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# Increasing Patient Satisfaction and Decreasing Hospital Readmission Due to Deep Venous Thrombosis by Providing Anticoagulation Education for Orthopedic Patients

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Increasing Patient Satisfaction and Decreasing Hospital Readmission Due to Deep Venous  
Thrombosis by Providing Anticoagulation Education for Orthopedic Patients

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### **Clinical Leadership Theme**

This project strongly reflects the CNL curriculum element of *Care Environment Manager* with the CNL role function of *Information Manager and System Analyst/Risk Anticipator*: participating in system review and evaluating/anticipating of client risks to improve safety. To accomplish my goal of improving anticoagulation education for orthopedic patients, I will collaborate and consult with other health professionals. My role as a CNL in team formation is based on effective communication and team-building skills, membership and group dynamics. I will be guided by the doctrine that “effective communication will unlock many doors and facilitate organizational trust” (Rousel, 2010, p.108). Coalition building is an essential competency for CNL. The AACN (2013) lists these competencies under essential 7: facilitate the lateral integration of healthcare services across the continuum of care with the overall objective of influencing, achieving and sustaining high-quality care. This project was undertaken as an evidence-based change of practice at the Dominican Hospital and as the Institutional Review Board did not formally supervise such.

### **Statement of the Problem**

Oral anticoagulants are widely used for the prevention of thromboembolism after joint replacement and are proven to improve the outcomes for patients undergoing orthopedic surgery considerably. By its nature, anticoagulation increases the risk of bleeding; this risk is particularly high during transitions of care. However, the transition from inpatient to outpatient care, if poorly managed, may adversely affect health outcomes of the orthopedic patient. Patients who are being discharged with prolonged selected anticoagulation therapy should receive face to face education on their therapy, including written information and educational handout. The American College of Chest Physicians Antithrombotic Guidelines presented

recommendations on the evidence-based management of anticoagulant therapy after surgery after conducting a systematic review. The recommendation 3.5 states: “(Best Practices Statement) (w)e suggest that health-care providers who manage oral anticoagulation therapy should do so in a systematic and coordinated fashion, incorporating patient education, systematic INR testing, tracking, follow-up, and good patient communication of results and dosing decisions” (Guyatt, Akl, Crowther, Gutterman, Schuünemann, 2012).

### **Project Overview**

The aim of this project is to improve anticoagulation education for orthopedic patients to increase patient satisfaction and to decrease incidence rate of developing deep vascular thrombosis (DVT).

The milieu for this project is a medium size, 379 acute care beds hospital in Northern California. The microsystem is a medical-surgical (MS), 50-bed unit. The orthopedic patients receive special consideration at this hospital; the hospital developed and implemented a successful Total Joint Replacement Program – surgically replacing ankles, hips, knees and shoulders. The program is multi-pronged and includes preoperative education, post-surgical early mobilization and orthopedic rehabilitation. The highly qualified, certified orthopedic nurses on the unit also participate in the program by conducting preoperative patient education; participating in bi-monthly meetings of Orthopedic Integration Team (OIT) and revising and improving elements of the program (e.g. pathways, educational handouts, checklists, etc.), in conjunction with the best practice standards. Each surgical and medical service on the unit consists of attending physicians, orthopedic surgeons, physician assistants, and nurse practitioners. A collaborative care model comprises of nursing staff, medical staff, patient and family services personnel, rehabilitation services staff (physical, occupational and respiratory

therapists) and dieticians providing an interdisciplinary communication approach to facilitate patient wellness. A standardized multidisciplinary rounding on orthopedic patients was established and incorporated. The orthopedic surgeries are conducted on each Wednesday by surgeon A and on each Thursday by surgeon B. The rounding, with the respective surgeons, is scheduled the next day after the surgery. During the rounding, a customized checklist with specific tasks and steps of patient care is being followed and reviewed. The surgeon interacts with the patient and the team: questions are answered, concerns are addressed, and the discharge plan is discussed. At each phase, The Total Joint Program underscores and provides extensive patient education: from pain management to clot prevention. Because orthopedic patients are at high risk to develop DVT postoperatively, proper anticoagulants and anticoagulation education are at the forefront of the program. Anticoagulants are indicated for the prevention of venous thromboembolism (VTE) after major orthopedic surgery. Thromboprophylaxis has “reduced the rate of symptomatic VTE within three months of surgery to 1.3% to 10%” (Michota, 2013, p. 216). The American College of Chest Physicians recommends that that anticoagulation to prevent VTE be “administered to all at-risk medical inpatients and moderate-risk to high-risk surgical patients, including those undergoing knee or hip arthroplasty” (Falck-Ytter, Francis, Johanson, Curley, Dahl, Schulman, & Colwell, 2012). Among patients, barriers to safe and effective anticoagulation are complex: lack of adherence to medication regimen after discharge from the hospital, reluctance to go through repeated testing, and lack of knowledge about the risk of VTE and the therapeutic action of anticoagulants. “Some barriers may be addressed by improvements in education and healthcare organization” (Michota, 2013, p. 221). It is clear that patients who have a better understanding of their anticoagulation medications: its side effects, diet and lifestyle requirements and upcoming tests, “have exponentially better success staying

healthy” (Krames Patient Education, n.d.) and their satisfaction with the care they received at the hospital is significantly increased. A formalized inpatient anticoagulation education tools may empower patients to be an important stakeholder in their care (Appendix A). By implementing a well-designed and easy-to-read patient handout on anticoagulants with an instructional script for nurses utilizing teach-back technique, we will empower patients to achieve a higher level of anticoagulant knowledge and in the result, increase patient satisfaction. The specific goal of this project declares that we will increase patient satisfaction by providing anticoagulation education by 50% or more by March 2017.

