HIV 101: Primary Care for People with HIV

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Learning Objectives

Upon completion of this webinar, learners will be able to:

- Conduct an initial assessment for a person with HIV
- Provide appropriate vaccinations for people with HIV, focusing on pneumococcus, hepatitis B, SARS-CoV-2, and monkeypox
- Assess cardiovascular risk in people with HIV
- Screen for and manage polypharmacy and frailty

Slide 2

Pretest Question #1

A patient comes to the clinic with questions regarding pneumococcal vaccination in adults. Which do you inform your patient is **TRUE** about pneumococcal vaccination in adults?

1. Individuals should be vaccinated with PPSV23 first before giving a PCV15 or PCV20 vaccine
2. People with HIV may be vaccinated with a single dose of PCV20 and no other pneumococcal vaccines
3. Those who received PCV13 alone must continue to receive the full series of PPSV23 vaccines
4. Individuals with HIV should not receive a PPSV23 vaccine for at least a year after PCV15

Slide 3

Pretest Question #2

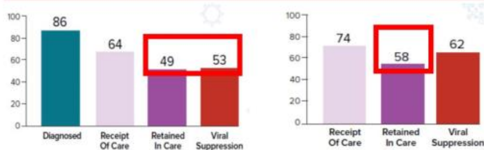
A patient who may be at risk for anal cancer comes to the clinic. Which do you inform your patient is **TRUE** about anal cancer screening?

1. The ANCHOR study found that annual anal Pap tests are the gold standard for identifying early anal cancer
2. High-resolution anoscopy should be done only for persons with anal symptoms
3. Treating HSIL decreases the incidence of anal cancer by 57%
4. All persons with HIV should be referred for high-resolution anoscopy

Slide 4

What is Needed to End the Epidemic? Engagement in Care: "It's Complicated"

Half of all PWH in US have suppressed virus; slightly more among those diagnosed
Worse among multiple subpopulations that vary regionally
Structural as well as individual barriers must be addressed



CDC: Understanding the HIV Care Continuum, July 2019. https:www.cdc.gov/hiv/pdf/library/factsheets/cdc-hiv-care-continuum.pdf

Slide 5

The Initial Evaluation for People with HIV

- Welcoming, warm, stigma-free clinic environment, using people-first, gender neutral language; preferred name & pronouns
- Get to know the person: work, family, relationships, social support, disclosure, living situation, gender identity, sexual orientation
  - Address the reason that the person is coming to be seen

- History, physical exam, labs
  - Is the person sick? Active OI present? Symptoms of meningitis?
- Evaluation for ART (rapid ART initiation?); need for OI prophylaxis
- Vaccination status
- Assess barriers to care: housing, food, transportation, etc.
- May be divided into > 1 visit if needed

Slide 6

Initial Encounter: HIV-Specific History

- When diagnosed? When acquired (if known)? Past care?
  - Past/present HIV-associated conditions: OI/OM
- General knowledge about HIV, **U=U**
- Exposure to antiretrovirals (ARV), including PrEP
  - Past ARV meds, reasons for changing regimens
  - Other current meds, supplements, OTC, alternative therapies
  - Access to past medical records, including resistance testing
- Sexual history: partners, practices, exposure sites, STIs
- Gender history: identity, dysphoria, plans for transition
- If history of IDU, ask about practices, needle-sharing, access to syringe services, need for naloxone, hx of hepatitis B/C
- **Obstacles to staying in care or on meds?**

Slide 7 Adapted from HIVMA/IDSA HIV Primary Care Guidance

Initial Encounter: Other Medical History

- Review of current medical issues and treatments; active concerns
- Thorough review of past medical history by organ system (questionnaires help!)
  - Cardiovascular disease & risk factors: **SMOKING!**
  - Liver disease – viral hepatitis, treatments
  - Kidney disease
  - Infectious disease history: STIs, TB, chicken pox, HCV, HBV, HPV
  - Gynecology, genital, anorectal diseases
  - Age appropriate issues
    - Osteopenia/osteoporosis
    - Cancer screening
    - Vision, hearing, dentition, falls
- Mental health history, treatments
- Use of psychoactive substances, practices, treatment
- Family history: CV disease, cancer, mental health, substance use
- Vaccination history

