

From Catheter Dependence to Definitive Care: Evaluating an Equity-Focused TURP Pathway in a Resource-Limited Setting

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Abstract

Background

Delayed access to endoscopic surgical care for benign prostatic hyperplasia (BPH) remains a major challenge in low-resource settings, where financial and systemic barriers frequently result in prolonged catheter dependence. While transurethral resection of the prostate (TURP) is an effective definitive treatment, access remains inequitable in many low- and middle-income countries. This study evaluated the impact of a structured, equity-focused, cost-adapted TURP pathway on access to definitive surgical care in Kaduna, Nigeria.

Methods

This prospective cohort study was conducted between January and December 2025 at a high-volume secondary healthcare facility in Kaduna State, Nigeria. Men aged ≥ 50 years with catheter-dependent BPH who had experienced delayed access to surgery due to financial or systemic barriers were enrolled. A cost-adapted TURP pathway incorporating resource optimization, streamlined perioperative evaluation, fast-track hospitalization, and bundled pricing was implemented. The primary outcome was successful access to definitive surgical care, assessed using time-to-surgery following medical optimization and comparison of post-enrollment access across predefined barrier groups.

Results

Sixty-three participants were included, with a median age of 72 years (IQR: 64–79). Financial barriers accounted for most delays in access to care (65.1%). Prior to enrollment, the median duration of catheter dependence was 82 days (IQR: 60–120; range: 30–600), reflecting substantial inequity in access to definitive treatment. Following implementation of the pathway, median time-to-surgery decreased to 3 days (IQR: 3–10; range: 3–17). Financial barriers were associated with significantly longer pre-enrollment delays ($p = 0.034$); however, no significant differences were observed in post-enrollment time-to-surgery ($p = 0.199$) or patient satisfaction ($p = 0.191$) across barrier groups, suggesting mitigation of pre-existing disparities.

Conclusion

A structured, cost-adapted TURP pathway significantly improved timely access to definitive surgical care and reduced observed disparities in access among previously disadvantaged patients with BPH in a resource-limited setting.

Introduction

Benign prostatic hyperplasia (BPH) is one of the most common urological conditions affecting aging men worldwide and remains a leading cause of lower urinary tract symptoms and bladder outlet obstruction. Its prevalence continues to rise globally due to increasing life expectancy, with a disproportionate burden in low- and middle-income countries where health systems are often under-resourced [1, 2]. In sub-Saharan Africa, patients frequently present at more advanced stages of disease, often with complications such as urinary retention, reflecting delayed access to care [3, 4].

A defining feature of BPH presentation in this setting is prolonged catheter dependence, which often arises from the inability to access timely surgical intervention. Evidence from African and Nigerian cohorts shows that urinary retention and catheter-dependent states remain the most common indications for surgical treatment, highlighting systemic delays in care delivery [5, 6]. These delays are largely driven by financial barriers, limited availability of endoscopic services, and inefficient referral pathways.

Chronic catheterization is associated with substantial morbidity, including recurrent urinary tract infections, bladder dysfunction, urethral trauma, and poor quality of life. It also imposes cumulative financial and psychosocial burdens on patients and their families [7, 8]. Beyond individual patient impact, prolonged catheter dependence represents a failure of timely surgical access and reflects broader inequities within the healthcare system.

Transurethral resection of the prostate (TURP) remains the gold standard surgical treatment for symptomatic BPH, with well-established efficacy in relieving bladder outlet obstruction and improving urinary outcomes [9]. Contemporary evidence continues to support its safety and effectiveness across diverse healthcare settings, including low-resource environments [10]. However, despite its clinical effectiveness, access to TURP remains uneven, with many patients unable to undergo surgery due to cost constraints and limited surgical capacity [11].

Global surgery frameworks increasingly emphasize equity in access to surgical care, defined not only by the availability of services but by the ability of disadvantaged populations to obtain timely and appropriate treatment [12]. However, most existing urological studies in low-resource settings focus primarily on perioperative outcomes rather than the upstream barriers that prevent patients from accessing definitive care. There is, therefore, a critical need for interventional studies that explicitly target underserved populations and measure improvements in access.

