

## Urology Residency Training Program during COVID-19 in Pakistan

Kamran Zaidi<sup>1</sup>, Saleem Shahzad Shumas Qamar<sup>2</sup>, Kumail Sajjad<sup>3\*</sup>, Muhammad Nazir<sup>4</sup> and Waqas Latif<sup>5</sup>

<sup>1</sup>Assistant Professor, Department of Urology, General Hospital, Lahore

<sup>2</sup>Senior Registrar, Department of Urology, General Hospital, Lahore

<sup>3</sup>Postgraduate Resident, Department of Urology, General Hospital, Lahore

<sup>4</sup>Head of Department, Department of Urology, General Hospital, Lahore

<sup>5</sup>Data analyst, University of Health Sciences, Lahore

**\*Corresponding Author:** Kumail Sajjad, Postgraduate Resident, Department of Urology, General Hospital, Lahore, Pakistan.

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### Abstract

**Objective:** To know the impact of COVID-19 pandemic on the Urology residency training program in Pakistan.

**Materials and Methods:** It was a nationwide survey conducted on google form, from 15<sup>th</sup> June 2020 to 30<sup>th</sup> June 2020. Trainees were contacted through online social media application and a self-administered questioner distributed. Questions were related to their educational, clinical and surgical activity these days.

**Results:** 202 urology trainees contacted through social media application out of which 114 filled online survey forms. Response rate was 56.4%. 87.7% were male out of all responders. The proportion of responders getting training was the first, second, third, fourth and final year as 21.1%, 14.0%, 24.6%, 19.3% and 21.1%, respectively. 45.6% of residents were routinely performing ward duties as before this pandemic. And 86.0% residents not involved in surgeries as before this pandemic. All residents experienced reduction in number of surgical and clinical activities during this pandemic. Only 28.1% and 17% residents provided chance of online teaching and simulator-based training from their department/hospitals respectively.

**Conclusion:** COVID-19 affected the precious years of learning of Urology residents in Pakistan. Alternative smart learning strategy should be adopted nationwide to minimize the loss of residents.

**Keywords:** COVID-19; Urology; Residency Training Program; Learning Curve; Smart Learning

### Introduction

Novel corona virus transmitted all over the world. Federal health ministry of Pakistan confirmed first COVID-19 case in country on 26<sup>th</sup> February 2020 though in March 2020, World Health Organization declared world emergency due to corona virus spread. Corona pandemic involved whole universe and affected all sectors of life. COVID-19 transmission is from human to human via droplets [1,2]. Standard operating procedures (SOPs) developed to minimize contacts specially health care workers. Health system of all countries reshaped its priorities to cope this fatal disease. Doctors as the frontline worriers deputed in corona wards [3].

Rapid influx of COVID-19 patients to hospitals caused increase in corona patient load meanwhile other diseased patients neglected [4]. Urology doctors also involved in the management of COVID-19 patients. Urology residents training including academic and surgical activities are greatly affected. Emergency based urological services are continued during COVID-19 pandemic throughout the country. Minor or urgent procedures are being done using the personal protective equipment's (PPEs). Elective procedures are postponed to ensure safety of health professionals and utilize anesthetists, staff nurses, ventilators and bed for corona patients. Rotational team duty roasters are introduced temporarily with one-week work and two weeks off so that COVID-19 negative professionals reserve maintained. Educa-

tional activities such as conferences, workshops, exams and journals clubs are postponed. Urology residents training surgical exposure is reduced. Burnout rate of urology trainee’s according to Maslach Burnout Inventory is 40% reported which is more than any other specialty. This decrease in training activities will lead to more burnout [5-7]. This pandemic is slowing the learning curve of urology trainees inevitably. Online journals club, workshops, daily lectures and conferences are alternatives to cover this lose. A study conducted in Europe recommends the smart learning to reduce the COVID-19 pandemic impact on urology residency training. Smart learning tips suggested to use the online resources such as webinar sessions, video conferencing, and books study for knowledge while for surgical skills recommend simulator based or virtual training to minimize the impact [7,8].

**Aim of the Study**

We conducted this study to know that how much training affected during this pandemic and what measures are taken to minimize its impact on urology residency training.

**Materials and Methods**

This was an online survey conducted from 15<sup>th</sup> June 2020 to 30<sup>th</sup> June 2020. We contacted via social media application, 202 urology residents from all over the country approximately after 4 months of first case reposted in country. Survey form had two parts, one asked demographic detail while other part asked questions to evaluate the COVID-19 effect on urology residency training. Questions asked to know their educational activities as well as their surgical learning activities. The data analyzed by using SPSS 25.0. Frequency and percentages were given for gender, year of residency training and responses of different statement pertaining impact of COVID-19 on Urology residency training. Chi square and Fisher’s exact test was used to compare the response among year of residency training. A p-value ≤ 0.05 was taken as significant.