### **Rationale**

Firstly, a preliminary round of surveys was given to the nurses and the orthopedic patients being discharged: the surveys contained four and three questions respectively. The survey for nurses (Appendix B) was accompanied by a note informing the participants about the anonymity of the survey and asking for complete honesty. Twenty staff nurses participated in the survey. On the question assessing their level of knowledge of anticoagulants, 50% participating nurses declared that they are *very knowledgeable* about anticoagulants and 45% admitted to having just *basic knowledge*. When asked how often they provide education to orthopedic patients, 65% of surveyed nurses responded that they *always* provide anticoagulation education during patient’s stay in the hospital and discharge, while 35% said that they only *sometimes* provide it (Appendix C). On the question about utilization of teach-back technique when educating patients: 40% participants said *yes* – they always use teach-back technique and 45% said that they only use it sometimes; depending on the patient. Lastly, when asked if they know how to access educational materials in the workplace, only 15% declared that they only have a

vague idea where the educational material is located on the unit. 40% of participants know the location but do not have time to look and only 45% know the location and use it often.

A total of 12 patients responded to the survey. The short, three-question survey (Appendix D) was placed in the envelope and given to the patient during discharge. The note taped to the outside of the envelope asked for patient participation to help us (the hospital) to improve.

Almost half of the participants responded that they received education on anticoagulants and that they are having an adequate understanding of how the medication works; its common side effects, adverse reactions, and precautions, and that they do not need to receive more information. However, 58% of the surveyed patients did not get the information on the anticoagulants, they are not familiar with how the medication works, its side effects and what precautions to take while on it. They would also like to get more information.

These findings correlate with the results from the survey of patients' experiences conducted by The Centers for Medicare & Medicaid Services (CMS). CMS, along with the Agency for Healthcare Research and Quality (AHRQ), developed the HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) Survey, also known as Hospital CAHPS, "to provide a standardized survey instrument and data collection methodology for measuring patients' perspectives on hospital care" (2015). The HCAHPS Survey is administered to a random sample of patients. CMS cleans, adjusts and analyzes the data, then publicly reports the results. One of the questions the survey asks is how often did staff explain about medicines before giving them to the patient; if patients were given medicine that they had not taken before, and how often staff explained about the medicine. "Explained" means that hospital staff told what the medicine was for and what side effects it might have before they gave it to the patients. The review of the scores for this hospital showed that in 2015, 59% of patients reported that staff

*always* explained about medicines before giving it to them (65% is national average) and 41% responded that staff *usually, sometimes or never* explained about the medicines (35% is national average). 1330 patients completed the surveys, and the survey response rate was 26% (Appendix E). The survey's design slightly skews the comparability of the in-house survey and the CMS survey: the first allow only two responses, *yes or no*, and the latter expand the answers to *always, usually, sometimes or never*.

This preliminary study demonstrated that there is a vast amount of variability regarding patient knowledge of anticoagulants. A formalized, well designed, clearly written, and easy-to-read materials are needed to empower patients to achieve a higher level of anticoagulant knowledge, to improve adherence, and to increase long-term safety, resulting in increased patient satisfaction. In addition to the written material, an instructional companion script should be created to help nurses utilize the teach-back technique.

Agency for Healthcare Research and Quality (AHRQ) estimates that one in five patients have a complication after being discharged from the hospital, drastically increasing their odds of a costly readmission. According to a study founded by AHRQ (2010), patients who have a clear understanding of their after-hospital care instructions, including how to take their medicines, and receiving education on the medications side effects and precautions, are 30 percent less likely to be readmitted than patients who lack this information. The project focuses on improving oral anticoagulant education for patients following major orthopedic surgery. To establish whether this project is worthwhile, a cost-benefit analysis (CBA) [Appendix 5] is utilized. CBA estimates and totals up the equivalent money value of the benefits and costs to the institution. All benefits and costs of a project should be measured regarding their equivalent money value. To calculate the cost of the project (\$239,490), the time (hours) spent researching for evidence to support the



project, analyzing data, and writing reports was multiplied by the annual salary including benefits and any other costs incurred by the employer. Next, benefits to the employer due to project integration totals to \$238,492. The benefits include: reduced hospital days due to decreased patient complications (DVT), improved reimbursement due to decreased readmissions, increased patient satisfaction scores, and improved discharge education preventing complications. The estimated benefit to the hospital from this project is \$6,592 and the estimated net benefit to the hospital is \$998.

### **Methodology**

The objective of this project is to provide adequate anticoagulation education to orthopedic patients during hospitalization to increase overall patient satisfaction. An observational study of patients ages 64 or older who were discharged home after hospitalization showed that the “majority of patients did not understand the new medications they were taking or the reason for the medications” (Ziaieian, Araujo, Van Ness, Horowitz, 2012).

