Abstract #: 304 **Presented by: Aiysha Ansari, MD, Resident**

Comparing Visual vs. Microscopic Methods to Detect Blood Splatter from Intravascular Catheters (IVC) with Engineered Sharps Injury Protection (ESIP)

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Keywords: Blood splatter, Filter, Bloodborne pathogen, Chamber, Microscope, Intravascular, catheter

Objective: Retractable intravascular catheters (RIVCs) with ESIP have not been investigated for blood splatter potential. Research questions were: do RIVCs produce blood splatter, and does splatter frequency differ between visual methods vs. microscopy?

Methods: 100 RIVCs of the same brand were placed in a testing chamber with scientific filters labeled A, B & C, to capture blood spatter after activation in a simulated brachial venous system. Differences in filter mass, visual and microscopic analysis for blood were the units of analysis. Descriptive statistics, paired t-tests and kappa statistics were used for data analysis.

Results: The proportions of filters B and C with blood detected by the naked eye were 12% and 13% respectively. But for filter A, visual vs. microscopic methods detected blood 70% and 71% respectively. A statistically significant difference was observed in mean mass of filter A between pre- and post-activation confirmed visually (t= - 0.0013, p= 0.01400) and microscopically (t= - 0.00014, p= 0.0092). Kappa statistics indicated substantial agreement between methods for filters A, B and C. However, in 6 instances (6%), blood was detected by microscopy and not by the naked eye.

Conclusion: A potential for bloodborne pathogen exposure with use of a specific RIVC was detected. Scientific filters captured blood splatter that was not noticeable by the naked eye but was detected by microscopy in 6% of the instances. Therefore, healthcare workers (HCW) may not be able to detect blood splatter when it occurs and may not report a splash to mucous membranes or non-intact skin. This study reinforces the need for HCWs to wear personal protective equipment (e.g., masks, face shields, goggles) when using RIVCs.

Research supported by: USF Sunshine ERC

Sunshine ERC Research Poster Session 2012

in Collaboration with

USF Health Research Day

February 24th, 2012

USF Marshall Center