



Background

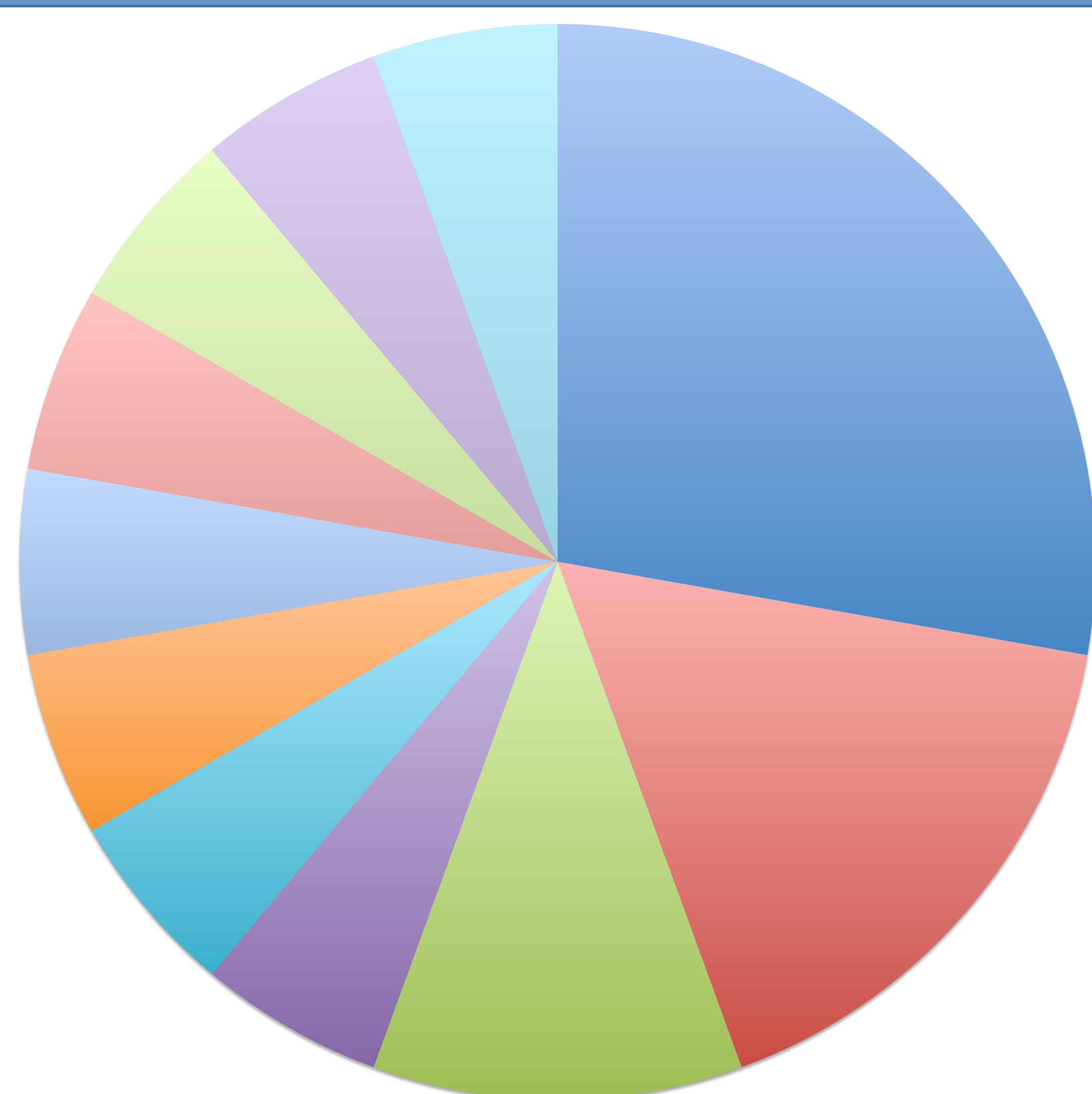
Cancer remains the leading cause of mortality in HIV-infected persons in high income countries even in the era of antiretroviral therapy. This patient population is particularly vulnerable to malignancies driven by infectious pathogens such as HPV and EBV. Non-AIDS defining malignancies are now responsible for one third of all deaths in people living with HIV. This audit highlights the importance of routine cancer screening services and the benefits of vaccination in this patient population.

