

# Are we ready for urological subspecialty-based practice in India? The resident's perspective

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## ABSTRACT

**Introduction:** In the current era, every broad specialty has diversified into many subspecialties including urology, which is one of the most dynamic fields. The concept of early sub-specialization relies on excelling in a niche area of interest. While this concept is appealing to the most, no formal evaluation of our residency programs has ever been conducted with regard to their adequacy in terms of equipping residents to make informed sub-specialization choices. We performed a survey amongst urological residents, in an attempt to gather information on some unanswered questions related to our residency training programs and the concept of sub-specialization.

**Methods:** Using the Delphi principles, we conducted a survey consisting of 46 questions, amongst the Indian Urological residents ( $n = 85$ ), to assess the overall exposure to various subspecialties during their residency program, and the inclination of residents towards them.


**Results:** Residents get a fair exposure to endourology, uro-oncology, female urology and reconstructive urology during their residency. However, the same did not hold true for pediatric urology, andrology and laparoscopic/robotic surgery. 90% of the residents expressed an inclination towards academic practice, while 76.5% were interested in sub-specialization. 60% of the residents felt that they had obtained adequate exposure during residency to make a decision in this regard. Less than 20% were inclined towards female urology, andrology or pediatric urology as a career option.

**Conclusion:** There is a growing interest and inclination amongst Indian Urological residents to attain expertise in sub-specialised fields. However, our current residency programs need consolidated efforts to ensure an adequate exposure to all the aspects of Urology, especially in the subspecialties of pediatric urology, andrology and minimally invasive urology. Training should be optimized to a level, which enables the residents to take a well informed decision regarding their choice of subspecialised career path.

## INTRODUCTION

Since its establishment in 1961, the Urological Society of India (USI) has grown enormously and diversified into various subspecialties, reflecting the trends in the other parts of the world.<sup>[1]</sup> This is best exemplified by the dedicated subspecialty sessions, which are now common in all major national and international meetings, including the national conferences of the USI. Our dynamic specialty is full of diversities, varying from functional to organic problems, and benign enlargements to advanced malignancies. The patient's

age is no bar for our work, and we cater to a wide range of age groups from newborns to the elderly. There is little doubt that this diversity is a key factor in making urology unique, exciting, and one of the most sought-after and competitive specialties across the world. It is also well recognized that true excellence is more likely to be achieved when one can identify a niche area of focus. However, there are two sides to this coin. As a flip side to the concept of subspecialization, a few of us are wary of further fragmentation of an already fragmented system.<sup>[2]</sup> Some rightfully feel that the underserved areas of our country (of which there are many) may be hit the hardest by this "salami slicing" of our specialty.

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Irrespective of our thoughts on this issue, there is little doubt that the concept of subspecialization is here to stay. This is also being increasingly recognized by our residents in training. However, this is not an easy call to make for them. It requires adequate exposure and training in each subspecialty of urology, so that a trainee can make a conscious choice about his/her area of interest and pursue further expertise in his/her chosen subspecialty. The big question, however, is whether our current urological residency programs are structured adequately to enable the trainees to make that choice or not and whether the trainees themselves are willing or able to take the call for subspecialized practice immediately after completing their residency?

We conducted a survey among urological residents to shed some light on these unanswered questions about urology subspecialization in India. To the best of our knowledge, this aspect has not been explored in any publication till date.

## METHODS

In accordance with the Delphi method, we conducted an anonymous survey among 85 urology residents attending the – Urological Society of India-American Urological Association (USI-AUA) Board Review Course (15<sup>th</sup>–17<sup>th</sup> August, 2017, Hyderabad).<sup>[3]</sup> Survey questions were formulated by a robotic urologic oncology fellowship trained surgeon (AT) and then vetted by two senior colleagues (RS and GG) to assess for bias, dilemma, or ambiguity in questions or possible answers. To avoid any bias, the residents were asked to complete the survey anonymously, without mentioning their names or institutions. The source of the survey was also not disclosed to them.

