| Condition | Related to HIV? | Comorbidity/Complication of HIV? | Complication of HIV Treatment? | Addressing Promotes Viral Suppression? | Addressing Improves Quality of Life? | Diagnostic Procedure Required (Specify) | Anesthesia Needed (Specify) | References |
|---|---|---|---|---|---|---|---|---|
| **Dermatitis** | Yes — more prevalent in PWH; correlates with lower CD4 counts | Yes — comorbidity; increased prevalence with immunosuppression | Possible — ART-related drug rashes (NNRTIs, especially nevirapine/efavirenz) can present as dermatitis | Indirectly — ART initiation reduces dermatitis prevalence independent of CD4 count; managing ART-related rash prevents treatment discontinuation | Yes — reduces discomfort, pruritus, and visible skin disease | Clinical diagnosis; skin biopsy if atypical (local anesthesia) | Local anesthesia if biopsy needed | [1-5] |
| **Eczema / Seborrheic Dermatitis** | Yes — seborrheic dermatitis is one of the most common HIV-associated dermatoses (prevalence up to 83% in advanced disease) | Yes — comorbidity; marker of immunodeficiency; worsens with declining CD4 | No — not a direct ART complication; improves with ART | Yes — HAART showed 84% regression of seborrheic dermatitis vs. 41% without HAART; ART reduces eczema prevalence independent of CD4 | Yes — reduces visible facial/scalp disease, pruritus, and social stigma | Clinical diagnosis; KOH prep to exclude tinea; biopsy rarely needed (local anesthesia if performed) | Local anesthesia if biopsy needed | [1, 3, 6-8] |
| **Eosinophilic Folliculitis** | Yes — strongly associated with HIV; occurs at CD4 200–300 cells/μL; considered an HIV-specific dermatosis | Yes — complication of advanced immunosuppression | Possible — can flare as immune reconstitution inflammatory syndrome (IRIS) after ART initiation | Yes — has become rare in the modern ART era due to immune reconstitution; ART is the primary treatment | Yes — intensely pruritic; treatment reduces significant morbidity | Skin biopsy required (punch biopsy) to differentiate from bacterial folliculitis; histology shows eosinophilic infiltrate (local anesthesia) | Local anesthesia for punch biopsy | [9-13] |
| **Impetigo** | Yes — bacterial skin infections (S. aureus) are more common in PWH | Yes — comorbidity; increased frequency with immunosuppression | No | Indirectly — treating bacterial infections prevents complications that could impair care engagement; low CD4/high viral load | Yes — reduces pain, spread of infection, and secondary complications | Clinical diagnosis; wound culture and sensitivity if recurrent or treatment-resistant | None typically required | [1, 14-16] |

