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Pilot of a Randomized Trial Comparing Outcomes of Three Types of Peripheral Intravenous Catheters (PIVC): Utilizing the Plan, Do, Study, Act (PDSA) Cycle

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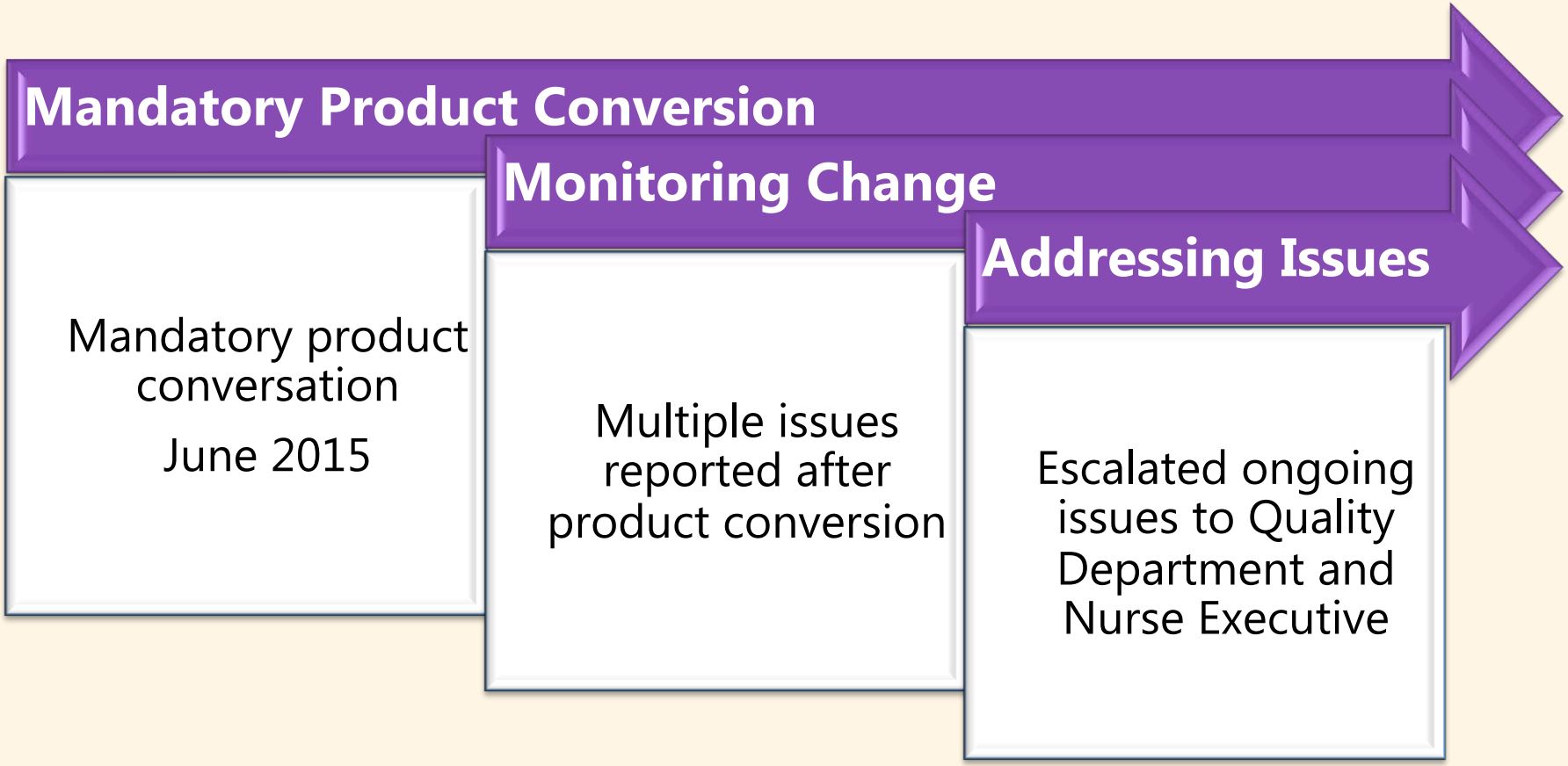
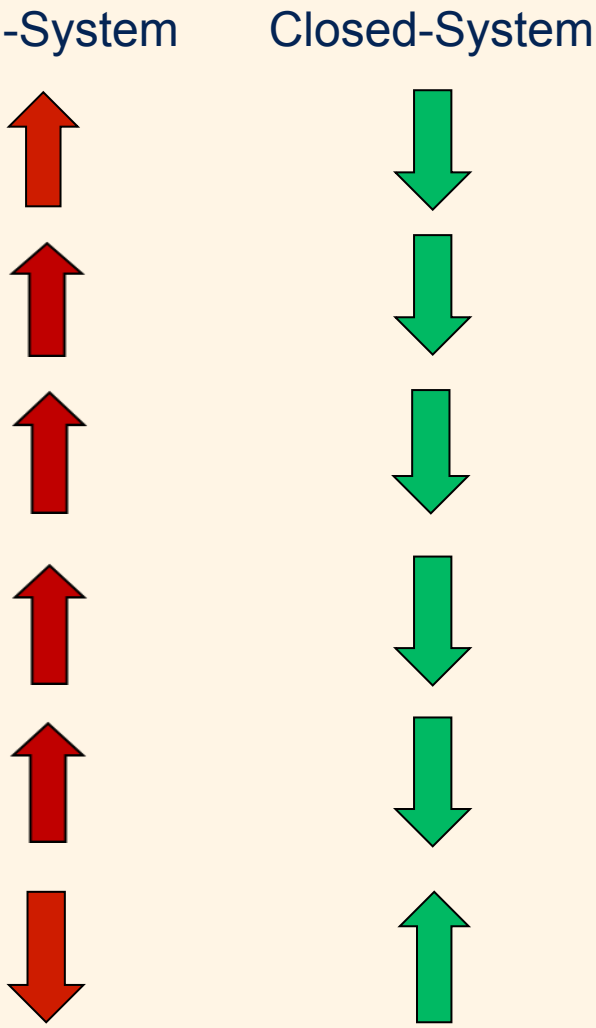
Objectives

