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Homecare Portacath Protocol in IVIg Administration

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The Home Care environment continues to change, grow, and evolve as therapies that are more complex are offered in order to reduce delivery costs and provide patient satisfaction (Landers, Madigan & Leff, 2016). Home based care, and its success, is dependent on providing safe, effective, complex skilled services that adheres to current standards of care. One of these complex therapies is Immunoglobulin (Ig) administration provided by skilled infusion registered nurses (RN's) through peripheral, portacath, or subcutaneous access. IVIg, administered in the home, benefits the patient and family, as well as the healthcare system. According to Cook (2016), the benefits of IVIg include increased quality of life and reduced costs, for both pharmaceutical and healthcare costs.

Intravenous immunoglobulin (IVIg) therapy has had an expanded role since its original usage for primary immunodeficiency diseases (PIDs) in the 1980s. IVIg “therapy has increased due to the identification of multiple disease states that respond to therapy” (Vokey, 2013 p.26). This increased usage has been supported by the administration of the therapy by hospitals, infusion centers and in-home.

As I evaluated my homecare microsystem for ways to make improvements, I found a project that would align with our organization’s mission to “provide a revolutionary way to provide better health care” (Doctors Choice, 2017). As a member of the infusion team I decided to review the IVIg protocols, which include Ig, administered peripherally, or through portacath.

I found there was not a protocol that was specific to portacath access for homecare administration of IVIg. This lack of protocol created a practice gap that allowed for inconsistencies in portacath access for IVIg administration. Clavreul (n.d.) asserts that having protocols in place through evidence-based practices improve outcomes and provide consistent standards of care. The creation of the protocol will close the practice gap by providing clear and consistent delivery of IVIg through portacath access for the homecare patient.

Clinical Leadership Theme

The project will utilize Bandura's four-step model to provide a leadership theme based on education. Bandura's social learning theory has been applied to nursing education and can affect change through self-regulation and control (Bastable, 2014). This theory, when applied to staff development and training, lends itself well to the creation of the portacath protocol. The clinical nurse leader (CNL) competencies used for the improvement project to create an evidence-based protocol include to "administer pharmacological and non-pharmacological therapies" as well as synthesizing data, information, and knowledge on client outcomes and modifying interventions to improve healthcare outcomes (AACN, 2007). In addition, CNL competency 3.3 supports the project by using evidence to design and direct system improvements that address trends in safety and quality, (AACN, 2013)

The aim of the project is to improve the administration of IVIg by portacath administration with a current protocol for the homecare infusion team. The process begins with the creation of a protocol for portacath access for the administration of immunoglobulin (Ig) by

the homecare infusion team members. The process ends with the evaluation and acceptance of the protocol by the infusion team and the Clinical Director.

By working on this project now, the infusion team expects, (1) that we will close the practice gap that currently exists due to the lack of a protocol specific to portacath administration of IVIg, (2) create a protocol that adheres to current Infusing Nursing Standards of Practice (Infusion Nurses Society [INS], 2011/2016), and, (3) create a safer environment for both the patient while receiving, and the staff while administering, IVIg by portacath. It is important to work on this project now, because we have identified the need to improve, (1) safety for the patients and staff with a current protocol specific to portacath administration of IVIg, (2) prevention of errors due to lack of protocol specific to portacath administration, (3) improve patient and staff satisfaction by providing consistent delivery of IVIg by portacath, (4) increase fiscal responsibility by adhering to current practice standards for IVIg administration by portacath.

Statement of the Problem

The purpose of the project is to create a protocol specific to the administration of IVIg by portacath in the homecare environment. Currently, IVIg administration by portacath does not have a written protocol in our microsystem. The protocol will adhere to the current standards provided by the Infusion Nursing Standards of Practice (INS, 2011/2016). In addition, two other respected resources, specific to immunoglobulin, and its administration, will contribute to the credibility and provide evidence that a current protocol will provide a safer environment for both the patient and infusion nurse.

Project Overview

As a member of the infusion team, I will take the leadership position and create the needed protocol after receiving input and acceptance from the team. After researching best practice protocols, I will write the initial protocol and have it reviewed by the infusion team and our clinical director. After approval, I will initiate training sessions and incorporate both written and verbal tools. I will also serve as the nurse expert and mentor for proper portacath access and administration.

