Editorials

Choosing Wisely: More Good Clinical Recommendations to Improve Health Care Quality and Reduce Harm

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Published online March 19, 2013.

The Choosing Wisely campaign provides key clinical recommendations for physicians and patients that promote best practices and help avoid unnecessary medical interventions. This campaign is sponsored by the American Board of Internal Medicine Foundation, and initially nine medical specialty societies participated by providing a list of their top five recommendations. We previously published the lists from the three primary care specialty societies in *American Family Physician* (*AFP*),[1] and maintain the lists on our website. Now, another 16 medical specialty organizations have joined the campaign, with more to come. In addition, Consumer Reports, AARP, and a dozen other consumer-oriented groups have partnered with the Choosing Wisely campaign to help provide information and resources to patients on making wise decisions about health care. This is an unprecedented collaborative project in the house of medicine. Hopefully, it will have far-reaching implications for improving practice and patient outcomes, lowering costs, and reducing harm.

Although the Choosing Wisely campaign is calling long overdue attention to the use of unnecessary diagnostic tests and treatments, this is hardly a new problem. A review of 172 studies performed between 1980 and 2009 found that a large proportion of physicians provide inappropriate interventions, such as antibiotics for upper respiratory tract infections, and perform inappropriate tests, such as Papanicolaou smears in women without a cervix, prostate-specific antigen testing in elderly men, and imaging for acute low back pain.[2] Rather than improving over time, rates of unnecessary services have stayed the same or worsened. Compared with 10 years ago, physicians today are equally likely to perform a complete blood count, electrocardiography, and chest radiography as part of routine health maintenance examinations, and more likely to screen men 75 years or older for prostate cancer.[3] Not only do these tests offer no health benefits and expose patients to harm, but even normal results don't make patients feel better.[4]

In the *accompanying table*, we have included the recommendations from the Choosing Wisely campaign that we consider especially relevant to primary care, and have organized them by discipline/body system. With nearly 100 recommendations on the list, and more to come, we thought this display would help readers more easily find these useful practice pointers. The complete list of recommendations relevant to primary care, including the rationale, comments, and references, is maintained on our website at http://www.aafp.org/afp/choosingwisely. To help highlight these valuable tips, we also will be featuring them on Twitter (https://twitter.com/AFPJournal), Facebook (https://www.facebook.com/AFPJournal), and the *AFP* home page (http://www.aafp.org/afp).

More information about the Choosing Wisely campaign is available at http://choosingwisely.org.

EDITOR'S NOTE: Dr. Siwek is editor of *AFP* and Dr. Lin is associate deputy editor for *AFP* Online.

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Table. Interventions to Improve Health Care Quality and Reduce Harm: Consolidated Items Relevant to Primary Care from the Choosing Wisely Campaign

This table is organized alphabetically by primary discipline. The sponsoring organizations of each recommendation are listed in the footnotes. Rationale, comments, and references can be found online at http://www.aafp.org/afp/choosingwisely.

