

An Update on Screening for Non-AIDS-Defining Cancers

Timothy Wilkin, MD, MPH
Professor of Medicine
Weill Cornell Medicine
New York, New York



Financial Relationships With Ineligible Companies (Formerly Described as Commercial Interests by the ACCME) Within the Last 2 Years

Dr Wilkin has received grants paid to his institution from Merck & Co, Inc., and ViiV Healthcare. He has served as a consultant to Merck & Co, Inc. (Updated 10/04/21)

Learning Objectives

After attending this presentation, learners will be able to:

- Describe overall trends in non-AIDS-defining cancers for people with HIV
- List non-AIDS-defining cancers with increased incidence in people with HIV
- Implement appropriate screening for non-AIDS-defining cancers for people with HIV

Slide 3 of 27

Cancer has been linked to HIV since the beginning of the epidemic in the U.S.

CENTERS FOR DISEASE CONTROL July 3, 1991 / Vol. 20 / No. 25

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

306 Kaposi's Sarcoma and Pneumocystis Pneumonia Among Homosexual Men — New York City and California

308 Cutaneous Lymphoma in American Tourists — Marseille and Mexico

314 Measles — U.S. Military

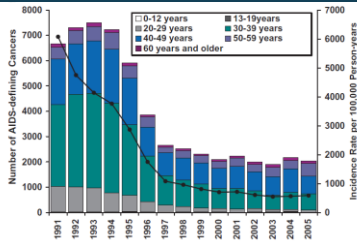
Epidemiologic Notes and Reports

Kaposi's Sarcoma and Pneumocystis Pneumonia Among Homosexual Men — New York City and California

During the past 30 months, Kaposi's sarcoma (KS), an uncommonly reported malignancy in the United States, has been diagnosed in 26 homosexual men (20 in New York City (NYC), 6 in California). The 26 patients range in age from 26-51 years (mean 39 years). Eight of these patients died (7 in NYC, 1 in California)—all 8 within 24 months after KS was diagnosed. The diagnoses in all 26 cases were based on histopathological examination of skin lesions, lymph nodes, or tumor in other organs. Twenty-five of the 26 patients were white, 1 was black. Presenting complaints from 20 of these patients are shown in Table 1.

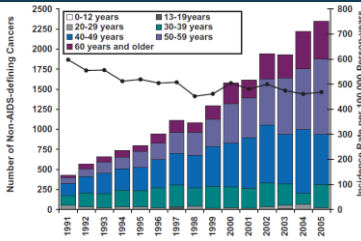
Slide 4 of 27

HIV therapy restoring immunity has resulted in lower rates of AIDS-defining cancers



Slide 5 of 27

Increased life expectancy due to HIV therapy has also impacted the cancer burden



- HIV infection *does not* increase the risk of every cancer type.
- However, if more PHIV survive to ages >50, then more PHIV are alive to develop cancer.

Slide 6 of 27

However, cancer risk remains elevated in people living with HIV (PLWH)

Standardized Incidence Ratios (SIRs) for cancer in PLWH (1996-2012), compared to the general U.S. population

Cancer Types	Observed Cases	SIR (95% CI)*
All cancers	21,294	1.69 (1.67-1.72)
AIDS-defining cancers	6,384	14.0 (13.6-14.3)
Kaposi sarcoma	2,269	498 (478-519)
AIDS-defining NHLs	3,087	11.5 (11.1-11.9)
Cervical cancer	428	3.24 (2.94-3.56)
Non-AIDS cancers (NADCs)	14,344	1.21 (1.19-1.23)
Non-viral NADC	10,200	0.92 (0.90-0.94)
Viral NADCs	4,144	5.39 (5.23-5.55)
HPV-related oral cavity pharynx	297	1.64 (1.46-1.84)
Anus	1,568	19.1 (18.1-20.0)
Liver	1,104	3.21 (3.02-3.41)
Merkel cell carcinoma	10	2.58 (1.24-4.74)
Vagina	25	3.55 (2.36-5.24)
Vulva	151	9.35 (7.91-11.0)
Penis	114	5.33 (4.39-6.40)
Hodgkin lymphoma	875	7.70 (7.20-8.23)

Viral NADCs are increased 5 fold in PLWH (e.g. HPV, HBV, HCV and EBV cancers)

Non-viral NADCs are not increased in HIV (e.g. breast, colorectal, prostate)

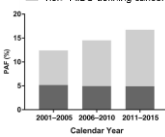
Exception: Lung cancer is increased 2 fold in PLWH

Slide 7 of 27

Hernandez-Ramirez Lancet HIV 2017

Non-AIDS cancer is now a leading cause of death in PLWH

- The DA:D study (11 HIV cohorts) reported that NADCs were the leading cause of non-AIDS death (1999-2011) @ 15% (Smith Lancet 2014)
- NA-ACCORD (>20 HIV cohorts) reported cancer as a leading cause of non-AIDS death (1995-2009) @ 10% (Engels CID 2017)
 - Approximately 7% of deaths due to NADCs
- The HIV/AIDS Cancer Match (HACM) Study reported population attributable fractions for cancer mortality (PAF%) in PHIV between 2001-2015.



