

## Perspective

# Primary Care Concerns for the Aging Population With HIV

*Because individuals with HIV are living longer, comorbidities are moving to the forefront of HIV patient care. People with HIV have a higher risk for HIV-related and non-HIV-related cancers than the general population, making cancer screening vital for this population. Immunizations are another important element of primary care for older adults with HIV, including a COVID-19 vaccine, about which data continue to evolve. This article summarizes a presentation by Steven C. Johnson, MD, at the International Antiviral Society–USA (IAS–USA) virtual HIV course Aging and HIV: Issues, Screening, and Management in Individuals with HIV as They Age in June 2021.*

**Keywords:** HIV, aging, primary care, cancer screening, vaccine, immunization, COVID-19, mortality

Antiretroviral therapy (ART) has improved outcomes for individuals with HIV, and HIV-related deaths have continued to decline (Figure 1).<sup>1</sup> In the D:A:D (Data Collection on Adverse Events of Anti-HIV Drugs) study, a reduction in AIDS-related deaths was observed along with improved CD4+ cell counts from 1999 to 2011, although deaths due to non-AIDS-related cancers increased during this period.<sup>2</sup> In a study from the Kaiser Permanente group, life expectancy from 2000 to 2016 among individuals with HIV approached that of individuals without HIV; however, those with HIV continued to experience more comorbidities than those who did not have HIV.<sup>3</sup> As people with HIV age, primary care becomes an increasingly important element of their care.

Understanding the causes of morbidity and mortality in older people with HIV is central to HIV primary care. Common comorbidities of HIV infection are listed in Table 1. It is incumbent on infectious diseases programs and HIV clinics to develop protocols for screening for common comorbidities in patients with HIV. The US Preventive Services Task Force (USPSTF) and the Infectious Diseases Society of America (IDSA) each provide detailed guidance on screening for people with HIV,<sup>4,5</sup> in-

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cluding for various cancers, osteoporosis, and prevention of falls.

## Cancer Screening

People with HIV have a higher risk for HIV-related and non-HIV-related cancers than the general population.<sup>6</sup> In a study that compared individuals with HIV from 2 separate cohorts with individuals from the Surveillance, Epidemiology, and End Results (SEER) Program from the National Cancer Institute, individuals with HIV had statistically higher levels of various cancers (Table 2).<sup>7</sup> Strategies that HIV care clinicians can implement for cancer screening in their patients are shown in Table 3.

## Colorectal Cancer

The USPSTF recommends colorectal screening for all adults aged 50 to 75 years (grade A recommendation), as well as for those aged 45 to 49 years (grade B recommendation) and for selected individuals aged 76 to 85 years based on overall health, prior screening, and preferences (grade C recommendation).<sup>8</sup> Suggested screening methods in-

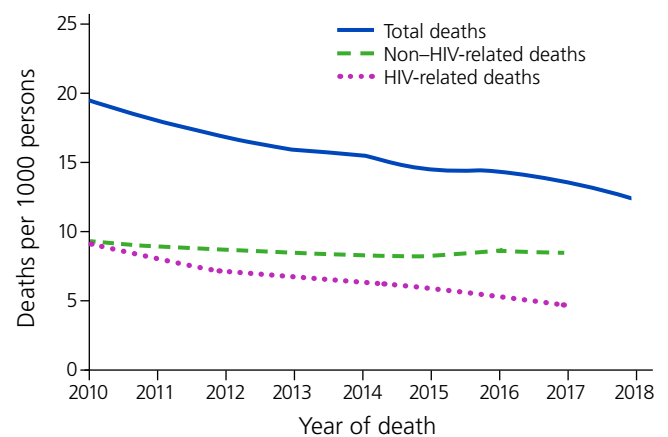
clude stool-based tests (eg, fecal occult blood or fecal immunochemical test) or direct visualization (eg, computed tomography [CT] colonography, flexible sigmoidoscopy, or colonoscopy).

## Lung Cancer

Lung cancer is more common in people with HIV when compared with the general population (Table 2), so adherence to screening guidelines is important. The USPSTF recommends lung cancer screening annually in all adults aged 50 to 80 years with a 20 pack-year history of smoking who are current or former (within 15 years) smokers.<sup>9</sup> Screening is performed via a low-dose CT scan of the chest. The USPSTF recommends that screening be discontinued after 15 years without smoking, or if the individual develops a health problem that substantially limits life expectancy or the ability and willingness to have curative lung surgery.

