

Improved Arterial Catheter to Prevent Blood Hospital Acquired Infections



An improved arterial catheter that eliminates the blood exposure typically seen with current arterial catheters, reduces the incidence of Hospital Acquired Infections (HAIs). Arterial catheters are used for blood pressure monitoring and for frequent blood draws. The current design (in the figure to the left) promotes blood leaks thereby risking HAIs, and results in needle stick injuries. The current design also requires two syringes for the lab blood draw increasing medical waste. The improved catheter (in the figure below) features multiple advantages in an easy to use, competitively priced device that results in no blood leaks, no needle injuries, and only one syringe per lab blood draw. A single event of HAI can cost up to \$40,000 to treat, so hospitals are actively investing in the prevention of HAIs ensuring fast adaptability of this device.

COMMERCIAL OPPORTUNITY

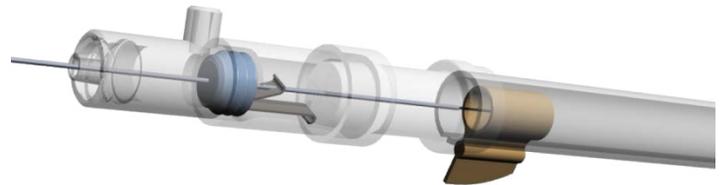
- According to CDC, Hospital Acquired Infections (HAIs) cost \$20 billion a year in excess of the direct healthcare expenditures. With one HAI commonly costing thousands to treat and the recent Affordable Healthcare Act requirement to increase patient's safety, hospitals are actively looking for ways to prevent rather than treat HAIs.
- Arterial catheter consumption is about 20 million units per year in the US. Unfortunately, current catheters create open blood-air interfaces which promote HAIs. Additionally, blood spillage is common with the current catheter design, which further promotes the HAIs as bacteria can survive in dried blood stains for up to several months. This improved arterial catheter has a sealed blood-draw port so there is no blood spillage.
- This improved catheter has a built in needle safety mechanism making these needles as safe as the IV catheters that all currently have needle protection systems, eliminating the risk of needle-stick injuries to the hospital staff.
- The blood-draw port is part of the catheter hub closer to the patient's artery than current arterial catheters eliminating the need to use a second syringe to remove the saline in the blood pressure monitoring tubing thereby lowering medical waste every time a blood draw is performed. The catheter is inexpensive to produce and requires minimal staff training.

TECHNOLOGY

The prototype for the device has been created with multiple improvements and an enhanced safety profile. There is no blood-exposure during the catheter placement, a needle protection system that automatically engages at the completion of the procedure and a sealed port that minimizes medical waste during a blood draw. Furthermore, the manufacturing process and the usage protocol were only minimally altered and can be introduced without disrupting the overall catheter placement technique.

PUBLICATION/PATENT

- Provisional patent application titled "Arterial Catheters and Method of Use" filed October 31, 2014 for Dr. Tariq Chaudhry



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