I will utilize Bandura's model using the four principles of social learning, attention, retention, reproduction, and motivation (as cited in Bastable, 2014). Following these principles will ensure that the protocol is accepted and enacted as the standard of care for the infusion team. As the role model and expert nurse, I will provide best practice research to demonstrate why a current protocol is needed for patient and staff safety. The training sessions with learning tools will provide the infusion team members the ability to learn and retain the key aspects of the protocol. After the training sessions, infusion team members will be prepared to reproduce and introduce the protocol into practice with their patients. I will remain available to provide guidance as required. In the fourth phase, the motivational phase, the infusion team members will acknowledge in the care conferences that they have enacted the protocol as the standard of care with their patients. If there is a team member who is struggling, I will reinforce the positives for both the patient and the staff by following protocols that are current and best practice.

Rationale

A study by Hasan, 2012, demonstrated that well-defined clinical protocols could achieve positive clinical outcomes for home IVIg patients. In addition, Clavreul (n.d.) asserts that protocols “improve outcomes by promoting evidence-based practices and consistent standards of care” (para 2). Furthermore, Barnum, Bohnenkamp & Hass 2017, assert that the creation of evidence based protocols for IVIg administration improves knowledge, decreases risk, and reduces the stress among nurses.

Creating a protocol for portacath administration of IVIg in the home, will close the practice gap in my microsystem. The newly created protocol will follow the latest standards published by the Infusion Nursing Standards of Practice (INS, 2001/2016). Providing clear and consistent delivery of IVIg through portacath access creates safety for patients and infusion nurses. (See Appendix A for Protocol).

In the changing environment of healthcare, nurse leaders need to understand the importance of utilizing business and finances to achieve successful outcomes (Thomas, Seifert, & Joyner, 2016). My quality improvement project and the costs related to the creation of a protocol for in-home administration of IVIg by portacath address good business practices. The project involves simple costs related to my time to research and create an evidence-based protocol. Additional costs are related to materials for presentations, teaching and evaluation tools, and meeting times with the infusion team. (See Appendix B for project cost).

Methodology

The social learning theory, based on the work of Albert Bandura (1977, 2001), (as cited in Bastable 2014), is relevant to this improvement project because it has been applied to nursing education. This theory, when applied to staff development and training, lends itself well to the creation of a protocol for portacath administration of IVIg in the homecare environment. Using Banduras four- step model of, attention, retention, reproduction, and motivation will provide a clear foundation for the implementation of my project (as cited in Bastable, 2014). (See Appendix B, Bandura's model)

This project started with a review of IVIg protocols. That is when I first learned that the protocol for portacath administration had not been previously created. I brought this to the attention of the Clinical Director and the infusion team members, who unanimously agreed that this would be a necessary improvement project. The protocol will be written using the most current evidence- based, best practice information for homecare portacath administration of IVIg. After the protocol is complete, it will be reviewed by the Clinical Director, and infusion team members. Once approved, I will initiate training sessions that will incorporate both written and verbal tools. The learning and training sessions will have a survey evaluation. The surveys will confirm that the information was retained, and will be used with portacath patients by the infusion nurse.

Throughout the training and evaluation process, I will serve as the nurse expert and mentor for proper portacath access and IVIg administration when administered in the home. I will be aware that potential barriers exist when recommending changes, even though this change

closes a practice gap. This newly created protocol will provide clear and consistent delivery of IVIg through portacath when delivered in the homecare environment, which will create safety for patients and the infusion staff.

Data Source/Literature Review

The site for my improvement project is a medium sized Home Health Agency serving Sarasota County Florida. Both skilled and non-skilled services are provided by the agency for in-home care. The non-skilled services include care that is performed by home health aides and certified nursing assistant. Registered nurses, licensed practical nurses, an occupational therapist, and a physical therapist provide the skilled services.

I am in the skilled services microsystem on the Infusion team. We are a small group of registered nurses that provide infusion therapy to in-home patients. We primarily provide antibiotic and Ig therapy. Some of my colleagues on the infusion team have preferences, or specialties, but we are all proficient in providing the medications required by the patients assigned to our team. I specialize and prefer (Ig) therapy, administered peripherally, by portacath, and subcutaneously.

While reviewing IVIg protocols I found that there was not a protocol written for IVIg administration by portacath for our home infusion patients. After discussing the issue with the DON and infusion team members, I agreed to take the lead in the research and creation of the needed protocol.