The survey comprised of 46 questions divided into parts. The first part dealt with the current year of training in urology and the previous exposure to urological training for the particular individual. The second part was organized to assess the approximate work load of various urological sub-specialities performed at their respective training institutions. The presence of subspecialty clinics in their hospitals was also assessed in this part. The third part included the resident's exposure and training in certain representative surgeries or procedures within the different subspecialties of urology. This included basic as well as advanced surgical procedures in each subspecialty. For example, in endourology, we considered retrograde intrarenal surgery, mini-percutaneous nephrolithotomy (PCNL), ultra-mini PCNL, or LASER usage as advanced procedures, whereas in urologic oncology, exposure to surgeries such as retroperitoneal lymph node dissection and neobladder reconstruction were taken as an evidence of advanced training in the subspecialty. For pediatric urology, epispadias repair and redo hypospadias repair were considered high-end procedures, while in reconstructive urology, Boari flap reconstruction, redo pyeloplasty, and complex urethroplasty were accorded that

status. The fourth section explored the academic orientation of the candidates and inclination for academic-based practice. This also included their national or international presentations, peer-reviewed publications, and ethics committee approved projects. In the last three questions, the candidates were directly asked for their opinion about subspecialty-based practice and whether their exposure during residency was adequate for the decision-making in this regard. They were also asked to mention their field of choice for the same. A total of 85 respondents filled up the forms, which were analyzed for descriptive statistics to draw proportions and were represented in bar diagrams or pie charts.

## RESULTS

In general evaluation, we observed that the respondents of this survey were from different years of residency: 77.6%–3<sup>rd</sup> year, 17.6%–2<sup>nd</sup> year, and 4.7%–1<sup>st</sup> year, reflecting the proportional representation at the USI-AUA Board Review Course [Figure 1]. Most of the programs had either 2 (27.1%), 3 (23.5%), or 4 (22.4%) residents in each batch. For the assessment of proportion of work load in an individual subspecialty, we provided five options for response (<10%, 10%–25%, 25%–50%, 50%–75%, and >75%). About 68.2% of residents had exposure to endourology in the range of 50%–75% of all the urology-related work performed at their hospital; however, 27.1% of respondents were not performing ultrasonography on their patients themselves [Figure 1]. Nearly 40% of the residents did not have enough exposure to advanced endourology [Figure 2]. Laparoscopy and minimally invasive urological surgeries constituted <10% (for 36.5% residents) and 10%–25% (for 30.6% residents) of the overall workload, respectively [Figure 1]. Eight percent of the residents were performing initial steps of laparoscopy in the form of access for pneumoperitoneum creation and port placement, but half of them had not performed any further steps [Figure 2]. Uro-oncology work load amounted to 10%–25% (for 48.2% residents) and 25%–50% (for 37.6% residents) of the total training work [Figure 1]. Nearly 90% of residents mentioned that the management for uro-oncology patients at their hospital was guideline based, although almost one-third (30.6%) of them were never exposed to major surgeries in this subspecialty [Figure 2].

Approximately 80% of the residents had andrology-related surgical exposure amounting to <10% of the overall work [Figure 1]. The overall confidence level among trainees for acquiring diagnostic skills as well as for surgical skill development of basic and emergency surgeries in the field of andrology was limited [Figure 3]. Against that, residents had fair exposure to female urological surgeries to the tune of 10%–25% of total work load in nearly 40% of the respondents [Figure 3]. 83.5% of the residents were regularly exposed to female urological surgeries