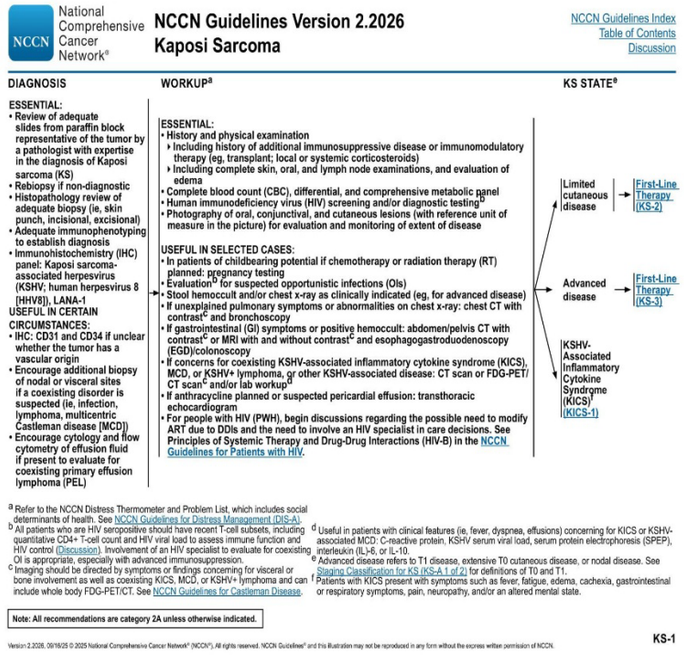
| Condition | Related to HIV? | Comorbidity/Complication of HIV? | Complication of HIV Treatment? | Addressing Promotes Viral Suppression? | Addressing Improves Quality of Life? | Diagnostic Procedure Required (Specify) | Anesthesia Needed (Specify) | References |
|---|---|---|---|---|---|---|---|---|
| | | | | are risk factors for SSTIs | | | | |
| **MRSA** | Yes — PWH have increased MRSA colonization (prevalence ~7–10% in the Americas) and SSTI rates (69.8% of S. aureus isolates were MRSA in a Houston cohort) | Yes — comorbidity; low CD4 and high viral load are independent predictors of SSTI incidence | No — not a direct ART complication | Yes — ART is associated with reduced MRSA colonization/infection risk (OR 0.71); SSTI incidence declined ~40% from 2009–2014 with improved HIV care | Yes — reduces recurrent painful abscesses, cellulitis, and risk of bacteremia | Wound culture and antibiotic susceptibility testing; nasal/skin swab for colonization screening | Incision and drainage under local anesthesia if abscess present | [15, 17-21] |
| **Molluscum Contagiosum** | Yes — opportunistic infection in advanced HIV (CD4 200); more extensive and treatment-resistant in PWH | Yes — complication of advanced immunosuppression; may signal uncontrolled HIV | No | Yes — ART-mediated immune reconstitution leads to resolution; lesions serve as a clinical marker of immune status | Yes — reduces disfiguring widespread lesions and social stigma | Clinical diagnosis; biopsy if atypical to exclude other infections (e.g., cryptococcosis, histoplasmosis) (local anesthesia) | Local anesthesia for cryotherapy, curettage, or biopsy | [1, 3, 6, 14, 22] |
| **Photodermatitis** | Yes — prevalence ~5.4% in PWH; associated with advanced immunosuppression (CD4 200); African American ethnicity is an independent risk factor (OR 6.68) | Yes — comorbidity; can be a presenting feature of HIV infection | Yes — HAART use is independently associated with photosensitivity (OR 2.82); efavirenz specifically causes photo-distributed drug eruptions | Indirectly — managing photodermatitis may require ART modification, which should maintain viral suppression | Yes — reduces chronic, disfiguring photo-distributed dermatitis | Clinical diagnosis; phototesting (MED-UVA/UVB) if chronic actinic dermatitis suspected; biopsy if atypical (local anesthesia) | Local anesthesia if biopsy needed | [13, 23-26] |

