



University of Idaho
College of Engineering

**ENGINEERING
RELEASE REVIEW**
TEAM INFECTION PROTECTION

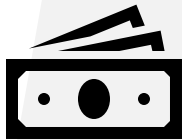
INNOVATIVE CATHETER COULD PREVENT INFECTION AND SAVE LIVES



80% of catheterized patients develop a CAUTI

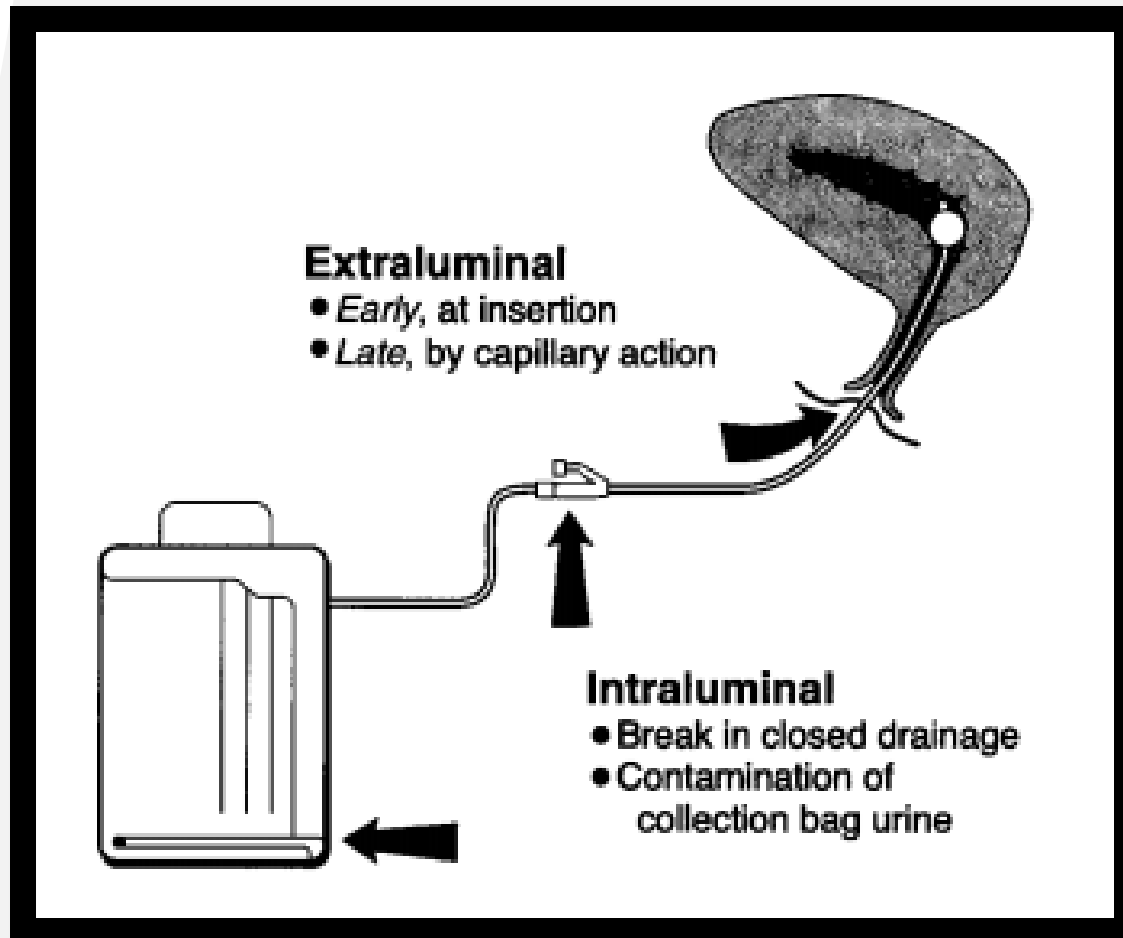


13,000 deaths every year



> \$400M increased cost to hospitals

FOCUSING ON THE ROOT CAUSE OF THE CAUTI



CHOSEN DESIGN

OUTER SPIRAL FOR SPACING

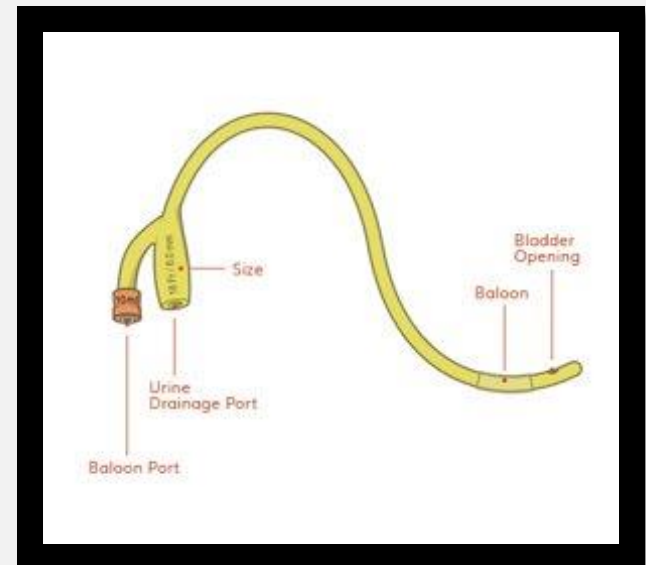
- I 3 straight internal channels
- I 1 outer spiral, to create space between tight urethra walls

