“Owl hasn't exactly got Brain, but he Knows Things.”

- A.A. Milne

Preventive Medicine

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An ounce of prevention…

USPSTF Grade Definitions

- A: USPSTF recommends. High certainty that net benefit is substantial.
- B: USPSTF recommends. High certainty of moderate benefit or moderate certainty of substantial benefit.
- C: USPSTF recommends against routine use. May be considerations that support it in an individual patient. At least moderate certainty that benefit is small.
- D: USPSTF recommends against any use. Moderate-high certainty that no benefit or harms outweigh benefits.
- I: Insufficient evidence for a recommendation.

A note on gender

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- Multifactorial (?): AAA screening

A note on gender

- Chromosomal (e.g. hemophilia A): N/A
- Anatomic: Cervical cancer/STI screening
- Hormonal: Breast cancer
- Social: Intimate partner violence
- Multifactorial (?): AAA screening
- *Bottom line: Preventive medicine questions featuring transgender patients will likely be either cervical cancer/STI or a gender-irrelevant topic*

Counseling

Counseling: Question

A 35-year-old woman transfers to you for primary care. She is married, working full time as an engineer, and has two children under the age of 5 at home. The nurse does the AUDIT-C during check-in. She scored 5 points, because she has 2-3 glasses of wine on most nights. **What is the NIAAA definition of heavy drinking?**

A. Failure to fulfill occupational, school or social obligations
B. Continuing to drink despite negative health effects
C. More than 14 drinks a week, or 4 on any one occasion, for men and more than 7 drinks a week or 3 on any one occasion for women
D. Drinking more than your doctor

Alcohol Screening & Counseling

- USPSTF B (2018)
- Multiple studies have shown the effectiveness of brief, office-based interventions for at-risk drinking.
  - At-risk drinking: quantity of alcohol
  - Alcohol abuse: social or occupational problems associated with its use
  - Alcohol dependence: suffers alcohol withdrawal when stopped
- Brief interventions are not effective for alcohol abuse and dependence.

Drug Screening & Counseling

- USPSTF B (2020)
- Multiple screening tools available, e.g. NIDA NMASSIST (https://archives.drugabuse.gov/nmassist/)
- Moderate net benefit when adequate treatment resources available

Smoking Cessation Counseling

- USPSTF A (2021)
- Brief behavioral counseling (less than 3 minutes) and pharmacotherapy in primary care settings increase abstinence rates for 1 year.
- Smoking cessation reduces all-cause mortality by up to 50%.
- Pharmacotherapy in preganant women: Grd I
- E-cigarettes: Grade I

Obesity Screening & Counseling

- USPSTF B (2018)
- Intensive multicomponent counseling recommended for adult patients with BMI > 30
- Intensive counseling and behavioral interventions recommended to promote and sustain weight loss for obese adults

Diet/Exercise Counseling

- USPSTF C (2023) for adults without CV risk factors
- Use motivational interviewing and focus on those who are ready to change
- Tailor recommendations to individual circumstances and SDOH
- Overall USPSTF assessment is moderate certainty of a small net benefit

Skin Cancer Prevention

- USPSTF B (2018) recommendation in fair skinned youth and young adults (6m-24y)
- USPSTF C recommendation in adults over 24: evidence of efficacy mixed but consider in patients at high risk
- RCT: 5 years of broad-spectrum sunscreen yields 73% reduction in melanoma over 15 years of follow-up.

Skin Cancer Screening

- USPSTF I (2023) in all patients
- Data limited (mostly from Germany) and inconclusive
- Risk of overdiagnosis is significant

Fall Prevention

- USPSTF B (2024) recommendation: exercise interventions (group classes best studied) to prevent falls in community-dwelling adults 65 and over who are at high risk.
- Multifactorial interventions: grade C
- 2024 update: Vitamin D supplementation to prevent falls: Grade D

STI Prevention

- USPSTF B (2020) recommendation: behavioral counseling in all sexually active adolescents and for adults who are at increased risk for sexually transmitted infections (STIs)
- “Adequate” evidence that behavioral counseling interventions reduce STIs, increase condom use and other protective sexual practices.

“One who asks a question is a fool for a minute, one who does not ask is a fool for life.”