1. Identify clinical events leading up to pilot design.
2. Describe pilot design, results, and lessons learned.
3. Understand how a Doctorate of Nursing Practice student led an interdisciplinary team through the process of designing a randomized controlled trial.

Introduction: Problem Identification



Review of Literature



***Phlebitis** (González et al, 2013)

***Infection** (González et al, 2013)

Blood Exposure

(Richardson et al, 2011) (Delisio, 2012)

***Unplanned Reinsertions**

(Tamura et al, 2014)

***Complications** (Bausone-Gazda et al, 2010)

***Dwell Time** (González et al, 2013)

*Studied with an integrated closed system with stabilization platform

Problem Statement

- There is no clinical trial evaluating the Insyte Autoguard ™ (open PIVC) in comparison to the Saf-T Intima ™ and Nexiva ™ (closed PIVCs)
- There is no clinical trial evaluating these PIVCs in terms of **patient satisfaction**, **complications of care**, and **cost**; making it difficult to ascertain which of the three PIVC systems are best for patients.

Pilot Guiding Model

PLAN

- ✓ Establish Workgroup
- ✓ Literature Review
- ✓ Study Design
- ✓ Resource Allocation
- ✓ IRB Approval

DO

- ✓ Implement trial of randomized control trial (RCT)
- ✓ Pilot Data Collection

STUDY

- ✓ Descriptive & Content Analysis

ACT

- ✓ Process adjustments for continuation of larger RCT

Pilot Results

Table 1. Pilot Quantitative Descriptive Results

	(n)	(%)
Clinician Training	**16**	-
Inserting	9	56%
Consenting	7	44%
Enrollment	**35**	-
Saf-T Intima ™	9	26%
Insyte Autoguard ™	7	20%
Nexiva ™	19	54%
Complications	**6**	**17%**
Unsuccessful Insertion	2	6%
Decline to Consent	1	3%
Unplanned Reinsertion	3	9%
Missing Data	**20/980**	**2%**
Electronic Health Record Data	6/140	4%
Clinician Questionnaire Data	4/770	1%
Patient Questionnaire Data	10/70	14%

