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# **CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTION AND BLOOD DRAWING PRACTICES IN AN ADULT HOME PARENTERAL NUTRITION POPULATION WITH TUNNELED CATHETERS**

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# INTRODUCTION

- Long term Home Parenteral Nutrition (HPN) is often administered through a tunneled central venous catheter (CVC)
- A significant complication of HPN is Central Line Associated Bloodstream Infection (CLABSI)



# LAB MONITORING

- Necessary for safe management of HPN
- Blood is collected from peripheral venipuncture (PV) or CVC lumen



# TUNNELED CVC BLOOD DRAWS

- CVC blood draws are chosen when:
  - Poor peripheral venous access
  - Needle phobia
  - Excessive pain with venipuncture
  - Patient convenience
- CVC blood may be drawn in the home, outpatient clinic, or MD office
- CVC blood may be drawn by the patient, family caregiver, home health nurse, office/clinic nurse



# AIM OF STUDY

- Compare CLABSI rates between CVC blood draw and peripheral venipuncture
- Compare CLABSI rates associated with the person drawing the CVC blood



# METHODS

- **Data collection period** January 2005 – December 2013
- Retrospective data collected by medical record review
- Adult HPN patients with tunneled CVC in place for at least 720 CVC days
- One home infusion pharmacy



# METHODS

- Demographic data
  - Age
  - Sex
  - Diagnosis
  - Infusion days per week
- Total and individual CVC days
- Corresponding CLABSI incidents per 1000 CVC days
  - Defined as presence of symptoms, positive blood cultures by peripheral and/or CVC sample
  - Same organism cultured within 30 days counted as same episode
- 2 Groups established
  - Venipuncture = 68 patients
  - CVC draw = 40 patients
    - Self
    - Clinic/MD Office
    - Home Health Nurse
    - Family Caregiver





# RESULTS

## TOTAL POPULATION

- Total number of patients n=108
- Tunneled CVC days = 278,635
- CLABSI n=210
- CLABSI Rate = 0.75/1000 CVC days



