

# CANCER IN THE YAOUNDE POPULATION, CAMEROON: A THREE YEAR REVIEW FROM A POPULATION CANCER REGISTRY.

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# Abstract

- The aim of this study was to find out the profile of cancer patients in the YAOUNDE population.
- Data of the YAOUNDE population cancer registry for three years (2004-2006) were analyzed and parameters of cases including age, sex, ethnic group, profession education, cancer type, morphology, topography were recorded.
- 3,112 cancer cases (1,287 males-41.4% and 1825 females-58.6%) were registered in three years in this population of about 1 million 500 inhabitants giving an annual average of about 1,037 cases.

- **Pediatric cancers constitute 10.22% of our series while patients aged 60 and above account for 25.23%. Cancer risk in our community increases steadily from age 35 to peak at 65 years after which it gradually decreases. The peak age in women is 45-54 years while in men it is a decade later at 55-64 years.**
- **Calculation of incidence rates suggests a crude rate of 59.1 per 100.000 in males and 78.4 per 100.000 in females**

- **The most common cancer in males is prostate cancer (20.8%), followed by non Hodgkin Lymphoma (17.4%), Kaposi sarcoma (12.1%), tonsils/pharynx (7.9%) and liver (6.8%) .**
- **In females, the most common cancers are breast (29.3%), cervix (23.5%) and non Hodgkin's lymphoma (11.1%). Generally, considering both sexes, the commonest cancers are the breast (31.3%), cervix (23.5%), non-Hodgkin lymphoma (28.5%), and kaposi sarcoma (16.5%).**

- We observed trends of some cancers during this period of 3 years: cancers of the cervix, prostate and lung were on the rise while cancer of the breast is on the decline. On the other hand, cancers of the liver, oro-pharynx, and lymphomas were stable.
- Cancer deaths-in-period was 3.8% (118 cases) and the cause of death was cancer in 89.8% of cases. Due to lack of follow-up, poor death registration systems and absence of routine autopsy, the death rate in our series is a gross under estimation.
- 19 cases (0.61%) had multiple primary cancers.

- **The profile of cancer in the Yaounde population is similar to that found in neighboring regions.**
- **The Yaounde population cancer registry is an invaluable tool in the documentation and planning of cancer management in the population.**
- **With time this will serve to indicate more accurate cancer trends in the Yaounde population.**
- **Key words: cancer-Yaounde-population-registry**

# INTRODUCTION

- **Cameroon, situated in West-Central Africa, has an estimated population of 16 million inhabitants (2006) and a surface area of 475,440 sq. Kilometers. Sixty percent of the total population lives in rural areas. Forty six percent of the population is below 15 years of age, 50% between 15-64 years and 4% above 65 years.**
- **The male to female ratio is 0.97:1.**
- **The last official census was carried out in 2005 and the results are still awaited. Available statistics are still, sadly enough, extrapolated from the 1987 population census.**

- **The annual population growth rate is currently estimated to be 2.87%.**
- **Some of the social and health indices (2004) are as follows: literacy rate 59.5; crude birth rate 38.2; infant mortality rate 77.0; crude death rate 10.1; life expectancy 56.7 in males and 61.3 in females; and the physician population ratio is 1:6500. The maternal mortality rate is about 120/100.000**

- **Yaoundé, the political capital has an estimated 2006 population of about 1,467,337 made of 748,341 females and 718,996 males (table I). This population is cosmopolitan and comprises almost all ethnic groups of the nation.**
- **This is why in spite of the fact that all cases registered in our Registry are residents of Yaounde municipality and its environs; we went further, indicating the ethnic origin of the cases.**

- This we hope may in the future give an insight to any ethnic-related cancer risk factors in our community.
- Except for some information on relative frequencies of different cancers in selected series, the epidemiology of cancer in Cameroon is relatively unknown.
- Though there is no reliable data on its incidence and pattern, cancer is being increasingly recognized as an emerging public health problem

# CASE NOTIFICATION FORM

- Registry number:
- **PATIENT**
- Family name: First name(s):
- Father's name: Mother's name:
- Maiden name: Sex:
- Date of birth: Age:
- Place of birth: Nationality:
- Address: Ethnic group:
- Level of education: Profession:
- HIV status: Pos: Neg: Unknown:
- **TUMOUR**
- Incidence date: Basis of diagnosis:
- Topography: Morphology:
- Nature of tumor: malignant: benign: in situ: dysplasia:
- Extent:
- **SOURCE**
- Source: Service:
- Hospital /Laboratory No:
- **TREATMENT**
- Surgery: Yes No
- Chemotherapy: Yes No
- Radiotherapy: Yes No
- Other(s): Yes No
- **FOLLOW-UP**
- Date of last contact:
- Status: Alive: dead:
- Cause of death: cancer: other:

# MATERIALS AND METHODS

Data of the YCR was analyzed from January 1 2004 to December 31 2006, a period of three years. All cases of benign tumors, dysplasias (pre-malignancy), were eliminated.

