Chapter 1
Screening/Physical Exam/ Health Maintenance

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Introduction

Traditional medical pedagogy stresses the importance of a complete patient history and physical exam. Though this is extremely relevant for the purposes of learning and perfecting skills, the reality of clinical practice does not allow the clinician to complete a full examination at each patient visit. Therefore, clinicians need to decide how to narrow the focus. When is it appropriate to perform focused history taking and examinations? What can the clinician use to guide these decisions? Evidence-based recommendations for screening can support the decision process and help guide the content of the encounter with the patient and the care provided. This chapter will highlight the importance of thoughtful screening to better inform the physical examination and health maintenance planning.

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Decision-Making/Differential Diagnosis

Screening

The utilization of sensitive and specific screening tools can serve to guide the decision-making process and the formulation of differential diagnoses. Screenings are utilized to help identify early-stage disease processes where early identification and treatment have been demonstrated to improve outcomes. Safety, risk, cost-effectiveness, and predictive value need to be considered when deciding which screenings are to be conducted.

Screening is constant throughout the care of the patient. The action of screening exists while taking a history, while conducting a physical exam and even beyond a visit when reviewing laboratory results. Clinicians are charged with investigating relevant nuggets of information that may align with an illness script, and to satisfy this expectation, they need to arm themselves with screening tools that can facilitate the process.

The US Preventive Services Task Force [1] (USPSTF) is an independent panel of experts in primary care and prevention. This panel systematically reviews the literature for evidence of effectiveness and develops recommendations for clinical preventive services. The USPSTF highlights over 50 "A-" and "B-"rated recommendations based on a patient's gender, age, and certain risk factors (Table 1.1) [2]. The Task Force assigns one of five letter grades (A, B, C, D, or I) to each recommendation based on the evidence of effectiveness (Table 1.2) [3]. These recommendations are updated periodically.

Clinicians are accustomed to a multitude of evidence-based screenings that are already part of the usual clinical care (e.g., blood pressure, weight, HBA1c, hepatitis, HIV testing, etc.). In addition, the USPSTF as well as other similar panels makes recommendations for screening for behavioral conditions and risky behaviors such as depression [4], sedentary lifestyle, and alcohol use [5]. These recommendations encourage conversations about issues that are very relevant to a patient's health and the care delivered.

TABLE 1.1 2016 Modified USPSTF A and B recommendations

Topic	Description	Grade	Release date of current recommendation
Bacteriuria screening: pregnant women	The USPSTF recommends screening for asymptomatic bacteriuria with urine culture in pregnant women at 12–16 weeks' gestation or at the first prenatal visit, if later	A	July 2008
Blood pressure screening: adults	The USPSTF recommends screening for high blood pressure in adults aged 18 years or older. The USPSTF recommends obtaining measurements outside of the clinical setting for diagnostic confirmation before starting treatment	A	October 2015
Cervical cancer screening	The USPSTF recommends screening for cervical cancer in women ages 21–65 years with cytology (Pap smear) every 3 years or for women ages 30–65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years	A	March 2012

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TABLE 1.1 (continued)

Topic	Description	Grade	Release date of current recommendation
Colorectal cancer screening	The USPSTF recommends screening for colorectal cancer starting at age 50 years and continuing until age 75 years	A	June 2016
Folic acid supplementation	The USPSTF recommends that all women planning or capable of pregnancy take a daily supplement containing 0.4–0.8 mg (400–800 μg) of folic acid	A	May 2009
Gonorrhea prophylactic medication: newborns	The USPSTF recommends prophylactic ocular topical medication for all newborns for the prevention of gonococcal ophthalmia neonatorum	A	July 2011
Hepatitis B screening: pregnant women	The USPSTF strongly recommends screening for hepatitis B virus infection in pregnant women at their first prenatal visit	A	June 2009
HIV screening: nonpregnant adolescents and adults	The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults ages 15–65 years. Younger adolescents and older adults who are at increased risk should also be screened	A	April 2013

