SE 2 EO: Two improvements in different practice settings that occur because of nurse involvement in a professional nursing organization.

As described in SE 2, the MGH Department of Nursing encourages and supports membership and participation in professional organizations representing all nursing specialties. In turn, MGH benefits from this participation through knowledge enhancement which can directly result in improved patient care. The following three examples demonstrate improvement in different practice settings that have occurred because of nurse involvement in professional organizations.

American Association of Critical Care Nurses (AACN)

The American Association of Critical Care Nurses (AACN) is dedicated to providing its members with the knowledge and resources necessary to provide optimal care to critically-ill patients (website). AACN standards of care (i.e., AACN: Essentials of Critical Care Nursing, 2nd. Ed., 2010) are evidence based and are used, along with other publications, to direct practice at MGH and in the Cardiac Intensive Care Unit (CICU). The unit is a 16-bed intensive care unit devoted to the care of critically ill cardiac medical patients. Patient populations cared for in the CICU most often include patients with acute myocardial infarction, post-cardiac arrest, stage IV heart failure, pre-heart transplant and numerous associated medical diagnoses.

CICU Staff Nurses are extensively trained to care for these critically ill patients. An interdisciplinary team consists of Nurses, Physicians, Respiratory Therapists, Pharmacist, Social Worker, Dietician, Physical Therapist, Chaplain, Case Manager, Palliative Care Nurse Practitioner, and Ethicist. The team approach includes daily interdisciplinary rounding, specialized consultation when indicated, and weekly focused rounds for longer term and discharge planning.

Background/Purpose:

The CICU Practice Committee was established eight years ago to address practice issues related to current standards of care, new and emerging evidence, organizational initiatives and quality and safety improvements. The committee is co-chaired by two Staff Nurses, both recognized as Clinical Scholars in the MGH Clinical Recognition Program. Weekly agendas are coordinated with the Nursing Director and Clinical Nurse Specialist to create timely, relevant discussions focused on nursing practice.

In an effort to remain current with CICU nursing practice, Staff Nurses review published literature, with special attention given to the two publications from the AACN: American Journal of Critical Care and Critical Care Nurse. When indicated, the CICU staff consults with MGH librarians to assist with literature searches. CICU Staff Nurses are strongly encouraged to belong to AACN.

The National Teaching Institute (NTI), sponsored by AACN, is the premier annual conference for critical care nurses. Attending the NTI is considered both exciting and a privilege, as the most up-to-date evidence-based information in critical care research and practice is presented at this event. Each year two to three CICU staff nurses attend the NTI conference. Their attendance is incentivized and supported by scheduling practices and paid educational time. CICU nurses also regularly attend the American Heart Association (AHA) conference, Cardiovascular Nursing Conference at the North Shore Medical Center, and the MGH Cardiac Nursing Visiting Scholar Program.

The CICU embraces a philosophy of patient- and family-focused care. The philosophy supports open visitation for families, and therefore has no formal visiting hours. Families are welcomed and encouraged to participate in care when appropriate, attend team rounds and family
meetings, and remain present at the bedside according to patient and family wishes as much as possible.

The work of a group of CICU Staff Nurses provides an example of how sharing of ideas and knowledge with members of professional organizations has had an impact on professional practice and patient care at MGH. In 2009, three CICU staff nurses, all members of professional nursing organizations, attended the Cardiovascular Nursing Conference at North Shore Medical Center, a local conference that included a session on family presence during pediatric emergencies. Evidence presented indicated that family presence during resuscitation and invasive procedures was beneficial to patients, families and staff. Later that year, these nurses also attended the NTI and Critical Care Exposition, where they were exposed to a panel discussion on family presence during emergencies that included Margo Halm, RN, PhD, CCRN, BC. The Staff Nurses felt that the practice of family presence was consistent with the patient- and family-centered care model and the values of the CICU and MGH. The CICU had already completed work around expanded visiting hours and had guidelines for family members to stay with patients over night, so family presence during emergencies seemed an appropriate next step.

Methods/Approach/Participants

After discussion with the CICU Nursing Director and Clinical Nurse Specialist, the Staff Nurses proposed the potential practice change to one of the MGH Yvonne L. Munn Nurse Researchers. Together, the group planned for a trial of family presence in the CICU. The information the Staff Nurses had obtained included evidence that staff attitudes toward family presence would be a critical factor in the success of such a program. Toward this end, the Munn Nurse Researcher assisted CICU staff in developing a related research proposal that would help to measure the impact of an educational program on staff attitudes. The proposal was submitted for a 2009-2010 AACN Clinical Inquiry Grant and the group was successful in obtaining a $500 to support the research. The study was developed as a pre-post survey, designed to measure the effects of an educational intervention on nurse perceptions of confidence and the risks and benefits for family presence in the CICU. The grant funding was used to purchase materials needed to advance the project around this practice change. The educational materials used for the intervention were developed using guidelines for “Presenting the Option for Family Presence” developed by the Emergency Nurses Association and endorsed by AACN as suitable for adaptation to critical care units. As described in the study summary included as attachment SE 2E0.a, a unit-based guideline for family presence was developed, educational materials were shared, and clinical staff were involved in discussions about the practice change.

Measurement and Outcomes:

CICU health care providers completed a survey packet that included: Family Presence Self-Confidence Scale for Resuscitation, Family Presence Self-Confidence Scale for Invasive Procedures, Family Presence Risk-Benefit Scale for Resuscitation, Family Presence Risk-Benefit Scale for Invasive Procedures, and a demographic form. The Family Presence Self-Confidence scales are 17 items that ask the health care provider to rate their confidence on a scale from “not at all confident” (1) to “very confident” (5) for family presence either with resuscitation or invasive procedures. The Family Presence Risk-Benefits scales are 23 items that ask the health care provider to rate risks and benefits on a scale from “strongly disagree” (1) to “strongly agree” (5) for family presence either with resuscitation or invasive procedures.
Findings:
There was a significant improvement in perception of risk-benefits for Family Presence for resuscitation after the intervention. The Risk-Benefits scale for invasive procedures and the Self-Confidence scales for resuscitation and invasive procedures demonstrated trends to improved perceptions in health care providers.