Slide 8 Adapted from HIVMA/IDSA HIV Primary Care Guidance

Laboratory Evaluations

- HIV antigen/antibody, HIV RNA, CD4, HIV genotype if appropriate
  - Genotype should include InSTI if acquired HIV after CAB PrEP exposure*
  - Coreceptor tropism only if using CCR5 inhibitor (not first line)
  - HLA B*5701 if considering abacavir (ABC)
  - ART initiation does not have to be delayed for results of labs (don't use ABC!)
- Routine chemistries, AST, ATL, bilirubin, alkaline phosphatase; lipid profile (does not need to be fasting unless abnormal); urinalysis
- Screening for infectious diseases
  - Hep ABC (HAV, HBc/HBs, HCV IgG serology, HBsAg)
  - TB (tuberculin skin test or IGRA)
  - Syphilis, chlamydia, gonorrhea (3 site NAAT as appropriate); trichomonas NAAT (if vaginal sex)
  - Measles titer, varicella IgG if immunity uncertain
  - Cryptococcal antigen only if CD4 < 100/µ
  - NOT: CMV igG, HSV IgG, Toxo IgG (unless symptomatic); biomarkers of inflammation
- In appropriate populations: G6PD; pregnancy test, cervical/anal Pap

*HHS Antiretroviral Guidelines 9/21/22: https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-arv/whats-new-guidelines

Slide 9 Adapted from HIVMA/IDSA HIV Primary Care Guidance

Initial Encounter: Full Physical Examination

Attention to signs of OI/OM, infectious diseases comorbid conditions

- **General:** signs of obesity, lipodystrophy, frailty
- **Skin:** seborrheic dermatitis, molluscum contagiosum, folliculitis, Kaposi sarcoma, herpes simplex or zoster
- **Lymphadenopathy:** generalized or localized
- **HEENT:** oral thrush, oral hairy leukoplakia, oral ulcers, poor dentition, gum disease; retinal exudates, cotton wool spots; icterus
- **Cardiopulmonary:** murmurs, irregular rhythm; wheezes, crackles; edema
- **Abdomen:** hepatosplenomegaly, tenderness
- **Genitourinary:** ulcers, warts, vaginal or urethral discharge
- **Anorectal:** ulcers, warts, fissures, masses, hemorrhoids, enlarged prostate
- **Neuropsychiatric:** signs of dementia, depression, mania, speech disturbance, focal deficits, gait disturbance

Slide 10 Adapted from HIVMA/IDSA HIV Primary Care Guidance

Follow Up Encounters

- **HIV RNA**: q3mo after virus suppressed; q6mo after suppressed x 1 yr[1,2]
  - Genotypic resistance testing for virologic failure
- **CD4:** q3mo if < 300/μL; q6mo if ≥ 300/μL for 1st 2 yrs & virus suppressed[1]
  - If virus suppressed x 2 years: q12mo if 300-500/μL; optional if > 500/μL[1]
- **Lipids:** 1-3 months after ART initiation; q12mo if normal but CV risk[3]
- **Infectious disease screening**[3]
  - Syphilis, chlamydia, gonorrhea: annually or q3mo if at high risk
  - Trichomonas: annually if vaginal sex
  - HCV: at least annually if at risk through sex or IDU
  - TB: annually if at risk
- **Cancer screening & prevention**[3]
  - Breast, lung, colon, prostate: same as general population
  - Cervical: follow OI guidelines; Anal: annual Pap[3]
  - Smoking intervention: every visit
- **Depression, substance use** screening: as needed, at least annually

Slide 11 [1]HHS Antiretroviral Guidelines 9/21/22; [2]IAS-USA Antiretroviral Guidelines, 2020; [3]HIVMA/IDSA HIV Primary Care Guidance

Vaccinations for Adults with HIV

What's Different for People with HIV?