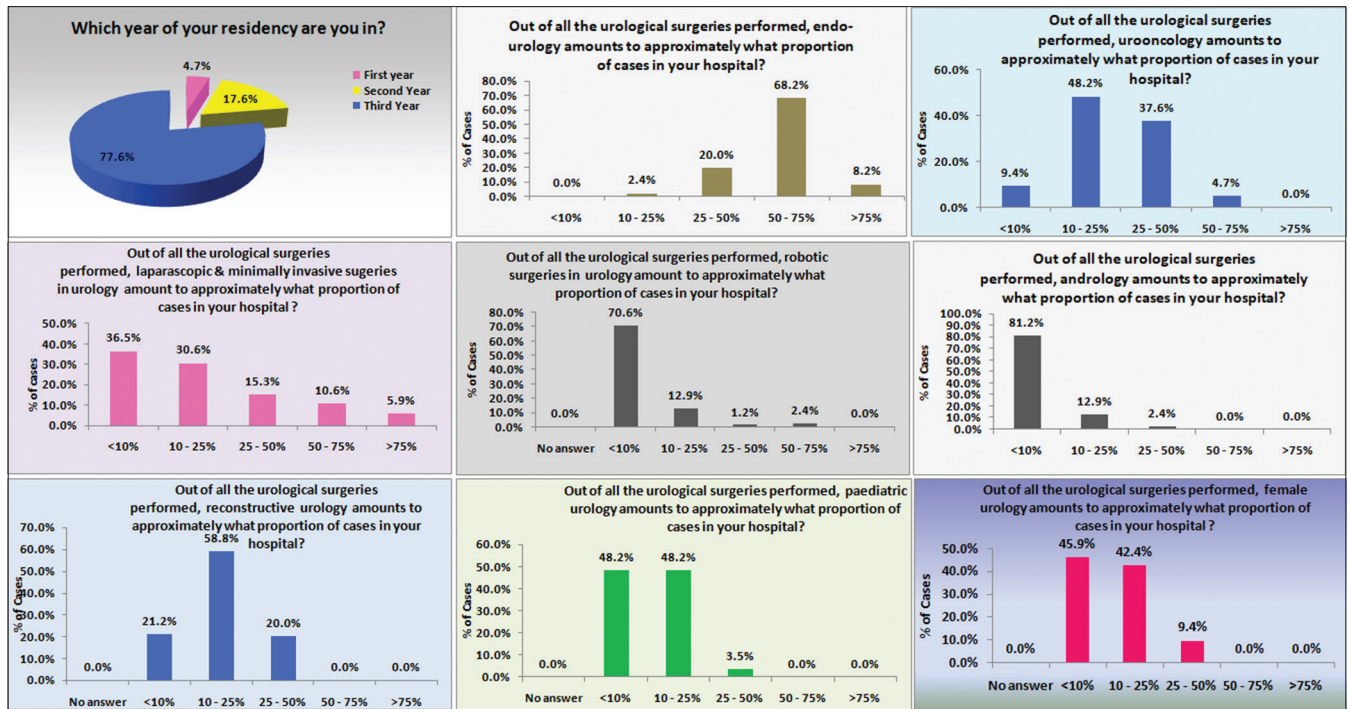


Figure 1: Responses related to overall exposure of different subspecialties in urology