Methods

All patients attending Beaumont Hospital HIV outpatient clinic with a new cancer diagnosis during the period September 2013 to September 2020 were identified through departmental record search. Clinical data was extracted from patient records. Type of malignancy, age and CD4 count at time of diagnosis, treatment and outcomes were evaluated. Benign cancers were excluded.

Results

A total of 18 new cases of cancer were diagnosed during the 7 year period. We divided the cases into two groups of 9 AIDS defining cancers (Kaposi's sarcoma, Non-Hodgkins, CNS Lymphoma and cervical cancer) and 9 non-AIDS defining cancers (hepatocellular carcinoma, oligodendroglioma, prostate, testicular, breast, sinonasal and bladder cancer). Two patients died following diagnosis of malignancy. For these two patients the CD4 count was below 10 in both cases thus indicating a poor prognostic indicator. No diagnoses of anal cancer were identified during the 7 year period.



■ Kaposi Sarcoma (5)	■ Breast (3)
■ Non-Hodgkins Lymphoma (2)	■ CNS Lymphoma (1)
■ Hepatocellular Carcinoma (1)	■ Prostate (1)
■ Cervical (1)	■ Testicular (1)
■ Brain (Oligodendroglioma)(1)	■ Sinonasal Carcnioma(1)
■ Bladder(1)	

Conclusion

As predicted, incidence of AIDS defining cancers were high in patients with low CD4 count and which may indicate delayed HIV diagnosis or poor adherence to antiretroviral therapy. Although Kaposi Sarcoma is classically seen with CD4 counts less than 200, it is occasionally found in patients with good HIV control where it is associated with more localised and less aggressive disease. Unfortunately, two patients with CD4 counts less than 10 died shortly after diagnosis, highlighting need for prompt diagnosis to allow for lifesaving treatment.

The remaining 9 patients represent non-AIDS defining malignancies in patients with optimal HIV control. Despite adequate suppression of HIV, PLWH are still at increased risk of many other malignancies. A meta-analysis investigating incidence of non-AIDS defining cancers amongst HIV positive individuals shows a 28 fold increased risk of anal cancer to the HIV negative population. It was noted that zero cases of anal cancer were diagnosed during this timeframe which may represent underdetection. This meta-analysis implicates other high risk cancers for this group which include and are not limited to liver, lung and Hodgkins Lymphoma.

With respect to our own study, three women were diagnosed with breast cancer during the period. Of note, one of the patients was aged 38 at diagnosis which is below the age for the Irish breast screening program. However, other important factors such as family history and BRCA status were not recorded. There was also one case of hepatocellular carcinoma which is 6 times more prevalent among PLWH and which likely represents co-infection with HBV or HCV.

Over the last 35 years, there has been an epidemiological shift. The advent of ART has meant a reduction in AIDS defining cancer and an older HIV-positive population, therefore the proportion of non AIDS defining cancers is on the increase and of increasing importance for clinical care providers.

For both patient subgroups, coexisting infection with other oncogenic viruses is one of the most important factors to consider in pathogenesis of cancer. For example, HHV-8 is well established to be the underlying driver in Kaposi Sarcoma. This is of utmost importance as vaccination for oncogenic variants of HPV and HBV is the key to preventing cancer in this vulnerable population. As per the most recent European AIDS Clinical Society guidelines, enhanced routine screening is essential for this patient population. Therefore routine cervical smears and anoscopy also play a role in HPV associated cancer prevention and should be integrated closely into patients attending outpatient HIV clinics.

This audit highlights the importance of providing cancer screening in a vulnerable population group who may not otherwise have access to regular medical care. We hope it will guide future implementation of cancer screening services in PLWH attending Beaumont Hospital.

References:

1. European AIDS Society Guidelines
2. HIV-Associated Cancers and related Diseases. Yarchoan and Uldrick. 2018. N Engl J Med 2018; 378:1029-1041
3. Shiels MS, Cole SR, Kirk GD, Poole C. A meta-analysis of the incidence of non-AIDS cancers in HIV-infected individuals. *J Acquir Immune Defic Syndr.* 2009;52(5):611-622.