

Trends and demographic characteristics of prostate cancer patients as diagnosed in the histopathology laboratory at Mengo Hospital, Kampala District. A cross-sectional study.

Victoria Nakazzi *, Tonny Gambiira, Hasifa Nansereko, Francisco Ssemuwemba, Jane Frank Nalubega
Mildmay Institute of Health Sciences

Page | 1

Abstract

Background.

Prostate cancer (PCA) is the most frequently diagnosed cancer among men in Africa, with sub-Saharan Africa bearing a disproportionate burden and Uganda reporting some of the highest regional incidence rates. This study aimed to describe the trend and demographic characteristics of prostate cancer cases diagnosed in the histopathology laboratory at Mengo Hospital, Kampala District.

Methods.

A retrospective cross-sectional study design was employed, reviewing histopathology records of male patients diagnosed with prostate cancer at Mengo Hospital from July 2024 to December 2025. A structured data extraction form was used to abstract demographic and histopathological data from laboratory registers. A sample size of 90 patient records was reviewed. Data were analyzed descriptively using frequencies and percentages, with quarterly prevalence presented in tables and a line graph.

Results.

Of the 90 patients tested over six quarters, 21 tested positive for prostate cancer, yielding an overall prevalence of 23.3%. Quarterly prevalence fluctuated, rising from 23.5% in Q3 and Q4 2024 to a peak of 40.0% in Q2 2025, before declining to 10.0% by Q4 2025. Age was the only demographic variable available; prevalence increased with advancing age, with the highest burden among men aged 70 years and above (30.2%), compared to 12.5% among those aged 50–59 years.

Conclusion.

Prostate cancer prevalence at Mengo Hospital was substantial, with older age strongly associated with higher risk. Observed fluctuations likely reflect variability in testing volumes and healthcare access rather than true changes in disease occurrence.

Recommendation.

Mengo Hospital should expand routine demographic data capture, implement targeted PSA and digital rectal examination screening for men aged 50 years and above, and conduct regular community health education to promote early detection.

Keywords: Prostate cancer, Histopathology, Prevalence, Age distribution, Mengo Hospital.

Submitted: August 06, 2026

Accepted: September 20, 2026

Published: October 21, 2026

Corresponding Author: Nakazzi Victoria

Mildmay Institute of Health Sciences

Background.

Prostate cancer is the type of cancer that forms in the tissues of the prostate, a gland in the male reproductive system that lies below the bladder (National Cancer Institute, 2023). Prostate cancer is not transmissible, as it cannot be spread from one person to another through air, blood, sex, or any infectious route. Prostate cancer is an internal condition, and factors that increase the risk of developing prostate cancer are genetics, family history, aging, ethnicity, and certain lifestyle factors like diet. While prostate cancer cannot be entirely prevented, certain modifiable lifestyle factors and early detection strategies can significantly reduce the risk of developing or progressing to advanced disease (Bergengren et al., 2023). The different types of Pca tell you the cell that prostate cancer started in. The prostate is made of different

types of cells, so there are different types of Pca. The most common type is prostate cancer originating from the prostate gland (adenocarcinoma), starting in the adenocarcinoma glands of the prostate, which are located next to the ducts of the prostate. (American Cancer Society, 2023). Rare forms are small cell neuroendocrine, squamous cell, transitional cell (urothelial carcinoma), Pca lymphoma, and sarcoma. This means prostate cancer starts in certain prostate endocrine cells. Pca diagnosis often starts with a physical exam and lab tests to check for cancer. One might have these tests if they have prostate cancer symptoms. If these first tests detect something concerning, imaging tests can make pictures of the prostate to look for signs of cancer. To find out if you have PCA or not, a sample of your prostate cells is taken out and put under a microscope to look for PCA in

your prostate. Screening for PCA can be done through the PSA test and a digital rectal exam. Imaging tests include the prostate ultrasound and prostate MRI.

