Project Documentation – Initiate Phase: Part 1

Project Name: CLABSI Prevention

Project description:

Table:

Issue	Example
What the project will do	Recommend a procedure that reduces the infection risk of Central-Line Associated Blood Stream Infection (CLABSI) in the Neonatal Intensive Care Unit (NICU) at the Children's Hospital of Philadelphia (CHOP).
Who it will do it for (i.e., client and end user)	Nurses and doctors in the NICU at CHOP who need to care the infants with CLABSI.
How it will do it	The procedure is implemented in an extreme clean environment. This procedure will include very detailed instructions. The instructions will show nurses the correct operation for the replacement of the valve and cleaning of the equipment. It will be recommended to CHOP as a nursing procedure manual on the standardization of central line change in the NICU. A training program will be offered to doctors and nurses. After that, a checklist with recommended steps will be used to audit the operation of doctors and nurses.
What the result will be	The nurses and doctors in the NICU at CHOP can use the procedure to standardize the valve change operation with the help of the training program, which is expected to be finished by 02/25/2016. With the procedure, it will be easier for them to maintain the cleanliness of the equipment and increase attention during the replacement operation for reducing the likelihood of CLABSI infection. We expect more than 80% of the nurses will follow the procedure.

Narrative:

The project will develop and recommend a procedure for needleless valve change on the hub of the central catheter to reduce the central line associate bloodstream infection (CLABSI) for nurses and doctors in neonatal intensive care units (NICU) at the children's hospital of Philadelphia (CHOP). A needleless valve is a device that provides needle-free access at the catheter hub to give medications or withdraw blood (The Joint Commission, 2012).

The procedure is implemented in an extremely clean environment. This procedure will include very detailed instructions. The instructions will show nurses the correct operation for the replacement of the valve and cleaning of the equipment. It will be recommended to CHOP as a

nursing procedure manual on the standardization of central line change in the NICU. A training program will be offered to doctors and nurses. After that, a checklist with recommended steps will be used to audit the operation of doctors and nurses. We will collect the results of the survey based on the checklist by 02/13/2017 to see if the procedure is followed.

The nurses and doctors in the NICU at CHOP can use the procedure to standardize the valve change operation with the help of the training program, which is expected to be finished by 02/25/2016. With the procedure, it will be easier for them to maintain the cleanliness of the equipment and increase attention during the replacement operation for reducing the likelihood of CLABSI infection. It is expected that most of the nurses and doctors will follow our procedure by the time we do the survey.

Reference:

The Joint Commission. Preventing Central Line–Associated Bloodstream Infections: A Global Challenge, a Global Perspective. Oak Brook, IL: Joint Commission Resources, May 2012. http://www.PreventingCLABSIs.pdf.

Problem statement: Your focus should be on how this issue has been handled in the industry and what the market might want. Make sure to review literature and provide references.

Table:

What problem does the project solve?	How has this problem been handled to date*?	Why is the project's approach an improvement over what's been done in the past?
CLABSI is one of the most important Healthcare Associated Infections (HAI) due to the morbidity, mortality and associated financial cost (Dahan, 2016). It is easy for patients in the NICU to have CLABSI because of frequent central venous catheter (CVC) use (DHS, 2012). When nurses are replacing the needleless connector of a CVC, CLABSI can be caused due to improper operation. This can be prevented if an evidence-based guideline is followed (CDC, 2005). However, although The Joint Commission has provided a general guideline of CVC replacement, it is not specific or standardized (The Joint Commission, 2012).	The Joint Commission has provided a general guideline of CVC replacement, it is not specific or standardized (The Joint Commission, 2012). Hospitals have developed operation procedures based on the guidelines from The Joint Commission, but most of them are not very detailed (The Joint Commission, 2013). CHOP also provided guidelines for CLABSI prevention, but those guidelines lack specificity as well (Cole, 2013). This leads to nurses performing improper operations and using equipment of different size, which increases the risk of CLABSI.	The procedure recommended by the project team is very specific and detailed. It has clear requirements such as cleaning time and equipment sizes. It provides step-by-step standards for doctors and nurses in the NICU at CHOP to follow when changing the needleless valve. Compared to the other procedures, this procedure focuses on the process of changing needleless valve. It has different required action steps for patients with different medication needs. A training program is also offered to teach nurses and doctors to follow operations of the procedure.

Narrative:

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Hospitals have developed operation procedures based on the guidelines from The Joint Commission, but most of them are not very detailed (The Joint Commission, 2013). CHOP also provided guidelines for CLABSI prevention, but those guidelines lack specificity as well (Cole, 2013). This leads to nurses performing improper operations and using equipment of different size, which increases the risk of CLABSI.

The procedure recommended by the project team is very specific and detailed. It has clear requirements such as cleaning time and equipment sizes. It provides step-by-step standards for doctors and nurses in the NICU at CHOP to follow when changing the needleless valve. Compared to the other procedures, this procedure focuses on the process of changing needleless valve. It has different required action steps for patients with different medication needs. A training program is also offered to teach nurses and doctors to follow operations of the procedure.

Reference:

Dahan, M., O'Donnell, S., Hebert, J., Gonzales, M., Lee, B., Chandran, A.U., Woolsey, S., Escoredo, S., Chinnery, H., & Quach, C. (2016, Dec) CLABSI Risk Factors in the NICU: Potential for Prevention: A PICNIC Study. infection control & hospital epidemiology, VOL. 37, NO. 12, 1446 – 1452

The Joint Commission. (2012, May) Preventing Central Line–Associated Bloodstream Infections: A Global Challenge, a Global Perspective. Oak Brook, IL: Joint Commission Resources http://www.PreventingCLABSIs.pdf.

The Joint Commission. (2013) Preventing Central Line–Associated Bloodstream Infections: Useful Tools, An International Perspective. Nov 20, 2013. http://www.jointcommission.org/CLABSIToolkit

Cole, V., & Monacella-Duffy, K. (Spring 2013) Lessons Learned: Implementing Practices to Improve CLABSI Rates. Patient Safety Insight

Centers for Disease Control and Prevention. (CDC, 2005) Reduction in central line–associated bloodstream infections among patients in intensive care units—Pennsylvania, April 2001–March 2005. MMWR Morb Mortal Wkly Rep. 2005 Oct 14;54(40):1013–1016.

US Department of Health and Human Services. (DHS, 2012)National Action Plan to Prevent Healthcare-Associated Infections. Jun 2009. Accessed Mar 18, 2012. http://www.hhs.gov/ash/initiatives/hai/infection.html.

Core Team Selection and Analysis

List the functional or departmental areas of expertise that are needed to successfully complete the project and identify potential (if you get to choose the team) or actual team members with that expertise. In the work world you would complete the rest of the table using a scale five-point scale where 1 = low, 3 = medium, and 5 = high. Recognize that projects require different types and levels of expertise and the projects are developmental opportunities so not everyone has to score a 5 in all areas. **For this assignment, complete only the first two columns of this table.**

Needed functional or departmental area of expertise	Name of potential core team member	Technical skills	Problem-solving skills	Interpersonal skills	Interest in the project	Motivation to participate	Time to participate
Project Manager	David Jakubowicz	3	5	5	5	5	5
Medical Expertise	Deborah A.Sesok-Pizzini	5	5	3	4	3	3
Nursing Expertise	Amy Scholtz	5	4	3	4	3	3
Administrator	Anne C. Mohan	4	4	5	5	5	4
Human Systems Engineering	Nichin Sreekantaswamy	3	4	5	4	5	5
Behavioral Management	Julianna Pillemer	3	4	5	4	5	4

Core Team Contact List

It is important to complete and distribute a contact list so that team members and stakeholders know how to contact team members.

Name	Project Role	Telephone(s)	Email(s)	Address(es)	Other
David Jakubowicz	Project Manager	954-219-2340	djakub@wharton.upenn.edu	3914 Delancey St., Philadelphia, PA 19104	
Deborah A.Sesok-Pizzini	Medical Expertise	800-879-2467	pizzini@email.chop.edu	CHOP, 3401 Civic Center Blvd. Philadelphia, PA 19104	

Name	Project Role	Telephone(s)	Email(s)	Address(es)	Other
Anne C. Mohan	Administrator	800-879-2467	mohan@email.chop.edu	CHOP, 3401 Civic Center Blvd. Philadelphia, PA 19104	
Amy Scholtz	Nursing Expertise	267-426-2265	scholtz@email.chop.edu	CHOP, 3401 Civic Center Blvd. Philadelphia, PA 19104	
Nichin Sreekantaswamy	Human Systems Engineering	267-777-3560	nichins@seas.upenn.edu	ESE department of UPENN	
Julianna Pillemer	Behavioral Management		pillemer@wharton.upenn.edu	WHARTON School of UPENN	

It can be helpful to make contact lists for extended team members and all stakeholders.

Stakeholder Chart

List 3-5 key project team stakeholders. Indicate how much each stakeholder likes the project, i.e., why they think doing the project is a good or a bad idea. Then indicate the level of impact each has on the project, i.e., what specifically can they do to ensure project success or failure (e.g., commit or withhold funding, staff, computer resources, lab time, equipment).