Recent local evidence, including prior work on post-TURP outcomes in Nigeria, has highlighted the burden of complications associated with delayed presentation and prolonged catheterization [13]. These findings underscore the need to move beyond reporting surgical outcomes toward interventions that address the structural and financial barriers limiting access to definitive care.

This study was therefore designed to evaluate a cost-adapted, standardized TURP pathway aimed at improving equitable access to surgical treatment among financially and systemically disadvantaged patients in Kaduna, Nigeria. The primary objective was to assess successful access to definitive surgical

care, defined as the ability of previously catheter-dependent patients to undergo TURP following enrollment into the pathway, and the extent to which pre-existing disparities in access were mitigated.

Secondary objectives included evaluating pre-enrollment delays as a measure of baseline inequity, assessing time to surgery following medical optimization, determining perioperative complication rates, and measuring patient-reported satisfaction across the domains of access, affordability, and overall experience.

Methods

Study Design

This was a prospective cohort study conducted at a high-volume secondary healthcare facility in Kaduna State, Nigeria, serving both urban and rural populations from January 2025 to December 2025. The study evaluated the implementation of a structured, equity-focused transurethral resection of the prostate (TURP) care pathway aimed at improving access to definitive surgical treatment among underserved patients with benign prostatic hyperplasia (BPH).

Study Participants

Participants were recruited to reflect financially and systemically disadvantaged individuals who would otherwise have experienced delayed or no access to TURP. Eligible participants included men aged 50 years and above with a clinical diagnosis of benign prostatic hyperplasia (BPH) requiring surgical intervention who were catheter-dependent for four weeks or longer due to inability to access surgery, and who met at least one of the following criteria: self-reported inability to afford TURP, or two or more prior healthcare visits without undergoing surgery due to systemic barriers, including hospital delays, lack of endoscopic equipment, or unavailability of a specialist.

Patients with suspected or confirmed prostate cancer, neurogenic bladder, urethral stricture disease, or severe comorbidities precluding surgery were excluded. Equity in this study was operationally defined as improved access to TURP among patients who would otherwise have experienced delayed or absent access due to financial or systemic barriers.

A formal sample size calculation was not performed; all eligible consecutive patients presenting during the study period were recruited.

Cost Adaptation Framework

To address financial barriers to accessing transurethral resection of the prostate (TURP), a structured cost-adaptation framework was developed and integrated into the care pathway. The objective of this framework was to reduce both direct and indirect costs of care while maintaining procedural safety and clinical effectiveness.

Cost reduction was achieved through deliberate optimization of surgical resources and perioperative care. Reusable endoscopic instruments were prioritized wherever feasible to minimize recurrent expenditure on disposable consumables. In addition, standard monopolar TURP systems were utilized instead of more costly bipolar platforms, with sterile water employed as the irrigation fluid. This approach leveraged readily available infrastructure and avoided the additional financial burden associated with advanced energy systems and proprietary equipment.

Anesthesia-related costs were further minimized through the routine use of regional (spinal) anesthesia, except where contraindicated. This reduced reliance on general anesthesia, thereby lowering medication costs, limiting the need for advanced airway equipment, and facilitating faster postoperative recovery.

Preoperative evaluation was streamlined to include only essential investigations required to ensure patient safety. Unnecessary laboratory and imaging studies were avoided, reducing out-of-pocket expenses and minimizing delays to definitive surgery.

Hospitalization costs were controlled by implementing a fast-track perioperative protocol. This included early mobilization, timely catheter removal within 48–72 hours where clinically feasible, or expedited discharge with catheter once clinically stable. By reducing the duration of inpatient stay, the pathway significantly lowered bed occupancy costs without compromising postoperative monitoring.

To enhance affordability and transparency, the pathway also incorporated bundled pricing, allowing patients to anticipate total treatment costs in advance. Where feasible, flexible payment arrangements and limited financial support mechanisms were employed to further reduce upfront financial barriers. The conceptual structure of the intervention is illustrated in Figure 1.