Primary prevention of Pca focuses on reducing exposure to known risk factors such as unhealthy diet, obesity, and physical inactivity. Diets rich in fruits, vegetables, and healthy fats have been associated with a lower risk, while high intake of red or processed meats may increase risk (Rawla, 2019). Regular physical activity and maintaining a healthy weight have also been shown to lower the risk of aggressive prostate cancer. The treatment choices for prostate cancer vary depending on the stage and grade of the tumor, the patient's age, health status, and personal preferences. Management choices for prostate cancer vary from watching and waiting for low-risk, localized cases to surgery, radiation, and systemic therapy for men with high-risk or serious disease. (Rawla, 2019). For patients with low-risk cases and early-stage cancer, doctors may recommend active surveillance instead of immediate treatment. The approach involves regular PSA tests, digital rectal exams, and occasional biopsies to check if the cancer is changing, which helps to avoid unnecessary treatment (Mottet *et al*, 2020). For more advanced cases, options include surgery, radiotherapy, or systemic therapy. Risks include urinary incontinence and erectile dysfunction (Salamone *et al.*, 2025).

However, if prostate cancer is not diagnosed and treated quickly, especially if it is aggressive or advanced, it can lead to serious complications and significantly reduce survival rates. Early-stage prostate cancer may remain asymptomatic; however, if left untreated, it can progress beyond the prostate gland, invading surrounding tissues and spreading to distant organs, most commonly the bones, lymph nodes, liver, and lungs (Rawla, 2019). Advanced disease can cause urinary obstruction, haematuria, painful bone metastases, renal failure, and neurological complications such as spinal cord compression. These complications severely affect a patient's quality of life and functional independence. In low-resource settings like Uganda, delayed diagnosis due to limited screening and pathology services means many men present with late-stage disease where curative treatment is no longer feasible. In such cases, management becomes palliative, focusing on relieving symptoms rather than cure. The lack of early detection leads to increased mortality rates, economic burden, and psychological distress for patients and their families.

Prostate cancer is the most frequently diagnosed cancer among men in Africa and ranks third overall, with about 59,500 incident cases recorded each year (16.4% of all cancer in men). In sub-Saharan Africa, it accounts for roughly 20.3% of all male cancers. The highest incidence rates in the region have been reported in Zimbabwe and Uganda, at 38.1 and 37.1 per 100,000 men, respectively (Okuku *et al.*, 2016). However, other estimates suggest the rate in Uganda may be as high as 65 per 100,000 (Chu *et al.*, 2011). The limited availability of cancer registries and

inconsistent reporting across countries makes it difficult to accurately estimate incidences across different countries, and underreporting of prostate cancer is suspected. Mortality also remains high, with a mortality-to-incidence ratio of about 71%. Despite the scale of the problem, research on prostate cancer in Africa is still limited, leaving gaps in understanding patient characteristics, risk factors, and outcomes (Ferlay *et al.*, 2015). In addition to increasing incidence and mortality attributed to greater case detection, aging, and changing lifestyles, a clear association has been made between higher incidence and individuals of African descent. Population-based studies have shown that African American men have among the highest incidence rates of prostate cancer in the world. Genetics is suspected to be linked to these observations, and a genetic link between Africans with prostate cancer and African American men with prostate cancer has been proposed (Ferlay *et al.*, 2015). Despite the common occurrence of PCA in Africa, there is still limited information about PCA on this continent, partly due to the presence of few functional cancer registries. In Uganda, data from hospital-based registries like Mengo Hospital are scarce, and the actual trend of prostate cancer over time is not well documented. This study therefore aims to describe the trend of prostate cancer diagnoses in the histopathology department at Mengo Hospital by using available registry data.

Methodology.

Study design

The study employed a retrospective cross-sectional study design, which involved reviewing data from existing histopathology records of patients diagnosed with PCA at Mengo Hospital over a defined period of time.

Study setting

The study was conducted at Mengo Hospital, which is located in Rubaga Division in Kampala District. The hospital is known to provide prostate-specific antigen (PSA) blood tests and is associated with the Ernest Cook Ultrasound Research and Education Institute (ECUREI), which specializes in medical imaging for prostate assessment. The hospital also has a pathology department that provides essential cancer diagnostics, including tissue analysis and histopathology for accurate disease identification, with a 300-bed capacity.

Study population

The study population included records of all male patients whose prostate tissue samples were received and diagnosed at the histopathology laboratory of Mengo Hospital within a specified period of time from July 2024 to December 2025.