Stakeholder	How Much They Like the Project 1 = not at all -> 5 = a lot	Reasons They Like the Project	How Much They Can Impact the Project 1 = not at all -> 5 = a lot	How They Can Impact the Project
1. Nurses in the NICU at CHOP	4	Nurses wish to have a detailed instruction that they can follow step by step, which make the operation of needleless valve change in NICU safer and more accurate.	5	Nurses have the power to render the project useless if they decide not to follow the procedure.
2. Doctors in the NICU at CHOP	4	Doctors in the NICU at CHOP want an effective and safe procedure to reduce the CLABSI rate to make their patients' family more satisfied and increase their reputation.	3	Doctors can provide medical advice to the project team. They can also provide help in the training program.
3. Parents of infants who need central line care	5	Parents of infants want their children to be healthy and prevent their children from the infection of CLABSI.	2	Parents can appeal doctors and nurses in CHOP to use the procedure, which is good to the success of this project.
4. Neonatal Units at CHOP	4	Neonatal Units at CHOP want to reduce the infection rate of CLABSI in their hospital so that their patients are satisfied and their reputation will be increased. In addition, they want low CLABSI rate to save their cost and increase the profits.	5	Neonatal Units at CHOP can provide lab time, equipment, medical expertise, test result, staff, patients' information, commit or withhold funding.

Stakeholder Needs and Expectations

Problem/Opportunity: Briefly describe what each stakeholder most wants from the project and why.

Stakeholder	What They Want and Why
1. Nurses in the NICU at CHOP	Nurses want a specific and standardized procedure that they can follow step by step during the operation in NICU, which make the operation safer. Thus, they can prevent the patients from the infection of CLABSI, which makes their patients' family be more satisfied with their work.
2. Doctors in the NICU at CHOP	Doctors want to reduce the infection rate of CLABSI of their patients. Thus, they can increase the satisfaction of the patients' family and their reputation.
3. Parents of infants who need central line care	Parents most want their children to be healthy. So they want a safer procedure to reduce the infection rate of CLABSI.
4. Neonatal Units at CHOP	Neonatal Units at CHOP want to reduce the infection rate of CLABSI of their patients. Thus, they can increase the satisfaction of the patients' family and their reputation.

Project Vision: When each stakeholder imagines that the project has been completed, how do they define its success and what indicators would they use to demonstrate its success?

Stakeholder	Definition of Success	Indicator to Demonstrate Success
1. Nurses in the NICU at CHOP	▪ They feel safer during the operation after they completely follow the procedure step by step and reduce the infection rate of CLABSI.	▪ Operation safety-determined by Audit Tool (procedure checklist) evaluation.
2. Doctors in the NICU at CHOP	▪ Their patients' family are more satisfied with their work.	▪ Satisfaction of patients-determined by satisfaction survey
3. Parents of infants who need central line care	▪ Their children are prevented from the infection of CLABSI.	▪ Healthy children-determined by diagnosis of doctors.
4. Neonatal Units at CHOP	▪ Their patients are prevented from the infection of CLABSI or less patients are infected. ▪ Patients' family are satisfied with the hospital. ▪ Hospital's reputation is increased.	▪ CLABSI rate-determined by statistics of infected infants from CHOP. ▪ Satisfaction of patients-determined by satisfaction survey of patients. ▪ Reputation increase-determined by public survey and media.

Project Documentation – Initiate Phase: Part 2

Project Name: CLABSI Prevention

Identify the Primary and Secondary Project Drivers/Constraints

Driver/ Constraint	Driver Criteria Read the criteria for each driver/constraint. If the criteria are true,	Then the driver/constraint is either primary or secondary. Whichever is the most unchangeable and the most important is primary. The other is secondary. Place an X in the appropriate cell		Explanation for your project
		Primary	Secondary	
Scope	▪ All the features must be included in this version of the project. None can be left out or implemented in a next version of the project. ▪ You can have more time so that you can include all features of the product. ▪ You can have more money/resources if needed to ensure you can include all the features.	X		The features of this project include a procedure, a training program and an audit tool to assess how well nurses follow the procedure. All the three features must be met for achieving the scope of this project. In addition, since this project is medical related, all features must be well designed to ensure the safety of patients. Although students must finish this project by the end of the semester, CHOP has another team to continue working on this project after the semester. Thus, the scope is the primary driver that must be followed regardless of cost or time.
Time	▪ You must complete the project by a certain date no matter what. ▪ In order to meet the deadline you can limit the number of features to include (i.e., you can't do everything you want to do for this version of the product). ▪ Someone will give you more money/ resources so that you can finish on time.		X	Although time is not as important as scope, it is still necessary for the student project team to finish their recommendations before the end of the semester. In addition, the project team does not need to worry too much about the cost because the total cost of this project is very low. Thus, time is the secondary driver.

Revised Project Description (1 paragraph; 75-100 words)

Having looked at the problem/opportunity through the perspective of three different stakeholder groups you should now have a deeper and richer understanding of the project. Revisit your original project description and revise to reflect your new sense of the project. **If you decide that no changes are required please state that here.**

There is no change needed to be made on the original project description at this time.

Key Deliverables

List and describe 5-10 **key** project deliverables in the order you expect them to be completed.

Deliverable	Description
1. Complete and write up a literature review of CLABSI prevention	Academic literature review helps the team to know the standard bundles currently used to prevent CLABSIs.
2. Write abstract and background	Write abstract and background with sources cited to prove the scientific merit of this procedure.
3. Write detailed Nursing Procedure Manual	We write up an instruction nursing manual including a detailed list of procedures. The manual will be used as a standard of CHOP.
4. Obtain NSPCC Approval	NSPCC is Nursing Standards and Procedures CLABSI/Catheter Care Committee. The Nursing Procedure Manual must be approved by NSPCC to be used in CHOP.
5. Offer training program to the doctors and nurses in the NICU at CHOP	A training program will be offered to the doctors and nurses in the NICU at CHOP to help them follow the procedure step by step safely and accurately.
6. Design Audit Tool	An Intravenous Central Line Change Audit Tool is a checklist which the project team uses to know whether the doctors and nurses follow each step of the procedure.
7. Offer the Audit Tool to the doctors and nurses in the NICU at CHOP	Offer the Audit Tool to doctors and nurses and let them fill it after every time they finish the needleless valve change operation in the NICU at CHOP.
8. Do evaluation of the Audit Tool result	Evaluate the Audit Tool result to see how many doctors and nurses have followed each step of the procedure.
9. Write final report and presentation	Construct a final report and presentation to show all the details of the project.

Project Scope

List up to 5 things that are in scope for your project (e.g., development of a prototype) and up to 5 things that are out of scope (e.g., development of a marketable product).

In Scope
1. A detailed Nursing Procedure Manual
2. A training program for doctors and nurses to follow the procedure
3. An Audit Tool for doctors and nurses to fill out
4. An evaluation report includes data from Audit Tool
5.

Out of Scope
1. The doctors and nurses in NICU of all US hospitals follow the Nursing Procedure Manual
2. A new medical device to prevent the infection of CLABSI
3. A procedure that can eliminate CLABSI
4. A procedure that can cure CLABSI
5.

Assumptions and Constraints

List up to 5 assumptions and up to 5 constraints your team is making about the project.

Assumptions
1. The doctors and nurses in the NICU at CHOP will want to reduce the current infection rate of CLABSI.
2. The group team can have a good cooperation with the NICU at CHOP.
3. The group team has the capability to write an accurate and effective Nursing Procedure Manual.
4. The doctors and nurses in the NICU at CHOP will like to join in the training program.
5.

Constraints
1. It is very hard to test the effectiveness of the training program.
2. The project is for Human Systems Engineering class, so it is hard for the team member to get frequent contact with medical experts.
3. The team members have other projects at the same time, so they do not have much time to work on this project.
4. The team members need to spend a lot of time to research on this procedure because they are not the medical students with enough background knowledge on this topic.
5.

Project SMART Goal (preferably 1-3 sentences, no more than 1-3 paragraphs). **Do not complete until we've agreed on your project description and problem statement.**

The CLABSI Prevention project is aimed to offer a standardized and detailed procedure of needless valve replacement to the NICU department at CHOP to prevent CLABSI by 05/19/2015. Nurses will be trained in a training program to follow this procedure by 02/15/2016 and will be assigned an audit tool to see if they follow it correctly.

Situation Analysis

- List **3 factors** (both internal and external to the organization) that will increase the probability that the project will meet its goals on time and within budget (the + column below)
- List **3 factors** that are more likely to impede project success (the – column below).

Factor	Impact		Explanation
	+	-	
There are plenty previous studies on CLABSI prevention.	+		The previous studies provide plenty sufficient information about the potential factors increase CLABSI and the methods to prevent it.
Team members are studying the Human Systems Engineering.	+		The team members are taking human systems class which covers the topics about considering human factors into the design of a system. Thus, they will have knowledge about how to design the training program to make it more effective.

