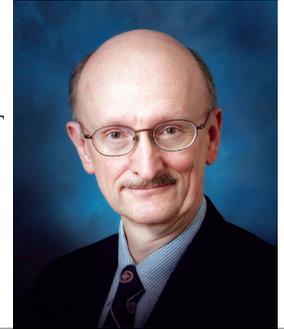


CHOOSING WISELY XV

TOPICS FROM THE HEART RHYTHM SOCIETY, SOCIETY OF HOSPITAL
MEDICINE-PEDIATRIC HOSPITAL MEDICINE, AMERICAN COLLEGE OF CHEST
PHYSICIANS AND AMERICAN THORACIC SOCIETY

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This is my 15th article on “Choosing Wisely” from the Board of Internal Medicine Foundation. As previously noted, each specialty group is developing “Five or 10 Things Physicians and Patients Should Know.”

I. RECOMMENDATIONS FROM THE HEART RHYTHM SOCIETY

1. In the absence of other indications for pacing, don't implant pacemakers for asymptomatic sinus bradycardia.

Pacemaker implantation is clearly indicated in patients with symptomatic sinus node dysfunction. However, there is no clear evidence that pacemaker implantation benefits asymptomatic patients with sinus bradycardia who have no other reason for pacing nor need for cardiac resynchronization. Like any other operation there is risk and cost. In addition, persistent inappropriate right ventricular pacing may have harmful effects on heart function.

2. In patients with New York Heart Association (NYHA) Functional Class IV who are not candidates for either cardiac transplantation, a left ventricular assist device as destination therapy, or cardiac resynchronization therapy (CRT), don't implant an implantable cardioverter-defibrillator (ICD) for the primary prevention of sudden cardiac death. (Class III, contraindicated)

These patients have extremely high mortality, and were not included in the primary prevention trials of ICD therapy. Current professional society guidelines recommend against implanting an ICD in such patients.

3. In patients unlikely to survive at least one year due to non-cardiac comorbidity, don't implant an ICD for the primary prevention of sudden cardiac death. (Class III, contraindicated)

When there is no reasonable expectation of survival from a non-cardiac illness for at least one year, the explicit goal of primary prevention of sudden death with an ICD is not applicable.

4. When both symptoms and heart rate are acceptably controlled by well-tolerated medical therapy, don't ablate the atrioventricular (AV) node in

patients with atrial fibrillation.

AV node ablation and pacemaker implantation may provide benefit in some patients when heart rate and related symptoms cannot be controlled by medication therapy, (Class IIa, indicated) or when there is concern for possible tachycardia-induced cardiomyopathy (Class IIb, may be considered). However, according to current professional society clinical guidelines, the risks of AV node ablation outweigh the benefits among patients with no symptoms and who have appropriate rate control with well-tolerated medical therapy.

5. In patients with ischemic heart disease who have experienced prior myocardial infarction, don't use Vaughan-Williams Class Ic antiarrhythmic drugs as a first-line agent for the maintenance of sinus rhythm.

Class Ic antiarrhythmic agents (i.e. flecainide and encainide), have been demonstrated to increase mortality in patients treated with these agents after myocardial infarction. Current guidelines therefore recommend against (Class III, contraindicated) the use of these agents (as well as propafenone, because it is also a Class Ic agent) in patients with known coronary artery disease with left ventricular dysfunction or concern for possible ischemic myocardium at risk.¹

II. RECOMMENDATIONS FROM THE SOCIETY OF HOSPITAL MEDICINE—PEDIATRIC HOSPITAL MEDICINE (SHM)

1. In children with uncomplicated asthma or bronchiolitis, don't order chest radiographs. National guidelines rely on physical examination and patient history for a diagnosis of asthma and bronchiolitis in the pediatric population. Studies have shown limited clinical utility of chest radiographs for patients with asthma or bronchiolitis. Reducing their use will reduce cost and radiation exposure, and will not compromise diagnostic accuracy and care.²

2. In children with bronchiolitis, don't routinely use bronchodilators. Studies in the literature have demonstrated that use of bronchodilators in children admitted to the hospital with bronchiolitis have no effect on any important outcomes. Providers

should also consider the potential impact of adverse effects of these drugs on the patient.

