



## Brief Correspondence

# Five Years of the CC-ERUS Fellowship: A Survey of the Experiences and Post-fellowship Work of the Fellows

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The introduction of robot-assisted surgery brought a need to develop structured training to assist naïve surgeons during their learning process and improve patient outcomes [1–8]. In response to this need, multiple short courses have been designed to train (novice) surgeons in different urological procedures [9–11]. The European Association of Urology Robotic Urology Section (ERUS) developed the first long-term structured and validated curriculum in urology that specifically focuses on robot-assisted radical prostatectomy (RARP) [5,6,12,13]. After its initial conception in 2014, the course has evolved into a structured training program that includes live case observation and table-side assistance, an advanced robotic skills course (CC-ERUS), 3 or 6 mo of modular training at a host center, and expert assessment of a video of a full RARP performed by the fellow [12]. With the specific intent to expand this paradigm to other settings in which clinical outcomes are significantly affected by surgeon skill [14], ERUS curricula for robot-assisted partial nephrectomy (RAPN) [15] and robot-assisted radical cystectomy (RACN) [16] were developed. To validate the benefit of such structured training programs, the clinical outcomes for patients treated by surgeons who have completed the ERUS training program deserve special attention. The aim of the current study was to investigate and report experiences after the RARP fellowship.

A web-based survey was developed by a group of six experts in urology. Participants in the 5-d advanced robotic skills course for RARP at ORSI Academy were contacted. Since it is possible to attend the course as part of a fellowship at a CC-ERUS host center or as a standalone option, all participants were contacted to avoid missing any CC-ERUS fellows.

A survey was sent to assess the learning process and current robotic practices of fellows. The survey was divided into three modules containing 62 questions (Supplementary material). The questionnaires were sent to participants

using the self-service function of the Data Management module in Research Manager (<https://my-researchmanager.com/en/home-2/>). Mailing lists were verified using EAU membership data. All participants in the 5-d advanced robotic skills course (CC-ERUS) received the survey. After a period of 4 mo the survey was closed and results were analyzed. The frequency and proportion are used to describe the survey outcomes. Data analysis was performed using SPSS version 24 (IBM, Armonk, NY, USA).

The survey was received by 143 individuals. Overall, 63% ( $n = 90$ ) responded and 50% of these respondents had taken part in the CC-ERUS RARP fellowship program. Almost 50% of the respondents were residents in training at the start of their CC-ERUS fellowship. Of the remaining fellows, more than half have less than 2 yr of experience as a certified urologist. Some 49% and 71% of the respondents had no experience as a first surgeon in laparoscopic and robotic surgery, respectively. Most of the participants (55.6%) had a clinical fellowship of >6 mo, while 8.9% had a clinical fellowship of 3 mo.

During their fellowship, 76% of the respondents spent  $\geq 3$  d/wk in the operating room. Some 47% of the respondents performed more than five robotic cases per week, although not all of these cases were RARP (Table 1). Almost all respondents (96%) felt there was enough progression in difficulty in the RARP steps they were allowed to perform. Some 73% of the respondents performed or assisted in more than 45 cases during their fellowship. Almost all participants (86.7%) were able to perform a complete RARP case during their fellowship. Overall, 20% of the responders were able to perform a complete RAPN and 8.9% an RARC case (Table 1).

At the end of their fellowship, participants were asked to provide a full case video for evaluation by certified independent examiners in a blind-review process. A total of 28 (62%) handed in an index video for review, but of these

