Purpose

• Nearly 200 million peripheral intravenous (PIV) catheters are used annually in the US. PIV-associated complications such as bloodstream infection (BSI) are currently under-evaluated.
• The purpose of this study was to estimate the clinical and economic impact of PIV-associated complications on hospitalized patients.

Methods

Study design

• Retrospective Database Analysis
• 2-year period, from July 2013 to June 2015

Inclusion criteria

• Patients having 1 of 7 primary diagnoses unlikely to cause a complication of interest: Congestive heart failure (CHF), chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD), diabetes mellitus with complications (DM), myocardial infarction (MI), pneumonia, and major trauma.

Statistical analysis

• Multivariate analyses compared length of stay (LOS), cost, admission to ICU, and discharge status for patients by PIV complication status.
• A large patient population allows for a powered statistical analysis (n=588,375)

Results

Overall 1.8% of patients (n=10,354) had a PIV-associated complication, and rates varied by primary diagnosis: pneumonia (2.67%) to COPD (0.98%).

BSI was the most common complication (1.45% of included patients, or 82.2% of all complications) and ranged from 2.46% (pneumonia) to 0.67% (CKD).

Patients with a complication were more likely to be admitted to the ICU (20.4% vs 11.0%), less likely to be discharged home (62.4% vs 77.6%), and more likely to have died (3.6% vs 0.7%) (P<0.001 for all).

Conclusion

Patients with PIV-associated complications have longer LOS, higher costs, and greater risk of death than patients without.
What is the Premier database?
- One of the largest, statistically certified hospital databases in the world
- Covers more than 700 US hospitals and approximately 6 million (20% of all) US inpatient hospital discharges annually

Why was this database used?
- Used in over 350 peer-reviewed publications
- Contains real-world data on hospital resource use, costs, outcomes, and patient/hospital demographics^4^
- Results can be generalized to a broad hospital market

What is multivariate analysis?
- Analyzes data that arise from more than one variable.

Insertion of an IV catheter is an invasive procedure that introduces multiple risks and potential morbidities, and even mortality, and should be given the respect that it deserves.\(^5\)