- Kǒng Qiū (Confucius)

Screening

Screening: Question

You are seeing a new patient, a 22-year-old college student. She has been sexually active since age 17, has had 4 lifetime sexual partners. She has had all childhood immunizations including HPV. **In addition to HIV, chlamydia, and gonorrhea, she should be screened for:**

A. Herpes simplex (HSV) and syphilis
B. Hepatitis C and syphilis
C. Hepatitis C and HSV
D. Hepatitis C, HSV, and syphilis

Screening for HIV

- USPSTF A (2019): Screen everyone age 15-65 y/o; screen above and below that age range if increased risk
- Scant evidence for interval of screening; more frequent in high risk populations

Screening: chlamydia/gonorrhea

- Clinicians should screen all sexually active women age 24 and younger for chlamydia and gonorrhea (USPSTF B, 2021).
- Prevalence of GC and chlamydia peaks in late teens and early twenties among both men and women
- Rescreen over age 24 based on risk
- There is no evidence that screening men reduces long-term consequences in women: USPSTF I

Screening: Hepatitis C

- USPSTF/CDC: universal screening from 18-79 y/o (Grade B, 2020)
- Limited data on repeat screening

Screening: Herpes simplex

- Clinicians should NOT routinely screen asymptomatic patients for HSV (USPSTF D, 2023).
- Many commercial HSV tests are only 80-85% specific when compared to Western blot
- No treatment for asymptomatic disease
- Could screen long-term partners of symptomatic patients if considering suppressive therapy for + partner

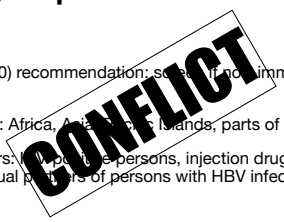
Screening: Syphilis

- Clinicians should screen those at increased risk of syphilis and pregnant women (USPSTF A, 2023).
- Risk factors are **broader** in the 2023 recommendation (young adults, military service, concurrent STI, MSM, commercial sex workers, illicit drug use, incarceration)

Screening: Hepatitis B

- USPSTF B (2020) recommendation: screen if non-immune and prevalence > 2%
- Region of origin: Africa, Asia, Pacific Islands, parts of South America
- Other risk factors: HIV-positive persons, injection drug users, household contacts or sexual partners of persons with HBV infection, and men who have sex with men

Screening: Hepatitis B



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Screening: Hepatitis B

- CDC (2023)
  - Screen adults 19 and older with no prior screening
  - Immunize everyone up to age 59, 60+ with additional risk factors
  - New 2-dose series available

Screening: Hepatitis B

Consensus & Conflict

- **Consensus**
  - Screen and immunize those at high risk (high prevalence, HCW)
  - Immunize children
- **Conflict**
  - CDC says screen/immunize *all* adults—focus on prevention
  - USPSTF limits to high-risk—focus on treatment

Screening: LTBI

- USPSTF B (2023)
- Screen adults at increased risk:
  - Unhoused/incarcerated
  - Migrant from endemic region
  - Immunosuppressed/transplant

Screening: question

A 34-year-old man returns to clinic for suture removal. His blood pressure today is 135/86. Last week when the sutures were placed it was 138/88. He reports he is healthy and takes no medications. “C’mon, doc, it’s just high because I hate the doctor’s office”. **Which of the following is true?**

A. He has elevated blood pressure and should be monitored.
B. He has white coat hypertension and no further intervention is needed.
C. He has stage 1 hypertension and you should discuss treatment options.
D. His blood pressures should be confirmed with home readings.

Screening: high blood pressure

- USPSTF A (2021)
- All adults age 18 and older should be screened for high blood pressure.
- Those with abnormal readings should have BP confirmed outside of the clinical setting before starting treatment.

Screening: diabetes

Practice ≠ exam!

- USPSTF B (2021)
- Adults aged 35 to 70 who are overweight or obese should be screened for prediabetes/diabetes.
- A1C, fasting glucose or OGTT(!) are all acceptable.

Screening: AAA

65-75 y/o	Former/active smoker	Never smoker
Male	**B**	**C**
Female	**I**	**D**

Screening: Osteoporosis

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- USPSTF B (2025) for women, I for men

Screening: Osteoporosis

- USPSTF B (2025) for women, I for men
- Women aged 65 and older, and younger women with one or more risk factors and increased risk using a validated tool

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Screening: Osteoporosis

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- Women aged 65 and older, and younger women with one or more risk factors and increased risk using a validated tool
- BHOF (formerly NOF) also recommends screening men over 70; ACP recommends individualized approach.

Screening: Depression & Anxiety

- USPSTF B (2023)
- Screen adolescents and adults over age 12
- Re-screen pregnant and postpartum women
- No specific tests or screening interval recommended
- 2023 updates:
  - Screening for anxiety is grade I over 65 y/o (depression is still B)
  - Screening specifically for suicide risk is grade I

Screening: question

Which patient should be screened for domestic violence, abuse, or neglect?