## Breast and Cervical Cancers

The IDSA recommends breast cancer screening at least every 2 years for individuals with HIV aged 50 to 75 years. They also recommend cervical cancer screening beginning at age 30 years, with a Papanicolaou (Pap)



**Figure 1.** Age-adjusted rates of total, HIV-related, and non-HIV-related deaths among individuals aged 13 years and older with HIV from 2010 to 2018. Adapted from Bosh et al.<sup>1</sup>

**Table 1.** Common Comorbidities in Older Individuals With HIV



test at the time of HIV diagnosis and repeated annually, and then every 3 years if results are normal for 3 years consecutively.

### Anal Cancer

People with HIV also have a markedly increased risk of anal cancer. This has led to many programs performing anal cytologic screening and high resolution anoscopy to treat anal dysplasia

**Table 2.** Relative Risk of Cancer in Individuals With HIV Compared With the General Population

Type of cancer	Standardized rate ratio (95% confidence interval)
Anal cancer	42.9 (34.1 – 53.3)
Vaginal cancer	21 (11.2 – 35.9)
Hodgkin lymphoma	14.7 (11.6 – 18.2)
Liver cancer	7.7 (5.7 – 10.1)
Lung cancer	3.3 (2.8 – 3.9)
Melanoma	2.6 (1.9 – 3.6)
Oropharyngeal cancer	2.6 (1.9 – 3.4)
Leukemia	2.5 (1.6 – 3.8)
Colorectal cancer	2.3 (1.8 – 2.9)
Renal cancer	1.8 (0.4 – 0.8)

Adapted from Patel et al.<sup>7</sup>

**Table 3.** Strategies for Cancer Screening and Prevention in an HIV Program

Type of cancer	Prevention strategy
Lung	Tobacco counseling, low-dose chest computed tomography scanning
Oral	Oral exam
Anal	Rectal exam, anal cytology
Prostate	Rectal exam, prostate-specific antigen testing discussion
Cervical	Pelvic exam, cervical cytology, human papillomavirus testing
Colorectal	Rectal exam, fecal occult blood testing, colonoscopy
Melanoma	Periodic skin exam, sun exposure counseling
Liver	Hepatitis B vaccine, hepatitis B and C treatment if applicable, abdominal ultrasound, computed tomography scan for surveillance

in an attempt to reduce the incidence of anal cancer. This approach has been recently validated with the results from the ANCHOR (Anal Cancer/HSIL Outcomes Research) study, which is funded by the National Institutes of Health (NIH) and is awaiting publication. This study will likely lead to stronger recommendations regarding anal cytologic screening.

### Immunizations

Immunizations are an important part of primary care for older adults with HIV. The Centers for Disease Control and Prevention (CDC) and the US Department of Health and Human Services provide guidance on appropriate dosing and frequency of available vaccines for individuals with HIV.<sup>10,11</sup> An immunization schedule by vaccine type and age group is provided in Table 4.

### Influenza Vaccine

The high-dose influenza vaccine is more immunogenic in individuals aged 65 years and older<sup>12</sup> and in individuals with HIV.<sup>13</sup> Additionally, the high-dose influenza vaccine has been shown to provide better protection against laboratory-confirmed influenza than the standard-dose vaccine.<sup>14</sup> In a study that compared the effective-

ness of the high-dose influenza vaccine and the standard-dose vaccine in preventing death, the high-dose vaccine was more effective during the 2012 to 2013 influenza season; however, it was not more effective during the 2013 to 2014 season.<sup>15</sup>