<table>
<thead>
<tr>
<th>Family Presence Self-Confidence:</th>
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<th>T</th>
<th>P</th>
</tr>
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<tbody>
<tr>
<td>For Resuscitation</td>
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<td>4.16±.65</td>
<td>4.27±.51</td>
<td>-0.86</td>
<td>0.39</td>
</tr>
</tbody>
</table>

In addition, there was a significant increase in the number of family members who were invited to be present during resuscitation (p<.02), though there was no change in number who were present.

The current model is for a CICU Staff Nurse or Social Worker to assume the role of family support person during emergency situations. The practice change, linked to information obtained from two professional nursing organizations, has enhanced the manner in which the CICU staff supports families during these types of medical crises.

Infusion Nurses Society (INS)
MGH nurses have a long and proud relationship with the Infusion Nurses Society (INS), beginning with Ada Plummer, the first nurse leader for the MGH Intravenous (IV) Therapy Team, who was the founder of INS. The INS is committed to advancing the practice of infusion therapy. Their mission includes “developing and disseminating standards of practice, providing professional development opportunities and quality education, and advancing the specialty through evidence-based practice and research.” The INS is the premier professional organization for high quality resources related to hospital, home, and ambulatory infusion services and practices. In addition, they offer peer reviewed publications through the *Journal of Infusion Nursing*.

The Nursing Director of MGH’s IV Therapy Team is the 2012 President of the New England Chapter of the INS. The organization’s Infusion Nursing Standards of Practice were updated in 2011 and the information was disseminated to IV Therapy professionals. On September 20, 2011, the New England Chapter held its 36th annual seminar entitled *Beyond the Bedside: Implications for Infusion Nursing*, where they offered presentations by leading experts in the field of infusion nursing. The IV Therapy Team Nursing Director’s active involvement with this professional organization assured an up-to-date knowledge base regarding evidenced-based IV practice and has had an impact on IV therapy at MGH. One example of this is the recent work around adherence to practice standards for IV tubing changes.

Background:
The MGH written procedures for IV tubing changes are aligned with the standards and evidence put forth in the INS 2011 “*Infusion Nursing Standards of Practice.*” An excerpt from the Intravenous Therapy Procedure (05-01-01) reads:
Administration sets, including add-on devices, will be changed every 96 hours with the following exceptions:

- Administration sets used with TPN and lipid-based infusates, such as intravenous fat emulsions (IVFE), will be changed every 24 hours – and will be free of diethylhexylphthalate (DEHP)
- IV administration sets used to infuse blood, blood components or derivatives must be discarded when the transfusion is completed or within four hours
- Administration sets infusing IV Propofol should be changed every 12 hours

Despite this structure, the IV Therapy Staff Nurses noted inconsistent practice in some areas of the hospital. Based on this feedback, the IV Therapy Nursing Director launched a quality improvement initiative in January 2012 to assess hospital-wide compliance and improve awareness of the 2011 standards.

Methods/Approach/Participants

Two IV Therapy Staff Nurses conducted an audit of current nursing practice as it relates to IV tubing changes. The audit included an interview with the bedside nurse and a direct observation of the tubing. The purpose of the interview was to identify the nurse’s knowledge of the policies related to IV tubing changes for parenteral fluids, lipid containing products including TPN, and blood products. An additional question was asked of Intensive Care Unit nurses regarding the standard for tubing changes involving the administration of Propofol.

The second portion of the audit involved IV Therapy Staff Nurses’ observation at the bedside. The IV tubing was evaluated as to whether or not a label was present on the tubing and the label information was used then to determine when it was initiated and to evaluate if the tubing was outdated.

Findings:

The interviews indicated inconsistent knowledge in regards to the tubing change standard, especially in the area of parenteral fluid, where only 69% of the nurses provided the correct answer of 96 hours (all of the nurses who answered incorrectly believed the standard to be 72 hours).

Knowledge of IV Tubing Change Standards – January 2012

<table>
<thead>
<tr>
<th></th>
<th># Staff</th>
<th>Correct</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenteral Fluid</td>
<td>67</td>
<td>46</td>
<td>69%</td>
</tr>
<tr>
<td>TPN</td>
<td>65</td>
<td>60</td>
<td>92%</td>
</tr>
<tr>
<td>Blood</td>
<td>64</td>
<td>59</td>
<td>92%</td>
</tr>
<tr>
<td>Propofol</td>
<td>9</td>
<td>9</td>
<td>100%</td>
</tr>
</tbody>
</table>

The second portion of the audit involved IV Therapy Staff Nurses’ observation at the bedside. The IV tubing was evaluated as to whether or not a label was present on the tubing and the label information was used then to determine when it was initiated and to evaluate if the tubing was outdated. The IV Staff Nurses collected data from 28 different clinical units and observed the IV administration sets at the bedside of 66 patients. 82% of the lines were labeled with the initiation date and all IV tubing evaluated was within the expiration dates included in MGH procedures.

The findings were shared with Nursing Directors, Clinical Nurse Specialists and Infection Control Practitioners. The IV Therapy Team encouraged these groups to re-enforce the current MGH procedures for IV tubing administration set changes with the unit nursing staff. In particular,
it was suggested that the re-education include a focus on the importance of minimizing the amount of manipulation to the tubing and intravascular catheter as an important strategy to reduce the opportunity for microbial growth (justification for the 96 hour v. 72 hour standard for IVs with parenteral fluids). It was also noted that enforcement of the IV Therapy procedures for tubing changes may provide an opportunity for cost savings if routine IV tubing changes are reduced.

The audit was repeated in June and August of 2012. It revealed improvement in Staff Nurse knowledge in regards to the standards for IV tubing changes, as seen in the following table:

<table>
<thead>
<tr>
<th></th>
<th>January 2012</th>
<th>June 2012</th>
<th>August 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenteral fluids</td>
<td>67%</td>
<td>75%</td>
<td>81%</td>
</tr>
<tr>
<td>TPN</td>
<td>92%</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>Blood products</td>
<td>92%</td>
<td>97%</td>
<td>100%</td>
</tr>
<tr>
<td>Propofol</td>
<td>100%</td>
<td>75%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The portion of the audit concerning labeling of IV tubing was less favorable, as the compliance with labeling decreased over the three audits.

