A White Paper on
A Guide to Hospitalist/Orthopedic Surgery Co-Management

Prepared by:
The Society of Hospital Medicine's (SHM)
Co-Management Advisory Panel

Introduction

Today's hospitalists have an increasing role in the medical management of surgical patients. Co-management is loosely defined as the shared responsibility, authority and accountability for the care of a hospitalized patient across clinical specialties. In the case of co-managed surgical patients, the patient's surgeon manages the surgery related treatments and a hospitalist manages the patient's medical conditions. While there are opportunities for hospitalists to add real value as co-managers of surgical patients (e.g. in optimizing the medical care of patients with significant co-morbidities such as heart failure and diabetes, and reducing post operative complications such as venous thromboembolism), the general definition of co-management is vague and varies markedly from one hospital to another. This lack of a clear definition of co-management or identified best practices leaves hospitalist leaders on their own to determine the parameters of their co-management services and may lead to confusion of roles, miscommunication and less than optimal patient care.

In light of this evolving role for hospitalists, the Society of Hospital Medicine (SHM) chartered a Task Force and subsequently, an Advisory Panel to provide guidance and develop resources on co-management for the specialty of orthopedic surgery. This white paper is a synopsis of those best practices identified through the study of numerous co-management programs throughout the country. The guidelines and recommendations described throughout this paper will assist institutions in developing comprehensive plans for program development and avoiding potential pitfalls. The Advisory Panel concluded that while there are variations in the way co-management programs have been established and operate, there is consensus about the factors common to the most effective programs. Thus, this white paper does not provide an exact recipe for how to build a successful program, but provides the essential program ingredients. These "must-have" ingredients are described in detail below.

Program Ingredients

<u>Identifying Co-Management Program Champions</u>

While many co-management programs have evolved through casual conversations between front-line hospitalists and orthopedists, the Advisory Panel agreed that an important first step is identifying champions to not only head the clinical program, but also to build support for the program throughout the institution. Ideally, a program would have both hospitalist and orthopedic surgeon champions. Additionally, having an executive champion from hospital administration to provide program support and sponsorship within the c-suite would also be advantageous. The responsibilities of the champions are to:

- Agree upon roles and responsibilities of the co-management team;
- Meet regularly to resolve any conflicts and remove barriers;

Checklist for Starting a Co-Management Service:

- ✓ Identify program champions
- ✓ Identify program stakeholders
- ✓ Hold consensus meeting
- ✓ Determine stakeholder goals
- ✓ Develop service agreement
- ✓ Define key program metrics
- ✓ Address financial considerations
- ✓ Select patients appropriate for co-management
- ✓ Establish staffing model and communication plan
- ✓ Develop program support materials
- ✓ Pilot program

- Negotiate and problem-solve between hospitalists and surgeons; and
- Educate staff and referral sources about the program.

The champions may also help to facilitate protocols and determine criteria for patient selection for co-management.

During a recent workshop at Hospital Medicine 2010, SHM's annual meeting, a number of hospitalists participated in a workshop where the qualities of an ideal champion were named by the participants. These qualities include a leader who is able to:

- Innovate and lead program development
- Negotiation when stakeholders have different agendas
- Navigate the politics within an institution
- Obtain buy-in from the C-suite
- Validate a quality improvement approach to improve patient care
- Actively commit to building an effective program
- Teach and communicate effectively to resolve conflicts
- Enthusiastically support professional development relating to co-management.

There was some discussion during the workshop as to whether there should be one or more program champions. While some participants felt that having one leader with decision-making authority would be preferable, the SHM Advisory Panel supports the notion of partnership between both a hospitalist and orthopedic surgeon champion. This arrangement is preferred so that when issues inevitably arise with either service, there is an identified leader who can address complaints and communicate a clear message to reduce variances in practice.

Consensus Meeting

Once a commitment has been made to establish a co-management program and the champions have been identified, meetings among key stakeholders should be convened to come to consensus on program elements. Stakeholders would likely include:

- Hospital leadership (clinical, administrative, and operational)
- Orthopedic Surgeons
- Hospitalists
- Pharmacists
- Nurses.

Additional stakeholders who may add value to the discussion include: case managers, finance representatives, post-operative patients, and emergency room physicians. The champions should also consider the role of IT representation, as data collection will be important in measuring outcomes and effectiveness. Throughout the development of the program, multiple meetings may be required, first among key thought leaders to develop a framework for discussion, and subsequently among the entire stakeholder team or sub-sets in order to work through the program components. The kickoff meeting, however, should help to position the program for future success by obtaining buy-in from the key hospital representatives.