The project focuses on improving oral anticoagulant education for patients following major orthopedic surgery. I utilized the Rogers’ spread characteristics (Appendix F) to assess the project. There is a **clear advantage** of incorporating anticoagulation education while caring for orthopedic patients. The Joint Commission National Patient Safety Goals (2013) mandate that patient and family education be provided for hospitalized patients receiving therapeutic anticoagulation therapy. I rate this characteristic five on the scale 1-5 (1 being low and five being high). Next, I looked at **how compatible** this project is with the current patient education practices. I rated this characteristic at 4: patient education is on the forefront of nursing; however, busy nurses place other patients’ needs ahead of education. The third characteristic asks “**how simple** is this going to be?” I rated this characteristic 3: it is relatively simple to create

educational material; however, it is not so simple to implement and maintain the compliance among staff. **Trial-ability** and **observe-ability** are the characteristics that are easy to achieve and were rated 4 and 3 respectively. Lastly, the **strength of evidence** behind the anticoagulation education is high, and I rated it at 5. After conducting a systematic review, The American College of Chest Physicians Antithrombotic Guidelines presented recommendations on the evidence-based management of anticoagulant therapy after surgery. The recommendation 3.5 states: “(Best Practices Statement) (w)e suggest that health-care providers who manage oral anticoagulation therapy should do so in a systematic and coordinated fashion, incorporating patient education, systematic INR testing, tracking, follow-up, and good patient communication of results and dosing decisions” (Guyatt, Akl, Crowther, Gutterman, Schünemann, 2012). This conceptualization of change theory helped me to visually examine the purpose, the barriers, and the practicality of implementing anticoagulation education for orthopedic patients. This project strongly reflects System Analyst/Risk Anticipator CNL competency: participation in system review and evaluation/anticipation of client risks to improve safety. To identify and capture possible causes of the decreased patient satisfaction and increased hospital readmission for orthopedic patients, a (fishbone) diagram was created (Appendix G) Identifying the categories: equip, people, material, and process, helped prioritize key causes.

High-quality anticoagulation education is a key component of the hospital discharge process for orthopedic patients. Stated by Michota (2013), “Assessing patient’s understanding of the discharge plan; asking the patient to explain in their own words, identifying and resolving barriers to understanding, and providing patient with written summary detailing clinical course, follow-up and medication instruction” (p. 220). Effective methods of anticoagulation patient education include written materials and face-to-face interaction with trained professional and

teach-back method to reinforce the educational process. To check the results, I will implement the Anticoagulation Knowledge Tool (AKT) (Appendix H). AKT is a “valid and reliable instrument that can be used in routine clinical practice to assess patient’s anticoagulant knowledge” (Obamiro, Chalmers, Bereznicki, 2016). In this project, the AKT can also be utilized to assess nurses’ knowledge on the same topic. Participants, during the development and validation of this instrument “who completed the survey on the spot, spent between 10-15 minutes” (Obamiro, Chalmers, Bereznicki, 2016). This suggests that the questionnaire can be done in a reasonably short period. If the project is effective, the collected and analyzed results from the post-education questionnaire will produce increased patients’ satisfaction to be reflected in the future HCAPHS numbers. The predicted increase is 50% or more by March 2017.

#### **Data Source/Literature Review**

Developing a deep venous thrombosis (DVT) and pulmonary embolism (PE) can have serious consequences for the patient: blood clots in the vein can form and break loose, travel through a bloodstream and lodge in the lungs – blocking blood flow. In many cases, per American Academy of Orthopedic Surgeons (AAOS), DVT occurs without noticeable symptoms and is very difficult to detect (n.d.). One of the methods to prevent venous thromboembolism (VTE) is oral anticoagulant therapy. A group of Japanese researchers conducted and published a study on the prevalence of DVT in patients undergoing orthopedic surgery of the lower extremities. Of the total of 611 patients who underwent hip or knee surgery by a single surgeon, 118 developed DVT. All patients were preoperatively screened and postoperatively evaluated for DVT: an ultrasound was carried out within one week before and after surgery. Heparin and warfarin were administered postoperatively to the patients who developed thrombi. The authors concluded that “warfarin and heparin...prevent new thrombogenesis and are effective for the

prevention of the release of floating thrombi from primary thrombi” (Motohashi, Adachi, Takigami, Yasuda, Inoue, Sasaki, & Matsui, 2012). Conversely, “by its nature, anticoagulation increases the risk of bleeding; this risk is particularly high during transitions of care” (Michota, 2013, p.215). In addition, the evidence to support this project is also presented by the American College of Chest Physicians, in their *Evidence-Based Clinical Practice Guidelines for Antithrombotic Therapy and Prevention of Thrombosis* (2012), with the recommendation “that health-care providers, who manage oral anticoagulation therapy in patients undergoing joint replacement surgery, should do so in a systematic and coordinated fashion”.

In the article, *Transitions of Care in Anticoagulated Patients*, the author presents findings based on an extensive literature review. The article includes the standards and recommendations by the Joint Commission, the National Quality Forum, and The Agency for Healthcare Research and Quality among other publications, with a focus on managing anticoagulation during care transition. In the conclusion, the author emphasizes the importance of the inclusion of the patient anticoagulation education during the transition process. Another observational study investigating patients' perspective on “educational needs and preferred modalities of information delivery” revealed that “considering patients’ preferences in the design of educational programs might enhance their effectiveness” (Macquart de Terline, Hejblum, Fernandez, Cohen, & Antignac, 2016).