<table>
<thead>
<tr>
<th></th>
<th>January 2012</th>
<th>June 2012</th>
<th>August 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct Labeling</td>
<td>82%</td>
<td>72%</td>
<td>69%</td>
</tr>
</tbody>
</table>

The IV Nursing Director presented the findings from the first two audits at the Collaborative Governance Policies, Procedures and Products Committee held on July 10, 2012. Staff Nurses present suggested that the current labels being used were confusing. They are color coded stickers for each day of the week and the Staff Nurse needs to determine the date that the tubing should be changed and affix that particular sticker. For example, an IV line initiated on Thursday would have a purple sticker on it that is labeled “DISCARD MONDAY” with the date and time recorded. Staff Nurses shared that some nurses might use the sticker with large print stating “MONDAY” for tubing that was actually new on Monday. Representatives from the Policies, Procedures and Products Committee are now investigating alternatives (attachment SE2 EO.b).

The audits revealed a need for continued education in regards to the policies and procedures for IV Therapy. Toward this end, the IV Nursing Director will be creating a question and answer section in Caring Headlines addressing the IV tubing change procedures and rationale. The audit will be repeated in the Fall of 2012.

The Anticoagulation Forum

Involvement of the MGH Anticoagulation Management Service (AMS) nurses in the Anticoagulation Forum (AC Forum) provides another example of membership in a professional organization. Although the AC Forum, founded in 1991, is a multidisciplinary national organization of health care professionals, nurses play a prominent role in the organization and have recently been instrumental in developing organizational materials. In addition, MGH AMS nurse leaders and Staff Nurses, who provide on-going care for over 4500 patients, have been involved in developing some of the most recent standards for safe and effective anticoagulation care.
The AC Forum strives to improve the quality of care for patients taking antithrombotic medications. It provides educational and networking opportunities, facilitates research, promotes clinical application of evidence-based practices, and impacts healthcare policy by informing regulatory agencies and industry about best practices. MGH nurses have had the opportunity to actively participate in these activities. The AMS Clinical Nurses Specialist (CNS) is on the Board of Directors for the AC Forum. The AMS Nursing Director, CNS, and all 11 of the AMS Staff Nurses are members of the organization. The AMS Clinical Nurses Specialist (CNS) was also a founding board member of the National Certification Board for Anticoagulation Providers (NCBAP) and is currently the NCBAP Board chairperson. She and 6 of 11 Staff Nurses are currently Certified Anticoagulation Care Providers.

The AC Forum holds a bi-annual education and research conference. MGH AMS nurses have been presenters at the AC Forum national conference and have also had several posters accepted by and included in conferences. The AC Forum also conducts interactive webinar presentations followed by discussion that connects anticoagulation care providers across the country. As participants in this on-going dialogue, MGH AMS nurses help to shape the organization's guidelines and consensus statements on important and timely topics.

Membership in the AC Forum and participation in the organization's activities has supported the professional development of MGH AMS nurses and the educational materials developed and used at MGH. Recently published national evidence-based guidelines will also shape future policy and internal clinical procedures. Some aspects bring significant change to current clinical practice while others will assure safe clinical practices, such as how best to interrupt therapy for invasive procedures.

Members of the AC Forum receive periodic e-newsletters that contain practice-specific information. The MGH AMS CNS is a co-author of a column in the newsletter featuring patient case vignettes. These vignettes present real-world practice issues and offer realistic interventions to optimize patient care. The MGH AMS staff nurses and nurse members throughout the country learn from these examples.

Two recent topics provide examples of AMS nurse involvement in addressing current issues in anticoagulation through the AC Forum and the subsequent change in clinical practice at MGH. These focused on providing safe and effective anticoagulation teaching and care to patients with limited proficiency in English and the process of promoting self-testing for selected anticoagulation patients.

1) Anticoagulation for Patients with Limited Proficiency in English

Background:

The publication was mailed to all AC Forum membership in a special edition newsletter. The consensus statement described best practices in anticoagulation and made recommendations for optimal therapy. The Patient Education Section included the importance of translating anticoagulation education materials for non-English speaking patients.

Methods/Approach/Participants:
MGH physicians whose patients were being cared for in AMS approached the AMS Clinical Nurse Specialist to discuss the issue of anticoagulation education for patients with limited English proficiency (LEP). AMS leadership embraced the opportunity to collaborate and determine if their
educational efforts were effective for this group. To address this concern, the AMS nursing leadership developed a study to explore and compare the quality of anticoagulation management for patients with limited English Proficiency (LEP) to English-speaking patients. The MGH AMS Clinical Nurse Specialist worked with data analyst support to retrieve electronic data for 2,779 patients who received care from the MGH AMS in 2010. In addition to the identification of patients in the LEP study group, the presence of a communication ‘surrogate’, defined as a bi-lingual family member or medical interpreter, was also noted. Additional demographic information for the patient panel was provided by the physicians involved in the study. Time in Therapeutic Range (TTR) and Time in Danger Range (TDR) were evaluated as outcome measures. Percent TTR for International Normalized Ratio (INR) was considered between 2.0-3.0 and percent TDR for INR was considered <1.7 or >3.5.

Findings:
The MGH AMS clinic achieved a high average TTR overall, however TTR was lower in LEP patients compared to English speakers (71.4% v. 74.7%). TDR was higher in LEP patients compared to English speakers (11.6% v. 9.6%). The use of a communication surrogate by LEP patients improved outcomes for patients.

Subsequently, one of the MGH AMS Staff Nurses included this information in a session she presented at the May 2011 AC Forum titled Practical Issues in Out Patient Anticoagulation Management.

The importance of addressing language barriers and the ways that these barriers may impact and challenge anticoagulation compliance was included in the presentation.