- Data concerning the patient (age, sex, profession, ethnic origin, educational level, HIV sero-status, treatment options, and outcome of disease); the tumor (site, extension, morphology) and statistics on the Yaounde population were noted.
- The data was analyzed using the CANREG4 program on which the registry is run.

# RESULTS

- Table 1: Estimated Yaoundé population 2006
- Source: National statistics Institute
- Date: 30/06/2006
- Standard population: World

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>world</u>
• 0-14	314202	327025	31000
• 15-24	147322	153335	17000
• 25-34	75495	78578	14000
• 35-44	86639	90164	12000
• 45-54	43139	48900	11000
• 55-64	28760	29934	8000
• 65 +	23440	24395	7000
• <b><u>Total:</u></b>	<b><u>718997</u></b>	<b><u>752331</u></b>	<b><u>100000</u></b>

Figure 1: Frequency by age by sex of cancers in the Yaounde population

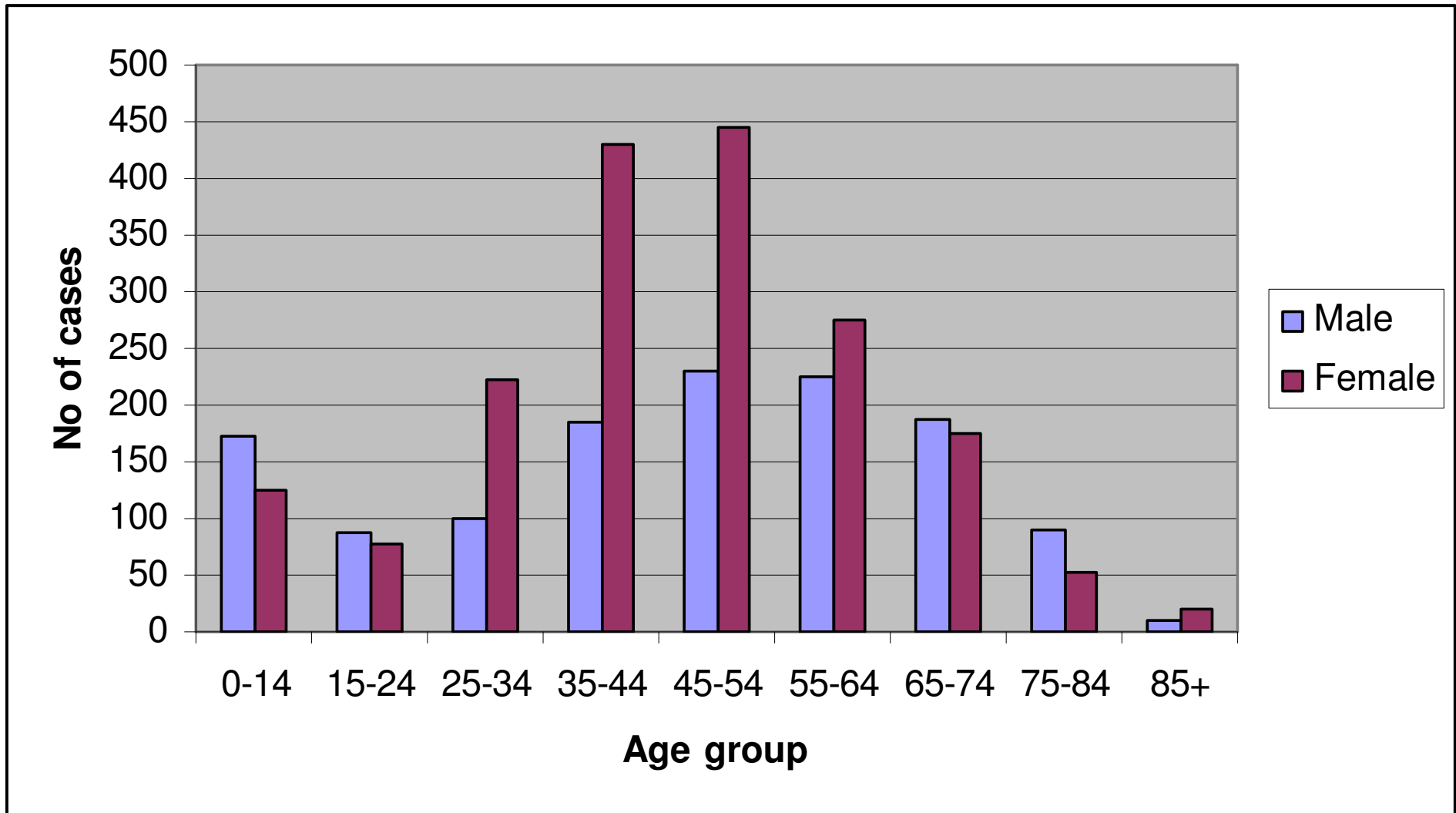


Figure II: Number of cases by year by Sex

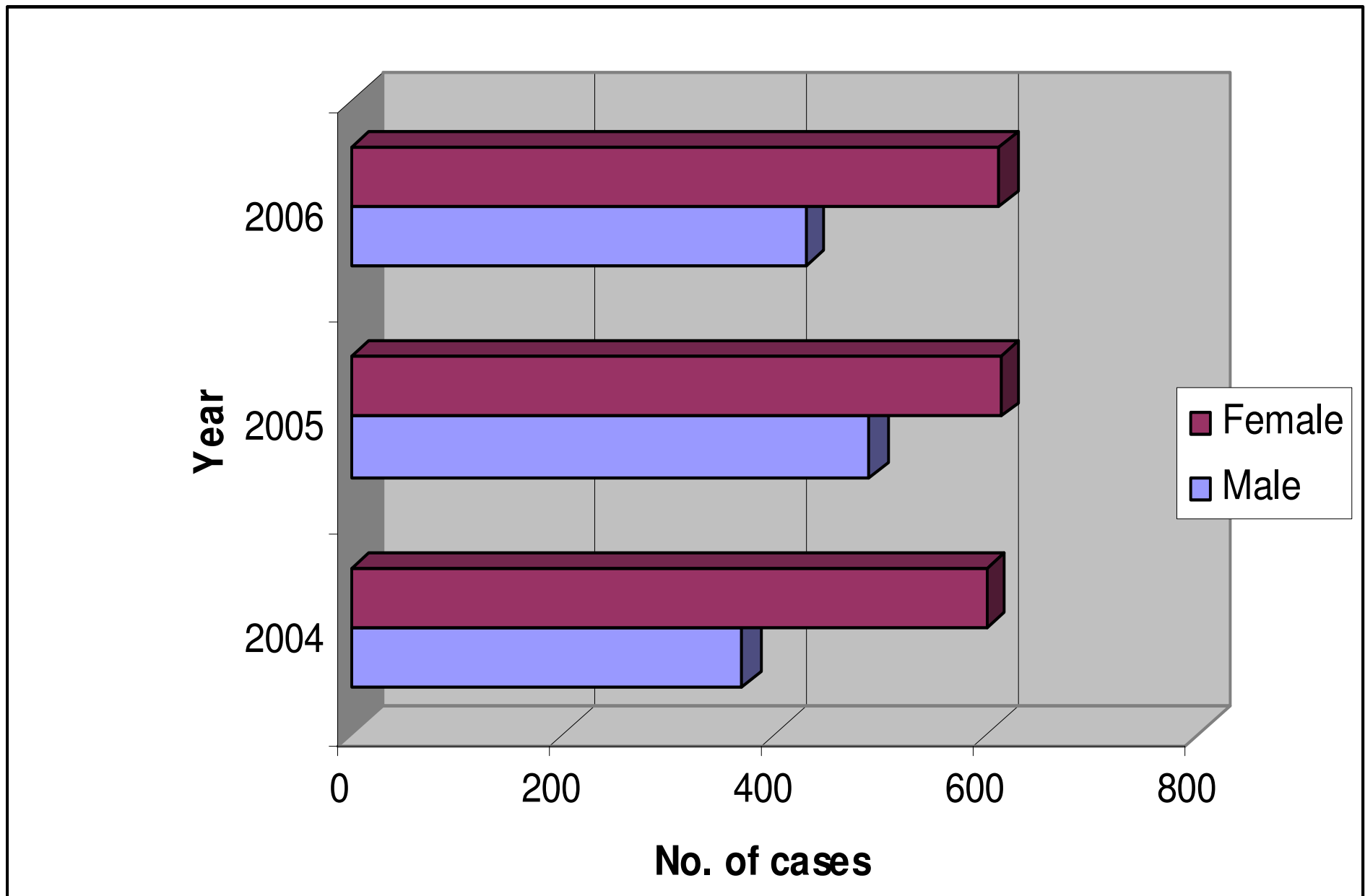


Figure III: Ten most common cancers by sex

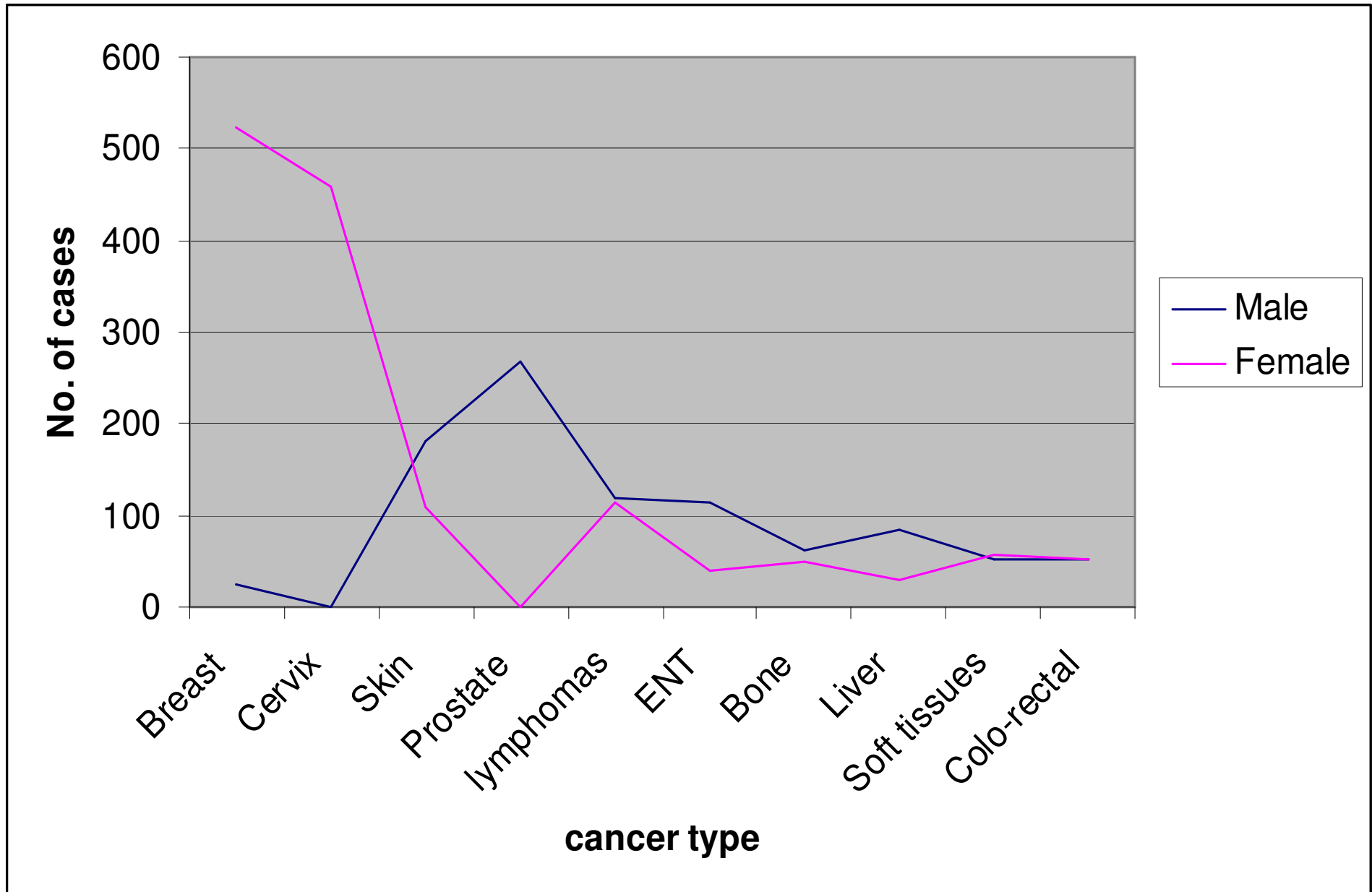
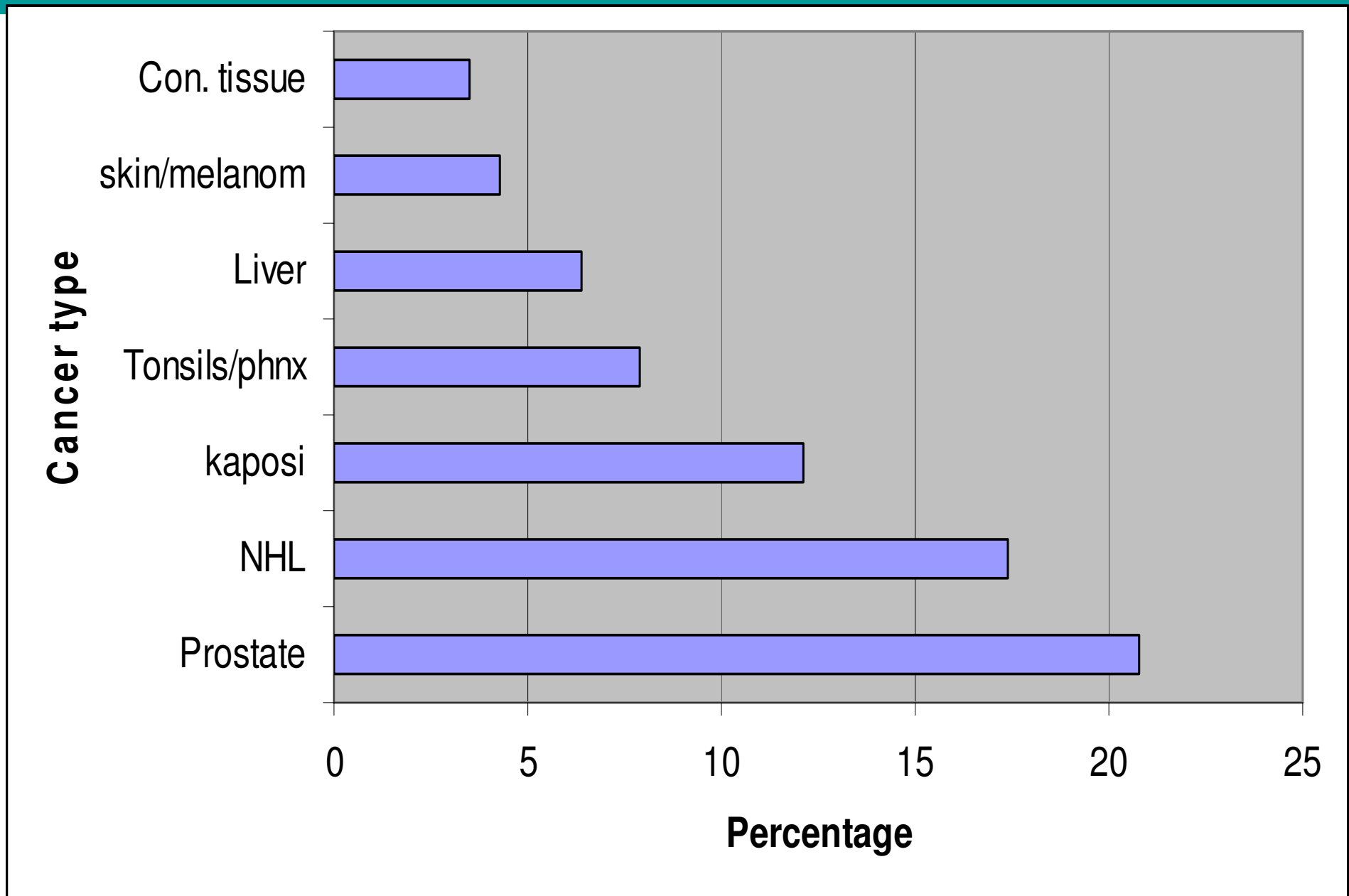
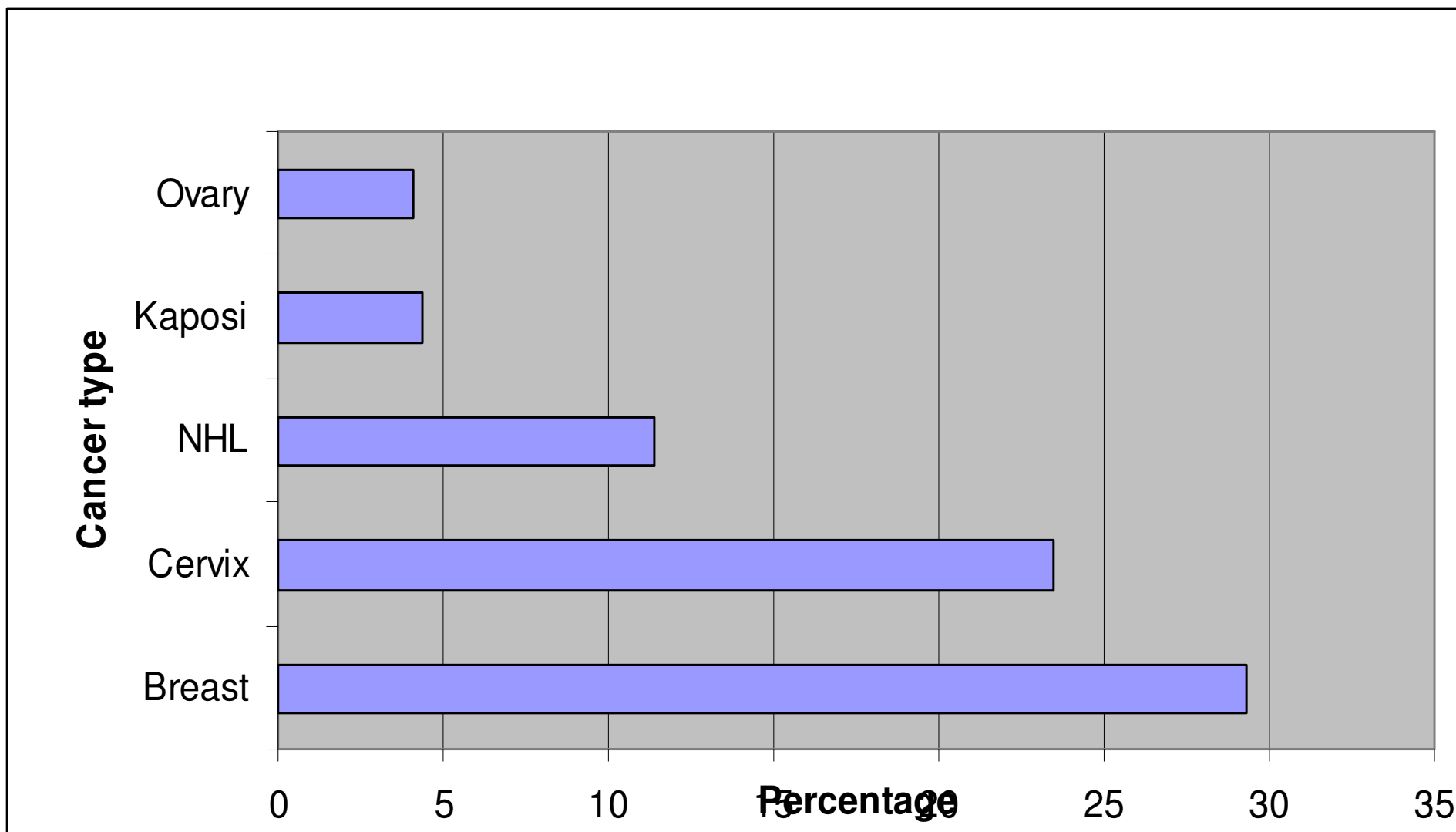