Slide 12

Routine Vaccinations in Adults with HIV

Resources
- CDC Advisory Committee on Immunization Practices (ACIP)[1]
- CDC/NIH/HIVMA-IDSA Opportunistic Infection Guidelines[2]
- CDC Interim Guidance on Prevention & Treatment of MPX in PWH[3]

- Influenza - NOT live attenuated virus
- TdAP – same as general
- HPV – 3 doses
- Recombinant zoster (Shingrix)
  - Now recommended ≥ 18yo, any CD4
- Meningococcus (MenACWY)

- Pneumococcus
- Hepatitis A and B
- SARS CoV-2
- Monkeypox

[1]ACIP Recommendations: https://www.cdc.gov/vaccines/hcp/acip-recs/index.html
[2]OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf
[3]CDC: https://www.cdc.gov/mmwr/volumes/71/wr/mm7132e4.htm?s_cid=mm7132e4_w#suggestedcitation

Slide 13

Routine Vaccinations in Adults with HIV

Contraindicated for all people with HIV
- Live attenuated influenza (LAIV)[1,2]
- ACAM2000 for monkeypox prevention[3]

Contraindicated if CD4 < 200/μL or uncontrolled HIV[2]
- MMR or its components
- Live attenuated typhoid (Ty21a)
- Live varicella (VAR)
- Yellow fever

[1]ACIP Recommendations: https://www.cdc.gov/vaccines/hcp/acip-recs/index.html
[2]OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf
[3]CDC: https://www.cdc.gov/poxvirus/monkeypox/interim-considerations/acam2000-vaccine.html; Table 5

Slide 14

MONKEYPOX

CDC

Adults in the General Population

JYNNEOS Smallpox and Monkeypox Vaccine

Standing Orders for Administering Vaccine Intradermally: ALTERNATIVE DOSING REGIMEN

Vaccine Product	Dose/Injection Amount	Route
Yellow capped multi-dose vial with turquoise and white label	Dose: 0.1mL (alternative regimen)	Intradermal (ID) injection

- JYNNEOS: non-replicating vaccine, safe for people with HIV
- Initially given subcutaneously, now intradermally is preferred for most ppl
  - Two doses, 28 days apart, with maximum immunity 2 weeks after last vaccine
- Can be given as PEP, esp within 1-4 d but up to 14 d if no symptoms
- 9/9/22 MMWR: Of people with monkeypox -
  - 38% also had HIV; **PWH should be prioritized for vaccination and treatment**
  - 68% were Black: **equity approach needed to address disparity**

Slide 15 CDC MMWR 9/9/2022; Vol 71, No.36

SARS CoV-2 Vaccination in People with HIV

- All adults and adolescents with HIV should be vaccinated
  - All approved vaccines are safe and effective for adults and adolescents with HIV
- As with many vaccines, response may be less if CD4 < 200/μL or uncontrolled viremia
  - 3rd dose recommended as part of initial mRNA vaccine series
  - Bivalent omicron-specific booster recommended 2 mo after last vaccine

Slide 16 ACIP Recommendations: https://www.cdc.gov/vaccines/hcp/acip-recs/index.html

New Recs for Pneumococcal Vaccination in Adults

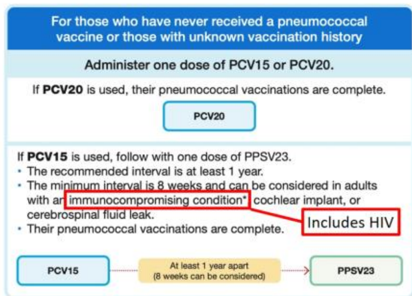
Two new vaccines are approved and recommended
- Pneumococcal conjugate vaccines: PCV15 or PCV 20

Supporting Data
- No vaccine **effectiveness** data for either vaccine in people with HIV
- PCV 15: One clinical trial in PWH = PCV15 followed by PPSV23 8 weeks later showed **safety and immunogenicity**
- PCV20: No **clinical data** in people with HIV; recommendations based on safety and high immunogenicity in people without HIV

Slide 17 OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf

In PWH, give PPSV23 ≥ 8 wks after PCV15

May wait until CD4 > 200/μL



Slide 18 CDC: https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf

If Past Pneumococcal Vaccination = PPSV23 ONLY

For those who previously received PPSV23 but who have not received any pneumococcal conjugate vaccine (e.g., PCV13, PCV15, PCV20)

You may administer one dose of PCV15 or PCV20.

Regardless of which vaccine is used (PCV15 or PCV20):

- The minimum interval is at least 1 year.
- Their pneumococcal vaccinations are complete.