The PICO strategy was utilized to conduct current, (2011-2017), literature searches to support the improvement project. Using P) No protocol for Portacath Administration of IVIg, I) Protocol, education, C) No protocol, protocol, O) Increase patient and staff safety by adhering to a current protocol for IVIg administration by portacath.

A search of the CINAHL database was conducted using IVIg administration, portacath access, and protocols. I also performed searches with the Infusion Nurses Society (INS) and the Immune Deficiency Foundation (IDF) for protocols specific to IVIg administration by portacath access because these are national organizations focused on best practices for the care of infusion populations. The search strategy returned seven scholarly peer reviewed research articles specific to IVIg protocols and 1900 specific for immunoglobulin (Ig) administration when in the home environment. My searches did not yield articles specific to portacath protocol for IVIg administered in the home. However, the data provided support for having protocols for IVIg administration by portacath for the homecare environment, which increases the safety for patients and infusion nurses.

According to Barnum, Bohnenkamp, & Haas (2016), who discussed their translational research quality improvement study, the researchers' aim was to improve safety and decrease anxiety surrounding the administration of IVIg. This was done with the implementation of a standardized protocol and did result in decreased anxiety, which, improved safety for the patient and the infusion nurse. Although there has been discussion regarding the protocol topic, the question remains, are there too many or not enough as discussed by Clavreul, (n.d.). The anecdotal article by Clavreul, (n.d.) cited a study from the UC San Francisco's Integrated Nurse

Leadership Program that ran a 22-month collaborative effort with nine hospitals, which provided evidence that new protocols will lead to better care.

Furthermore, Hasan (2012), and colleagues published a study that demonstrates that well-defined clinical protocols can achieve positive outcomes for home IVIg patients. The study also highlights and discusses best practices, lower costs, improved quality of life, and the ability to avoid hospital-acquired infections with at home IVIg administration. In addition, Landers, Medigan, & Leff (2016), share their findings in a qualitative research study that highlights that as American's age, and live longer, that many have multiple chronic conditions. The authors discuss the future of home health certified Medicare agencies and the challenges and recommendations for home based care as Americans live longer.

Cook (2016) discussed the benefits of home infusions of IVIg citing multiple studies that address quality of life, and decreased healthcare costs with the administration of IVIg in home. The author also discussed the challenges that reimbursement from Medicare and Medicaid present for homecare infusion. Vokey (2013) discusses the role nurses play when administering Ig in the home environment, which include caregiver and educator. The author addresses the need for infusion nurses to be educated and experienced in Ig administration. The article also addresses the methods for IVIg access and administration, which includes portacath.

The Immune Deficiency Foundation (IDF), and The Infusion Nurses Society (INS), are two of the premiere organizations specializing in the administration of Ig. IDF (2007/2012), provides guides and information for nurses covering Ig administration by intravenous (IV) and

subcutaneous (SC) modes, and is in its third edition. The INS (2011/2016) provides standards of care for infusion nursing. In addition, they provide evidence based educational classes, articles, and guides on infusion topics. Furthermore, both of these respected organizations support current evidence-based protocols for Ig administration by whatever method of access is prescribed.

Timeline

This timeline (Appendix D) also included the creation and development of the training material and the completion of the training session for the Infusion Team. In addition, protocol review with additions, as well as subsequent training sessions occurred in April 2017, July 2017, and September 2017. The current plan is to review all Ig protocols in April each year, which include IVIg by portacath and peripheral access and SCIg.

Training, which includes protocol handout with instruction, is available and can be reproduced as needed for new hires. In addition, I remain the expert resource and can provide in person mentoring or training as required for new or existing team members.

Expected Results

It is expected that the protocol for IVIg administration by portacath in the home will provide a clear improvement project and fill the practice gap. We expect the protocol will adhere to the current Infusion Nursing Standards of Practice (INS, 2011/2016), and will be reviewed annually to remain current. In addition, we expect that the protocol will create a safer environment for both the patient, while receiving, and the staff while administering, IVIg by portacath in the home. Furthermore, we expect that adherence to the protocol will prevent

possible errors due to the lack of protocol specific to portacath administration of IVIg in the home environment. Moreover, we expect to improve patient and staff satisfaction by providing consistent delivery of IVIg by portacath.