Figure IV: Most common cancers –male



**Figure V: Most common cancers –female**



Con. Tissue= connective tissue, Melanom= malignant melanoma, Phnx= pharynx, NHL= non-Hodgkin lymphoma

Figure VI: Treatment Options (all cases)

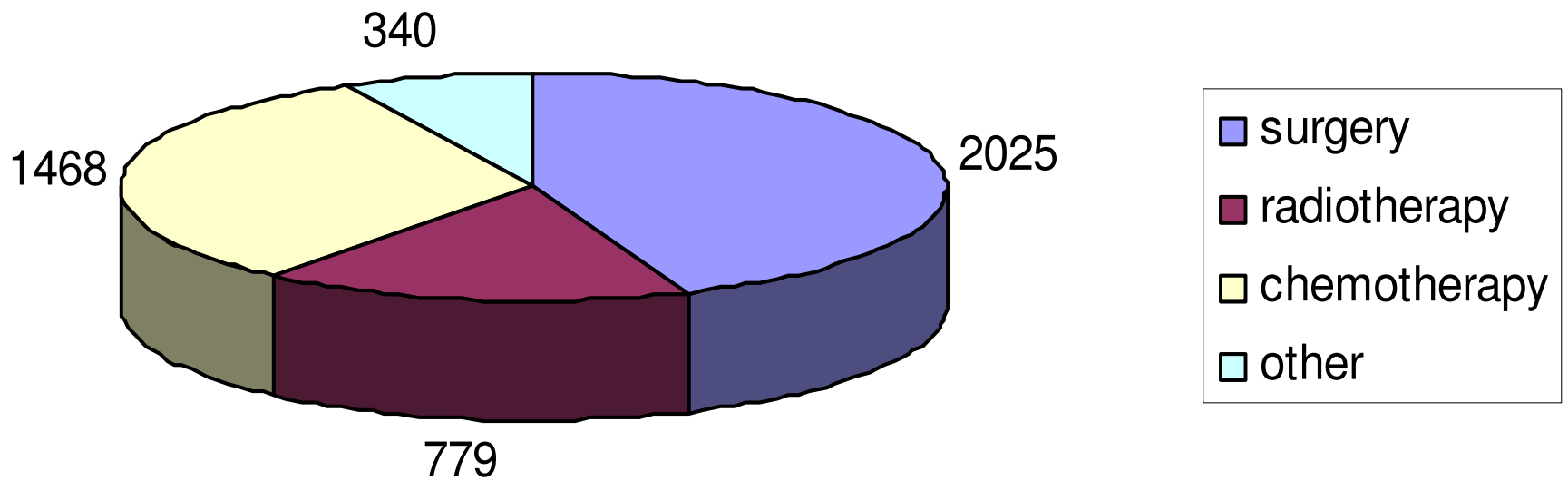


Table VII: Number of cases by year by site

	2004	2005	2006	total
•	----	----	----	---
• Lip	2	2	1	5
• Tongue	6	5	6	17
• Gum	1	1	5	7
• Mouth	8	9	11	19
• Parotid	12	10	8	30
• Salivary gland	4	2	1	7
• Tonsil	12	7	12	31
• Oropharynx	2	5	4	11
• Nasopharynx	31	26	20	77
• Pyriform sinus	0	3	0	3
• Pharynx	6	17	7	30
• Oesophagus	9	11	7	27
• Stomach	20	30	32	82
• Small intestine	2	5	1	13
• Colon	12	25	17	54
• Rectum	10	11	9	30
• Anus	3	6	10	19
• Liver	42	41	32	115
• Pancreas	10	4	4	18
• Nasal cavity	2	1	8	11
• Ear	0	0	0	0
• Maxillary sinus	2	0	8	10
• Lung	3	16	27	46
• Bones of limb	14	20	12	46
• Bones of skull	40	30	15	85

• Blood	26	15	7	48
• Skin	69	119	101	289
• Peritoneum	3	1	0	4
• Soft tissues	45	35	28	108
• Breast	203	165	182	549
• Vulva	3	4	6	13
• Vagina	3	4	3	10
• Cervix	133	156	169	458
• Uteri	7	20	10	37
• Ovary	24	27	37	88
• Placenta	0	6	1	7
• Penis	0	1	0	1
• Prostate gland	5	77	115	268
• Testis	2	5	6	13
• Kidney	3	7	13	23
• Urinary bladder	6	10	5	21
• Eye	9	13	8	30
• Brain	3	6	5	14
• Thyroid gland	6	10	6	22
• Adrenal gland	1	0	0	1
• Ill-defined sites	0	30	17	47
• Lymph nodes	81	80	70	231
• Unknown primary site	11	12	2	25
•				
• <b><u>TOTAL</u></b>	<b>969</b>	<b>1102</b>	<b>1041</b>	<b>3112</b>

# DISCUSSION

- Results of the first three years of operation of the Yaounde Population Cancer Registry (2004, 2005 and 2006) are shown with some reserve in view of the fact that it is still very early to indicate accurate cancer trends.
- We are also aware that our data sources and collection procedures may not be completely exhaustive.