| Condition | Related to HIV? | Comorbidity/Complication of HIV? | Complication of HIV Treatment? | Addressing Promotes Viral Suppression? | Addressing Improves Quality of Life? | Diagnostic Procedure Required (Specify) | Anesthesia Needed (Specify) | References |
|---|---|---|---|---|---|---|---|---|
| **Pruritus (Xerosis, Psoriasis, Scabies, etc.)** | Yes — pruritus is an early symptom of HIV; xerosis, psoriasis, and scabies are all more prevalent in PWH; HIV gp120 has direct pruritogenic effects on neurons | Yes — comorbidity; xerosis and psoriasis worsen with declining CD4; scabies can present as crusted (Norwegian) scabies in advanced HIV | Possible — some ART agents can cause pruritus/drug eruptions | Yes — ART reduces prevalence of xerosis, psoriasis, and pruritic papular eruptions; scabies treatment prevents secondary infections | Yes — pruritus significantly impairs sleep, daily function, and psychological well-being | Clinical diagnosis for most; skin scraping/mineral oil prep for scabies; biopsy for atypical psoriasis or prurigo nodularis (local anesthesia) | Local anesthesia if biopsy needed | [1, 3, 11-13, 22] |
| **Skin Conditions/Symptoms (Appendages/Oral)** | Yes — oral candidiasis, oral hairy leukoplakia, gingivitis, and hair/nail changes are common HIV manifestations | Yes — comorbidity/complication; oral candidiasis is an early marker of immunodeficiency | Possible — ART-related oral ulcers and drug eruptions can occur | Yes — ART leads to regression of oral candidiasis and hairy leukoplakia; oral health impacts ART adherence | Yes — improves nutrition, oral comfort, and social functioning | Clinical exam; KOH prep/culture for candidiasis; biopsy for persistent oral lesions to exclude malignancy (local anesthesia) | Local anesthesia for oral biopsy | [1, 6-8] |
| **Warts (HPV-Related)** | Yes — HPV-related conditions remain clinically significant even with suppressive ART and preserved CD4 counts; linked to increased risk of anogenital cancers | Yes — comorbidity; persistent HPV infection leads to extensive, treatment-resistant warts and increased malignancy risk | No — not a direct ART complication; ART does not reliably clear HPV | Partially — ART may reduce HPV-related dysplasia but does not eliminate HPV; warts persist despite viral suppression | Yes — reduces disfigurement, discomfort, and cancer risk through treatment and surveillance | Clinical diagnosis; biopsy if atypical or persistent to exclude dysplasia/malignancy (local anesthesia); anoscopy for anal warts | Local anesthesia for cryotherapy, excision, or biopsy | [1, 14, 22, 27] |
| **Kaposi Sarcoma** | Yes — AIDS-defining malignancy; caused by HHV-8/KSHV; SIR ~214-fold elevated in PWH | Yes — complication of HIV/immunosuppression; associated with advanced disease | No — rare with effective ART; can flare as IRIS after ART initiation | Yes — ART alone can achieve KS remission in limited cutaneous disease; viral suppression is | Yes — reduces disfiguring lesions, edema, visceral | **Biopsy required** — histopathology with IHC for HHV-8 LANA-1; imaging (CT, bronchoscopy, EGD) for visceral | Local anesthesia for skin punch/excisional biopsy; sedation or general anesthesia for bronchoscopy/endoscopy | [4, 18, 27-28] |

| Condition | Related to HIV? | Comorbidity/Complication of HIV? | Complication of HIV Treatment? | Addressing Promotes Viral Suppression? | Addressing Improves Quality of Life? | Diagnostic Procedure Required (Specify) | Anesthesia Needed (Specify) | References |
|---|---|---|---|---|---|---|---|---|
| | even in the ART era | | | critical for KS control and survival | disease, and mortality | disease (local anesthesia for skin biopsy; sedation/general for visceral procedures) | | |
| **Skin Cancers (BCC, SCC, Melanoma)** | Yes — SCC risk elevated ~2.8–5.4-fold in PWH; BCC risk ~1.8-fold; Merkel cell carcinoma SIR 3.15; melanoma data varied but ~1.5-fold in some studies | Yes — comorbidity; low nadir CD4 is associated with increased SCC risk; HIV/AIDS listed as immunosuppression risk factor for melanoma by NCCN | Possible — ART-associated photosensitivity may contribute to UV-related skin cancer risk | Yes — HAART use associated with lower rates of non-AIDS-defining cancers (OR 0.21); viral suppression reduces cancer-related mortality | Yes — early detection and treatment reduce morbidity and mortality | **Biopsy required** — shave, punch, or excisional biopsy with histopathology; Mohs surgery for treatment of certain lesions (local anesthesia) | Local anesthesia for biopsy and Mohs surgery; general anesthesia for extensive excisions | [6, 29-36] |
| **Onychomycosis** | Yes — more prevalent in PWH; associated with injection drug use and immunosuppression | Yes — comorbidity; prevalence increases with declining immune function | No | Indirectly — ART reduces overall fungal infection burden; however, onychomycosis may persist despite immune reconstitution | Yes — improves nail appearance, reduces secondary bacterial infection risk, and improves foot health | KOH preparation and fungal culture of nail clippings; PAS staining of nail biopsy if culture negative (no anesthesia for clippings) | None for nail clippings; local anesthesia if nail biopsy needed | [1, 3, 6, 37] |