The model for improvement is a useful tool to help organize the thoughts and goals of program leaders, as well as key stakeholders. During the first meeting and throughout program development, the following questions should be addressed:

- What are we trying to accomplish?

- How will we know that a change is an improvement?
- What changes can we make that will result in improvement?

The first question defines the overall aims of the program and should be agreed upon by all stakeholders. The aims should be specific and measurable. Sample aims include: increase to 90% DVT prophylaxis of at-risk co-managed patients within 6 months ***or*** reduce by 10% the number of surgical cancellations for elective patients due to unidentified complication by December 2010. The second question refers to the measures that should be used to determine program effectiveness. For example, defined program measures should be collected at baseline and throughout the program continuum, such as risk-adjusted ALOS, re-admissions, and hospital-acquired infections. Defining key metrics for the co-management program is discussed in greater detail later in this white paper. Another key question addresses the actual program development – how the hospitalist is incorporated into the care of the orthopedic surgery patient and specific timelines. The essentials of program development are discussed throughout this paper.

The first meeting should develop a shared vision for what is important for the new service to accomplish. At the start of the meeting, the team should agree upon ground rules so that there is a level playing field and comfort among all stakeholders to contribute opinions. Each team member should introduce themselves and provide a statement of their interest and investment in the program. Once all team members have been introduced, the team leaders (physician champions) should kick-off discussion about key issues to consider in the development of the program.

1. First, the champions should provide the stakeholders with a ***value proposition*** for the development of a co-management program. While there is limited data on the improvement of outcomes for those patients who are co-managed, data does exist that suggests patients can benefit from improved clinical decision-making and efficiency. In a study conducted at Loyola University Medical Center, high-risk patients undergoing lower extremity reconstruction surgery who were co-managed by a hospitalist-orthopedic service experienced an observed-to-expected ratio for length of hospital stay of 0.693 compared to 0.862 for the control[1]. Additionally, this group experienced greater satisfaction with physician communication and fewer surgical cancellations. Another study conducted at Rochester Methodist Hospital showed that minor complications were reduced within the patient population being treated under hospitalist/orthopedic team model[2].

   In addition to improving patient outcomes, there are other benefits to having a well-constructed co-management program. Satisfaction surveys conducted among staff participating in Rochester's co-management program showed that orthopedic surgeons and nurses preferred the co-management model over the traditional consultant model. Additionally, hospitalists can catch subtle signs of problems before they become more

[1] Pinzur MS, Gurza E, Kristopaitis T, et al. Hospitalist-orthopedic co-management of high-risk patients undergoing lower extremity reconstruction surgery. *Orthopedics.* 2009 Jul;32(7):495.
[2] Huddleston JM, Long KH, Vanness D, et al. Medical and surgical comanagement after elective hip and knee arthroplasty: a randomized, controlled trial. *Annals of Internal Medicine.* 2004 Jul 6;141(1):28-38.

serious. Many co-management programs include hospitalists who conduct pre-operative assessments in order to identify any potentially harmful co-morbidities. The involvement of hospitalists can reduce surgery cancellations and post-operative surgical complications. These benefits, among others, can and should be addressed by the champions in order to strengthen support for building the co-management program.

2. Second, the meeting should consider and address the ***goals for each of the stakeholders***. This is an important exercise in providing each of the players a voice in the building of the program. In conducting this exercise, stakeholders should have the opportunity to identify goals specific to their perspectives. Examples of goals for key players are listed below:
    - Institutional goals to improve:
        - Patient safety and quality
        - Readmission rates
        - Average length of stay (ALOS)
        - Financial return on investment
        - Staff satisfaction
        - Patient satisfaction.
    - Specialists/surgeons to improve:
        - Patient safety and quality
        - Efficiency (best use of knowledge and time)
        - Personal satisfaction
    - Hospitalists to improve:
        - Patient safety and quality
        - Services within institution
        - Market share
        - Revenue
        - Personal satisfaction

    The champions and team should discuss program goals and consider whether they are reasonable and actionable and whether the building of a co-management program can actually facilitate achievement of these goals. Additionally, by identifying the goals of the program upfront, the stakeholders can hopefully avoid the "mission creep" that can so often lead to unmet expectations and dissatisfaction. "Mission creep" refers to changing roles and expectations after the service is implemented to include new responsibilities. The initial goals and any changes in roles and responsibilities should be periodically revisited by the champions and team after implementation to ensure alignment. This is also an opportunity to begin discussing potential aims for the program. Developing aims helps to keep the team focused on what they ultimately hope to achieve.

