RESULTS OF ROBOTIC HOT COURSES

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Courses: Aims & Objectives

- **ESU and the EAU Robotic Urology Section (ERUS) offer a hands-on training (HOT) course:**
  - Training using simulators
  - The main aims of this 90 minutes course are:
    - Improving the participants´ control-skills and hand-eye-coordination
    - Objective benchmarking of console performance and an introduction into standardized surgical steps in robot-assisted procedures
  - Each course is limited to the small number of 6 participants, to facilitate an optimal training setting with only 2 participants per faculty

EAU 2014, Stockholm
HOT Robotic Surgery Course

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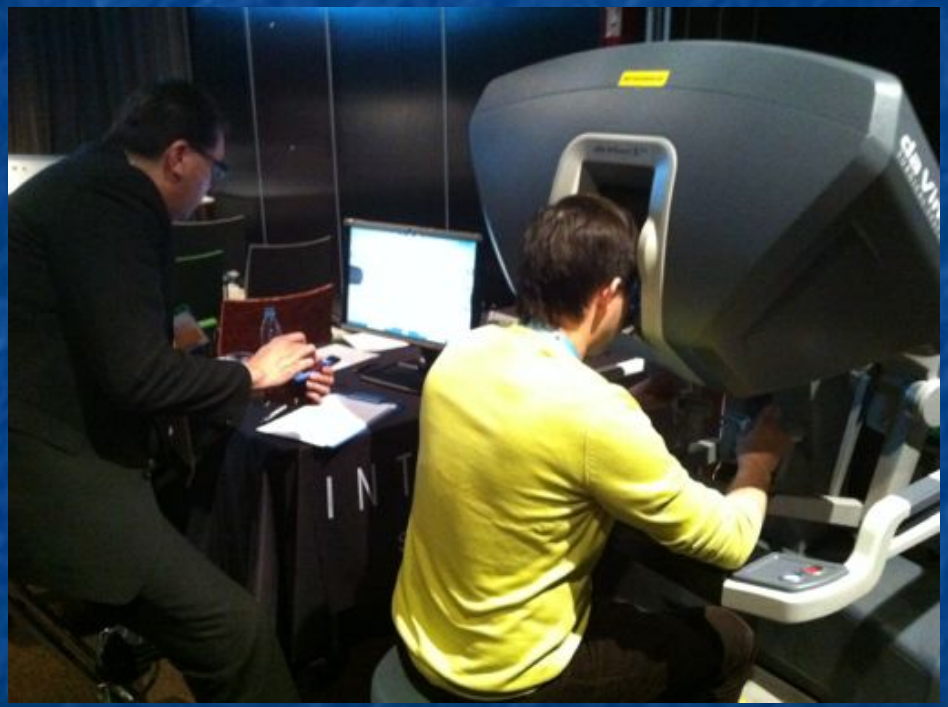
HOT Robotic Surgery Course



EAU 2014, Stockholm
HOT Robotic Surgery Course

dV-TRAINER®

Training modules

dV-Trainer content is developed in collaboration with leading surgeons and educators. More than 60 exercises—relevant to surgeons from any specialty—cover console overview and troubleshooting, basic *da Vinci*® skills, and more advanced surgical skills such as suturing and knot tying. Tube closure and tube anastomosis exercises provide users the opportunity to develop more challenging, procedure-relevant suturing skills.

Training scenarios help achieve proficiency in these critical areas:

- *EndoWrist*® manipulation
- Knot tying
- Camera control
- Needle control
- Clutching
- Needle driving
- Vessel dissection
- Suturing
- Energy control
- Fourth arm control
- System settings and controls

Procedure-specific, augmented reality with Maestro AR

Advance clinical decision-making and procedural knowledge

Exclusively available on the dV-Trainer, Maestro AR answers demand from the robotic community for procedure-specific* simulation. Working at the dV-Trainer, trainees can now manipulate virtual 3D robotic instruments to interact with anatomical regions within augmented 3D surgical video. The Maestro AR Multi-Specialty package includes Partial Nephrectomy, Hysterectomy, Prostatectomy, and General Surgery. Available now, Partial Nephrectomy uses footage from an actual case performed by Inderbir S. Gill, MD (Keck School of Medicine of USC).

