

GLOBAL STATE OF UROLOGY

Landscape of Urology in Africa: Diversity and Disparity

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General Consideration

African countries have different sociocultural, ethnic, genetic, educational, and economic characteristics. In addition, for a good representation of the different African countries, the continent is divided into 5 geographic zones: Northern Africa, Southern Africa, Central Africa, Western Africa, and Eastern Africa. And because of clear ethnic differences in the northern part, with a great Arabic, Egyptian, and Berber race presence and a southern border represented by the Sahara, sub-Saharan Africa (SSA) is a well-defined area dominated by a Black population. All these differences translate into differences in urology manpower (Figure). There is a significantly higher number of urologists in Northern Africa compared to SSA with the exception of the South African Republic.

Landscape of Urology Practice

Obstetric fistula is a common condition reflecting poverty and limited access to health care mostly in SSA. Obstetric fistula not only is frequent, but also is often complex due to the initial lesions and/or failure of a primary surgery. Reconstructive surgery, mostly the treatment of obstetric fistula, has become an area of expertise in many SSA countries due to the high prevalence of this condition. This expertise was achieved in collaboration with surgeons from Europe and the US through mission trips. While this condition is

still present, its prevalence is decreasing due to the strategies to eliminate obstetric fistula.¹

Seemingly great efforts have been made to prevent and treat hydroceles caused by filariasis. The advanced techniques and minimally invasive surgery are greatly progressing, yet there remain disparities across countries. Most Northern African countries and the South African Republic gradually adopted these techniques starting from the mid 1990s. In contrast, other SSA countries started developing these techniques in the 2020s. Such techniques were initially lower and upper urinary tract endoscopy, and open radical prostatectomy and cystectomy, and progressively percutaneous nephrolithotomy and extracorporeal shock wave lithotripsy, and also recent benign prostatic hyperplasia techniques.

To date, robot-assisted surgery is only performed in South Africa, but it is expected to be performed soon in Northern Africa.

The incidence of urological cancers is not the same between regions. Bladder cancer is the most common cancer in most Northern African countries, while prostate cancer is the most common cancer in SSA,^{2,3} where it significantly affects public health.⁴ Prostate cancer detection uses digital rectal examination and serum PSA test, and more recently multiparametric MRI; however, in many countries access to imaging is not always available.

Access to health care is different between African regions, and this is mostly due to the very low number of confirmed urologists in some countries (Figure).

Disease Profiles and Specifics

Priapism in SSA is mostly caused by sickle cell disease, and many patients are referred late to urologists. Consequently, when a penile prosthesis is performed, even experts deal with challenging and difficult cases caused by fibrosis of the corpora cavernosa.

Urethral stricture surgery poses a problem due to the high prevalence and limited training. The condition is mostly caused by urethritis and pelvic trauma and to a lesser degree by endoscopy. Cases are often complex due to failed primary surgical treatment including multiple prior endoscopic treatments and technical difficulties in performing buccal mucosa graft urethroplasty, especially in a difficult environment (high weather temperatures, moisture, inadequate hygiene, etc). There is also a lack of adherence to diagnostic and treatment guidelines. Therefore, training is key as shown by the evaluation of outcomes of IVUmed teaching in Senegal⁵ demonstrating a 3-fold increase in good outcomes after treatment and the importance of remote surgical mentorship.⁶

Generally, the rate of advanced cancers is also an issue since most patients are referred with metastatic cancers. This emphasizes the lack of population screening, especially in prostate cancer.⁶

The South-South Collaboration

The urologists training and education exchange has been in development for a few decades between Northern Africa and SSA, but it needs to be strengthened. A collaboration is also well developed between the Southern and Eastern countries, and within SSA. In French-speaking SSA, most urologists were initially trained in Senegal before other residency programs were consolidated in Côte d'Ivoire, Cameroon, Mali, Guinea, Benin, and Burkina Faso.

The Collaboration Beyond Africa

Experts from the US, Asia, and Europe travel to African countries to participate in conference masterclass and training programs. African urologists travel to European centers for scholarship programs. This includes Société Internationale

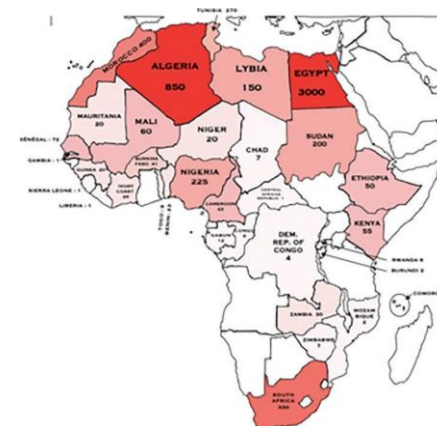


Figure. Map of urology workforce in Africa as of June 2023.

d'Urologie fellowship, AUA post-doctoral scholarship, and diverse fellowship training in France and Belgium.

Philanthropic surgical missions have been very successful in many countries including IVUmed, the British Association of Urological Surgeons, and the European Association of Urology. Besides those comprehensive missions, many other groups or individual urologists have contributed to mission trips in Africa. IVUmed⁷ has been particularly involved in Senegal in pediatric urology,⁸ reconstructive urology,⁶ and minimally invasive urology. In collaboration with Val de Grace Hospital and Tenon Hospital in Paris, Professor Gueye from Grand Yoff General Hospital in Dakar also developed an international diploma in endourology involving the use of a simulator.⁹

In an attempt to reorganize fellowship training globally, the Pan-African Urological Surgeons' Association (PAUSA) will start a new fellowship program in 2024 allowing young urologists to have 6 months of training in a selected center in Africa and beyond Africa.

The Role of PAUSA Going Forward

Creating African regional hubs

This will allow neighbor countries to develop well-organized, scheduled educational and training

programs (eg, simulation and training centers, reference centers, academic exchange, masterclass). Instructors will be experts from Africa and beyond Africa.

Strengthening PAUSA groups of interest and subspecialties

PAUSA now has a list of African experts in the different subspecialties. The interest groups of PAUSA will be involved in training and mentoring of urologists across the continent. They will also adapt the international guidelines to the African context and start developing guidelines for African populations. In collaboration with PAUSA subregions, the interest groups will organize webinars including case-based discussion in order to explore and understand the particularities of urology and real-world practice in African countries.

Developing research

Developing research will start with open observational studies and clinical trials. The population diversity in Africa offers a unique opportunity for collaborative research in all aspects of urology. In fact, the studies conducted in prostate cancer in the MAD- CaP (Men of African Descent and Carcinoma of the Prostate) consortium have shown the possibility of creating a good research infrastructure in the genomics of prostate cancer in Africa.¹⁰ The study, conducted mainly in Senegal, Ghana, Nigeria, and South Africa with funding from the National Cancer Institute, has started unveiling genomic aspects of prostate cancer in Black males with implications for the understanding of prostate cancer in African American men.¹¹ Seemingly the PAUSA Reconstructive Urology interest group is working to develop a research program to

improve patient management and quality assurance. The same model could be used in different cancers and other conditions.

Creating an African dataset (eg, African Prostate Cancer Study) and developing a platform for real-world data with the collaboration of international programs

The aim is to explore the great potential of diversity in Africa that is unfortunately unmapped. Efforts will be geared to bridge the gap of disparity and inequity between African regions.■

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