**Table 1 – Activities of the respondents during and after their clinical fellowship**

	Participants	
	n	%
<b>During clinical fellowship</b>		
Robotic cases in an average week (cases/wk)		
1	5	11.1
2–5	19	42.2
>5	21	46.7
RARP cases in an average week (cases/wk)		
1	6	13.3
2–5	24	53.5
>5	15	33.3
RARC cases in an average week (cases/wk)		
1	40	88.9
2–5	4	8.9
>5	1	2.2
RAPN cases in an average week (cases/wk)		
1	33	73.3
2–5	11	24.4
>5	1	2.2
Participants who had the opportunity to perform a complete case		
RARP	39	86.7
RARC	4	8.9
RAPN	9	20.0
<b>After clinical fellowship</b>		
Stayed in the training institute after fellowship		
No	23	51.1
Yes, <3 mo	1	2.2
Yes, >3 mo	21	46.7
Had access to a surgical robot after fellowship		
42	93.3	
Currently performing robot-assisted surgery		
41	91.1	
Currently performing RARP		
39	86.7	
Currently performing RARC		
16	35.6	
Currently performing RAPN		
19	42.2	
Currently performing laparoscopic prostatectomy		
5	11.1	
Currently performing open prostatectomy		
8	17.8	
RARC = robot-assisted radical cystectomy; RAPN = robot-assisted partial nephrectomy; RARP = robot-assisted radical prostatectomy.		

only 12 (43%) received a score from the experts. All respondents would recommend the CC-ERUS fellowship to their colleagues.

Table 1 lists the activities of the respondents after their clinical fellowship. Less than half of the fellows were able to stay in the institute where they trained after their fellowship. After their fellowship, 93% of the respondents had access to a surgical robot and of these, 91% are currently still performing robot-assisted surgery. Thirty-nine respondents (91%) are performing RARP, 16 (36%) are performing RARC, and 19 (42%) are performing RAPN surgery. A minority of the respondents are performing open (18%) or laparoscopic prostatectomy (11%).

Table 2 shows data on functional and oncological outcomes for the most recent surgeries performed by participants in the CC-ERUS RARP fellowship. More than 50% of the participants are unaware of continence and erectile function recovery for patients they treated in the past 6 mo. The participants were more aware of the positive surgical margin status for their past ten pT2 and pT3 patients (Table 2).

Although not all fellows responded to the survey, the questionnaire results provide an insight into the experi-

**Table 2 – Functional and oncological outcomes for the most recent surgeries performed by the fellows**

	Participants	
	n	%
Patients using >1 inlay/diaper per day among surgeries performed in the past 6 mo (%)		
1–10	10	22.2
11–20	7	15.6
21–30	1	2.2
31–40	1	2.2
Unknown	26	57.8
Patients with adequate erectile function among surgeries performed in the past 6 mo (%)		
11–20	3	6.7
21–30	2	4.4
31–40	5	11.1
41–50	5	11.1
51–60	2	4.4
71–80	1	2.2
Unknown	27	60.0
Patients with a positive surgical margin in the past 10 pT2 cases		
0	5	11.1
1	5	11.1
2	11	24.4
3	8	17.8
4	2	4.4
Unknown	14	31.1
Patients with a positive surgical margin in the past 10 pT3 cases		
0	12	26.7
1	13	28.9
2	6	13.3
3	2	4.4
Unknown	12	26.7

ences of respondents during and after their CC-ERUS fellowship. Many of the respondents were resident at the start of the CC-ERUS fellowship. Although almost two-thirds of the respondents participated in the video review at the end of the course, not even half of them received a score on their video. All respondents would recommend the CC-ERUS fellowship to their colleagues. Most of the respondents continue to practice robot-assisted surgery, in line with earlier research on this subject which showed most of the participant still performed robot assisted surgery based on short (14 mo) and long term (up to 3 yr after training) follow-up data [17,18]. Even though the course was designed to train fellows in RARP, some respondents have gained experience in RAPN and RARC surgery during and after their fellowship. This endorses the need for specialized fellowship programs for both RAPN and RARC to provide a structured training program for urologists. Remarkably, the results show that almost two-thirds of the respondents are unaware of the functional outcomes for their patients and one-third are unaware of the oncological outcomes from their surgeries. We recommend more rigorous follow-up of surgical trainees to improve elements of the fellowship program and monitor the need for continuous education after fellowship.

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