

## **Design and construction of a medical device (urethro-vesical stapler)**

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Prostate cancer is the most common cancer in males after skin cancer (Globocan). The radical prostatectomy is the gold standard of treatment and grossly it consists on taking the prostate and the seminal vesicles out, to do an anastomosis of the bladder directly to the urethra. Only in the U.S.A., more than 90 thousand of this procedure are carried out every year. The anastomosis takes 30-60 minutes depending on the technique and experience of the surgeon. If the anastomosis is not done correctly (the space or depth of the suture is inadequate, or not correctly tied) the patient can suffer from incontinence, bladder outlet obstruction, urinomas or fistulas. This project proposes the development of a mechanical device that can do the anastomosis safely and faster, and still respect the surgical principles that have been described for this procedure. The design will involve the use of malleable materials, development of mechanical components, analysis through finite element simulation, and consideration of factors such as organic tissues.

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