Learning objectives and tasks:

- Identify anatomy
- Anticipate tissue retractions
- Predict regions for dissection
- Refine surgical skills

Watch a preview video and get more information:
www.MimicSimulation.com/MaestroAR

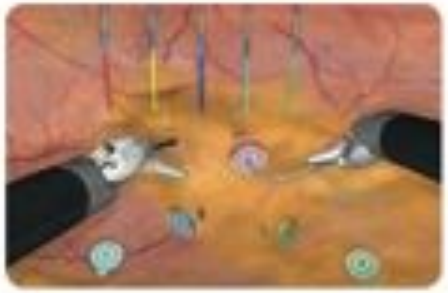
Maestro·AR™

- **Surgeon console overview**
  Review basic *da* Vinci® functionality. Cover basic topics such as icons, ergonomics, and settings.

- ***EndoWrist*® manipulation**
  Develop *EndoWrist*® dexterity when working with one, two, or three *da* Vinci® Surgical System instruments.

- **Camera and clutching**
  Improve camera control and learn to use the clutch effectively. Train while using different motion-scaling settings.

- **Energy and dissection**
  Learn to properly apply monopolar and bipolar energy. Practice dissection and manage bleeding.



- **Needle control and needle driving**
  Develop skill when manipulating needles. Learn to effectively hand off and position needles for correct needle driving.

- **Suturing and knot tying**
  Improve suturing and knot tying skills with a variety of scenarios. Practice with a range of geometries common to surgery.

- **Maestro™ AR procedure-specific content**
  Advance clinical decision-making and procedural knowledge, refine skills specific to the procedure (Partial Nephrectomy module shown above).

- **Xperience™ Team Trainer**
  Enable the robotic surgeon and first assistant to train together with this optional component for the dV-Trainer.

MScore™

Measure proficiency with advanced metrics and experienced surgeon data

Featuring data collected from more than 100 experienced surgeons that have each completed 75 or more robotic cases, MScore assessment is based on expert mean and standard deviation data (similar to the FLS™ protocol*) to facilitate credentialing and privileging.

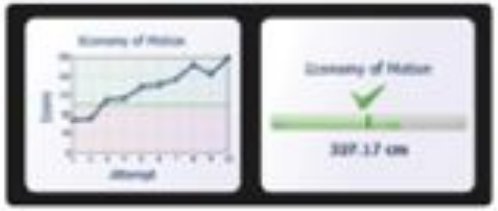
With MScore, you can build your own training protocols from more than 50 exercises and assign different curricula to each user.

Assess surgeons, analyze performance

- Customize scoring to emphasize important curriculum metrics for new users, surgical warm-up, and skills retention
- Establish your own credentialing and privileging program for improved patient care

Efficient administration and workflow

- Easy to use tools for course creation and management
- Track the learning history for each exercise and metric
- Export data to Excel for further analysis and archiving



Detailed surgical skills assessment

MScore provides comprehensive metrics on the following criteria for exercises performed on the dV-Trainer:

- Time to completion
- Economy of motion
- Instrument collisions
- Number of drops
- Missed targets
- Instruments out of view
- Master workspace range
- Blood loss
- Broken vessels
- Excessive instrument force
- Misapplied energy
- Overall score

- **3 datasets from 3 meetings:**
  - EAU 2014, ESOU 2014, EMUC 2013
  - 102 participants
  - 786 exercises

eau Stockholm 11-15 April 2014
29th Annual EAU Congress

Table 1. Descriptive characteristics of 102 participants.

Variables		Overall Participants (n=102)
Age (years)		34 (30, 40)
Sex	*Male*	85 (83%)
	Female	17 (17%)
Degree	*Resident*	50 (49%)
	Urologist	52 (51%)
Bedside Assistance Experience	*No*	49 (48%)
	Yes	53 (52%)
Bedside Assistance Procedures		20 (10, 50)
Robotic Surgical Experience	*No*	84 (82%)
	Yes	18 (18%)
Robotic Surgical Procedures		3 (2, 12)
Laparoscopic Procedures	*0*	29 (28%)
	1	73 (72%)
Lap. Surgical Procedures		30 (10, 50)
Meeting	*eau 2014*	40 (39%)
	esou 2014	32 (31%)
	emuc 2013	30 (29%)