Asking the right question is fundamental to the evidence-based decision-making process. “A well-formulated research question needs extreme specificity and preciseness which guides the implementation of the project keeping in mind the identification of variables and population of interest” (Aslam & Emmanuel, 2010). PICO model is used to define a clinical question regarding the specific patient problem to aid the searcher in finding clinically relevant evidence

in the literature. Review of several websites and articles instructing on formulating an answerable question helped me in dissecting the question into parts and restructuring it, so that is easy to find the answer. To find relevant literature to support my project I used Cochrane Database of Systematic Reviews. I formulated a research question utilizing PICO method: *In orthopedic patients (P), do anticoagulation education (I), compared to no education (C), prevents DVT (O)?* The search pointed out to several articles with a variable degree of relevancy. One of the articles, *Interventions for implementation of thromboprophylaxis in hospitalized medical and surgical patients at risk for venous thromboembolism* (2013), was uniquely relevant to my research. The authors searched, reviewed, and analyzed databases and pertinent articles. Their review included 54 studies eligible for inclusion in their quantitative synthesis, which enrolled a total of 78,343 participants. Their results showed that “having any one type of intervention can be effective, but having a multifaceted approach that combines various interventions, including education (consistently effective), and alerts appear to have significant benefit for VTE outcomes. An educational intervention is expected to be less costly than an alert intervention” (Kahn, Morrison, Cohen, Emed, Tagalakis, Roussin & Geerts, 2013).

### **Timeline**

The project began in the late August 2016. The projected conclusion time is late November 2016 (Appendix I). After the microsystem assessment had been done, the development of initial surveys took place. By mid-September, the pre-surveys were completed, collected and analyzed. Development and distribution of the educational handout for orthopedic patients and the script for nurses were then planned for the month of October. The post-surveys are scheduled for November. One of the major barriers to the timely implementation of this project is the resistance of the staff nurses to add “one more task” to their workload. The hope is

that when presented with a well-designed handout, the nurses will be more open-minded to use it.

### **Nursing Relevance**

For the nurses, the most important aspect of caring for patients taking oral anticoagulants is patient safety. The nurses need to ensure that patients are suitable for treatment and have adequate information and an opportunity to ask questions. Anticoagulation education should begin during the patient's hospitalization and continue throughout the outpatient follow-up. The main concept of the educational handout should include information on the medication's mechanism of action, risk-benefit, and adherence to schedule, dose, balanced diet, and strict laboratory monitoring.

Bandura's social learning theory (Appendix J) assumes that people learn from one another, via observation, imitation, and modeling. The essential conditions for effective modeling are as follows: attention (necessary for any learning to happen), retention (remembering), reproduction (corrective feedback that strengthens the reproduction of the behavior), and motivation. A presentation of verbal and written guidance with a delivery that incorporates explicit reinforcement would result in better control of blood clotting, better quality of life, and greater adherence to treatment with oral anticoagulants.

### **Evaluation**

The aim of this project is to improve anticoagulation education for orthopedic patients. The setting for this project is a medium size, 379 acute care beds hospital in Northern California. The microsystem is a medical-surgical (MS), 50-bed unit. The hospital developed and implemented a successful Total Joint Replacement Program – surgically replacing ankles, hips,

knees and shoulders. A collaborative care model is comprised of nursing staff, medical staff, patient and family services personnel, rehabilitation services staff. A standardized multidisciplinary rounding on orthopedic patients was established and incorporated. A preliminary round of surveys showed that 58% of the surveyed patients did not get the information on the anticoagulants. These findings correlate with the results from the survey of patients' experiences conducted by The Centers for Medicare & Medicaid Services (CMS) which demonstrates that there is a vast amount of variability regarding patient knowledge of anticoagulants. Utilization of Roger's spread characteristics helped me to visually examine the purpose, the barriers, and the practicality of implementing anticoagulation education for orthopedic patients. Effective methods of anticoagulation patient education include written materials and face-to-face interaction with trained professional and teach-back method to reinforce the educational process.

The main concept of the educational handout should include information on the medication's mechanism of action, risk-benefit, and adherence to schedule, dose, balanced diet, and strict laboratory monitoring (Appendix K). Bandura's social learning theory assumes that people learn from one another, via observation, imitation, and modeling. A presentation of verbal and written guidance with a delivery that incorporates explicit reinforcement would result in better control of blood clotting, better quality of life, and greater adherence to treatment with oral anticoagulants. The literature review on oral anticoagulants was used to construct each segment of this project: for the attention and retention – written instructions were developed; for reproduction and motivation, support through verbal instructions was provided; and in the performance phase, an improvement in the evaluation of the outcomes related to the anticoagulation education is expected. To check the results, I am implementing the

Anticoagulation Knowledge Tool (AKT), a “tool to assess patient’s anticoagulant knowledge” (Obamiro, Chalmers, Bereznicki, 2016). One of the relevant articles, *Interventions for implementation of thromboprophylaxis in hospitalized medical and surgical patients at risk for venous thromboembolism* (2013), was uniquely relevant to my research. The authors searched, reviewed, and analyzed databases and pertinent articles. The results showed that “having a multifaceted approach that combines various interventions, including education, appears to have significant benefit for VTE outcomes.”

