

# Epidemiological and Histopathological Profile of Prostate Cancer in Conakry

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**Abstract:** Introduction: Prostate cancer is the most common male cancer. The aim of this work was to analyze the evolution of the epidemiological and histopathological profile of prostate cancer in the urology department at the Ignace Deen National Hospital in Conakry. Materials and methods: This was a descriptive retrospective study in 10 years, from January 1, 2011 to December 31, 2020. The data was collected from records available in the archives of the Ignace National Hospital Deen of Conakry. Results: 963 cases of prostate cancer were collected, representing 75% of urogenital cancers. We have observed a constant annual growth of cases, with an annual average of 96 cases. The mean age of the patients was  $67 \pm 13.56$  years, with extremes of [47 - 102 years]. Farmers were the most affected with 36.3% of cases; 9.9% of patients (n=92) were smokers. Patients consulted more often with a delay of more than 12 months. Prostatic adenocarcinoma was the most found histological type with 99.8% of cases. More than half of the patients (62%) had a Gleason score of 3+3 (ISUP 1). Conclusion: Prostate cancer remains frequent representing the first urological cancer in Conakry. Prostatic adenocarcinoma is the main histological type. This study encountered difficulties related to the lack of a reliable data collection system.

**Keywords:** Prostate Cancer, Conakry, Frequency, Farmers, Adenocarcinoma

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## 1. Introduction

Prostate cancer, with approximately 1.4 million new cases and 375,304 deaths worldwide, is the most common cancer and the 5th leading cause of cancer death in men [1]. Its incidence is increasing due to the popularization of the prostate-specific antigen (PSA) assay, while its specific mortality is decreasing due to early diagnosis at a stage where curative treatment is possible [2].

Prostate cancer is very rare before the age of 50 (0.3%) [3, 4]. Established risk factors for prostate cancer are age, family history of prostate cancer, and ethnicity [1]. Prostatic

adenocarcinoma is the predominant histological type.

In sub-Saharan Africa, few data are reported on the epidemiology of cancers in general due to the lack of effective collection tools [5]. In Guinea, Diallo and al in 2006 [6] reported that prostate cancer was the first urological cancer in Conakry.

The aim of this study was to analyze the epidemiological and histopathological profile of prostate cancer in the department of urology of the Ignace Deen National Hospital in Conakry.

## 2. Material and Methods

This was a descriptive study with retrospective collection over a period of 10 years, from January 2011 to December 2020. We have analyzed available files in the archives of the Ignace Deen National Hospital in Conakry.

Concern in the studies were all patients with histologically confirmed prostate cancer, whose medical records were found in the archives. We excluded patients whose file bore the diagnosis of malignant prostatic tumor without a histopathological report notified in the file.

We were interested in the socio-demographic data of the patients (age, sex, profession, residence, telephone number, vices, date of admission), the consultation time, the

histological type and the Gleason score. Data on prostate cancer mortality were completed through telephone calls, by simple request to the patient or his entourage.

Data analysis was done using SPSS software, version 25. Quantitative data were described by mean and standard deviation and qualitative variables were described with proportions.

## 3. Results

We recorded during the study period 963 cases of prostate cancer, thus occupying the first place of urogenital cancers with 75% of cases, in front of bladder cancer (Figure 1).