	Source
Allergy and immunologic	
Don't routinely do diagnostic testing in patients with chronic urticaria.[1]	AAAAI guideline
Cardiovascular	
Don't order annual electrocardiography or any other cardiac screening for asymptomatic, low-risk patients.[2,3]*	USPSTF
Don't perform stress cardiac imaging or advanced noninvasive imaging in the initial evaluation of patients without cardiac symptoms unless high-risk markers are present.[4]*	ACC/AHA guidelines
Don't order coronary artery calcium scoring for screening purposes on low-risk asymptomatic individuals except for those with a family history of premature CAD.[5]	AHA guideline
Don't routinely order coronary CT angiography for screening asymptomatic individuals.[5]	USPSTF, ACC/AHA guideline
Don't use coronary artery calcium scoring for patients with known CAD (including stents and bypass grafts).[5]	ACC/AHA guidelines
Avoid using stress echocardiograms on asymptomatic patients who meet "low-risk" scoring criteria for coronary disease.[6]	ACC/AHA guidelines
Don't repeat echocardiograms in stable, asymptomatic patients with a murmur/click, where a previous exam revealed no significant pathology.[6]	ACC/AHA guideline
Don't order follow-up or serial echocardiograms for surveillance after a finding of trace valvular regurgitation on an initial echocardiogram.[6]	ACC/AHA guidelines
Avoid transesophageal echocardiography to detect cardiac sources of embolization, if a source has been identified and patient management will not change.[6]	ACC/AHA guideline
Don't order continuous telemetry monitoring outside of the intensive care unit without using a protocol that governs continuation.[7]	ACC/AHA guidelines
Don't perform routine annual stress testing after coronary artery revascularization.[8]	ACC/AHA/ACR guideline
Don't leave an implantable cardioverter-defibrillator activated when it is inconsistent with the patient/family goals of care.[9]	Expert consensus
Emergency medicine	
Don't do CT for evaluation of suspected appendicitis in children until after ultrasound has been considered as an option.[10]*	ACR Appropriateness Criteria
Don't use coronary CT angiography in high-risk emergency department patients presenting with acute chest pain.[5] NOTE: *Risk defined by the Thrombolysis In Myocardial Infarction risk score for unstable angina/acute coronary syndromes.*	RCTs
Endocrinologic	
Don't medicate to achieve tight glycemic control in older adults. Moderate control is generally better.[11]	RCTs
Don't use nuclear medicine thyroid scans to evaluate thyroid nodules in patients with normal thyroid gland function.[8]	Expert consensus
Gastroenterologic	
Long-term acid suppression therapy for GERD should be titrated to the lowest effective dose.[12]*	AGA position statement
Don't treat gastroesophageal reflux in infants routinely with acid suppression therapy.[13]	Systematic review of RCTs
For a patient with functional abdominal pain syndrome, CT scans should not be repeated unless there is a major change in clinical findings or symptoms.[12]*	U.S. Food and Drug Administration
CT scans are not necessary in the routine evaluation of abdominal pain.[14]	Expert consensus
Don't prescribe medications for stress ulcer prophylaxis to medical inpatients unless at high risk for gastrointestinal complications.[7]	Expert consensus
Don't recommend percutaneous feeding tubes in patients with advanced dementia.[9,11]	RCT
Don't use topical lorazepam (Ativan), diphenhydramine (Benadryl), and haloperidol (Haldol) ("ABH") gel for nausea.[9]	Expert consensus

continued

Table. Interventions to Improve Health Care Quality and Reduce Harm *(continued)*

