is essential to successful implementation of quality improvement efforts and sustaining change.

Appendix E: Tools for Assessing Current Processes - FMEA Analysis

TASK

- Identify local QI resources

  QI Resource 1 Name: _____ Contact: _____

  QI Resource 2 Name: _____ Contact: _____

- Review the slide presentation on Quality Improvement Theory in the BOOSTing Care Transitions Resource Room.
- Get more information on a few key tools at the Web sites listed in the BOOSTing Care Transitions Resource Room, QI Basics section.
- There are many tools for QI. Each tool has particular strengths for use at different points in the improvement process.
- A few are particularly important and are useful in almost every project. Process flow mapping is an important step in designing or redesigning a process to make it more efficient and reliable. Process flow mapping also lends itself to producing protocols and clinical algorithms and is essential to identifying where things can go wrong, either informally or more formally by failure modes effect analysis (FMEA).
- We also consider use of run charts as essential because they help the team follow and communicate progress toward its goals.
- We recommend having a working familiarity with these tools, either by the local expert or by the hospitalists who are (or will become) your improvement team resources. You can find more in-depth information on these (and other tools) at the locations listed in the QI Basics, Web Resources section of the BOOSTing Care Transitions Resource Room. Later sections of this implementation guide will guide you further on some of these key improvement tools.

Task Assignment: _____

Time Line for Completing: _____

Appendix F: Tools for Running and Effective Meeting

TASK

Establish team rules and post a large, readable version at each team meeting (Appendix D)

Task Assignment_____ (Team Facilitator)

Team Ground Rules:

- All team members and opinions are equal.
- Team members will speak freely and in turn.
  - We will listen attentively to others.
  - Each must be heard.
  - No one may dominate.
- Problems will be discussed, analyzed, or attacked (not people).
- All agreements are kept unless renegotiated.
- Once we agree, we will speak with "one voice" (especially after leaving the meeting).
- Honesty before cohesiveness.
- Consensus versus democracy: we each get our say, not our way.
- Silence equals agreement.
- Members will attend regularly.
- Meetings will start and end on time.

Task Assignment: _____

Appendix G: Tools for Establishing General Aims

TASK

Establish General Aims

General Aim 1: _____

_____

_____

General Aim 2: _____

_____

_____

General Aim 3 _____

_____

_____

General Aim 4: _____

_____

_____

Task Assignment: The Improvement Team

Time Line for Completing: First Team Meeting

Appendix H: Tool for Performing Institutional Assessment

TASK

Perform an institutional assessment of your current practice

Task 1 Administrative support

Task Assignment: _____

Time line for completing: _____

Task 2 Multidisciplinary team

Task Assignment: _____

Time line for completing: _____

Task 3 Data flow/metrics

Task Assignment: _____

Time line for completing: _____

Task 4 Understanding current discharge process and propose areas for standardization

Task Assignment: _____

Time line for completing: _____

Task 5 Family/caregiver preparedness

Task Assignment: _____

Time line for completing: _____

Task 6 Medication safety issues

Task Assignment: _____

Time line for completing:_____

Task 7 Follow-up care

Task Assignment: _____

Time line for completing: _____

Task 8 Educational issues

Task Assignment: _____

Time line for completing: _____

Appendix I: Content Expert Annotated Bibliography

Patient and Caregiver Involvement

Preparing Patients And Caregivers To Participate In Care Delivered Across Settings: The Care Transitions Intervention.
Coleman EA, et al. J Am Geriatr Soc 2004; 52:1817-1825. PMID: 15507057.

When patients and caregivers take an active role in care transition and management, the patient is less likely to be readmitted to the hospital. Patients who received intervention measures during the transition process were about half as likely to return to the hospital after discharge.

Assessing The Quality Of Preparation For Posthospital Care From The Patient's Perspective: The Care Transitions Measure.
Coleman EA, Mahoney E, and Parry, C. Med Care 2005; 43:246-255. PMID: 15725981.

Care Transitions Measure (CTM) is a way to assess care transition from the patient's perspective. The CTM is a 15-item survey designed to measure the quality of care transition from the patient point of view. The authors suggest further study using this survey to determine its ability to be generalized over large hospital systems and geographical areas. Interesting points about patient perspective on posthospital transitions are raised.

The Care Transitions Intervention Results of a Randomized Controlled Trial.
Coleman, EA, Parry, C, Chalmers, S , Min, SJ. Arch Intern Med. 2006 Sep 25;166(17):1822-8. PMID: 17000937.

Coaching chronically ill older patients and their caregivers to ensure that their needs are met during care transitions may reduce the rates of subsequent rehospitalization.

Concerns Following Discharge from the Hospital; Reengineering Systems

The Impact Of Follow-Up Telephone Calls To Patients After Hospitalization.
Dudas V, Bookwalter T, et, al. Am J Med. 2001 Dec 21;111(9B):26S-30S. PMID: 12021756.

The Incidence And Severity Of Adverse Events Affecting Patients After Discharge From The Hos-pital.
Forster AJ et al. Ann Intern Med 2003; 138:161-167. PMID: 12558354.

Adverse events occur shortly after discharge from the hospital that could potentially be prevented. 19% of patients in the cohort had adverse events after discharge from the hospital. In 23 of the 76 reported cases, the adverse events were reportedly preventable. Adverse events included: lab errors, symptoms, and drug events.

Patient Safety Concerns Arising From Test Results That Return After Hospital Discharge.
Roy CL, Poon et al. Ann Inter Med 2005; 143:121-128. PMID: 16027454

Results of tests conducted in the hospital are not often available when a patient is discharged; physicians and patients may not be made aware of them. 9.4% of test results (N=2033) may have required action but physicians were not always aware of them.

Appendix I: Content Expert Annotated Bibliography

"I Wish I Had Seen This Test Result Earlier!": Dissatisfaction With Test Result Management Systems In Primary Care.
Poon E, Gandhi T, Sequist T, et, al. Archives of Internal Medicine. 2004;164:2223-2228. PMID: 15534158.

The Hospital Discharge: A Review Of A High Risk Care Transition With Highlights Of A Reengineered Discharge Process.
Greenwald, JL. Denham, CR. Jack BW. J Patient Saf 2007;3:97-106. No PubMed abstract available. Last Accessed at http://www.bu.edu/fammed/projectred/publications.html March 4, 2008.

Reviews modifiable components of the hospital discharge process related to adverse events and rehospitalizations, including characteristics of the hospital, patient, and clinician. Through multi method analy-sis, describes principles thought to be important to the discharge process and delineates the reengineered discharge, a set of 11 discrete and mutually reinforcing components for hospital discharge.

Approximately One-Quarter Of Patients Had An AE After Hospital Discharge, And Half Of The AEs Were Preventable Or Ameliorable.
Adverse Events Among Medical Patients after Discharge from Hospital. Forster, AJ, Clark, H, Menard, A, et,al. CMAJ. 2004 Feb 3;170(3):345-9 PMID: 14757670

Tying Up Loose Ends: Discharging Patients With Unresolved Medical Issues.
Moore C, McGinn T, Halm E. Arch Intern Med. 2007 Jun 25;167(12):1305-11. PMID: 17592105.
Noncompletion of recommended outpatient workups after hospital discharge is common. PCP access to discharge summaries documenting the recommended workup is associated with better completion of recommendations.

Patient Safety Concerns Arising From Test Results Through Hospital Discharge.
Roy, C,. Poon,E, Karson, A, et, al. Ann Intern Med. 2005 Jul 19;143(2):121-8. PMID: 16027454

Many patients are discharged from hospitals with test results still pending, and physicians are often un-aware of potentially actionable test results returning after discharge. Further work is needed to design better follow-up systems for test results returning after hospital discharge.

Safe Practices For Better Healthcare – 2006 Update: A Consensus Report.
National Quality Forum (NQF). Last Accessed at http://216.122.138.39/publications/reports/safe_practices_2006.asp March 4, 2008.

The Impact of Follow-Up Telephone Patients After Hospitalization.

Deficits In Communication And Information Transfer Between Hospital-Based And Primary Care Physicians: Implications For Patient Safety And Continuity Of Care.
Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW.JAMA. 2007 Feb 28;297(8):831-41. PMID: 17327525

Deficits in communication and information transfer at hospital discharge are common and may adversely affect patient care. Interventions such as computer-generated summaries and standardized formats may facilitate more timely transfer to primary care physicians.

Appendix I: Content Expert Annotated Bibliography

Lost In Transition: Challenges And Opportunities For Improving The Quality Of Transitional Care.
Coleman EA, Berenson RA. Annals of Internal Medicine. Oct 5 2004;141(7):533-536. PMID: 15466770.

Closing The Quality Gap: A Critical Analysis Of Quality Improvement Strategies: Volume 7—Care Coordination, Structured Abstract.
Publication No. 04(07)-0051-7, June 2007. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/clinic/tp/caregaptp.htm accessed May 30, 2008.

Role Of Pharmacist Counseling In Preventing Adverse Drug Events After Hospitalization.
Schnipper JL, Kirwin JL, Cotugno MC, et al. Archives of Internal Medicine. Mar 13 2006;166(5):565-571. PMID: 16534045.

Medication Reconciliation

Posthospital Medication Discrepancies: Prevalence And Contributing Factors.
Coleman EA, Smith JD, Raha D, Min SJ. Arch Intern Med 2005 Sept 12; 165:1842-7. PMID: 16157827.

Medical error and its relation to potentially serious warrants further investigation into medication recon-ciliation. Using the Medication Discrepancy Tool, a sample analysis of the geriatric population finds er-rors equally split between patient-associated and system-associated factors.

Unintended Medication Discrepancies At The Time Of Hospital Admission.
Cornish P, Knowles S, Marchesano R, et al. Arch Intern Med. 2005 Feb 28;165:424-9. PMID: 15738372.

A review of admissions into a Canadian medical facility reveals a drug discrepancy rate of 53.6%, with 38.6% of these errors that may lead to poor health.

Medication Use Leading To Emergency Department Visits For Adverse Drug Events In Older Adults.
Budnitz, D.S., Shehab, N. Ann Intern Med. 2007 Dec 4;147(11):755-65. PMID: 18056659.