Nursing Relevance

According to the (Institute of Medicine [IOM], 2010), nurses are well positioned to lead change and advance health. Integrating practice experience, education, communication, and patient advocacy creates the foundation to evaluate the microsystem for practice gaps. Creating an evidence-based protocol that benefits the infusion patients and the staff is consistent with the IOM and advances health in my microsystem. In addition, the improvement project highlights the skills that nursing leaders employ by synthesizing data to design and direct system improvements that address safety and quality (AACN, 2013).

Summary Report

The aim of this project was to improve the administration of IVIg by portacath administration by creating a current protocol for the homecare infusion team. The homecare microsystem has continued to grow, and evolve while providing many complex skilled services. The infusion team provides homecare administration of IVIg by skilled infusion RN's through peripheral, portacath, or subcutaneous access. The purpose of this project was to close the gap that existed in the microsystem when I found there was not a protocol specific to portacath administration.

The methods used in the evaluation and implementation of this project involved the use of the plan-do-study-act (PDSA), (Appendix F), and a root cause analysis using the fishbone tool, (Appendix G), to review all IVIg protocols. This review and analysis resulted in the

discovery of the practice gap. I then initiated meetings with the Infusion team for their input, which was important for early buy in of the development of the new portacath protocol. In addition, I used Bandura's four-step model to provide a leadership theme that was based on education. Bandura's theory has been applied to nursing education, which includes development and training of staff, and was an appropriate theory for the portacath protocol.

I conducted research utilizing the PICO strategy to obtain current, (2011-2017) literature to support the portacath improvement project. In addition, a search of the CINHALL database provided recent information supporting protocols for IVIg administration by portacath. The data also supported evidence-based IVIg portacath protocols for the homecare environment, which has shown to increase safety for patients and staff. The data was presented to the infusion team members at a regularly scheduled meeting and approval was unanimous that the protocol was a needed improvement project.

I then began to research best practice protocols for IVIg administered by portacath in the home. I wrote the protocol using the most current evidence-based, best practice information available that adheres to the Infusion Nursing Standards of Practice (INS, 2011/2016). After the completion of the protocol, it was presented to the infusion team members and the Clinical Director at a team meeting. After approval, I initiated training sessions that incorporated both written and verbal tools. After the training was complete, a Likert scale survey (Appendix E), was provided to the infusion team members. The results were evaluated to confirm that the information was retained and could be reproduced by the infusion nurses. Because potential barriers are possible when practice changes are made, I will serve as the nurse expert and mentor for proper portacath access for IVIg home administration.

My sustainability plan includes a review of all Ig protocols each year in April. This review will include peripheral, subcutaneous, and portacath administration. The protocols will be evaluated against the most current standards and adhere to the Infusion Nursing Standards of Practice (INS, 2011/2016). In addition, protocol handouts with instruction will be available as needed for new and current employees.

This project created a current evidence based protocol for IVIg administration by portacath in the homecare environment and closed the practice gap. The infusion team has accepted the protocol as the standard of care. Even though change is often met with resistance, the infusion team has embraced and supported this improvement project. The infusion team believes that adherence to the protocol will prevent possible errors creating a safer experience for the patient and infusion nurse. Throughout this project, I have been supported and encouraged by many amazing nurses. The project would not have been possible without the leadership and collaborations with my Clinical Director, infusion team members, and my professors. Nurses are well positioned to lead change and advance health (IOM, 2010).

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Appendix A

PORTACATH PROTOCOL – HOME INFUSION - IVIg ADMINISTRATION

Implantable Venous Access Device (IVAD) or Port-a-Cath™ Protocol for Homecare Infusions

The Protocol will cover accessing, de-accessing, and care of the implantable port (IP) for the home care infusion nurse.

The use of implantable ports has grown tremendously since their first use in 1981. They are most often used for patients who need repeated long-term intravenous drug therapy. IP is used when other forms of venous access have become difficult or impossible.

A Port-a-Cath™ / IVAD consists of a portal - a small metal (usually titanium) or plastic chamber - that is sealed at the top with a silicone septum and a thin flexible catheter, made from either polyurethane or silicone. The silicone septum will withstand 1000 – 3600 punctures with a 20 or 22 gauge Huber/ or other non-coring needle. Needle gauge is selected dependent on type and rate of infusion as well as the location of the port.

(Titanium and plastic Titanium and Plastic ports are compatible with MRI imaging techniques).