To fast-track, the improvement, the subject of the project is concentrated on a specific, narrow area. A Plan-Do-Study-Act (PDSA) [Appendix L] methodology is employed to develop tests and implement changes. The framework has four elements: (1) *Plan*: objective is determined, questions and predictions are asked (why?), and plans to carry out the cycle is developed; (2) *Do*: the plan is completed, problems and unexpected observations are documented; (3) *Study*: complete data analysis is done to compare to predictions; (4) *Act*: what changes are to be made, begin next cycle. In this project, the objective (*P*) is to improve anticoagulation education for orthopedic patients on a medical-surgical unit. To begin, a patient and staff pre-surveys are conducted. In the second phase (*D*), an educational handout is developed and introduced to the staff. The handouts are to be placed in the charts of selected patients. The charge nurse will include the handouts with the discharge paperwork to be reviewed with the patients during the discharge process. During this phase, unexpected barriers arise: the unit experienced an influx of new nurses; the unit’s manager resigned; construction and big clean up began in anticipation of state surveys – the unit experienced organizational turmoil. The filing system was re-done, and the “not needed” files were expunged including the new



educational handout. The chaos brought the project to the (A) phase: to modify new practices as needed.

The hospital's Total Joint Care program is currently expanding to include several other orthopedic surgeons from other medical organizations in the area. During the Orthopedic Improvement Team meeting (of which I am an active member), the discussion evolved into the program's educational materials addressing patient care, and the urgent need for upgrade and revision. As a nursing representative on the team, I am responsible for the portion of the patient's handbook pertaining to nursing. Naturally, I seized the opportunity to present the new anticoagulation educational handout, and I proposed that the handout is included in the revised handbook. The committee accepted and is pending surgeon's approval. If approved, the handout is going to be permanently included in the Total Joint Care program's handbook for patients. This turn of events led to the next PDSA cycle: "each cycle, when properly done, is informative and provides a basis for further improvement" (Purdue University, 2008).

### **Conclusion**

Sustainability can be defined as the ability of a project to maintain its operations, services, and benefits during its projected lifetime. My CNL project focuses on improving oral anticoagulant education for patients following major orthopedic surgery. I foresee maintaining the sustainability of my project by following several important steps: (1) taking sustainability seriously – sustainability must be planned, (2) setting clear and realistic expectations – what makes the most sense? (3) documenting and evaluating outcomes as marketing tools – to explain the project's undertaking and its successes and to gather further support, (4) actively pursuing the resources needed to ensure sustainability, and (5) looking at what others have done to sustain their projects (USDL, n.d.). "To improve the microsystem we work in, we must engage those

who do the work” (Purdue University, 2008). In addition, it is imperative to know that the task of asking a person to change the way that they do work is hard. Some fear the change; some fear that the additional time needed for the task will add to their already stretched workload, and others fear the inadequacy of the improvements (not enough testing). To engage all staff (physicians, nurses, pharmacists and all other stakeholders), we must build and maintain resolve, determination, will, and resolution. To accomplish that, we need to convey the importance of quality improvement: share data and stories about the present state of the system and the future desired state; organize educational activities; select people who are willing to become champions; provide support, and share success.

I wish to thank and acknowledge my preceptor, the staff on the medical-surgical unit, and the OIT members. It was a pleasure and an honor to be given the opportunity to work with this incredible team. I also want to thank Dr. Karin Blais for her guidance and support during this project.

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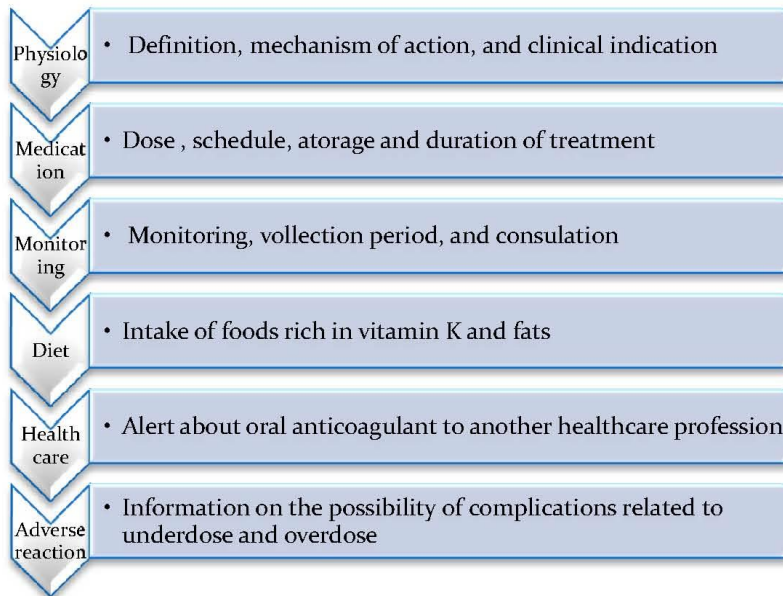
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Appendix A

**Topics addressed for teaching patients about oral anticoagulation**



## Appendix B

**Anticoagulant Education Survey for Nurses**

1. How often do you provide anticoagulant education to orthopedic patients

Always (during patient stay and on discharge)

Sometimes

Never

2. Do you think that you have an efficient knowledge of anticoagulants: types, how they work, common side effects and adverse reactions?