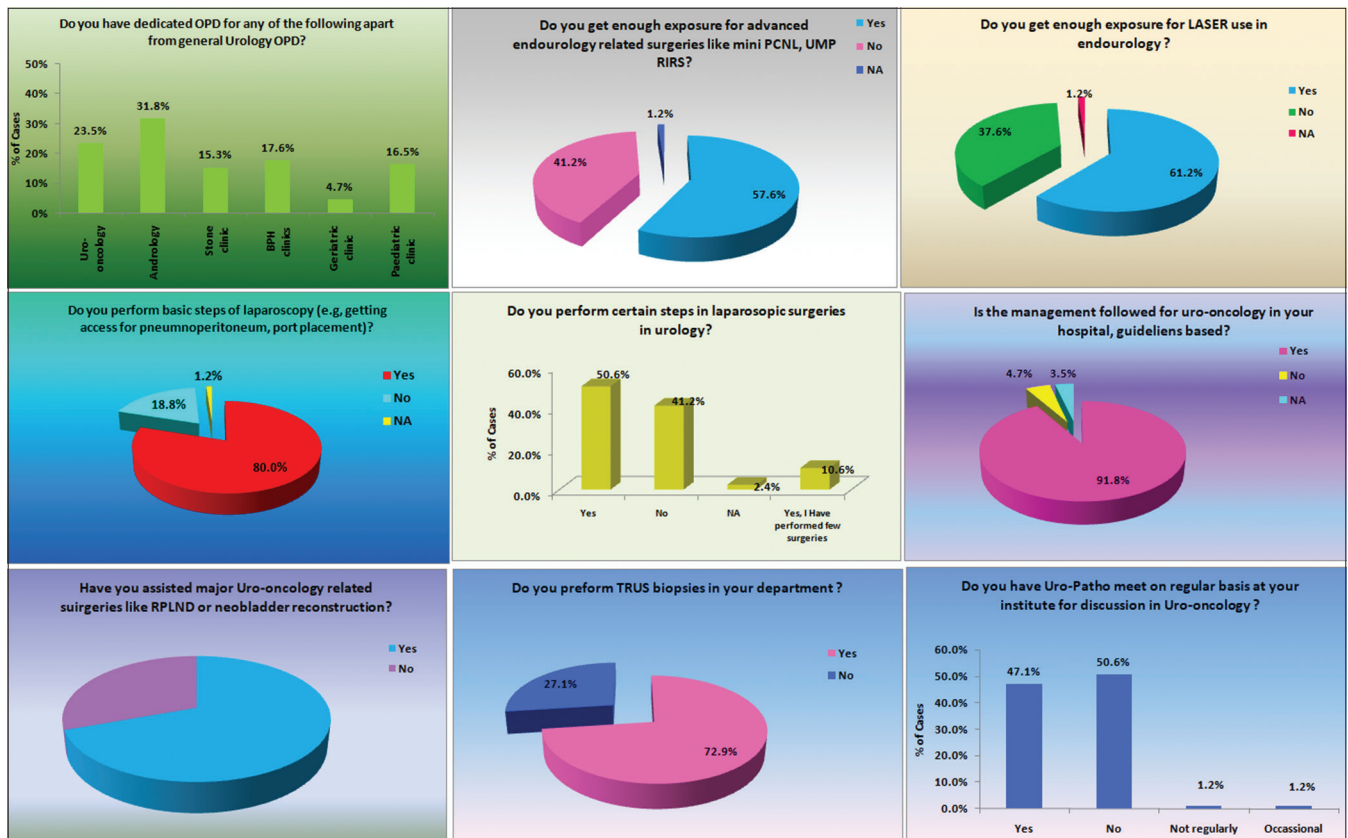


Figure 2: Responses related to exposure of advanced procedures of endourology, laparoscopic and minimally invasive surgeries, and uro-oncology

such as vesicovaginal fistula (VVF) repair or continence slings [Figure 3]. Reconstructive urology work comprised approximately 10%–25% in more than half the respondents

institution [Figure 1]. Almost three-fourths were performing certain steps of urethroplasty and almost 80% marked the positive response for exposure to complex reconstructive