Pilot Lessons Learned & Clinical Implications

Lessons Learned	Clinical Implications
Slower than expected enrollment	✓ Second training arranged to engage more clinicians
	✓ Every 36-bed unit should train (2) inserting clinicians and (1) consenting clinician
Few returned Patient Questionnaires	✓ Utilize patient room whiteboards and magnets to increase returned documents
	✓ Weekly rounding to reinforce importance of returned documents
Pilot informed recommended changes for larger RCT	✓ Framework for future Content Analysis was developed
	✓ Avoid areas where consent process may delay care
	✓ Engage with leadership in planning phase to help with communication and resource allocation

References

Bausone-Gazda D., Lefaiver C., Walters S. (2010). A randomized controlled trial to compare the complications of 2 peripheral intravenous catheter-stabilization systems. *Journal of Infusion Nursing*, *33*(6), 371-384. doi: 10.1097/NAN.0b013e3181f85be2

Centers for Disease Control and Prevention. (2003). Exposure to blood: What healthcare providers need to know. Retrieved from http://www.cdc.gov/HAI/pdfs/bbp/Exp_to_Blood.pdf

Centers for Disease Control and Prevention. (2011). Guidelines for the prevention of intravascular catheter-related infection. Retrieved from http://www.cdc.gov/hicpac/BSI/BSI-guidelines-2011.html

Delisio N. (2012). Bloodborne infection from sharps and mucocutaneous exposure: A continuing problem. *American Nurse Today*, *7*(5), 33-38. Retrieved from www.americannursetoday.com

Bowen, D.J., Kreter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D.,…Fernandez, M. (2009). How we design feasibility studies. *American Journal of Preventative Medicine*, *36*(5), 452-457. doi: 10.1016/j.amepre.2009.02.002

González López, J.L., Vilela A.A., Fernandez del Palacio, E., Corral, J.O., Marti, C.B., & Portal P.H. (2013). Indwell times, complications and costs of open vs closed safety peripheral intravenous catheters: A randomized study. *Journal of Hospital Infection, 86*(2014), 117-126. http://dx.doi.org/10.1016/j.jhin.2013.10008

IHI. (2016). PDSA cycle worksheet. *Institute for Healthcare Improvement.* Retrieved from http://www.ihi.org/resources/pages/tools/plandostudyactworksheet.aspx

Infusion Nurses Society. (2011). Infusion nursing standards of practice. *Journal of Infusion Nursing*, *34*, S46-S47. Retrieved from www.journalofinfusionnursing.com

Infusion Nurses Society. (2016). Infusion therapies standards of practice. *Journal of Infusion Nursing, 39*(1), 13-14. doi: 10.1097/NAN.0000000000000156

References

Infusion Nurses Society. (2016). Policies and procedures for infusion therapy. *Infusion Nurses Society* (5th ed). Retrieved from https://www.learningcenter.ins1.org/products/infusion-therapy-standards-of-practice-crosswalk-20112016

Melnyk, B.M. & Fineout-Overholt, E. (2011). Evidence-based practice in nursing & healthcare: A guide to best practice (2nd ed). Philadelphia, PA: Lippincott Williams & Wilkins.

Richardson, D. & Kaufman, L. (2011). Reducing blood exposure risks and costs associated with SPIVC insertion. *Nursing Management, 42*(12), 31-34. doi:10.1097/01.NUMA.0000407577.64066.4b

Rickard C.M., Marsh N., Webster J., Playford, E.G., McGrall, M.R., Larsen, E.,...Fraser, J.F, (2015). Securing all intravenous devices effectively in randomized patients—the SAVE trial: Study protocol for a randomized controlled trial. *BMJ Open*, *5*(9), e008689. doi:10.1136/bmjopen-2015-008689

Tamura, N., Abe, S., Hagimoto, K., Kondo, A., Matsuo, A., Ozawa, Y.,…Tomaru, T. (2014). Unfavorable peripheral intravenous catheter replacements can be reduced using an integrated closed intravenous catheter system. *Journal of Vascular Access*, *14*(4), 257-263. doi: 10.5301/jva.5000245

Vittinghoff, E., & McCulloch, C.E. (2007). Relaxing the rule of ten events per variable in logistic and cox regression. *American Journal of Epidemiology*, *165*(6), 710–718. http://doi.org/10.1093/aje/kwk052

Questions?

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