Factor	Impact		Explanation
	+	-	
Collaboration from CHOP	+		CHOP is the primary source of medical advice and laboratory results. With their help, the project will proceed smoothly.
There is limited time for the team to work on this project.		-	The project needs to be finished by the end of the semester of spring 2016. But team members have other courses and projects as well so they may not have much time to work on this one.
Team members do not have many experiences on CLABSI.		-	Because the class is in Systems Engineering department, it is possible that most team members do not have many experiences on CLABSI.
It may be hard for some nurses to follow the instructions.		-	Because nurses used to have their own procedure for needleless valve changing, it may be hard for some of them to accept and follow the procedure.

- List **3 departments** that will be involved in the project.

Departments Involved	Nature of Involvement
Department of Systems Engineering	This project is a course project from a class in this department.
NICU at CHOP	This project will be implemented in the NICU at CHOP.
UPenn School of Medicine	They serve as the connection between Hospital of UPenn and Department of Systems Engineering.

- List **3 departments** that will be affected by the project outcome.

Departments Affected	How Affected
Department of Systems Engineering	The results of this project may very possibly affect their attitude towards future cooperation with Penn Medicine.
CHOP	This project offers a detailed procedure to CHOP for CLABSI prevention. If it succeeds, Hospital of UPenn will benefit from is outcome directly.
Joint Commission	The new procedure to reduce CLABSI at CHOP may help them find new standard methods to decrease the CLABSI national wide.

- List any internal and external stakeholder groups that have not yet been identified who will influence the project process.

Stakeholders	Nature of Influence
Center of Disease Control and Prevention (CDC)	They may provide the project more resources if they find the procedure is worth to be introduced national wide.
National Association of Neonatal Nurses (NANN)	They provide social support for this project because its result can impact their mission.
Organization of Student Nursing Research (OSNR)	Nurses involve in the project can also be the member of OSNR.

Feasibility Study

The feasibility study serves as a final reality check. While project requirements are created to help sell the project, the feasibility study is meant to be a reality check to ensure that the requirements are based more on fact than wishful thinking. In a sense it is a checklist to make sure that all core issues have been taken into account:

Make sure to explain your answer to each question in the notes column.

Issue	Yes	No	Being Negotiated	Notes
Have all stakeholder requirements been considered?	X			Yes. All stakeholders are identified at this stage. Because their needs are not mutually exclusive, the team will design the process regarding all their needs.
Have project costs and benefits been calculated?	X			Yes. Although there is no budget for this project from Human Systems Engineering class, there is some educated estimation that has been made.
Is the project feasible given present technology?	X			Yes. There had been plenty of literature studies on this topic. Many of them provided practical solutions.
Does the project fulfill the needs of the “customer”?	X			Yes. The procedure recommended is detailed and specific enough to be used as standardized practice for nurses.
Is there data to support that the project fulfills “customer” needs (e.g., surveys, focus groups)?	X			Yes. An audit tool in form as survey will be provided to nurses to check whether they follow the procedure or not.

Issue	Yes	No	Being Negotiated	Notes
Is the project deadline realistic?	X			With the effort from all team members, it is possible that the team will be able to provide the procedure before the deadline.
Is there data to support that the project deadline is realistic?	X			Similar projects from previous Human Systems Engineering class took around the same time to be finished.
Are all necessary resources available?			X	Right now, the team still needs a medical expert, who may be assigned by CHOP in the future.

Measures of Success …these should be about the project, not implementation of the method or device

List 3-5 criteria that will be used to assess the project's success and identify the indicators that will be used to measure the level of success. Refer back to your stakeholders' definitions of success to come up with your evaluation criteria.

Evaluation Criteria	Indicators
1. Nurses can follow the procedure step-by-step accurately.	▪ The result of the Audit Tool.
2. NICU department feels the procedure offered effective in preventing the CLABSI so that their reputation is increased.	▪ CLABSI rate-determined by the statistics of infected infants from CHOP. ▪ Satisfaction survey for patient's parents about the service offered by CHOP. ▪ Reputation increased-determined by public survey and media.
3. Patient's parents feel safer about their kids in NICU using the central line with this procedure.	▪ Satisfaction survey for patient's parents about the safety of their kids.
4.	▪
5.	▪

Plan Phase

Project Name: CLABSI Prevention

Project Description

This project will develop and recommend a procedure for needleless valve change on hub of central catheter to reduce the central line associate bloodstream infection (CLABSI) to nurses and doctors in neonatal intensive care unit (NICU) at the children's hospital of Philadelphia (CHOP). A needleless valve is a device provides needle-free access at the catheter hub to give medications or withdraw blood. (The Joint Commission, 2012)

The procedure is implemented in an extremely clean environment. This procedure will include very detailed instructions. The instructions will show nurses the right operation during the replacement of the valve and cleaning the equipment. It will be recommended to CHOP as a nursing procedure manual on the standardization of central line change in the NICU. A training program will be offered to doctors and nurses. After that, a checklist with recommended steps will be used to audit the operation of doctors and nurses. We will collect the results of the survey based on checklist by 02/13/2017 to see if the procedure is followed.

The nurses and doctors in NICU at CHOP can use the procedure to standardize the valve change operation with the help of the training program, which is expected to be finished by 02/25/2016. With the procedure, it will be easier for them to maintain the cleanliness of the equipment and pay attention during the replacement operation so the infection of CLABSI is prevented. It was expected that most of the nurses and doctors will follow our procedure by the time we do the survey.

Reference:

The Joint Commission. Preventing Central Line–Associated Bloodstream Infections: A Global Challenge, a Global Perspective. Oak Brook, IL: Joint Commission Resources, May 2012. http://www.PreventingCLABSIs.pdf.

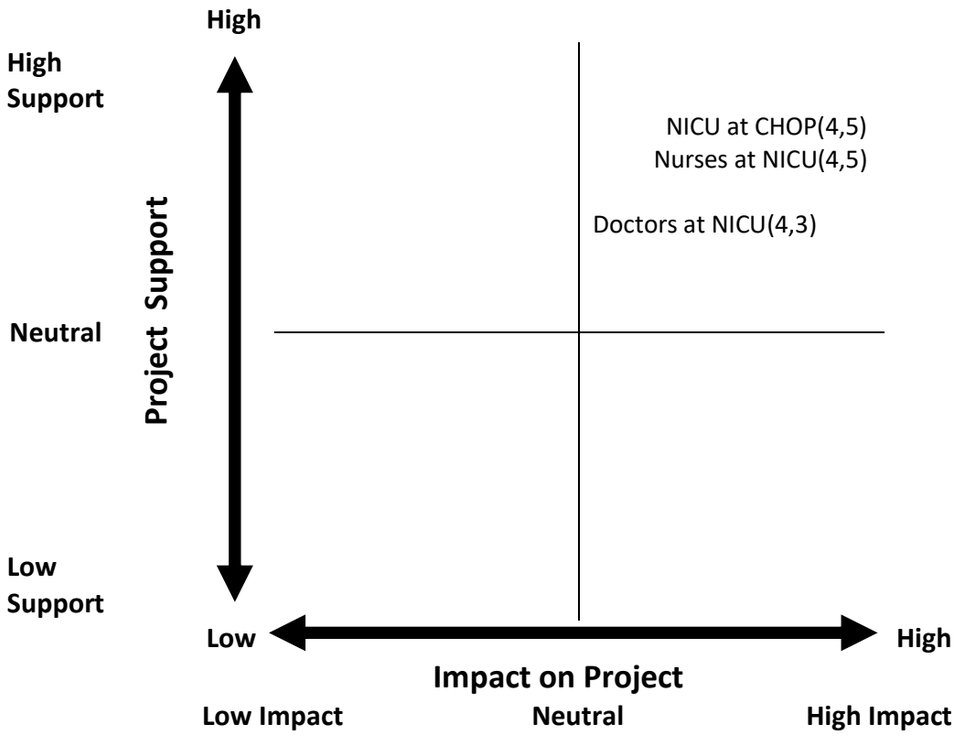
Stakeholder Communication Plans:

Identify the communication strategy for your three most important stakeholders (note that level of support and level of impact are from the PDI-Part 1 document):

Stakeholder	Level of Support[1] 1 = low -> 5 = hi	Level of Impact 1 = low -> 5 = hi	Communication Strategy		
			Project Issues to Discuss	**Medium** (e.g., face-to-face, phone, email)	**Frequency** (e.g., daily, weekly, monthly)
1. NICU at CHOP	4	5	The issues about organizing the training program-how and when will the training program be given. The potential impacts on the reputation of CHOP from the reduction of CLABSI-by how much will the reputation be increased, how will patients' family be satisfied with the outcome of this procedure.	Email	Monthly
2. Nurses in the NICU at CHOP	4	5	The content of procedure-how specific, how easy to follow, how easy to learn. Their professional opinion of the procedure as a nurse- what would be the potential problems of this procedure when used in NICU.	Face-to-face	Weekly
3. Doctors in the NICU at CHOP	4	3	The reason why this procedure is effective in preventing CLABSI. How to prevent CLABSI with this procedure. Background knowledge about CLABSI prevention.	Face-to-face	Monthly

[1]How much they like the project

Place each stakeholder in the quadrant that matches their "attitude" toward your project: CLABSI Prevention.