**Results**

202 urology trainees contacted through social media application out of which 114 filled online survey forms. Response rate was 56.4%. Of all responders, 87.7% were male. The proportion of responders getting training was the first, second, third, fourth and final year as 21.1% (n = 24), 14.0% (n = 16), 24.6% (n = 28), 19.3% (n = 22) and 21.1% (n = 24), respectively (Table 1).

Variables	Categories	Frequency	Percentage
Gender	Male	100	87.7%
	Female	14	12.3%
Year of Residency Training	First year	24	21.1%
	Second year	16	14.0%
	Third year	28	24.6%
	Fourth year	22	19.3%
	Final year	24	21.1%

**Table 1:** Urology trainees characteristics.

In the COVID-19 period, 45.6% (n = 52) of residents were routinely performing ward duties as before this pandemic. And 86.0% (n = 98) residents were not involved in surgeries as before this pandemic. 100% (n = 114) residents were experiencing decreased number of surgical and clinical activities during this pandemic. 28.1% (n = 32) residents were provided chance of online teaching by their department/hospitals. Majority of residents (82.5%, n = 94) thought that the online education programs (zoom/Webinar) are inadequate in number to teach them. Only 17.5% (n = 20) residents agreed to this statement that simulator-based training workshops are being con-

ducted in their hospitals. 68.4% (n = 78) residents answered that simulator-based training workshops could help them to get surgical skills in these days. 3.5% (n = 4) residents reported 10 - 20% reduction in their clinical and surgical activities occurred these days, 7.0% (n = 8) residents reported 20 - 40% reduction, 21.1% (n = 24) residents reported 40 - 60% reduction, 35.1% (n = 40) residents reported 60 - 80% reduction and 33.3% (n = 38) residents reported 80 - 100% reduction in their clinical and surgical activities occurred these days.

Statements	Categories	Frequency	Percentage
Are you routinely performing ward duties as before this pandemic?	Yes	52	45.6%
	No	54	47.4%
	Maybe	8	7.0%
Are you routinely performing surgeries as before this pandemic?	Yes	16	14.0%
	No	98	86.0%
	Maybe	0	0%
Are you experiencing decreased number of surgeries in your training these days?	Yes	114	100%
	No	0	0%
	Maybe	0	%
Are you experiencing decreased clinical activities in your training these days?	Yes	114	100%
	No	0	0%
	Maybe	0	0%
Did your department/hospital provide you chance of online teaching?	Yes	32	28.1%
	No	82	71.9%
	Maybe	0	0%
Do you think online education programs (zoom/Webinar) are adequate in number to teach you these days?	Yes	20	17.5%
	No	72	63.2%
	Maybe	22	19.3%
Simulator based training workshops are being conducted in your hospitals?	Yes	20	17.5%
	No	94	82.5%
	Maybe	0	0%
Do you think, simulator based training workshops can help you to get surgical skills in these days?	Yes	78	68.4%
	No	16	14.0%
	Maybe	20	17.5%
How much reduction in your clinical and surgical activities occurred these days?	10 - 20%	4	3.5%
	20 - 40%	8	7.0%
	40 - 60%	24	21.1%
	60 - 80%	40	35.1%
	80 - 100%	38	33.3%

**Table 2:** Responses of Urology residency trainees on study research questions.

Considering a cut-off of 50% for the proportion of residents who completely suppressed their activities as a substitute metrics to define residents' training as "compromised", first year residents experienced impairment in their ward duties, while - second, third- and

fourth-year residents training not compromised and they performed routinely ward duties. In addition, for residents in their final year, the training in all ward activities also compromised. This difference was found to be statistically significant ( $p < 0.001$ ). No significant difference was observed across the years of training in the proportion of residents who experienced reduced number of surgeries ( $p = 0.112$ ). All the residents were experiencing decreased number of surgeries and clinical activities in their training during this pandemic. There was no significant difference across residency years regarding the proportion of residents those provided chance of online teaching by their department/hospitals ( $p = 0.051$ ). There was significant difference across residency years regarding the proportion of resident who reported that the online education programs (zoom/Webinar) are inadequate in number to teach them ( $p < 0.001$ ). The fourth and final year residents were significantly higher as compared to first, second- and third-year’s residents. Significant difference was also observed across residency years regarding the proportion of resident who reported that simulator-based training workshops were being conducted in their hospitals ( $p < 0.018$ ). Similarly, significant difference across residency years regarding the proportion of resident was observed in the proportion of residents who reported that simulator-based training workshops could help them to get surgical skills in these days ( $p < 0.001$ ). The proportion of those who experienced reduction of 80-100% in activities in the COVID-19 period was significantly higher with  $p$  value  $< 0.001$  in fourth and final year residents as compared to first, second- and third-year’s residents (Table 3).