Conclusion: Compared with other medications, Beers criteria medications caused low numbers of and few risks for emergency department visits for adverse events. Performance measures and interventions targeting warfarin, insulin, and digoxin use could prevent more emergency department visits for adverse events.

Standardizing Medication Labels: Confusing Patients Less. Workshop Summary Excerpt.
Hernandez, L.M., Rapporteur, Roundtable on Health Literacy. http://www.iom.edu/Default.aspx?id=53764 Accessed June 1, 2008.

Marked Improvement in Identifying and Preventing Medical Errors Found after Perform-ing Reconciliation Process.

Medication Reconciliation: Verifying Medication Orders And Clarifying Discrepancies Should Be Standard Practice.
Ketchum K., Grass C., Padwojski A. AJN 2005;105(11):78-85. PMID: 16264317.

Comprehensive review of medication reconciliation, including tips for identifying errors, an admis-sion/discharge home medication list, and online resources.

Appendix I: Content Expert Annotated Bibliography

Medication Reconciliation In Acute Care: Ensuring An Accurate Drug Regimen On Admission And Discharge.
Rodehaver C, Fearing D. Jt Comm J Qual Patient Saf. 2005 Jul; 31(7): 406-13. PMID: 16130984.

As the result of a recent study in an Ohio medical system, 175 medical errors were reported per every 100 patient records reviewed. After executing the reconciliation concept, the error rate was reduced to 0.35%.

Patient Pre-Discharge Appointment

Evaluation Of A Medication Program For Elderly Hospital In-Patients.
Shen Q, Karr M, Ko A, et al. Geriatric Nursing. 2006 May-Jun;27(3):184-92. PMID: 16757390.

Before discharge medication education, one study reveals participants very limited knowledge of the brand names, prescribed frequency, dosage, and purpose of their medications. Pre-discharge review of medications provided improved patient understanding and reduced occurrences of medication error.

Risk Assessment-Determining Patients of Highest Risk of Readmission

Predicting Non-Elective Hospital Re-Admissions: A Multi-Site Study.
Smith D, Giobbie-Hurder A, Weinberger M, et al. Journal of Clinical Epidemiology 2000, 53 1113-8. PMID: 11106884.

31-50% of elderly hospitalized general medicine patients are experience non-elective readmissions within 90 days of discharge. Prior health care management, access to emergency care, and disease severity are among the top predicting factors of hospital readmissions.

Readmissions: A primary Care Examination Of Reasons For Readmission Of Older People And Possible Readmission Risk Factors.
Dobrzanska L, Newell R. Journal of Clinical Nursing. 2006 May;15(5):599-606. PMID: 16629969.

Pilot study indicates that patients readmitted from home experienced a patients discharged from home had a longer mean duration of readmission stay (14•14 days), compared to patients discharged to other settings (10•72 days). Patients from home also were readmitted later than those from another source (home: 14•65 - in care: 10 •75).

Interdisciplinary Collaboration

Effects Of A Multidisciplinary, Post-Discharge Continuance Of Care Intervention On Quality Of Life, Discharge Satisfaction, And Hospital Length Of Stay: A Randomized Controlled Trial.
Preen D, Bailey B, Wright A, et al. Int J Qual Health Care. 2005; Feb 17(1):43-51. PMID: 15668310.

Collaboration of health care providers improves mental quality of life, patient satisfaction.

From Vision To Reality: How To Actualize The Vision Of Discharging Patients From A Hospital, With An Increased Focus On Prevention.
Olsen L, Wagner L. Int Nurs. Rev. 2000 Sep;47(3):142-56. PMID: 11043484.
Literature review identifies barriers of partnership between healthcare professionals and demonstrates tools to actuate optimal patient discharge.

Appendix I: Content Expert Annotated Bibliography

Adverse Events After Discharge

The Incidence And Severity Of Adverse Events Affecting Patients After Discharge From The Hos-pital.
Forster A, et al. Ann Intern Med. 2003; 138: 161- 167. PMID: 12558354.

A study of 400 patients discharged from the medical service. Of the study population, 76 patients (19%) of patients suffered adverse events (AE). One third of the AEs were preventable. Another third were am-eliorable. Ineffective communication contributed to many of these events. The most common types of AEs were:

- *66% related to drugs (e.g., analgesics, steroids, cardiovascular)*
- *17% related to procedures*
- *A few related to infections and falls*

This article concludes that nearly one in five patients experiences an adverse event (AE) during the tran-sition from the hospital to home. Communications to the PCP at the time of discharge should not only in-clude the new medication regimen, it should also contain specific information about what the follow-up MDs need to do, when they should do it, and what they should watch for. In addition, more effort must be made to effectively communicate this information to the patient.

Tying Up Loose Ends: Discharging Patients With Unresolved Medical Issues.
Moore C et al. Arch Intern Ned 2007;167:1305-1311. PMID: 17592105.

A study on 693 discharges found that 240 (27.6%) of patients had outpatient workups recommended. 35.9% of recommended workups were not completed. The top three failures involved diagnostic proce-dures (47.9%), subspecialty referrals (35.4%), and laboratory tests (16.7%). The most common diagnos-tic procedures not completed were diagnostic CT scans to follow up abnormalities seen on previous x-rays and endoscopic procedures to follow up on gastrointestinal bleeding.

The need for policies and service agreements between PCP and Hospitalists to clearly define whose job it is to order and follow up on these studies.

Frequency Of New Or Worsening Symptoms In The Posthospitalization Period.
Epstein K et al. Journal of Hospital Medicine 2007;2:58-68. PMID: 17431881.

A study of 15,767 patients contacted by a nurse within 5 days of hospital discharge. 1876 (11.9%) of pa-tients reported symptoms that were new or worsened since hospital discharge. Of the patients with new or worsened symptoms, 37% required no nurse intervention since they had already notified a doctor or were doing something about the symptom. 63% had not notified their doctor and the nurse intervention in 72% of these cases was to notify the primary care provider or specialist.

Supports the need for early follow up, sometimes within 2-3 days of hospital discharge.

Adverse Events Among Medical Patients After Discharge From Hospital
Forster, AJ, et,al.. CMAJ. 2004 Feb 3;170(3):345-9. PMID: 14757670.

Appendix I: Content Expert Annotated Bibliography

Medication Use Leading To Emergency Department Visits For Adverse Drug Events In Older Adults.
Budnitz, D.S., Shehab, N. Ann Intern Med. 2007 Dec 4;147(11):755-65. PMID: 18056659.

Conclusion: Compared with other medications, Beers criteria medications caused low numbers of and few risks for emergency depart-ment visits for adverse events. Performance measures and interventions targeting warfarin, insulin, and digoxin use could prevent more emergency department visits for adverse events.

Addressing Postdischarge Adverse Events: A Neglected Area.
Tsilimingras D, Bates DW. Jt Comm J Qual Patient Saf. 2008 Feb;34(2):85-97.
PMID: 18351193.

Handoff Communication and Discharge

Promoting Effective Transitions Of Care At Hospital Discharge: A Review Of Key Issues For Hospitalists.
Kripilani S. Journal of Hospital Medicine 2007;2:314-323. PMID: 17935242.

A nice overview of the challenges faced at discharge and approaches to improvement. States that nearly half (49%) of hospitalized patients experience at least one medical error in medication continuity, diag-nostic workup, or test follow-up. The challenges discussed include discontinuity between hospitalists and primary care physicians, changes to the medication regimen, new self-care responsibilities, and complex discharge instructions.

Deficits In Communication And Information Transfer Between Hospital-Based And Primary Care Physicians
Kripilani S. JAMA Feb 2007; 297(8):831-841. PMID: 17327525.

An extensive review of literature to characterize the prevalence of deficits in communication and informa-tion transfer at hospital discharge and to identify interventions to improve the process. The review in-cluded 55 observational studies and 18 controlled studies. Data from the observational studies were ex-tracted on the availability, timeliness, content and format of discharge communications, as well as pri-mary care physician satisfaction.

The availability of a discharge summary at the first post discharge visit was low (12-34%) and remained poor (51-77%) at 4 weeks, affecting the quality of care in approximately 25% of follow-up visits and con-tributing to primary care physician dissatisfaction. Discharge summaries often lacked important informa-tion such as diagnostic test results, discharge medications, test results pending at discharge, patient or family counseling, and follow-up plans.

Several interventions, including computer-generated discharge summaries and using patients as couriers, shortened the delivery time of discharge communications.Use of standardized formats to highlight the most pertinent information improved the perceived quality of documents.

Appendix I: Content Expert Annotated Bibliography

Key Legal Principles For Hospitalists
Alpers, A. Am J Med 2001; 111(9B):5S-9S. PMID: 11790361.

The Hospitalist's duty is two-fold: First, he or she must provide the patient with the information about the ongoing care required and the risks of not receiving such care. Second, the Hospitalist must ensure the PCP has enough information to provide high quality care when the patient presents in clinic.

The article asserts that the best risk-management (and patient safety) strategy after discharge will be to provide the patient with comprehensive, clear information and to ensure good communication between the Hospitalist and the PCP. The Hospitalist does not discharge ongoing obligations to the patient by dis-charging him or her from the hospital. Nor is the PCP excused from the responsibility for obtaining in-formation about hospitalizations.

Key Recommendations of this article include: 1) Both Hospitalist and PCP assume responsibility for dis-charged patient 2) Inform patient of importance of follow-up care 3) Inform patient and PCP of pending or changed test results 4) Hospitalist and PCP coordinate contacting patients who miss follow-up care.

Primary Care Physician Attitudes Regarding Communication With Hospitalists.
Pantilat SZ, Lindenauer PK, Katz PP, Wachter RM. American Journal of Medicine.2001;111(9B):15S-20S. PMID: 11790363.

Continuity Of Care And Patient Outcomes After Hospital Discharge.
van Walraven C, Mamdani M, Fang J, Austin P. Journal of General Internal Medicine. 2004;19:624-631. PMID: 15209600.

Readmission

The Care Transitions Intervention
Coleman, Eric. Arch Intern Med 2006; 166:1822-1828. PMID: 17000937.

