

Male stress urinary incontinence (SUI)

What is SUI?
The involuntary loss of urine with effort or physical exertion, such as coughing, sneezing, or exercising.

Cause
The weakening of urinary sphincter, the junction between the urethra and the bladder.

Project focus: post-prostatectomy SUI
This is a major irreversible cause of the condition. Parts of the proximal sphincteric unit are removed alongside the prostate gland, leading to reduced sphincter functionality.

AFFECTED POPULATION

1-in-3 patients	71%	1-in-5 patients
diagnosed with prostate cancer undergo radical prostatectomy in the USA ¹ .	of those patients experience SUI around one year post-surgery ² .	only, will seek treatment for various reasons ³ .

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CONSEQUENCES

PSYCHOLOGICAL	Prone to symptoms of anxiety and depression.
SOCIAL	Embarrassment; Disruption of daily routine
FINANCIAL	Costs of ineffective treatments

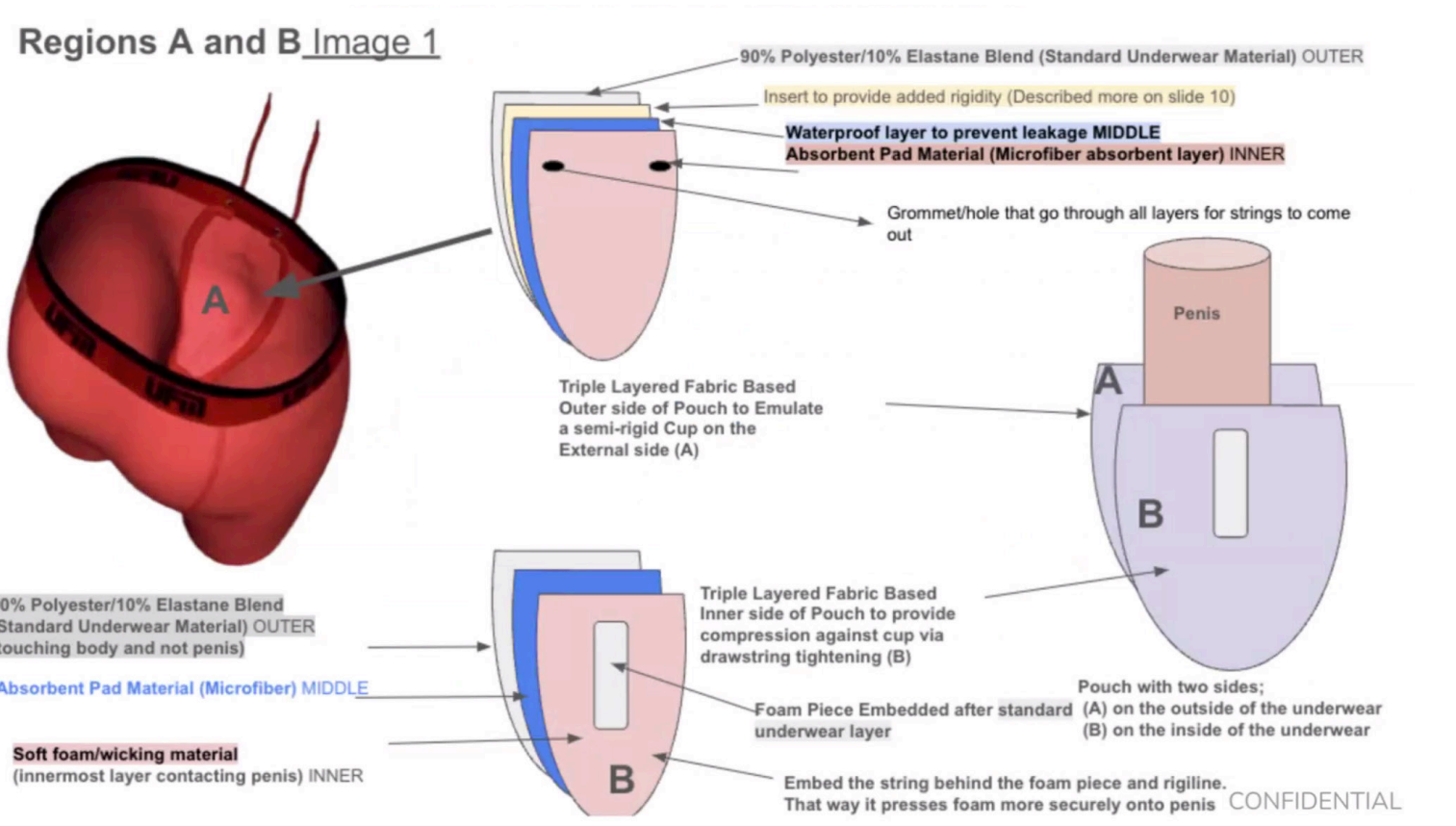
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FIG1. Whole MVP prototype inverted



FIG2. Pictures related to the prototyping process and team picture (2024).



OPPORTUNITY
Due to the flaws of existing solutions on the market, there is an opportunity for intervention which lies in empowering patients to regain control over their urine flow. Our solution would ensure that patients may comfortably resume the normal course of their daily activities without having to account for managing any significant leakage.