A. A 88-year-old man living with his son.
B. A 38-year-old woman living with her husband and daughter.
C. A 26-year-old man with severe developmental delay living with his mother.
D. All of the above.

Screening: Intimate Partner Violence

- USPSTF B (2025)
- Recommends screening women of reproductive age regardless of sx/signs
- Many available screening tools: HITS, HARK, WAST, OAS/OVAT
- Elderly/vulnerable adult screening is grade I

"New knowledge is the most valuable commodity on earth. The more truth we have to work with, the richer we become."

- Kurt Vonnegut

Cancer Screening

Cervical Cancer Screening

A 67-year-old woman presents to establish primary care. She had one prior Pap smear 20 years ago and believes the result was normal. She is married and sexually active, but reluctant to undergo a pelvic exam. **You advise her that the recommended cervical cancer screening strategy for a woman in her situation is:**

A. Pap smear not necessary after age 65.
B. Co-test now; stop if results are normal.
C. HPV testing only; stop if results are low-risk.
D. HPV testing now and again in 5 years; stop if results are low-risk.

Cervical Cancer Screening

- USPSTF A (2018), ACOG 2026: Screen with cytology (not HPV) every 3 years from age 21-29
- From 30-65 options are HrHPV testing every 5 years or cytology alone every 3 years
- New in 2024 draft: Self-collection of HPV is okay but conflicts about timing
- No need to screen if:
  - Under age 21
  - **Over** age 65 if adequate prior screening (3 cytology or 2 HPV at usual intervals, last at 65 y/o)
  - Hysterectomy for benign disease

Cervical Cancer Screening

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CONFLICT

Cervical Cancer Screening

- ACS 2020: HPV every 5 years, ages 25-65
- ACS 2025, ACOG 2026: self-collected HPV every 3 years or clinician collected every 5 years

TABLE 1

Model-Estimated Benefits and Costs of Cervical Cancer Screening

Organization	Screening recommendation	Cancer cases per 1,000 patients	Cancer deaths per 1,000 patients	Average lifetime pelvic examinations per patient	Average lifetime colposcopies per patient
American Cancer Society	25 to 65 years of age: primary human papilloma-virus testing every 5 years	0.9	0.3	11	1.8
American College of Obstetricians and Gynecologists	21 to 30 years of age: cytology every 3 years 30 to 65 years of age: cotesting every 5 years	1.1	0.3	20	1.6
No screening	—	18.9	8.3	—	—

Cervical Cancer Screening

Consensus & Conflict

- **Consensus**
  - Screen from 25-65 y/o
  - HPV every 5 years is preferable in 30-65 age group (every *3 years* if self-collected)
  - Do *not* screen 21-25 y/o with HPV—false positive rate too high
- **Conflict**
  - Whether to do cytology in 21-30 y/o or HPV alone at age 25
- **Stay tuned**
  - Value of screening in those immunized against HPV

Breast Cancer Screening

A 45-year-old woman expresses concern about her risk of breast cancer. Her mother died of the disease at 65; 3 sisters are healthy. She performs monthly breast self-exam, and her breast exam in clinic is normal. She requests mammography. **Which of the following statements about breast cancer screening is true?**

A. Women younger than age 50 benefit from mammography.
B. Breast self-exam reduced breast cancer mortality in clinical trials.
C. Mammography is more accurate in younger women.
D. Breast MRI is the preferred screening test for women younger than age 50.

Breast Cancer Screening

- USPSTF B (2024)
- Mammography every 2 years for women aged 40 to 74.
- Recommendation for biennial mammography has not changed
- Grade I: Additional modalities (US,MRI) for women with dense breasts, mammography 75 and older

Screening for BRCA

Your patient is a healthy 34-year-old woman with a family history of breast cancer asking about genetic testing. Her mother had breast cancer at 55 y/o, and her grandmother had ovarian cancer at 62. **What do you recommend?**

A. Genetic testing for BRCA 1 & 2
B. Refer for genetic counseling
C. Do genetic testing or counseling only if high risk
D. Perform mammogram and breast MRI

Screening for BRCA

- USPSTF B (2019) recommendation in high risk women (≥ 10% probability of carrying mutation)
- If family hx or ethnicity/ancestry associated with increased BRCA risk, use a standardized risk assessment tool
- http://www.breastcancergenescreen.org/
- USPSTF recommends against (Grade D) routine genetic testing or counseling

Colorectal Cancer Screening

A 46-year-old man comes to your office for a routine physical examination. He has no family history of colon cancer and has not had prior screening.His exam is normal. **Which of the following is the best option for screening?**

A. Fecal immunochemical testing (FIT) every year.
B. Stool FIT-DNA/FIT-RNA testing every three years.
C. Colonoscopy every ten years.
D. Patient's choice of the above.
E. No screening is indicated.

