HIV-Associated Diffuse Large B Cell Lymphoma in the Black and White Population in South Africa 2011-2021

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Background

- Lymphoma is a general term for cancer that starts in the lymphatic system.
- There are two broad categories of lymphoma
    1. Hodgkin's lymphoma (Reed-Sternberg cells)
    2. Non-Hodgkin's lymphoma (NHL)
- Diffuse large B-cell lymphoma (DLBCL) is the most common type of non-Hodgkin lymphoma (NHL) worldwide.
- DLBCL primarily affects elderly individuals in high-income countries and middle-aged adults in Sothern Africa.
- DLBCL is an HIV-associated cancer.

Background

- South Africa has the highest burden of HIV in the world.
- Young Black Africans in South Africa are disproportionately affected by HIV compared to other races/ethnic groups.
- Antiretroviral treatment (ART) was introduced in South Africa's public health facilities in 2004 and its coverage increased over time.

Figure 1: HIV prevalence by race/ethnicity in South Africa, 2017

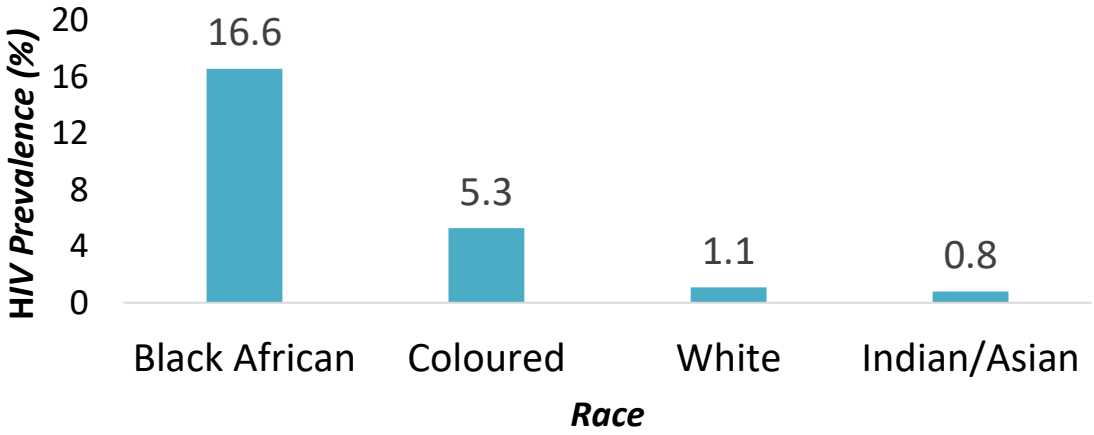
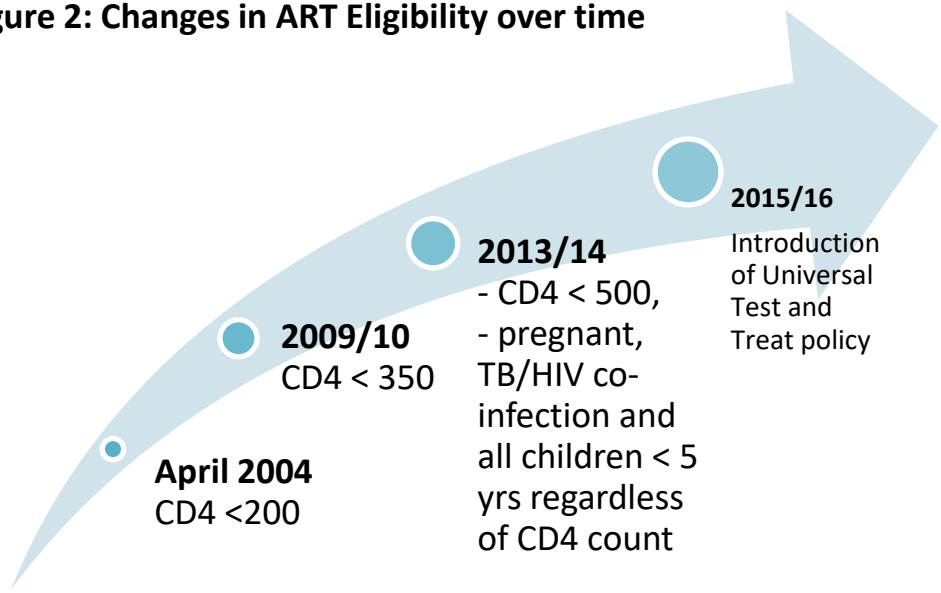


Figure 2: Changes in ART Eligibility over time



Study Purpose

To examine the impact of the HIV epidemic and ART roll-out on incident DLBCL in South Africa by comparing characteristics and temporal trends of incident DLBCL between the Black African and the White population.