NEED
Adult anatomically male patients in the U.S. with stress urinary incontinence (SUI) post-prostatectomy need to improve control over the involuntary leakage of their urine in order to decrease their usage of adult briefs.

A BENCH-TOP MODEL FOR TESTING

We developed a simulated bio-mechanical bench-top model to evaluate both the comfort and efficacy of commercially available clamps and to conduct preliminary verification tests on our prototype. The model replicates urethral urine flow and dorsal vein blood flow, allowing for a more realistic assessment of device performance. We aim for this model to support the development of optimized external compression devices for male urinary incontinence (UI) that prioritize patient safety. Future testing will include further validation using our prototype.

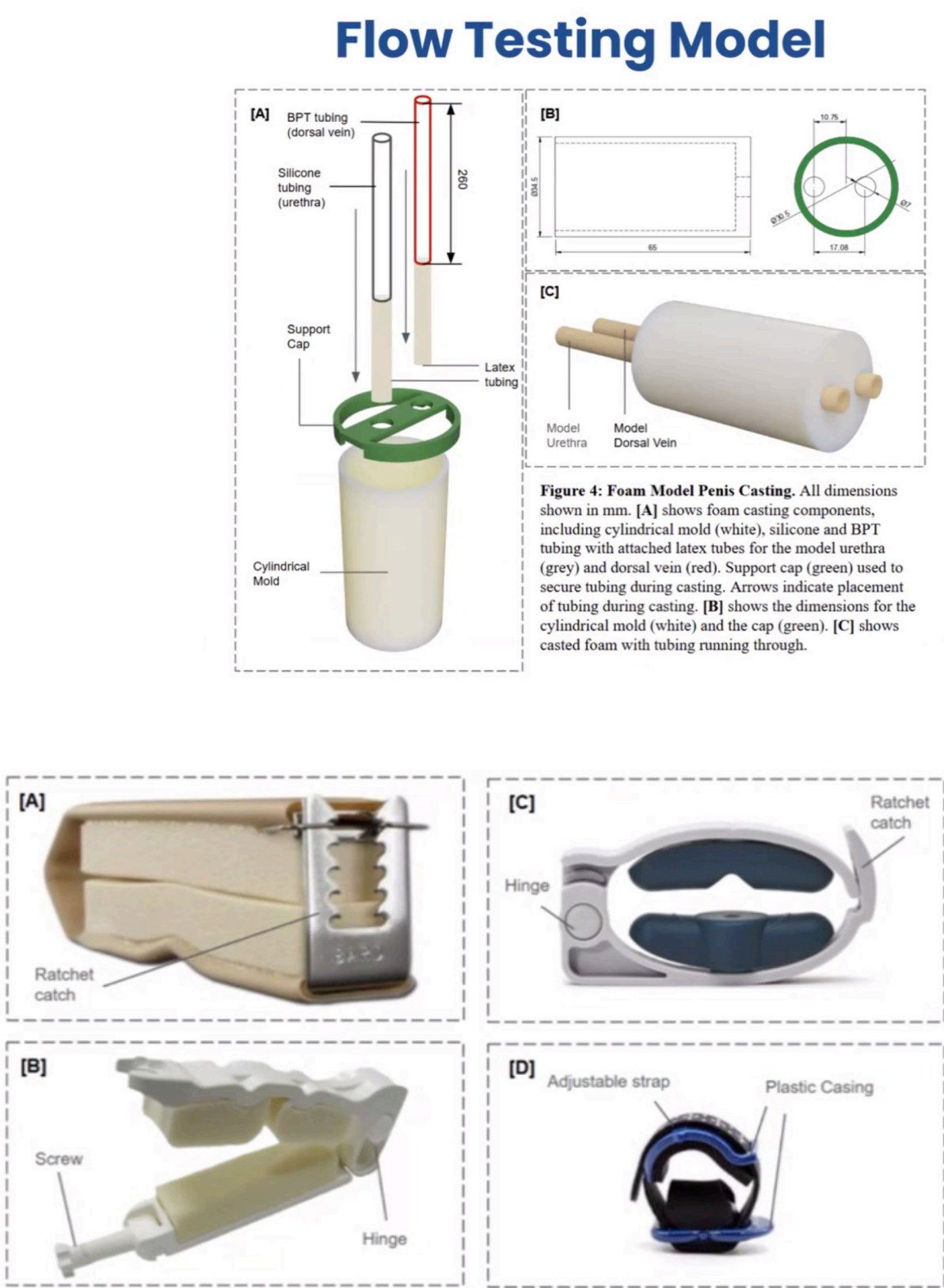


Figure 1: Existing clamps on market. [A] shows Band Cunningham Clamp with metallic ratchet catch to allow tightening and loosening of clamp. [16] [B] shows Squeezer Klip™ with adjustable hinge and screws to generate compression. [17] [C] shows Lundberg Freedom Clamp, also with an adjustable hinge, and with a plastic ratchet catch closing mechanism. [18] [D] shows the Cunningham clamp, with its plastic casing holding an adjustable strap. [19]

FIG3. Figures related to the bench-top model verification process. Paper is under review.