3. In children under 2 years of age with an uncomplicated lower respiratory tract infection, don't use systemic corticosteroids. Again, guidelines recommend against the use of corticosteroids for management of bronchiolitis. Studies with other viral lower respiratory tract infections fail to demonstrate any benefits.³

4. Do not treat gastroesophageal reflux in infants routinely with acid suppression therapy. Antireflux therapy has been demonstrated to have no effect in reducing the symptoms of gastroesophageal reflux disease (GERD) in children. Concerns regarding the use of proton-pump inhibitor therapy in infants include an inability to definitively diagnose pediatric patients according to the established criteria of GERD, lack of documented efficacy of acid suppression therapy in infants, and the potential adverse effects associated with acid suppression therapy.

5. In children with acute respiratory illness, don't use continuous pulse oximetry routinely unless they are on supplemental oxygen. The clinical benefit of continuous pulse oximetry in infants with acute respiratory illness is not validated or well documented, and has previously been associated with increased admission rates and increased length of stay.⁴

III. RECOMMENDATIONS FROM AMERICAN COLLEGE OF CHEST PHYSICIANS AND AMERICAN THORACIC SOCIETY

1. For evaluation of indeterminate pulmonary nodules at more frequent intervals or for a longer period of time than recommended by established guidelines, don't perform CT scan surveillance. Intensity of surveillance should be guided by the likelihood of malignancy. In those with no prior history of cancer, solid nodules that have not grown over a 2-year period have an extremely low risk of malignancy (although longer follow-up is suggested for ground glass nodules). Also, intensive surveillance such as repeating CT scans every 3 months for 2 years or more has not been shown to improve outcomes such as lung cancer mortality. Extended or intensive surveillance exposes patients to increased radiation and prolonged uncertainty.

2. In patients with pulmonary hypertension resulting from left heart disease or hypoxemic lung diseases (Groups II or III pulmonary hypertension), don't routinely offer pharmacologic treatment with advanced vasoactive agents approved only for the management of pulmonary arterial hypertension.

Evidence and clinical practice guidelines have not established benefits of vasoactive agents (e.g., prostanooids, phosphodiesterase inhibitors, endothelin antagonists) for patients with pulmonary hypertension resulting from left heart disease or hypoxemic lung diseases. The use of these agents may cause harm in certain situations and also is a costly use of resources. Therefore, prior to having approved agents initiated, patients should be carefully assessed (including, at a minimum, right heart catheterization, echocardiography, chest CT, six minute walk test, and pulmonary function testing) to confirm that they have symptomatic pulmonary arterial hypertension.⁵

3. For patients recently discharged on supplemental home oxygen following hospitalization for an acute illness, don't renew the prescription without assessing the patient for ongoing hypoxemia. Hypoxemia often resolves after recovery from an acute illness and continued prescription of supplemental oxygen therapy causes unnecessary cost and resource use. When initially prescribed, the plan should be established to re-assess the patient no later than 90 days after discharge. Medicare and evidence-based criteria should be followed to determine whether the patient meets criteria for supplemental oxygen.

4. In evaluating patients for possible pulmonary embolism who have a low clinical probability and negative results of a highly sensitive D-dimer assay, don't perform chest computed tomography (CT angiography). In patients with a low clinical score using Wells or Geneva scores followed by a negative D-dimer measure with a high sensitivity test (e.g., ELISA), pulmonary embolism is effectively excluded. In such patients the cost and potential harms of CT angiography (including radiation exposure and the possibility of detecting and treating clinically insignificant pulmonary emboli with anticoagulation) outweigh the benefits.

5. Among patients at low risk for lung cancer, don't perform CT screening. For patients at high risk for lung cancer (i.e., individuals age 55-74 with at least a 30 pack-year history of tobacco use, who are either still smoking or quit within the past 15 years), low dose chest CT screening has the potential to reduce lung cancer deaths. In low-risk patients, however, CT screening also has a number of adverse effects – such as radiation exposure, a high rate of false-positives, harms related to subsequent evaluation of benign pulmonary nodules, and overdiagnosis of indolent tumors – which outweigh the benefits.