Sample size determination and its justification

Sample size estimate was calculated using Kish and Leslie's formula (1965)

n = sample size

z = statistical certainty = 1.96 at 95% confidence interval

p = estimate of prevalence to be 13.46% (Mitala et al., 2024)

q = difference between 1 and p

D = margin of error, which corresponds to the level of precision of the result designed = 5%

$$n = \frac{1.96^2 * 0.1346(1 - 0.1346)}{0.05^2}$$

$n = 179$

Out of 179 records of cancer patients reviewed in the histopathology laboratory from July 2024 to December 2025, a minimum sample size of 90 men diagnosed with prostate cancer was retrieved and reviewed; hence, the sample size (n) equals 90. Therefore $n = 90$.

Sampling procedure

All records of male patients with prostate cancer diagnosed in the histopathology laboratory of Mengo Hospital during the study period from July 2024 to December 2025 were compiled and reviewed from histopathology laboratory records.

Inclusion criteria

Male patients with histopathologically confirmed prostate cancer diagnosed within the selected study period were included.

Exclusion criteria

All patients without PCA biopsy results were excluded.

Study variables

Independent variables

The independent variables included the patient age and year of diagnosis.

Dependent variable

The dependent variable was the occurrence of prostate cancer.

Research tools

The research tool for this study was a structured data extraction form specifically designed to capture relevant variables from the histopathology laboratory records.

The form included sections for patient demographic details and Histopathological findings.

Data collection procedures

Upon obtaining ethical approval from the Mengo Hospital Research Ethics Committee review board, presented an ethical clearance letter along with an introductory letter to the Medical Director of Mengo Hospital. After receiving official permission to proceed, further went ahead and collaborated with the head of the histopathology department to access relevant records for the study.

Data management and analysis

Completed data abstraction forms were reviewed daily by the principal investigator for completeness, legibility, and consistency, with any discrepancies resolved by referring back to the original hospital registers in the histopathology department. Data analysis involved descriptive statistics. Frequencies and percentages were used to describe the distribution of prostate cancer cases by age group and over time. Quarterly prevalence was calculated and presented in tables and a line graph.

Data presentation

The analysed data were presented in the form of tables, figures, and charts indicating frequencies, percentages, and a narrative summary.

Quality control

Quality control was maintained at each stage of the study to minimize errors and ensure data integrity. The abstraction form was reviewed by the research supervisor and piloted on a small set of records to confirm that all variables were clearly defined and easily retrievable from the hospital registers. During data collection, double verification was applied where the principal investigator compared entries on the abstraction forms with source documents to confirm accuracy. To reduce errors, data were recorded once and then checked against the original forms for consistency. Incomplete and inconsistent records were excluded before analysis. These measures helped maintain consistency, completeness, and reliability of the dataset used in the study.

Ethical consideration.

Ethical approval was obtained from the Institution Research Committee (IRC). An introductory letter was obtained from the Institution Research Committee (IRC) that introduced the researcher to the study site, Mengo Hospital. The permission to carry out the research at the study site was obtained from the Medical Director of Mengo Hospital. Ensured strict confidentiality of the data retrieved; names of the subjects were not captured on the data entry form, except for the research study numbers. Additionally, anonymity of participants will be maintained in any resulting publications.

Results.**Trend of prostate cancer**

Page | 4

Table 1: Quarterly distribution of prostate cancer cases diagnosed in the histopathology laboratory at Mengo Hospital from July 2024 to December 2025

Quarter	Period	Total cases	Positive cases	Prevalence in %
Q3 2024	Jul to Sept	17	4	23.5
Q4 2024	Oct to Dec	17	4	23.5
Q1 2025	Jan to Mar	14	4	28.6
Q2 2025	Apr to Jun	10	4	40.0
Q3 2025	Jul to Sept	12	3	25.0
Q4 2025	Oct to Dec	20	2	10.0

Table 1 shows the quarterly distribution of patients tested, positive cases, and prevalence of prostate cancer at Mengo Hospital between July 2024 and December 2025. A total of 90 patients were tested over the 6 quarters, of whom 21 tested positive, giving an overall prevalence of 23.3%.