	Source
Geriatric	
Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation, or delirium.[11]	AGS guideline
Don't use antipsychotics as first choice to treat behavioral and psychological symptoms of dementia.[11]	AGS, NICE guidelines
Don't delay palliative care for patients with a serious illness who have physical, psychological, social, or spiritual distress because they are pursuing disease-directed treatment.[9]	RCTs
Gynecologic	
Don't perform low-risk HPV testing.[15]	ACS/ASCCP/ASCP guideline
Don't treat patients who have mild cervical dysplasia of less than two years' duration.[16]	ASCCP, ACOG guidelines
Hematologic	
Don't perform repetitive complete blood count and chemistry testing in the face of clinical and lab stability.[7]	Prospective studies
Avoid transfusions of red blood cells for arbitrary hemoglobin or hematocrit thresholds and in the absence of symptoms or active coronary disease, heart failure, or stroke.[7]	AABB guideline
Don't do workup for clotting disorder (order hypercoagulable testing) for patients who develop first episode of DVT in the setting of a known cause.[17]	Prospective cohort studies
Don't reimage DVT in the absence of a clinical change.[17]	ACCP guideline
Infectious disease	
Antibiotics should not be used for apparent viral respiratory illnesses (sinusitis, pharyngitis, bronchitis).[14]	AAP, IDSA guidelines
Don't use antimicrobials to treat bacteriuria in older adults unless specific urinary tract symptoms are present.[11]	IDSA guideline
Nephrologic	
Avoid NSAIDs in individuals with hypertension or heart failure or chronic kidney disease of all causes, including diabetes.[18]*	National Kidney Foundation KDQI
Don't screen for renal artery stenosis in patients without resistant hypertension and with normal renal function, even if known atherosclerosis is present.[17]	ACC/AHA guideline
Neurologic	
Don't do imaging for uncomplicated headache.[10]	AAN, ACR guidelines
Don't perform electroencephalography for headaches.[19]	AAN guideline
CT scans are not necessary in the evaluation of minor head injuries.[14]	Systematic review and meta-analysis
Neuroimaging (CT, MRI) is not necessary in a child with simple febrile seizure.[14]	AAP guideline
In the evaluation of simple syncope and a normal neurologic examination, don't obtain brain imaging studies (CT or MRI).[3]	ACR, NICE guidelines
Don't perform imaging of the carotid arteries for simple syncope without other neurologic symptoms.[19]	AHA, NICE guidelines
Don't use opioids or butalbital for migraine except as a last resort.[19]	ICSI, U.S. Headache Consortium guidelines
Obstetric	
Don't schedule non–medically-indicated (elective) inductions of labor or cesarean deliveries before 39 weeks 0 days gestational age.[2,16]	California Department of Public Health
Avoid elective, non–medically-indicated inductions of labor between 39 weeks 0 days and 41 weeks 0 days unless the cervix is deemed favorable.[2,16]	AAP/ACOG guidelines, Cochrane Database of Systematic Reviews
Ophthalmologic	
Don't order antibiotics for adenoviral conjunctivitis.[20]	Cochrane Database of Systematic Reviews
Don't perform preoperative medical tests for eye surgery unless there are specific medical indications.[20]	Cochrane Database of Systematic Reviews
Orthopedic	
Don't perform imaging for low back pain within the first six weeks unless red flags are present.[2,3]*	Agency for Health Care Policy and Research, Cochrane Database of Systematic Reviews
NOTE: *Red flags include, but are not limited to, severe or progressive neurologic deficits or when serious underlying conditions such as osteomyelitis are suspected.*	

continued

Table. Interventions to Improve Health Care Quality and Reduce Harm *(continued)*