Yes, I am very knowledgeable about anticoagulants

I have a basic knowledge about anticoagulants

Anticoagulants are not my strong suit

3. Do you use teach-back technique when educating patients?

Yes, always

Sometimes, depends on a patient

Almost always never

4. Do you know how to access anti-coagulation educational material and protocols in your workplace?

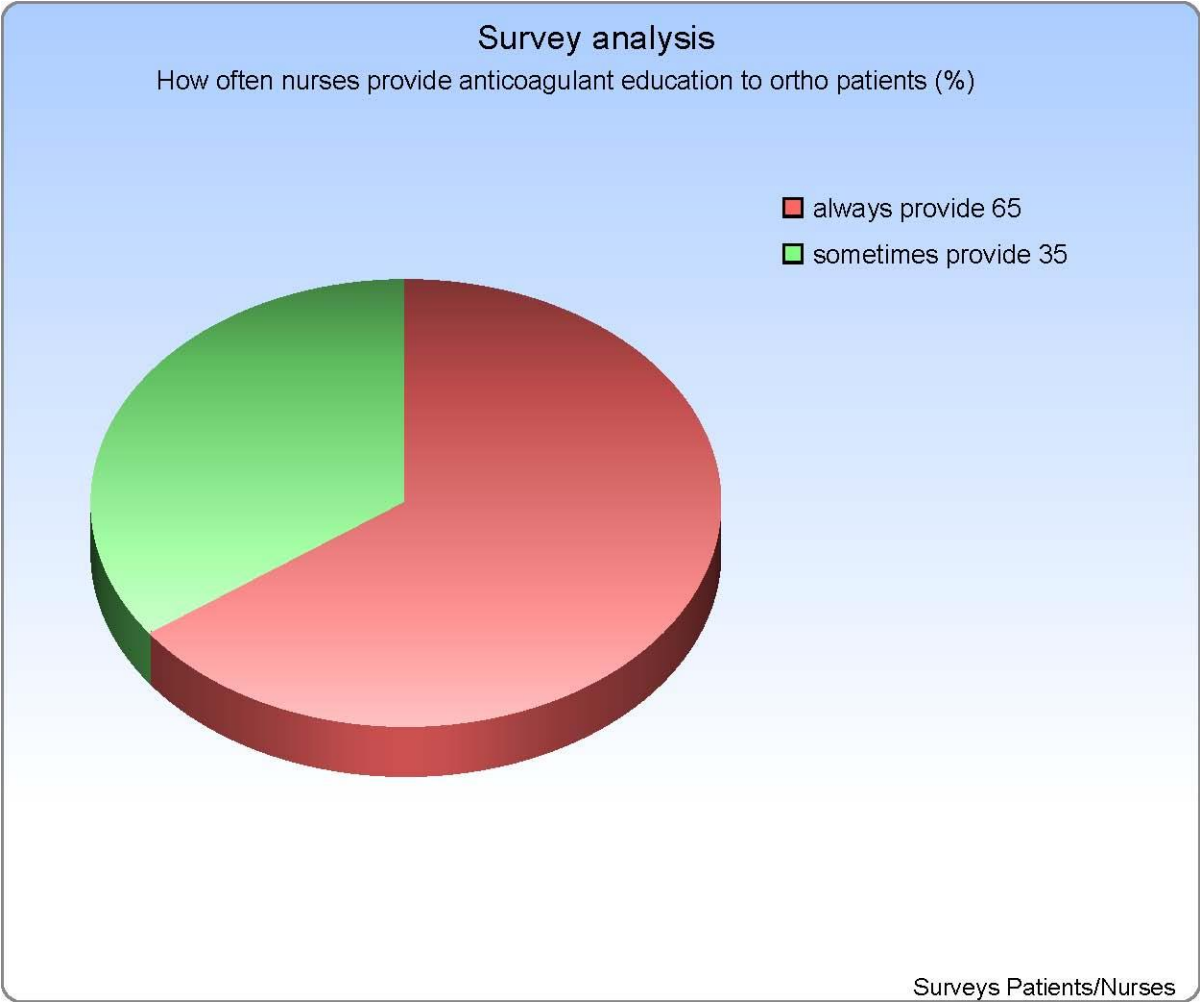
Yes, I do (I use it often)

Yes, I know the location but I don't have time to look

I have an vague idea where the information is located

No, I have no idea

Appendix C



## Appendix D

### Anticoagulation Education/patients

1. Did you receive education on anticoagulant medication (medication preventing blood clots from forming) this hospital stay?

Yes

No

2. Do you have an adequate understanding of anticoagulant medication you are taking: how it works, common side effects, adverse reactions, and precautions?