Ethical Consideration

Ethical approval for this study was obtained from the Ministry of Health, Kaduna State (NHREC /17/08/2025), prior to the commencement of data collection. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and adhered to national guidelines for research involving human participants.

Written informed consent was also obtained from all participants before enrollment. Participants were informed about the objectives of the study, the nature of the intervention, the potential benefits and risks associated with transurethral resection of the prostate (TURP), and their right to decline participation or withdraw from the study at any stage without affecting the quality of care received.

The study specifically involved financially and systemically disadvantaged patients, particular attention was paid to minimizing coercion and ensuring voluntary participation. Enrollment in the equity-focused TURP pathway was not contingent on participation in the study's research component. Patients who declined participation were still offered standard clinical care where feasible. No participant was denied treatment because of inability to pay, refusal to participate, or withdrawal from the study.

Confidentiality and privacy of participants were strictly maintained throughout the study. Participant information was anonymized using unique study identification numbers, and no personally identifiable information was included in the analysis.

All surgeries were performed by qualified urologists using established clinical protocols and standard perioperative safety measures. Participants underwent routine preoperative evaluation to confirm surgical fitness, and postoperative complications were monitored and managed in accordance with ethical clinical standards. Any adverse events were documented and appropriately treated.

Ethical equity in participant selection was ensured by designing inclusion criteria to identify individuals facing genuine financial and systemic barriers to definitive care. The study sought to reduce disparities in access without discriminating on the basis of ethnicity, religion, socioeconomic background, or place of residence. Efforts were also made to ensure transparency in the cost-adaptation process, including clear communication about expected treatment costs and available financial support mechanisms. Patients or the public were not involved in the design, conduct, reporting, or dissemination plans of our research.

Data Collection and Outcomes

Data were collected prospectively using a structured pro forma. Baseline variables included demographic and socioeconomic characteristics such as age, occupation, monthly income (optional), and distance to the hospital. Equity-related variables included the source of healthcare funding (self, family, insurance, or subsidy) and prior inability to undergo surgery due to cost. Clinical variables comprised the duration of catheterization prior to enrollment, the presence of a urinary tract infection, and perioperative details.

The primary outcome was successful access to definitive surgical care, operationalized as the ability of previously disadvantaged, catheter-dependent patients to undergo TURP following enrollment into the cost-adapted care pathway. This was assessed using two complementary measures:

- (i) time-to-surgery after medical optimization, defined as the interval in days from fitness for surgery to definitive intervention, and
- (ii) equity of access across barrier groups, evaluated by comparing time-to-surgery across predefined access barrier categories (cost, hospital delay, workforce limitations, and equipment constraints).

Successful access was inferred from both the overall reduction in time-to-surgery and the absence of significant differences in time-to-surgery between barrier groups, indicating that pre-existing disparities in access had been mitigated by the intervention.

To contextualize pre-intervention inequities, the duration of catheterization prior to enrollment was recorded as a proxy for delayed access to definitive care. This was defined as the time in days from initial catheterization to study enrollment.

Secondary outcomes included patient-reported satisfaction, assessed using a structured questionnaire in which participants rated three domains—ease of access to surgery, affordability of care, and overall satisfaction—on a five-point Likert scale. Satisfaction scores were summarized as medians with interquartile ranges. Additional secondary outcomes included perioperative complications, classified according to the Clavien–Dindo classification, and the catheter-free rate following surgery.

Statistical Analysis

Data analysis was performed using IBM SPSS version 25. Continuous variables were assessed for distribution and summarized as means with standard deviation or medians with interquartile ranges (IQR), as appropriate. Categorical variables were presented as frequencies and percentages.

The primary outcome—successful access to definitive surgical care—was evaluated using both overall and comparative measures. Time-to-surgery after medical optimization and pre-enrollment delay (duration of catheterization) were treated as non-normally distributed continuous variables and summarized using medians with IQR. Comparisons across access barrier groups were performed using the Kruskal–Wallis test.

Equity of access was further assessed by examining differences in time-to-surgery across predefined access barrier categories. The absence of statistically significant differences was interpreted as evidence of convergence in access following implementation of the care pathway.