**Key synthesis points:**
**Relationship to HIV:** All listed conditions occur at higher rates in PWH compared to the general population, driven by immunosuppression, altered skin microbiome, and co-infection with oncogenic viruses. [1-2] The HIVMA/IDSA 2024 guidelines specifically list seborrheic dermatitis, psoriasis, molluscum contagiosum, onychomycosis, folliculitis, Kaposi sarcoma, and condylomata as conditions requiring focused attention on physical examination. [6]

**ART and viral suppression:** For most HIV-associated dermatologic conditions, ART initiation and viral suppression lead to significant improvement or resolution. The Women's Interagency HIV Study (a U.S. multicenter cohort) demonstrated that HAART independently reduced the prevalence of eczema, folliculitis, and xerosis regardless of CD4 count. [3] Kaposi sarcoma can regress with ART alone in limited cutaneous disease. [4][28] However, HPV-related warts and skin cancers may persist or even increase despite effective ART, reflecting cumulative viral exposure and prolonged survival. [1][27]
**Diagnostic procedures:** Most conditions are diagnosed clinically, but biopsy is essential for Kaposi sarcoma (with HHV-8 IHC), skin cancers, and atypical presentations of folliculitis, warts, or molluscum. [10][14][18][28][30][33] MRSA requires wound culture with susceptibility testing. [15] Onychomycosis requires KOH prep and fungal culture for confirmation before systemic antifungal therapy. [37]
**Quality of life:** Dermatologic disease remains a significant source of morbidity in PWH even in the modern ART era, with 49.4% of a large Washington, DC cohort having at least one dermatologic diagnosis. [2] Visible skin disease can compound HIV-related stigma and impair care engagement, making dermatologic management an integral component of comprehensive HIV care. [6][38]
**Images:**