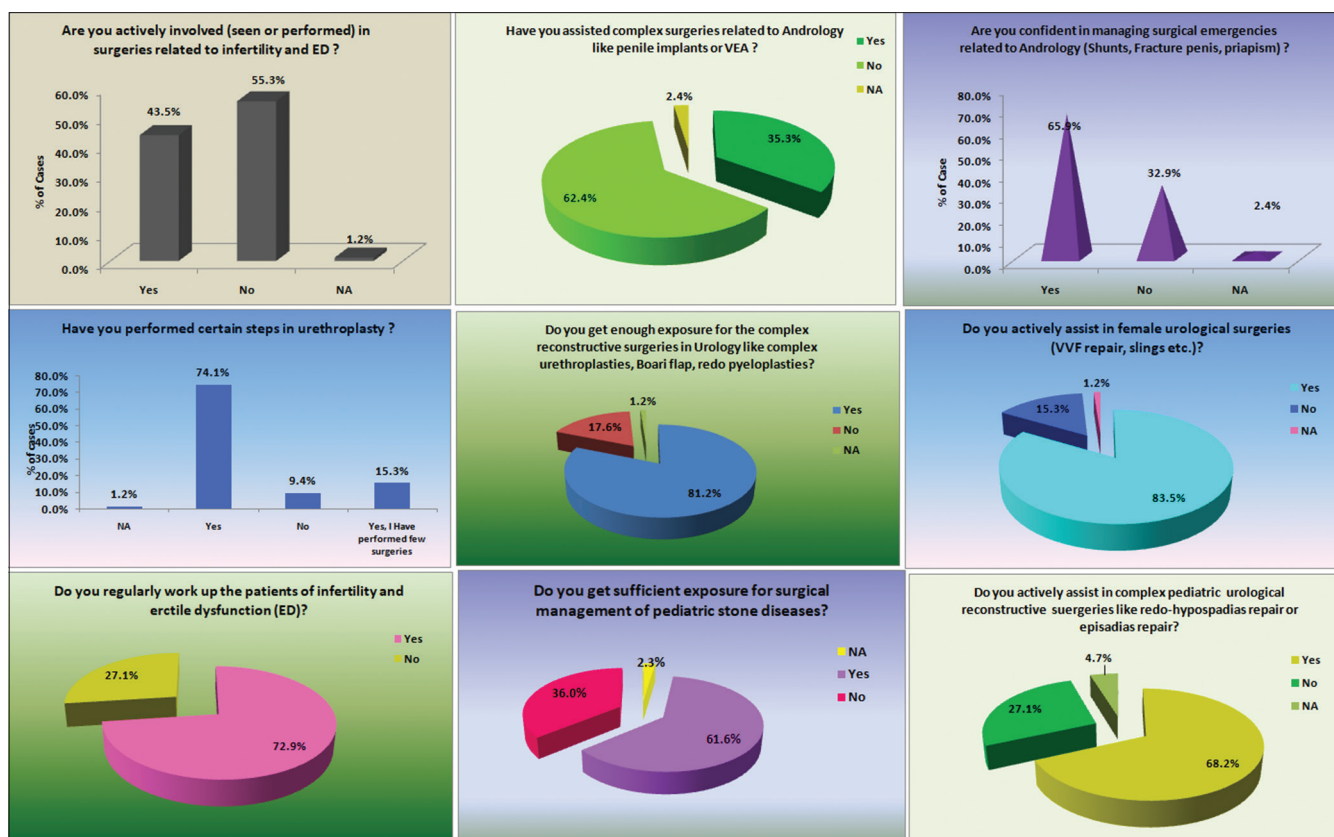


Figure 3: Responses related to exposure of cases in andrology, female urology, pediatric urology, and reconstructive urology

surgeries [Figure 3]. Pediatric urological surgeries amounted to 10%–25% (in 48.2%) and <10% (in 48.2%) of the total workload [Figure 1]. On detailed evaluation, one-third of the candidates did not have enough exposure to surgeries for pediatric urolithiasis and complex reconstructions [Figure 3].