HIV screening: pregnant women	The USPSTF recommends that clinicians screen all pregnant women for HIV, including those who present in labor who are untested and whose HIV status is unknown	A	April 2013
Rh incompatibility screening: first pregnancy visit	The USPSTF strongly recommends Rh (D) blood typing and antibody testing for all pregnant women during their first visit for pregnancy-related care	A	February 2004
Tobacco use counseling and interventions: nonpregnant adults	The USPSTF recommends that clinicians ask all adults about tobacco use, advise them to stop using tobacco, and provide behavioral interventions and US Food and Drug Administration (FDA)—approved pharmacotherapy for cessation to adults who use tobacco	A	September 2015
Tobacco use counseling: pregnant women	The USPSTF recommends that clinicians ask all pregnant women about tobacco use, advise them to stop using tobacco, and provide behavioral interventions for cessation to pregnant women who use tobacco	A	September 2015

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TABLE 1.1 (continued)

Topic	Description	Grade	Release date of current recommendation
Syphilis screening: nonpregnant persons	The USPSTF recommends screening for syphilis infection in persons who are at increased risk for infection	A	June 2016
Syphilis screening: pregnant women	The USPSTF recommends that clinicians screen all pregnant women for syphilis infection	A	May 2009
Abdominal aortic aneurysm screening: men	The USPSTF recommends one-time screening for abdominal aortic aneurysm by ultrasonography in men ages 65–75 years who have ever smoked	B	June 2014
Alcohol misuse: screening and counseling	The USPSTF recommends that clinicians screen adults age 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse	B	May 2013

Aspirin preventive medication: adults aged 50–59 years with a ≥ 10% 10-year cardiovascular risk	The USPSTF recommends initiating low-dose aspirin use for the primary prevention of cardiovascular disease and colorectal cancer in adults aged 50–59 years who have a 10% or greater 10-year cardiovascular risk, are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years	B	April 2016
BRCA risk assessment and genetic counseling/testing	The USPSTF recommends that primary care providers screen women who have family members with breast, ovarian, tubal, or peritoneal cancer with one of several screening tools designed to identify a family history that may be associated with an increased risk for potentially harmful mutations in breast cancer susceptibility genes (*BRCA1* or *BRCA2*). Women with positive screening results should receive genetic counseling and, if indicated after counseling, BRCA testing	B	December 2013

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TABLE 1.1 (continued)

Topic	Description	Grade	Release date of current recommendation
Breast cancer preventive medications	The USPSTF recommends that clinicians engage in shared, informed decision-making with women who are at increased risk for breast cancer about medications to reduce their risk. For women who are at increased risk for breast cancer and at low risk for adverse medication effects, clinicians should offer to prescribe risk-reducing medications, such as tamoxifen or raloxifene	B	September 2013
Breast cancer screening	The USPSTF recommends screening mammography for women, with or without clinical breast examination, every 1–2 years for women age 50–74 years	B	January 2016
Breastfeeding interventions	The USPSTF recommends providing interventions during pregnancy and after birth to support breastfeeding	B	October 2016
Chlamydia screening: women	The USPSTF recommends screening for chlamydia in sexually active women age 24 years or younger and in older women who are at increased risk for infection	B	September 2014

Depression screening: adults	The USPSTF recommends screening for depression in the general adult population, including pregnant and postpartum women. Screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up	B	January 2016
Diabetes screening	The USPSTF recommends screening for abnormal blood glucose as part of cardiovascular risk assessment in adults aged 40–70 years who are overweight or obese. Clinicians should offer or refer patients with abnormal blood glucose to intensive behavioral counseling interventions to promote a healthful diet and physical activity	B	October 2015
Falls prevention in older adults: exercise or physical therapy	The USPSTF recommends exercise or physical therapy to prevent falls in community-dwelling adults age 65 years and older who are at increased risk for falls	B	May 2012
Falls prevention in older adults: vitamin D	The USPSTF recommends vitamin D supplementation to prevent falls in community-dwelling adults age 65 years and older who are at increased risk for falls	B	May 2012

(continued)

TABLE 1.1 (continued)

