

## Proficiency based progression training for robotic vesico-urethral anastomosis chicken model versus the Halsted's model: A prospective, randomized and blinded clinical trial. Preliminary outcomes of the PROVESA trial

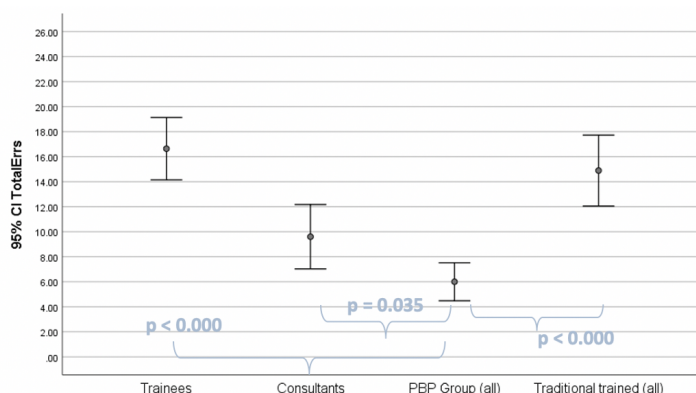
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**Introduction & Objectives:** Proficiency Based Progression (PBP) training is a training method that has demonstrated its value in different surgical specialties. The "Venezuelan chicken model" is an optimal training model for robotic suturing, anastomosis and knot tying tasks. In a construct validity study, performance metrics for vesico-urethral anastomosis (VUA) on this model were validated. This study aims to compare the effectiveness of Halsted's apprenticeship approach to training with the PBP approach for teaching the robotic suturing of a VUA on a chicken model.

**Materials & Methods:** Robotic naïve urology (n = 12), surgery (n = 12) and gynecology (n = 12) junior residents (n = 36) were recruited. They all got access to an online learning platform where they were thought the procedural steps after which a basic assessment on the chicken model was done for all participants. Consequently, a 1:1 matched randomization was done. 18 participants were enrolled in the traditional group where they were trained by robotic experts in an apprenticeship model. 18 participants were randomized to the PBP-group. The latter had to demonstrate proficiency in an online assessment after following an e-learning didactic course where they were thought the VUA metrics. When reached the benchmark, they were trained by PBP-methodology. Final assessment, using performance metrics was done live and video-based blinded for group assignment. Participants were proficient after matching the proficiency benchmark, the mean performance by experts in the construct validity study.



Mean and 95% CI

Figure 1: Surgical performance errors between PBP versus traditional group

**Results:** In the traditional training group, a mean of 15 (95% CI, 12 – 18) performance errors was observed versus 6 (95% CI, 5-7) in the PBP group ( $p < 0,000$ ). In the traditional group, 6 (33%) anastomotic leaks were observed versus 3 (17%) in the PBP group ( $p = 0,248$ ). When anastomotic leak was combined with number of procedural steps completed, the difference was 3 (17%) versus 9 (50%) respectively ( $p = 0,034$ ). Overall, 1 (6%) participant reached proficiency in the traditional group vs 15 (78%) in the PBP group ( $p < 0,000$ ).

**Conclusions:** Significant more junior, multispecialty residents reached the proficiency benchmark by implementing PBP methodology for teaching the robotic suturing of a VUA on a chicken model compared to traditional training.