Slide 19 CDC: https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf

If Past Pneumococcal Vaccination Includes PCV13

Adults 19 years or older with an immunocompromising condition

IF PCV13 only, give 1 dose PPSV23 ≥ 8 wks later – OR – give PCV20 and no further pneumococcal vaccines "if PPSV23 not available"

IF PCV13 + 1 dose PPSV23, give complete series of PPSV23 doses

Slide 20 CDC: https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf

Hepatitis B Vaccination in Adults[1,2]

- Immunize if HBsAg & HBsAb negative or HBsAb < 10 mIU/mL
  - If isolated HBcAb positive, repeat entire series OR give 1 booster; response in 1-2 mo should be >100mIU/mL[2]
- Responses may be reduced if CD4 cell count < 350/µL or unsuppressed HIV-1 RNA
  - Decision to delay until CD4 rise or virus suppressed depends on hepatitis risk; ideally vaccinate while CD4 > 350/µL[2]
- HBsAb 1-2 mo after vaccination should be ≥ 10mIU/mL

[1]Prevention of Hepatitis B Virus Infection in US: Recommendations of ACIP. MMWR 2018;67

Slide 21 [2]OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf

Hepatitis B Vaccines: Dosing[1,2]

Recombinant HBsAg vaccines	Recombinant CpG adjuvant
• Give at 0, 1, and 6 mo using double dose of Recombivax HB or Engerix-B • If giving 4 doses, give at 0, 1, 2, & 6 mo (single or double)	• Two doses 1 month apart • Heplisav-B 20 µg/dose

Inactivated hepatitis A 720 EL.U and recombinant HBsAg 20 µg (Twinrix): Dose at 1, 2, and 6 months

[1]Prevention of Hepatitis B Virus Infection in US: Recommendations of ACIP. MMWR 2018;67
[2]OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf

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Hepatitis B Re-vaccination in Adults[1,2]

- If HBsAb level < 10 mIU/mL at least 1 mo after full series
  - Give second series of 3 doses of recombinant vaccine using 40 mcg doses at 0, 1, and 6 mo
  - Give second series of 4 doses of recombinant vaccine using 40 mcg doses at 0, 1, 2, and 6 mo
  - Give 2 dose recombinant CpG adjuvant vaccine at 0, 1 mo
- Small study showed better response rate, higher antibody levels when using recombinant vaccine 40 mcg vs 20 mcg at 0, 1, 2 mo[3]

[1]Prevention of Hepatitis B Virus Infection in US: Recommendations of ACIP. MMWR 2018;67
[2]OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf
[3]Vargus, et al. JAMA Network Open.2021; 4(8).

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Cancer Screening for People with HIV

Smoking: up to ¾ of PWH, in some studies

Cancer burden attributable to smoking
- Lung cancer: 94%
- Other 'smoking related' cancers (esophageal, oral, etc.): 31%
- Anal cancer: 32%
- All cancer: 9%

Low dose chest CT scan according to USPSTF recommendations

Altekruse, AIDS, 2018

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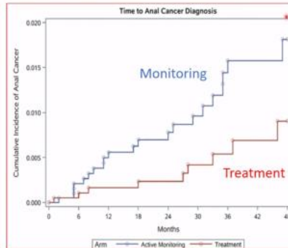
Cancer Screening for People with HIV

- Prostate, breast, lung, colon cancer screening: follow general population guidelines – USPSTF, American Cancer Society
- Cervical cancer screening
  - 21-29 yo: Pap at HIV dx; annually until 3 consecutive normal, then every 3 yrs if normal: HPV testing not recommended
  - ≥ 30 yo: Annual Pap until 3 consecutive normal, then every 3 yrs if normal
    - If HPV co-testing done with Pap and both are negative, Pap can be done every 3 years after a single Pap test
  - No upper age for stopping Pap testing in persons with HIV

Slide 25 OI Guidelines, updated 9/7/22: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/Adult_OI.pdf

The ANCHOR Trial: Anal Cancer Can Be Prevented!

