

Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Reduction of Urinary Tract Infections Caused By Urethral Catheter through the Implementation of Hydrophobic Coating and Geometrical Modifications AYA GARE, Florida Atlantic University — Catheter-Associated Urinary Tract Infection (CAUTI) is the most common nosocomial infection in the U.S. healthcare system. The obstruction of urine caused by confined air bubbles result in the development of urinary back-flow and stagnation, wherein microbial pathogens could multiply rapidly and colonization within catheters become commonplace. Infections can be prevented by aseptic insertion and the maintenance of a closed drainage system, keeping high infection control standards, and preventing back-flow from the catheter bag. The goal of this study is to assess the effectiveness of a simple, low cost, modification that may be implemented into current catheter designs to reduce the incidence of CAUTI. Using the principle of transmission of fluid-pressure and the Young-Laplace equation for capillary pressure difference, this research focuses on improving the liquid flow in the presence of confined bubbles to prevent stagnation and reflux of bacteria-ridden urine into the body. Preliminary experiments are performed on a variety of tubes with hydrophobic-coating the interior, as well as geometrically modifying the tubes. Proof-of-Concept Prototype tubes are used to represent the drainage system of the catheter structure.

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Date submitted: 01 Aug 2013

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