Challenges and Advances in Surgical Care in Malawi: A Report on Urolink's 2025 Visit

Written by Brendan Berry (ST7 Urology Registrar) – The Royal Marsden Hospital

Introduction

Surgeons in Malawi face significant challenges in delivering safe and effective surgical care. Among these, the severe shortage of healthcare professionals is perhaps the most pressing. With only approximately 50 surgeons serving a population of 22 million, Malawi has one of the lowest surgeon densities in the world. [1] This results in an overwhelming workload, necessitating stringent prioritisation based on the severity of presenting conditions.

Urolink's 2025 Visit to Kamuzu Central Hospital

During our week-long visit to Malawi with Urolink in February 2025, we observed first-hand the critical shortage of urology specialists. Currently, only two consultant urologists are practicing in the country, both located at Kamuzu Central Hospital (KCH), which serves a catchment area of eight million people and provides tertiary-level urology referrals nationwide.

Over the past two years, Urolink has engaged with KCH to establish sustainable support structures and to provide both theoretical and practical training to urology and gynaecology consultants and trainees.

This year's visit included the following Urologists:

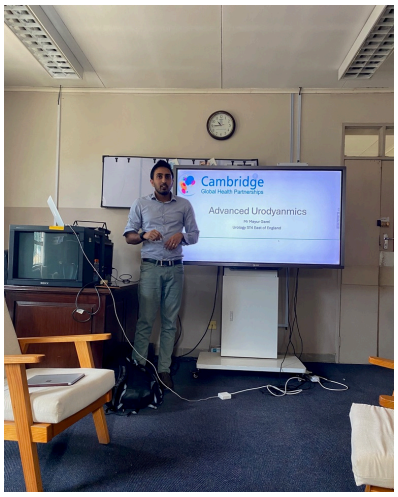
- Ms Suzie Venn – Consultant (Urolink)
- Miss Tamsin Greenwell – Consultant (Urolink)
- Mr Nikesh Thiruchelvam – Consultant (Cambridge Global Health Partnership)
- Mr Brendan Berry – Registrar (The Urology Foundation)
- Mr Mayur Gami – Registrar (Cambridge Global Health Partnership)

Our focus during this visit was on the assessment and management of female urinary incontinence, a condition affecting 22.1% of the population in the UK, though its prevalence

in Malawi remains unknown.[2] Despite its burden, no surgical interventions for urinary incontinence are routinely offered in Malawi.

Training and Equipment Support

To enhance local surgical capacity, we delivered a comprehensive training program, which included lectures, urodynamic demonstrations, clinical support, and collaborative surgeries. A list of all the weeks activities can be found in *Table 1*. Additionally, we supplied reusable medical equipment donated by various medical technology companies to complement the urodynamics machine provided the year previously.



Resource Limitations and Infrastructure Challenges

Malawi's healthcare infrastructure is severely limited, with many district hospitals lacking essential surgical equipment and supplies. Daily shortages of gloves, gauze, disinfectants, blood, antibiotics, and analgesics are common. One notable issue we encountered was the reliance on Cidex sterilization techniques, which are known to cause skin irritation, allergic reactions, and asthma.[3] Cidex also has suboptimal disinfection properties, requiring a 10-hour contact period for effective sterilisation, a standard rarely met in the busy operating theatres. As a result, instruments are often reused after only 20 minutes of immersion, under the mistaken assumption that they are sterile. [3]



Surgical Cases and Challenges

On our first afternoon in Malawi, we attended KCH to review two patients scheduled for surgery the following day. The first patient was a 44-year-old woman with a vesicovaginal and ureterovaginal fistula resulting from obstructed labour at age 14. After an unsuccessful repair she subsequently underwent a cutaneous urostomy, a procedure rarely performed in high-income healthcare settings. As a result of this, she had endured social ostracization, relationship breakdowns and severe mental health challenges for the last 30 years. She successful underwent an abdominal approach to a vesicovaginal fistulae repair + clam cystoplasty + ureteric reimplantation.