Yes

Just the basics

No

3. Would you like to receive more information on the anticoagulation medication you are taking?

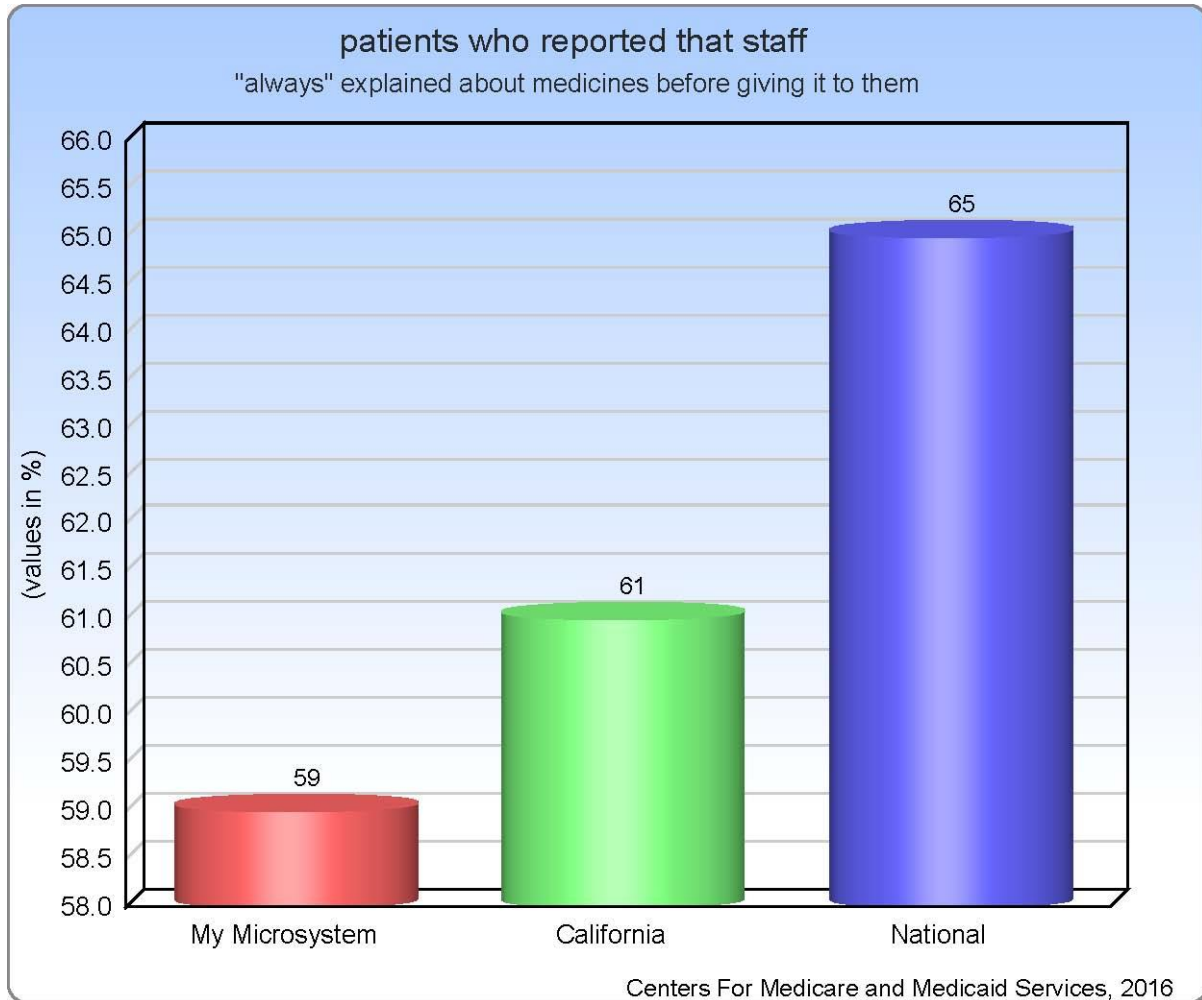
Yes

No



Appendix E

**How often did staff explain about medicines before giving them to patients?**



	Number of completed surveys	Survey response rate
<b>Dominican Hospital</b>	1330	26%

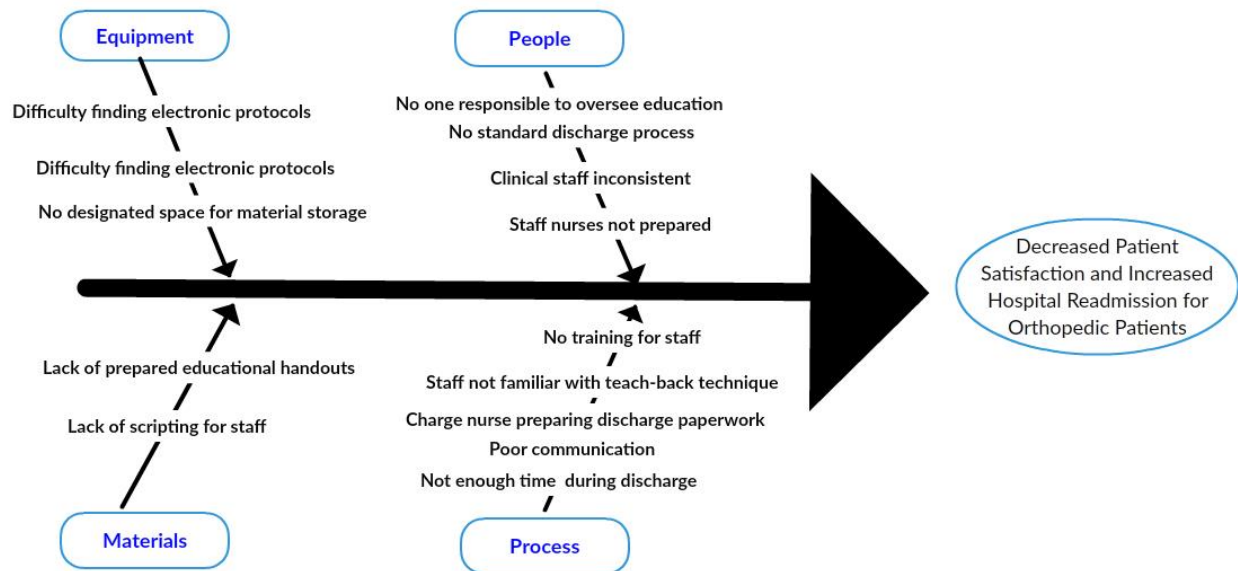
## Appendix F

## Roger's Spread

Characteristics	Rate 1-5	Plan
1. Relative advantage	5	consulting with other professionals
2. Compatibility	3	not priority for staff
3. Simplicity	3	how to kits
4. Triability	4	educational handout with discharge
5. Observability	3	surveys/test
6. Evidence	5	literature review