- Nonetheless, we are beginning to see some trends in cancer incidence and prevalence in our community. Also we have been improving on the completeness of case finding and registration.
- We hope that this data will serve to indicate some trends in cancer incidence and prevalence in our community.

- 3112 cancer cases (1,287 males-41.4% and 1825 females-58.6%) (Fig. I) were registered during the years 2004 (969 cases), 2005 (1102 cases) and 2006 (1041 cases) in the Yaounde population giving an annual average of about 1,037 cases.
- The majority of cases were identified in the 5 main centers of Yaounde municipality (HGY 63.32%, HCY 13.39%, HGOPY 9.44%, Centre Pasteur 18.05%, and CHU 4.14%).

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- Most cases were diagnosed by histology (79.66%), while cases diagnosed by autopsy (0.32%) or Death Certificate Only (DCO 0.80%) were rare.
- Microscopically Verified Cases (MVC) constituted 93.05% of all registered cases.

- Pediatric cancers ( patients aged 15 years or less), constitute 10.22% of our series while patients aged 60 and above account for 25.23%.
- Cancer risk in our community increases steadily from age 35 to peak at 65 years after which it gradually decreases.
- The peak age in women is 45-54 years while in men it is a decade later at 55-64 years (fig. I).
- The tumor was localized to the primary organ at time of diagnosis in 43.34% of cases, while in almost 60%, of cases there was some loco-regional and/or distant metastasis (table V).

- 2.026 (65.10%) cases were treated by surgical intervention which is the leading treatment option in our community. 779 (25.03%) and 1469 (47.29%) cases were treated by radiotherapy and chemotherapy respectively
- while 380 (12.21%) cases had other treatment options such as curietherapy, hormonotherapy, cobalto therapy, or sero therapy.