A randomized control trial of 750 patients ages 65 and above, comparing intervention versus usual care. Intervention patients received: 1) tools to promote cross-site communication, 2) encouragement to take a more active role in their care and to assert their preferences, and 3) continuity across settings and guid-ance from a "transition coach".

Intervention patients had lower rehospitalization rates at 30, 90, and 180 days. Recognizing the key roles that patients and their caregivers play in improving care transitions appears to significantly reduce the rates of rehospitalizations, even in a heavily penetrated Medicare Advantage market. The cost of the in-tervention was $74,310, far less than a conservative projected annual cost savings of $295,594.

Appendix I: Content Expert Annotated Bibliography

The Association Between The Quality Of Inpatient Care And Early Readmission.
Ashton CM et al. Ann Intern Med 1995;122(6): 415-421. PMID: 7856989.

A study of 2513 VA patients discharged after hospitalization for diabetes, chronic obstructive pulmonary disease, or heart failure. Studied the impact of three major process of care criteria with readmission in 14 days. The three process of care categories which defined "standard" versus "substandard care" were: 1) admission workup, 2) evaluation and treatment, and 3) readiness for discharge. For patients with dia-betes and heart failure, increased risk of readmission was correlated with decreased readiness for dis-charge scores. For patients with COPD, increased readmission was correlated with decreased admission workup scores. Thus, 1 of 7 readmissions for diabetes, 1 of 5 readmissions for heart failure, and 1 of 12 readmissions for COPD were attributable to "substandard" care.

This study defines "readiness for discharge" criteria specific to chronic conditions of diabetes, CHF, and COPD. May help with CMI assessment of patient needs during care transitions.

Predicting Non-Elective Hospital Readmissions: A Multi-Site Study.
Smith DM et al. Journal of Clinical Epidemiology 2000;53:1113-1118. PMID: 11106884.

A study of 1378 patients from 9 VA medical centers to examine clinical and patient-centered factors pre-dicting hospital readmission. The study population included patients discharged from the medical service with a diagnosis of diabetes mellitus, congestive heart failure, and/or chronic obstructive pulmonary dis-ease. 23.3% of patients were readmitted. The two patient-centered factors significantly and independently associated with readmission were lower mental health status (SF-36) scores and higher satisfaction with access to emergency care. Of the disease variables, COPD increased risk for readmission.

Suggests importance of mental health/cognitive status and looking at particularly high-risk disease states for unmet medical, nursing, and social support needs at discharge.

Understanding Rehospitalization Risk: Can Hospital Discharge Be Modified To Reduce Recurrent Hospitalization?
Strunin L et al. Journal of Hospital Medicine 2007;2:297-304. PMID: 17935257.

Study of 21 patients interviewed after hospital discharge to assess continuity of care after discharge, need for and availibility of social support, and ability to obtain follow-up medical care.

The study population may not be generalizable (younger patients admitted to a public hospital) but study concludes that social circumstances rather than lack of medical knowledge posed a greater barrier to re-cuperation.

Appendix I: Content Expert Annotated Bibliography

Readmissions: A Primary Care Examination of Reasons For Readmission Of Older People And Possible Readmission Risk Factors.
Dobrzanska L, Newell R. Journal of Clinical Nursing 2006; 15: 599-606. PMID: 16629969.

Study of patients aged 77 and older to examine reasons for emergency readmission within 28 days of hospital discharge. 69.7% of patients were readmitted for deterioration of existing medical condition. The mean days to readmission was 13.5. Weekend and holiday discharges were associated with increased li-kelihood of readmission.

Transition Of Care For Hospitalized Elderly Patients--Development Of A Discharge Checklist For Hospitalists.
Halasyamani L, Kripalani S, Coleman E, et al. Journal of Hospital Medicine. Nov 2006;1(6):354-360. PMID: 17219528.

To view the checklist, visit the Clinical Tools, Discharge Planning & Education section in the Project BOOST Resource Room.

Preparing Patients for Discharge

Patients Understanding Of Their Treatment Plans And Diagnosis At Discharge.
Makaryus, AN, Friedman EA. Mayo Clin Proc. Aug 2005;80(8):991-994. PMID: 16092576.

A study of 43 patients surveyed at discharge to assess their knowledge of discharge diagnosis, medication treatment plan, and common side effects of prescribed medications. Only 27.9% were able to list all their medications, 37.2% were able to state the purpose of their medications, and 14% were able to state com-mon side effects. Only 41.9% were able to state their diagnosis or diagnoses. The mean number of medi-cations at discharge was 3.89. Patients were excluded if they were not oriented to person, place, and time or did not speak English.

Patients Understanding Of And Compliance With Medications: The Sixth Vital Sign?
Rosenow EC. Mayo Clin Proc. Aug 2005;80(8):983-987. PMID: 16092574.

Editorial regarding article above points out the following:

- *It was estimated that direct costs of noncompliance of medication was greater that $50 billion and indirect costs were an ad-ditional $50 billion*
- *Health literacy in the US: 15% of English-speaking people are illiterate, 15% are marginally literate. Another 15-20% of the US population speak a language other than English as their primary language. This means that 50% of the US population are at high risk of misunderstanding the management plan and noncompliance.*
- *A study of 325 elderly patients, average age 78, showed that 39% were undable to read the prescription labels, 67% did not fully understand them, and as a result 45% were noncompliant.*

Appendix I: Content Expert Annotated Bibliography

Hospital Discharge Information And Older Patients: Do They Get What They Need?
Flacker J et al. Journal of Hospital Medicine 2007; 2:291-296. PMID: 17935256.

Study of 269 patients age 70 years or older. Telephone interview within 3 days of discharge to determine recall of discharge instructions by hospital staff, and to determine feasibility of posthospitalization survey in an urban, public hospital population.

More than half (54.2%) of respondents did not recall anyone talking with them about how to care for themselves after hospitalization. For patients who did recall receiving instructions, there was a positive correlation between the following: receiving both written and verbal instructions and patient understand-ing of instructions; provision of information and medication compliance; provision of information on what to do if problems arose and number of calls made to providers after discharge.

The study notes that implementation of process measures are reasonable but need to be evaluated for ef-fectiveness. For example, even when discharge counselling is documented to have occurred, effective transmission of information and patient understanding should be assessed.

In-Room Display Of Day And Time Patient Is Anticipated To Leave Hospital: A "Discharge Ap-pointment".
Manning DM, Tammel KJ, Blegen RN, et al. Journal of Hospital Medicine. Jan 2007;2(1):13-16. PMID: 17274043.

A Qualitative Exploration Of A Patient-Centered Coaching Intervention To Improve Care Transi-tions In Chronically Ill Older Adults.
Parry C, Kramer HM, Coleman EA. Home Health Care Services Quarterly. 2006;25(3-4):39-53. PMID: 17062510.

Discharge Planning From Hospital To Home.
Parkes J, Shepperd S, McClaren J, Phillips C. Cochrane Database Syst Rev. 2000;(4):CD000313. PMID: 11034682.

Perceived Readiness For Hospital Discharge In Adult Medical-Surgical Patients.
Weiss ME, Piacentine LB, Lokken L, et al. Clinical Nurse Specialist.Jan-Feb 2007;21(1):31-42. PMID: 17213738.

Appendix J: Patient PASS: A Transition Record

Patient Preparation to Address Situations (after discharge) Successfully

I was in the hospital because: _____

If I have the following problems...

1. _____
2. _____
3. _____
4. _____
5. _____

I should...

1. _____
2. _____
3. _____
4. _____
5. _____

Important contact information:

1. My primary doctor:

   _____

   (_____) _____

1. My hospital doctor:

   _____

   (_____) _____

1. My visiting nurse:

   _____

   (_____) _____

1. My pharmacy:

   _____

   (_____) _____

1. Other:

   _____

   (_____) _____

My appointments:

1. _____
   On: ___/___/___ at ____:____ am/pm
   For: _____
2. _____
   On: ___/___/___ at ____:____ am/pm
   For: _____
3. _____
   On: ___/___/___ at ____:____ am/pm
   For: _____
4. _____
   On: ___/___/___ at ____:____ am/pm
   For: _____

Tests and issues I need to talk with my doctor(s) about at my clinic visit

1. _____
2. _____
3. _____
4. _____
5. _____

I understand my treatment plan. I feel able and willing to particpate actively in my care:

_____
Patient/Caregiver Signature

_____
Provider Signature

____/ ____/ ___
Date

Other Instructions: 1. _____

2. _____

3. _____

Appendix K:
Resources for Addressing Specific Risk Factors

PROJECT BOOST
Risk Factor Mitigation: Discharge Preparation & Education Resources

Risk Area
Medication safety: Warfarin

Related Quality Measures (if any)
Joint Commission Patient Safety Goals
http://www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/08_hap_npsgs.htm

Impact on Patient Care and Safety
Receipt of warfarin therapy increases bleeding risk and emergency department visits. There are both patient and system-level factors that contribute to the increased risk and these must both be addressed in order to optimize the safe administration and monitoring of warfarin therapy.

Patient-level factors may include [1] –
- Previous history of gastrointestinal bleeding in the past 18 months
- Previous hospitalization with an alcohol-related diagnosis in the previous 18 months
- Chronic renal disease
- Age over 65 years old
- Presence of a malignancy
- Female gender
- Nonwhite race

System level factors have been less well studied but may include –
- Lack of systematic monitoring
- Identification of important drug interactions
- Patient/caregiver education about medication adherence
- Patient/caregiver education about monitoring

Key Communication & Education Objectives
In bullet format, list the specific communication objectives. Objectives should be precise and clearly indicate the knowledge/actions the patient/caregiver should be able to demonstrate.
- Knowledge that the patient is on warfarin
- Knowledge about the indication for warfarin and the proposed duration of therapy
- Knowledge about the dosing schedule
- Knowledge about important drug interactions
- Knowledge about nutritional and food issues on warfarin
- Action plan if patient has a fall or injury – especially a head injury
- Use of other anticoagulants in conjunction with warfarin
- Who to call if there are questions about dosing, side effects

Appendix K:
Resources for Addressing Specific Risk Factors

Selected Evidence Based Patient/ Family/ Caregiver Interventions & Education Materials

Warfarin-monitoring clinics/ Telephone support –
Wilson SJ, Wells PS, Kovacs MJ, Lewis GM, Martin J, Burton E, Anderson DR.
Comparing the quality of oral anticoagulant management by anticoagulation clinics and by family physicians: a randomized controlled trial. CMAJ. 2003 Aug 19;169(4):293-8.