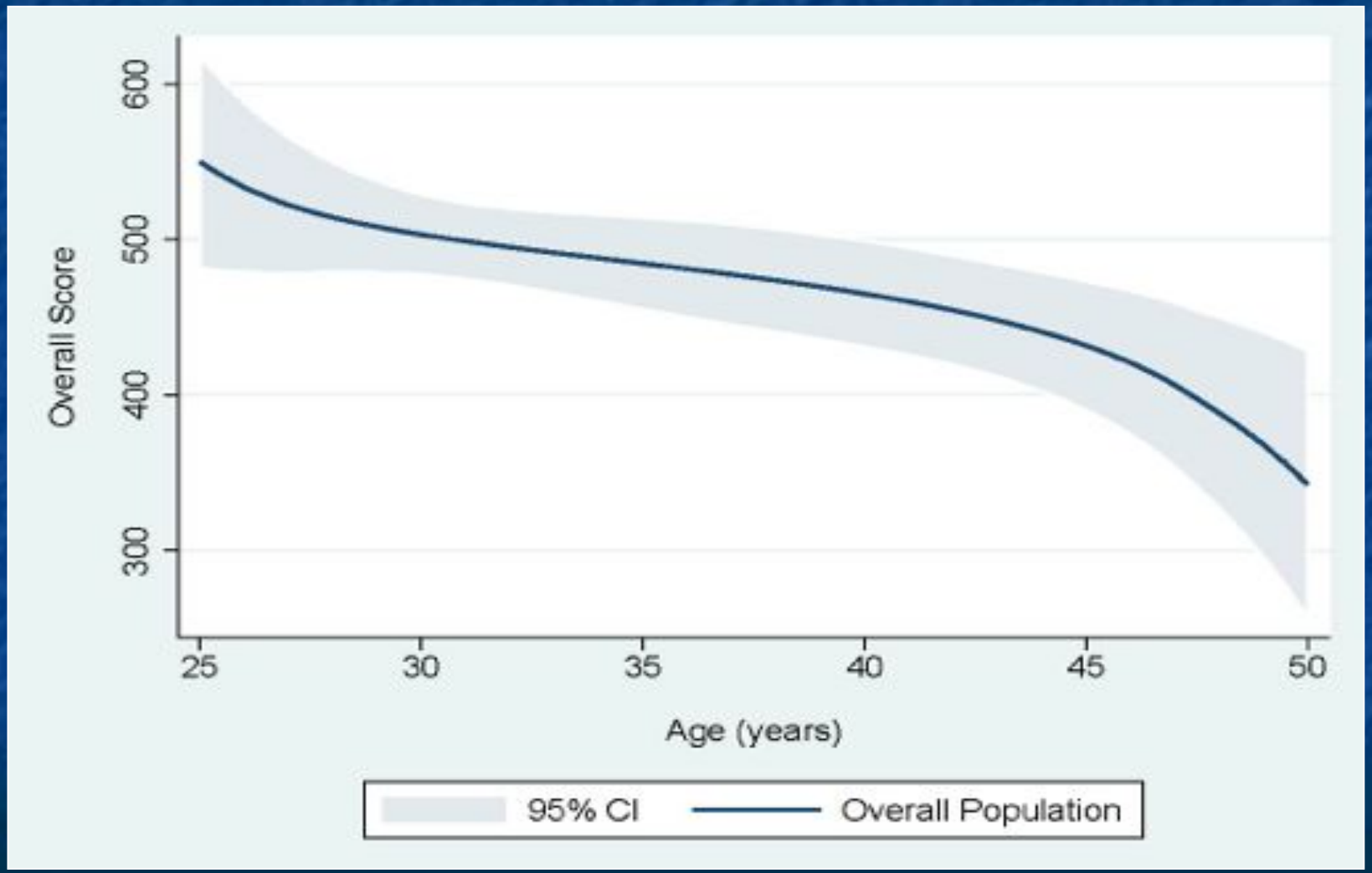
Table 2. Linear regression analysis predicting Overall Score in 102 participants.