2) Self Testing for Anticoagulation Patients
Background and Purpose:
In the Spring of 2008, Medicare expanded coverage for Prothrombin Time (PT) and International Normalized Ratio (INR) monitoring done in the home. In the Winter of 2009 the AC Forum disseminated a Consensus Guideline for Patient Self-Testing (PST) to its members and published the guidelines as a supplement for the article "Oral Anticoagulation Patient Self-Testing: Consensus Guidelines for Practical Implementation." Through her AC Forum membership, the MGH AMS Clinical Nurse Specialist participated on the committee that wrote this guideline, using her clinical experience at MGH to inform the recommendations. The topic was also included in the plenary session at the AC Forum National Conference held in May 2011, and it is frequently addressed in AC Forum newsletter. The PST poster was a natural follow-through to measure how our efforts to support PST were doing and was it making a measurable difference in TTR.

The Consensus Guidelines and educational information from the AC Forum played a role in guiding clinical practice and efforts in the MGH AMS that to promote and support PST options for patients. The MGH AMS developed a pilot PST program for selected patients in 2006 and in 2008 intensified efforts to include additional patients in view of the improved coverage for Medicare patients. In 2010, the AMS Clinical Nurse Specialist, along with an interested Staff Nurse, conducted a study to determine if PST improved TTR for established AMS patients.

Methods/Approach/Participants:
Records for 121 AMS patients who had received care at the MGH AMS and also participated in self-testing were reviewed by the AMS Clinical Nurse Specialist and an interested AMS Staff Nurse. The acceptable percent of TTR for INR was considered to be between 2.0 and 3.0. Data that was reviewed included records for patients cared for from 2007 through 2010. TTR was analyzed comparing INR response before and after PST was initiated.
Findings:

TTR significantly improved after the onset of PST (median 77.6% post PST v. 72.9% pre PST, p <0.001). The number of INRs every 30 days and intervals between tests were also more frequent (both with p <0.0001) in the post PST group, indicating improved compliance with recommendations for testing.

In addition, a recent AC Forum webinar, "Leap into Patient Education for New Anticoagulants", was presented by the AMS CNS. This was a follow-up to a webinar that focused on providing practical tips for patient education regarding new oral anticoagulant drugs recently approved by the US FDA. It included discussion of the role of anticoagulation clinics in the setting of these new drugs and provided information on how to respond to challenges in practice. This information is helping to shape guidelines and protocols for safely transitioning patients between multiple anticoagulant medications. As a result of involvement with the AC Forum, the MGH AMS CNS and Staff Nurses created new patient and family discharge educational materials for two of the new oral agents which are used by the hospital community (attachment SE 2EO.e and attachment SE 2 EO.f).
FAMILY PRESENCE IN THE CARDIAC INTENSIVE CARE UNIT DURING INVASIVE PROCEDURES AND RESUSCITATION

Erica Edwards, RN, Lisa Davies, RN, Diane L. Carroll, PhD, RN, Michelle Gorski, RN, Tracie Hersey, RN, Lauren Klein, RN, Norine O’Malley-Simmler, RN, Denise Young, RN, MSN

BACKGROUND/SIGNIFICANCE
In response to a growing demand from consumers, there has been a movement for family presence (FP) during resuscitation and invasive procedures. FP has been done with Emergency Department and pediatric personnel with little research from intensive care health care providers.

PURPOSE
The purpose of this study was to measure changes in perceptions of the health care providers in the Cardiac Intensive Care Unit before and after an intervention for Family Presence during resuscitation and invasive procedure.

SAMPLE
There were 83 health care providers that completed the survey, 43 before and 40 after the intervention, 9 males/71 females, with the majority nurses (79% pre and 92% post). There was no difference in age, gender, education, or years of experience between before and after in the sample.

SURVEY DATA

<table>
<thead>
<tr>
<th>Health Care Provider</th>
<th>Pre-Intervention N (%)</th>
<th>Post-Intervention N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse</td>
<td>34 (79)</td>
<td>37 (92)</td>
</tr>
<tr>
<td>Physician</td>
<td>2 (4)</td>
<td>2 (5)</td>
</tr>
<tr>
<td>Respiratory Therapist</td>
<td>4 (9)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Social Worker</td>
<td>0</td>
<td>1 (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Pre-Intervention N</th>
<th>Post-Intervention N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma/AND</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>BA/BS</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>MA/MS</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>MD/PhD</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>37.5±10.5</td>
<td>36.9±10.1</td>
</tr>
<tr>
<td>Years of Experience</td>
<td>16±11</td>
<td>15±11</td>
</tr>
<tr>
<td>Years working in CICU</td>
<td>9.6±7</td>
<td>10.2±8</td>
</tr>
</tbody>
</table>
PROCEDURES

• Health care providers were asked to complete the survey packet that included: Family Presence Self-Confidence Scale for Resuscitation, Family Presence Self-Confidence Scale for Invasive Procedures, Family Presence Risk-Benefit Scale for Resuscitation, Family Presence Risk-Benefit Scale for Invasive Procedures, and a demographic form.

• The Family Presence Self-Confidence scales are 17 items that ask the health care provider to rate their confidence on a scale from not at all confident (1) to very confident (5) for family presence either with resuscitation or invasive procedures. Cronbach alpha = .91-.95.

• The Family Presence Risk-Benefits scales are 23 items that ask the health care provider to rate risks and benefits on a scale from strongly disagree (1) to strongly agree (5) for family presence either with resuscitation or invasive procedures. Cronbach alpha = .60-.67.

INTERVENTION

• Consultation with Emergency Department for unit guideline development

• Presentations of the evidence to support Family Presence from Emergency Nursing Association (ENA)

• Informational e-mails to all providers

• Posting of pertinent articles

• Staff meetings and group discussions

• Collaboration with multi-disciplinary team members

• Unit-based guideline tailored to the unique needs of an Intensive Care Unit using a decision support algorithm with identification of facilitator for Resuscitation and Invasive Procedures.