- Treatment of HSIL decreased anal cancer by 57%
- Digital anorectal exam annually if asymptomatic
- If having receptive anal sex: periodic anal cytology by anal Pap test if access to referral for high-resolution anoscopy is available
- Utility of anal Pap screening not addressed by ANCHOR



Palefsky, et al. Treatment of Anal High-Grade Squamous Intraepithelial Lesions to Prevent Anal Cancer. N Engl J Med 2022;386:2273-82. DOI: 10.1056/NEJMoa2201048

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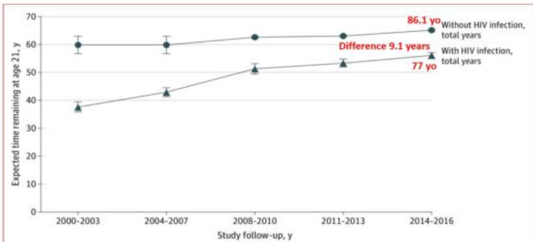
Screening for and Managing Metabolic and Other Noncommunicable Diseases

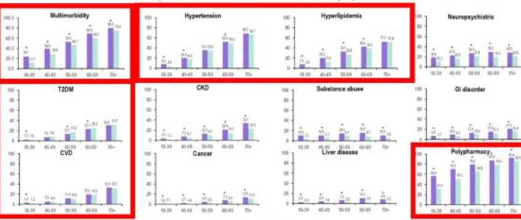
Slide 27

People with HIV are Living Longer…
But NOT Without Comorbidities (Kaiser California + Mid-Atlantic Matched Cohort)



Slide 28 Marcus et al. JAMA Network Open. 2020 Jun (3)6

Results Comorbidity and co-medication burden stratified by age



Slide 29 Kumar, P. IAS 2021

AHA SCIENTIFIC STATEMENT

Characteristics, Prevention, and Management of Cardiovascular Disease in People Living With HIV

A Scientific Statement From the American Heart Association

- Recognizes increased ASCVD risk in persons with HIV
  - 1.5-2x increase in MI, stroke, heart failure
  - Increased pulmonary HTN, blood clots, sudden death

HIV-Related CVD Risk-Enhancing Factors?

Any of the following:
- History of prolonged HIV viremia and/or delay in ART initiation
- Low current or nadir CD4 count (<350 cells/mm³)
- HIV treatment failure or non-adherence
- Metabolic syndrome, lipodystrophy/lipoatrophy, fatty liver disease
- Hepatitis C Virus Co-Infection

If YES: Adjust risk upward; may be 1.5-2x higher

Slide 30 Feinstein, Circulation, 2019

Lifestyle + Lipids

HIGH RISK APPROACH
Consider referral to cardiologist; patient-clinician discussion re: benefit vs. risk, patient preference

LIFESTYLE OPTIMIZATION
(Particularly Smoking Cessation)

LIPID LOWERING DRUG THERAPY
*Atorvastatin 10-80 mg**
*Rosuvastatin 5-40 mg**
Pitavastatin 2-4 mg

Statin Dosing: START LOW, GO SLOW
Decrease dose or discontinue if severe myalgia or unexplained muscle weakness, LFTs >3x the upper limit of normal, or CK >10x the upper limit of normal

- Watch for drug interactions
- If no response or intolerance, consider alternative agents

Slide 31

2022 USPSTF: Statins for Primary Prevention

Based on Age, Risk Factors, Pooled Cohort Equation (PCE) Score
(Applies to people without known CVD or LDL ≥ 190 mg/dL)

Age	Risk by PCE	Recommendation	Grade
40-75 with ≥ 1 risk factor	≥ 10%	Offer	B
40-75 with ≥ 1 risk factor	7.5% to < 10%	Selectively offer	C
≥ 76 years		Insufficient evidence	I

Risk factors = HTN, DM2, hyperlipidemia, smoking
BUT - **HIV Risk Enhancing Factors** increase risk by 1.5-2.0- fold, according to AHA/ACC guidelines

No difference in muscle pain or disorders, liver enzyme elevation, or cancer with statin compared with placebo

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JAMA online only, Aug 23/30, 2022

Cardiovascular Disease: Screen and Intervene

- Screen for and manage modifiable risk factors
  - **SMOKING!** HTN, dyslipidemia, DM2 (diagnose using plasma glucose, not A1c for PWH)
- Screening tools
  - Waist circumference thresholds adjusted for BMI: predict DM2, MI, frailty, death*

BMI Category kg/m²	Waist Circ (cm) Women	Waist Circ (cm) Men
Normal (18.5-24.9)	≥ 80	≥ 90
Overweight (25.0-29.9)	≥ 90	≥ 100
Obese I (30.0-34.9)	≥ 105	≥ 110
Obese II-III (≥ 35.0)	≥ 115	≥ 125

  - ? Coronary Artery Calcium (CAC) score by CT scan: identify subclinical disease, but only if calcified lesions

*Ross, et al. Waist circumference as a vital sign in clinical practice: a Consensus Statement from the IAS and ICCR Working Group on Visceral Obesity. Nature Reviews: Endocrinology. March 2020.

