HIV Health Outcomes:
It's More Than Just Viral Suppression

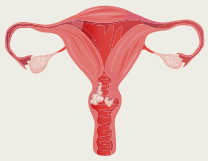
Although people with HIV (PWH) in the United States (US) are now less likely to die of HIV-specific causes compared to past years, they are burdened with more chronic diseases and attendant mortality than HIV uninfected persons.[1-4]

The purpose of this resource is to increase clinician awareness of the increased prevalence of specific illnesses and mortalities among PWH in the US, with recommendations for prevention, screening, and harm reduction.
These include:

- Specific non-AIDS defining malignancies (anal, bronchopulmonary, and oropharyngeal cancers); and cervical cancer
- Atherosclerotic cardiovascular disease
- Behavioral/mental health conditions (e.g., depression, anxiety, substance use)

This document is not intended to be an all-inclusive list of all-cause mortality among PWH in the US.

AETC AIDS Education & Training Center Program

DISEASE	RELATIVE RATES IN PWH	SCREENING
Anal Cancer	Up to 80x more common	Annual DARE and anal Pap for persons aged ≥35 years
Bronchopulmonary Cancer	48% more common	Annual low-dose computed tomography (LDCT) scan for those aged 50-80 years with a smoking history of ≥20-pack-years and who currently smoke or quit within past 15 years
 **Cervical Cancer**	3-4x more common	Cervical Pap test at diagnosis. See page 2 for subsequent recommendations
Dental/Oropharyngeal Cancers (OPC)	3x more common	Dental/oral health exam every 6 months
Atherosclerotic Cardiovascular Disease (ASCVD)	2x more likely	Annual ASCVD 10-year risk calculator for those aged 20-79 years
Mental Health (MHD) and Substance Use (SUD) Disorders	MHD almost 2x more common SUD 4X more common	Annual screening for depression, anxiety, post-traumatic stress, alcohol/substance use disorders including tobacco smoking

Cancers: Risk Reduction and Screening

Antiretroviral therapy (ART) should be initiated as soon as possible after HIV diagnosis. ART with sustained viral suppression is strongly linked to lower incidence of premature mortality among people with HIV (PWH). This recommendation will not be repeated in Risk Reduction recommendations below.

Anal Cancer

- **80 times more common** in men who have sex with men (MSM) with HIV than in MSM without HIV.[5] The rates of anal cancer among women with HIV and men with HIV who have sex with women (MSW) are lower, but higher than the rate among the general population,[6] and the rate of anal dysplasia among transgender women with HIV is similar to that of MSM with HIV.[7]
- **Risk Reduction:**
  - > **Human papillomavirus (HPV) vaccination** if ≤26 years old[8]
  - > Shared decision-making for completing HPV vaccination of those 27-45 years old[8]
  - > Smoking cessation counseling, support, medications[11]
- **Screening:**
  - > Annual symptom screening, perianal visual inspection, and digital anal rectal exam **(DARE),** for PWH of all genders ≥35 years old[8,9]
  - > For those ≥35 years and high-resolution anoscopy (HRA) is available, an annual **anal Pap test** with reflex HPV testing should be done. If Pap shows ≥low-grade intraepithelial lesion (LSIL), refer for **HRA**. If Pap shows atypical cells of unclear significance (ASCUS): refer for HRA if high-risk HPV DNA positive or repeat anal Pap in 6 months if HPV testing not available[9]

Bronchopulmonary Cancers

- PWH have a **48% higher risk** of lung cancer compared to the general US population[11]
- **Risk Reduction:**
  - > Smoking cessation counseling, support, medications[11]
- **Screening:**
  - > Annual **low-dose computed tomography (LDCT)** in those aged 50–80 years who have ≥20-pack-year (# cigs/day x # years smoked) smoking history and currently smoke or have quit within the past 15 years[12,13]

Cervical Cancer

- **3-4 times more common** in cisgender women with HIV than in cisgender women without HIV[14]
- Anyone with a cervix is at risk of cervical cancer; this may include transgender men, and non-binary and intersex individuals. Screening should be based on age recommendations
- **Risk Reduction:**
  - > **HPV vaccination** if ≤26 years old[8]

Cervical Cancer, continued

- > Shared decision-making for completing HPV vaccination of those 27-45 years old[8]
- > Smoking cessation counseling, support, medications[11]

Screening:[8]