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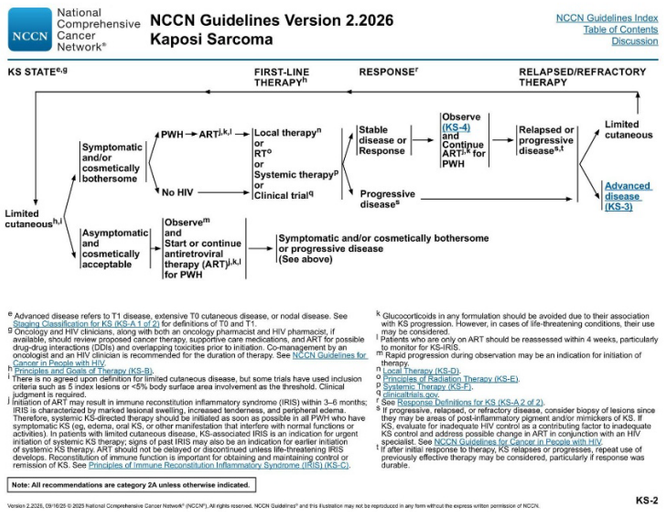
| DIAGNOSIS | WORKUP[a] | KS STATE[e] |
|---|---|---|
| **ESSENTIAL:**<br>• Review of adequate slides from paraffin block representative of the tumor by a pathologist with expertise in the diagnosis of Kaposi sarcoma (KS)<br>• Rebiopsy if non-diagnostic<br>• Histopathology review of adequate biopsy (ie, skin punch, incisional, excisional)<br>• Adequate immunophenotyping to establish diagnosis<br>• Immunohistochemistry (IHC) panel: Kaposi sarcoma-associated herpesvirus (KSHV; human herpesvirus 8 [HHV8]), LANA-1<br>**USEFUL IN CERTAIN CIRCUMSTANCES:**<br>• IHC: CD31 and CD34 if unclear whether the tumor has a vascular origin<br>• Encourage additional biopsy of nodal or visceral sites if a coexisting disorder is suspected (ie, infection, lymphoma, multicentric Castleman disease [MCD])<br>• Encourage cytology and flow cytometry of effusion fluid if present to evaluate for coexisting primary effusion lymphoma (PEL) | **ESSENTIAL:**<br>• History and physical examination<br>› Including history of additional immunosuppressive disease or immunomodulatory therapy (eg, transplant; local or systemic corticosteroids)<br>› Including complete skin, oral, and lymph node examinations, and evaluation of edema<br>• Complete blood count (CBC), differential, and comprehensive metabolic panel<br>• Human immunodeficiency virus (HIV) screening and/or diagnostic testing[b]<br>• Photography of oral, conjunctival, and cutaneous lesions (with reference unit of measure in the picture) for evaluation and monitoring of extent of disease<br>**USEFUL IN SELECTED CASES:**<br>• In patients of childbearing potential if chemotherapy or radiation therapy (RT) planned: pregnancy testing<br>• Evaluation[b] for suspected opportunistic infections (OIs)<br>• Stool hemoccult and/or chest x-ray as clinically indicated (eg, for advanced disease)<br>• If unexplained pulmonary symptoms or abnormalities on chest x-ray: chest CT with contrast[c] and bronchoscopy<br>• If gastrointestinal (GI) symptoms or positive hemoccult: abdomen/pelvis CT with contrast[c] or MRI with and without contrast[c] and esophagogastroduodenoscopy (EGD)/colonoscopy<br>• If concerns for coexisting KSHV-associated inflammatory cytokine syndrome (KICS), MCD, or KSHV+ lymphoma, or other KSHV-associated disease: CT scan or FDG-PET/CT scan[c] and/or lab workup[d]<br>• If anthracycline planned or suspected pericardial effusion: transthoracic echocardiogram<br>• For people with HIV (PWH), begin discussions regarding the possible need to modify ART due to DDIs and the need to involve an HIV specialist in care decisions. See Principles of Systemic Therapy and Drug-Drug Interactions (HIV-B) in the NCCN Guidelines for Patients with HIV. | Limited cutaneous disease → First-Line Therapy (KS-2)<br>Advanced disease → First-Line Therapy (KS-3)<br>KSHV-Associated Inflammatory Cytokine Syndrome (KICS)[f] (KICS-1) |

[a] Refer to the NCCN Distress Thermometer and Problem List, which includes social determinants of health. See NCCN Guidelines for Distress Management (DIS-A).
[b] All patients who are HIV seropositive should have recent T-cell subsets, including quantitative CD4+ T-cell count and HIV viral load to assess immune function and HIV control (Discussion). Involvement of an HIV specialist to evaluate for coexisting OI is appropriate, especially with advanced immunosupression.
[c] Imaging should be directed by symptoms or findings concerning for visceral or bone involvement as well as coexisting KICS, MCD, or KSHV+ lymphoma and can include whole body FDG-PET/CT. See NCCN Guidelines for Castleman Disease.
[d] Useful in patients with clinical features (ie, fever, dyspnea, effusions) concerning for KICS or KSHV-associated MCD: C-reactive protein, KSHV serum viral load, serum protein electrophoresis (SPEP), interleukin (IL)-6, or IL-10.
[e] Advanced disease refers to T1 disease, extensive T0 cutaneous disease, or nodal disease. See Staging Classification for KS (KS-A 1 of 2) for definitions of T0 and T1.
[f] Patients with KICS present with symptoms such as fever, fatigue, edema, cachexia, gastrointestinal or respiratory symptoms, pain, neuropathy, and/or an altered mental state.