Project Documentation - Plan Phase: Part 2

Project Name: CLABSI Prevention

Project Description:
The project will develop and recommend a procedure for needleless valve change on the hub of the central catheter to reduce the Central Line Associated Bloodstream Infection (CLABSI) for nurses and doctors in neonatal intensive care units (NICU) at the children's hospital of Philadelphia (CHOP). A needleless valve is a device that provides needle-free access at the catheter hub to give medications or withdraw blood.

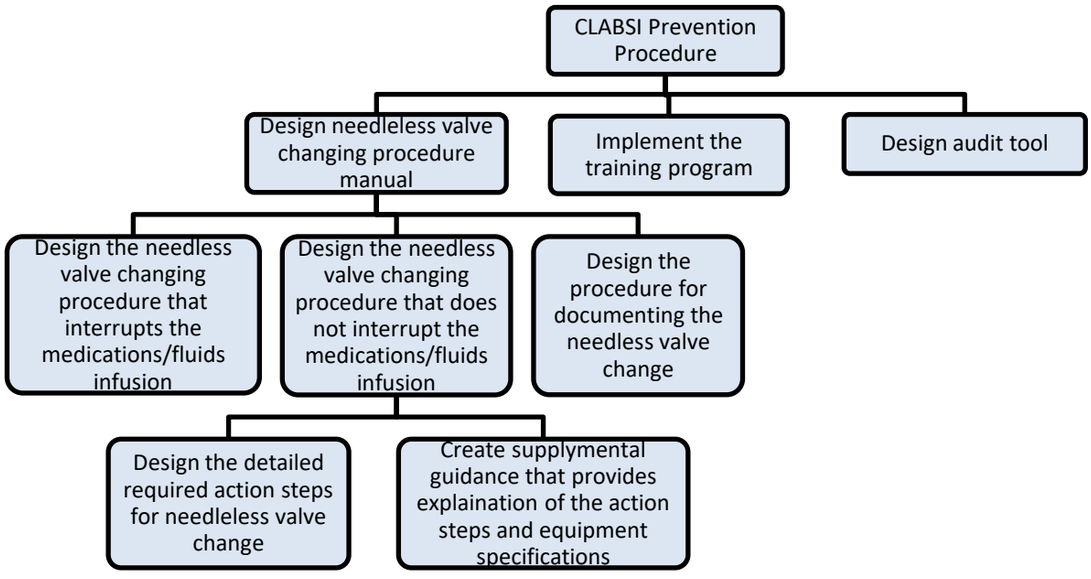
The procedure is implemented in an extremely clean environment. This procedure will include very detailed instructions. The instructions will show nurses the correct operation for the replacement of the valve and cleaning of the equipment. It will be recommended to CHOP as a nursing procedure manual on the standardization of central line change in the NICU. A training

program will be offered to doctors and nurses. After that, a checklist with recommended steps will be used to audit the operation of doctors and nurses. We will collect the results of the survey based on the checklist by 02/13/2017 to see if the procedure is followed.

The nurses and doctors in the NICU at CHOP can use the procedure to standardize the valve change operation with the help of the training program, which is expected to be finished by 02/25/2016. With the procedure, it will be easier for them to maintain the cleanliness of the equipment and increase attention during the replacement operation for reducing the likelihood of CLABSI infection. It is expected that most of the nurses and doctors will follow our procedure by the time we do the survey.

Identify Project Tasks: Hierarchical Work Breakdown Structure (WBS)
Identify the project goal, 3 deliverables, 3 tasks for one deliverable and 2 subtasks for 1 of the tasks. Note that the…

- Top box is the project goal
- The second level shows deliverables
- Each level below shows component tasks (e.g., tasks, subtasks, activities)



Responsibility Chart

List up to 7 team member and/or stakeholder roles (e.g., project manager, EE subject matter expert, client, regulatory agency). Then complete the responsibility chart for five tasks/decisions.

Project Team Member/ Stakeholder Role → / Task/Decision ↓	Project Manager	Medical Expertise	Nursing Expertise	Human Systems Engineering Expertise	Behavioral Management Expertise	Administration	
1. Identify the recommended guidelines from The Joint Commission and other authorities.	A, R, M, I	C, I	C, I	I	I	X	
2. Review Literature on CLABSI.	A, I, C	C, I	A, R, M	I	I	X	
3. Design procedure without crucial medication.	A, C, I	A, C, I	A, R, M	C, I	C, I	X	
4. Implement the training program	A, R, C, I	C, I	C, M	A, C, M	C, M	C, I	
5. Design audit tool	A, I	C, I	C, I	R, M	C, I	C, I	

A = authority to approve or veto

R = responsibility for day-to-day management

C = must be consulted before a decision is made or a task is completed

I = must be informed about a decision or a task after the fact

M = implements the decision or completes the task

X = no involvement

DK = the person filling out the chart does not know the kind of responsibility

Develop a Project Schedule: Create a Detailed Work Breakdown Structure (WBS)

List 3 deliverables, 3 tasks under one deliverable, and 2 subtasks under one task. If you can, list any predecessor activities for each task and identify the major human resource needed for each.

ID#: In a WBS, every item is assigned a unique number to identify deliverables and the tasks associated with each deliverable so that work can be identified and tracked over time. The number of levels (i.e., the level of detail in the WBS) depends on the size and complexity of the project. There is a general format for numbering each level so that tasks are uniquely numbered and correctly summarized:

Level	ID#	Example	Item
Level 1	1.0	1.0	The top level of the WBS and is the project name. All other levels are subordinate to this level.
Level 2	1.x	1.1, 1.2	The deliverables level.
Level 3	1.x.x	1.1.1, 1.1.2	The tasks related to each deliverable
Level 4	1.x.x.x	1.1.1.1, 1.1.1.1.2	The subtasks related to each task.

The levels continue down until progressively subordinate levels are assigned for all work required for the entire project. Most project management scheduling tools automatically number tasks according to this convention.

Duration: How long will it take to complete the task (in either hours or days…be consistent)

Predecessors: List the ID# of any task(s) that must be completed prior to completing the current task

Resource(s): List the names of team members (or the areas of expertise) that are required to complete each task

Complete this detailed WBS using the same information that you used for the hierarchical WBS…state the project goal, 3 deliverables, 3 tasks for one deliverable and 2 subtasks for 1 of the tasks.

ID#	Task Description	Duration	Predecessors	Resource(s)
1.0	CLABSI Prevention Procedure	85 days		

ID#	Task Description	Duration	Predecessors	Resource(s)
1.1	Design needleless valve changing procedure manual	40 days		Medical Expertise, Nursing Expertise, Project Manager, Human Systems Engineer
1.1.1	Design the needless valve changing procedure that interrupts the medications/fluids infusion	15 days		Medical Expertise, Nursing Expertise, Project Manager, Human Systems Engineer
1.1.2	Design the needless valve changing procedure that does not interrupt the medications/fluids infusion	15 days	1.1	Medical Expertise, Nursing Expertise, Project Manager, Human Systems Engineer
1.1.2.1	Design the detailed required action steps for needleless valve change	15 days		Nursing Expertise, Medical Expertise, Project Manager, Human Systems Engineer
1.1.2.2	Create supplemental guidance that provides explanation of the action steps and equipment specifications	15 days		Nursing Expertise, Medical Expertise, Project Manager, Human Systems Engineer
1.1.3	Design the procedure for documenting the needless valve change	10 days	1.1.1, 1.1.2	Medical Expertise, Nursing Expertise, Project Manager, Human Systems Engineer
1.2	Implement the training program	30 days	1.1	Human Systems Engineer, Behavioral Management Expertise, Project Manager, Administration
1.3	Design audit tool	15 days	1.1, 1.2	Human Systems Engineer, Behavioral Management Expertise, Project Manager

Create the Human Resource Plan

Having developed a project schedule, now determine which employees are needed at what point in the project (e.g., first, second, third week or month or quarter). List your core team members' names (if you know them) and the area of expertise needed and indicate at what point in the project this resource is needed needed and for how many hours. The chart below is organized using a yearly calendar…change the time frame to fit the needs of your project.

The table below demonstrates what a human resource (HR) plan might look like. Use Microsoft Project to develop your team's HR plan.