Secondary outcomes included patient-reported satisfaction and perioperative complications. Satisfaction scores, derived from Likert-scale responses, were treated as ordinal data and summarized using medians with IQR, with comparisons across groups performed using the Kruskal–Wallis test. Perioperative complications were categorized according to the Clavien–Dindo classification and reported as proportions. Categorical variables, including complication rates and access barrier categories, were presented as frequencies and percentages without inferential statistical comparison..

All statistical tests were two-sided, and a p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 63 participants were included in the analysis. The median age of the cohort was 72 years (IQR: 64–79). The cohort was predominantly composed of patients experiencing financial barriers to accessing care, with cost accounting for 65.1% (n = 41) of cases. Other barriers included hospital-related delays (23.8%, n = 15), lack of a urologist (9.5%, n = 6), and limited equipment availability (1.6%, n = 1), as shown in Table 1.

Table 1: Distribution of Access Barriers

Access Barrier	n (%)
Cost	41 (65.1%)
Hospital delay	15 (23.8%)
Lack of a urologist	6 (9.5%)
Equipment limitation	1 (1.6%)

In terms of healthcare financing, most patients relied on informal or out-of-pocket mechanisms. Family support was the most common source of funding (58.7%, n = 37), followed by self-funding (34.9%, n = 22). Only a small proportion of patients received subsidy support (6.3%, n = 4), and none had formal health insurance coverage.

Pre-enrollment Access Delays

The duration of catheterization prior to enrollment—used as a proxy for delayed access to definitive surgical care—was prolonged and highly variable across the cohort. The overall median delay was 82 days (IQR: 60–120 days), with a wide range of 30–600 days, reflecting substantial inequities in access prior to the intervention.

Time-to-Surgery and Patient Satisfaction

Following enrollment in the equity-focused TURP pathway, time to surgery was markedly reduced and more consistent among participants. The median time from fitness for surgery to definitive intervention was 3 days (IQR: 3–10 days; range: 3–17 days).

Patient-reported satisfaction was uniformly high, with a median Likert score of 4 (IQR: 4–5; range: 3–5), reflecting a consistently positive patient experience. A summary of overall clinical outcomes is shown in Table 2.

Table 2: Overall Clinical Outcomes

Outcome	Median (IQR)	Range
Pre-enrollment delay (days)	82 (60–120)	30–600
Fit-to-surgery time (days)	3 (3–10)	3–17
Satisfaction (Likert score)	4 (4–5)	3–5

Association Between Access Barriers and Clinical Outcomes

When clinical outcomes were examined across access barrier groups, there was a statistically significant difference in pre-enrollment delay ($p = 0.034$). Patients facing financial barriers had the

longest delays before enrollment, with a median of 90 days (IQR: 60–160), compared with shorter, less variable delays among patients affected by hospital or workforce-related constraints.

In contrast, no statistically significant differences were observed in time-to-surgery after enrollment ($p = 0.199$) or patient satisfaction ($p = 0.191$) across access barrier groups. Median time-to-surgery was consistently short across all groups, and satisfaction scores remained uniformly high.

This convergence of post-enrollment outcomes across previously disparate access groups indicates that the structured TURP pathway effectively mitigated pre-existing inequities in access to surgical care. Although financial barriers were linked to substantial delays before enrollment, these disparities were no longer evident after entry into the care pathway. These findings are detailed in Table 3.

Table 3: Association Between Access Barriers and Clinical Outcomes

Access Barrier	n (%)	Delay Before Enrollment (days) Median (IQR), Range	Fit-to-Surgery Time (days) Median (IQR), Range	Satisfaction (Likert) Median (IQR), Range
Cost	41 (65.1%)	90 (60–160), 35–600	3 (3–10), 3–17	4 (4–5), 3–5
Hospital delay	15 (23.8%)	65 (60–90), 30–90	3 (3–3), 3–10	4 (4–5), 3–5
No urologist	6 (9.5%)	60 (60–82.5), 60–90	3 (3–8.3), 3–10	4 (4–4), 4–4
Equipment	1 (1.6%)	40 (40–40), 40–40	10 (10–10), 10–10	5 (5–5), 5–5
p-value	—	0.034	0.199	0.191

Comparisons across access barrier groups were performed using the Kruskal–Wallis test.