**Note: All recommendations are category 2A unless otherwise indicated.**



KS-1



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KS STATE[e,g] | FIRST-LINE THERAPY[n] | RESPONSE[r] | RELAPSED/REFRACTORY THERAPY

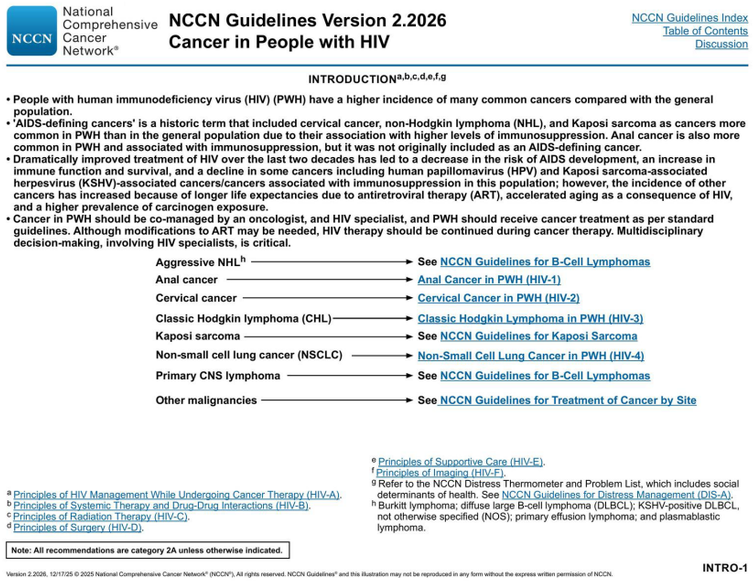
Limited cutaneous[h,i]
- Symptomatic and/or cosmetically bothersome
  - PWH → ART[j,k,l] → Local therapy[n] or RT[o] or Systemic therapy[p] or Clinical trial[q]
    - Stable disease or Response → Observe (KS-4) and Continue ART[j,k] for PWH
      - Relapsed or progressive disease[s,t] → Limited cutaneous / Advanced disease (KS-3)
    - Progressive disease[s] → Advanced disease (KS-3)
  - No HIV → Local therapy[n] or RT[o] or Systemic therapy[p] or Clinical trial[q]
- Asymptomatic and cosmetically acceptable
  - Observe[m] and Start or continue antiretroviral therapy (ART)[j,k,l] for PWH → Symptomatic and/or cosmetically bothersome or progressive disease (See above)

[e] Advanced disease refers to T1 disease, extensive T0 cutaneous disease, or nodal disease. See Staging Classification for KS (KS-A 1 of 2) for definitions of T0 and T1.
[g] Oncology and HIV clinicians, along with both an oncology pharmacist and HIV pharmacist, if available, should review proposed cancer therapy, supportive care medications, and ART for possible drug-drug interactions (DDIs) and overlapping toxicities prior to initiation. Co-management by an oncologist and an HIV clinician is recommended for the duration of therapy. See NCCN Guidelines for Cancer in People with HIV.
[h] Principles and Goals of Therapy (KS-B).
[i] There is no agreed upon definition for limited cutaneous disease, but some trials have used inclusion criteria such as 5 index lesions or <5% body surface area involvement as the threshold. Clinical judgment is required.
[j] Initiation of ART may result in immune reconstitution inflammatory syndrome (IRIS) within 3–6 months; IRIS is characterized by marked lesional swelling, increased tenderness, and peripheral edema. Therefore, systemic KS-directed therapy should be initiated as soon as possible in all PWH who have symptomatic KS (eg, edema, oral KS, or other manifestation that interfere with normal functions or activities). In patients with limited cutaneous disease, KS-associated IRIS is an indication for urgent initiation of systemic KS therapy; signs of past IRIS may also be an indication for earlier initiation of systemic KS therapy. ART should not be delayed or discontinued unless life-threatening IRIS develops. Reconstitution of immune function is important for obtaining and maintaining control or remission of KS. See Principles of Immune Reconstitution Inflammatory Syndrome (IRIS) (KS-C).
[k] Glucocorticoids in any formulation should be avoided due to their association with KS progression. However, in cases of life-threatening conditions, their use may be considered.
[l] Patients who are only on ART should be reassessed within 4 weeks, particularly to monitor for KS-IRIS.
[m] Rapid progression during observation may be an indication for initiation of therapy.
[n] Local Therapy (KS-D).
[o] Principles of Radiation Therapy (KS-E).
[p] Systemic Therapy (KS-F).
[q] clinicaltrials.gov.
[r] See Response Definitions for KS (KS-A 2 of 2).
[s] If progressive, relapsed, or refractory disease, consider biopsy of lesions since they may be areas of post-inflammatory pigment and/or mimickers of KS. If KS, evaluate for inadequate HIV control as a contributing factor to inadequate KS control and address possible change in ART in conjunction with an HIV specialist. See NCCN Guidelines for Cancer in People with HIV.
[t] If after initial response to therapy, KS relapses or progresses, repeat use of previously effective therapy may be considered, particularly if response was durable.