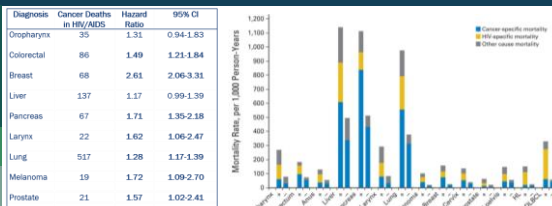
PAF% increased from 7% to 12% for NADCs.

PAF% held steady at 5% over time for ADCs.

Homser CID 2021

Slide 8 of 27

PLWH experience higher, stage-adjusted cancer-specific mortality



Slide 9 of 27

Summary: Evolving cancer burden in PHIV

- Rates of AIDS-defining cancers (e.g., Kaposi sarcoma) have declined with widespread effective HIV therapy in the U.S.
- Despite effective HIV therapy, PLWH remain at higher risk for many cancers, particularly infection-associated cancers.
- Non-AIDS-defining cancers not linked to infections are now more common in PLWH, reflecting the aging of the HIV population due to effective HIV therapy.
- One result of this changing cancer profile is that non-AIDS-defining cancers are now a leading cause of death in PHIV.

Slide 10 of 27

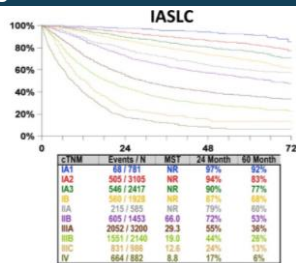
Screening for non-AIDS cancers

- US Preventive Health Task Force recommends cancer screening for
 - Breast cancer (same as those without HIV)
 - Cervical cancer (closer follow-up)
 - Colorectal cancer (same as those without HIV)
 - Lung cancer screening (same as those without HIV)
- Some groups recommend prostate screening after counseling

Slide 11 of 27

Lung cancer screening

- Active screening diagnoses lung cancer at earlier stages
- Earlier stages have better survival
- Who should be screened?
 - 55 and older
 - Current or former smoker (within 15 years of quitting)
 - 30 pack year history
 - No signs of lung cancer

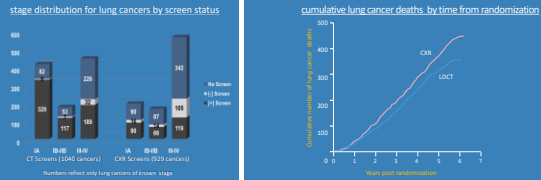


Slide 12 of 27

Journal of Thoracic Oncology 2017 12: 1109-1121

National Lung Cancer Screening Trial

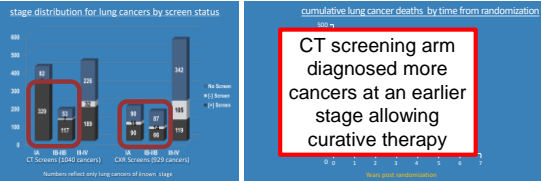
- Randomized 50K pts to 3 yearly low-dose CT scans vs. CXRs
- Abnormalities concerning for possible cancer evaluated further
- Most abnormalities (>95%) were not cancer



Slide 13 of 27

National Lung Cancer Screening Trial

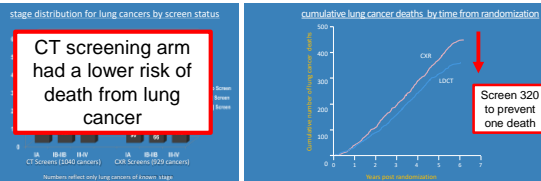
- Randomized 50K pts to 3 yearly low-dose CT scans vs. CXRs
- Abnormalities concerning for possible cancer evaluated further
- Most abnormalities (>95%) were not cancer



Slide 14 of 27

National Lung Cancer Screening Trial

- Randomized 50K pts to 3 yearly low-dose CT scans vs. CXRs
- Abnormalities concerning for possible cancer evaluated further
- Most abnormalities (>95%) were not cancer



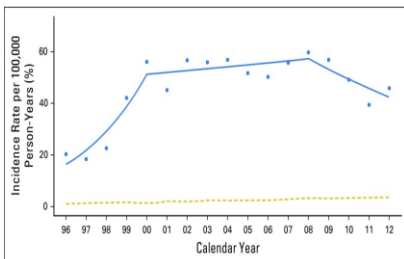
Slide 15 of 27

Other cancer prevention activities per USPTH/ACIP

- Hepatocellular carcinoma
 - Vaccination against hepatitis B and other prevention practices
 - Treatment of hepatitis B and C
 - Screening for hepatocellular carcinoma
- Human papillomavirus-related cancers
 - 9-valent HPV vaccination for prevention of anal, cervical, oropharyngeal, penile, vaginal and vulvar cancers
- Smoking cessation
- Aspirin use for prevention of colorectal cancer in those with >10% ASCVD risk for MI
- Breast CA medication, BRCA screening in selected groups