Colorectal Cancer Screening

- USPSTF A (2021) Do *something* to screen for colorectal cancer in adults age 50-75
- USPSTF B: 45-49 y/o
- USPSTF C: 76-85 y/o
- FOBT, FIT, FIT-DNA/RNA, sigmoidoscopy, CT colography, colonoscopy all acceptable
- Review of pros/cons on USPSTF web site

Colorectal Cancer Screening

- Favor colonoscopy for higher risk patients
  - Family history
  - History of adenoma
- CT Colography every 5 yr is an alternative but requires prep, radiation exposure; also risk of incidentalomas
- Fecal DNA/RNA testing every 1-3 years is more sensitive than FIT but also generates more colonoscopies

Lung Cancer Screening

A 72-year-old new patient comes to your office for a routine physical examination. He has a forty pack-year smoking history but is delighted to report that he quit smoking last year. He is otherwise healthy and wondering if he still needs his annual chest x-ray for lung cancer screening.

Which of the following is the most appropriate next step?

A. Recommend CT but advise pt that 5% of patients may have a false positive study.
B. Recommend CT but advise pt that 20% of patients may have a false positive study.
C. Recommend CXR because CT has high false positive rate.
D. Recommend against screening.

Lung Cancer Screening

- USPSTF B (2021)
- Annual screening of adults 50-80 years who have a 20 pack-year smoking history and have smoked within the past 15 years
- Stop screening when comorbidities exceed benefit or pt unwilling/unable to have surgery

Prostate Cancer Screening

- USPSTF D->C (2018) age 55-69
  - Improved data on reductions in mortality (1-2/1000 screened) and metastasis (3/1000)
  - Right answer would be informed decision making

"Knowledge will give you power, but character respect."

- Bruce Lee

Immunization

Question

A 52 y/o nonbinary patient comes in for routine follow up. They have never been immunized against pneumococcal disease.

Which do you recommend for this patient?

A. 13-valent pneumococcal conjugate vaccine
B. 15-valent pneumococcal conjugate vaccine
C. 21-valent pneumococcal conjugate vaccine
D. 23-valent pneumococcal polysaccharide vaccine
E. No pneumococcal immunization is indicated

New pneumococcal vaccines

- PCV-15: Similar to PCV-13; give once with a PPSV-23 one year later
- PCV-20: One and done; PPSV-23 not needed
- PCV-21: Extended coverage c/w PCV-20 (from 54 to 85%) but misses serotype 4, common in unhoused patients
- PPSV-23 requires boosters if given < 65 y/o, PCV vaccines do not

Special indications

- Pneumococcal: asplenia (including sickle cell), CSF leak, cochlear implant, immunosuppression (including ESRD), chronic heart/lung/liver disease, diabetes, alcoholism, smoking
- Add meningococcal, HiB in asplenic patients
- Hep A/B in IVDU, chronic liver disease, high-risk sexual activity; just B in diabetes, ESRD, HIV

Respiratory virus vaccines

OK, so it's a moving target….

- Influenza: Annual; high-dose/high-potency over 65
- COVID-19: One dose of current vaccine over 65; risk-based under 65
- RSV: pregnancy 32-36 weeks; everyone over 75 and increased risk over 60

Tetanus Prevention: Question

A 43-year-old man falls while rummaging for auto parts in a junk yard and seeks care for a left arm laceration. The wound requires repeated irrigation to remove dirt.

Vaccination history: Full 5-dose DPT series in childhood followed by Td boosters every 10 years (most recent booster 7 years ago).

Recommended management for tetanus prophylaxis is:

A. Tdap or Td booster
B. Tetanus immune globulin
C. Td(ap) booster plus tetanus immune globulin
D. No prophylaxis necessary

Tetanus vaccine and Tetanus Immune Globulin

Vaccine hx	Clean & minor wound		Dirty or major wound	
	Td	TIG	Td	TIG
Unknown or < 3	Yes	No	Yes	**Yes**
3 or more	If > **10 yr**	No	If > **5 yr**	No

Source: cdc.gov

Hepatitis B Exposure: Question

A 36-year-old physician stabs himself in the finger while recapping a needle used to perform phlebotomy. The source patient is HBsAg+. The physician was immunized against hepatitis B 10 years ago during medical school. **The best post-exposure management would be:**

A. HBIG, 0.06 ml/kg IM, now and in 1 month.
B. HBIG, 0.06 ml/kg IM, and initiate revaccination.
C. Test physician for HBsAb. Give HBIG x1 and vaccine booster if titer < 10 mIU/ml.
D. No treatment necessary.