Matchar DB. Do anticoagulation management services improve care? Implications of the Managing Anticoagulation Services Trial. Card Electrophysiol Rev. 2003 Dec;7(4):379-81.

Matchar DB, Samsa GP, Cohen SJ, Oddone EZ, Jurgelski AE. Improving the quality of anticoagulation of patients with atrial fibrillation in managed care organizations: results of the manag-ing anticoagulation services trial. Am J Med. 2002 Jul;113(1):42-51.

Wittkowsky AK, Nutescu EA, Blackburn J, Mullins J, Hardman J, Mitchell J, Vats V. Outcomes of oral anticoagulant therapy managed by telephone vs in-office visits in an anticoagulation clin-ic setting. Chest. 2006 Nov;130(5):1385-9

Pharmacist-support programs

Witt DM, Sadler MA, Shanahan RL, Mazzoli G, Tillman DJ. Effect of a centralized clinical pharmacy anticoagulation service on the outcomes of anticoagulation therapy. Chest. 2005 May;127(5):1515-22.

Poon IO, Lal L, Brown EN, Braun UK. The impact of pharmacist-managed oral anticoagulation therapy in older veterans. J Clin Pharm Ther. 2007 Feb;32(1):21-9.

Additional Patient/ Family/ Caregiver Interventions & Education Materials
AHRQ Guide to Help Patients on Coumadin®/Warfarin Therapy
http://www.ahrq.gov/consumer/coumadin.htm. Accessed August 7, 2008

Listing Professional Education Materials
List specific professional education materials including: slide sets, case studies or guidance for integration of risk reduction strategies into residency curricula.

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Appendix M:
Sample Cover Letter to Administration

From Chief Hospitalist to CEO or
Other individual or stakeholder group to appropriate senior executive

Dear _____

As Hospitalists, one of our key goals for patients is a safe transition from hospital to home.

Despite our best efforts, patients are sometimes negatively affected by systems that have not been optimally designed to address their increasingly complex needs and ensure safe transitions during the hospital discharge process.

Attached are findings of a preliminary evaluation of current state of the discharge process at our hospital. I have also attached information about what is occurring nationally in this area. In the interest of optimizing the care of our patients, I/We would like to request: (choose most appropriate)

- A meeting at your earliest convenience to discuss this topic and how improving the dis-charge process could align with the strategic goals for our organization
- A meeting of stakeholders including _____ to discuss next steps in improvement of discharge process
- The following pilot project to address gaps in the current discharge process

I/we look forward to further discussions with you.

Sincerely,

_____

Appendix N: Talking Points to Garner Institutional Support: Transitions of Care

Failed Transitions lead to substantial costs, morbidity, mortality, and reputational risk

- Nearly one in five patients experiences an adverse event (AE) during the transition from the hospital to home. Research shows that one third of the AEs may be preventable and an-other third could be ameliorated. Ineffective communication represents the major factor leading to such events. The majority of AEs in one study (66%) were related to medications.[1]

- Almost half of patients discharged from hospitals have lab results still pending and outpa-tient physicians may be unaware of almost two thirds of the results, despite the fact that 12.6% require urgent action.[2]

- One study found that outpatient workups were recommended on approximately one third of patients being discharged from the hospital, but these workups were not completed more than a third (35.9%) of the time. The most common workups not completed were CT scans to follow up on abnormalities seen on previous x-rays and endoscopic procedures to follow up on gastrointestinal bleeding. [3]

- Optional Point
  Internal medical-legal data reveals that handoff issues not only represent significant quality and service problems for _____ (hospital name) patients, but they also represent finan-cial liability to our organization. In 2007 (or whatever time period), medical-legal costs involv-ing handoff issues exceeded $_____ or an average of $____ per claim. These cases spe-cifically involved _____(e.g., handoff issues between departments or providers, patient/family non-compliance, or lack of patient education). This may be confidential and sensitive information that some institutions would be reluctant to share so you should omit this if there is not a culture of "open disclosure", or consider enlisting senior leaders, a department chief, or quality personnel to obtain relevant information and speak to this aspect.

Insert your local data here:

- Service/Patient Satisfaction/H-CAHPS scores
- PCP feedback/satisfaction rates
- Readmission Rates
- Attachment with story of a patient's adverse event or problematic outcome after discharge from your Hospital

Hospital discharge is a critical transition point in need of redesign

- Nearly half (49%) of hospitalized patients experience at least one medical error in medica-tion continuity, diagnostic work-up, or test follow-up.[5]

- A study of patients surveyed at discharge to assess their knowledge revealed the following: only 41.9% were able to state their diagnosis or diagnoses; 27.9% were able to list all their medications; 37.2% were able to state the purpose of their medications; 14% were able to state common side effects of their medications.[6]

- The availability of a discharge summary at the first post discharge visit was low (12-34%) and remained poor (51-77%) at 4 weeks, affecting the quality of care in approximately 25% of follow-up visits and contributing to primary care physician dissatisfaction.[7]

Appendix N: Talking Points to Garner Institutional Support: Transitions of Care

- Literature on hospital discharge suggests that interventions aimed at reliable handoff com-munications between a primary care provider (PCP) and Hospitalist, close follow-up and en-gagement of patients and families may significantly reduce adverse events.[8, 9, 10]

- In addition to the growing literature on discharge process failures and financial liabilities, regulatory agencies such as The Joint Commission (TJC), Centers for Medicare & Medicaid Services (CMS), and National Quality Forum (NQF) are now focusing on handoffs and tran-sitions of care.

References

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5. Kripilani S et al. Promoting effective transitions of care at hospital discharge: A review of key issues for hospitalists. Journal of Hospital Medicine 2007;2:314-323.

6. Makaryus AN and Friedman EA. Patients understanding of their treatment plans and di-agnosis at discharge Mayo Clin Proc. Aug 2005;80(8):991-994.

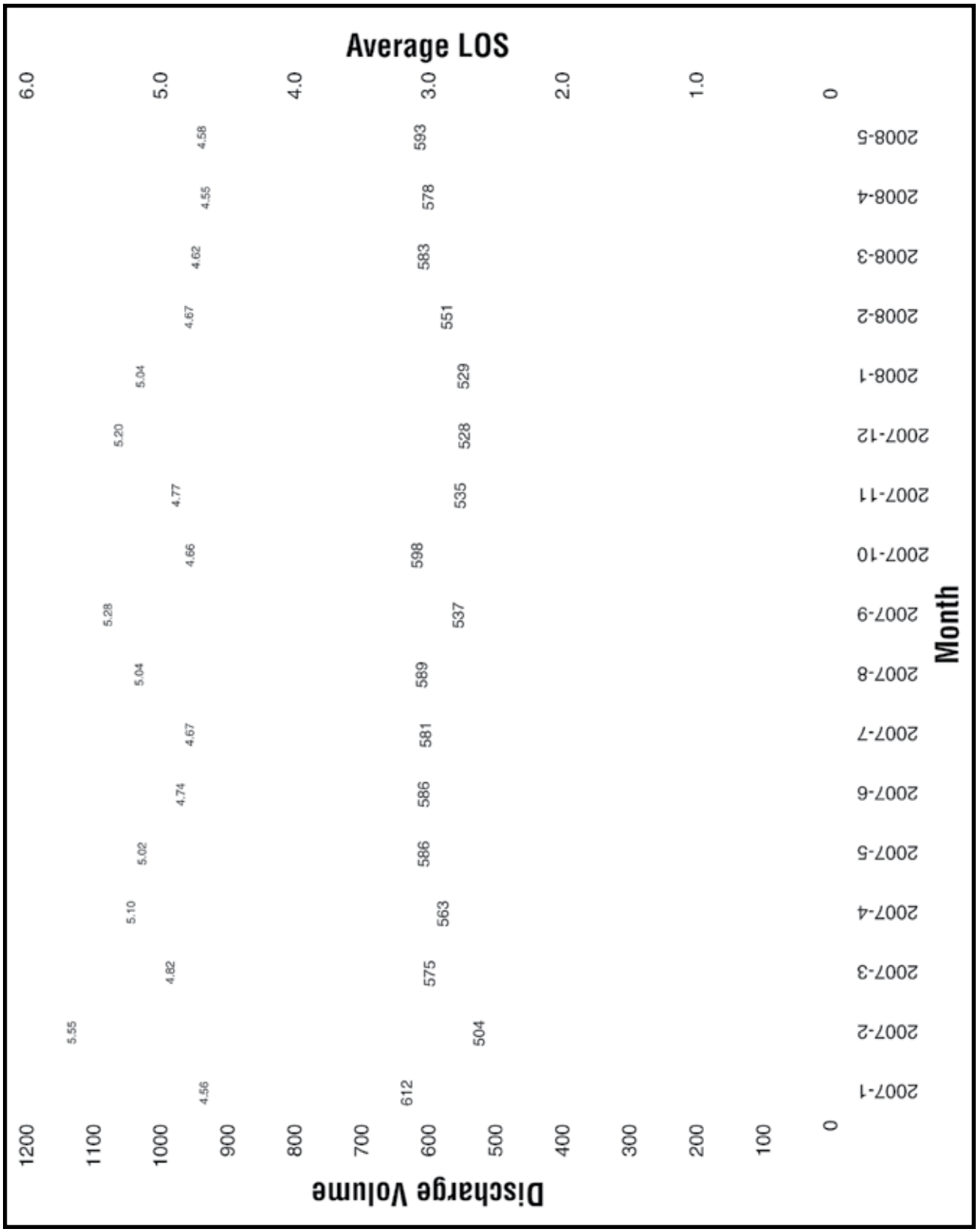
7. Kripalani S, et al. Deficits in Communication and Information Transfer Between Hospital-Based and Primary Care Physicians, JAMA Feb 2007; 297(8):831-841

8. Coleman, Eric et al. Preparing Patients and Caregivers to Participate in Care Delivered Across Settings: the care Transitions Intervention, J Am Geriatr Soc Nov. 2004; 52:1817-1825.