Predictors	Coeff.	95% CI	p value
Robot assistant procedures	0.12	-0.33, 0.57	0.6
Robotic procedures	11.06	6.33, 15.78	**<0.0001**
Laparoscopic procedures	-0.11	-0.28, 0.06	0.2

Multivariable analysis was adjusted for participant age, sex, degree (resident vs. urologist), and previous robotic training (no vs. yes).

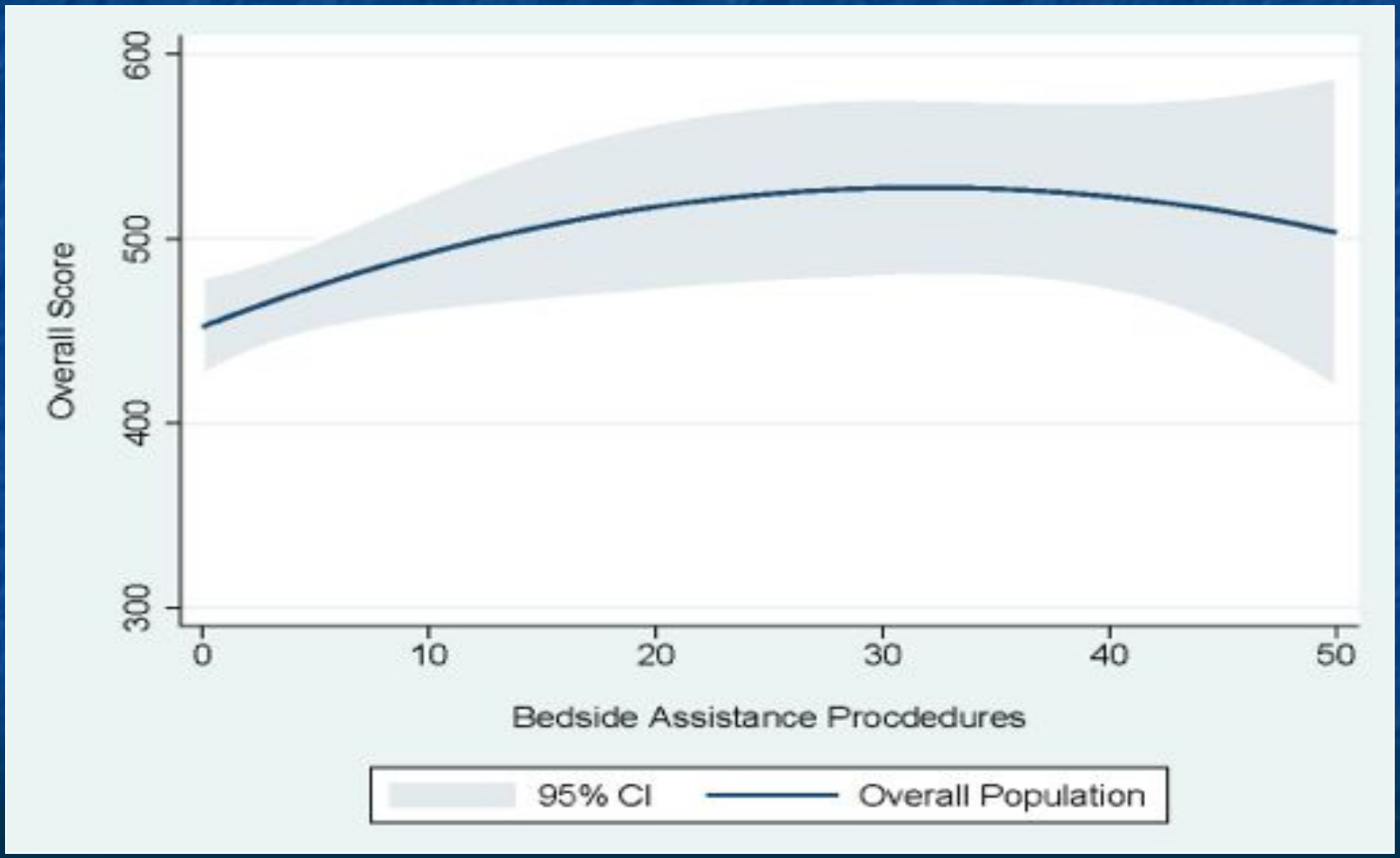
Overall Score estimation according to age of participants