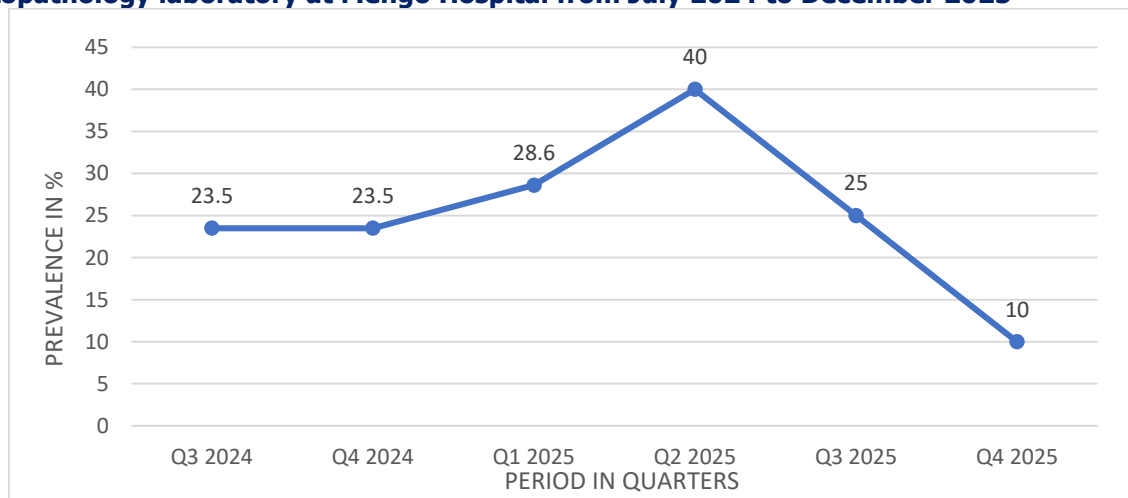
Figure 1: Showing the quarterly trend in prevalence of prostate cancer cases diagnosed in the histopathology laboratory at Mengo Hospital from July 2024 to December 2025

Figure 1 shows the quarterly trend in prevalence of prostate cancer cases diagnosed at Mengo Hospital between July 2024 and December 2025. Prevalence was 23.5% in both Q3 2024 and Q4 2024. It increased to 28.6% in Q1 2025 and reached a peak of 40.0% in Q2 2025. The

prevalence then subsequently declined to 25.0% in Q3 2025 and 10% in Q4 2025. The fluctuation reflects the small number of patients tested each quarter, ranging from 10 to 20.

Demographic characteristics of prostate cancer patients**Table 2: Demographic characteristics of prostate cancer patients. (n=90)**

Demographic characteristics	Category	Frequency (f)	Positive cases (n)	Negative cases (n)	Prevalence in %
Age	40-49	4	1	3	25.0
	50-59	16	2	14	12.5
	60-69	27	5	22	18.5
	≥70	43	13	30	30.2

Table 2 presents the demographic characteristics of prostate cancer patients according to age group among the 90 patients studied at Mengo Hospital during the study period. Out of the 90 patients, 21 were diagnosed with positive prostate cancer while 69 were negative. Patients aged 40-49 years had 1 positive case out of 4 patients, giving a prevalence of 25.0%. In the 50-59 years category, 2 positive cases were recorded among 6 patients, with a prevalence of 12.5%. Among patients aged 60-69 years, 5 positive cases were identified out of 27 patients, corresponding to a prevalence of 18.5%. The highest number of positive cases was observed among patients aged 70 years and above, where 13 out of 43 patients tested positive, giving the highest prevalence of 30.2%. The prevalence percentages were calculated within each age group separately to determine the age-specific prevalence of Pca among patients.

Discussion

Trends of prostate cancer.