The port is surgically implanted beneath the skin generally in the chest region. The right side of the chest is generally preferred since the anominate vein curves down more directly to the superior vena cava (SVC). The most common veins used are subclavian, internal, or external jugular veins, cephalic or femoral vein. Ports can also be inserted in the antecubital area of the arm.

Preparation –

- ❖ **Start with a good assessment of your patient and your home- environment.** Conversing with the patient and/or family is the most important first step. Sometimes patients will know

Appendix A (Continued)

what size needle worked best during previous accessing of the port. Ask the patients whether they know the type of port implanted. On rare occasions, they may have information or even literature about the port. Just a few simple questions asked can save time and material costs as well as reducing the discomfort for the patient.

❖ **Complications to Look for Before Accessing Port**

- 1. Assess chest wall for swelling.
- 2. Check for distended neck veins.
- 3. Ask patient whether he/she has experienced pain in shoulder on side where IP is located (e.g. chest tightness) or swelling in arms and fingers.
- 4. Check patient vital signs to ensure patient is healthy for access and treatment (BP, Pulse, Respirations, and Temperature)

❖ **Assemble all materials Prior to Accessing the Port**

- 1. Opsite (4 X 5.5 inch clear, permeable dressing) or transparent dressing (TD)
- 2. Package of alcohol swabs
- 3. Package of betadine swabs
- 4. Package of sterile gloves
- 5. Clean gloves
- 6. 3-Packages of 2X2 sterile gauze
- 7. Mask
 - * - These items may be provided in a sterile dressing kit, which should also include a small sterile drape
- 8. Appropriate IP needle, (they may be straight or 90 degrees)
 - *-Only non-coring needles should be used when accessing the reservoir of the IP. Standard hypodermic needles may damage the septum.
- 9. 1-10 cc bottle of normal saline (NS).

Appendix A (Continued)

- 10. 1-10 cc bottle of heparin (100 units/cc).
 - * The NS and heparin may be provided as prepared and packaged syringes.
- 11. 2 or 3- 10 cc syringes and 18-20 gauge needles * may or not be needed if NS and heparin are in prepared syringes
- 12. 1-needleless system access cap (Clave or reflux valve)

❖ Medication Administration

- Use the Six “rights” of medication administration.
 1. the right patient;
 2. the right medication;
 3. the right dose;
 4. the right time;
 5. the right route;
 6. the right documentation.

- The most common in-home drug therapies by IP:
 - 1. Antibiotics
 - 2. Immunoglobulins
 - 3. Hydration

- Please see physician orders and manufacturers recommendations prior to any administration of drug therapy.
- Prepare all medications prior to accessing the port unless specified otherwise by physician orders or manufacturers recommendations.
- Final flush will be done with 10 cc NS and 5 cc heparin (100 units/cc) using positive pressure technique to promote a scrubbing effect in both the port and catheter to clear out the residue that may adhere to the internal lumen of the catheter. The goal of the final

Appendix A (Continued)

flush is to clean out the residue in the system. This will be completed after the administration of drug therapy.

❖ Process of Accessing

- 1. Put on mask.
- 2. Wash hands; put on clean gloves.
- 3. Open the corner of the IP needle package, pull out the end of the tubing through the corner opening and, attach the access cap.
- 4. Attach 10-cc syringe with NS and prime IP needle/tubing
- 5. Open the IP needle package entirely, keeping it sterile.
*- If you have a dressing kit, open it maintaining sterile technique – if you are using individual materials that you have prepared, proceed to number 6.
- 6. Open the package with the TD/Opsite
- 7. Open the three packages of sterile 2X2 gauze and drop onto the TD/ Opsite, maintaining sterility.
- 8. Position patient in supine position; provide privacy, expose IP site.
- 9. Palpate area of port prior to site prep to determine the precise location of port septum

- 10. Prep site with two alcohol swabs using friction in a circular motion.
- 11. Allow alcohol to dry.
- 12. Prep site with three betadine swab sticks using circular motion from inside to outside.
- 13. Put on sterile gloves.
- 14. Place sterile paper from opened glove package or dressing kit drape on patient's chest just below the IP
- 15. Pick up the sterile IP needle by its wings or top and let the syringe at the end of the needle- tubing lie on the sterile paper.

