

J Urol. 2019 Feb 7. doi: 10.1097/JU.000000000000147. [Epub ahead of print]

## The Impact Of Experience On The Risk Of Surgical Margins And Biochemical Recurrence After Robot-Assisted Radical Prostatectomy: A Learning-Curve Study.

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**BACKGROUND:** Improved cancer control with increasing surgical experience (the "learning curve") has been demonstrated for open and laparoscopic prostatectomy. We assessed the relationship between surgical experience and oncologic outcomes of robot-assisted radical prostatectomy.

**METHODS:** We analyzed 1827 prostate cancer patients treated with robot-assisted radical prostatectomy. Surgical experience was coded as the total number of robotic prostatectomies performed by the surgeon before the patient's operation. The relationship between a surgeon's prior experience and the probability of positive margins and biochemical recurrence was evaluated in regression models, adjusting for stage, grade and PSA.

**RESULTS:** After adjusting for case mix, greater surgeon's experience was associated with a lower probability of positive surgical margins ( $p=0.035$ ). The risk of positive margins decreased from 16.7% to 9.6% for a patient treated by a surgeon with 10 and 250 prior procedures respectively (risk difference between 10 and 250 procedures 7.1%, 95%CI 1.7 to 12.2). In non-organ confined disease, the predicted probabilities of positive margins were 38.4% for patients treated by surgeons with 10 prior operations and 24.9% for patients treated by surgeons with 250 prior operations (absolute risk reduction 13.5%, 95%CI: -3.4 to 22.5). The relationship between surgical experience and the risk of biochemical recurrence after surgery was not significant ( $p=0.8$ ).

**CONCLUSIONS:** Specific techniques used by experienced surgeons that are associated with improved margin rates need further research. The impact of experience on cancer control after robotic prostatectomy differed from the prior literature on open and laparoscopic radical prostatectomy and should be investigated in larger, multi-institutional studies.

PMID: 30747873 DOI: [10.1097/JU.000000000000147](https://doi.org/10.1097/JU.000000000000147)