9. Coleman, Eric. The Care Transitions Intervention. Arch Intern Med 2006; 166:1822-1828.

10. Epstein K et al. Frequency of new or worsening symptoms in the posthospitalization pe-riod. Journal of Hospital Medicine 2007;2:58-68.

Appendix O: Average LOS and Volume



Appendix P: Summary of Resources

American Society for Quality (ASQ):
www.asq.org

Brent James Biography:
http://www.hret.org/hret/about/james_bio.html

Institute for Healthcare Improvement:
www.ihi.org

Joint Commission:
www.jointcommission.org

Massachusetts Coalition for the Prevention of Medical Errors:
www.macoalition.org

The MATCH (Medications at Transition Changes and Handoffs):
www.medrec.nmh.org

BOOSTing Care Transitions Resource Room:
www.hospitalmedicine.org/BOOST

Statistical Prcoess Control:
http://en.wikipedia.org/wiki/Statistical_process_control

Appendix Q: The Value of Project BOOST: Return on Investment (ROI) for Your Hospital or Health System

Your organization may be very enthusiastic about your work to improve the discharge process in theory, but in order to transform that theoretical enthusiasm into real support you will have to consider the return on investment (ROI) that the organization will have with BOOST. We offer some of the keys to understanding, creating, and communicating this ROI.

Background:

Impacts of Project BOOST

Implementation of BOOST may well impact utilization of inpatient resources. Streamlining your discharge process through using the BOOST toolkit may help eliminate unnecessary beds days. Alternately, assessing and intervening on the wide range of issues that influence discharge preparedness might actually increase hospital stays for some patients. Creating a generally higher-quality discharge should (we hope!) reduce readmissions. The length, cost and frequency and reimbursement for hospital admissions will have financial implications for your hospital. So too will any costs associated with implementing the program – if new positions (FTE) need to be added as part of your implementation plan. In addition, there are outcomes that may flow out of BOOST that, while not purely financial, may have financial ramifications. Influencing patient and family, physician or nursing satisfaction are indicators your hospital may care deeply about, even if improving these measures cannot be proven to have direct financial benefits.

BOOST and your institution: Procuring Support

Ultimately, your institution needs to decide if investing resources in project BOOST makes sense. In making this decision clinical and administrative leaders will consider issues of quality, efficiency and finances. It is imperative that early on you come to understand the priorities of the individuals who will be making resource allocation decisions, and the methods they will use to judge the value of your project. The easier you make it for all to see that BOOST is well-aligned with institutional priorities the better your chances of securing the resources you need to successfully implement and sustain BOOST. Early on you should partner with administrative and financial professionals at your site to make sure everyone understand what BOOST is expected to do, and how the project will be evaluated. You should also incorporate into your evaluation plan mechanisms for capturing any data that are needed to conduct the evaluations that will influence resource allocation decisions.

Appendix Q: The Value of Project BOOST: Return on Investment (ROI) for Your Hospital or Health System

Steps to Understanding and Creating a Positive ROI

Build a Clinical-Finance-Administrative Partnership
No matter how committed they are to quality, your hospital administrators will need to consider financial outcomes when deciding if and how to implement BOOST. Not every program in the hospital needs to or is intended to save money or create new revenue opportunities, but it is certainly easier to sustain a program that "pays for itself." It will be useful for you to develop an understanding of the financial impact of changing (LOS) and admission patterns for the patients who will likely be touched by BOOST. To do so, you should partner with hospital staff, who are experts in cost and reimbursement issues.

What to communicate in this partnership:
- What you are trying to achieve (i.e., "reduce unnecessary readmissions")
- Identify the patients you are targeting (i.e., "all patients discharged from the medical service.")
- Specify the resources you need to implement the program. Your partner in Decision Support, or the CFO's office, or even staff in Utilization Review or Performance Improvement will have access to the utilization, cost and revenue information you will want to analyze to understand the financial issues pertinent to your proposed project.

Evaluate "Direct" Financial Outcomes
Understanding how hospitals get paid for their services will help you understand how the changes in the utilization of inpatient services that result from BOOST will influence your hospital's bottom line.

How Hospitals Get Paid
Different types of facilities use different methods for evaluating the interplay of number of patients seen, types of services rendered, revenues collected for those services and the net effect of reducing the cost of inpatient care. Generally speaking, there are two types of models to consider:
- Fixed "Global Budgets"
  - Funding will not vary according to the volume of services provided in a discrete time period
- "Utilization-Based Budgets"
  - Revenues vary according to the number of patients who access hospital services, the types of services provided, and the mix of payers who will compensate the hospital for those services.

Global budgets. Some hospitals, notably the Veterans Health Administration facilities and some integrated health delivery systems (Kaiser), operate under a "global budget" structure. Rather than collecting payments for each care episode, individual facilities receive a fixed amount of funding (from the federal government or parent organization) that is intended to cover all operational expenses in a given time frame. The amount of funds allocated to individual facilities is based on the number of patients the site expects to care for and the types of services it expects to provide. Individual sites must then allocate these fixed resources to match services to patient needs, regardless of actual volumes or costs.

Hospitals operating under a global budget structure are incented to manage resource utilization. Reductions in costs associated with one type of service (e.g., the cost of pharmaceuticals supplied to patients who die in the hospital) create the opportunity to shift resources to new services (like a dedicated discharge coach), allowing the hospital or health system to better meet the needs of the populations they serve. Because monies saved in one setting are redirected to other settings, programs like BOOST that improve the efficiency of care delivery are often considered revenue neutral, but still excellent investments in that quality is improved at no additional cost.

Utilization-based Budgets. For most institutions, compensation for acute hospital care comes from a variety of sources. The combination of revenue streams, known as the "payer mix," and the range and volume of services provided determine the revenues the institution collects.

Appendix Q: The Value of Project BOOST: Return on Investment (ROI) for Your Hospital or Health System

Payers

Medicare
Traditional "fee for service" Medicare coverage uses a prospective payment system, where a fixed amount, a "case-rate," is paid for all hospital services provided during an admission. To determine payment, hospital administrative data describing the patient's clinical condition and the services rendered during the hospitalization are used to assign each case to an MS-DRG. The compensation rate for each MS-DRG is based on national data describing average lengths of stay and average costs for that MS-DRG, adjusted for regional differences in wages and other costs. Except in cases where incurred costs are extraordinarily high, MS-DRG payments are not influenced by the actual cost of a given hospitalization. Under the case-rate prospective payment system, hospitals are financially rewarded for controlling costs for Medicare admissions.

Medicaid
Medicaid is available to financially disadvantaged children, their parents, the elderly, and those with disabilities. Some Medicaid programs operate on a fee-for-service system, while others operate as managed care programs. For both types of programs, payments to hospitals are lower than the rates that Medicare pays and typically are far less than the total cost of providing inpatient care. Because compensation is generally lower than costs, hospitals are rewarded for controlling costs for Medicaid admissions.

Commercial Insurance
While a very small percentage of commercial payers offer indemnity or pure fee-for-service coverage, where hospital charges are paid in full, the majority of commercial coverage is administered in a managed care model. Here, payers contract with hospitals to provide acute care services to covered patients. Payment rates are negotiated with each hospital or health system and typically reflect a discount on the hospital's usual charges. The most common payment mechanisms are described below.

Case Rates. As with the Medicare prospective payment system, compensation is structured according to fixed rates, which reflect the expected cost of providing care for particular types of diseases or procedures. Negotiated payments are based on a payer-specific fee schedule or Medicare reimbursement rates (e.g., 105% of MS-DRG payment) As with Medicare, the amount of payment will not vary according to resource use or hospital costs. Because they are at risk for expenses in excess of the fixed payment amount, hospitals are rewarded for controlling daily costs and minimizing LOS when services are reimbursed on a case-rate basis.

Negotiated per diem. In this model, payment is based on a contracted daily rate, which may be adjusted according to the intensity of care provided. Because payments are fixed, hospitals are rewarded for monitoring resource utilization during the admission. Payers may deny payment for days they deem to not meet criteria for acute care services, a control designed to motivate hospitals to monitor LOS. While interventions that shorten hospital stays result in reduced hospital revenues, these losses may be offset by a reduction in the number of bed days that per diem payers decline to cover.

Capitation. In this model, the hospital agrees to provide a defined portfolio of services to covered patients in exchange for "per-member/per-month" payments. Payments are based on actuarial estimates of average health care costs for defined populations over time. Payments are made on a monthly basis and are not directly linked to service volumes, actual costs, or a fee schedule. Because per-patient revenues are fixed, the hospital is rewarded for controlling costs. Relatively few hospitals have large, full-risk populations, but those that do support programs, like BOOST, which are designed to control resource utilization while maintaining or improving the quality and scope of provided services.

Appendix Q: The Value of Project BOOST: Return on Investment (ROI) for Your Hospital or Health System

Discounted fee-for-service (DFFS). In this model hospitals are paid a percentage (typically 30% - 80%) of usual charges. Because revenues are tied to resource utilization, fiscal benefits resulting from interventions that reduce length of stay are typically limited to those derived from increasing hospital capacity (e.g., at an institution that is turning away cases because of limited ICU capacity, shortening LOS for some cases will open beds for other patients). This payment model is rare among major payers.

Understanding the payer mix of patients who are touched by BOOST will allow you to understand how reducing LOS will influence hospital revenues. If at your site most patients have fee for service coverage, then reducing LOS will actually cost your hospital money. However, since BOOST is specifically designed to address the special needs of older adults, it is quite likely that the patients you are targeting will be significantly older than the general hospital population, or even the medical service as a whole. Given that most older patients have Medicare as a primary payer, reducing LOS for a given admission will carry a financial benefit for your hospital.