The second case involved a male patient with newly diagnosed miliary tuberculosis and renal failure due to bilateral hydronephrosis. His left kidney had lost function secondary to poor bladder compliance and ureteric reflux, necessitating a clam cystoplasty and reimplantation of his scarred right distal ureter to preserve kidney function and avoid dialysis. Given the disproportionate cost of haemodialysis in Malawi, approximately $20,000 per patient per year, surgical interventions that lower bladder pressure and improve compliance are crucial and cost-effective solutions.[4]

Over the following days, additional surgical patients requiring intervention were identified through clinic evaluations. Some cases necessitated formal urodynamic studies to refine diagnoses. This providing an opportunity for further hands-on teaching included guidance on conducting urodynamic assessments, interpreting traces and troubleshooting in complex cases. Combined with formal, lecture-based instruction on urodynamics, both registrars and consultants reported increased confidence in independently managing urodynamic lists at the end of our visit.

Other operations performed throughout the week included rectus fascial sling, clam cystoplasty, Mitrofanoff revision and urethral bulking procedures. A comprehensive list of all the cases performed is presented in *Table 1*.

Barriers to Surgical Access

While discussing the surgical plan and postoperative recovery patients frequently became concerned regarding the financial burdens of a lengthy hospital stay and the time, they would be unable to work. Approximately 84% of Malawi's population resides in rural areas with limited infrastructure and road access.[5] Recent Chinese investments has improved transport and road networks, but many patients still struggle to afford the $2-4 transportation cost to hospitals.[1] Additionally, cultural beliefs present significant barriers, with over 74% of Malawians believing in witchcraft, leading many to seek traditional healers before pursuing medical care.[6] This often results in delayed presentations and more complicated surgical cases. Social stigma or lack of educations surrounding certain diseases, such as tuberculosis, schistosomiasis and HIV, further discourages individuals from seeking timely medical intervention.[7]

Operating Theatre Observations

All the surgical cases during our visit were carried out with Malawian and UK consultants operating collaboratively. The surgeries were live streamed to a lecture theatre to facilitate real-time discussion and learning for other trainees and consultants. This provided as a great educational opportunities and the videos were saved for further viewing.

Multiple challenges in the operating theatre were also evident. One theatre lacked air conditioning, making long procedures in 30°C heat physically taxing for both patients and surgeons. This also increased risks of post operative infection. Power cuts also posed a significant challenge especially during heavy rains, adding significant delays between and during cases. Equipment quality was also often suboptimal with suppliers commonly

providing non-durable, low-quality instruments. However, Malawian surgeons demonstrated exceptional adaptability and resourcefulness, optimising available materials while minimizing waste.

Postoperative Care and Nursing Shortages

Postoperatively, the vesicovaginal fistula case was transferred to critical care, where 24-hour nursing support was available. All other cases throughout the week were transferred directly to the general wards. At Kamuzu Central Hospital (KCH), general wards face a severe shortage of nursing staff, relying heavily on family members to provide patient care. Due to financial constraints, nurse-led wards are not feasible, placing the responsibility of post-operative recovery on patients and their families. At times this setup does put complex post operative patients at risk. During our week, one patient was left with a disconnected catheter overnight, resulting in urine-soaked bedding. Other patients exhibited early signs of severe pain and sepsis, yet no observations were conducted for several hours overnight.

Despite these challenges, it was evident that with minimal funding and resources, the staff were doing the best they could. Other issues, such as medication shortages, also posed significant challenges. Notably, low-molecular-weight heparin is unavailable across Malawi. Clinicians are therefore quick to ensure postoperative mobilisation was undertaken to help mitigate risks from venous thromboembolism.

The general wards at the hospital accommodate up to 100 patients, most of whom are trauma victims, often resulting from violence or motorcycle accidents. Beds are typically placed very close together, raising concerns about the potential spread of infections, especially when cases of malaria emerge within the facility. Prolonged inpatient stays, either while awaiting surgery or recovering from surgery trauma or complex illnesses, further exacerbates the issue of bed shortages, limiting access to elective surgical care. Malawi's surgical case rate remains critically low, estimated at only 289 to 747 procedures per 100,000 population, far below that of developed countries.[8] Delays of more than 24 hours for urgent surgical interventions are common, contributing to higher mortality rates.[9] These systemic challenges highlight the urgent need for increased investment in surgical capacity, training, and infrastructure.