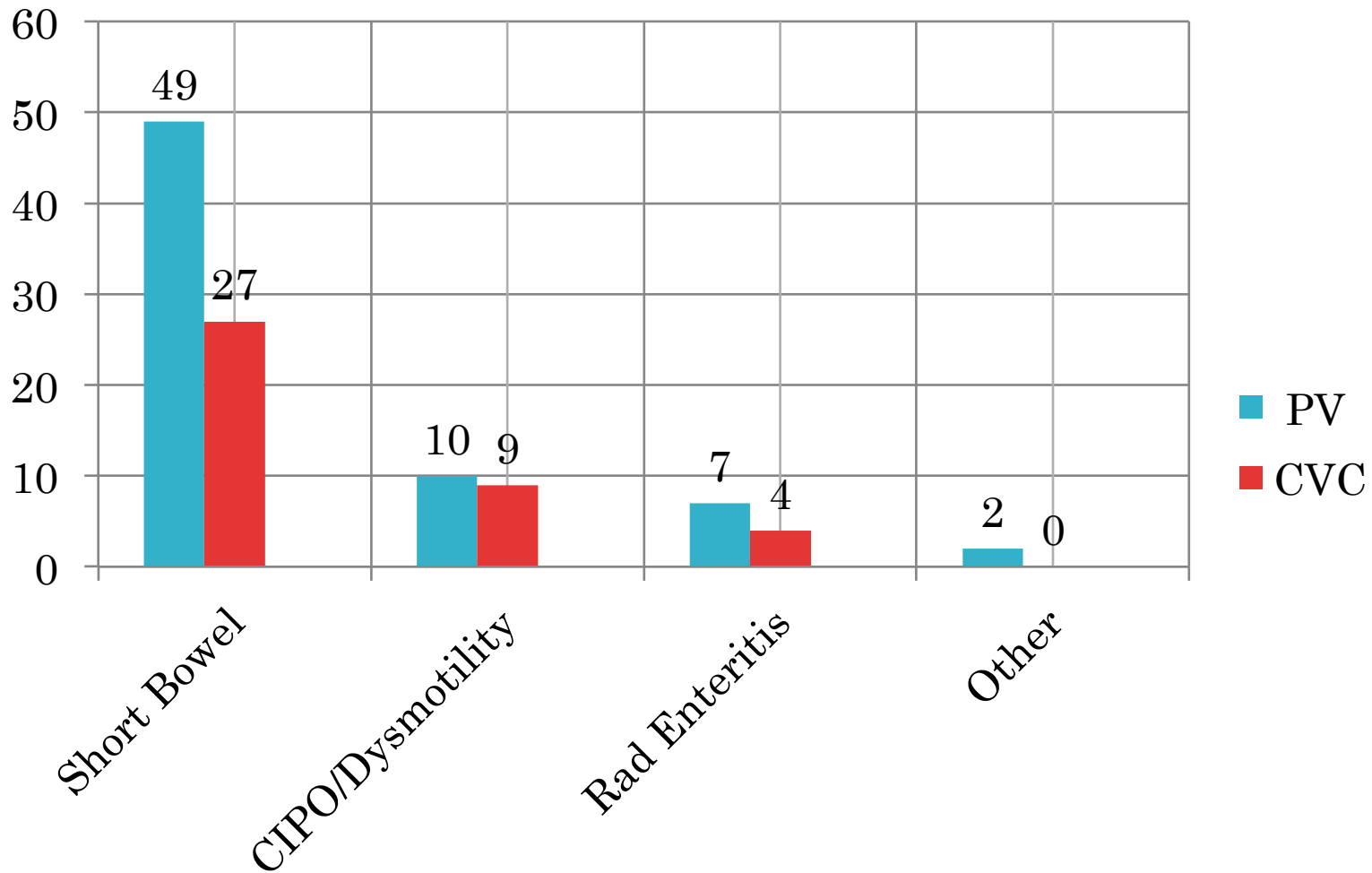
# RESULTS

## DEMOGRAPHICS

Group	Age	Sex (Female)	HPN Days/Wk
PV = 68	59 (29-86)	63%	6-7 = 82.5 % 4-5 = 17.5% <4 = 0.0%
CVC = 40	56 (23-89)	80%	6-7 = 78% 4-5 = 17.6% < 4 = 4.4%



# DIAGNOSIS



# RESULTS

## CLABSI

Group	CLABSI Incidents	CVC days	CLSBSI Rate/1000 CVC Days
PV = 68	118	181,650	0.65/1000 Range: 0/1000 -3.2/1000
CVC = 40	92	96,985	0.95/1000 Range: 0/1000-6.7/1000



# RESULTS

## CVC DRAWS

Who Draws?	Patients(n)	CLABSI Incidents	CVC days	CLABSI Rate/ 1000 CVC Days
Self	13	13	35,499	0.37/1000
Clinic/MD office	11	17	27,246	0.62/1000
Home Health RN	10	30	21,792	1.37/1000
Family Caregiver	6	32	12,448	2.57/1000



# CONCLUSIONS

- CVC blood draws have a clinically significant increased CLABSI rate compared to PV blood draws
- Self blood draws have the lowest incidence of CLABSI (0.37/1000) in the CVC draw group
  - HPN patient is the guardian of their CVC and will be the most meticulous with their own care
- Clinic/MD office have the second lowest CLABSI rate (0.62/1000) in the CVC draw group
  - Infusion clinic nurses are familiar with CVC care
  - Consistent nurse



# CONCLUSION

- Home Health nurses have the third highest CLABSI rate (1.37/1000)
  - Travel patient to patient in multiple of home environments
  - Variability of nurses staffed to one case
- Family caregivers have the highest CLABSI rate (2.57/1000) in the CVC draw sub-group. WHY ??
  - Too relaxed with home routine?



# RECOMMENDATIONS

- HPN patients should closely scrutinize CVC care techniques with their CVC manipulations
  - Voice concerns when uncomfortable with caregiver technique
- Ongoing education and review of aseptic technique is vital for all HPN caregivers
- Blood drawing practices should be part of a total CLABSI incidence assessment for HPN patients.
- More investigation is needed to identify strategies to reduce CLABSI in the HPN population





## STUDY LIMITATIONS

- CLABSI is a complex complication and other risk factors may have contributed to the CLABSI rate
- CVC draw subgroups were small

*Thank you!*