Appendix Q: The Value of Project BOOST: Return on Investment (ROI) for Your Hospital or Health System

How Will Changes Resulting from BOOST Influence Costs and Revenues?
You can create financial benefit for your institution by lowering costs, increasing revenues or some combination of the two. With project BOOST, you are implementing a project that should help you identify specific patient readmission risks and intervene on those risks, and you'll be doing a lot of assessments so you can ensure that patients and families are prepared for and understand what will happen post-hospitalization. You'll be asking that providers use a teach back process during discharge education, to make sure the conveyed information is understood. You'll be making sure that outpatient providers and receiving sites get a useful, standardized discharge record, For high-risk patients, you'll schedule an outpatient follow-up visit and or conduct a 72-hour follow-up call with the patient and/or caregivers. So what are the fiscal implications of those interventions?

The changes that may result once BOOST is implemented include:
- Reducing the length of the index (initial) hospital stay
- Reducing the cost of the index hospital stay (if it is shorter)
- Reducing the frequency, duration and cost of readmissions

As noted above, in nearly all cases reducing the length and cost of a hospital admission is a good thing for your hospital. But one thing to consider is the **scope of your project** – how many bed days did your efforts save? The reason this is important is that majority of hospital costs are linked to personnel expenses – the salary and benefit costs from staffing the hospital with nurses, lab technicians, respiratory therapists, etc. – all the people who provide services. And for the most part, those costs are fixed. If your BOOST effort was small but successful and saved 200 beds days in its first year, it is unlikely that those freed bed days translated into real savings for the hospital – you would not have changed occupancy or staffing enough to allow your site to actually send staff home on a given day or make a permanent adjustment to staffing levels. On the other hand, if your intervention was larger, and you saved 2,000 bed days, it is very likely that the change in utilization of inpatient resources was large enough to allow your hospital to change staffing levels – the surest way of truly influencing hospital costs. It is important to understand that not every "saved" dollar translates into reduced expenses (i.e. lower staffing costs), so you need to work with your hospital's financial staff to understand the true benefits of your efforts. It may well be that your hospital wont realize a direct financial benefit for reducing costs or shortening stays for a small number of patients. In such cases, the quality benefits of the BOOST project may still be significant enough to justify funding the program.

Another issue to consider is your site's **occupancy rate.** If your hospital is typically full then reducing readmissions could be considered fiscally neutral, (someone else will fill that bed, so there will be no net loss of revenue) or it could convey financial benefits (reducing readmissions might making room for more complex patients, which might be more profitable than the general medical admissions your project is preventing.) If your site is so full that your emergency department is forced to divert cases to other sites, freeing up bed days may give your hospital the opportunity to accommodate more admissions – a potential means of increasing revenues. Alternately, reducing the number of readmissions might help your site make more efficient use of inpatient resources. Many public hospitals have very high occupancy rates, so while there may be no direct financial benefit associated with reducing readmissions, doing so might help the hospital make more efficient use of scarce inpatient beds.

Appendix Q: The Value of Project BOOST: Return on Investment (ROI) for Your Hospital or Health System

Keep in mind that readmission rate is an outcome that peaks **payer interests.** Your site might be able to reference BOOST outcomes as evidence that your hospital is doing all it can to prevent readmissions, data that can be used in negotiations with payers. Similarly, your hospital administrators will be interested to know that the Medicare Payment Advisory Commission (MedPAC) recommended to Congress in June 2007 that hospital readmission rates be reported publicly, and that these rates eventually be tied to hospital reimbursement ((MedPAC. Payment policy for inpatient readmissions. In: Report to the Congress: Promoting Greater Efficiency in Medicare. Washington, DC: MedPAC; June 2007:103-20. http://www.medpac.gov/documents/Jun07_EntireReport.pdf).

Secondary Benefits

In addition to primary financial outcomes, your institution will also be interested in outcomes which have secondary or potential financial benefits. While these outcomes are not directly financial, your hospital will likely consider them important. Interventions that improve patient and family satisfaction influence your hospital's reputation among admitting physicians, payers and health care consumers. If BOOST improves patient and family satisfaction it may well improve your site's ability to compete for market share, either because patients are more likely to select or recommend your site to others, or because admitting providers prefer a site that is preferred by their patients. Similarly, improving admitting or referring (primary care) physician satisfaction also carries market share benefits. Reducing the frustration around frequent readmissions or a disjointed or confused discharge process may improve RN satisfaction, an outcome of keen interest to sites that operate in areas where nurse retention is critically important.

Summarizing ROI

Generally speaking the more dedicated resources your project needs (i.e., staff time needed to carry out interventions) and the more patients you expect to impact the more interested your site will be in evaluating expected financial outcomes for your project. Partnering with appropriate representatives in hospital administration to explore financial issues is an important job for your project team, a role that is commonly tackled by the project director. You do not need to become an expert in health economics; you just need to develop a basic understanding of the financial variables your hospital administrators will consider when deciding if they can afford to fund and support your project.

Key Questions To Ask When Assessing ROI

- What is the current LOS for patients who will be touched by BOOST?
- What is the cost of these cases?
- Do we currently make money or lose money on these cases?
- What is the payer mix? Will reducing the length or cost of these admissions help or hurt our hospital's bottom line?
- What is the readmission rate for potential BOOST patients?
- Do we currently make money or lose money on the readmissions?
- Are the readmissions longer or more costly than the initial admissions?
- What is our occupancy rate?
- If we free up bed days are there patients that might fill those beds, potentially increasing hospital revenues?
- Does our ED need to go on divert frequently?
- Are there specific diagnoses for which LOS and readmissions are being tracked or publically reported? Can BOOST help with these outcomes?
- Do we have issues with denied days? Are those days linked to disposition issues or patient readiness for discharge? Can BOOST help with this?
- What do we know about the current level of patient/family/physician/staff satisfaction with the discharge process? Is there room for improvement?

Project BOOST:
A Return On Investment Analysis

Reducing Hospital Readmissions: Who benefits? Who pays?

The US Department of Health and Human Services (DHHS) put a spotlight on hospital readmissions by requiring hospitals to report 30-day readmission rates as a quality metric in June of 2009. Medicare, with intent to stem soaring healthcare costs, plans a payment policy change that will penalize hospitals with high readmission rates. The recently passed health care legislation includes language supporting such changes and also provides funds for quality improvement efforts to reduce rehospitalizations. Preventable hospital readmissions harm patients and generate waste in the healthcare system. The goal of Project BOOST (Better Outcomes for Older adults through Safe Transitions) is to enhance patient safety as patients transition from the hospital to home. By improving the discharge processes, Project BOOST aims to:

- Reduce 30-day readmission rates for hospitalized patients (with particular focus on older adults)
- Improve patient satisfaction scores, especially those related to hospital discharge
- Improve flow of information between hospital and outpatient physicians
- Ensure patients at high risk of readmission are identified and specific interventions are offered to mitigate their risk
- Improve patient and family education practices to encourage use of the TeachBack process around risk specific issues related to discharge

The ROI for doing the right thing

Hospitals interested in improving patient care quality and safety should naturally be eager to take on quality improvement (QI) initiatives to improve the discharge process. However, in the healthcare payer model that exists today, financial incentives reward hospitals for readmissions, and efforts to reduce them appear to incur financial losses—most Chief Financial Officers (CFO) and CEOs thus question such initiatives. Currently, but likely not in the future, payers (Medicare or private insurance) reimburse readmission cases just like new patient admission cases. Although successfully reducing preventable readmissions benefits the healthcare system by reducing overall cost of delivery, it may actually hurt hospitals by lowering their revenues.

Notable exceptions to this are hospitals that are part of an Accountable Care Organization (ACO). In an ACO, the provider and payer function as one (e.g. Geisinger Health System). Therefore reducing unnecessary readmissions is of immediate financial benefit to the ACO.

For the majority of hospitals facing financial pressures in the current economy, it can be very difficult for a hospital CFO to sign off on a QI project that requires incremental investment and reduces revenues, *even if it improves patient quality*.

In addition to the evolving financial pressures from payors to reduce readmissions, a deeper look at all the benefits of reducing readmissions, including primary and secondary effects of Project BOOST, can reveal even more revenue replacement opportunities. Tapping into these opportunities can, not only reduce the previous revenue losses due to readmissions reduction, but also potentially lead to a revenue-neutral or revenue-positive business case for the hospital.

Taking A Deeper Look

In analyzing the Return On Investment (ROI) for any QI project, it is important to consider all financial contributors including those due to secondary effects. Doing so can provide a more complete and accurate view of the financial impact of the project. It can even reveal hidden opportunities that can improve the financials of the project.

The goal of Project BOOST is to reduce 30-day readmission rates for general medicine patients. Reduction of readmissions is the primary effect of the interventions. In doing so, it also frees up bed capacity (that was being used by readmitted patients). This is a secondary effect of the QI intervention and one that creates financial opportunity for the hospital as it could fill this new capacity with patients who may have higher margins (e.g. surgery or newly insured patients with medical issues).

Furthermore, if the hospital is operating at capacity, it is likely that the hospital is experiencing emergency department overcrowding issues and increased patient wait times causing patients to leave without being seen (LWBS). By reducing readmissions and freeing up bed capacity in target units, Project BOOST could lead to upstream positive effects for the ED. It can reduce the number of patients coming back to the ED within 30-days and reduce wait times in the ED as there will be more free capacity in the target units to accept patients from the ED.

The table below lists primary and secondary effects of Project BOOST that have the potential to positively or negatively impact the financials of the project. Red and green check marks indicate a negative and positive impact to the financials respectively. Contributors checked in the "Hard $" column are those that can be easily quantified into real revenue or cost dollars. Soft contributors (checked in the "Soft $" column), though real, cannot easily be translated to a dollar value. Although soft contributors such as improved patient satisfaction and safety are difficult to build into a financial model, it is important to highlight these outcomes, as they are typically aligned with the strategic priorities for hospitals & executives.

Likely future penalties for hospital readmissions deemed preventable might result in decreased hospital reimbursement. In terms of pay for performance (P4P) contracts between hospitals and payers, Project BOOST may have a beneficial effect on metrics specified in the contracts - including readmissions, patient satisfaction, measures of safety culture and teamwork – which represent "Hard $."