Clinical Outcomes

Following implementation of the equity-focused TURP pathway, patients proceeded to definitive surgery with favorable early clinical outcomes. The pathway was associated with successful restoration of catheter independence and a low frequency of serious postoperative events. Overall clinical outcomes following pathway implementation are summarized in Figure 2. Postoperative complications occurred in 12 patients (19.0%), with the majority classified as low-grade events (Clavien–Dindo I–II). Grade II complications were most common (14.3%), while only one patient (1.6%) experienced a Grade III complication. No life-threatening complications (Grade IV) or mortality (Grade V) were observed. The distribution of complications is presented in Table 4. All patients achieved successful catheter-free status following surgery, corresponding to a catheter-free rate of 100%.

Table 4: Postoperative Complications (Clavien–Dindo Classification)

Clavien–Dindo Grade	n (%)
Grade I	2 (3.2)
Grade II	9 (14.3)
Grade III	1 (1.6)
Total complications	12 (19.0)

Discussion

This study demonstrates that inequities in access to surgical care for benign prostatic hyperplasia (BPH) are not fixed but can be effectively mitigated through a structured, equity-focused care pathway. The findings highlight the interaction between sociodemographic disadvantage, financial and systemic barriers, and delayed access to definitive care, while providing prospective interventional evidence that these disparities can be reduced within existing resource constraints.

The sociodemographic profile of the cohort reflects the broader realities of surgical care in low- and middle-income countries (LMICs), where patients are typically elderly and rely heavily on out-of-pocket or informal financing. This lack of financial risk protection continues to drive delayed presentation and advanced disease. Recent evidence from sub-Saharan Africa confirms that BPH carries a substantial clinical and economic burden, with limited access to both medical and surgical management and significant impact on quality of life [14,19]. In such settings, delayed care is not simply a clinical issue but a structural manifestation of inequity.

The predominance of financial barriers in this study is consistent with global evidence demonstrating that affordability remains the single most important determinant of surgical access in LMICs. Patients experiencing cost-related barriers had significantly longer delays prior to enrollment, reinforcing the role of financial constraints in perpetuating prolonged catheter dependence and associated morbidity. This aligns with global estimates indicating that a large proportion of patients are unable to access surgery without incurring catastrophic expenditure [16]. Furthermore, recent analyses suggest that the economic burden of BPH in LMICs continues to limit uptake of effective treatment options, particularly where endoscopic services are not widely available [19].

The prolonged median pre-enrollment delay observed in this study (82 days, up to 600 days) reflects profound inequity in access to care and is consistent with regional reports of delayed surgical intervention. In many African settings, structural constraints—including limited urological workforce, inadequate equipment, and inefficient referral pathways—contribute to these delays [20]. Notably, the persistence of open prostatectomy in some settings, despite the availability of TURP, further illustrates the influence of resource limitations on treatment patterns [20].

The central finding of this study is the transformative impact of the equity-focused TURP pathway. The reduction in time-to-surgery to a median of 3 days represents a critical shift from delayed, fragmented

care to coordinated and timely intervention. More importantly, the absence of significant differences in time-to-surgery across access-barrier groups after enrollment demonstrates that the pathway reduced observed disparities. This convergence effect indicates that once patients entered the structured system, prior disadvantages—whether financial, institutional, or workforce-related—no longer determined their access to care.

This finding is particularly important when viewed in the context of existing literature. While studies such as those by Gyedu A et al. have extensively described barriers to surgical access, including workforce shortages and infrastructure deficits, there is a relative paucity of interventional studies demonstrating how these barriers can be overcome in practice [6]. The present study contributes to filling this gap by providing real-world evidence that system redesign—rather than resource expansion alone—can significantly improve equitable access.

From a global surgery perspective, these findings directly advance the objectives of the Global Surgery 2030 framework [12]. The dramatic improvement in time-to-surgery addresses the goal of timely access to essential surgical care. The cost-adaptation strategy contributes to financial risk protection by reducing the economic barriers that prevent patients from accessing treatment. Most importantly, the elimination of disparities across access barrier groups operationalizes equity as a measurable outcome, aligning with the broader goal of universal access to safe, affordable surgical care.