- It should be noted that these treatment options overlap as patients receive more than one treatment regime, cancer being a multi-therapeutic, multidisciplinary disease (fig. VI).
- When we traced the ethnic origin of our cases, we noted that the majority, are from the west 891 (28.6%) and centre 859 (27.6%) provinces respectively.

- On the other hand, very few cases were from the three northern provinces. (tables II and IV).
- 24.48% our patients were illiterate, 23.0% had a primary level of education, 33.18% had a secondary to post secondary education and
- Only 10.50% had a university education. Similarly, 37.98% were of low income profession
- (farmer, student, house wife etc), 12.13% of moderate income profession, while only about 23.12% were of high income profession.

- We included the HIV/AIDS status of our cases since mid-year 2005.
- We are aware of the added burden of confidentiality that this decision involves, even though this is not very pertinent in the present day context in our area, we do however, take all precautions to this effect.

- Unfortunately, the disease is still surrounded by stigma in our environment and the status of most patients is kept secret, even from medical personnel. We do hope that this situation would improve with time.
- It is known that some cancers are associated to this pandemic.
- In 361 cases the sero-status was known. 3.1% were positive, 8.52% were negative. 18.75% of the sero-positive cases had a Kaposi sarcoma.

- In this series, Males with HIV/ AIDS are more likely to develop Kaposi sarcoma than females in a ratio of 3:1
- Be it in males or females, we observe an upsurge of Kaposi sarcoma at 12.1% in males and 4.4% in females.
- This increase in incidence is not unrelated to the prevailing HIV/AIDS pandemic.
- This explains why the skin has become a very important topographic organ in this black community where almost only albinos were once predisposed to skin cancer.

- Calculation of incidence rates suggests a crude rate of 59.1 per 100.000 in males and 78.4 per 100.000 in females (see incidence tables).
- Almost all tumours recorded were malignant (97.94%).
- Similarly, almost all cases involved natives.

- Our patients are all resident in Yaoundé by our registry standards. These are patients who have spent at least six months in the area.
- The most common cancer in males is prostate cancer (20.8%), followed by non Hodgkin Lymphoma (NHL) (17.4%), Kaposi sarcoma (12.1%), tonsils/pharynx (7.9%) and liver (6.8%) (fig III and IV).
- In females, the most common cancers are breast (29.3%), cervix (23.5%) and non Hodgkin's lymphoma (NHL) (11.1%) (fig III and V).

- Liver cancer incidence is surely much higher than figures in our series portray. This ambiguity is likely due to the high mortality and short survival of patients with liver cancer, many dying before even reaching the hospital.
- Generally, considering both sexes, the commonest cancers are the breast (31.3%), cervix (23.5%), non-Hodgkin lymphoma (28.5%), kaposi sarcoma (16.5%).

- We observed the following trends of some cancers during this period of 3 years (2004-2006) in our registry (table VII)
- The following cancers were on the rise: cervix, prostate and lung,
- while cancer of the breast is on the decline.
- On the other hand, cancers of the liver, oropharynx, and lymphomas were stable.

- We noted a progressive improvement in case notification, as indicated by a sharp decline in the number of “unknown primary site”(11 in 2004, 12 in 2005 and only 2 in 2006).

- Cancer deaths-in-period was 3.8% (118 cases) and the cause of death was cancer in 89.8% of cases.
- Time lapse before death during this period of three years (from incidence date to date of last contact) ranged from one day to two years, at an average of 1.6 months.

- The most common cancers leading to death within this period were skin (15 cases), liver (13 cases), breast (10 cases), cervix (8 cases), prostate (6 cases) and lymphoma (6 cases).
- The cause of death however amongst majority of the deaths of cases with skin cancer is HIV/AIDS and not cancer.
- Age range among the dead was 1 to 98 years at an average of 43.6 years.

- The sex distribution of dead cases was 54.2% males against 45.8% females.
- Due to lack of follow-up, poor death registration systems and absence of routine autopsy, the death rate in our series is a gross under estimation.

- 19 cases (0.61%) had multiple primary cancers.
- There was no particular pattern for either the first or second cancer, thus the sites of the first or second cancer were as diverse as the cancer types.
- Patients in this group were aged between 25 and 79 years at an average of 50.7 years.
- The average time between diagnosing the first and second cancers is 7.3 months.
- The sex distribution here is 36.8% males and 63.2% females.

# CONCLUSION

- The YCR in 3 years is indicating cancer trends in the population that would in the long run help in planning and evaluation of cancer management strategies by all partners involved in cancer management
- The incidence and prevalence of various cancer types in the population is similar to that found in the sub and neighboring regions.

- Financial constrains are a hindrance to complete, perfect and comprehensive cancer registration and analysis in our registry.

- **THANK YOU FOR YOUR ATTENTION.**