- > Persons with an intact uterine cervix aged 21-29 years: **cervical Pap test** at the time of initial HIV diagnosis
  - - If the initial Pap result is normal, repeat every 12 months. If the results of 3 consecutive annual Pap tests are normal, follow-up Pap tests every 3 years
  - - For abnormal Pap results of atypical squamous cells of undetermined significance (ASCUS) or higher grade (LSIL or high-grade intraepithelial lesion [HSIL]), refer for **colposcopy**
- > Persons aged ≥30 years: **cervical Pap test (with reflex HPV test if available)** at the time of HIV diagnosis, then every 12 months for lifetime of the patient
  - - Pap testing only: If the initial Pap result is normal, repeat every 12 months. If the results of 3 consecutive annual Pap tests are normal, follow-up Pap tests every 3 years
  - - Pap and HPV co-testing: If both test results are negative, repeat screening in 3 years. If normal Pap but positive HPV test, repeat co-testing in 1 year (if HPV 16 or 18 positive, refer for colposcopy)
  - - If ≥ LSIL, or HPV test shows HPV 16 or 18 positive, refer for **colposcopy**
  - - If ASCUS without positive HPV, then repeat the Pap test alone in 6-12 months or do Pap test with HPV test in 12 months, and refer for colposcopy if result is ≥ ASCUS

Dental—Oropharyngeal Cancers (OPC)

- HPV-related and HPV-unrelated OPCs occur **3 times more frequently** among PWH than in the general US population[8,16]
- **Risk Reduction:**
  - > **HPV vaccination** if ≤26 years old[8,16]
  - > Shared decision-making for completing HPV vaccination of those 27-45 years old[8]
  - > Smoking cessation counseling, support, medications[11]
- **Screening:**
  - > **Dental exam at least once every 6 months** (regardless of dentition status) inclusive of thorough exam of head, neck, and oropharyngeal tissues

Everyone

- Remember routine screening for other common cancers that are not known to be elevated in PWH

Atherosclerotic Cardiovascular Disease (ASCVD): Risk Reduction and Screening

- Adults with HIV are **2 times more likely** to develop ASCVD compared to adults without HIV[17]
- **Risk Reduction:**
  - > **ART with sustained viral suppression** (because chronic HIV viremia and HIV-associated immunosuppression are associated with increased ASCVD risk)[18]
  - > **Smoking cessation** counseling, support, medications[11]
  - > **Blood pressure (BP) control** (<130 mm Hg systolic and <80 mm Hg diastolic)[21]
    - Reduction in dietary sodium
    - Increase in dietary potassium (unless contradicted by other conditions)
    - Reduction or elimination of medications or other substances (over-the-counter and illicit) that increase BP, or heart rate, or that can cause vasospasm[20]
  - > **Alcohol use reduction** to ≤1 drink/day (14 g of alcohol) for women and ≤2 drinks/day for men[21]
  - > **Changes in diet** (to plant-based or Mediterranean-like diet)[19]
  - > **Weight reduction** if overweight or obese (body mass index ≥25)[19,20]
  - > Random or fasting glucose every 12 months for **diabetes mellitus (DM) screening**,[22] and glucose control for people who have DM
  - > 150 minutes/week of accumulated moderate-intensity **physical activity** or 75 minutes/week of vigorous-intensity physical activity[23]
  - > **Prescribe statins and other lipid-lowering medications** as recommended by the American College of Cardiology (ACC)/American Heart Association (AHA) Task Force on Clinical Practice Guidelines[19]
    - If patient is taking a boosted ART regimen (i.e., with ritonavir or cobicistat) be cautious of interactions with statins; generally, may use limited doses of atorvastatin or rosuvastatin[18] (assess with drug-drug interaction checker)
- **Screening:**
  - > ACC/AHA ASCVD **10-year risk calculator** annually for persons aged 20-79 years
    - Although HIV infection has been identified as a risk factor for ASCVD, it is not integrated into the calculator algorithm,[18] and the actual 10-year risk may be underestimated

Mental Health Disorders and Related Problems: Risk Reduction and Screening

- Adults with HIV are nearly **2 times more likely** of being diagnosed with a mental illness compared to adults without HIV infection[24]
- Past-year illegal drug use is **4 times more likely** in adults with HIV[25]
- Mental health problems are associated with mortality through their link to suicide, overdose, fatal injury, and end-stage organ damage
- **Risk Reduction:**
  - > Inform patients about the 988 National Suicide and Crisis Lifeline that can be called or texted 24/7
  - > Use local and national resources to help incorporate behavioral health screening, referral, or treatment into primary HIV care:
    - Implementing Substance Use Disorder (SUD) Services in HIV Care Settings Toolkit: https://aidsetc.org/resource/sud-toolkit
    - Integrating Behavioral Health into HIV Primary Care—Covering the Bases: https://aidsetc.org/resource/integrating-behavioral-health-primary-hiv-care-covering-bases
    - Behavioral Health Resource Toolkit: https://aidsetc.org/toolkit/mental-health/resources
- **Screening:**
  - > Screen at least annually for depression, anxiety, post-traumatic stress disorder, alcohol/substance use disorders, including tobacco smoking. Calculators for mental health screening (National HIV Curriculum): https://www.hiv.uw.edu/page/mental-health-screening/gad-2

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