	Source
Otolaryngologic	
Don't routinely prescribe antibiotics for acute, mild to moderate sinusitis unless symptoms (which must include purulent nasal secretions *and* maxillary pain or facial or dental tenderness to percussion) last at least seven days *or* symptoms worsen after initial clinical improvement.[1,2,21]*	*Annals of Internal Medicine*, Cochrane Database of Systematic Reviews
Don't routinely obtain radiographic imaging for patients who meet diagnostic criteria for uncomplicated acute rhinosinusitis.[21]	AAO-HNSF practice guideline
Don't prescribe oral antibiotics for uncomplicated external otitis.[21]	AAO-HNSF practice guideline
Don't prescribe oral antibiotics for uncomplicated tympanostomy tube otorrhea.[21]	RCT
Don't order CT scan of the head/brain for sudden hearing loss.[21]	AAO-HNSF practice guideline
Don't obtain CT or MRI in patients with a primary complaint of hoarseness prior to examining the larynx.[21]	AAO-HNSF practice guideline
Pediatric	
Cough and cold medicines should not be prescribed or recommended for respiratory illnesses in children younger than four years.[14]	ACCP guideline
Preventive medicine	
Don't perform routine annual cervical cytology screening (Pap tests) in women 30 to 65 years of age.[16]	ACS/ASCCP/ASCP, ACOG guidelines
Don't screen women younger than 30 years for cervical cancer with HPV testing, alone or in combination with cytology.[2]	USPSTF
Don't screen women older than 65 years for cervical cancer who have had adequate prior screening and are not otherwise at high risk for cervical cancer.[2]	USPSTF
Don't perform Pap tests in patients younger than 21 years or in women after hysterectomy for benign disease.[2]*	ACOG (for age), USPSTF (for hysterectomy)
Don't screen for ovarian cancer in asymptomatic women at average risk.[16]	USPSTF
Don't use positron emission tomography/CT for cancer screening in healthy individuals.[8]	Expert consensus
Don't perform routine cancer screening for dialysis patients with limited life expectancies without signs or symptoms.[18]*	American Society of Nephrology
Don't repeat colorectal cancer screening (by any method) for 10 years after a high-quality colonoscopy is negative in average-risk individuals.[12]*	U.S. Multi-Society Task Force on Colorectal Cancer
Don't use DEXA to screen for osteoporosis in women younger than 65 years or in men younger than 70 years with no risk factors.[2]* NOTE: *Risk factors include, but are not limited to, fractures after 50 years of age, prolonged exposure to corticosteroids, diet deficient in calcium or vitamin D, cigarette smoking, alcoholism, and thin/small build.*	American Association of Clinical Endocrinologists, American College of Preventive Medicine, NOF, USPSTF
Don't routinely repeat DEXA scans more often than once every two years.[22]	USPSTF, NOF
Don't perform population-based screening for 25-OH-vitamin D deficiency.[15]	Endocrine Society guideline
Don't screen for carotid artery stenosis in asymptomatic adult patients.[2]	USPSTF
Pulmonary medicine	
Don't order chest radiographs in children with uncomplicated asthma or bronchiolitis.[13]	AAP, NHLBI guidelines
Don't routinely use bronchodilators in children with bronchiolitis.[13]	AAP guideline, Cochrane Database of Systematic Reviews
Don't use systemic corticosteroids in children younger than two years with an uncomplicated lower respiratory tract infection.[13]	AAP guideline, Cochrane Database of Systematic Reviews
Don't use continuous pulse oximetry routinely in children with acute respiratory illness unless they are on supplemental oxygen.[13]	AAP guideline
Don't diagnose or manage asthma without spirometry.[1]*	NAEPP Expert Panel report
In patients with a low pretest probability of venous thromboembolism, obtain a high-sensitive D-dimer measurement as the initial diagnostic test; don't obtain imaging studies as the initial diagnostic test.[3]	ACEP, AAFP, American College of Physicians guidelines
Don't image for suspected PE without moderate or high pretest probability.[10]*	ACEP, European Society of Cardiology guidelines
Avoid using a CT angiogram to diagnose PE in young women with a normal chest radiograph; consider a radionuclide lung study ("V/Q study") instead.[8]	Expert consensus

continued

Table. Interventions to Improve Health Care Quality and Reduce Harm *(continued)*

	Source
Rheumatologic	
Don't test for Lyme disease as a cause of musculoskeletal symptoms without an exposure history and appropriate exam findings.[22]	Centers for Disease Control and Prevention, IDSA guidelines
Don't test ANA subserologies without a positive ANA and clinical suspicion of immune-mediated disease.[22]	American College of Rheumatology guidelines
Don't prescribe biologics for rheumatoid arthritis before a trial of methotrexate (or other conventional nonbiologic DMARDs).[22]	American College of Rheumatology guidelines
Surgical	
Avoid routine preoperative testing for low-risk surgeries without a clinical indication.[15]	Cochrane Database of Systematic Reviews
Avoid admission or preoperative chest x-rays for ambulatory patients with unremarkable history and physical exam.[3,10]*	ACR Appropriateness Criteria
Patients who have no cardiac history and good functional status do not require preoperative stress testing prior to noncardiac thoracic surgery.[23]	ACC/AHA, European Society of Cardiology guidelines
Avoid cardiovascular stress testing for patients undergoing low-risk surgery.[17]	ACC/AHA guideline
Avoid echocardiograms for preoperative/perioperative assessment of patients with no history or symptoms of heart disease.[6]	ACC/AHA guidelines
Don't order coronary artery calcium scoring for preoperative evaluation for any surgery, irrespective of patient risk.[5]	ACC/AHA guideline
Don't initiate routine evaluation of carotid artery disease prior to cardiac surgery in the absence of symptoms or other high-risk criteria.[23]	ACC/AHA guideline
Prior to cardiac surgery, there is no need for pulmonary function testing in the absence of respiratory symptoms.[23]	Expert consensus
Urologic	
Don't perform ultrasound on boys with cryptorchidism.[24]	Systematic review and meta-analysis
Don't prescribe testosterone to men with erectile dysfunction who have normal testosterone levels.[24]	AUA guideline
Don't order creatinine or upper-tract imaging for patients with benign prostatic hyperplasia.[24]	AUA guideline
Don't treat an elevated PSA with antibiotics for patients not experiencing other symptoms.[24]	RCT
Don't place, or leave in place, urinary catheters for incontinence or convenience or monitoring of output for non–critically ill patients (acceptable indications: critical illness, obstruction, hospice, perioperatively for < 2 days for urologic procedures; use weights instead to monitor diuresis).[7]	IDSA guideline, Joint Commission