3. Third, there should be discussion regarding the ***potential obstacles and challenges*** to development of the co-management program, including clinical, legal, and service risks; dissatisfaction among hospital leaders, surgeons, and hospitalists; and organizational culture.

- Steps should be taken to address responsibility, authority, and accountability for patient care that do not exclusively fall in the realm of surgery or medicine and where there might be disagreement. For example, clinical issues around anticoagulation may arise if it is not clear who is ultimately responsible for insuring that the patient receives pharmacologic prophylaxis, and when there is a disagreement about the risk of bleeding versus clotting. Likewise, there should be a consensus as to who is responsible for ordering postoperative antibiotics and transfusions.
- Legal risks relate to hospitalists with internal medicine or family practice training handling problems which ordinarily are handled by surgeons. For example, the team should address whether participating hospitalists require additional training in order to assume responsibility for certain patient types.
- Service risks include whether the hospitalist service has, capacity to take on additional patients. The team should consider how a new service line will impact on physician recruitment, retention, and satisfaction. For academic programs, the team should anticipate how a new service line will impact on medical and surgical residents and define their respective roles.
- The organizational culture involves relationships between nurses and other members of the multidisciplinary care team that directly influence patient quality and safety. Enlisting their help in identifying potential obstacles and challenges will be critical to the success of the service. Analogous to medicine, nursing has become specialized. The team may wish to examine whether there should be additional in service training for surgical nurses relating to acute medical problems or for medical nurses relating to acute surgical problems. Relationships between specialists/surgeons and hospitalists vary from institution to institution and there may be multiple private orthopedic groups. The team may need to develop a mechanism for enlisting the support of multiple parties.

4. Finally, as time allows, the team should begin discussing ***roles and responsibilities*** of each member of the co-management team. The following questions can help to define the respective roles of the hospitalist, specialist/surgeon, and other key stakeholders:
    - How are patients selected for co-management?
    - For elective surgical patients, will the hospitalist have responsibilities with the patient <u>prior</u> to admission?
    - Will the hospitalist have a role in the patient's admission?
    - Will hospitalist conduct pre-operative and post-operative assessments?
    - Who (orthopedic surgeon or hospitalist) will decide which problems are managed by the hospitalist?
    - Will hospitalist conduct medication reconciliation upon admission or discharge?
    - What will be the respective roles of the specialist and hospitalist in addressing complications?
    - Will the hospitalist write orders?
    - Who will the nurse call (specialist or hospitalist) first when problems arise?
    - What will be the hospitalist's role in the discharge process? Who will write the discharge summary? Who will be responsible for communicating discharge information to the community physician?

- What will be the expectations for communication between the hospitalist and the specialist?
- Will there be a process for resolving issues or conflicts regarding the design or operation of the co-management program? Who will be responsible for providing authority when conflicts are unable to be resolved (i.e., Chief of Medicine or Chief of Orthopedics)?

By developing thoughtful responses to these and other questions, the team is developing the foundation for a service agreement or memo of understanding among the stakeholders. Additionally, well-defined goals and clearly delineated roles and responsibilities can help avoid haphazard expansion that may not address the needs of either group or the institution. Ideally, the roles and responsibilities should be aligned with the professional roles of all parties.

At the conclusion of the first consensus meeting, the champions should summarize the discussion, ensuring that all stakeholders understand the value of developing a co-management program within the institution and agree to the plans to move forward. Any important tasks should be assigned, such as conducting research to understand billing practices or beginning to develop service agreements. The team should also agree upon the necessity and frequency of future meetings. It may require multiple meetings to come to consensus on the final service agreement, a staffing model, address financial issues and considerations, and development of key metrics.

After the First Meeting and Critical Program Components

Subsequent meetings will be required to ensure ongoing alignment from all stakeholders on the goals of building a co-management program, elucidate a strategy to reach agreed-upon targeted goals, develop roles and responsibilities for the players on the co-management team, create feedback systems to test hypotheses on which the strategy is based, and build consensus for the elements that would be included in a service agreement.