Almost every resident had exposure to specific dedicated clinics for one or more subspecialties, the percentages of which were as follows: andrology clinic 31.8%, uro-oncology clinic 23.5%, benign prostatic hyperplasia clinic 17.6%, pediatric clinic 16.5%, stone clinic 15.3%, and geriatric clinic 4.7% [Figure 2]. When residents were asked about their interest in academic-based practice, 90% were inclined toward the same [Figure 4]. We found that journal club discussions were a regular practice. Most of the residents had at least one topic approved by the institutional ethics committee during their residency, with nearly two-thirds being some prospective interventional study [Figure 4]. Nearly 35% of residents had not presented a scientific paper in a national urology conference and only 8% had presented a paper in any international conference. Nearly three-fourths had not had an opportunity to visit a high-volume center in their respective area of interest, during their residency [Figure 4]. In the final evaluation, three-fourths of the residents were interested in pursuing subspecialized practice in urology [Figure 5]. Nearly 60% of the residents felt that they had an adequate exposure during their residency to facilitate this decision. Minimally

invasive urology (laparoscopy/robotics) emerged as a clear front-runner, with 43.5% expressing their wish to subspecialize in it. Other responses in descending order of preference were endourology 29.4%, uro-oncology 28.2%, andrology 10.6%, female urology 7.1%, and pediatric urology 2.4%. Around 10% of the residents were not in a position to mark a response to this question.

## DISCUSSION

Like in many other fields, it has been demonstrated beyond doubt that subspecialized practice improves outcomes in urology.<sup>[2,4-6]</sup> For instance, workers from Duke University found that increased pediatric subspecialization among urologists decreases the complications and mortality rates in an inpatient setting.<sup>[7]</sup>

It is customary to divide the field of urology into endourology, uro-oncology, pediatric urology, female urology, neurourology, reconstructive urology, minimally invasive surgery (laparoscopy/robotics), andrology, and renal transplantation with some overlap between most of these subspecialties.<sup>[8]</sup> The presence of varied options makes choosing one of them exciting – and confusing – at the same time. Our residents in training surely do not find themselves in an enviable position when it comes to taking these life-changing career decisions. For starters, our training institutions lack a uniformity in the quality (and quantity)