The objective of the study was to determine the trends of prostate cancer diagnoses in the histopathology laboratory at Mengo Hospital from July 2024 to December 2025. Data analysis and interpretation revealed several important findings regarding the variation in prostate cancer prevalence across different quarters. They revealed that the overall prevalence of prostate cancer among men tested at Mengo Hospital was 23.3% over the 18 months. The quarterly trend showed fluctuation rather than a consistent increase or decrease over time. The prevalence of PCA remained constant at 23.5% in both Q3 and Q4 of 2024, increased to 28.6% in Q1 of 2025, and further rose to the highest prevalence of 40.0% in Q2 of 2025 despite a lower number of total cases examined. However, the prevalence later declined to 25.0% in Q3 of 2025 and further reduced to 10.0% in Q4 of 2025. These findings agree with the study that was conducted in Northwestern Nigeria, which provided key insights into the regional burden and histopathological trends of Pca with a prevalence of 23.5% (Abubakar, Sule Alfa, Sanusi, Musa, & Abdullahi, 2019). These findings therefore suggest that the observed fluctuations in Pca prevalence at Mengo Hospital may largely reflect changes in detection, reporting, and healthcare access rather than true changes in disease occurrence. This has important implications for public health planning, as it highlights the need for consistent screening programs and improved access to diagnostic services to ensure early detection and accurate monitoring of Pca trends.

Demographic characteristics of prostate cancer patients

Although the initial objective included a broader assessment of demographic characteristics, age emerged as the only demographic parameter available from the histopathology

records. The discussion therefore focuses on age distribution patterns observed among the cases diagnosed at Mengo Hospital from July 2024 to December 2025. Data analysis and interpretation revealed the following major findings under this objective. The age group 70 years and above had the highest number of positive cases, while younger age groups had fewer positive cases. This showed that Pca can still occur before old age, although less commonly. The study findings also showed that Pca was more common among older men, particularly those aged 70 years and above, who had the highest prevalence of 30.2%. The prevalence generally increased with advancing age, indicating that age is an important demographic factor associated with Pca. This may be because aging increases exposure to hormonal changes, genetic mutations, and other risk factors that contribute to the development of prostate cancer. These findings agree with the study that was conducted by Rawla, 2019 where prostate cancer cases occurred in men over the age of 65 and the incidence rises steeply with age.

Conclusions

This study found that prostate cancer was diagnosed in 21 out of 90 men tested, giving an overall prevalence of 23.3% from July 2024 to December 2025. The burden was highest among men aged 60 years and above, confirming age as a major risk factor. Quarterly fluctuations in prevalence were attributed to changes in the number of men tested rather than changes in disease occurrence. The findings highlight the need for age-targeted screening and improved data recording to support better monitoring and early detection of prostate cancer in the hospital setting.

Limitations of the study

Since the study relies on existing records, it did not capture all relevant variables, e.g., education background, marital status, location, among others. Some patient files or pathology reports contained incomplete data, which affected the accuracy of the findings. The period selected for review was not sufficient to capture long-term trends or effects of recent interventions.

Recommendations

Mengo Hospital management, in collaboration with the records and histopathology departments, should expand routine data collection to include key demographic variables by January 2027. This should be done by updating the hospital's data capture tools to record residence, marital status, and other relevant demographics alongside date of testing and diagnosis. Including these variables will allow future trend analyses to show not only when cases occur, but which groups are most affected over time, providing a clearer picture of the burden and supporting targeted interventions.

The Clinical Services Department at Mengo Hospital should implement targeted prostate cancer screening for men aged 50 years and above by the end of 2026. This should be done by integrating PSA testing and digital rectal examination into routine outpatient and inpatient services for men in this age group, and for men aged 45 and above with a family history.

The Public Health and Community Outreach Unit at Mengo Hospital should conduct quarterly health education campaigns on prostate cancer by late 2026. This should be done by partnering with local leaders and community health workers to raise awareness on early signs, risk factors, and the importance of early testing among older men. The goal is to reduce late presentation and improve early detection in the hospital catchment area.

Acknowledgment.

First, I thank the Almighty God for granting me good health, wisdom, and perseverance to complete this research.

I extend my deepest gratitude to my supervisor, Mr. Gambiira Tonny, for the professional guidance, timely feedback, and patience throughout this study. Your mentorship was invaluable to the completion of this work.

I am sincerely grateful to Mildmay Institute of Health Sciences and the School of Medical Laboratory Technology for the academic foundation and resources provided during my training.