Core Team Names	Needed Area of Expertise	Estimated Needed Hours												
		1st week	2nd week	3rd week	4th week	5th week	6th week	7th week	8th week	9th week	10th week	11 week	12 week	Total
David Jakubowicz	Project Manager	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**120**
Deborah A.Sesok-Pizzini	Medical Expertise	**2**	**10**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**62**
Amy Scholtz	Nursing Expertise	**4**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**5**	**5**	**5**	**5**	**94**
Nichin Sreekantaswamy	Human Systems Engineering	**1**	**2**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**103**
Julianna Pillemer	Behavioral Management	**1**	**2**	**5**	**5**	**5**	**5**	**5**	**5**	**10**	**10**	**10**	**5**	**68**

Now consider team members' actual availability. In the table below indicate the degree to which their availability matches when they are needed on the project. For example, if someone is needed 40 hours per week for the month of May but is only available for 20 hours per week that month, then indicate the need (40 hours/week in May) and his/her availability (20 hours/week in May). Describe what you will do to manage that discrepancy in the last column. For example, is someone is needed more than they are available how will that work get done? Or if someone has more time than is needed, what will they do with their extra time?

Core Team Names	Needed Area of Expertise	Need vs. Availability	Notes for Managing Discrepancy
David Jakubowicz	Project Manager	Since David is the team leader and main performer, he is needed during the whole project period. He could spend 10 hours per week on this project which is enough.	David has more available time, and he will use his extra availability to make up for others lacks availability.
Deborah A.Sesok-Pizzini	Medical Expertise	Deborah is needed to give a lot of important medical advice to the team	When Deborah is not available, she will use Skype to discuss with the team to know about the project progress and give advice.

Core Team Names	Needed Area of Expertise	Need vs. Availability	Notes for Managing Discrepancy
		about the project. She has worked at CHOP, so she could spend 5 hours per week which is enough.	
Amy Scholtz	Nursing Expertise	Amy needs to work longer for the first 8 weeks. She can work 10 hours per week from the second week to the 8th week.	When Amy is not available, David and Nichin will help her complete her task.
Nichin Sreekantaswamy	Human Systems Engineering	Nichin is another main performer of the project so he is needed from the beginning to the end of the project. From the 3rd week, he can work 10 hours per week.	Nichin has much available time, and he will use the extra available time to help Amy and Julianna. When he is not available, David will help him finish the task.
Julianna Pillemer	Behavioral Management	Julianna is mainly responsible for the training program. She needs to work more on the second half of the project. She is available to work to work 5 hours per week which is enough.	When Julianna is not available, she will contact the team by phone, and she will send and explain his plan to team by email.

Develop the Project Budget

Assume that someone is funding your project, that all team members are being paid and that you have to pay for plant, equipment, supplies, etc. Create a project budget considering items such as the following:

- Salaries
- Plant
- Equipment
- Supplies
- Travel and expenses

Indicate the budget item, the monthly cost and the total project cost.

Budget Item	Monthly Cost	Total Project Cost
Salary for David Jakubowicz	400	1200
Salary for Deborah A.Sesok-Pizzini	207	620
Salary for Amy Scholtz	313	940
Salary for Nichin Sreekantaswamy	343	1030
Salary for Julianna Pillemer	227	680
REDCap usage fee	50	150
REDCap data management fee	83	250
Materials: paper, pencils	17	50
Printing fee	17	50
Site rent fee	67	200
TOTAL	**1724**	**5170**

Risk Assessment

- List **3 potential risks** that could occur on your project.
- Indicate each risk's **probability of occurrence** (from 0% - 100%)
- **Cross out any risk that has a 50% or greater probability of occurrence** (these must be considered a certainty and included in your project plan).
- Indicate the **degree of impact** on the project should the risk occur (1 = very low, 2 = low, 3= moderate, 4 = high, 5 = very high).
- Indicate the **risk level** by using the probability of occurrence and the impact to determine whether the risk is high, medium or low based on the risk table.
- Identify one **mitigation strategy** that might prevent the risk from happening.
- Identify one **contingency plan** that can be used to deal with the risk should it occur.

Risk Assessment

Potential Risk Event	Probability[2] (0% - 100%)	Impact 1 – Very Low 5 – Very High	Risk (Hi, Med Low)	Mitigation Strategy	Contingency Plan
1. Nurses do not complete the Audit Tool (online survey)	30%	5	Hi	Remind the administrator of this project, Anne C. Mohan, to distribute the Audit Tool regularly by email.	Give the nurses a paper survey to fill instead of online Audit Tool.
2. Some of the nurses do not attend the training program	20%	4	Med	Tell the importance of the training program to the nurses and check their time availability.	Give the nurses who didn't attend the training program a detailed instruction manual of the training program and let other nurses assist them in practice.
3. The server of REDCap application collapse and the link of the Audit Tool website does not work	10%	5	Med	Check the link of Audit Tool website regularly to see whether the link works or not.	Use Google Form to build the survey and manage the data instead of REDCap.

[2] Remember that any event that has a 50% or greater probability of occurrence must be considered a certainty. Highlight or circle that event, do not include it in your risk table and make sure to include it and any mitigation strategies and contingency plans in your project plan.

Project Name: CLABSI Prevention

Close Phase

List all documents to be included in the project workbook:

- Project name, project description and problem statement.
- Core team members contact information and skills.
- Stakeholders chart
- Project drivers analysis
- Stakeholder's expections and needs chart
- Project visions chart
- Project key deliverables
- Project scopes, assumptions and constraints
- Project's SMART goal
- Project's situation analysis and feasibility study
- Project's measure of success
- Document of all charts and documents above in presentation format
- Referenced documents about CLABSI prevention procedures, including the instructions from The Joint Commission.
- Stakeholders communication plan
- Project tasks created by WBS
- Team member's roles and responsibility chart
- Project schedule
- Human resources plan
- Project budget
- Project risks analysis and assessment
- Document of all charts and plan schedules above in presetation format
- Scope change request forms
- Project activities tracking document
- Issues, action item log document
- Schedule tracking document
- Lessons learned

List project management lessons learned:

- We can use Bottom-up budgeting approach to obtain a more actuate budget estimation.
- It is fundamental for the primary driver to be clearly identified during the planning phase of the project.
- We used ROI diagnostic tool to solve the conflicts between team members.
- Forming stage is very important for good cooperation.
- The team needs to have consensus before moving on to the executive stage. : It is necessary for all relevant parties in the project to form some sort of agreement if the project is going to continue
- Project manager should identify risk to prevent major disruption.

Identify knowledge and skills gained from working on engineering team project:

- We know the whole process of managing a project.
- We know how to work as part of a team.
- We know approaches to generate consensus.
- Conflict resolution skills like using the RIU-ARIA tool kit.
- Risk management skills to identify and assess potential risks.
- Communication skills with team members including Active Listening.
- We can create a Hierarchical Work Breakdown Structure (WBS) to identify project tasks.

Recommend changes to improve engineering team project

1. It will be very helpful if there could be more background information available about the project to help team members to understand the project.
2. More timely feedback of the project documentation drafts will help project team to better learn the proper format of those document.

Implement Project Management

- What three PM tools or concepts would you most like to apply to a current or future project?
- What action steps will you take to do so?

Tools or Concepts to Apply	Actions to Take
The project triangle model	We must identify the primary and secondary drivers in the initiate phase of a project. When making decisions, we should refer to the identification of drivers. When requirements change, we should consider the impacts on the triangle.
The ROI Diagnostic	When a conflict occurs in a project team, we should use the ROI Diagnostic tool to identify the conflict's primary presenting level.
The level of risk is the multiplication of the probability of occurrence and the impact on the project.	When doing risk analysis, we can classify an event as a high, medium or low risk referring to the impact-probability chart. We should try to mitigate the high-level risks.

*** Project outcomes are shown below.**

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Procedure: NEEDLELESS VALVE CHANGE ON HUB OF CENTRAL CATHETER

Type:	Nursing Procedure Manual
Applicable to:	CHOP Enterprise-Wide
Process owner:	Vascular Access Service Program Coordinator
Effective Date:	2/25/2016
Supersedes:	5/19/2015
Approved by:	Review & Approval Committee for Nursing Standards and Procedures CLABSI/Catheter Care Committee
Document ID #:	6:2:b
Accountable for:	Anne C. Mohan RN, MSN, NEA-BC Senior Director, Nursing Practice, Safety, & Quality Patient Safety Officer, Patient Care Services

1 Purpose

To outline steps for the following:

- changing the needleless valve on the hub of a central catheter **without** crucial medications/fluids
- changing the needleless valve on the hub of a central catheter **with** crucial medications/fluids
- documenting the needleless valve change
- attempting to remove a stuck needleless valve

Although the needleless valve change kit is sterile to decrease contamination risk, this is considered a clean procedure.

2 Definitions

Term	Definition
Needleless valve	Neutral displacement end valve (current brand MicroCLAVE) that luer-locks onto the hub of a central catheter lumen.
Crucial medications or fluids	Medications or fluids that, if interrupted, will cause deterioration in the patient's status. For concerns or questions, consult pharmacy or a clinical resource nurse.