Financial Impacts of Project BOOST		
Primary effects due to BOOST interventions	**Hard $**	**Soft $**
BOOST QI initiative investment	✔	
Readmission revenue loss (due to reduction of readmissions)	✔	
For ACO only - Cost savings due to reduced readmissions	✔	
Medicare reimbursement penalty avoidance (FUTURE)	✔	
Patient care quality improvement		✔
Hospital ratings improvement		✔
Secondary effects due to BOOST interventions	**Hard $**	**Soft $**
Bed capacity improvement (replacement opportunity)	✔	
ED capacity improvement (reduction of patients leaving without being seen)	✔	
P4P reimbursement increase (due to care transitions improvement)	✔	
Patient satisfaction improvement		✔
Increased staff satisfaction & Reduced staff turnover		✔
Reduced adverse drug events		✔
Reduced medical malpractice costs		✔

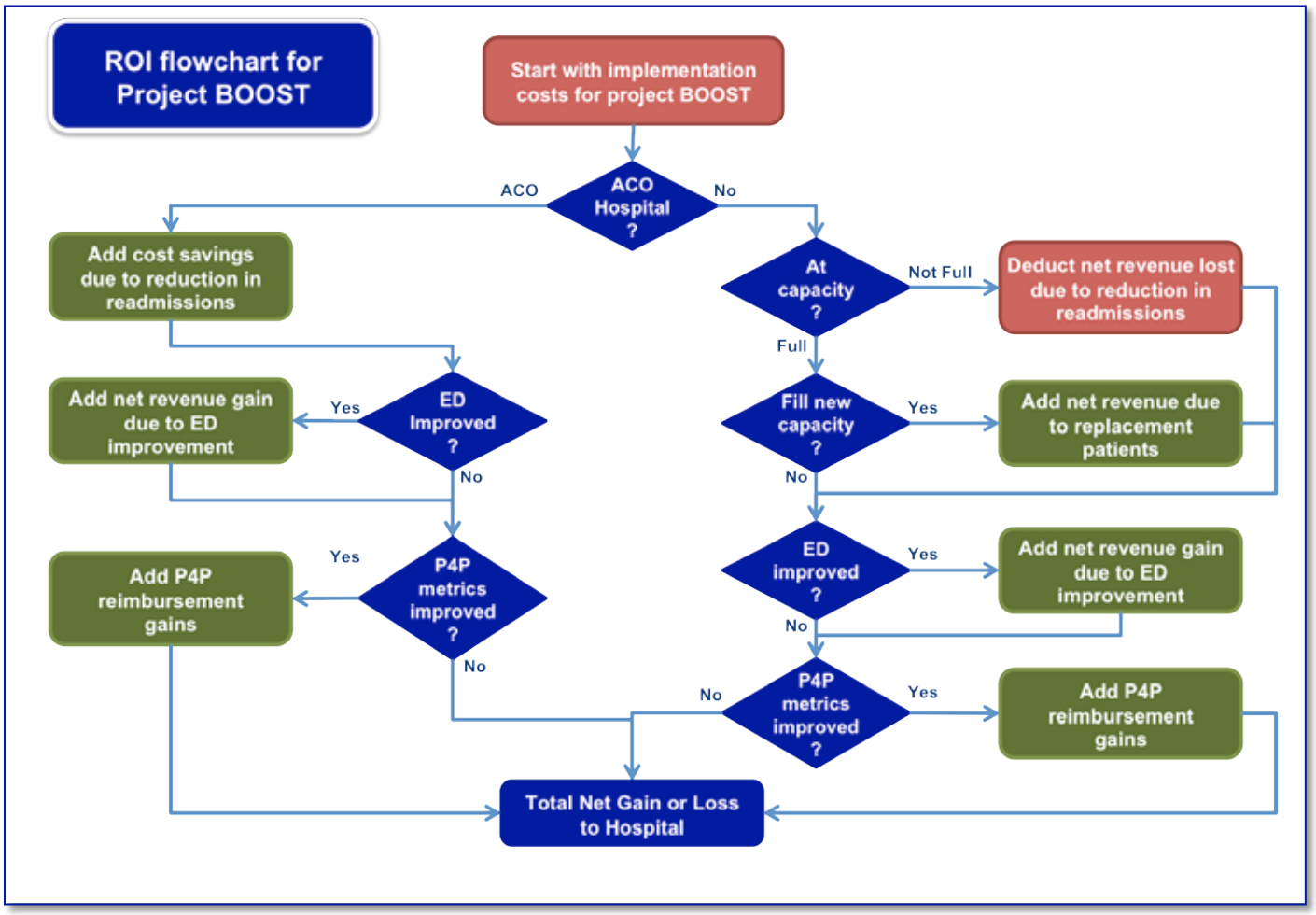
Modeling Return On Investment For Project BOOST

Project BOOST has built a simple ROI calculator, by taking into account the hospital data, existing conditions, and actual or expected results from project BOOST. Based on the existing conditions at the hospital, the calculator can add or deduct the appropriate financial contributors from the overall ROI. The algorithm for this calculator is shown in the flowchart below. The calculator is available as part of the BOOST tools in the form of an Excel spreadsheet that can be downloaded from the BOOST website.

The BOOST ROI calculator takes into account conditions such as whether the hospital is part of a closed system (ACO) or not (on traditional DRG based payments), whether the hospital is operating at capacity or not, whether the emergency department (ED) suffers from patients leaving without being seen (LWBS) issues and whether the hospital qualifies for P4P reimbursements.

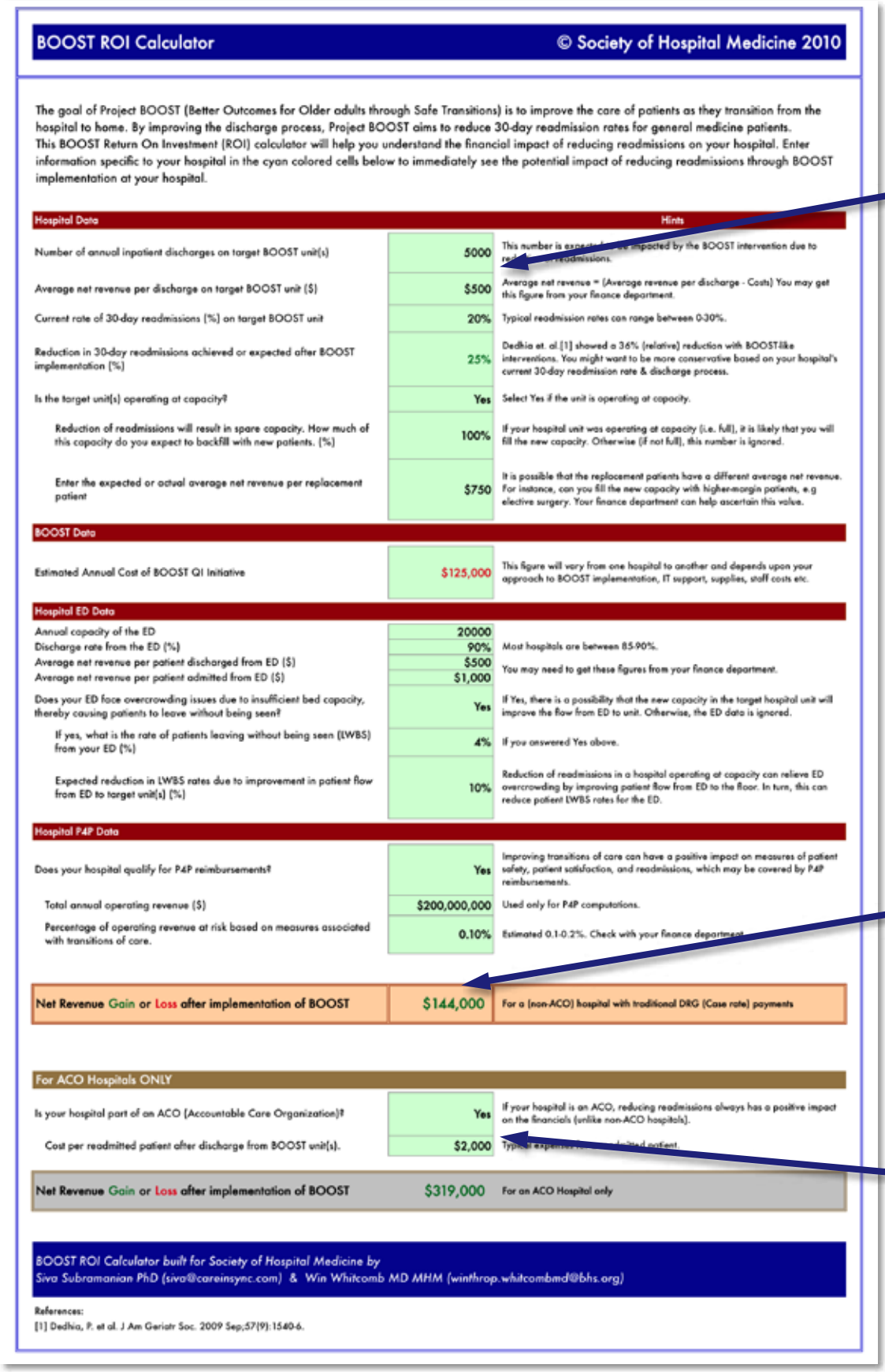
The calculator, at present, does not take into account soft contributors such as patient satisfaction, hospital ratings improvement etc. It also does not account for the impending Medicare payment policy changes that can penalize hospitals for poor 30-day

readmission rates. In the future, project BOOST can help avoid these penalties and further improve the financials of the hospital.



A snapshot of the BOOST ROI calculator (that implements the above algorithm) is shown below. The user is required to enter information specific to their hospital and the hospital units targeted for BOOST implementation into the **light green-colored user-cells** down the middle of the calculator. Upon opening the calculator, the user will see values already entered in the light green-colored user-cells, which are simply for illustration purposes. To the right of the user-cells are hints to help the user.

The user-cell entries include quantitative information such as hospital size, average net revenues, costs, rate of readmissions and expected results. Financial data entries (revenue, costs etc) can be obtained from the finance department of the hospital. Some entries ("Yes/No") are used to implement the "decision diamonds" shown in the algorithm flowchart above. The user is also expected to enter the expected or actual investment (cost) to implement the BOOST initiative and outcome in terms of percentage reduction in readmissions.