Overall Population



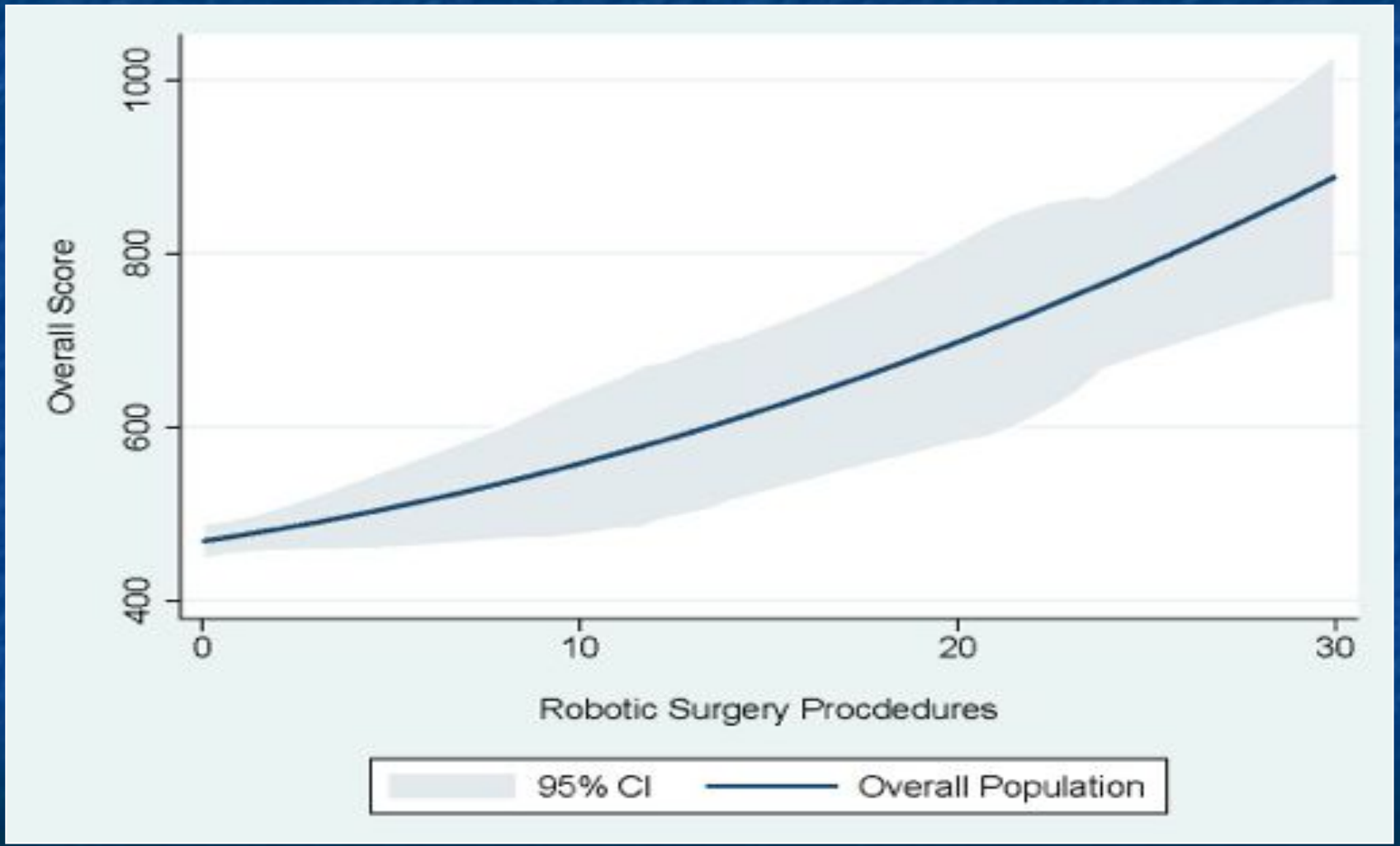
Overall Score estimation according to bedside assistance experience