**Note: All recommendations are category 2A unless otherwise indicated.**



KS-2



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**Cancer in People with HIV**

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**INTRODUCTION[a,b,c,d,e,f,g]**

- **People with human immunodeficiency virus (HIV) (PWH) have a higher incidence of many common cancers compared with the general population.**
- **'AIDS-defining cancers' is a historic term that included cervical cancer, non-Hodgkin lymphoma (NHL), and Kaposi sarcoma as cancers more common in PWH than in the general population due to their association with higher levels of immunosuppression. Anal cancer is also more common in PWH and associated with immunosuppression, but it was not originally included as an AIDS-defining cancer.**
- **Dramatically improved treatment of HIV over the last two decades has led to a decrease in the risk of AIDS development, an increase in immune function and survival, and a decline in some cancers including human papillomavirus (HPV) and Kaposi sarcoma-associated herpesvirus (KSHV)-associated cancers/cancers associated with immunosuppression in this population; however, the incidence of other cancers has increased because of longer life expectancies due to antiretroviral therapy (ART), accelerated aging as a consequence of HIV, and a higher prevalence of carcinogen exposure.**
- **Cancer in PWH should be co-managed by an oncologist, and HIV specialist, and PWH should receive cancer treatment as per standard guidelines. Although modifications to ART may be needed, HIV therapy should be continued during cancer therapy. Multidisciplinary decision-making, involving HIV specialists, is critical.**

| | |
|---|---|
| Aggressive NHL[h] | See NCCN Guidelines for B-Cell Lymphomas |
| Anal cancer | Anal Cancer in PWH (HIV-1) |
| Cervical cancer | Cervical Cancer in PWH (HIV-2) |
| Classic Hodgkin lymphoma (CHL) | Classic Hodgkin Lymphoma in PWH (HIV-3) |
| Kaposi sarcoma | See NCCN Guidelines for Kaposi Sarcoma |
| Non-small cell lung cancer (NSCLC) | Non-Small Cell Lung Cancer in PWH (HIV-4) |
| Primary CNS lymphoma | See NCCN Guidelines for B-Cell Lymphomas |
| Other malignancies | See NCCN Guidelines for Treatment of Cancer by Site |

[a] Principles of HIV Management While Undergoing Cancer Therapy (HIV-A).
[b] Principles of Systemic Therapy and Drug-Drug Interactions (HIV-B).
[c] Principles of Radiation Therapy (HIV-C).
[d] Principles of Surgery (HIV-D).
[e] Principles of Supportive Care (HIV-E).
[f] Principles of Imaging (HIV-F).
[g] Refer to the NCCN Distress Thermometer and Problem List, which includes social determinants of health. See NCCN Guidelines for Distress Management (DIS-A).
[h] Burkitt lymphoma; diffuse large B-cell lymphoma (DLBCL); KSHV-positive DLBCL, not otherwise specified (NOS); primary effusion lymphoma; and plasmablastic lymphoma.

**Note: All recommendations are category 2A unless otherwise indicated.**



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