Statements	Categories	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year	p-value
Are you routinely performing ward duties as before this pandemic?	Yes	8	8	16	12	8	< 0.001*
		33.3%	50.0%	57.1%	54.5%	33.3%	
	No	16	4	12	6	16	
		66.7%	25.0%	42.9%	27.3%	66.7%	
	Maybe	0	4	0	4	0	
		0.0%	25.0%	0.0%	18.2%	0.0%	
Are you routinely performing surgeries as before this pandemic?	Yes	4	4	4	4	0	0.112
		16.7%	25.0%	14.3%	18.2%	0.0%	
	No	20	12	24	18	24	
		83.3%	75.0%	85.7%	81.8%	100.0%	
	Maybe	-	-	-	-	-	
		-	-	-	-	-	
Are you experiencing decreased number of surgeries in your training these days?	Yes	24	16	28	22	24	-
		100.0%	100.0%	100.0%	100.0%	100.0%	
	No	-	-	-	-	-	
		-	-	-	-	-	
	Maybe	-	-	-	-	-	
		-	-	-	-	-	
Are you experiencing decreased clinical activities in your training these days?	Yes	24	16	28	22	24	-
		100.0%	100.0%	100.0%	100.0%	100.0%	
	No	-	-	-	-	-	
		-	-	-	-	-	
	Maybe	-	-	-	-	-	
		-	-	-	-	-	

Did your department/hospital provide you chance of online teaching?	Yes	12	4	4	4	8	0.051
		50.0%	25.0%	14.3%	18.2%	33.3%	
	No	12	12	24	18	16	
		50.0%	75.0%	85.7%	81.8%	66.7%	
	Maybe	-	-	-	-	-	
		-	-	-	-	-	
Do you think online education programs (zoom/Webinar) are adequate in number to teach you these days?	Yes	4	4	12	0	0	< 0.001*
		16.7%	25.0%	42.9%	0.0%	0.0%	
	No	12	12	16	8	24	
		50.0%	75.0%	57.1%	36.4%	100.0%	
	Maybe	8	0	0	14	0	
		33.3%	0.0%	0.0%	63.6%	0.0%	
Simulator based training workshops are being conducted in your hospitals?	Yes	8	4	4	4	0	0.018*
		33.3%	25.0%	14.3%	18.2%	0.0%	
	No	16	12	24	18	24	
		66.7%	75.0%	85.7%	81.8%	100.0%	
	Maybe	-	-	-	-	-	
		-	-	-	-	-	
Do you think, simulator based training workshops can help you to get surgical skills in these days?	Yes	16	12	20	14	16	< 0.001*
		66.7%	75.0%	71.4%	63.6%	66.7%	
	No	8	4	0	0	4	
		33.3%	25.0%	0.0%	0.0%	16.7%	
	Maybe	0	0	8	8	4	
		0.0%	0.0%	28.6%	36.4%	16.7%	
How much reduction in your clinical and surgical activities occurred these days?	10 - 20%	0	0	4	0	0	< 0.001*
		0.0%	0.0%	14.3%	0.0%	0.0%	
	20 - 40%	0	0	4	0	4	
		0.0%	0.0%	14.3%	0.0%	16.7%	
	40 - 60%	12	4	0	4	4	
		50.0%	25.0%	0.0%	18.2%	16.7%	
	60 - 80%	8	8	16	4	4	
		33.3%	50.0%	57.1%	18.2%	16.7%	
	80 - 100%	4	4	4	14	12	
		16.7%	25.0%	14.3%	63.6%	50.0%	

Table 3: Responses of urology residency trainee’s year-wise.

### Discussion

Postgraduate residency training provides lifelong surgeon’s surgical skills and knowledge. Our study, response rate was 56.4%, more than the study conducted by Saltzman A., *et al.* that only 23% [9]. European Board of Urology survey explained the male to female ratio of

urologist in 22 European countries ranging from 1 - 11%. Overall female practicing urologists are few in number. 12.3% of our responders were female which reflected their proportion exactly [10]. There was almost equal representation of trainees from all years. All the residents experienced drop of routine clinical activities and 86% not involved in routine surgeries due to decrease exposure of health care workers and strategy to perform emergency surgeries. Routine surgeries and all elective services stopped during pandemic [11,12]. Substitute to training activities suggested, smart learning program which consists video conferencing, online teaching sessions, books examination and simulator-based training. Only 28.1% tertiary care hospitals provided chance to take part in online classes [5,7,13].

### Conclusion

Corona virus pandemic caused irreversible loss to routine learning process of urology residents in Pakistan. Final year residents suffered more at the terminal time of gain. Online clinical lectures and simulator-based skill enhancing activities could help to sustain training program. There is a need to conduct more online sessions and involve urology residents.

### Disclosure

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