Topic	Description	Grade	Release date of current recommendation
Gestational diabetes mellitus screening	The USPSTF recommends screening for gestational diabetes mellitus in asymptomatic pregnant women after 24 weeks of gestation	B	January 2014
Gonorrhea screening: women	The USPSTF recommends screening for gonorrhea in sexually active women age 24 years or younger and in older women who are at increased risk for infection	B	September 2014
Healthy diet and physical activity counseling to prevent cardiovascular disease: adults with cardiovascular risk factors	The USPSTF recommends offering or referring adults who are overweight or obese and have additional cardiovascular disease (CVD) risk factors to intensive behavioral counseling interventions to promote a healthful diet and physical activity for CVD prevention	B	August 2014
Hepatitis B screening: nonpregnant adolescents and adults	The USPSTF recommends screening for hepatitis B virus infection in persons at high risk for infection	B	May 2014

Hepatitis C virus infection screening: adults	The USPSTF recommends screening for hepatitis C virus (HCV) infection in persons at high risk for infection. The USPSTF also recommends offering one-time screening for HCV infection to adults born between 1945 and 1965	B	June 2013
Intimate partner violence screening: women of childbearing age	The USPSTF recommends that clinicians screen women of childbearing age for intimate partner violence, such as domestic violence, and provide or refer women who screen positive to intervention services. This recommendation applies to women who do not have signs or symptoms of abuse	B	January 2013
Lung cancer screening	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography in adults ages 55–80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery	B	December 2013

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Table 1.1 (continued)

Topic	Description	Grade	Release date of current recommendation
Obesity screening and counseling: adults	The USPSTF recommends screening all adults for obesity. Clinicians should offer or refer patients with a body mass index of 30 kg/m^2 or higher to intensive, multicomponent behavioral interventions	B	June 2012
Osteoporosis screening: women	The USPSTF recommends screening for osteoporosis in women age 65 years and older and in younger women whose fracture risk is equal to or greater than that of a 65-year-old white woman who has no additional risk factors	B	January 2012
Preeclampsia prevention: aspirin	The USPSTF recommends the use of low-dose aspirin (81 mg/d) as preventive medication after 12 weeks of gestation in women who are at high risk for preeclampsia	B	September 2014

Sexually transmitted infections counseling	The USPSTF recommends intensive behavioral counseling for all sexually active adolescents and for adults who are at increased risk for sexually transmitted infections	B	September 2014
Skin cancer behavioral counseling	The USPSTF recommends counseling children, adolescents, and young adults ages 10–24 years who have fair skin about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer	B	May 2012

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Table 1.1 (continued)

Topic	Description	Grade	Release date of current recommendation
Statin preventive medication: adults ages 40–75 years with no history of CVD, 1 or more CVD risk factors, and a calculated 10-year CVD event risk of 10% or greater	The USPSTF recommends that adults without a history of cardiovascular disease (CVD) (i.e., symptomatic coronary artery disease or ischemic stroke) use a low- to moderate-dose statin for the prevention of CVD events and mortality when all of the following criteria are met: (1) they are ages 40–75 years; (2) they have 1 or more CVD risk factors (i.e., dyslipidemia, diabetes, hypertension, or smoking); and (3) they have a calculated 10-year risk of a cardiovascular event of 10% or greater. Identification of dyslipidemia and calculation of 10-year CVD event risk require universal lipids screening in adults ages 40–75 years	B	November 2016
Tuberculosis screening: adults	The USPSTF recommends screening for latent tuberculosis infection in populations at increased risk	B	September 2016

TABLE 1.2 USPTF grade definitions

Grade	Definition	Suggestions for practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial	Offer or provide this service
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial	Offer or provide this service
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small	Offer or provide this service for selected patients depending on individual circumstances
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits	Discourage the use of this service
I Statment	The USPSTF concludes that the current evidence is insufficent to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined	Read the clinical considerations section of UPSTF recomendation statment. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms

This approach yields a better understanding of the individual patient and allows for thoughtful accounting of impact that may be driven by social determinants, behavioral health, and substance misuse. The use of evidence-based screening tools in this realm has increasingly become the standard. The standardization of behavioral health (depression, anxiety) and substance use (alcohol, drugs, and tobacco) screenings have been well studied [6, 7]. In efforts to better understand the "whole patient," the clinician can take active steps in aligning screening strategies with focused examinations and additional testing, toward the maintenance of overall health.