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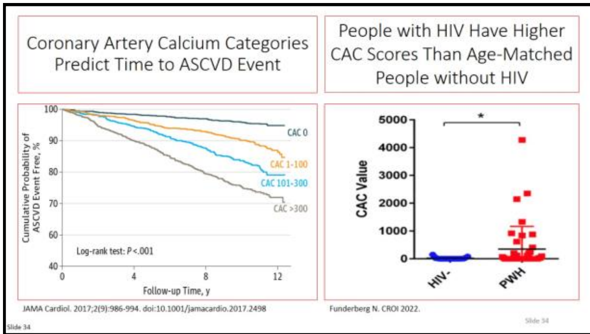

Common Comorbidities: Prevent, Screen, and Intervene

- Vaccinate: SARS CoV-2, monkeypox (if appropriate), pneumococcus, meningococcus, HPV, HAV/HBV, TdaP, zoster, travel vaccines
- Liver disease: screen for HBV, HCV; NAFLD (EACS guidelines algorithm)
- Osteopenia, osteoporosis
  - Assess bone density in those at risk using DEXA; treat as appropriate
  - Address modifiable risk factors, secondary causes: smoking, alcohol, sedentary lifestyle, TDF, thyroid/parathyroid ds, steroids
- Cancer: lung, colon, anal/cervical, breast, prostate
- STIs: syphilis, chlamydia, gonorrhea, trichomonas, HPV
- Depression: PHQ-2 or PHQ-9: easy and reimbursable!
  - Role of stigma, social isolation
- Substance use: alcohol, pain meds, non-prescription drugs

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Screening Resources

National HIV Curriculum

- https://www.hiv.uw.edu

Patient Health Questionnaire-2 (PHQ-2)

https://www.hiv.uw.edu/page/mental-health-screening/phq-2

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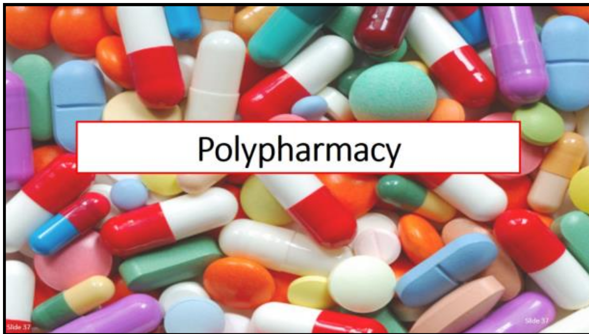

Management of Polypharmacy

- Go through the drug list EVERY visit (esp after hospitalizations, consults)
- for new or unnecessary drugs (including OTC), wrong dose or duration
- for prescribing cascades: drugs treating side effects of other drugs
- for drugs with overlapping toxicities, drug-disease interactions, intrinsic toxicities (anticholinergics; sedatives)
- for drug-drug interactions, esp ARV (DON'T GUESS – LOOK IT UP!)
- Remember alcohol, recreational substances, OTC drugs & supplements

Helpful tools: STOPP and START screeners[1], Beers Criteria[2]

HIV-druginteractions.org

[1]STOPP and START: Gallagher, et al. Int J Clin Pharm & Therapeutics, 2008; Hamilton, et al. JAMA Int Med. 2011
[2]Beers Criteria: http://files.hgsitebuilder.com/hostgator257222/file/ags_2019_beers_pocket_printable_rh.pdf

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Important Paxlovid™ interactions

Look It Up!