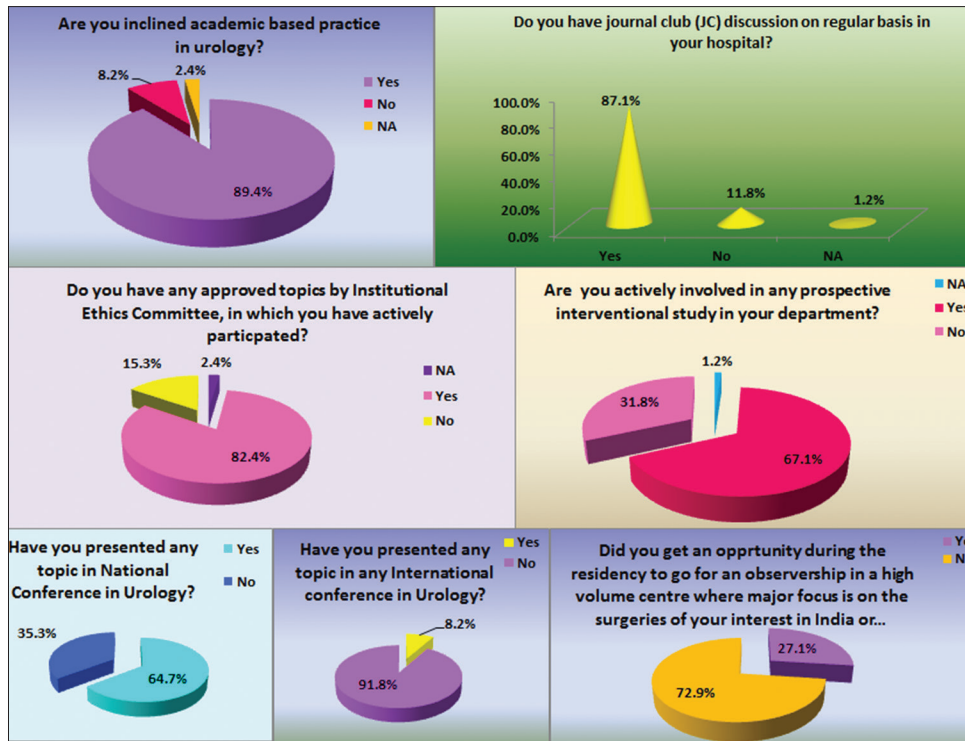


Figure 4: Responses related to research orientation and academic activities

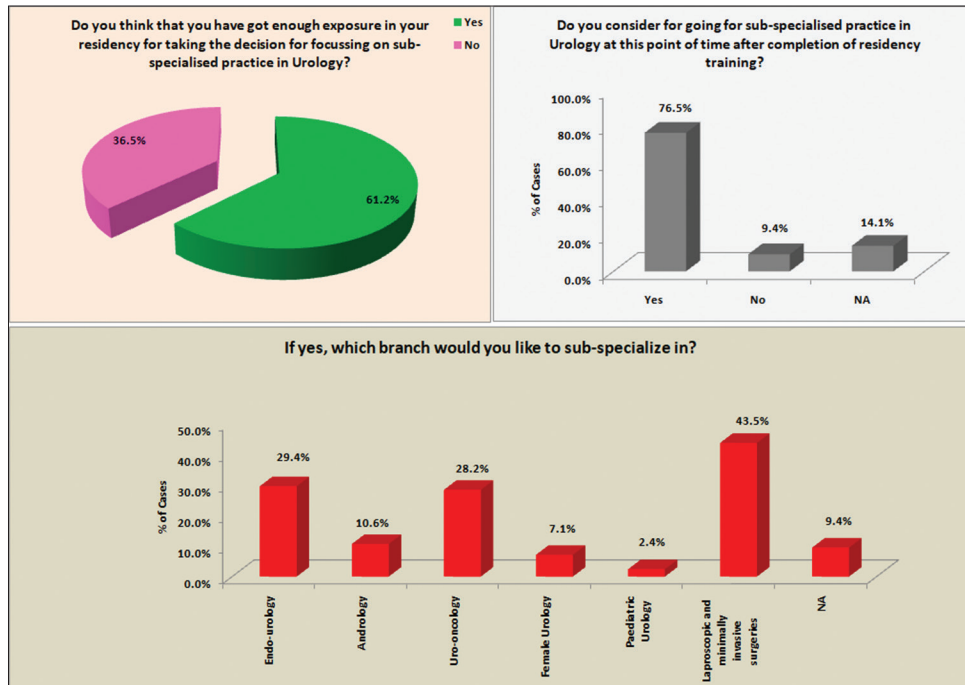


Figure 5: Responses related to opinion about subspecialized practice in urology

of training that they provide to our residents. While some centers provide world-class exposure and training in one or more subspecialties, others may still be struggling to provide basic urological training to the residents. These differences may be due to a variety of reasons, not the least because of the varied nature of the training hospitals (government versus private sector, tertiary versus community hospitals).

Till date, we have little information on the adequacy of our training systems in empowering our residents to take subspecialization decisions and their preferences regarding the same.

We found that across the spectrum, residents get adequate exposure in endourology, uro-oncology, and

reconstructive urology. However, the overall exposure to andrology, minimally invasive surgery, pediatric urology, and female urology is limited. Similarly, exposure for advanced endourology and LASER is very limited. While it is heartening to note that most training programs are following standard guidelines for cancer care, a large proportion of residents felt that the exposure for prostate cancer management continues to be limited. Most did not have training in reading magnetic resonance imaging films for the prostate, and almost a third were not performing transrectal ultrasound-guided prostate biopsies [Figure 2]. Uro-oncology training should incorporate regular uropathology and uroradiology meets, as well as disease management group-based tumor board discussions, which are the backbones for a strong uro-oncology program. It would be unrealistic for a resident to think of uro-oncology subspecialty as a career option, when he/she is not oriented to the same during residency training.