TOP TIPS

UPDATES TO PEDIATRIC HEALTHCARE SCHEDULE

Recently the American Academy of Pediatrics provided the following updates, including the evidence on which they are based.⁶

- **Vision screening:** This was changed from routine screening to a risk-assessment approach because healthy young adults rarely develop new vision problems.
- **Oral health:** A new recommendation for fluoride varnish from ages 6 months through 5 years of age.
- **Alcohol and drug use assessment:** The addition of a CRAFFT screening tool for adolescents. This can be seen at <http://www.Ceasar-boston.org/CRAFFT/index.php>.
- **Depression screening:** There are new recommendations at ages 11 through 21 years of age.
- **Dyslipidemia screening:** An additional screen between ages 9 and 11 years of age is now recommended in response to the obesity epidemic.
- **Hematocrit or hemoglobin:** Measurement at ages 15 and 30 months has been added to detect iron deficiency anemia, which can negatively affect neurodevelopment.
- **HIV screening:** Now recommended between ages 16 and 18 years of age.
- **Cervical dysplasia screening:** No longer recommended for adolescents. Screening begins at age 21 years.
- **Critical congenital heart disease (CCHD) screening:** Newborns should be screened prior to discharge using pulse oximetry to detect CCHD that may have been missed with prenatal ultrasound.

The “Recommendations for Preventive Pediatric Healthcare,” also referred to as the periodicity table, includes links to the American Academy of Pediatrics policy statements that provide the evidence on which these changes are based. Links to the validated screening tools are also included.

NEW ASPIRIN RECOMMENDATIONS

The U.S. Preventive Services Task Force (USPSTF) released new aspirin recommendations for those aged 50 to 59 years old with a 10-year cardiovascular disease (CVD) risk of 10% or greater. They used a calculator created by data from The American College of Cardiology and The American Heart Association to predict 10-year risk of CVD, and applied it to 11 randomized, controlled trials evaluating the use of aspirin for primary prevention of CVD. In addition, they also

examined data from several primary and secondary CVD prevention trials that reported on colorectal cancer risk reduction seen with aspirin use.

Based on this analysis they issued a grade B recommendation that adults aged 50 to 59 years old, who are not at increased risk for bleeding, should take low-dose aspirin for the prevention of CVD and colorectal cancer. Also, a grade C recommendation was issued, which stated that for patients between 60 and 69 years old, the decision about aspirin should be individualized as there is insufficient evidence to recommend routine aspirin use in this age group.⁷

NEITHER CALCIUM SUPPLEMENTS NOR HIGHER CALCIUM DIETARY INTAKE AFFECT FRACTURE RISK

Experts and practitioners have perennially recommended that the elderly ingest at least 1,000 to 1,200 mg of calcium daily to prevent fractures, and many of us have followed this recommendation. Investigators in this systematic review examined evidence from randomized, controlled trials and observational studies to determine the effects of dietary calcium and calcium supplements on fracture risk in those over 50 years of age.⁸

Fifty-eight cohort studies of the relationship between dietary intake of calcium, milk, or dairy and fracture risk in over 700,000 participants were analyzed. The majority of the studies (74%) reported no association between dietary calcium intake and risk for total fracture (14 of 22 studies), hip fracture (17 of 21 studies), vertebral fracture (7 of 8 studies), or forearm fracture (5 of 7 studies). Positive associations in the remaining studies were weak. Also, neither milk intake nor dairy intake was associated with fracture risk. Analyses from 26 randomized trials (69,000 participants; mostly women) in which the effects of calcium supplements (≥ 1000 mg daily in most studies) on fracture risk were assessed showed calcium supplements lowered risks of total fracture (relative risk, 0.89) and vertebral fracture (relative risk, 0.86) but not hip or forearm fracture. Evidence of publication bias was found in some trials.

Widespread untargeted use of calcium supplements in older patients is unlikely to result in lower incidence of fractures. A companion meta-analysis shows little effect on bone density (BMJ 2015;351:4183). Calcium supplements also have been associated with harms, including adverse cardiovascular events (BMJ 2011; 342:d2040), renal stones, dyspepsia, constipation, and malabsorption of some medications like thyroid pills.

CHOOSING WISELY--IS IT MAKING A DIFFERENCE?

A recent article in *JAMA Internal Medicine* used a national health insurance database and compared claims for seven services before and after the early "Choosing Wisely" lists were released in 2012. Only two targeted services saw small reductions. Among their findings were 10% relative reductions in the percentages of patients who underwent imaging for headaches with uncomplicated conditions (14.9% to 13.4%), and those who underwent cardiac imaging without cardiac disease (10.8% to 9.7%). The percentages of preoperative chest X-rays, low-back pain imaging with red-flag conditions, and antibiotic use for sinusitis, were largely unchanged.

The percentage of women younger than age 30 who were tested for human papilloma virus rose from 4.8% to 6.0%. Adults with certain chronic conditions who were prescribed nonsteroidal anti-inflammatory drugs increased from 14.4% to 16.2%.

The changes suggest that more interventions are needed for wider implementation of "Choosing Wisely" recommendations. What do you think might be helpful?