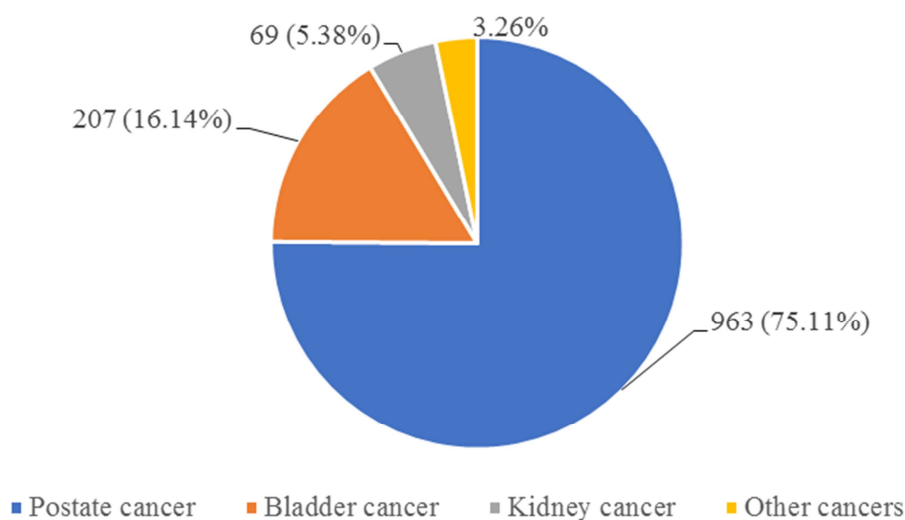


Figure 1. Proportion of prostate cancer in urogenital cancers.

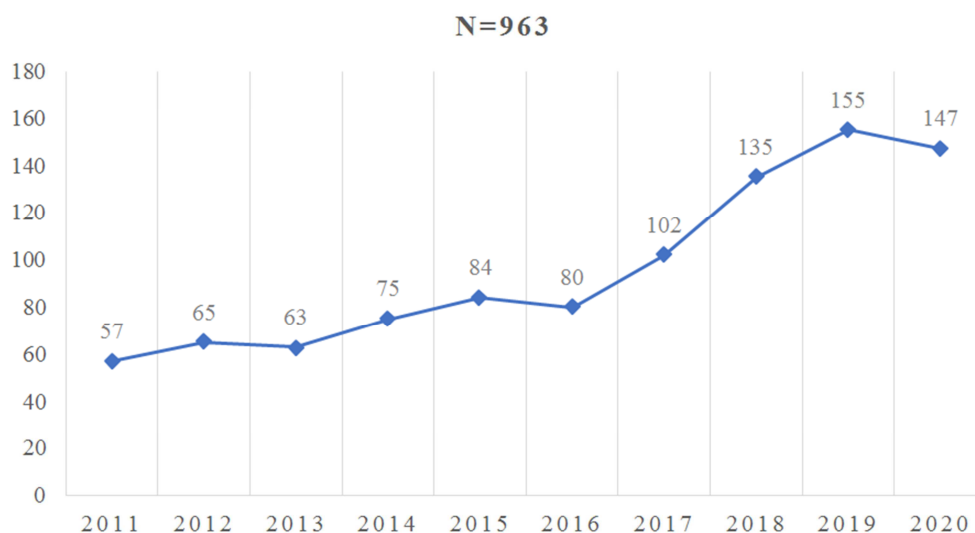


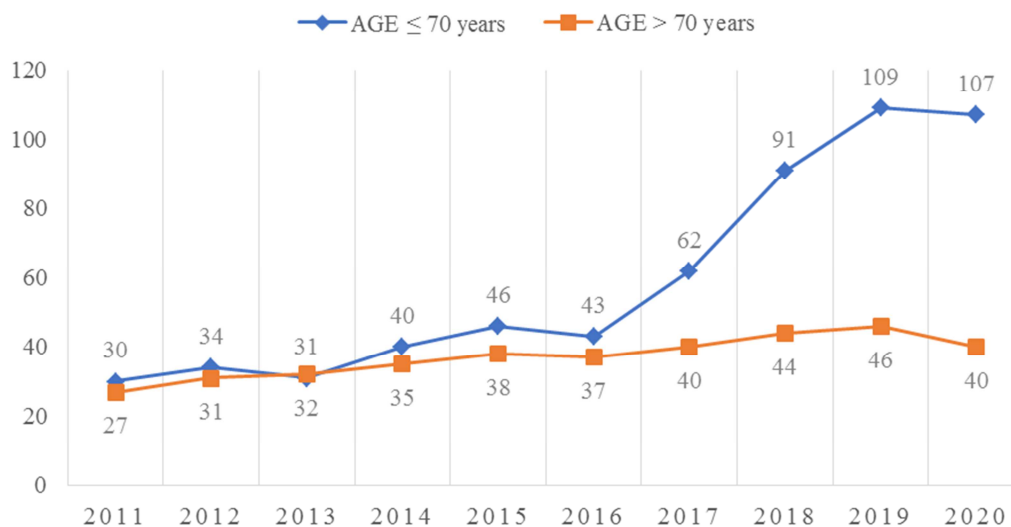
Figure 2. Evolution of the annual incidence of prostate cancer.