BOOST ROI Calculator

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The goal of Project BOOST (Better Outcomes for Older adults through Safe Transitions) is to improve the care of patients as they transition from the hospital to home. By improving the discharge process, Project BOOST aims to reduce 30-day readmission rates for general medicine patients. This BOOST Return On Investment (ROI) calculator will help you understand the financial impact of reducing readmissions on your hospital. Enter information specific to your hospital in the cyan colored cells below to immediately see the potential impact of reducing readmissions through BOOST implementation at your hospital.

Hospital Data		Hints
Number of annual inpatient discharges on target BOOST unit(s)	5000	This number is expected to be impacted by the BOOST intervention due to reduced readmissions.
Average net revenue per discharge on target BOOST unit ($)	$500	Average net revenue = (Average revenue per discharge - Costs) You may get this figure from your finance department.
Current rate of 30-day readmissions (%) on target BOOST unit	20%	Typical readmission rates can range between 0-30%.
Reduction in 30-day readmissions achieved or expected after BOOST implementation (%)	25%	Dedhia et. al.[1] showed a 36% (relative) reduction with BOOST-like interventions. You might want to be more conservative based on your hospital's current 30-day readmission rate & discharge process.
Is the target unit(s) operating at capacity?	Yes	Select Yes if the unit is operating at capacity.
Reduction of readmissions will result in spare capacity. How much of this capacity do you expect to backfill with new patients. (%)	100%	If your hospital unit was operating at capacity (i.e. full), it is likely that you will fill the new capacity. Otherwise (if not full), this number is ignored.
Enter the expected or actual average net revenue per replacement patient	$750	It is possible that the replacement patients have a different average net revenue. For instance, can you fill the new capacity with higher-margin patients, e.g elective surgery. Your finance department can help ascertain this value.
BOOST Data		
Estimated Annual Cost of BOOST QI Initiative	$125,000	This figure will vary from one hospital to another and depends upon your approach to BOOST implementation, IT support, supplies, staff costs etc.
Hospital ED Data		
Annual capacity of the ED	20000	
Discharge rate from the ED (%)	90%	Most hospitals are between 85-90%.
Average net revenue per patient discharged from ED ($)	$500	
Average net revenue per patient admitted from ED ($)	$1,000	You may need to get these figures from your finance department.
Does your ED face overcrowding issues due to insufficient bed capacity, thereby causing patients to leave without being seen?	Yes	If Yes, there is a possibility that the new capacity in the target hospital unit will improve the flow from ED to unit. Otherwise, the ED data is ignored.
If yes, what is the rate of patients leaving without being seen (LWBS) from your ED (%)	4%	If you answered Yes above.
Expected reduction in LWBS rates due to improvement in patient flow from ED to target unit(s) (%)	10%	Reduction of readmissions in a hospital operating at capacity can relieve ED overcrowding by improving patient flow from ED to the floor. In turn, this can reduce patient LWBS rates for the ED.
Hospital P4P Data		
Does your hospital qualify for P4P reimbursements?	Yes	Improving transitions of care can have a positive impact on measures of patient safety, patient satisfaction, and readmissions, which may be covered by P4P reimbursements.
Total annual operating revenue ($)	$200,000,000	Used only for P4P computations.
Percentage of operating revenue at risk based on measures associated with transitions of care.	0.10%	Estimated 0.1-0.2%. Check with your finance department.
Net Revenue Gain or Loss after implementation of BOOST	$144,000	For a (non-ACO) hospital with traditional DRG (Case rate) payments
For ACO Hospitals ONLY		
Is your hospital part of an ACO (Accountable Care Organization)?	Yes	If your hospital is an ACO, reducing readmissions always has a positive impact on the financials (unlike non-ACO hospitals).
Cost per readmitted patient after discharge from BOOST unit(s).	$2,000	Typical expenses for a readmitted patient.
Net Revenue Gain or Loss after implementation of BOOST	$319,000	For an ACO Hospital only

BOOST ROI Calculator built for Society of Hospital Medicine by
Siva Subramanian PhD (siva@careinsync.com) & Win Whitcomb MD MHM (winthrop.whitcombmd@bhs.org)

References:
[1] Dedhia, P. et al. J Am Geriatr Soc. 2009 Sep;57(9):1540-6.

Light green colored user-cells for inputs

BOOST ROI output

Additional input cells and ROI output for ACO hospitals only

Once information has been entered into all the user-cells, the calculator immediately updates the output cell i.e. the ROI value showing the net gain or loss to the hospital. At this point the user can vary any of the input parameters and see how the ROI is impacted.

At the bottom of the calculator are two additional user-cells and an output cell that are only relevant if the user is modeling the ROI for a hospital that is part of an Accountable Care Organization. Non-ACO hospitals can disregard this portion of the calculator. However, it is interesting to note that, for the same data, the ROI for ACO hospitals is always better than that of a hospital with traditional DRG payments (non-ACO hospital).

Closing Points

Project BOOST can be a financially sound investment for a hospital especially with expected changes in payment policies providing incentives to reduce readmissions. The secondary benefits noted above only strengthen this case. A financial model that considers hospital specific data and incorporates primary and secondary contributors can be invaluable to the QI team for

- Understanding the true return on investment (ROI) of Project BOOST
- Evaluating the secondary opportunities specific to that hospital with what-if scenarios and
- Evaluating the initiative across various locations/departments which may have slightly different input conditions

Thus, hospitals can evaluate various strategies and benefits based on their unique situation and select the strategies that are right for them before embarking on Project BOOST.

QI Initiatives, like Project BOOST, require hospitals to adopt changes to processes, workflows, and roles and responsibilities of a multidisciplinary team. Such changes involving people are always difficult to implement. Therefore, executive support and championship as well as buy-in from key stakeholders are essential to the success of the project. Finally, integrating the process into the hospitals' IT systems can improve the likelihood of success of QI initiatives such as Project BOOST, making the outcomes repeatable, sustainable and measurable.

About the Author

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BOOST ROI Calculator

The goal of Project BOOST (Better Outcomes for Older adults through Safe Transitions) is to improve the care of patients as they transition from the hospital to home. By improving the discharge process, Project BOOST aims to reduce 30-day readmission rates for general medicine patients.
This BOOST Return On Investment (ROI) calculator will help you understand the financial impact of reducing readmissions on your hospital. Enter information specific to your hospital in the cyan colored cells below to immediately see the potential impact of reducing readmissions through BOOST implementation at your hospital.

Hospital Data		Hints
Number of annual inpatient discharges on target BOOST unit(s)	5000	This number is expected to be impacted by the BOOST intervention due to reduction of readmissions.
Average net revenue per discharge on target BOOST unit ($)	$500	Average net revenue = (Average revenue per discharge - Costs) You may get this figure from your finance department.
Current rate of 30-day readmissions (%) on target BOOST unit	20%	Typical readmission rates can range between 0-30%.
Reduction in 30-day readmissions achieved or expected after BOOST implementation (%)	25%	Dedhia et. al.[1] showed a 36% (relative) reduction with BOOST-like interventions. You might want to be more conservative based on your hospital's current 30-day readmission rate & discharge process.
Is the target unit(s) operating at capacity?	Yes	Select Yes if the unit is operating at capacity.
Reduction of readmissions will result in spare capacity. How much of this capacity do you expect to backfill with new patients. (%)	100%	If your hospital unit was operating at capacity (i.e. full), it is likely that you will fill the new capacity. Otherwise (if not full), this number is ignored.
Enter the expected or actual average net revenue per replacement patient	$750	It is possible that the replacement patients have a different average net revenue. For instance, can you fill the new capacity with higher-margin patients, e.g elective surgery. Your finance department can help ascertain this value.
BOOST Data		
Estimated Annual Cost of BOOST QI Initiative	$125,000	This figure will vary from one hospital to another and depends upon your approach to BOOST implementation, IT support, supplies, staff costs etc.
Hospital ED Data		
Annual capacity of the ED	20000	
Discharge rate from the ED (%)	90%	Most hospitals are between 85-90%.
Average net revenue per patient discharged from ED ($)	$500	You may need to get these figures from your finance department.
Average net revenue per patient admitted from ED ($)	$1,000	
Does your ED face overcrowding issues due to insufficient bed capacity, thereby causing patients to leave without being seen?	Yes	If Yes, there is a possibility that the new capacity in the target hospital unit will improve the flow from ED to unit. Otherwise, the ED data is ignored.
If yes, what is the rate of patients leaving without being seen (LWBS) from your ED (%)	4%	If you answered Yes above.
Expected reduction in LWBS rates due to improvement in patient flow from ED to target unit(s) (%)	10%	Reduction of readmissions in a hospital operating at capacity can relieve ED overcrowding by improving patient flow from ED to the floor. In turn, this can reduce patient LWBS rates for the ED.
Hospital P4P Data		
Does your hospital qualify for P4P reimbursements?	Yes	Improving transitions of care can have a positive impact on measures of patient safety, patient satisfaction, and readmissions, which may be covered by P4P reimbursements.
Total annual operating revenue ($)	$200,000,000	Used only for P4P computations.
Percentage of operating revenue at risk based on measures associated with transitions of care.	0.10%	Estimated 0.1-0.2%. Check with your finance department.
Net Revenue Gain or Loss after implementation of BOOST	$144,000	**For a (non-ACO) hospital with traditional DRG (Case rate) payments**

For ACO Hospitals ONLY		
Is your hospital part of an ACO (Accountable Care Organization)?	Yes	If your hospital is an ACO, reducing readmissions always has a positive impact on the financials (unlike non-ACO hospitals).
Cost per readmitted patient after discharge from BOOST unit(s).	$2,000	Typical expenses for a readmitted patient.
Net Revenue Gain or Loss after implementation of BOOST	$319,000	**For an ACO Hospital only**

BOOST ROI Calculator built for Society of Hospital Medicine by
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References:
[1] Dedhia, P. et al. J Am Geriatr Soc. 2009 Sep;57(9):1540-6.