Effective communication is a key factor in discussing screening tools/exams with patients to provide unbiased information on both the benefits and the harms of screening and to demonstrate a respect for autonomy [8, 9]. The conscious act of normalizing the use of screening tests and assessments is critical when discussing the risks, benefits, and potential results that may be associated. Though part of everyday routine for the average clinician, for the patient, a screening test/assessment can be a cause for added stress and uneasiness and can affect the relationship. Normalizing the process and transparently explaining to patients the reason behind certain assessments (alcohol/drug use assessments, depression screening, etc.) can prevent feelings of embarrassment and shame. Skillful communication can prevent the patient from becoming defensive and will hopefully open the door for sharing of important information. Simple approaches, like "I am going to ask you a few questions that I ask of all my patients" or "Based on what we have been discussing and the physical exam, I recommend that we send you for a chest X-ray and possibly a CT scan," can help address/alleviate potential stigma and assumptions and help clarify why certain testing is suggested [10, 11].

Best practices when communicating with patients guide us to start off with open-ended questions and then narrow the focus with close-ended questions. Similarly, different degrees of screening can be utilized as clinical decision support tools. Starting off with a broad screening process (one

with high sensitivity and low specificity, yielding increased false positives) will allow the clinical team to gauge if there is a need to further investigate. A screening tool that can better hone in on a relevant issue (ideally, a process with a high sensitivity and a high specificity, yielding decreased false positives) can be used in a secondary manner if necessary. A clinical example of this concept is the process used for screening for substance use/misuse. Through the process known as screening, brief intervention, and referral to treatment (SBIRT) for substance misuse [12], a prescreening is completed. If the patient screens positively with the prescreening tool, a follow-up screening is conducted which will further identify a patient who is using alcohol beyond the healthy drinking guidelines, potentially increasing the risk for health and psychosocial consequences.

It is important to highlight that screening guidelines, protocols, and processes are ever evolving based on clinical research investigating benefits vs. risks and patient feedback. Over the years, certain screenings have triggered controversial debates based on review of mortality and morbidity rates related to screening. Certain screenings have been related to an increased number of false positives, leading to further invasive investigations that can exponentially increase the degree of risks to patients.

One example of this is the prostate-specific antigen (PSA) blood test for detection of prostate cancer. Multiple clinical trials have shown evidence that a substantial percentage of men who have asymptomatic cancer detected by PSA screening have a tumor that either will not progress or will progress so slowly that it would have remained asymptomatic for the man's lifetime (i.e., "overdiagnosis" or "pseudo-disease") [13]. Subsequent biopsies for positive PSA testing have led to a multitude of complications (pain, discomfort, bleeding, psychological harm from false-positive results, etc.), and certain studies even recommend that if PSA testing is to continue, the threshold triggering biopsy or need for treatment should be increased [14, 15]. The evolution of this discussion and research has deemed that the benefits of PSA testing do not outweigh the harms.

Conversely, there has been a paradigm shift in the thinking and evidence around alcohol misuse screening, moving from the CAGE to the AUDIT questionnaire [16]. Historically, the CAGE, a tool with high specificity (low false positive rate), was the standard screen used to detect lifetime alcohol abuse and/or dependence [17], yet it failed to optimally identify current heavy drinking [18]. Based on current research, alcohol screenings which tend to have a higher false positive rate, such as the AUDIT, have been received differently. There is more comfort with the false positives resulting from these screenings versus that of the PSA screening due to the lack of potential downstream harm (i.e., invasive confirmatory tests, psychological distress, etc.). The research in this realm has led to a change in the guidelines recommending the use of evidence-based tools to standardize screening protocols which will more likely detect risky as well as abusive use of substances.

Key History and Physical Exam

While the concept of the comprehensive physical exam in practice remains controversial [19, 20], few could dispute the value it holds as an opportunity to discover vital clues to diagnose [21] and build trust and rapport with a patient [22, 23]. The physical exam is a skillful art form that with time and experience clinicians can master. This is an iterative process where knowledge, coupled with experience, yields the ability to conduct the appropriate and focused physical exams.