RESULTS

<table>
<thead>
<tr>
<th>Family Presence Self-Confidence:</th>
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<th>Post-Intervention</th>
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<th>P</th>
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<td>0.39</td>
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</tbody>
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<th>Family Presence Risks/Benefits:</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Resuscitation</td>
<td>3.01±.24</td>
<td>3.17±.27</td>
<td>-2.6</td>
<td>0.01</td>
</tr>
<tr>
<td>For Invasive Procedures</td>
<td>2.99±.32</td>
<td>3.12±.39</td>
<td>-1.49</td>
<td>0.14</td>
</tr>
</tbody>
</table>
Attachment SE 2 EO.a continued

• There was a significant improvement in perception of risk-benefits for Family Presence for resuscitation after the intervention. The Risk-Benefits scale for invasive procedures, and the Self-Confidence scales for resuscitation and invasive procedures demonstrated trends to improved perceptions in health care providers.

• There was a significant increase in the number of family members who were invited to be present during resuscitation (p<.02), though there was no change in number who were present during resuscitation.

• Nurses felt they were the best person to decide about Family Presence during resuscitation and invasive procedures.

CONCLUSIONS

• This intervention of education and guideline development, demonstrated improved perceptions of the benefits for Family Presence during resuscitation. Though not significant, there were increases in confidence for Family Presence and some improvements in the risk-benefit profile for Resuscitation and Invasive Procedures.

• There were more family members who were invited to be present during resuscitation though no increase in number presence. This indicates that though invited, family members did not always want to be present.

• This was the first study to report on health care providers perceptions for family presence during invasive procedures. More concerns about family presence are documented with the minimal changes in scale scores. This demonstrates a need for a more focused educational effort on family presence during invasive procedures.

References
Date: July 10, 2012  
Time: 1 pm – 3 pm  
Location: Sweet Conference Room  
Call to Order: 1:10 pm  
**Present:** Beaulieu, Maureen RN (ED), Benoit, Kristen, RN (PH22), Bowes, Cynthia RN (Yawkey 8), Bradley, James RN (Ell 7), Brescia, Kristen Marie RN (Big 9), Cantone, Jessica RN (Ell 19), Cashavelly, Barbara RN (Lunder 9), Connolly, Michelle RN (Big 7), Connors, Amanda RN (PACU), Curran, Judith RN (Lunder 10), Desmarais, Janice RN (PACU), Gavaghan, Susan (Big 9), Levinson, Hilary RN (ED), Lynch, Thomas RN (Big 11), RN (Ell 6), Sherman, Marsha RN (Lunder 7), Soria, Richard RN (Blake 7), Thompson, Anne Marie RN (Ell 10), Vachon, Theresa RN (Lunder 6), Waak, Karen CS (PT), Walsh, Ellen RN (PACU), Joanne Empoliti, RN (White 6).  

**Excused:** Altobelli, Neila, RT (Resp) Arroyo, Deliris RN (cardiac) Bartholomay, Mimi RN (Yawkey 8) Beauchamp, Kathryn RN, (PICU) Browne, Kenda RN (WH10) Burke, Shelia CT (KNC) Carnevale, Tammy RN (WH13) Earl, Rona RN (Lunder 10) Eiermann, Laurie RN (Big 13), Fitzgerald, Patricia ND (Big 11) Francis, Jacqueline (WH8) Guarente, June (ENDO) Jameson, Deborah RN (Treadwell) Joyce, Stephen RN (PCSIS) Kaye, Susan RN (Ell16) Killackey, Mary Ann RN (IV) LaPerle, Sarah RN (Ell14) Macarelli, Nicholas RN (PCS Informatics) McIntyre, Joyce RN (ED) Milotte, Holly RN (Ell6) Myers, Kathleen ND (WH6) Rebholz, Carolyn RN (Blake 8) Soria, Richard RN (Blake 7) Stewart, Jean RN (WH 6) Sweeney, Donna RN (Blake 9)  

**Guest:** Hoffman, Kathleen RN (IC), Smith, Mary Ellin RN (KC), Yang, Dun Gan MD, Janet Mulligan, RN  

**Recorder:** Lynn Fitzgerald-Scannell  

**Remember to include the credentials of participants and units/departments/divisions represented.**
### Massachusetts General Hospital

**Patient Care Services Collaborative Governance**

**Policies Procedures and Product Meeting**

**Minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Discussion</th>
<th>Action/Outcomes</th>
<th>Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hospital who observed our meeting.</td>
<td>the meeting</td>
<td></td>
</tr>
<tr>
<td>June Minutes</td>
<td>Minutes from the June meeting were reviewed with no changes</td>
<td><strong>IV Therapy Update</strong></td>
<td></td>
</tr>
<tr>
<td>IV Therapy Update ~Janet Mulligan</td>
<td>Janet reviewed the stands for IV tubing.</td>
<td></td>
<td>Champions are reminded to share this information with their colleagues regarding IV lines requiring a written order.</td>
</tr>
<tr>
<td></td>
<td>- Parenteral fluids lines are to be changed every 96 hours.</td>
<td></td>
<td>Champions will bring this message back to their colleagues regarding labeling and dating IV tubing.</td>
</tr>
<tr>
<td></td>
<td>- TPN every 24 hours.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Blood or blood products every 4 hours (or when the transfusion is complete (whichever comes first)).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Propofol every 12 hours.</td>
<td></td>
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<tr>
<td></td>
<td>IV tubing labeled with initiation dates had decreased slightly from the last audit. Champions noted that the “rainbow” label we use is confusing and we need to consider other options including:</td>
<td></td>
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<tr>
<td></td>
<td>- A blank label</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- A new label created with input from the</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Audits conducted by Janet and her staff were found to be positive with increases across all types of lines.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>IV Tubing Changes Recommendations:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Minimizing manipulation to the intravascular catheter and the associated tubing reduces the opportunity for microbial growth within the system.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Joanne will follow up with Janet and Materials Management on a new label and report back to the committee.</td>
<td></td>
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<tr>
<td></td>
<td>- There is a cost savings opportunity with the</td>
<td></td>
<td></td>
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<tr>
<td>Topic</td>
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<tr>
<td></td>
<td>champions. Joanne shared that the Partners Clinical Advisory and the IV tubing contract committee have talked about having the IV tubing package have a label. But this solution will not occur soon, so we will work with materials management and Janet on a short term solution. Lab Specimen Error Report, Janet reviewed the findings and the most common error was no labels on specimens. Between May 6 and June 30, 2012 there were 326 errors. The Curos Port Protector Pilot is being conducted in the Lunder Building; The cap contains 70% isopropyl alcohol-saturated sponge like foam that disinfects ports in 3 minutes – keeps port clean for 7 days. Studies demonstrate a significant reduction in bloodstream infections when these are used.</td>
<td>reduction of IV tubing changes.  - Publish a Caring Headlines Q&amp;A regarding IV tubing changes. - Curos pilot initiated July 1, 2012. CLABSI rates will be compared to the previous quarter’s data. All Lunder clinical units involved.</td>
<td>This is a take a way message the champions will share with the colleagues.</td>
</tr>
</tbody>
</table>