SYSTOLIC BLOOD PRESSURE INTERVENTION TRIAL (SPRINT)

A recent article in *UpToDate* made recommendations for BP goals in patients 50 years or older with systolic blood pressure from 130 to 180 mmHg and an additional risk factor for cardiovascular disease (other than diabetes, proteinuric chronic kidney disease, or stroke, for which they make separate recommendations). The goal should be a systolic blood pressure of 125 to 130 mmHg if standard manual (auscultatory) measurements are used, or systolic blood pressure of 120 to 125 mmHg if automated oscillometric blood pressure measurements are used, rather than higher values (Grade 1A).⁹ The goal in most hypertensive patients had been less than 140/90 mmHg, or less than 150/90 mmHg in older adults.

The SPRINT trial was a multicenter, randomized, open-labeled trial performed in 9,361 hypertensive patients in the United States after a median of 3.26 years. Therapy was intensive compared with standard treatment, and reduced the rate of mortality (3.3 vs. 4.5%), as well as the primary endpoint (5.2 vs. 6.8%), which was a composite of myocardial infarction, acute coronary syndrome, stroke, heart failure, or cardiovascular death. Intensive treatment did increase the rates of acute kidney injury, syncope, and hyponatremia, but not orthostatic hypotension or falls that resulted in hospitalization. *UpToDate* now recommends lower systolic pressure goals (depending on the method of measurement) for non-diabetic adults 50 years and older at high risk for cardiovascular events. Recommendations for other groups, including those with proteinuric chronic kidney disease, have not changed based upon these data. A research trial concerning blood pressure goals for patients with diabetes is hopefully to be released in 2016.

FAKE PEER REVIEW A PROBLEM FOR SCIENTIFIC JOURNALS

An editorial in the *New England Journal of Medicine* has called attention to the problem of peer-review fraud, where people chosen to review manuscripts are associated with the author or are the author using a fake identity.¹⁰ The editorial writer notes:

- In the past few years, more than 250 articles that underwent fake peer-review have been retracted.
- Most of the articles originated in China and Southeast Asia.
- Pressure to publish quickly, and in the best journals, can influence authors and editors to game the system.

Verifying the identity of peer-reviewers should reduce the problem, but new ways of gaming the traditional publication models will be invented more quickly than new control measures can be put in place.

REFERENCES

1. Fuster, V et al. American College of Cardiology Foundation/American Heart Association Task Force. 2011 ACCF/AHA/HRS Focused Updated Incorporated into the ACC/AHA/ESC 2006 guidelines for the management of patients with atrial fibrillation: a report of The American College of Cardiology Foundation/American Heart Association Task Force on practice guidelines. *Circulation* 2011 Mar 15;123(10):e269-367.
2. National Heart, Lung and Blood Institute, National Asthma Education and Prevention Program. Expert panel report 3: Guidelines for the diagnosis and management of asthma. Bethesda (MD): National Institutes of Health; 2007 Aug. 417 p.4051.
3. Panickar, J et al. Oral Prednisolone for Preschool Children with Acute Virus-Induced Wheezing. *NEJM*. 2009 Jan 22;360(4):329-38.
4. Alverson, BK et al. Continuous Versus Intermittent Pulse Oximetry Monitoring of Children Hospitalized for Bronchiolitis. Abstract presented at ICWeek 2012. San Diego (CA). 2012 Oct 19.
5. Hoepfer, MM et al. Diagnosis, Assessment, and Treatment of Non-Pulmonary Arterial Hypertension. *J Am Coll Cardiol*. 2009;54(1 Suppl):S85-96.
6. Bell, LM. MD Reviewing Committee on Practice and Ambulatory Medicine and Bright Futures Periodicity Schedule Workgroup. *Pediatrics* 2015 Dec 7.
7. USPSTF. Aspirin to Prevent Cardiovascular Disease and Cancer. 2015 Sept. www.uspreventiveservicestaskforce.org/Page/Document/draft-recommendation-statement/aspirin-to-prevent-cardiovascular-disease-and-cancer.
8. Bolland, MJ, et al. Calcium Intake and Risk of Fracture: Systematic Review. *BMJ* 2015 Sep 29;351:h4580.
9. SPRINT Research Group. A Randomised Trial of Intensive Versus Standard Blood-Pressure Control. *NEJM* 2015;373:2103.
10. Haug CJ. Peer-review fraud: Hacking the scientific publication process. *New Eng J Med*. 2015; 373:2393-2395