Service Agreement

Developing a comprehensive service agreement is one of the most critical elements required to ensure that roles, responsibilities, and program expectations are clearly defined. The service agreement can also resolve conflict when issues arise. Service agreements should incorporate the responses to the roles and responsibilities questions listed above. Common sections within the agreement include: admission and discharge procedures, communication between providers, communication with the patient and family, patient selection, and financial and billing considerations. The service agreement should clearly identify who will be the attending of record – surgeon versus hospitalist – or articulate triage criteria so that it is clear where in the hospital the majority of patients are likely to be admitted which has implications for nursing. The service agreement should define the roles and responsibilities of any new staff such as physician assistants or nurse practitioners and who is responsible for their hiring and salary support. The agreement should also specifically define who ancillary staff should contact in various situations. The service agreement should be revisited frequently and revised if necessary to ensure that the established protocols remain relevant and appropriate.

Key Metrics/Measures

As with all quality improvement initiatives, the Advisory Panel agreed upon the importance of analyzing both process and outcome measures to understand the effectiveness of the co-management program. Analyzing this data also helps the team determine whether the program is meeting the aims that were initially established. This topic generated a great deal of discussion during the Panel's consensus meeting because of the variation with which institutions have access to data. However, the Panel agreed that there are several measures that are "must-haves" for determining program effectiveness, while others are recommended if team members are able to gain access to them.

Must-Have Measures:

- Admissions
- Risk-adjusted ALOS
- Risk-adjusted mortality
- Unplanned transfers to ICU
- Venous thromboembolism (VTE) prophylaxis rates
- Hospital-acquired infections, including pneumonia and wound infections
- Catheter-related infections, including sepsis
- Patient Satisfaction
- Provider Satisfaction
- Re-admissions
- Financial metrics

Recommended Measures

- Patient safety and quality metrics
- Glycemic control
- "Never" events
- Acute renal failure
- Myocardial infarction
- Pulmonary embolism
- Stroke
- Hospital delirium
- Occupancy rate and bed turnover
- Discharge process measures

Some of the identified measures are intentionally non-specific, such as types of financial metrics and re-admission rates. The Advisory Panel acknowledged that some of this data may be difficult for institutions to obtain. Additionally, some data is more influential than others in garnering support for the program and is best-defined by the involved stakeholders. Utilizing available data from hospital sources is the first step in generating a report. Hospitals have readily accessible financial data such as average acuity, net operating margin per inpatient discharge, budget variance and net operating margin per service as well as efficiency data. In addition, quality measures such as readmission rates, mortality, and intensive unit transfers are monitored. Hospital administrators should be able to identify who should be included on the program development team – perhaps, the head of Health Information Systems (or medical records) for

demographics, and the Quality Improvement (QI) director for QI data, including JCAHO performance measures as well as IT. These leaders should be able to provide specific information relating to:

- Who to approach to find out what data is already being collected
- Who might help examine the data to ensure that it is accurate and allows for meaningful statistical comparisons
- Who might advise the service about what should be measured (i.e., easily and accurately)

Even if the data presented is imperfect, it is a critical first of many steps to proactively identify and measure quality indicators of performance, sets up expectations for improvement, and possible dissemination through publication of the impact of the new service on patient-centered care.

Financial Considerations

Another crucial element to address during program development is what the financial model for the co-management program should look like and how both specialties will be compensated. Steps to take in addressing the financial considerations and issues include:

- Determining whether the hospitalist will bill as a consultant or as an attending physician;
- Determining who bills what (specialist/surgeon, hospitalist, mid-level) and periodic review of collection rates, rejected claims, and write-offs;
- Consideration of key assumptions and expenses related to patient volume, coverage, workload per hospitalist, and the use of mid-level staff.
- Monitoring billing to ensure that bills are submitted in a timely manner
- Identifying action if there is a deficit and how the deficit will be paid for;
- Understanding the contractual issues of involved providers;
- Reviewing financial considerations associated with employed vs. voluntary physicians; and
- Understanding the documentation, coding, and billing practices within your institution.

Once these issues (and others) have been addressed and resolved, all of the points should be summarized and documented within the service agreement.

Identification of Patients Appropriate for Co-Management

Selecting patients who are appropriate for co-management is also essential to ensuring that the program is successful. There is insufficient published data to guide the selection process as to which patients are most likely to benefit from co-management. Therefore, hospitalists and surgeons should come to agreement upon inclusion and exclusion criteria giving consideration to the number and severity of medical co-morbidities, the age of patient, and institution specific opportunities to improve patient safety and quality. Additionally, patients should be triaged based upon the anticipated degree of hospitalist involvement pre, peri, *and* postoperatively. For example, a likely candidate for co-management would be a patient undergoing hip fracture surgery with cardiac, renal, or pulmonary conditions. Conversely, a relatively young trauma patient requiring surgery with no co-morbidities could be followed by the surgeon. When determining the patient population criteria for co-management, the hospitalists and surgeons should also consider the current capacity and expertise of the hospitalist service.