This is a take a way message the champions will share with the colleagues.
### Massachusetts General Hospital
Patient Care Services Collaborative Governance Policies Procedures and Product Meeting Minutes

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<tr>
<td>Scope of Practice LIP’s order required for initiation of all peripheral IV. The only exception is blood product administration and continuous IV fluids or IV medication order. All intermittent medications must have a current order (order is valid for 96 hours)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Lab Sheets</td>
<td>The lab sheets have been found to be valuable on the pilot units. Champions reported less running back and forth from the chart to the patient. Actual traceable information. PCA’s like the form. Some double documentation was reported Suggestion was to add block for red check to the form. Form kept in green book. Challenges reported included multi day orders. RN acknowledges the order, but on some units the OA transcribes, on others the RN does.</td>
<td>Challenges continue unit to unit and various discussions regarding how the form is being used. Other lab forms were had blocks for red checks for additional days- need examples. Champions are asked to bring forms to next meeting, gather data and report back at the August meeting.</td>
<td>Champions to bring examples of lab sheets to the next meeting to compare how each unit is using this documentation.</td>
</tr>
<tr>
<td>Topic</td>
<td>Discussion</td>
<td>Action/Outcomes</td>
<td>Follow-Up</td>
</tr>
<tr>
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</tr>
<tr>
<td>e-MAR Enhancements ~Rosemary O’Malley</td>
<td>Rosemary reviewed many of the changes that have been made to the e-MAR system. There has been a change to the insulin order 2 doses within one order. Eating dose and NPO dose. (Please see screen shots in attachment). Insulin vials will come from pharmacy with peel and stick labels to be applied to the syringe for scanning at the patient bedside. Time Critical Medications, new CMS regulation. Each hospital must identify medications that should be administered within a 60 minute window. Scanning Medications goal is that 90% of medications are scanned into e-MAR. Next steps Insulin vials will come from pharmacy with peel and stick labels to be applied to the syringe for scanning at the patient bedside. Reports by user and by medication will be</td>
<td>e-MAR Enhancements</td>
<td>Champions applauded the changes to e-MAR and thanked Rosemary for all of her work on this project and wish her good luck at the Brigham with her new position there.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New Policy approved by MESAC but will not be posted until e-MAR update change has been made. Scheduled for July 25, 2012.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Please review the attached presentation that provides screen shots for you and your colleagues to review.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Massachusetts General Hospital
Patient Care Services Collaborative Governance
Policies Procedures and Product Meeting
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<tr>
<td>available. Range dose orders RPh must click a flag in the approving order to be able to scan, currently this is a manual click but will be automatically checking this flag for all range doses. Pain Scale. Required at every administration or an intermittent medication ordered as PRN: Pain or Headache. Required for the initial dose of a continuous medication. Reason not to document RN must select a reason from the drop down list.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Identify three takeaway messages from the meeting that you will share with your colleagues:

1. Intravenous access lines for intermittent medications need a physician order which needs to be renewed every 96 hours. If a patient is receiving a blood product or continuous IV medication or fluid an exception can be made, however obtaining the order for the IV is best practice. This is a requirement from the Joint Commission.

2. The scanning of insulin medication will change on July 25, 2012. New labels will be attached on the insulin bottles when they arrive from pharmacy. The insulin can be drawn up at the Omnicell using the 5 rights, then labeled and scanned at the bedside. These labels were created to improve the scanning of insulin which is one of the most frequently missed medications. Goal for EMAR scanning is 90% we are currently at 84%.
3. Insulin vials will arrive from the pharmacy with the expiration labels attached to the bottom of the bottles. Nurses are expected to check the label before administering the medication.

4. Effective July 25, 2012 any routine medication ordered for dosing more frequently that q 4 hours will be required to be administered within a 1 hour window. (Instead of the two hour window for less frequent meds as we do now). The more frequent medications will have a different EMAR icon.

Adjourned:  3 pm
Next Meeting: August 14, 2012
Reviewed and Approved By: Date:
INTRODUCTION AND OBJECTIVES
• Warfarin anticoagulation is a complex outpatient therapy.
• Anticoagulation clinics are known to deliver high quality care.
• The impact of communication barriers with limited English proficient (LEP) patients and the delivery of quality care and safety are not known.
• An estimated 24 million LEP individuals are in the US.

Objective: Compare anticoagulation management quality for LEP patients to English-speaking patients in a large anticoagulation clinic.

INTRODUCTION AND OBJECTIVES
This anticoagulation clinic achieved a high average TTR overall, however TTR was lower in LEP patients compared to English speakers.

The use of a communication ‘surrogate’ in LEP patients improved TTR and should be considered in the management of warfarin therapy for these patients.

Anticoagulation clinics can enhance their services with the use of a surrogate and possibly reduce disparities and improve anticoagulation quality among LEP patients.

Further research should delineate aspects of communication that most contribute to improve anticoagulation quality.

METHODS
• Electronic data on 2,779 patients receiving care from the Massachusetts General Hospital Anticoagulation Management Service in 2010 was retrieved and analyzed.

A communication ‘surrogate’ was defined if the clinic referenced a bi-lingual family member or medical interpreter for communication purposes.

Percent time in therapeutic range (TTR) for INR between 2.0-3.0 and time in danger range (TDR) for INR <1.7 or >3.5 was calculated using the Rosendaal method.