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Procedure: NEEDLELESS VALVE CHANGE ON HUB OF CENTRAL CATHETER

3 Procedure

Caution

- ***Routine needleless valve change is every 4 days.***
- *Prior to initiating the needleless valve change, check if needleless valve will loosen easily. If unable to loosen, follow the steps on page 6 in the section titled "Attempting to Remove a Needleless Valve that is Stuck".*
- ***Consult Vascular Access Nurse Specialist (IV Team) if:***
  - *The needleless valve does not loosen from the hub – **DO NOT** use hemostats.*
  - *The central catheter does not have a clamp.*
- *For patients with a 1.9 French double lumen PICC, re-connect the first lumen and infuse fluids prior to beginning the needleless valve change of the second lumen.*
- *For patient on both crucial and non-crucial medications/fluids, complete the cap change on the lumen(s) with the crucial medications/fluids first, and then proceed to the lumen(s) with the non-crucial medications/fluids.*
- *Home Care uses alcohol pads (not Site-Scrub devices).*

Preparation When Infusing Non-Crucial Medications or When Heparin Locked	
Required Action Steps	**Supplemental Guidance**
__1. Obtain needleless valve change kit (Item #85149), Site-Scrub device(s) (Item #80838) and size appropriate sterile gloves.	▪ Contents of needleless valve change kit includes: ○ Blue Wrap – 1 ○ Poly back lined towel (drape) 13" x 18" - 1 ○ Gauze 2" x 2" 4 ply – 4 ○ Large alcohol prep pad – 4 ○ Mask – 1 ○ Sterile saline flush syringe 3 mL – 2 ○ MicroClave connector - 2 ▪ If changing the needleless valves on a triple lumen catheter, obtain additional sterile gauze, flush syringe, and needleless valve (or it is acceptable to obtain another kit) and add to clean field at the appropriate time. ▪ If a needleless valve on any catheter lumen is heparin-locked, obtain a heparin flush syringe. Refer to Policy TX-11-02–Assessment & Management of Vascular Catheters or Job Aid - Heparin Flushing Guidelines for Central Venous Access Devices for appropriate heparin concentration.
__2. Perform hand hygiene.	▪ Refer to Procedure - Hand Hygiene.
__3. Identify patient.	▪ Refer to Procedure - Patient Identification.
__4. Perform hand hygiene.	
__5. Remove normal saline pre-filled syringes and needleless valve change kit from sealed plastic bag.	
__6. Open kit.	
__7. Remove and don mask.	▪ Masks should be worn by all people completing or observing the needleless valve change. To avoid

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Procedure: NEEDLELESS VALVE CHANGE ON HUB OF CENTRAL CATHETER

	introduction of respiratory secretions, have patient wear a mask or turn his/her head away from the catheter.
__8. Perform hand hygiene.	
__9. Remove blue wrapped package and open to create a clean field.	▪ Empty kit will be the designated "dirty" area. ▪ Do not place used supplies back onto clean field.
__10. Open and drop saline flush syringes onto clean field.	▪ When dropping syringe(s), avoid contact with needleless valves.
__11. Clamp central line catheter at reinforced (i.e., thickened or colored) area.	▪ If the catheter has a T-connector attached, clamp the T-connector.
__12. Open package and remove wrapped sterile gloves.	▪ Set wrapped gloves on clean surface.
__13. Perform hand hygiene.	
__14. Don sterile gloves.	
__15. Open at least one alcohol prep pad per lumen onto clean field.	

Removal/Replacement of Needleless Valve – Non-Crucial Medications Infusing or Heparin Lock	
Required Action Steps	**Supplemental Guidance**
__16. Prime a needleless valve for each lumen.	▪ Attach saline flush syringe to needleless valve. After attaching, pull back plunger of syringe slightly to break suction and increase ease of flushing. ▪ Inject flush solution until fluid is seen at the end of the blue protective cap. ▪ Place needleless valve on clean field with syringe attached.
__17. Open drape to desired size.	
__18. Using clean technique, lift the catheter lumen(s) with a 2 x 2 gauze using non-dominant hand and pick up the drape at a corner with your dominant hand. Place underneath and center catheter lumen(s) on drape.	
__19. Hold one catheter lumen with non-dominant hand using a 2 x 2 gauze.	▪ Allow other catheter lumen(s) to rest on drape.
__20. Scrub where the catheter and needleless valve connect with an alcohol pad for 15 seconds.	
__21. Allow to dry completely (at least 15 seconds).	
__22. Remove the needleless valve from the catheter hub and discard valve and alcohol pad.	▪ If the outside of the catheter hub remains visibly soiled, scrub for 15 seconds with a new alcohol pad and allow to dry completely. Be careful not to introduce alcohol or debris into the catheter lumen.
__23. Remove blue protective cap on the end of the primed needleless valve.	▪ Overfill catheter hub before attaching needleless valve if needed per patient population (e.g., cardiac patient).
__24. Attach new needleless valve onto hub of catheter lumen.	▪ Do not over tighten.
__25. Release clamp on catheter.	

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Procedure: NEEDLELESS VALVE CHANGE ON HUB OF CENTRAL CATHETER

__26. Flush catheter with attached normal saline syringe.	
__27. Clamp catheter and remove flush syringe.	
__28. Wick away any excess fluid within the luer lock connection using gauze or alcohol pad.	▪ This helps prevent the cap from sticking to the hub. 
NOTE: If there are multiple catheter lumens, repeat steps 19 – 28 for each lumen, then proceed with steps 29 and 30. If the patient has a 1.9 French double lumen PICC, follow steps 19-30 for each lumen, (e.g., begin infusing fluids in the first lumen prior to beginning the needleless valve change of the second lumen.)	
__29. Scrub the needleless valve with the Site-Scrub device for 15 seconds and allow to dry completely (at least 15 seconds).	
__30. Connect IV fluids/medications to the needleless valve or heparin-lock the catheter lumen.	▪ Complete IV Line/Pump Check as per Procedure - Checking a Medication before Administration or Performing a Two Clinician Independent Check before Administering High Alert Medications.
__31. See below for documentation requirements.	

Preparation When Infusing Crucial Medication(s)/Fluid(s)	
Required Action Steps	**Supplemental Guidance**
__1. Obtain needleless valve change kit (Item #85149), an additional needleless valve for each lumen and size appropriate sterile gloves.	▪ Refer to step 1 under non-crucial meds for contents of needleless valve change kit. ▪ If changing the needleless valves on a triple lumen catheter, obtain additional sterile gauze and add to clean field at appropriate time. ▪ If a needleless valve on any catheter lumen is heparin-locked, obtain a heparin flush syringe. Refer to Policy TX-11-02-Assessment and Management of Vascular Catheters Job Aid - Heparin Flushing Guidelines for Central Venous Access Devices for appropriate heparin concentration.
__2. Perform hand hygiene.	▪ Refer to Procedure - Hand Hygiene.
__3. Prepare new tubing set-up and attach needleless valve to distal end of new tubing. For large volume medications prime the tubing with the crucial medication/fluid. For small volume medications see step 5.	
__4. Place new set-up on appropriate pump.	
__5. For small volume medications, prime the tubing with the crucial medication/fluid using the "Prime" feature on the syringe pump module.	▪ Refer to Procedure 6:5:c CareFusion Alaris: Syringe Pump Module and Job Aid - Programming a Continuous Medication Infusion (CMI) via CareFusion Syringe Pump Module.
__6. Perform hand hygiene.	
__7. Identify patient.	▪ Refer to Procedure - Patient Identification.
__8. Remove needleless valve change kit from sealed	

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plastic bag.	
__9. Open kit.	
__10. Remove and don mask.	▪ Masks should be worn by all people completing or observing the needleless valve change. To avoid introduction of respiratory secretions, have the patient wear a mask or turn his/her head away from the catheter.
__11. Perform hand hygiene.	
__12. Remove blue wrapped package and open to create a clean field.	▪ Empty kit will be the designated "dirty" area. ▪ Do not place used supplies back onto clean field.
__13. Open package and remove wrapped sterile gloves.	▪ Set wrapped sterile gloves on clean surface.
__14. Perform hand hygiene.	
__15. Remove and don sterile gloves.	
__16. Open at least one alcohol prep pad per lumen onto clean field.	

Removal/Replacement of Needleless Valve - Crucial Medication(s)/Fluid(s) Infusing	
Required Action Steps	**Supplemental Guidance**
__17. Open drape to desired size.	
__18. Using clean technique, lift the catheter lumen(s) with a 2 x 2 gauze using non-dominant hand and pick up the drape at a corner with your dominant hand. Place underneath and center catheter lumen(s) on drape.	
__19. Use a 2 x 2 gauze to grasp the newly primed needleless valve along with attached prepared tubing and place on a corner of the drape.	
__20. Hold one catheter lumen with non-dominant hand using a 2 x 2 gauze and scrub where the catheter and needleless valve connect with an alcohol pad for 15 seconds.	▪ Allow other catheter lumen(s) to rest on drape.
__21. Allow to dry completely (at least 15 seconds).	
__22. Use a 2 x 2 gauze to clamp central line catheter at reinforced (i.e., thickened or colored) area. 	▪ If the catheter has a T-connector attached, clamp the T-connector.
__23. Remove the needleless valve from the catheter hub and discard valve with old tubing.	▪ If the outside of the catheter hub remains visibly soiled, scrub for 15 seconds with a new alcohol pad and allow to dry completely. Be careful not to introduce alcohol or debris into the catheter lumen.
__24. Remove blue protective cap on primed needleless valve and attach the needleless valve to catheter lumen. Do not over tighten needleless valve.	▪ For certain patient populations (e.g., cardiac patient), consider overfilling catheter hub before attaching needleless valve by running crucial med/fluid into hub.