1–American Academy of Allergy, Asthma and Immunology
2–American Academy of Family Physicians
3–American College of Physicians
4–American College of Cardiology
5–Society of Cardiovascular Computed Tomography
6–American Society of Echocardiography
7–Society of Hospital Medicine (Adult)
8–Society of Nuclear Medicine and Molecular Imaging
9–American Academy of Hospice and Palliative Medicine
10–American College of Radiology
11–American Geriatrics Society
12–American Gastroenterological Association
13–Society of Hospital Medicine (Pediatric)
14–American Academy of Pediatrics
15–American Society for Clinical Pathology
16–American College of Obstetricians and Gynecologists
17–Society for Vascular Medicine
18–American Society of Nephrology
19–American Academy of Neurology
20–American Academy of Ophthalmology
21–American Academy of Otolaryngology–Head and Neck Surgery Foundation
22–American College of Rheumatology
23–Society of Thoracic Surgeons
24–American Urological Association

**—From Phase 1 of the Choosing Wisely initiative (2012).*

AAAAI = American Academy of Allergy, Asthma and Immunology; AAFP = American Academy of Family Physicians; AAN = American Academy of Neurology; AAO-HNSF = American Academy of Otolaryngology–Head and Neck Surgery Foundation; AAP = American Academy of Pediatrics; ACC = American College of Cardiology; ACCP = American College of Chest Physicians; ACEP = American College of Emergency Physicians; ACOG = American College of Obstetricians and Gynecologists; ACR = American College of Radiology; ACS = American Cancer Society; AGA = American Gastroenterological Association; AGS = American Geriatrics Society; AHA = American Heart Association; ANA = antinuclear antibody; ASCCP = American Society for Colposcopy and Cervical Pathology; ASCP = American Society for Clinical Pathology; AUA = American Urological Association; CAD = coronary artery disease; CT = computed tomography; DEXA = dual-energy x-ray absorptiometry; DMARD = disease-modifying antirheumatic drug; DVT = deep vein thrombosis; GERD = gastroesophageal reflux disease; HPV = human papillomavirus; ICSI = Institute for Clinical Systems Improvement; IDSA = Infectious Diseases Society of America; KDQI = Kidney Disease Outcomes Quality Initiative; MRI = magnetic resonance imaging; NAEPP = National Asthma Education and Prevention Program; NHLBI = National Heart, Lung and Blood Institute; NICE = National Institute for Health and Clinical Excellence; NOF = National Osteoporosis Foundation; NSAID = nonsteroidal anti-inflammatory drug; Pap = Papanicolaou; PE = pulmonary embolism; PSA = prostate-specific antigen; RCT = randomized controlled trial; USPSTF = U.S. Preventive Services Task Force; V/Q = ventilation/perfusion.