Overall Population



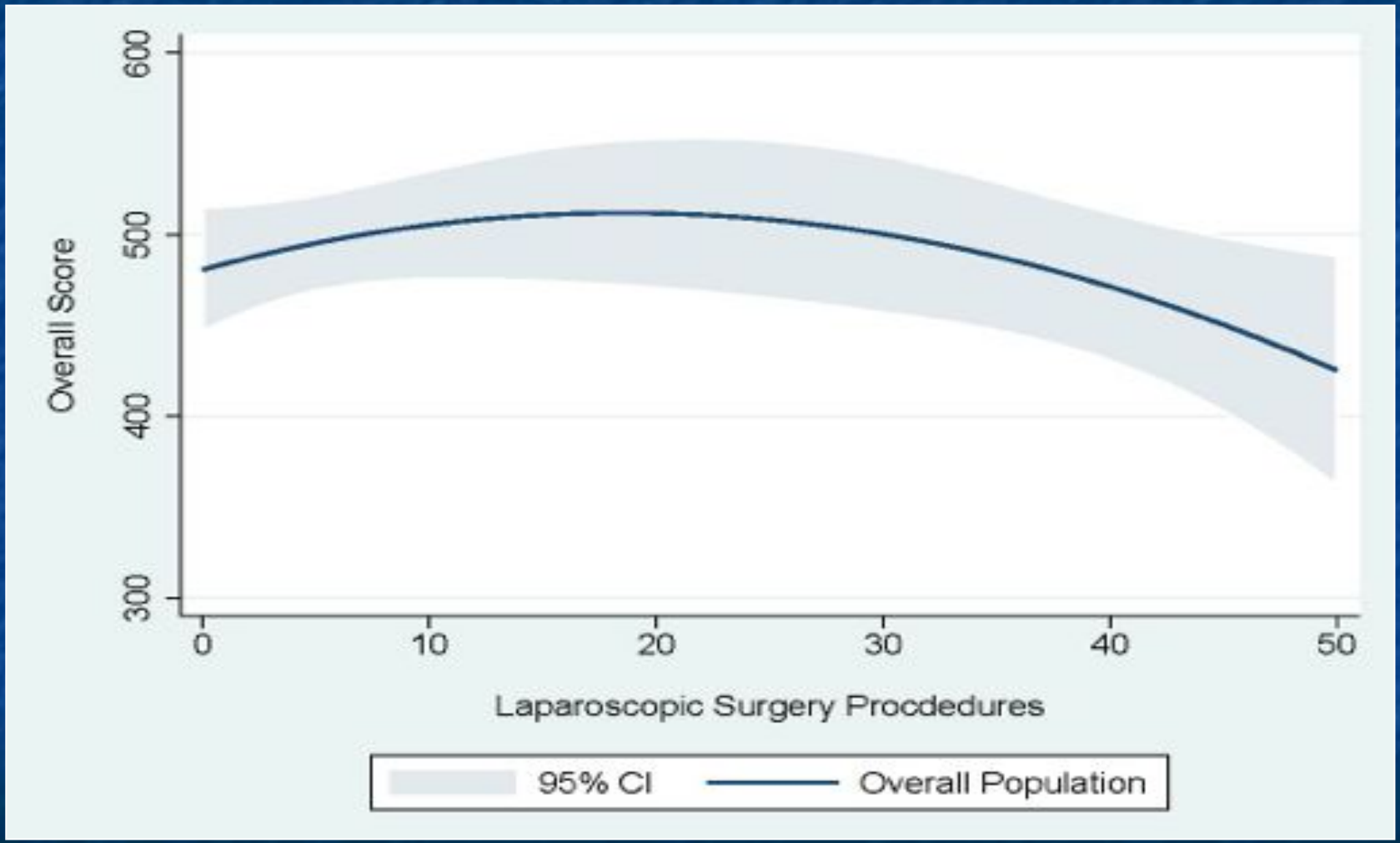
Overall Score estimation according to robotic surgical experience

Overall Population



Overall Score estimation according to laparoscopic surgical experience

Overall Population



Conclusions

- Age and robotic surgical experience were the two strongest predictors of Overall Score.
- The younger the age (and/or the higher the robotic surgical experience), the higher the Overall Score.
- Laparoscopic experience and degree (resident vs. urologist), were not significantly associated with the Overall score.

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Medical illustration studios

www.leventefe.com.au

Thank You!