HIV-druginteractions.org

COVID19-druginteractions.org

U of Waterloo Drug Interactions

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/020659s072,022417s024,209512s007lbl.pdf

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ANTICHOLINERGIC MEDICATIONS ASSOCIATED WITH FALLS AND FRAILTY IN PEOPLE WITH HIV (PWH)

Jessica Doctor

POPPY

Pharmacokinetic and clinical observations in people over 50

Demographics of PWH ≥ 50

Variable	N=699
Age (median (IQR)), years	57 (53-62)
Male, n (%)	612 (88)
White, n (%)	603 (86)
Unemployed, n (%)	99 (14)
High education, n (%)	479 (69)
Rec drugs last 6 months, n (%)	177 (25)

9% (63/673) reported recurrent falls

32% (126/609) met frailty criteria

Commonest ACM prescribed

ACM	Frequency n (%)
Codeine	36 (12)
Citalopram	34 (12)
Loperamide	25 (9)
Amitriptyline	21 (7)
Diazepam	17 (6)
Cetirizine	16 (5)

Slide 40 Doctor J, et al. CROI 2022

Recurrent Falls

Number of ACMs	Adjustment	OR (95% CI)	p-value
0 (reference)		1 (1 - 1)	
1	Unadjusted	2.1 (1 - 4.2)	0.04
	Demographic/lifestyle factors only [1]	1.7 (0.8 - 3.5)	0.18
	Demographic/lifestyle factors plus clinical factors [2]	1.4 (0.6 - 3.2)	0.40
2 or more	Unadjusted	6.8 (3.3 - 14.1)	<0.001
	Demographic/lifestyle factors only [1]	4.5 (2.1 - 10)	<0.001
	Demographic/lifestyle factors plus clinical factors [2]	3.6 (1.4 - 9.4)	0.009

Odds ratio

Frailty

Number of ACMs	Adjustment	OR (95% CI)	p-value
0 (reference)		1 (1 - 1)	
1	Unadjusted	1.9 (1.2 - 3.2)	0.011
	Demographic/lifestyle factors only [1]	1.6 (0.9 - 2.8)	0.09
	Demographic/lifestyle factors plus clinical factors [2]	1.5 (0.8 - 2.8)	0.17
2 or more	Unadjusted	3.3 (1.7 - 6.5)	<0.001
	Demographic/lifestyle factors only [1]	2.3 (1.1 - 4.7)	0.03
	Demographic/lifestyle factors plus clinical factors [2]	2.1 (0.9 - 5)	0.09

Odds ratio

[1] age, work, marital status and recent recreational drug use
[2] additionally adjusted for number of non ACM co-medications, number of comorbidities and PHQ-9 score

POPPY

Anticholinergic Meds - Recurrent Falls and Frailty

Slide 41 Doctor J, et al. CROI 2022

Frailty Occurs More Frequently and Earlier in People with HIV

agehiv cohort study

At 45-50 years, % who are frail or prefrail:
~ 1/3 HIV –
> ½ HIV +

Non-frail
Pre-frail
Frail

Percentage

0 20 40 60 80 100

HIV– HIV+ 45–50
HIV– HIV+ 50–55
HIV– HIV+ 55–60
HIV– HIV+ 60–65
HIV– HIV+ >65

Age (years)

Slide 42 Kooij K, et al. AIDS, 2016

A "clinical judgement" tool for people ≥ 65 yo

Very mild frailty = 4
- Not dependent on others for daily help
- Often symptoms limit activities
- "Slowing down"
- Daytime tiredness

Validated using the Canadian Study of Health and Aging Cohort

CLINICAL FRAILTY SCALE

1 VERY FIT — People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.

2 FIT — People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g., seasonally.

3 MANAGING WELL — People whose **medical problems are well controlled**, even if occasionally symptomatic, but often are **not regularly active** beyond routine walking.

4 LIVING WITH VERY MILD FRAILTY — Previously "vulnerable," this category marks early transition from complete independence. While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being "slowed up" and/or being tired during the day.

5 LIVING WITH MILD FRAILTY — People who often have **more evident slowing**, and need help with **high order instrumental activities of daily living** (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, **medications and begins to restrict light housework**.

6 LIVING WITH MODERATE FRAILTY — People who need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.

7 LIVING WITH SEVERE FRAILTY — **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).

8 LIVING WITH VERY SEVERE FRAILTY — Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.

9 TERMINALLY ILL — Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise living with severe frailty**. (Many terminally ill people can still exercise until very close to death.)