The approach toward a physical exam includes consideration of patient particulars (i.e., age, gender, disposition, personal risk factors, family history, etc.) in addition to the historical account of a patient's overall health and psychosocial status, as well as their presenting concerns. Additionally, taking account of the expectations and perceptions of a patient [24, 25] can influence the use of physical examinations in a clinical visit. Placing a stethoscope on a patient's chest and palpation of one's abdomen can satisfy the expectations of a patient and lead to improved trust [26–28].

Examinations can be comprehensive "head to toe," systematically following the review of systems and/or more focused and based on the presenting complaint. It is fundamental that the physical exam be utilized for screening, investigation, and/or for confirmation of diagnostic possibilities. For example, a presentation of dizziness may trigger the clinician to complete certain focused examinations to better understand and investigate potential factors contributing to the patient's complaint. Dizziness can be classified into four main types: vertigo, disequilibrium, presyncope, or lightheadedness, and one of the main goals of the physical examination is to attempt to reproduce the patient's dizziness in the office [29]. A cardiac examination should be performed for all patients complaining of dizziness, but specific nonroutine components of the physical examination can play a large role in investigating this complaint. Examples include measurement of blood pressure in various positions to rule in/out orthostatic hypotension [30], the Dix-Hallpike maneuver to elicit nystagmus [31], the Romberg test, and observation of gait [32, 33], and if hyperventilation syndrome is suspected, the diagnosis can be confirmed by having the patient rapidly take deep inhalations and exhalations [34].

Health Maintenance

The primary care clinician follows their patient throughout their medical journey, building a partnership to collaboratively discuss, plan for, and achieve one's optimal health. The interaction between the clinician and patient serves as a springboard to motivate sustainable decisions the patient will need to maintain. Capitalizing on the rapport and trust built, clinicians can focus efforts on clearly and transparently discussing the patient's health and goals for care. Using evidence-based guidelines like the USPSTF gives the clinician the power and the knowledge to help guide the conversation as well as the overall care of the patient throughout the continuum, striving for optimal health in the physical as well as psychosocial domains.

Vaccinations

The Centers for Disease Control and Prevention (CDC) recommends vaccinations from birth through adulthood to provide a lifetime of immunity [35] and that all adults need immunizations to help them prevent acquiring and transmitting serious diseases that could result in poor health, missed work, medical bills, and not being able to care for their family [36]. In contrast to the pediatric and adolescent vaccination recommendations and schedule, adult vaccinations are typically focused toward at-risk populations and those in certain occupations. Despite efforts to raise awareness about how vaccinations help reduce the prevalence of diseases (e.g., influenza, human papillomavirus (HPV) [37], pertussis, pneumococcal disease, etc.), vaccination compliance remains low [38, 39]. Similar to the communication strategies utilized when normalizing screening, discussion of results, or elements of a physical exam, there needs to be an active effort to discuss vaccinations. Physician and consumer surveys conducted by the National Foundation for Infectious Disease (NFID) highlight communication breakdowns between doctor and patient, leaving many adults unaware of the need for vaccines [40].

In October of 2016, an updated version of the Advisory Committee on Immunization Practices (ACIP) vaccination table was approved [41]. It is vital for clinicians to be very familiar with this guidance as it details vaccines routinely recommended for adults, contains important footnotes for each vaccine, and highlights the primary contraindications and precautions for commonly used vaccines [42, 43]. Additionally, to assist physicians and patients with their understanding of which vaccinations are relevant to care, the CDC site has a user-friendly "Vaccine Quiz" available [44].

Clinical Pearls

- Some screening tests and examinations can be sensitive in nature and embarrassing to the patient.
- Effective communication and normalization can help reduce avoidance on the patients' and clinicians' part.

- Evidence-based guidelines assist the clinician to focus encounters and help guide interventions.

Don't Miss This!

- Excellent evidence exists to help guide clinical care—use it to identify important clinical concerns as well as to avoid testing that may lead to unnecessary cost and risk to the patient.
- Become familiar with tools used to screen for behavioral health issues and substance abuse. Comfortable use by the provider will help the patient respond openly.
- Learning how to focus the physical exam based on the patient's specifics as well as their presenting concerns is critical to effective encounters in the clinical setting.

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