Slide 16 of 27

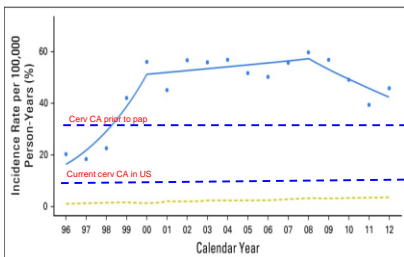
Anal Cancer is common among PLWH



Slide 17 of 27

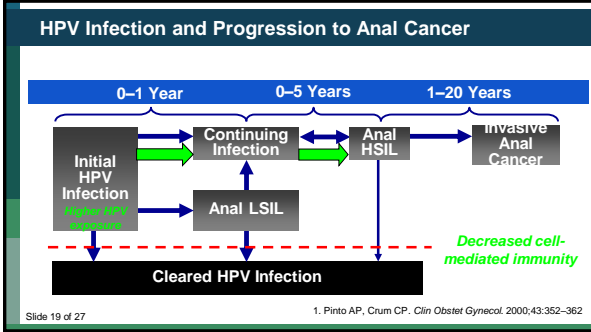
Colon-Lopez, Shiels et al. J Clin Oncol. 2017

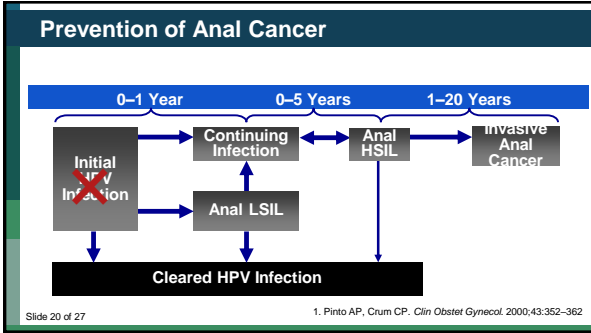
Anal Cancer is common among PLWH

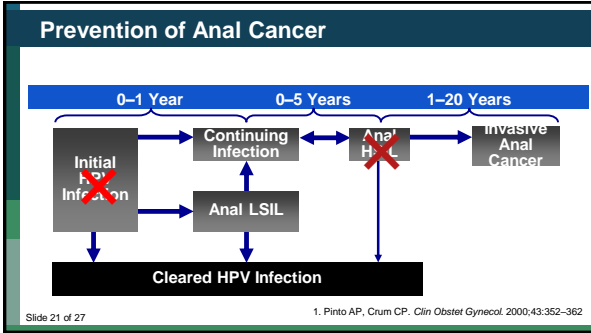


Slide 18 of 27

Colon-Lopez, Shiels et al. J Clin Oncol. 2017







Anal cancer prevention

Goal is to identify pre-cancerous areas of the anus that can be removed to prevent invasive cancer

- **SCREEN** with cytology or HPV testing
- **DIAGNOSE** with High Resolution Anoscopy
- **TREAT** HSIL with ablation or topical therapy

Anal cancer is treated with combined chemotherapy and radiation



Slide 22 of 27

ANCHOR Trial

Screen > 17,385

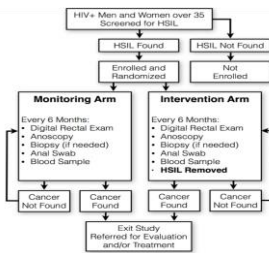
Enroll 5,058

Retain for 5-8 years

Estimated < 50 develop cancer



Slide 23 of 27





Slide 24 of 27

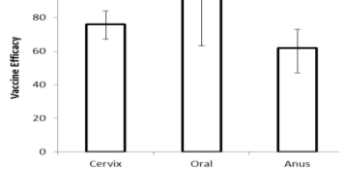
ACIP HPV Vaccine Recommendations

- Children and adults age 9-26
 - Routine vaccination of 11-12 girls
 - Catch-up vaccination up to age 26
- Adults age 27-45
 - Shared decision making

Slide 25 of 27

HPV vaccine efficacy at non-cervix sites

Costa Rica Vaccine Trial
One-time detection of HPV16/18 infection 4 yrs. after vaccination



¹Herrero R *et al.* PLOS ONE 2013; ²Kreimer AR *et al* Lancet Oncology 2011
Slide 26 of 27

Slide courtesy of A Kreimer

Summary: Reducing NADC in PLWH

- Implement screening for NADC
 - Breast, cervical, colorectal, lung
 - Lung cancer screening identifies cancer at earlier stages where treatment is curative
- Evolving data on screening for anal cancer will say whether this should be standard of care.
- HPV vaccination for prevention of HPV-associated cancers
 - Prevents anal, cervical, penile, vaginal, vulvar cancers
 - Existing data suggests preventions against HPV-associated oropharyngeal cancer

Slide 27 of 27