The implications for National Surgical, Obstetric, and Anesthesia Plans (NSOAPs) are equally significant. This study demonstrates that improvements in access can be achieved through pathway optimization without necessarily requiring major infrastructural investments. By streamlining preoperative evaluation, reducing unnecessary costs, and implementing fast-track perioperative protocols, the pathway improved efficiency within existing capacity. These findings suggest that NSOAP implementation strategies should prioritize not only expansion of services but also redesign of care delivery processes to enhance equity and efficiency.

Policy implications arising from this work are substantial. Institutionalizing cost-adapted surgical pathways for high-burden conditions such as BPH could significantly improve access to care. Expanding pooled financing mechanisms, including national health insurance and targeted subsidies, is essential to reduce reliance on out-of-pocket expenditure. Additionally, the adoption of bundled pricing models may improve cost transparency and predictability, thereby encouraging earlier presentation. Importantly, integrating equity-focused indicators—such as variation in time-to-surgery across socioeconomic groups—into routine health system monitoring could strengthen accountability and guide resource allocation.

In terms of clinical outcomes, the observed complication rate is consistent with contemporary TURP literature, which reports overall complication rates ranging from 10–20%, predominantly low-grade events [21]. This supports the safety of the cost-adapted approach and suggests that resource optimization does not necessarily compromise surgical quality. Furthermore, recent studies continue to demonstrate that TURP provides significant improvements in symptom burden and quality of life, reinforcing its role as a definitive treatment modality [22]. Emerging data also highlight that outcomes

are influenced more by surgical efficiency and perioperative protocols than by the use of advanced technologies alone [21].

Patient-reported satisfaction was uniformly high, reflecting both improved access and successful clinical outcomes. This is consistent with evidence demonstrating that relief from catheter dependence and lower urinary tract symptoms significantly improves quality of life [22]. Given the well-documented physical and psychosocial burden of long-term catheterization, timely surgical intervention represents a critical determinant of patient-centered outcomes.

The observed 100% catheter-free rate further supports the clinical effectiveness of the pathway in restoring definitive urinary function among patients who had previously experienced prolonged catheter dependence. In many low- and middle-income countries (LMICs), prolonged catheterization is often accepted as a consequence of delayed or inaccessible surgical care, exposing patients to recurrent infections, urethral complications, social stigma, reduced mobility, sleep disturbance, and substantial deterioration in quality of life [7,8]. The complete achievement of catheter-free status in this cohort demonstrates that transurethral resection of the prostate (TURP), when delivered through a structured and accessible pathway, remains a highly effective definitive intervention even within resource-constrained environments [9,21,22].

These findings suggest that the benefits of TURP in LMIC settings extend beyond symptom relief to include the restoration of dignity, independence, and social functioning among elderly men who may otherwise remain chronically catheter-dependent. The combination of timely intervention, low major complication rates, high patient satisfaction, and universal catheter-free outcomes highlights the potential for appropriately adapted endourological services to substantially improve patient-centered outcomes and quality of life without requiring highly sophisticated infrastructure [19,22,24,25]. These results reinforce TURP's role as both a clinically effective and health-system-relevant intervention for addressing the growing burden of BPH in underserved populations [12,19,23].

This study has several strengths, including its prospective design and explicit focus on equity as a measurable outcome. By incorporating both pre- and post-intervention metrics, it captures the full trajectory of access to care. However, limitations should be acknowledged. The single-center design may limit generalizability, and the relatively small sample size—particularly in non-financial barrier groups—may reduce statistical power for subgroup comparisons. The absence of a control group limits causal inference regarding the independent effect of the pathway on access outcomes. Additionally, long-term functional outcomes were not assessed and warrant further investigation.

Conclusion

This study demonstrates that a structured, cost-adapted TURP pathway can transform access to surgical care from delayed and inequitable to timely and uniform.