Methods

Data Sources

- Pathology-based cancer registry at the National Cancer Registry (NCR) for the period 2011-2021
- Mid-year population from Statistics South Africa

Inclusion criteria

- We identified DLBCL cases using the ICD-O-3 morphology codes.
- We included all records from Black African and White individuals without any age restriction

Methods

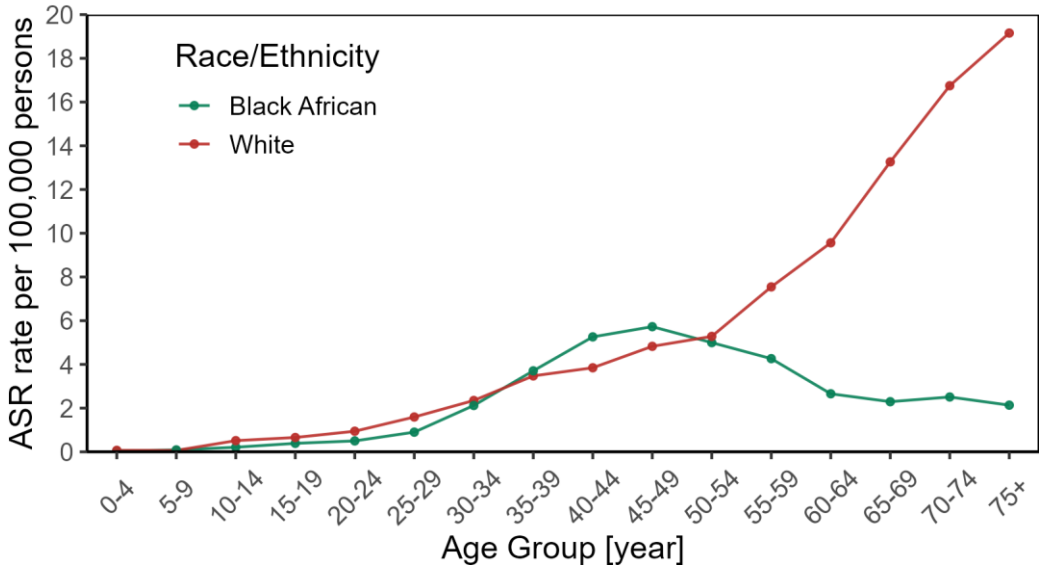
- We used descriptive statistics to examine the characteristics of DLBCL in the Black African and White population.
- We computed age-specific and age-standardized incidence rate (ASIR) stratified by race/ethnicity.
- We identified temporal trends using Joinpoint models.

Results

- 13,560 incident DLBCL were diagnosed from 2011-2021
  - 55% (n=7410) among men
  - 65% (n=8790) in Black and 22% (n=3006) in White individuals
- Median age at DLBCL diagnosis: 47 years (IQR=37-59)

Incidence rate of DLBCL by Race/Ethnicity

Age-specific incidence rates (ASR)



Age-standardized incidence rates (ASIR)

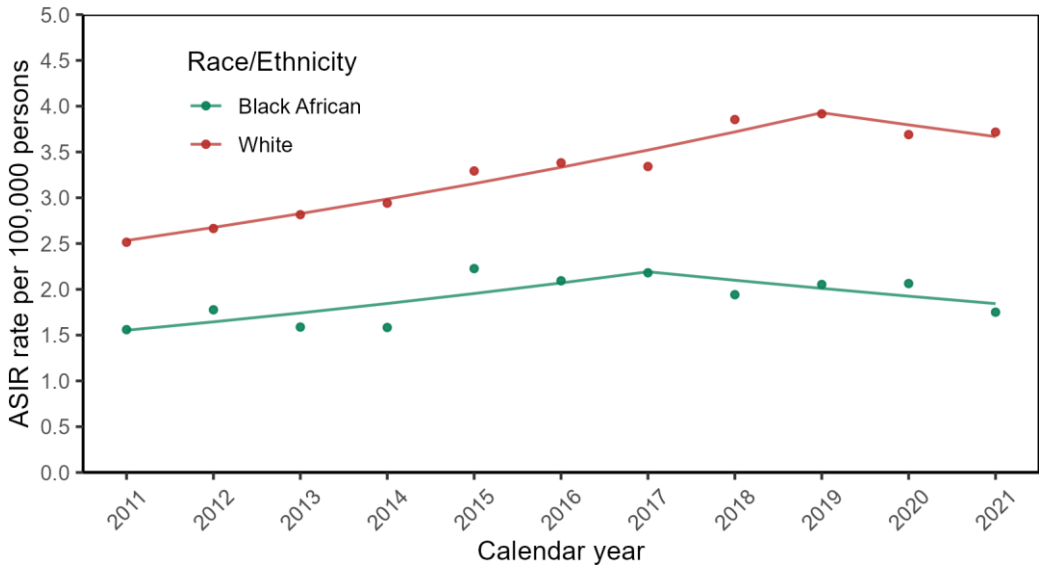


Table: Average annual percentage change in the ASIR of DLBCL by Race/Ethnicity

Race/Ethnicity	Trend 1		Trend 2	
	Period	APC (95% CI)	Period	APC (95% CI)
Black African	2011-2017	5.9% (0.02 to 37.1)	2017-2021	-4.2% (-22.8 - 3.7)
White	2011-2019	5.6% (4.8 to 7.9)	2019-2021	-3.4% (-8.1 to 2.4)

Limitations

- Completeness of the cancer registry

- HIV and EBV status were not documented in the NCR database.

Conclusion

- The age-specific DLBCL incidence patterns varied substantially between Black African and White individuals in South Africa.
- The high DLBCL incidence rates among middle-aged Black Africans suggest that HIV is a main driver of DLBCL incidence in this population.
- Despite the introduction of ART in 2004, incident DLBCL among Black Africans only started decreasing one year after the introduction of the universal-test-and-treat ART policy in 2016.

Conclusion

- Wide coverage and timely initiation of ART may help reduce the incidence of DLBCL among the Black African population in South Africa.
- Reasons for the increase in DLBCL rates over time among the White population remain unclear.
- The reduced DLBCL ASIRs in 2020-2021 might be partially attributed to the COVID-19 pandemic.

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IeDEA Southern Africa
International epidemiology Databases to Evaluate AIDS

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Questions?

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