Multivariable linear regression models explored the relationship between LEP and outcomes: TTR and TDR.

CONCLUSIONS

TABLE 1
Demographic and Clinical Patient Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>LEP</th>
<th>EN</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD)</td>
<td>73 (13)</td>
<td>72 (12)</td>
<td>0.081</td>
</tr>
<tr>
<td>Female, %</td>
<td>52</td>
<td>41</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>White, %</td>
<td>47</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial, %</td>
<td>18</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Medicare, %</td>
<td>61</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Medicaid/Self-Pay/Free care, %</td>
<td>27</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>High School Education</td>
<td>51</td>
<td>7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Co-morbidity Count, mean (SD)</td>
<td>3.2 (1.5)</td>
<td>2.9 (1.6)</td>
<td>0.003</td>
</tr>
<tr>
<td>Primary Diagnoses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFib, %</td>
<td>72</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>DVT/PE, %</td>
<td>14</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>CVA, %</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Valvular HD, %</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other, %</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Surrogate, %</td>
<td>60</td>
<td>12</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

TABLE 2
Time in Therapeutic Range (TTR) and Time in Danger Range (DTR)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>LEP</th>
<th>EN</th>
<th>∆ P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>%TTR, mean (SD)</td>
<td>71.4 (12.7)</td>
<td>74.7 (12.9)</td>
<td>-3.3 &lt;0.001</td>
</tr>
<tr>
<td>%TDR, mean (SD)</td>
<td>6.0 (3.3)</td>
<td>9.6 (6.3)</td>
<td>3.6 &lt;0.001</td>
</tr>
<tr>
<td>Time INR &lt;1.7, mean (SD)</td>
<td>8.1 (1.8)</td>
<td>6.5 (1.8)</td>
<td>1.6 &lt;0.001</td>
</tr>
<tr>
<td>Time INR &gt;3.5, mean (SD)</td>
<td>3.5 (3.3)</td>
<td>3.1 (3.7)</td>
<td>0.4 0.04</td>
</tr>
</tbody>
</table>

TABLE 3
Multivariable Results adjusted for sociodemographics, co-morbidities, and site of primary health care

<table>
<thead>
<tr>
<th>Variable</th>
<th>∆ % TTR (95% CI)</th>
<th>∆ % TDR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEP</td>
<td>-2.1 (-4.1 to -0.1)</td>
<td>1.1 (-0.4 to 2.5)</td>
</tr>
<tr>
<td>LEP/No Surrogate</td>
<td>-3.2 (-4.2 to -2.3)</td>
<td>2.4 (0.5 to 4.5)</td>
</tr>
<tr>
<td>LEP/No Surrogate</td>
<td>-2.5 (-5.0 to -0.01)</td>
<td>1.2 (-4.8 to 3.0)</td>
</tr>
</tbody>
</table>
IMPACT OF PATIENT SELF TESTING ON TIME IN THERAPEUTIC RANGE
Lynn B. Oertel, MS, ANP, CACP and Jennifer O’Neil, BSN, RN
Anticoagulation Management Service
Massachusetts General Hospital, Boston, MA

BACKGROUND
• Oral anticoagulation therapy with warfarin is used to prevent or treat thromboembolism
• Maintaining a therapeutic International Normalized Ratio (INR) is a challenge due to its narrow therapeutic index and influence from multiple variables
• Time in Therapeutic Range (TTR) is a marker for quality and safety associated with warfarin therapy
• Advantages of Patient Self Testing (PST) as a means to improve TTR are well documented in the literature
• AMS patient demand for testing at home was recognized

IMPLEMENTATION
• AMS primary nurses:
  – Determine patient interest and assess eligibility
  – Complete PST referral/order and obtain physician signature
  – Independent Diagnostic Testing Facilities (IDTFs) collaborate with AMS to:
    – Determine patient insurance coverage and out-of-pocket expenses
    – Complete a face-to-face patient education session on use and care of the device
    – Provide ongoing testing supplies and technical support
  – Accept INR report from patient and fax result to AMS
  – AMS reviews INR, contacts patient when needed, and determines future dose
  – Patients are encouraged to test weekly

SAMPLE
• N = 121
• INR range 2.0 – 3.0 (date ranged 2007–2010)

OUTCOMES
• TTR was analyzed comparing INR response before and after PST was initiated
• TTR significantly improved after the onset of PST (median 72.9% v. 77.6%, p <0.001)
• The number of INRs every 30 days and intervals between tests were also significantly different after the onset of PST (both with p <0.0001)

PERFORMANCE IMPROVEMENT OUTCOMES

SIMPLE STEPS FOR PATIENTS

INDEPENDENT DIAGNOSTIC TESTING FACILITIES (IDTF)
• Alere – www.csagnow.com
• Philips – www.inrselftest.com
• Roche – www.poc.roche.com

IMPLICATIONS
• PST is a beneficial technique to improve TTR for many patients
• Further studies are needed to identify which patients may benefit the most from PST
• Patient satisfaction and barriers need further investigation
• Future research should explore the feasibility of PST with patient self-adjustment of warfarin dosages

PST DEVICES APPROVED BY FDA FOR PATIENT USE AT HOME

INR range 2.0 – 3.0

CHARACTERISTICS OF PATIENTS

PERFORMANCE IMPROVEMENT OUTCOMES

ANALYSIS OF TTR PRE AND POST PST

BACKGROUND

OBJECTIVE

• To determine if Patient Self Testing improved TTR for established patients in AMS

IMPLEMENTATION

SAMPLE

AMS
Anticoagulation Management Service

Simple Steps for Patients

Independent Diagnostic Testing Facilities (IDTF)

Performance Improvement Outcomes

References:
4. Care/suppl 2007; 17(10):1
9. www.inrselftest.com
10. www.poc.roche.com
11. www.csagnow.com
Dabigatran (trade name Pradaxa®) prevents blood clots from forming in your body. It is sometimes called a blood thinner.

If you have questions about or if you are experiencing side effects of dabigatran (Pradaxa®), call your doctor.