There also seems to be a scope for improving andrology training in India. It seems to be an underserved subspecialty with a huge lack of qualified professionals. Schirren proposed in 1996 that andrology should be established as a separate entity.<sup>[9]</sup> It has also been emphasized that training postgraduates in andrology would give us a chance of maintaining and developing this subspecialization for the urology community.<sup>[10]</sup> Pediatric urology is another potential area for improvement. This challenging field represents a zone of potential overlap between urologists and pediatric surgeons.<sup>[11]</sup> Improving exposure to pediatric stone management and reconstructions can alleviate the concern of losing urology territory to other specialties, as expressed by Marberger in this journal.<sup>[12]</sup> In laparoscopy and robotics too, residents should be performing at least some basic steps in common procedures such as laparoscopic simple nephrectomy. Else, we may not be giving due credence to 3 years of general surgical training before urological residency, which actually involves basic skill development in laparoscopy. The growing influence of robotics in our field, and in our country, also behooves us to ensure that our residents are well prepared for the future.

Research is an integral part of any training curriculum in medicine. This should ideally include clinical and basic research, with equal priority. Research orientation can only be inculcated during a residency program. Research-related training starts from the establishment of research curriculum, orienting residents for ethics submissions, research methodology, critical analysis of articles, and statistical analysis. Unlike the West, we do not have a dedicated year for research during the residency period – something which may be playing a part in our inability to produce high-quality original research in the quantity that we expect. This issue has

previously been flagged by us in an article reflecting the inadequacy of our 3-year urological residency program.<sup>[13]</sup> Our survey too was able to identify gaps in this aspect of our training, with more than a third of residents never having presented a paper at a national conference and <10% of the residents being exposed to an international conference in this regard. 16.5% of the residents did not have thesis during their residency, as per the survey. The period of residency can be productively utilized for prospective randomized trials with an adequate follow-up, as a part of a thesis. Even if half of our residents are involved in these high-quality studies, we can be the global leaders in clinical urological research. In this light, we have recently proposed a research development model with long-term goals to bridge the gaps in this field.<sup>[14]</sup> It is heartening to note that journal club discussions are a regular feature at most of our training centers. This is perhaps the best way for our residents to stay abreast with the latest research in our field. However, more needs to be done to encourage our trainees to attend and present their original work at national and international platforms. Similarly, publication of original articles in peer-reviewed journals should be accorded a high priority during training.

Perhaps, the most promising output from this survey was that our residents are inclined towards an academic-based practice in their career. The majority (76.5%) of our residents opined in favor of pursuing subspecialized practice, and almost two-thirds of our residents had got an adequate exposure during their residency to make this decision. Consolidated efforts will hopefully further improve these numbers in the future. While minimally invasive surgery, uro-oncology, and endourology remained popular choices for subspecialization, the same could not be said about pediatric urology, andrology, and female urology. The practitioners of these arts need to find innovative means to inculcate enthusiasm for these interesting and challenging subspecialties. Dedicated traveling fellowships could offer a potential path for developing an interest for these areas among the residents.

While being the first of its kind information gathering exercise on this topic in our country, there is little doubt that our survey has its limitations. For starters, the total sample size of 85 residents represents a small proportion of the total number of urology residents in the country. Second, all the years of residency were not represented equally. However, we feel that since around 80% of respondents were from the 3<sup>rd</sup> year of residency, they were likely in a better position to comment upon the intricacies of their training programs vis-a-vis their junior colleagues. We also feel that in spite of the smaller numbers, this data can be generalized to a broader national level in view of the fact that the board review course (venue of the survey) is very popular with an involvement of residents from across a spectrum of training institutes in India.

## CONCLUSION

Our survey conducted across urological residents representing a variety of urological training programs across the country shows a strong academic inclination among our trainees with growing interest in subspecialized urological practice. Concerted efforts are needed, however, to ensure adequate exposure of our residents during their training, both in terms of clinical- and research-based activities.

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