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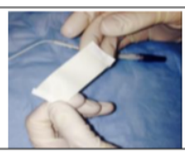
Procedure: NEEDLELESS VALVE CHANGE ON HUB OF CENTRAL CATHETER

__25. Release clamp on catheter lumen.	
__26. Infuse crucial medication(s)/fluid(s).	▪ Complete IV Line/Pump Check as per Procedure Checking a Medication before Administration or Performing a Two Clinician Independent Check before Administering High Alert Medications.
__27. Wick away any excess fluid within the luer-lock using gauze or alcohol pad.	▪ To help prevent the cap from sticking to the hub. 
__28. Discard gloves and perform hand hygiene.	

Documentation	
Required Action Steps	**Supplemental Guidance**
__1. Document the following in the Electronic Health Record (EHR): ▪ Vascular Access Flowsheet ○ Date needleless valve changed ○ Next needleless valve change due ▪ Care Plan– Any patient specific information about the needleless valve change plan ▪ Progress note – Any problems encountered and actions taken	

Attempting to Remove a Needleless Valve that is Stuck on the Hub of a Central Catheter	
Caution *If needleless valve becomes stuck on hub of central catheter, the needleless valve will need to be loosened prior to changing it. The RN may attempt to loosen the needleless valve prior to initiating the needleless valve change by completing the following steps.* ***If the needleless valve does not loosen from hub, consult Vascular Access Nurse Specialist (IV Team) for assistance with needleless valve removal.***	
Required Action Steps	**Supplemental Guidance**
__1. Perform hand hygiene.	▪ Refer to Procedure - Hand Hygiene.
__2. Don procedure gloves.	
__3. Tear two pieces of white adhesive tape approximately 3 inches long.	
__4. Fold over 1/8 inch courtesy tabs on both pieces of white adhesive tape.	

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Procedure: NEEDLELESS VALVE CHANGE ON HUB OF CENTRAL CATHETER

__5. Wrap one piece of tape around the catheter below the connection site and wrap the second piece of tape around the existing needleless valve.	▪ White adhesive tape increases traction at the site where the needless valve connects to the catheter.  
__6. Attempt to unscrew the needleless valve.	▪ If the needleless valve loosens, do not remove the valve. Remove tape and proceed with needleless valve change.

4 Related Documents

Document Type	Document Name
Policy	TX-11-02 Assessment and Management of Vascular Access Catheters
Procedures	Hand Hygiene Patient Identification Checking a Medication before Administration Performing a Two Clinician Independent Check before Administering High Alert Medications 6:3:a Flushing a Venous Catheter 6:5:c CareFusion Alaris: Syringe Pump Module
Resources	Vascular Access Nurse Specialist (IV Team) • All units day shift, Monday – Friday: Contact unit specific beeper • N/IICU, PICU, and CICU evening shift, Monday – Friday: Contact unit specific beeper • All units any other time: Contact Beeper #10579

*** Line Change Audit Tool – "RedCap" Outcomes are shown below.**

CHOP
Department of Biomedical and Health Informatics (DBHi)

Central Line Change Audit Tool

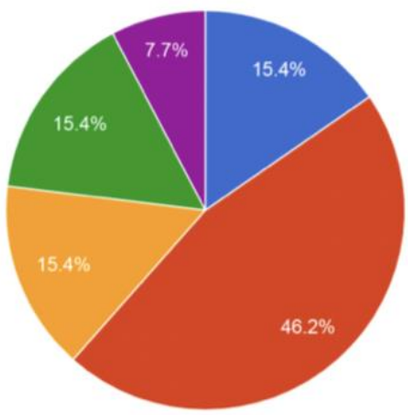
Data Exports, Reports, and Stats

All data (all records and fields)

How long have you worked in the N/IICU at CHOP?

Total Count (N)	Missing	Unique
13	0 (0.0%)	5

Counts/frequency: <1 year (2, 15.4%), 1-3 years (6, 46.2%), 3-5 years (2, 15.4%), 5-10 years (2, 15.4%), >10 years (1, 7.7%)

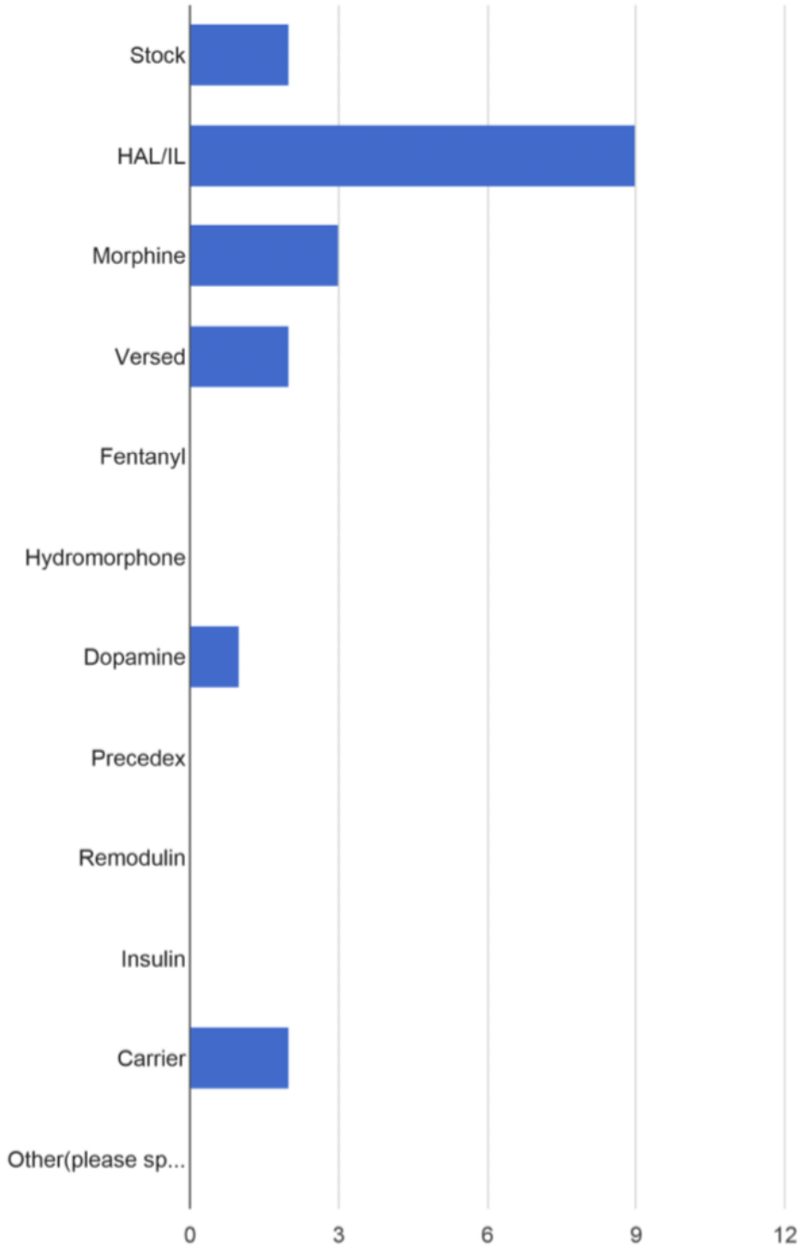


Download image

What fluids are being changed? (check all that apply)

Total Count (N)	Missing	Unique
13	0 (0.0%)	6

Counts/frequency: Stock (2, 15.4%), HAL/IL (9, 69.2%), Morphine (3, 23.1%), Versed (2, 15.4%), Fentanyl (0, 0.0%), Hydromorphone (0, 0.0%), Dopamine (1, 7.7%), Precedex (0, 0.0%), Remodulin (0, 0.0%), Insulin (0, 0.0%), Carrier (2, 15.4%), Other(please specify) (0, 0.0%)



If other, please specify:

Total Count (N)	Missing

0	13 (100.0%)

Start time (when first package is opened)

Total Count (N)	Missing
12	1 (7.7%)

Finish time (when pumps are restarted and fluids are infusing)

Total Count (N)	Missing
11	2 (15.4%)