### COVID-19 Vaccine

Large cohort studies have reported a higher risk of mortality in people with HIV who develop COVID-19.<sup>16-21</sup> People with HIV often have other comorbidities associated with risk for severe COVID-19, including older age, obesity, cardiovascular disease, lung disease, hypertension, diabetes, and cancer. The CDC has recognized HIV infection as one of the medical conditions that increase risk for severe illness with COVID-19, and in 2021 the organization added a recommendation that everyone who is aged 12 years and older should receive the COVID-19 vaccine.<sup>10</sup> Recent CDC data in the general population indicated the Moderna vaccine to be better than the Pfizer vaccine, which is considered better than Johnson & Johnson, although we do not have comparative data in people with HIV.<sup>22</sup> Of note, people taking ART with well-controlled HIV were included in the phase III trials of the Moderna, Pfizer, and Johnson & Johnson vaccines, but complete data from these trials on immunogenicity, efficacy, and safety in people with HIV are not yet available. Although none of the COVID-19 vaccines currently available are live vaccines, people with HIV who

**Table 4.** HIV Adult Immunization Schedule by Vaccine and Age Group, December 2021\*

Vaccine	Age			
	19-26 years	27-59 years	60-64 years	≥65 years
Influenza	1 dose annually			Consider high dose
Tetanus-diphtheria (Td)/ Tetanus, diphtheria, pertussis (Tdap)	Substitute Tdap for Td once, then Td booster every 10 years			
Varicella	2 doses 3 months apart (if CD4+ cell count ≥200/μL and no immunity to varicella)			
Human papillomavirus vaccine	3 doses (0, 2, and 6 months)	27-45 years: Discuss with patient		
Zoster recombinant	2 doses at 0 and 2-6 months			
Measles, mumps, and rubella (MMR)	1 or 2 doses (if CD4+ cell count ≥200/μL and no immunity)			
Pneumococcal conjugate vaccine 13 (PCV-13)	1 dose, preferably prior to pneumococcal polysaccharide vaccine 23 (PPSV-23)			
PPSV-23	2 doses 5 years apart, at least 8 weeks after PCV-13 vaccine			1 dose
Hepatitis A	2 or 3 doses, depending on the vaccine (0 months and at 6-18 months). Check hepatitis A virus antibodies after vaccination			
Hepatitis B	2 or 3 doses depending on the vaccine. Check hepatitis B surface antibodies after vaccination			
Meningococcal conjugate	If no prior vaccine, 2 doses of either MenACWY-D or MenACWY-CRM 8-12 weeks apart. Boost every 5 years			
COVID-19 vaccine	2-3 doses of Pfizer, 2-3 doses of Moderna, or 1 dose of Johnson & Johnson followed by a homologous or heterologous booster at 6 months for mRNA vaccines and 2 months for Johnson & Johnson			

\*After assessing age, presence of immunity, and CD4+ cell count, high-dose influenza vaccine is the author's recommendation. Live vaccines (eg, MMR, varicella, yellow fever) should not be given if CD4+ count is less than 200 cells/μL. The oral typhoid and live influenza vaccines are contraindicated in those with HIV.


Abbreviations: MenACWY, meningococcal serogroups A, C, W, Y.

Adapted, in part, from the Centers for Disease Control and Prevention.<sup>10</sup>

are taking ART and have CD4+ cell counts in normal ranges respond well to live vaccines, so there is potential for this to hold true with COVID-19 vaccines in the future.<sup>11</sup> People with HIV who have advanced disease and are immunocompromised may have a reduced response to vaccines but are also at greater risk for severe COVID-19. For patients with advanced HIV infection (eg, CD4<200 cells/μL) or untreated HIV infection, a third dose of the mRNA vaccine is recommended at least 28 days after the receipt of the first 2 doses of either of the mRNA vaccines. People with HIV are now eligible for boosters of the COVID-19 vaccine 6 months after the primary series of the mRNA vaccines or 2 months after the primary immunization with the Johnson & Johnson vaccine. The booster

can either be the same vaccine previously received (a homologous booster) or a different COVID-19 vaccine (a heterologous booster).

### Summary

Life expectancy continues to improve for people with HIV, but comorbidities continue to play a large role in morbidity and mortality, making primary care crucial for this population. Many of the USPSTF recommendations are particularly important for older people with HIV, including updated guidelines for lung and colorectal cancer screening. Immunizations are also important in older people with HIV, with the role of COVID-19 vaccination continuing to evolve as more data become available. 

*Presented by Dr Johnson in June 2021. First draft prepared from transcripts by Rachel Lastra. Reviewed and updated by Dr Johnson in October 2021. The presentation can be viewed here: <https://youtu.be/10B4SabySLU>.*

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