Appendix A (Continued)

- 16. Support IP with the non-dominant hand, using both thumb and index finger to stabilize the port.
- 17. With dominant hand, using a firm, smooth motion penetrate the center of the septum at a 90° angle until the needle hits the bottom of the reservoir.
- 18. Apply gauze and TD/ Opsite over the port – be careful not to pull back on the needle while placing the gauze.
- 19. Check for blood return; flush port with NS using positive pressure flushing technique.
 - * - It is important to use a positive pressure flushing technique because it is thought to minimize reflux of blood into the tip of the catheter, thus preventing clotting. A positive pressure flush can be best accomplished by applying positive pressure on the syringe plunger throughout the flush and clamping the extension line just prior to the syringe being completely empty.
- 20. A one-inch wide tape should be placed over the catheter, overlapping the transparent/ Opsite dressing and adhered to the patient's skin. This provides additional support for the needle.

- Final flush will be done with 10 cc NS and 5 cc heparin (100 units/cc) using positive pressure technique to promote a scrubbing effect in both the port and catheter to clear out the residue that may adhere to the internal lumen of the catheter. The goal of the final flush is to clean out the residue in the system. This will be completed after the administration of drug therapy.

- ❖ **Assemble all Materials prior to De-Accessing the Port**
 - 1. 2-10 cc syringes and 2, 18-20 gauge needles (may not be necessary if using prepared and packaged syringes).
 - 2. Clean gloves
 - 3. 1-Package of 2X2 gauze

Appendix A (Continued)

- 4. 2-alcohol wipes
 - 5. 1-inch tape
 - 6. 1-10 cc bottle of NS
 - 7. 1-10 cc bottle of heparin (100 units/cc)
- * The NS and heparin may be provided as prepared and packaged syringes.

❖ De- Accessing Port

- 1. Gather supplies.
 - 2. Wash hands.
 - 3. Put on clean gloves.
 - 4. Draw-up one syringe with 10 cc of NS.
 - 5. Draw-up one syringe with 5 cc heparin (100 units/cc).
- * The NS and heparin may be provided as prepared and packaged syringes.
- 6. Check IP for blood return.
 - 7. Flush IP with 10 cc NS and 5 cc heparin (100 units/cc), using positive pressure technique.
 - 8. While infusing the last 1 cc of heparin, close clamp on tubing to prevent blood reflux into internal catheter. (Positive Pressure Technique)
 - 9. Rest the side of the dominant hand on chest when pulling out the IP needle (to avoid rebound of needle) and support the IP in place with the index finger and thumb of the non-dominant hand.
 - 10. Clean site with alcohol wipe and apply gauze dressing.

❖ Maintenance of IP

- If the IP is not being used for infusion of medications or I.V. fluids, the port should be accessed once per month for a terminal flush with 10 cc NS and 5 cc heparin (100 units/cc); see access/de-access procedure above.

Appendix A (Continued)

❖ **Procedures to Evaluate and Clear Obstructions**

1. Make certain that the port needle has fully traversed the septum and is not occluded by the silicone.
2. Check external tubing for kinks and straighten them, if found.
3. Listen to patients—they may have developed their own, successful methods to facilitate flushing.
4. Change the patient's position in bed or chair (raise arms, turn head, cough, etc.)
5. Ambulate patient, if possible, and try again to obtain blood.
6. Use the Valsalva maneuver (ask patient to breathe deeply and bear down)
7. Allow 5 cc heparin (100 units/cc) to dwell in reservoir for at least one hour. After dwell time, attempt to aspirate the clot or thrombus with 10-20 cc of NS.
8. If there is still no blood return, you may DC current IP and re-access with a new IP
*follow procedure for De-Accessing and Accessing
9. **DO NOT** forcefully attempt to irrigate an occluded IP, because it could result in catheter rupture and possible injury.
11. If still occluded notify Dr.

❖ **Documentation**

- Documentation should include each step of the protocol.

Appendix B

Costs

Infusion Team meetings (4) – Pre project, review of protocol, presentation of protocol, education.

Team members (8) -1 hour meetings X (4) = 32 hours @ \$45.00 + \$1,440.00

Protocol Creation – research, writing, presentation, tools (teaching & evaluation), and copies of protocol. 60 hours @ 45.00 = \$2,700.00

Supplies, copies, folders - \$100.00

Total Cost - \$4,240.00

After researching costs benefits for protocols and specially IVIg administration by portacath, for the homecare environment, I was unable to find a like study. What is clear from the research is that having a protocol that is current and evidence-based provides an effective way to administer IVIg safely by portacath for the patient and the staff.

