

People living with HIV are at an increased risk of cancer and often face worse outcomes because of treatment disparities, including increased mortality. When the immune system is severely compromised from HIV infection, AIDS can develop and result in an even greater risk for life-threatening disease or cancer. In addition, patients with HIV receiving cancer treatment require close monitoring for potential drug interactions and toxicities, particularly related to preventing opportunistic infections. Oncology nurses are ideal patient advocates to promote cancer prevention and screening strategies among this population. This article reviews associated risk factors for AIDS-defining and non-AIDS-defining cancers in patients with HIV.

#### AT A GLANCE

- Because patients with HIV and cancer are at an increased risk of developing life-threatening infections, additional supportive care measures are needed.
- Although AIDS-defining cancers have decreased with effective combination antiretroviral therapy (cART), non-AIDS-defining cancers have increased significantly and account for more than half of all HIV malignancies.
- Nurses should review potential drug-drug interactions among systemic cancer treatments and cART.

#### KEYWORDS

HIV; AIDS; AIDS-defining cancers; non-AIDS-defining cancers; health disparities

#### DIGITAL OBJECT

#### IDENTIFIER

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# HIV and Cancer

## An overview of AIDS-defining and non-AIDS-defining cancers in patients with HIV

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About 1.1 million people are living with HIV in the United States, and one in seven people are unaware of their HIV status (U.S. Department of Health and Human Services [USDHHS], 2019). In 2017, gay and bisexual men made up about 67% of newly diagnosed HIV cases, with African American and Latino men disproportionately affected (USDHHS, 2019). HIV attacks T-helper (CD4) cells, the white blood cells responsible for cell-mediated immunity, and interferes with the body's immune system and function. AIDS occurs when the immune system is severely weakened by HIV to the point that opportunistic infections or cancers can begin to develop (USDHHS, 2019). To prevent potentially life-threatening complications, HIV treatment is initiated as soon as possible following diagnosis. According to the USDHHS (2018), combination antiretroviral therapy (cART), previously known as highly active antiretroviral therapy, is recommended over traditional monotherapy to prevent virologic failure and the development of drug resistance.

Despite becoming widespread in the mid-to late 1990s, initiation of cART is often delayed until CD4 cell counts drop to less than 200/mcL, at which point an individual is diagnosed with AIDS (USDHHS, 2019). Although treatment with cART reduces immunosuppression and significantly decreases cancer burden, many factors contribute to higher cancer risks for patients with virally suppressed immune systems. These factors include chronic inflammation and

coinfection with oncogenic viruses (e.g., human herpesvirus-8 [HHV8], Epstein-Barr virus, human papilloma virus [HPV], hepatitis B and C), as well as a variety of cellular processes involving activation of proto-oncogenes and inhibition of tumor suppression genes (Deeken et al., 2012; Shiels et al., 2018). Studies indicate that prevalent tobacco and alcohol use are additional cancer risk factors for patients living with HIV (Hernández-Ramirez, Shiels, Dubrow, & Engels, 2017; National Cancer Institute [NCI], 2017).

Patients with HIV who are diagnosed with cancer can face worse outcomes because of cancer care disparities, as well as a lack of appropriate cancer treatments available for this population. These disparities in care, which often occur regardless of comorbidities or insurance status, can lead to higher mortality when compared to patients with cancer who do not have HIV (Reid et al., 2018; Suneja et al., 2014, 2016). Although HIV is a chronic disease, curative cancer treatment strategies should not be immediately ruled out for these patients (Yarchoan & Uldrick, 2018). Effective cART allows patients living with HIV, including those diagnosed during childhood, to live a near-normal life expectancy. However, patients living with HIV aged 65 years or older in the United States are projected to increase from 8.5% in 2010 to 21.4% by 2030. Although AIDS-defining cancers continue to decrease, incidental cancers associated with aging, such as prostate cancer, are also expected to increase (Shiels et al., 2018). AIDS-defining cancers often develop in severe HIV infection, and