The average annual incidence of prostate cancer was 96 cases. This incidence increased from 57 to 84 cases between 2011 and 2016, then from 80 to 155 cases between 2016 and 2020 (Figure 2).

The average age of the patients was  $67 \pm 13.56$  years, with

extremes of 47 and 102 years. Nearly 62% ( $n=593$ ) of the patients were between 50 and 70 years old; only 11 patients (1.1%) were under 50 years old.

The evolution of the incidence according to age is presented in Figure 3.



**Figure 3.** Evolution of the annual incidence of prostate cancer in the age groups below or equal to 70 years and above 70 years.

The occupations were dominated by agriculture with 350 cases (36.3%), followed by trade with 18.5% (Table 1).

**Table 1.** Distribution according to patient professions.

Profession	Effectif	%
Farmers	350	36.3
Traders	178	18.5
Functionary	124	12.9
Workers /Artisans	123	12.8
Retirement	113	11.7
Drivers	50	5.2
Imams	25	2.6
Total	963	100

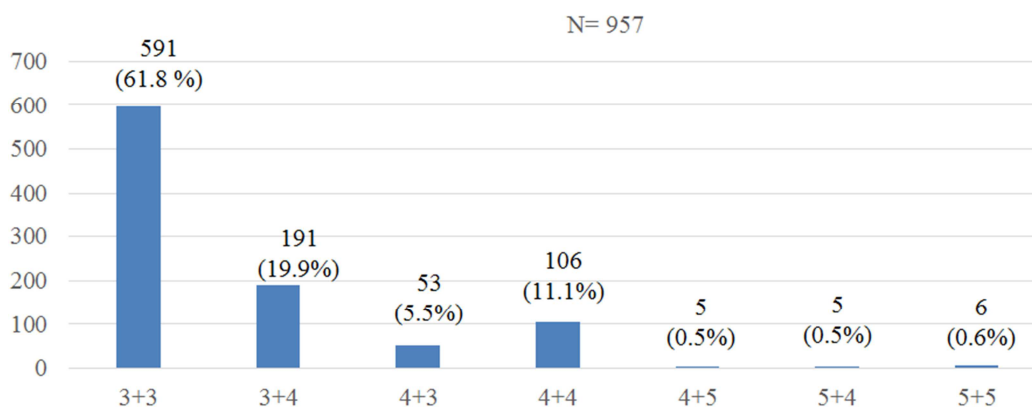
Smoking was noted in 96 patients (9.96%) and alcohol

consumption in 41 patients (4.26%).

The average consultation time after the appearance of the first symptoms was 14.3 months [1–32 months]. This consultation time was greater than one year in more than 65% of patients, less than 3 months in 9% of patients.

The histological type was dominated by prostatic adenocarcinoma with 99.7% (n=960) of cases; we noted 2 cases of neuroendocrine carcinoma and one case of leiomyosarcoma.

Gleason scores for prostatic adenocarcinomas are summarized in Figure 4. Nearly 62% of patients had well-differentiated cancer with a score (3+3), ISUP 1.



**Figure 4.** Distribution of patients according to Gleason scores.

Regarding mortality, 25 hospital deaths were recorded. To supplement this mortality data, we made calls from phone numbers that were in patient records. We were call 328 patients, among whom 96 deaths were recorded. In the other cases, some patients weren't contacted either because the telephone number wasn't recorded in the file or because the telephone number recorded was not operational.

## 4. Discussion

The average annual incidence of prostate cancer has tripled, from 29 cases in the previous study carried out in the department between January 2000 and December 2006 [6] to 96 cases in the present study.

We have observed a slow but constant increase in this

incidence between 2011 and 2016, which has increased from 57 to 84 cases, then a strong increase between 2016 and 2020, increasing from 80 to 155 cases. This increase in prostate cancer case's is due to several reasons: the popularization of diagnostic means for prostate cancer, in particular PSA and the prostate biopsy puncture which has been practiced with ultrasound guidance in the department since 2017. Also the on-site training of many surgeons urologists for two decades, followed by the opening of urology departments in the regions, contribute to a better knowledge of urological pathologies by the populations. Even if this incidence is on the rise, we believe that it is underestimated because the urology department does not receive all the cases of prostate cancer in the country.