Appendix G

Fishbone Diagram Showing Causes of Decreased Patient Satisfaction and Increased Hospital Readmission for Orthopedic Patients



## Appendix H

**Anticoagulant Knowledge Tool****Introduction**

We thank you in advance for agreeing to fill in this questionnaire and we appreciate you taking the time to support this research. By completing this questionnaire, you will help in validating a tool that will be useful in caring for people taking anticoagulant medicines. Your responses, including demographic information will remain anonymous, and your confidentiality will be protected.

**Instructions on completing the questionnaire**

Please complete the following questions to reflect your opinions as accurately as possible and to the best of your knowledge.

- ❖ If you do not know the response to a question, please write 'I don't know' in the space provided.
- ❖ If you are not sure of the response to a multiple choice question, please tick 'not sure' among the options provided.

**Section 1**

Appendix H

**Demographic Information**

1. What is your gender?
  - a. Male
  - b. Female
  
2. How old are you? ..... years
  
3. What is the highest level of education you have completed?
  - a. High school or equivalent
  - b. College
  - c. Technical or vocational education
  - d. Bachelor's degree
  - e. Postgraduate degree
  - f. No formal education
  
4. How long have you been taking an oral anticoagulant medicine?
  - a. Less than 3 months
  - b. 3 -12 months
  - c. 1 -2 years
  - d. Greater than 2 years
  - e. I'm not taking an anticoagulant medication

Appendix H

**Section 2**

**Anticoagulation Knowledge**

1. What is the name of your anticoagulant medicine?

.....

2. Why has your doctor prescribed you this medicine?

.....

3. How does this medicine work in your body?

.....

4. How many times a day do you need to take this medicine?

.....

5. For how long do you need to take this medicine (for example, 3 months, and 6 months, life-long)?

.....

6. Why is it important to take this medicine exactly as your doctor has told you?

.....

7. Is it important to take this medicine at the same time each day?

a) Yes

b) No

c) Not sure



Appendix H

15. Would you inform a surgeon, dentist or other health professional that you are taking this medicine before undergoing surgery or a procedure?

- a) Yes
- b) No
- c) Not sure

16. Is it important that all the health care practitioners you see know that you are taking this medicine?

- a) Yes
- b) No
- c) Not sure

17. What is the most important side effect of this medicine?

.....

18. THREE signs of side effects that you should watch out for while taking this medicine are:

.....  
.....  
.....

19. THREE things you can do to reduce your risk of side effects are:

.....  
.....  
.....

20. What is the best step to take if you accidentally take too much of this medicine?

.....



Appendix H

**Section 3**

**For patients on warfarin therapy only**

1. What is your target INR range? .....

2. What was your last INR reading? .....

3. Are regular INR tests necessary to know how well this medicine is working?

- a) Yes                      b) No                      c) Not sure

4. Is an INR value above your target range good for your general wellbeing?

- a) Yes                      b) No                      c) Not sure

5. Is it possible for INR values below your target range to be bad for your health?

- a) Yes                      b) No                      c) Not sure

6a. Is it possible for what you eat to affect your warfarin therapy?

- a) Yes                      b) No                      c) Not sure

6b. If you answered 'Yes' above, list THREE foods that can affect your anticoagulant therapy.

.....

7. List one vitamin that can significantly affect your anticoagulant therapy.

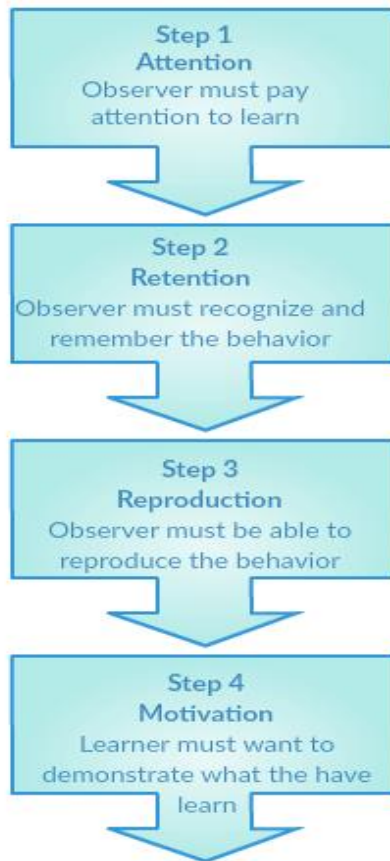
.....

Appendix I

Gantt Chart	2016			
	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Microsystems Assessment	←→			
Development of Initial Surveys	←→			
Survey Distribution	←→			
Survey Results Analysis		←→		
Development of Educational Handout		←→		
Distribution of Educational Handouts			←→	
Development of Anticoagulation Knowledge Tool (AKT)			←→	
Post Intervention Data Collection				←→

Appendix J

**Bandura's Social Learning Theory**



Appendix K

Oral Anticoagulation  
Patient Education  
Quick Reference