I am indebted to the administration of Mengo Hospital, particularly the records department and histopathology laboratory, for permitting me to access patient data and for the support during data collection.

I also appreciate my friends for the encouragement, moral support, and for always believing in me during the challenging phases of this research.

Finally, I appreciate my family for their endless love, financial support, and constant prayers.

Your sacrifice made my education possible.

List of abbreviations

CI – Confidence Interval

DRE – Digital Rectal Examination

ECUREI – Ernest Cook Ultrasound Research and Education Institute

IRC – Institutional Research Committee

MRI – Magnetic Resonance Imaging

Pca – Prostate Cancer

PSA – Prostate-Specific Antigen

Source of funding.

The study was not funded.

Conflict of interest.

There is no conflict of interest.

Availability of data.

Data used in this study are available upon request from the corresponding author.

Authors contribution.

VN designed the study, conducted data collection, cleaned and analyzed data, and drafted the manuscript, and **TG** supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

HN supervised the study.

FS supervised the study.

Authors biography.

Nakazzi Victoria is a student of a diploma in medical laboratory technology at Mildmay Institute of Health Sciences.

Tonny Gambiira is a research supervisor at Mildmay Institute of Health Sciences.

Hasifa Nansereko is a research supervisor at Mildmay Institute of Health Sciences.

Francisco Ssemuwemba is a research supervisor at Mildmay Institute of Health Sciences.

References.

1. Abubakar, A., Sule Alfa, H., Sanusi, Y., Musa, A., & Abdullahi, M. (2019). Histopathological pattern and prevalence of prostate cancer in Northwestern Nigeria. *Nigerian Journal of Clinical Practice*.
2. American Cancer Society. (2023). What is prostate cancer? <https://www.cancer.org/cancer/types/prostate-cancer.html>
3. Bergengren, O., et al. (2023). Lifestyle factors and prevention of prostate cancer: A review. *European Urology Open Science*, 49, 1–10.
4. Chu, L. W., Ritchey, J., Devesa, S. S., Quraishi, S. M., Zhang, H., & Hsing, A. W. (2011). Prostate cancer incidence trends and patterns in Africa. *Cancer Epidemiology, Biomarkers & Prevention*, 20(8), 1684–1691. <https://doi.org/10.1155/2011/947870>
5. Ferlay, J., Soerjomataram, I., Dikshit, R., Eser, S., Mathers, C., Rebelo, M., Parkin, D. M., Forman, D., & Bray, F. (2015). Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *International Journal of Cancer*, 136(5), E359–E386. <https://doi.org/10.1002/ijc.29210>
6. Kish, L., & Leslie, J. (1965). *Survey sampling*. John Wiley & Sons.
7. Mitala, D., et al. (2024). Prevalence and associated factors of prostate cancer among men in Uganda. *Uganda Journal of Medical Sciences*.
8. Mottet, N., van den Bergh, R. C. N., Briers, E., Van den Broeck, T., Cumberbatch, M. G., De Santis, M., Fanti, S., Fossati, N., Gandaglia, G.,

- Gillessen, S., et al. (2020). EAU guidelines on prostate cancer. European Association of Urology. <https://uroweb.org/guidelines/prostate-cancer>
9. National Cancer Institute. (2023). Prostate cancer. <https://www.cancer.gov/types/prostate>
10. Okuku, F., Orem, J., Holoya, P., De Boer, C., Thompson, C. L., Cooney, K. A., & Eng, C. (2016). Prostate cancer burden in sub-Saharan
11. Rawla, P. (2019). Epidemiology of prostate cancer. World Journal of Oncology, 10(2), 63–89. <https://doi.org/10.14740/wjon1191>
12. Salamone, C., et al. (2025). Advances in the management of prostate cancer: Current treatment strategies and outcomes. Nature Reviews Urology.

PUBLISHER DETAILS:

SJC PUBLISHERS COMPANY LIMITED



Category: Non Government & Non profit Organisation

Contact: +256 775 434 261 (WhatsApp)

Email: info@sjcpublisher.org or studentsjournal2020@gmail.com

Website: <https://sjcpublisher.org>

Location: Scholar's Summit Nakigalala, P. O. Box 701432, Entebbe Uganda, East Africa