I Pros:

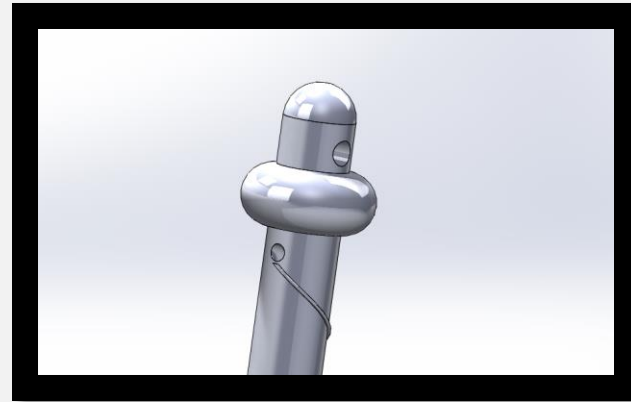
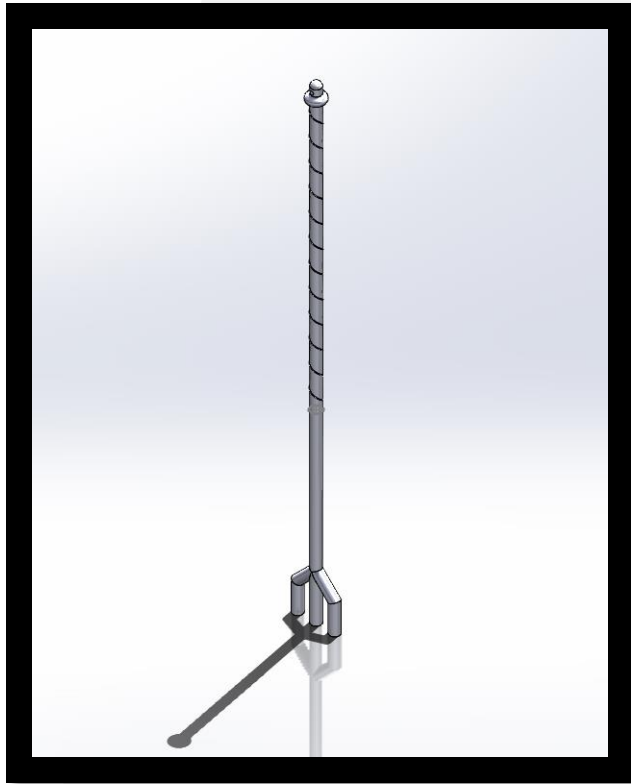
- Creates space for fluid to flush urethra
- Mimics natural function of urethra
- Subtle but effective design change

I Cons:

- Possible discomfort to patient



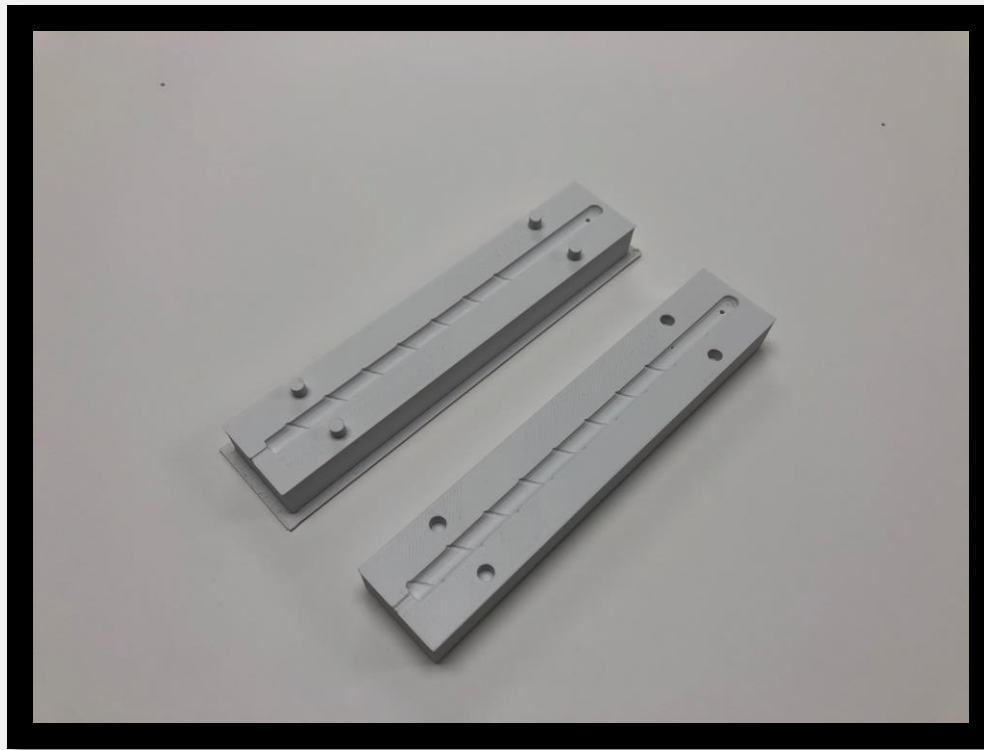
DESIGN DEVELOPMENT AND PROTOTYPING





MANUFACTURABILITY

I Mold can be made and replicated



FLOW & IRRIGATION TESTING

- I Flow validation
 - Using colored dye



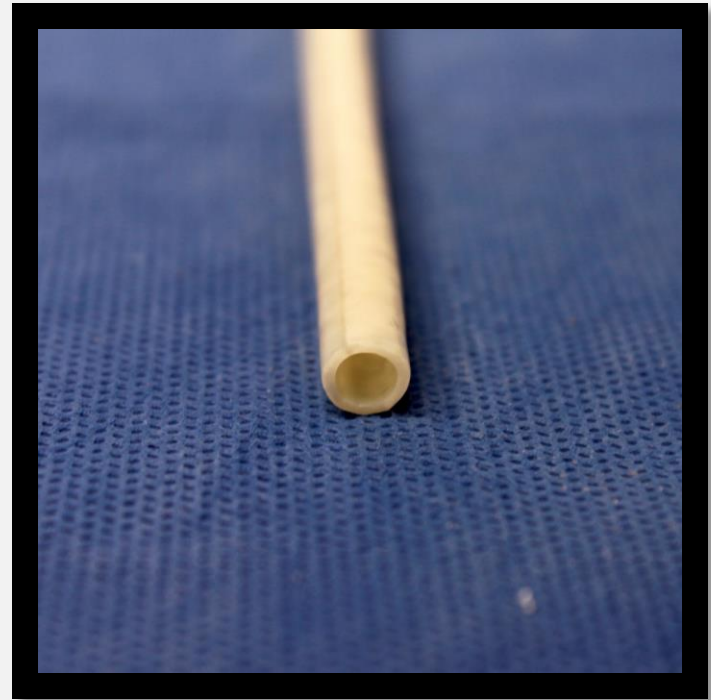
FLOW & IRRIGATION TESTING

- Bacteria-flushing abilities
 - Allow bacteria to grow on surface of catheter and surrogate urethra
 - Swab both control and our design and streak it onto a nutrient agar plate
 - Compare results



USABILITY TESTING

- I Demonstrate ease of use
 - Insertion & Removal
- I Optimize profile geometry
 - Varying spiral size & spacing





POTENTIAL RISKS

I Potential Risk:

- Spirals could cause discomfort to patient

I Solution:

- Make the spiral inflatable (similar to balloon)
- Insertion would be identical to current foley



MOVING FORWARD

- I Work with Business/Entrepreneur students to prepare for pitch competitions





PROJECT COSTS

	Quantity	October	November	December	January	February	March	April				
Liquid Latex	2	\$ 14.99	\$ 14.99									Total Budget
Surgical Tubing	1	\$ 9.99										\$1,500
1/8 " Dowel Rod	1	\$ 0.15										
Music Wire	1		\$ 2.00									Remaining Budget
Fishing Line	1		\$ 1.50									\$ 1,142.78
PVA (Water Soluble 3D Printing Material)	1		\$ 38.95									
Smooth-Cast 300 Liquid Plastic	1			\$ 24.99								
TPU 3D Printing Material	1			\$ 26.99								
Smooth-On Mold Release	1			\$ 16.66								
Mold Star 20T Silicone	1				\$ 33.99							
Sterile Inoculating Loops	1				\$ 14.60							
Nutrient Agar Plates and Sterile Swabs	1				\$ 8.95							
E. Coli Culture Vial	1					\$ 29.24						
Life-like Urethra	2					\$ 93.25						
ABS 3D Printing Material	1					\$ 19.99						
Syringes	1					\$ 5.99						
		\$ 25.13	\$ 57.44	\$ 68.64	\$ 57.54	\$ 148.47			\$357.22			

LOOKING AHEAD

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- Bacteria Irrigation Testing

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- Inflatable spiral design complete

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- Create to-scale model of final design

4/26

- Engineering Design Expo



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