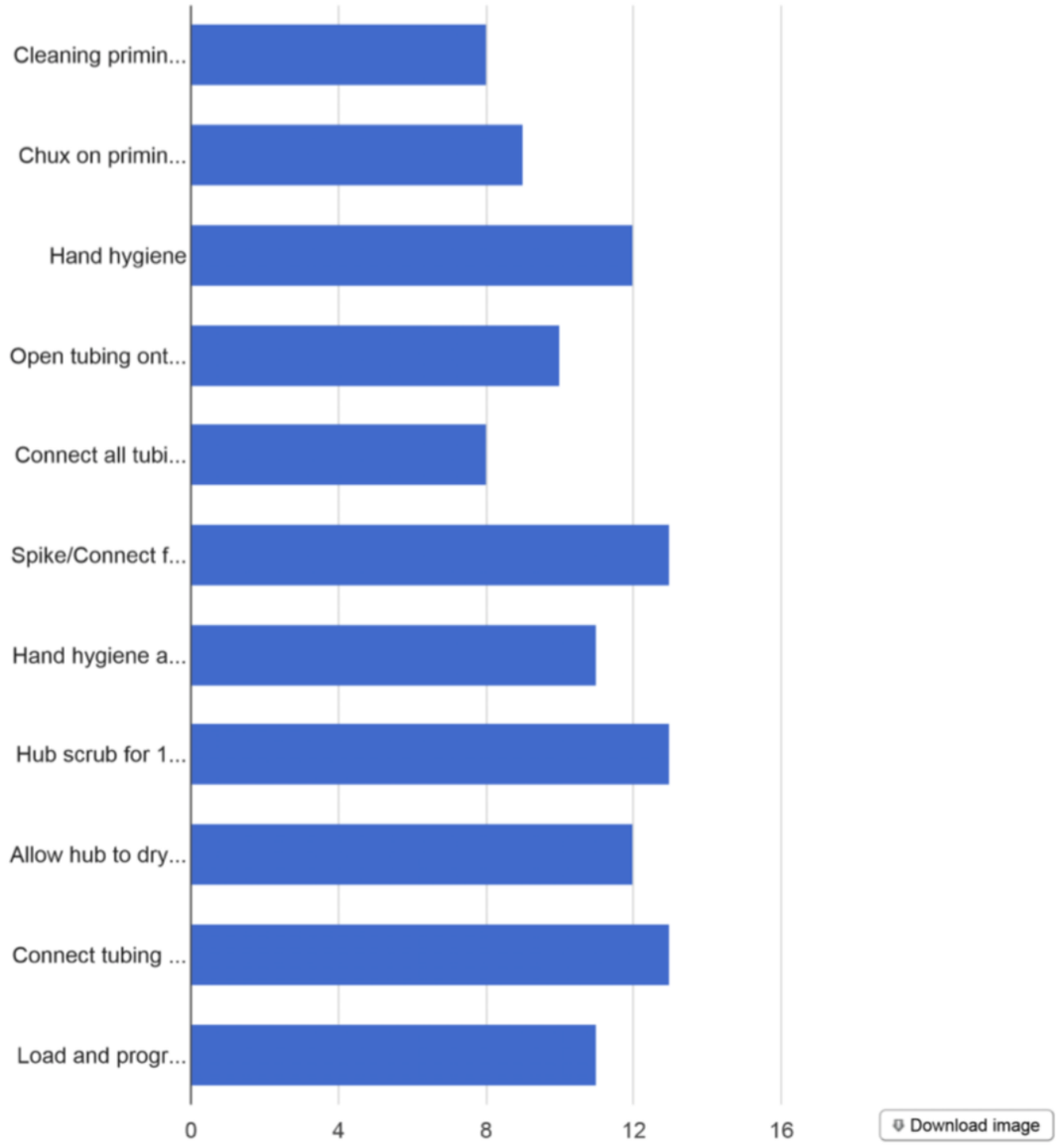
Other time notes:

Total Count (N)	Missing
4	9 (69.2%)

Which of the following were implemented during the line change:

Total Count (N)	Missing	Unique
13	0 (0.0%)	11

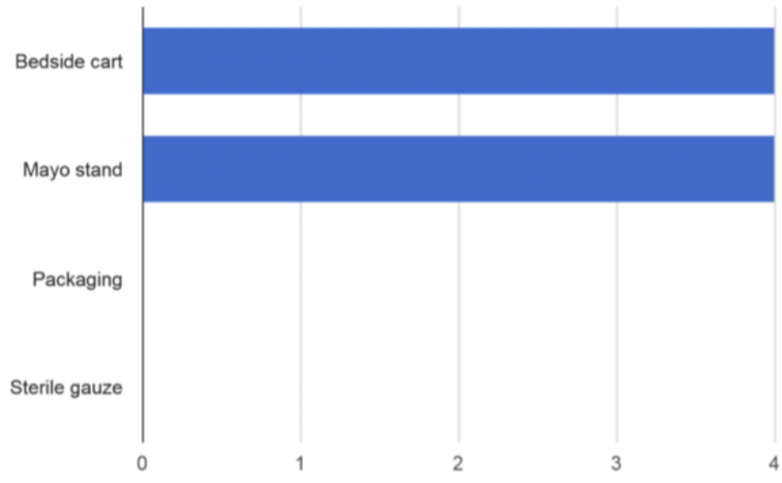
Counts/frequency: Cleaning priming surface prior to placing chux (8, 61.5%), Chux on priming surface (9, 69.2%), Hand hygiene (12, 92.3%), Open tubing onto clean surface (10, 76.9%), Connect all tubing together (8, 61.5%), Spike/Connect fluid and prime through end of tubing (13, 100.0%), Hand hygiene and don gloves (11, 84.6%), Hub scrub for 15 seconds (13, 100.0%), Allow hub to dry for 15 seconds (12, 92.3%), Connect tubing to patient (13, 100.0%), Load and program pumps (if patient on infusions, this step should take place prior to connecting tubing to patient) (11, 84.6%)



What type of priming surface was used?

Total Count (N)	Missing	Unique
8	5 (38.5%)	2

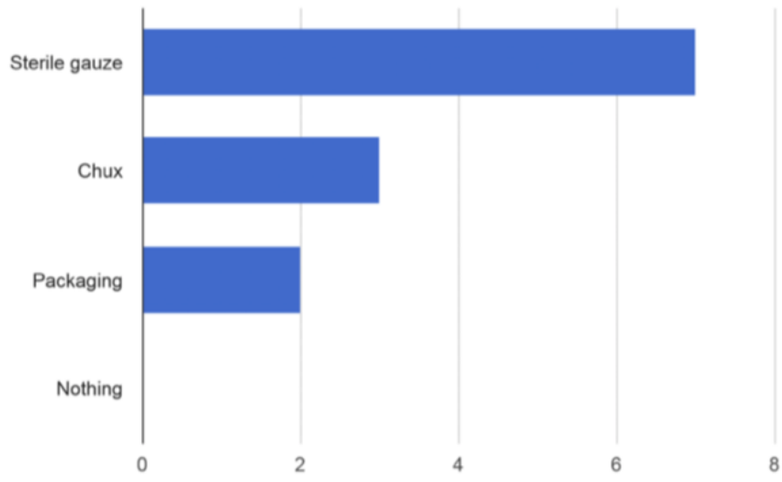
Counts/frequency: Bedside cart (4, 50.0%), Mayo stand (4, 50.0%), Packaging (0, 0.0%), Sterile gauze (0, 0.0%)



What is the RN priming fluids into?

Total Count (N)	Missing	Unique
12	1 (7.7%)	3

Counts/frequency: Sterile gauze (7, 58.3%), Chux (3, 25.0%), Packaging (2, 16.7%), Nothing (0, 0.0%)

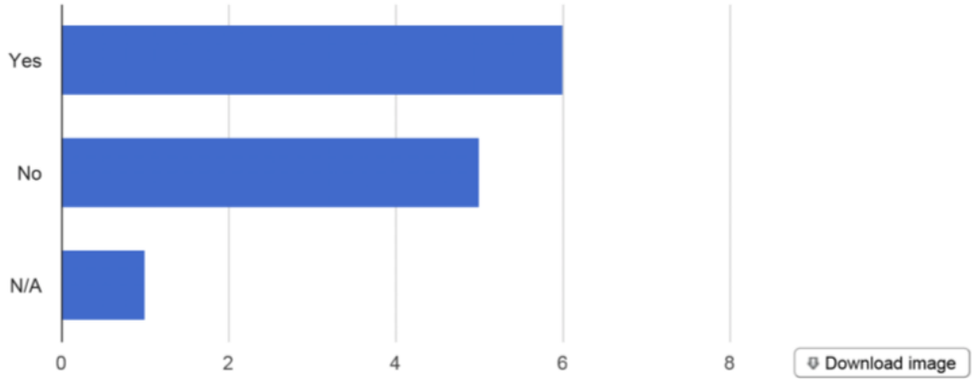


Were the steps done in the order listed above?

Total Count (N)	Missing	Unique

12	1 (7.7%)	3

Counts/frequency: Yes (6, 50.0%), No (5, 41.7%), N/A (1, 8.3%)



Any other observations/comments?

Total Count (N)	Missing
7	6 (46.2%)

Complete?

Total Count (N)	Missing	Unique
13	0 (0.0%)	1

Counts/frequency: Incomplete (0, 0.0%), Unverified (0, 0.0%), Complete (13, 100.0%)