Your doctor: _______________________ Telephone #: __________________

SIDE EFFECTS of Dabigatran (Pradaxa®)

- This medicine may cause bleeding.
- Bleeding from cuts may take longer to stop and bruising may happen more easily. This is normal.
- Other common side effects include: stomach pain, indigestion, upset stomach, or heart burn.

CALL YOUR DOCTOR or get emergency medical help right away if you have:

- Symptoms of an allergic reaction such as chest pain or tightness, swelling in your face or tongue, trouble breathing, or feeling faint
- Blood coming from your mouth, nose or gums
- Blood in your sputum (spit) after coughing
- Bleeding from your vagina or a very heavy menstrual flow
- Red or black (tarry) stool
- Pink or dark brown urine
- Bruising that is worse than usual or that occurs for no reason at all
- Unusual headache or difficulty in thinking or speaking.
- Any weakness or numbness on your face, arms or legs.
- Unexpected pain and/or swelling (headache or joint pain for example)
- A bad fall or injury
HOW and WHEN to take Dabigatran (Pradaxa®)

- Take your pills twice every day or as directed by your doctor. Do NOT stop taking it without talking to the doctor who ordered this for you. Talk to your doctor if you have kidney problems since a change in medicine therapy may be needed.
- Swallow pills whole. Do NOT crush, break or chew pills.
- Pills must be stored in the original container. Do NOT use a different pill box.
- Once a new bottle is opened, the pills must be used within 120 days (or 4 months). Write the date on the bottle when you open it. Ask your pharmacist how to safely dispose of old pills.
- If you miss a dose, take it as soon as you remember only if your next dose is due MORE than 6 hours away. If your next dose is LESS than 6 hours away, call your doctor.

Missing doses increases the risk of having a blood clot.

- If you need surgery, a medical or dental procedure, you may need to stop this medicine for a short time. You must know exactly when to stop and start taking this medicine with the doctor who prescribed it.
- If you are taking warfarin (Coumadin®) and switching to dabigatran (Pradaxa®), follow the special instructions to stop warfarin and start dabigatran (Pradaxa®) from your doctor. Usually, the INR (international normalized ratio) test result should be below 2.

IMPORTANT FACTORS to know when taking dabigatran (Pradaxa®)

- Tell all your doctors, dentists, and other health care providers that you take it.
- When filling a new prescription or taking over-the-counter medicines or herbal products ask your pharmacist to make sure that it is safe to take.
- Some medicines may affect the way this medicine works (example rifampin) or may increase your risk of bleeding (examples: aspirin, motrin, advil, heparin, herbals and alternative therapies).
- Keep a list of all your medicines, including prescription and over-the-counter medicines and herbal products to share with your doctors and other health care providers.

Dabigatran (Pradaxa®) and PREGNANCY/BREAST-FEEDING

- There are no adequate studies to tell us if it is safe during pregnancy.
- Tell your doctor if you are pregnant or plan to become pregnant.
- It is not known if this medicine is secreted in breast milk. Caution is advised.

Note: Please contact Lynn Oertel, CNS for questions about this instructional material. 07/08/2011, 12/16/2011
Rivaroxaban (trade name Xarelto®) prevents blood clots from forming in your body. It is sometimes called a blood thinner.

If you have questions or if you have side effects with rivaroxaban (Xarelto®), call your doctor.

Your doctor: _______________________ Telephone #: __________________

How and When to take rivaroxaban (Xarelto®)

- Take your pill once every day with your evening meal.
- **Do NOT** stop taking it without talking to the doctor who ordered this for you.
- Talk to your doctor if you have kidney or liver problems since a change in medicine therapy may be needed.
- If you miss a dose, take it as soon as you remember on the same day and take your usual dose on the next day.

  **Missing doses increases the risk of having a blood clot.**

- Tell your doctor if you’re having surgery, or a medical or dental procedure. You may need to stop this medicine for a short time.
- If you are taking warfarin (Coumadin®) and switching to rivaroxaban (Xarelto®), follow the special instructions to stop warfarin and start rivaroxaban (Xarelto®) from your doctor.

SIDE EFFECTS of rivaroxaban (Xarelto®)

- This medicine may cause bleeding.
- Cuts may bleed longer and bruising may happen more easily. This is normal.
- Some side effects may include: muscle pain or spasm, dizziness, or itchy skin. Report any side effects that bother you to your doctor.
CALL YOUR DOCTOR or get emergency medical help by dialing 911 right away if you have:

- Symptoms of an allergic reaction such as chest pain or tightness, swelling in your face or tongue, trouble breathing, or feeling faint
- Blood coming from your mouth, nose or gums
- Blood in your sputum (spit) after coughing
- For females, bleeding from your vagina or a very heavy menstrual flow
- Red or black (tarry) stool
- Pink or dark brown urine
- Bruising that is worse than usual or that happens for no reason at all
- Unusual headache or difficulty in thinking or speaking.
- Any weakness or numbness on your face, arms or legs.
- Unexpected pain and/or swelling (headache or joint pain for example)
- A bad fall or injury

Important things to know when taking rivaroxaban (Xarelto®)

- Tell all your doctors, dentists, and other health care providers that you take it.
- When filling a new prescription or taking over-the-counter medicines or herbal products ask your pharmacist to make sure that it is safe to take.
- Some medicines may affect the way this medicine works (examples: ketoconazole, ritonavir, clarithromycin, erythromycin, fluconazole, carbamazepine, phenytoin, rifampin) or may increase your risk of bleeding (examples: aspirin, motrin, advil, heparin, herbals and alternative therapies).
- Keep a list of all your medicines, including prescription and over-the-counter medicines and herbal products to share with your doctors and other health care providers.

Rivaroxaban (Xarelto®) and Pregnancy/Breast feedings

- There are no good studies to tell us if it is safe during pregnancy
- It is very important to tell your doctor if you are pregnant or plan to become pregnant
- It is not known if this medicine is passed through breast milk. It is recommended to stop this medicine or stop breast-feeding. **Before stopping this medicine, talk with your doctor.**

*Note: Please contact Lynn Oertel, CNS for questions about this instructional material. 1/20/2012*