SCORING FRAILTY IN PEOPLE WITH DEMENTIA

DALHOUSIE UNIVERSITY

Slide 43 Rockwood K, et al. CMAJ, 2006

Short Physical Performance Battery (SPPB)

3 physical tasks:
- Timed chair stands (sit then stand x 5)
- Timed 3 or 4-meter walk
- 3 balance tests

Score < 10 associated with higher risk of death

Balance: stand for 10 sec
- Side-by-side
- Semi-tandem
- Tandem

Slide 44 geriatrictoolkit.missouri.edu/SPPB-Score-Tool.pdf; Greene M. AIDS, 2014

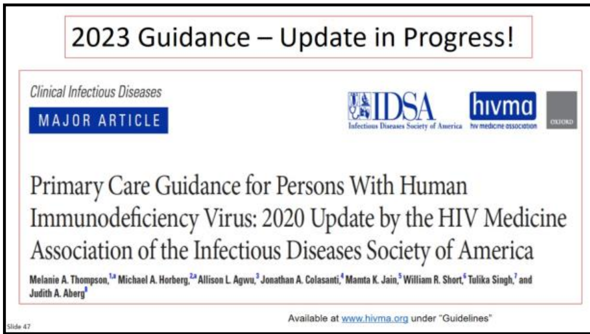
Principles of Frailty Prevention and Intervention

Minimize aggregating factors
- Maintain access to routine healthcare
  - Address age-related deficits: vision, hearing, dentition
  - Routine cancer screening, vaccinations, STI screening
- Screen for, prevent, & manage comorbidities
  - Including mental health & substance use!
- Address polypharmacy
- Prevent falls

Increase factors promoting health and resiliency
- Physical activity including balance exercises
- Social interaction

Think about frailty as part of the assessment!

Slide 45 Fried L, et al. Nature Aging, January 2021



Resources

- HIVMA/IDSA HIV Primary Care Guidance: updated 2020/21 in CID, available on CID and HIVMA websites: www.HIVMA.org under Guidelines: update due 2023
- HHS Adult & Adolescent Antiretroviral Guidelines: updated frequently (last 9/21/22) https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-arv/whats-new-guidelines
- HHS Perinatal Antiretroviral Guidelines: updated frequently (last 3/17/22) https://clinicalinfo.hiv.gov/en/guidelines/perinatal/whats-new-guidelines
- IAS-USA Antiretroviral Guidelines: updated every 2 years in JAMA (due 2022) https://www.iasusa.org/wp-content/uploads/guidelines/arv/arv_2020.pdf
- CDC STI Guidelines: updated periodically (last 2021) https://www.cdc.gov/std/treatment-guidelines/toc.htm
- CDC/HIVMA/IDSA/PIDS/HHS Opportunistic Infection Guidelines: updated frequently (last 9/2/22) https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-pediatric-opportunistic-infections/updates-guidelines-prevention
- CDC Advisory Committee for Immunization Practices (ACIP) recommendations available online and in MMRW: https://www.cdc.gov/vaccines/hcp/acip-recs/index.html

Slide 48

Pretest Question #1

A patient comes to the clinic with questions regarding pneumococcal vaccination in adults. Which do you inform your patient is **TRUE** about pneumococcal vaccination in adults?

1. Individuals should be vaccinated with PPSV23 first before giving a PCV15 or PCV20 vaccine
2. People with HIV may be vaccinated with a single dose of PCV20 and no other pneumococcal vaccines
3. Those who received PCV13 alone must continue to receive the full series of PPSV23 vaccines
4. Individuals with HIV should not receive a PPSV23 vaccine for at least a year after PCV15

Slide 49

Pretest Question #2

A patient who may be at risk for anal cancer comes to the clinic. Which do you inform your patient is **TRUE** about anal cancer screening?

1. The ANCHOR study found that annual anal Pap tests are the gold standard for identifying early anal cancer
2. High-resolution anoscopy should be done only for persons with anal symptoms
3. Treating HSIL decreases the incidence of anal cancer by 57%
4. All persons with HIV should be referred for high-resolution anoscopy

Slide 50

Question-and-Answer Session

Changes/Queries

- Moved disclosures to intro slides (will be covered by Dr Saag)
- Slide 2: Minor edits to learning objectives
- Slide 3-4, 49-50: We have modified the pre/posttest questions to somewhat frame them as case-based questions per ACCME guidelines. Please review.
- Added slide numbers throughout