Outpatient Clinics and Patient Recruitment

Each morning, prior to surgery, we attended a joint urology and gynaecology clinic, typically seeing 5-10 patients who had travelled long distances for consultation. Patient recruitment was facilitated through messages sent to clinical officers across Malawi in the weeks leading up to our visit. These officers play a critical role in rural healthcare delivery, bridging the gap between remote communities and hospital services. However, recruiting patients remained challenging due to the visit coinciding with the harvest season, during which rural individuals prioritise agricultural work over medical visits.

This highlighted the need for improved outreach strategies, such as radio broadcasts and social media campaigns. However, these efforts must be balanced with the healthcare

system's capacity, as an influx of patients beyond what facilities can accommodate may overwhelm existing resources.

Table 1: Operations and activities undertaken during the visit

	Teaching	**Operations**	**Clinic**	**Urodynamics**
Day 1	-	-	Review pf patients undergoing surgery on Day 2	-
Day 2	Lectures on: • Stress urinary incontinence, • Urethral bulking agents, • Rectus fascial sling • Colposuspension	• Abdominal approach to vesicovaginal fistulae repair + clam cystoplasty + ureteric reimplantation • Clam cystoplasty	10 patients seen in in Urogynae clinic	-
Day 3	Live feed to surgery Viva scenarios with trainees Lectures on: • Urethral diverticulum • Vesicovaginal fistulae	• Cystoscopy procedures • urethral diverticulectomy	8 patients seen in in Urogynae clinic	3x patients underwent Urodynamics
Day 4	Live feed to surgery Lectures with video link to surgeons across Malawi: • basic and advanced urodynamics • Pelvic anatomy • Overactive bladder • Neuropathic bladder and management	• Cystoscopy procedures • Clam cystoplasty • Rectus Fascial sling	8 patients seen in in Urogynae clinic	-
Day 5	-	-	Patients seen in in Urogynae clinic	1x patient underwent UDS
Day 6	Live feed to surgery Lectures on: • Ileal conduit • Clam cystoplasty • Bladder pain syndrome	• Urethral bulking (Bulkamid) Procedures • Rectus Fascial sling	-	-

Summary of the Visit, Future Prospects and My Personal Reflections

By the end of our visit, Malawian surgeons had successfully developed competence in performing basic urodynamics, urethral bulking, rectus fascial slings and clam cystoplasty procedures. While these advancements mark significant progress, their long-term sustainability depends on the continued identification and management of appropriate patients, as well as the ability of surgeons to integrate these techniques into their already demanding workloads.

Strengthening Malawi's surgical infrastructure and workforce remains crucial to enhancing access to high-quality surgical care and addressing the country's considerable unmet surgical needs. Notably, Malawi now has six newly funded trainee urologists, each committed to improving surgical standards across the country. Urolink will maintain close collaboration, offering ongoing guidance and support wherever possible.

I am deeply grateful to The Urology Foundation (TUF) for supporting my visit to Malawi, which allowed me the opportunity to contribute, in a small but meaningful way, to improving the standard of urological care for patients in the region. At a time when Western aid budgets are increasingly constrained, I feel privileged to have been granted this opportunity.

It is important that such visits generate significant and lasting benefits for local clinicians and their communities. Effective collaboration, ongoing communication, and meticulous planning are essential to ensuring sustainable improvements in healthcare delivery. I intend to maintain contact with many of the clinicians I met in Malawi and foster enduring professional relationships, with the goal of undertaking future surgical teaching initiatives both in Malawi and across other countries with less developed healthcare systems.

Working in a setting with such limited healthcare resources provides a profound perspective on the importance of resource optimisation in Western healthcare systems. Malawi presents a significant need for advancements in healthcare development. Despite the constraints, it offers a unique environment for innovation, adaptability, and professional growth that I hope to take further advantage of in the remainder of my training and into consultancy.

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