

# Correlating Crowd-Sourced Assessment of Technical Skills (CSATS) with Post-Operative Complication Rates in Urologic Robotic Surgery

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# Introduction

- Correlating Crowd-Sourced Assessment of Technical Skills (CSATS)
  - Allows users to grade uploaded videos of surgeries based on GEARS assessment\*
  
- \*Ref. Goh et al, Journal of Urology, 2012

# Feasibility of expert and crowd-sourced review of intraoperative video for quality improvement of intracorporeal urinary diversion during robotic radical cystectomy

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- Compare expert surgeon reviewers to “crowd sourced” CSATS reviewers
- Outcome ureteroileal stricture
- Result: no correlation
- Small sample size, very specific outcome

# Objective

- To compare CSTATS score with complications after robotic urologic surgery

# Hypothesis

- Higher CSATS score will inversely correlate with overall or high grade complications

# Background

- CSATS, a validated crowd sourced Global Evaluative Assessment of Robotic Skills scoring system, is a voluntary robotic surgery technical skills evaluation designed for surgeon feedback and quality.

# Background

- While CSATS has correlated with technical outcomes such as anastomotic leaks following robotic prostatectomy, there is a paucity of data comparing it to surgical complications in urology.
- CSATS has an overall GEARS score as well as individually graded items that can be compared to prospectively kept complication database

# Methods

- Compare CSATS overall, individual GEARS score, and surgeon quartile with prospectively kept complications data split into overall, low grade (Clavien 1-2) and high grade (Clavien 3-5) complications



# Sample Data for 2018

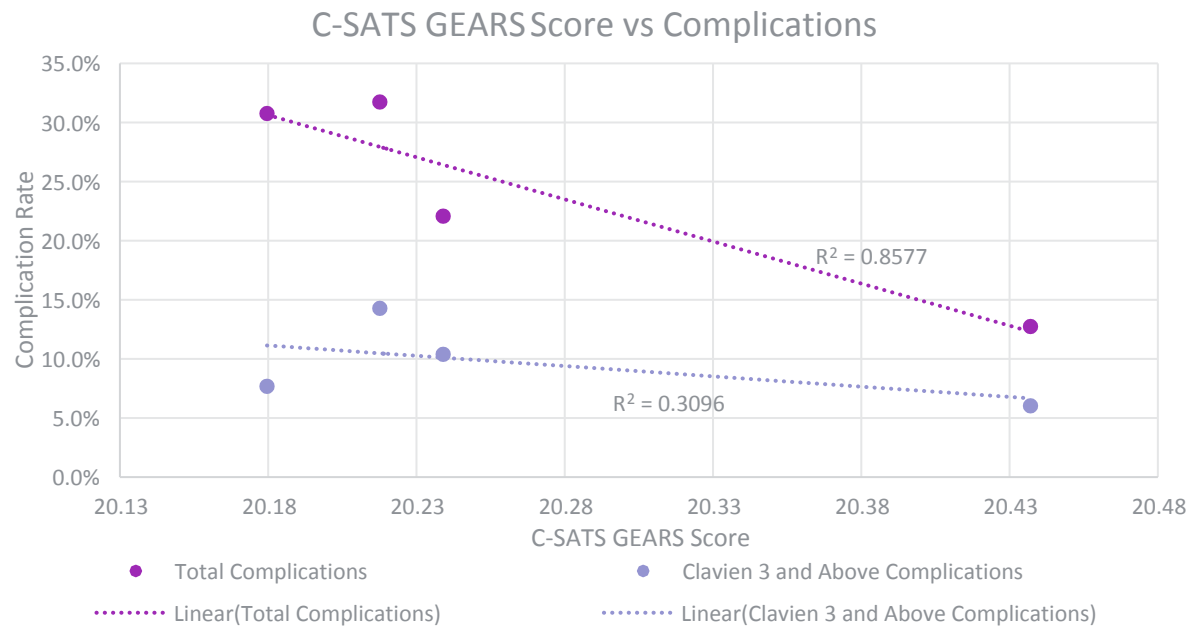
- 125 cases by 4 urologists had complete CSATS and complication data
  - Prostate (75%), bladder (10%), upper tract (13%), and other (2%) procedures
- Overall total complication rate of 20.3% (13-32%), with 8.9% (6-14%) Clavien 3+ complications

# Sample Data for 2018

- Mean CSATS score was 20.26 (20.18 to 20.43)
- Of the four surgeons, 2 were in the 3rd and 2 in the top quartiles overall for their procedures.

# Sample Data for 2018

- CSATS score correlated with total and  $\geq$  Clavien 3 complications with Pearson coefficients of -0.926 (R2 0.858) and -0.556 (R2 0.310) respectively (Fig. 1).



- Being in the top quartile did not significantly reduce  $\geq$ Clavien 3 complications (6.3% vs. 12.1%,  $p=0.07$ ) using chi-squared analysis

# Next Steps

- Obtaining increased CSATS data from other years for more surgeons and across campuses
- Automating/increasing complication data from across campuses