Hepatitis B Post Exposure Prophylaxis

- Seven day window to give HBIG
- If immunized but unknown response:
  - Test anti-HBs titer
  - If < 10 give one dose HBIG and reimmunize
- If known non-responder after 2 attempts:
  - Two doses HBIG one month apart

"The greatest obstacle to discovery is not ignorance — it is the illusion of knowledge."
- Daniel J. Boorstin

Chemoprophylaxis

Question: Breast Cancer

A healthy 42 y/o premenopausal woman with a family history of breast cancer wants to minimize her risk. She is s/p hysterectomy for fibroids, otherwise healthy. Her estimated 5 year risk of breast cancer is 3.2%. **What do you suggest?**

A. Continue routine screening
B. Genetic testing for BRCA 1 & 2
C. Offer tamoxifen for prophylaxis
D. Offer anastrazole for prophylaxis

Breast cancer chemoprevention

- USPSTF B (2019)
- Recommends that clinicians offer prophylaxis to women at high risk of cancer but low risk of complications
- "No single cutoff" but 5 year risk of 3% is best supported by evidence, noted in guideline
- Raloxifene and AIs are only indicated in postmenopausal women
- http://www.cancer.gov/bcrisktool

Question: Aspirin

A 72 year-old man with hypertension comes in for a preventive visit. BP 118/74, HR 68. Total cholesterol 257, HDL 32, LDL 163. Meds: Lisinopril 20 mg daily.

He wonders: should he take aspirin daily?

What do you recommend?

A. Yes, recommend daily aspirin
B. Compute 10-year CV risk and consider aspirin if ≥ 10%
C. No, recommend against aspirin

Aspirin for Primary Prevention (2022)

- Adults aged 40-59 with ≥ 10% 10-yr CVD risk: USPSTF C
- Adults 60 and older: USPSTF D
- If already on aspirin for primary prevention, consider stopping at 75 y/o

Aspirin for Prevention of Preeclampsia (2022)

- 81 mg ASA after 12 weeks gestation in high-risk pregnant people: USPSTF B
- Highest risk:
  - Prior preeclampsia or chronic hypertension
  - Multiple gestation
  - Diabetes
  - CKD
  - Autoimmune disease

Aspirin for Prevention of Preeclampsia (2022)

- Moderate risk (treat if 2 or more):
  - Nulliparity
  - BMI > 30
  - Age > 35
  - IVF
  - SDH (low income, Black race)
  - Family history in first degree relative

PrEP for HIV

- USPSTF A (2019)
- Major risk factors:
  - Serodiscordant partner
  - Inconsistent use of condoms with high-risk partners
  - Syphilis, gonorrhea, chlamydia in last 6 mo
- CDC strongly recommends (2025) lenacapavir q 6 mos

Recent USPSTF Grade D/I

For primary care settings

Grade D	Grade I
COPD	Obstructive sleep apnea
HRT for CV prevention	Atrial fibrillation
Vitamin E, ß-carotene	Other supplements
	Glaucoma
	Eating disorders
	Oral health
	Food insecurity

Prevention in 2026

What do we do now?

- Subspecialty societies: ACP, ACS, AHA, etc
- WHO
- Canadian & UK guidelines
- Advocacy!

"Knowledge of what is does not open the door directly to what should be."

- Albert Einstein

Thanks!

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Answers

- Alcohol: C. More than 14 drinks a week, or 4 on any one occasion, for men and more than 7 drinks a week or 3 on any one occasion for women
- STI Screening: B. Hepatitis C & syphilis
- Hypertension: D. His blood pressures should be confirmed with home readings.
- Domestic violence: B. A 38-year-old woman living with her husband and daughter.
- Cervical cancer screening: D. HPV testing now and again in 5 years; stop if results are low-risk
- Breast cancer screening: A. Women younger than age 50 benefit from mammography.
- BRCA Screening: C. Do genetic testing or counseling only if high risk

Answers

- CRC Screening: D. Patient's choice of the above.
- Lung Cancer Screening: B. Recommend CT but advise pt that 20% of patients may have a false positive study.\
- Pneumococcal immunization: C. 21-valent pneumococcal conjugate vaccine
- Tetanus: A. Td booster
- Hep B: C. Test physician for HBsAb. Give HBIG x1 and vaccine booster if titer < 10 mIU/ml.
- Breast Cancer Chemoprophylaxis: C. Offer tamoxifen for prophylaxis
- Aspirin: C. Recommend against