While previous studies have documented the burden of delayed presentation and catheter dependence in African settings, this work extends the evidence by showing that these inequities are modifiable. The findings provide a scalable and policy-relevant model for integrating equity into surgical care delivery and contribute meaningfully to the advancement of global surgery and health system strengthening efforts.

Declarations

Ethical Declarations: Approval for this study was obtained from the Ministry of Health, Kaduna State (NHREC /17/08/2025)

Consent to Participate Declaration: All participants gave informed consent to participate

Conflict of Interest: None

Funding Declaration: No funding support was received for this research

Clinical Trial Number: Not applicable

Author Contributions

Nasir Oyelowo FWACS: Concept and design of the study, Data acquisition, Interpretation of data, and writing of the article.

Abdullahi Sudi: Data Acquisition and Interpretation

Aghadi Ifeanyi Kene: Data Acquisition and review of the manuscript

Abdulkareem Kabir: Data Acquisition and Interpretation

Abubakar Yahaya Sulaiman: Data interpretation and analysis

Jemila Olagunju: Data Analysis and review of the manuscript

Faridat M. Abdullahi: Data Interpretation and review of the manuscript

Prof Ahmed Muhammed FMCS: Concept and design of the study, Data interpretation, critical review of the article, and final approval

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Figures

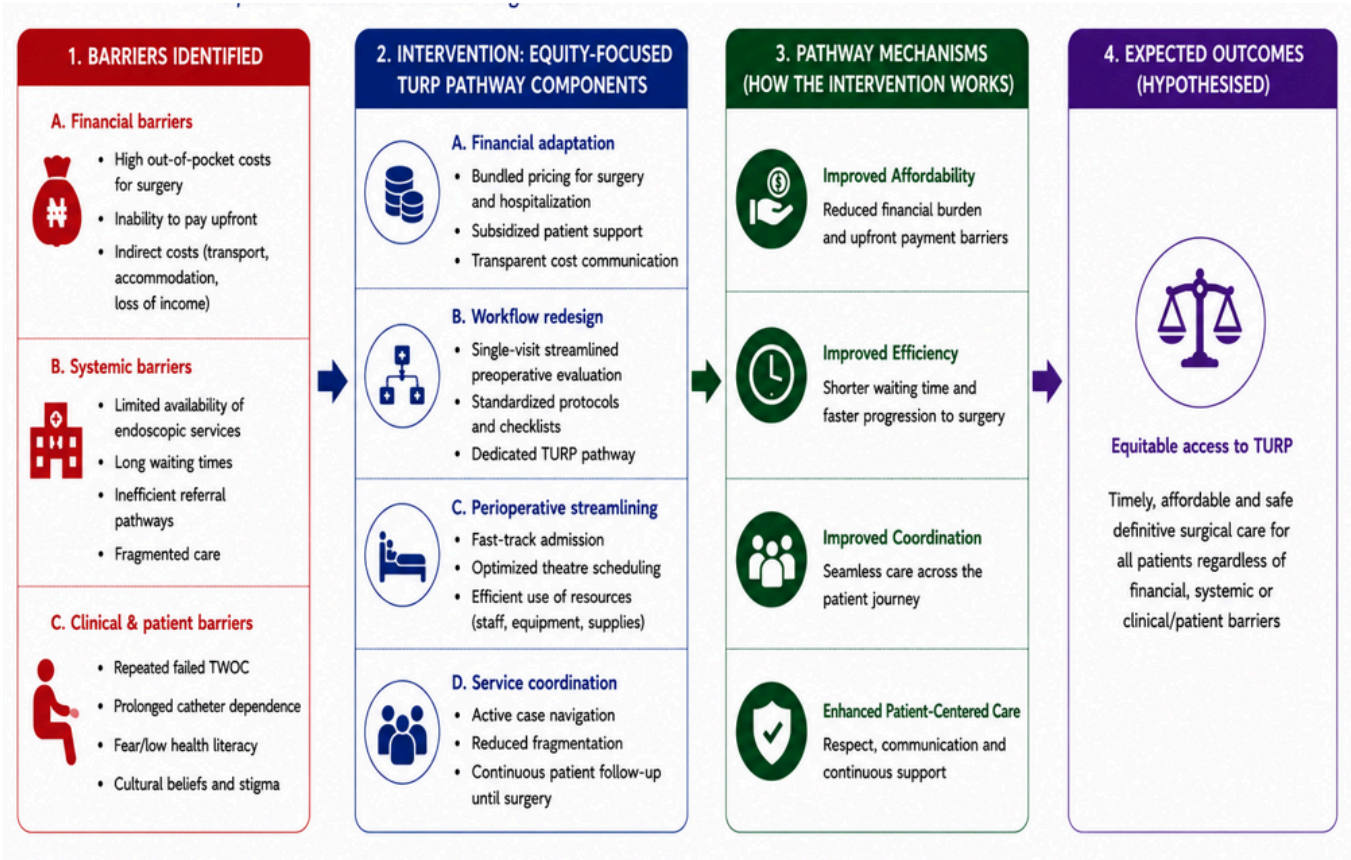


Figure 1

Conceptual framework of Equity-focused TURP pathway

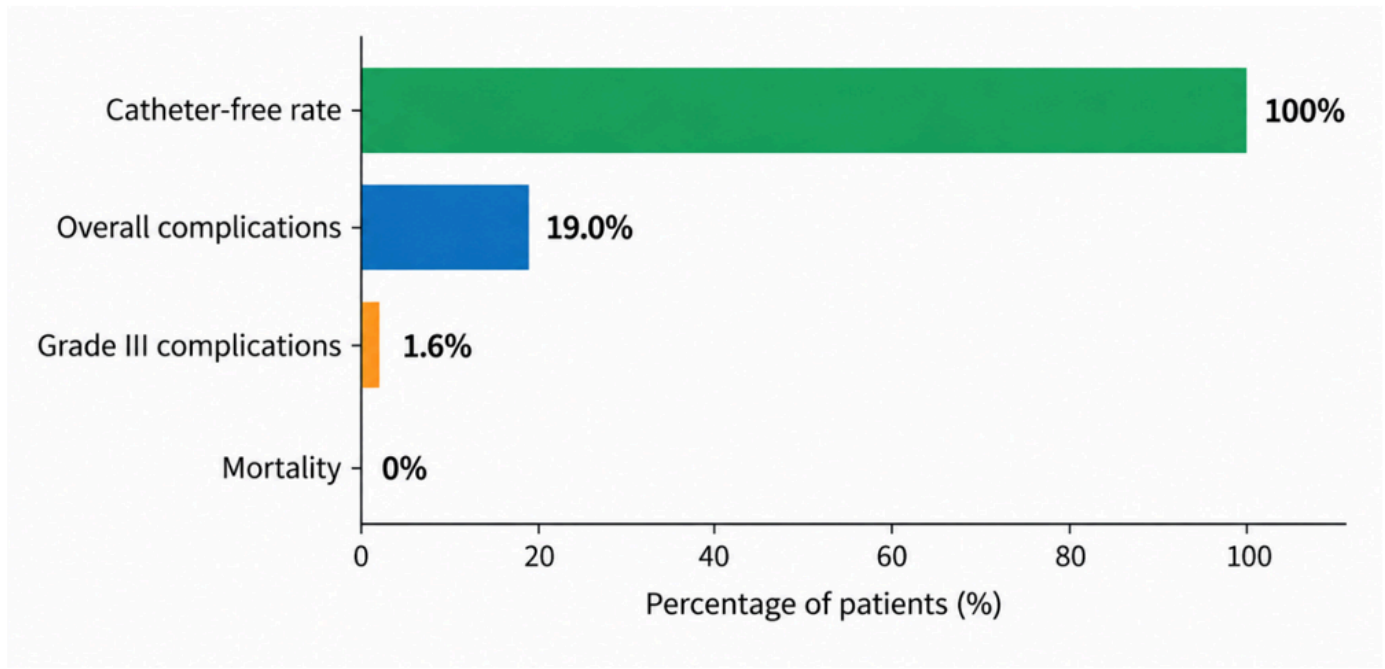


Figure 2

Clinical Outcomes following Implementation of Equity- focused TURP Pathway