Co-Management Staffing Model and Communication Plan

When developing the co-management program, the hospitalists and surgeons should consider the staffing needs of the service. Importantly, the team should establish a standard for regular communication among the staff members. Questions to address include:

- Will current nurses, nurse practitioners, or physician assistants be shifted to the co-managed service?
- Are additional staff necessary to support the new program?
- If new staff are required to support the program, who will hire and train these team members?
- Will residents and housestaff participate in the program?
- Who will participate in daily rounds?
- Who participates in multidisciplinary team meetings?
- Do all team members know who to contact when issues arise?

Program Support Materials

In researching best practices and recommendations for effective co-management programs, the Advisory Panel learned that many hospitalists and surgeons had worked together to devise patient care pathways, order sets, and handoff protocols. For example, VTE prophylaxis, transfusion administration, and pain management are areas where there is variation in practice and developing protocols upfront can help in mapping out appropriate patient management.

Putting All of the Ingredients Together

Piloting the Program

Hospitals are intricate systems and rolling out a new program can be laden with challenges and complexities. These complexities can seem overwhelming when implementing the co-management service. However, the Advisory Panel suggests auditioning the model on a smaller scale first, and then expanding the program once the "kinks" have been worked out. These "tests of change", as referred to in the model for improvement framework, can be piloted on 5 patients at first or a specific subset of the patient population, or with one orthopedic champion. The initial pilots should be analyzed to determine whether the hospitalists and orthopedic surgeons feel that the program is efficient and providing value. Based upon recommendations, the program should be revised, if necessary, and rolled out again. Once these small tests of change seem to be running effectively, the program can be expanded to an entire unit or patient population. The team should periodically reassess the program and make appropriate revisions-

Educational Needs of Other Stakeholders

Once the program basics have been determined, the team should begin to consider the educational needs of stakeholders and referral sources, such as emergency room caregivers, primary care physicians, staff on the nursing units, rehabilitation, case managers, and pharmacists. The program champions should provide educational sessions to these stakeholders so that they clearly understand their role, if any, in the co-management program.

Conclusions

In one study, as many as one in six patients who underwent general or vascular surgery had a surgical complication, >50% of these complications were serious, and hospital mortality associated with inpatient surgery varied widely among institutions. (Ghaferi, A A et al. NEJM

361;14: 1368-1375 October 1, 2009). Although co-management of surgical patients by hospitalists requires further study, the overarching principle behind co-management is to improve patient care. It should be noted that the pre-work and structure identified in this paper are recommendations to help the program run most effectively in the long run, however, the process for program development does not need to be overly-complicated. While a "one size fits all" approach to the structure and operation of all co-management programs is impractical, the Advisory Panel suggests that there are essential common factors for developing effective programs. The key ingredients agreed upon by Panel members include: identifying program champions, determining roles and responsibilities, developing a service agreement, defining program metrics, and working through financial and compensation issues. Other critical elements are: identifying patients appropriate for co-management, ensuring that there are standard communication guidelines among team members, and developing program support materials to facilitate appropriate patient management. Additionally, using a quality improvement construct during development, such as the model for improvement, allows the team to follow a simple formula to keep the program focused and within scope. Putting these crucial pieces in place prior to program roll-out should reduce the potential for conflicts. Although there is limited data on best practice, performance measures can be developed to maximize program effectiveness. Ultimately, open communication and mutual respect among all team members play the most important role in ensuring program success.

Demonstration Project

Through sponsorship by Ortho-McNeil, SHM will be launching a demonstration project in summer 2010. Eight to ten sites will be recruited to use the best practice recommendations established by the Advisory Panel in developing an effective hospitalist/orthopedic surgery co-management program. Mentors will work with the sites to guide them through implementation and meet project milestones, such as developing a service agreement and identifying program metrics. The curriculum for this program will be based upon an implementation guide of best practices for co-management and will be delivered via webinar and individual calls with program mentors. Mentoring will occur during a six-month period and upon program completion, it is expected that all site programs will be operational. Additionally, during the months following program completion, key program metrics will be evaluated against baseline to determine the effectiveness of the co-management program. Upon completion of the demonstration project, a white paper will be published with the results of the study, highlighting considerations for future programs, such as determining patient populations appropriate for co-management and the impact co-management has on patient outcomes.

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