Appendix C

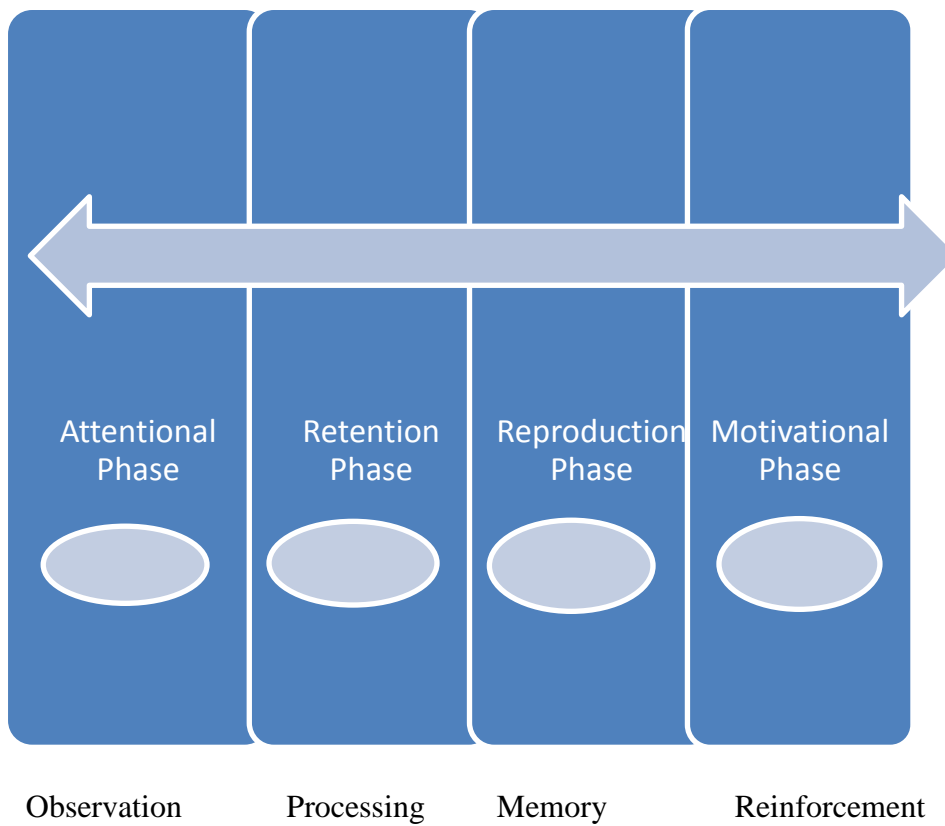
Social Learning Theory- Bandura's 4 Principles

EXTERNAL
PROCESSES

INTERNAL PROCESSES

EXTERNAL
PROCESSES

Self-Regulation and Control



Role Model demonstrates behavior

(as cited by Bastable, S. 2014).

Appendix D

Gantt Chart

Task Name	Q2			Q3			Q4		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Watch how-to video on this template (4:16)									
2									
3 Review and Evaluate IVIg Protocols									
4 Meeting with DON			Meeting with DON						
5 Meeting with Infusion Team			Meeting with Infusion Team						
6 Collect IVIg Information				Collect IVIg Information					
7 Section 2									
8 Research IVIg Protocol					Research IVIg Protocol				
9 Write Protocol						Write Protocol			
10 Meeting with DON						Meeting with DON			
11 Meeting with Infusion Team							Meeting with Infusion Team		
12 Protocol Approval								Protocol Approval	
13 Create Teaching and Training Program									
14 Protocol Copies for Infusion Team								Protocol Copies for	
15 Presentation creation								Presentation c	
16 Evaluation - Survey complete								Evaluation - S	
17 Presentation and Training Session									Presentat
18 Protocol Accepted									Protocol

