



Evidence-Based Implementation of a Closed Peripheral Intravenous (PIV) Catheter System

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Background

Evidence has shown that a closed peripheral IV (PIV) catheter system has a lower incidence of blood borne pathogen (BBP) exposure, needle stick injury, phlebitis, infection and is more stable than open peripheral IV catheter systems. As such, this topic was proposed as an evidence-based practice (EBP) project due to the generated interest among various disciplines to measure pertinent outcomes. Currently, there is an inconsistency and lack of standardization in the usage of the open versus closed PIV catheter system at Landstuhl Regional Medical Center (LRMC) as both are available in the supply system.

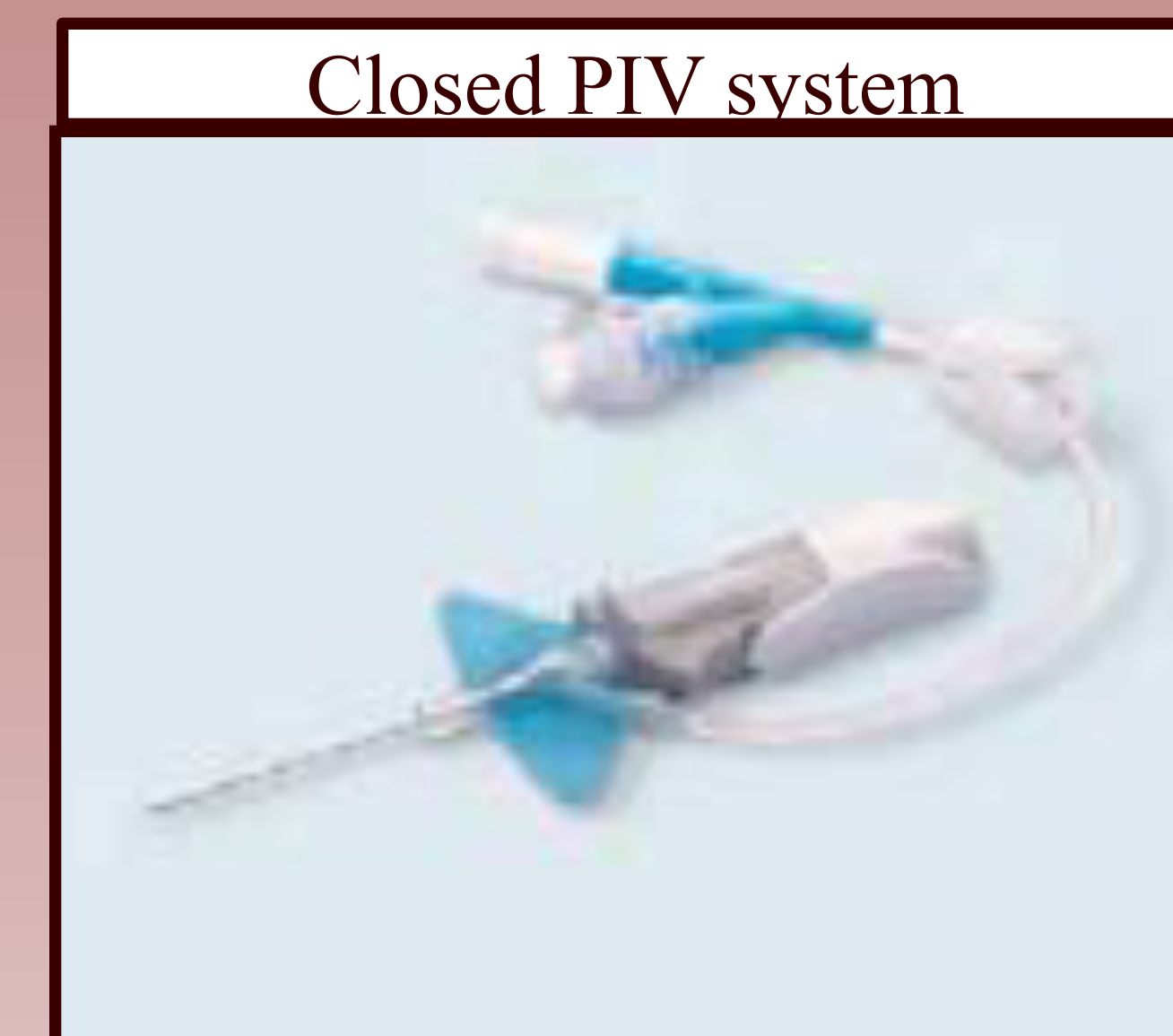
Purpose

On a Medial Surgical, inpatient ward, how will the use of a closed PIV catheter system compared to current practice of an open PIV system:

- decreased incidence of blood-borne pathogen (BBP) exposure
- decreased needle stick injuries
- decreased incidence of infection
- increased dwell time
- greater stabilization compared to open PIV catheter systems

Method

- Followed the steps of the **Iowa Evidence Based Practice Model**
 - Formed a **team** consisting of a team leader, four staff nurses, a medic, and an infection control nurse
 - Performed a **literature search** and a **critique** of the identified articles that supported standardized use of closed PIV systems
 - Initiated a **pilot study** on one inpatient medical surgical ward:
 - ❖ Collected **baseline data** while staff exclusively used the **open PIV system**
 - ❖ **Trained staff** to use the closed PIV system
 - ❖ Instituted a 2 week “**washout**” **period** during which staff exclusively used the closed PIV system prior to collecting outcome data
 - ❖ **Outcome data** will be collected for the closed PIV system to compare with baseline data



References

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Results

- Baseline data collected for open PIV system:
 - Ease of Use
 - Average of 1.6 attempts (+0.8)
 - Dwell Time
 - Average of 1.7 days (± 0.9 days)

Restart Reason	Frequency	Percent
New Start	11	32
Infiltrated	11	32
Leaking	1	3
Redness/itchiness	1	3
Patient pulled out	4	12
Poor positioning	2	6
Expired	4	12
Total	34	100

	Frequency	Percent
Loose	3	9
Secure	12	35
Very Secure	17	50
Total	32	94

Insertion	Frequency
Very Easy	15
Easy	11
Neutral	2
Difficult	5
Total	33

Nursing Implications

The closed PIV catheter system was approved and standardized by the Landstahl Regional Medical Center (LRMC) inpatient medical-surgical wards and enhance staff and patient safety by decreasing occupational and community health risk by 80%.