The risk of getting prostate cancer increases with age, especially after 50 years [7]. The average age at diagnosis in our study was  $67 \pm 13.56$  years with extremes of [47 and 102 years]. We observed a drop in the age at diagnosis, which was 70 years in 2006. Our results show that the incidence only increased significantly in the population aged less than or equal to 70 years. All these observations can be explained by the growing interest of populations, which are better informed nowadays, about individual screening for prostate cancer.

Numerous studies [3, 7, 8, 9] have studied the association between occupation and the risk of prostate cancer. The professional category does not in itself constitute a risk factor. The risks would rather increase in the presence of exposure to harmful agents in the workplace [6]

Thus agriculture, the most affected sector in our study with 35% of cases, is associated in many studies [10, 11] with a risk of occurrence of prostate cancer with the use of fertilizers and pesticides.

The exposure of traders (18%), civil servants (12.9%) and retirees (11.7%) may be linked to sedentary lifestyle and low physical activity which have been identified as risk factors for cancer of the prostate [12, 13]. Although the mechanism of this association is still not fully understood, hypothesis has shown that reducing physical activities may influence risk of prostate cancer risk by altering testosterone levels, immune function, and insulin-like growth factors [13].

The workmans (12.8%) are likely to be exposed to chemical agents such as solvents, iron and steel and welding materials which are associated with increased risks of prostate cancer [14].

Diesel engine exhaust gases, to which drivers are exposed (5.2%) are also risk factors [3, 7, 15].

There is no clear link between smoking, alcohol consumption and occurrence of prostate cancer. However, they are associated with a higher risk of biochemical recurrence after treatment, metastatic evolution and specific death [16].

Concerning the histological type, apart from adenocarcinomas (99%), two particular forms of prostate cancer have been recorded. It was a neuroendocrine prostate carcinoma in 2 cases, which are rare, very aggressive tumors, representing 1 to 5% of prostate tumors. The ISUP score is

not applicable to them. Cancer cells often do not express PSA or androgen receptor, which immediately induces resistance to castration [17]. The second histological feature is a case of leiomyosarcoma in a 47-year-old patient, the youngest in our series. Leiomyosarcoma is the type of prostatic sarcoma in adults, with a peak frequency between 40 and 60 years. They are also very rare tumors of great malignancy [18].

In the present study, well-differentiated prostatic adenocarcinomas with an ISUP score of 1 (3+3) accounted for nearly 62% of cases. This is well beyond Diallo's results in the same department which reported 44% of well-differentiated tumors (ISUP 1) in 2006. ISUP 5 patients (4+5, 5+4, 5+5) represented 1, 6% of our population, while Diallo identified 30.6%. We have not found any explanation for this difference.

Amegbor [19] reported a predominance of well-differentiated prostatic adenocarcinoma (ISUP 1) with 50.3% of cases and 7.6% of ISUP 5 patients.

Some realities in our context, in particular late diagnosis, the absence of social care coverage, the scarcity of specialized structures and qualified personnel, limit the chances of recovery for patients suffering from cancer.

Nowadays, there is not yet a reliable system for collecting data on deaths in our country, which makes it difficult to analyze mortality. In addition to the 25 hospital deaths, 96 deaths were reported to us out of the 328 patients we were able to reach by telephone.

Our study has limitations. The first is due to its retrospective nature with the loss of data that this can entail. The other limitation is the use of telephone calls to assess prostate cancer mortality. Several telephone numbers were no longer operational on the date of the calls and when they could be reached, the numbers recorded were sometimes those of the patient's entourage.

## 5. Conclusion

Prostate cancer represents the first urological cancer in our department. It is experiencing an increasing incidence, due to the popularization of its diagnostic means and the training of numerous urologists. Age remains the primary risk factor for prostate cancer. Some professions such as agriculture have been the most affected, but other prospective studies will help to better analyze the risk of cancer linked to exposure to harmful agents in the workplace. Prostatic adenocarcinoma is the main histological type. This study has contributed to improving data on prostate cancer in Guinea.

## Conflicts of Interest

The authors declare no conflicts of interest.

## Author's Contributions

All authors have contributed to the development and implementation of this work. The authors also declare that

they have read and approved the final version of this manuscript.

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