Appendix E

Likert Scale Survey

1. The Portacath Protocol is a needed microsystem improvement.

Strongly Agree Agree Neutral Disagree Strongly Disagree

2. As a member of the Infusion Team, I felt involved in the process and project.

Strongly Agree Agree Neutral Disagree Strongly Disagree

3. The new Protocol for Portacath has closed the practice gap that existed in the microsystem.

Strongly Agree Agree Neutral Disagree Strongly Disagree

4. The Portacath Protocol Presentation was clear.

Strongly Agree Agree Neutral Disagree Strongly Disagree

5. The new evidence-based protocol provides a foundation for safe administration by portacath.

Strongly Agree Agree Neutral Disagree Strongly Disagree

6. The new evidence –based protocol provides a foundation for consistency for administration by portacath.

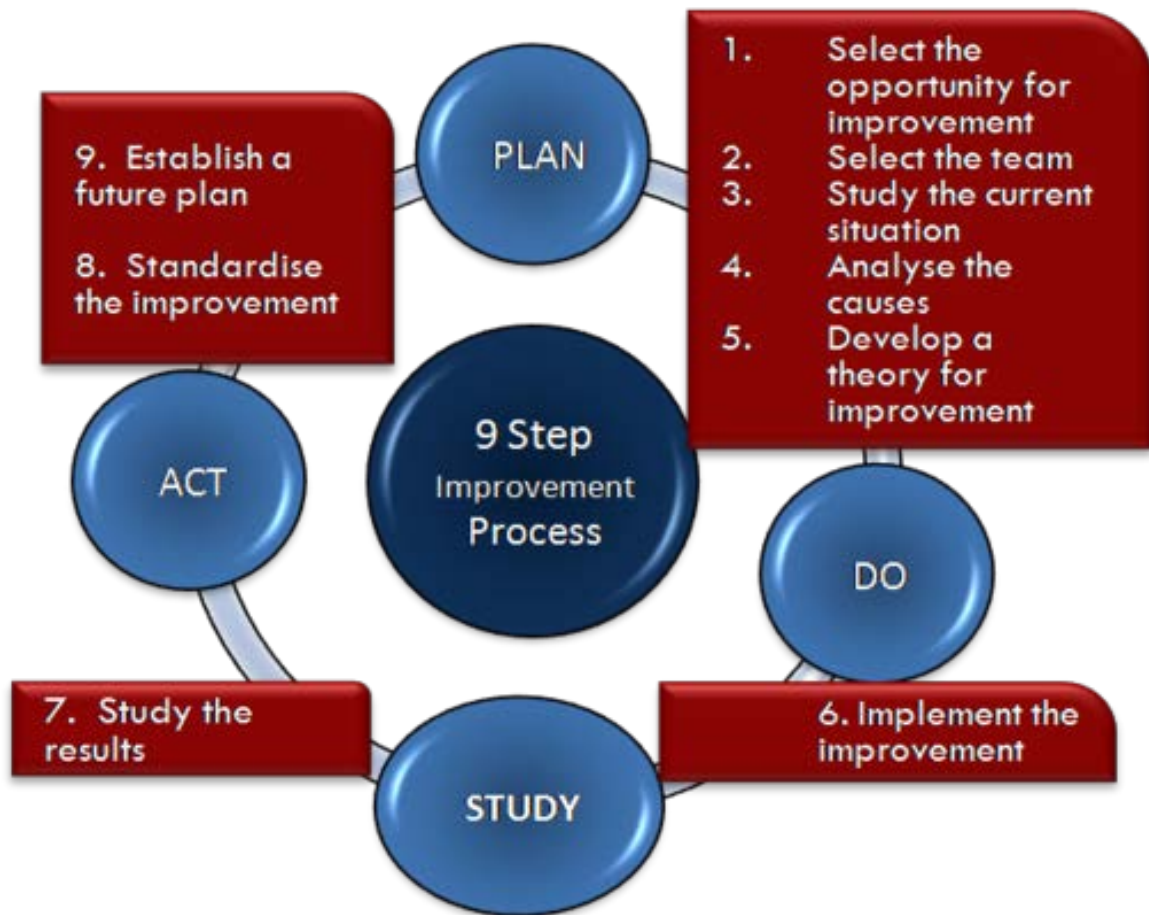
Strongly Agree Agree Neutral Disagree Strongly Disagree

7. Annual review of Protocols for Infusion therapy in the microsystem is a needed practice.

Strongly Agree Agree Neutral Disagree Strongly Disagree

Appendix F

Plan-Do-Study-Act



- 1 -Evaluate IVIg Protocols
- 2 –Infusion Team Members
- 3 -No Portacath Protocol
- 4- Increase in Portacath patients in homecare.
- 5- Research and write evidence-based Protocol
- 6- Teaching implementation Protocol
- 7- Evaluate with Likert survey
- 8 –Protocol accepted as Practice Protocol
- 9- Evaluate Protocol and update to align with current standards.

Appendix G

Fishbone Diagram:

