Choosing Wisely - Review of Evidence-based Testing Recommendations

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History of "Choosing Wisely"

- 2005: the National Physicians Alliance (NPA) was founded to ensure affordable, high-quality health care for all)
- 2009: American Board of Internal Medicine (ABIM) Foundation launched "Putting the Charter into Practice"
- The ABIM Foundation awarded a grant to the NPA to develop and disseminate 5-activity lists of evidence-based, quality improving, resource-sparing activities that could be incorporated into the practices of primary care providers in family medicine, internal medicine, and pediatrics.
- NPA project "Promoting Good Stewardship in Clinical Practice" published in Archives of Internal Medicine in 2011

"Promoting Good Stewardship in Clinical Practice"

- List of the top 5 activities in family medicine, internal medicine, and pediatrics where the quality of care could be improved
- Family medicine and internal medicine groups independently selected 3 activities that were the same
- Final list reflected 12 unique activities that could improve clinical care

Top 5 List in Family Medicine

1. **Don't do imaging for low back pain within the first 6 weeks unless red flags[1] are present**
   - Imaging of the lumbar spine before 6 weeks does not improve outcomes but does increase costs
   - Low back pain is the fifth most common reason for all physician visits

   [1] Red flags include but are not limited to severe or progressive neurological deficits or when serious underlying conditions such as osteomyelitis are suspected
   Sources: AHCPR and Cochrane

2. **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 for 7 or more days OR symptoms worsen after initial clinical improvement**
   - Most maxillary sinusitis in the ambulatory setting is due to a viral infection that will resolve on its own
   - Despite consistent recommendations to the contrary, antibiotics are prescribed in over 80% of outpatient visits for acute sinusitis
   - Sinusitis accounts for 16 million office visits and $5.8 billion in annual healthcare costs

   Sources: Cochrane and Ann IM

3. **Don't order annual ECGs or any other cardiac screening for asymptomatic, low-risk patients**
   - Little evidence that detection of coronary artery stenosis in asymptomatic patients at low risk for coronary heart disease improves health outcomes
   - False-positive tests are likely to lead to harm through unnecessary invasive procedures, overtreatment, and misdiagnosis
   - Potential harms of this routine annual screening exceed the potential benefit

   Sources: USPSTF

4. **Don't perform Pap tests on patients younger than 21 years or in women status post hysterectomy for benign disease**
   - Most dysplasia in adolescents regresses spontaneously; therefore, screening Pap tests done in this age group can lead to unnecessary anxiety, morbidity, and cost
   - Pap tests have low yield in women after hysterectomy (for benign disease), and there is poor evidence for improved outcomes

   Sources: ACOG (for age), USPSTF (for hysterectomy)

5. **Don't use DEXA screening for osteoporosis in women under age 65 years or men under 70 years with no risk factors[1]**
   - Not cost-effective in younger, low-risk patients, but cost-effective in older patients

   [1] Risk factors include but are not limited to fractures after age 50 years, prolonged exposure to corticosteroids, diet deficient in calcium or vitamin D, cigarette smoking, alcoholism, thin and small build

   Sources: NOF, USPSTF, AACE, ACPM

ormal Medicine

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d blood chemistry panels (eg, basic metabolic panel) or urinalyses for screening in asymptomatic, healthy adults
screening yielded significant numbers of positive results among asymptomatic patients
f type 2 diabetes mellitus in asymptomatic adults with hypertension

USPSTF

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USPSTF

nts with diabetes when initiating lipid-lowering drug therapy
e effective in decreasing mortality, heart attacks, and strokes when dose is titrated to effect (appropriate LDL cholesterol reduction
more expensive brand-name statins (atorvastatin [Lipitor] or rosuvastatin [Crestor]) only if generic statins cause clinical reactions or do not achieve LDL
targets

4S, HPS2-THRIVE, and MERCURY[1] trials and meta-analyses

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Top 5 List in Pediatrics

1. **Don't prescribe antibiotics for pharyngitis unless the patient tests positive for streptococcus**
   - Most cases of pharyngitis are viral and will not respond to antibiotics, yet antibiotics are prescribed more than half the time
   - Antibiotics also has potential risks to the patient, increases bacterial antibiotic resistance, and adds to health care expenses
   - The absence of fever, cervical lymphadenopathy, tonsillar exudates, and the presence of cough suggest viral etiology; screening for streptococcus may be unnecessary if these criteria are present
   - Confirmation of streptococcus infection is definitely necessary before antibiotic use can be justified

   Sources: AHRQ, Grahame, IT

2. **Don't obtain diagnostic images for minor head injuries without loss of consciousness or other risk factors**
   - Imaging in low-risk patients rarely detects traumatic abnormalities, each of the abnormalities detected, few, if any, require surgery
   - Higher risk factors include dizziness, external signs of injury, changes in neurologic function, and dangerous mechanism of injury (eg, bicycle-related injury, fall from [illegible] or more or 5 stairs), age younger than 2 years, Glasgow coma score less than 15, and evidence of basilar skull fracture (eg, "raccoon eyes," hemotympanum)
   - Early exposure to radiation poses a significant risk of radiation-attributed cancers – as high as 1 case in 1400 among infants exposed to cranial CT

   Sources: APP/AAP Guidelines

3. **Don't refer VSD early in the course of the condition**
   - Many cases of [illegible] resolve spontaneously within 3 months with no adverse consequences
   - Reasons for early referral include craniofacial or neurological abnormalities, language delay or learning problems, and when structural abnormalities of the aortic or mitral valve are suspected

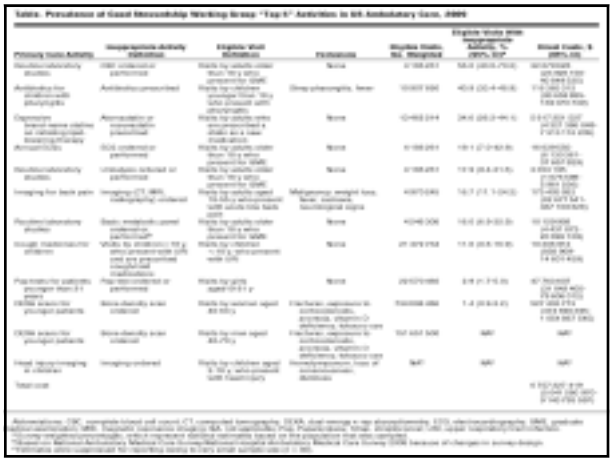
   Sources: [illegible] Guidelines, JBCP

4. **Advise patients not to use cough and cold medications**
   - There is little evidence that over-the-counter cough and cold medications reduce cough, rhinorrhea, or shorten the duration of illness. Rather, they can cause adverse consequences including death
   - Yet, over 10% of children use a cough and cold medication every week

   Sources: AAP, Cochrane, FDA

5. **Use inhaled corticosteroids to control asthma appropriately**
   - Use of to controlling medication for persistent asthma reduces asthma exacerbations, ED visits, and hospital admissions
   - Threshold: More than 4 wheezing episodes with 3 episodes requiring oral corticosteroids within 6 months
   - Inhaled corticosteroids are relatively safe and well tolerated

   Sources: NHEPP



1. Don't do imaging for low back pain within the first six weeks, unless red flags are present.

- Red flags include, but are not limited to, severe or progressive neurological deficits or when serious underlying conditions such as osteomyelitis are suspected.
- Imaging of the lower spine before six weeks does not improve outcomes, but does increase costs.
- Low back pain is the fifth most common reason for all physician visits.

American College of Physicians (ACP) and American Pain Society Recommendations For Back Pain Less Than 6 Weeks

- Focused history (including psychosocial risk factors) and physical exam to categorize LBP (ACP Strong recommendation, Moderate quality evidence)
  - nonspecific LBP
  - back pain potentially associated with radiculopathy or spinal stenosis
  - back pain potentially associated with another specific spinal cause
- Do not routinely obtain imaging studies or other diagnostic tests in patients with nonspecific LBP (ACP Strong recommendation, Moderate quality evidence)
- Perform diagnostic imaging and testing for patients with LBP if severe or progressive neurologic deficits or serious underlying conditions suspected (ACP Strong recommendation, Moderate quality evidence)
- age > 50 years old may be considered risk factor for cancer warranting x-ray, but delaying imaging for 1 month may be reasonable option if no other risk factors

Red Flag Findings That Are Indications For Imaging of Back Pain less than 6 weeks duration

- Onset at age < 20 years or > 55 years
- Pain that is
  - Unrelenting at night
  - Unrelated to time or activity (nonmechanical)
  - Thoracic
- Widespread neurologic symptoms
- Unexplained weight loss
- Feeling unwell, fever or chills
- Significant trauma
- Penetrating wound near spine
- Structural spinal deformity
- Indications of nerve root problem
- Previous history of cancer, HIV, or steroids

- *Ann Intern Med. 2010;153:194-199.*

2. Don't routinely prescribe antibiotics for acute mild-to moderate sinusitis unless symptoms last for seven or more days, or symptoms worsen after initial clinical improvement.

- Symptoms **must** include discolored nasal secretions and facial or dental **tenderness** when touched.
- Most sinusitis in the ambulatory setting is viral.
- Despite consistent recommendations to the contrary, antibiotics are prescribed in more than 80% of outpatient visits for acute sinusitis.
- Sinusitis accounts for 16 million office visits and $5.8 billion in annual health care costs.

Clinical Criteria To Distinguish Acute Bacterial From Viral Sinusitis Include:

- Signs or symptoms lasting ≥ 10 days without evidence of clinical improvement (IDSA Strong recommendations, Low-moderate quality evidence, AAO-HNSF Strong recommendation, AAP recommendation)
- Worsening signs or symptoms following initial improvement (double sickening) (IDSA Strong recommendations, Low-moderate quality evidence, AAO-HNSF Strong recommendation)
- Severe symptoms including fever ≥ 39 degrees C (102 degrees F) and purulent nasal discharge lasting ≥ 3-4 consecutive days (IDSA Strong recommendations, Low-moderate quality evidence, AAP recommendation)

Symptomatic Measures For Acute Sinusitis

- **Analgesics and antipyretics** as needed (AAO-HNSF option)
- **Intranasal corticosteroids** recommended as adjunct to antibiotics, primarily in patients with history of allergic rhinitis (IDSA weak recommendation, moderate-quality evidence)
- **Pelargonium sidoides** preparation reduces sinusitis severity in patients with presumed acute bacterial rhinosinusitis (level 1 [likely reliable] evidence)
- Consider **intranasal saline irrigation** with either physiologic or hypertonic saline in adults (IDSA weak recommendation, low-moderate-quality evidence)
- Decongestants lack evidence for effectiveness
- Antihistamines not indicated unless allergic component present

Pelargonium sidoides is a medicinal plant native to South Africa. Its common names include Umckaloabo and South African Geranium

Bachert C et al. Treatment of acute rhinosinusitis with the preparation from Pelargonium sidoides EPs 7630: a randomized, double-blind, placebo-controlled trial. Rhinology. 2009 Mar;47(1):51-8.

- 103 adults (mean age 35 years) with sinonasal symptoms > 7 days with confirmed, moderate-to-severe rhinosinusitis (presumed bacterial) were randomized to P. sidoides preparation 60 drops orally 3 times daily vs. placebo for ≤ 22 days
- P. sidoides vs. placebo
  - mean decrease in sinusitis severity score (24-point scale) at day 7 was 5.5 points vs. 2.5 points ($p < 0.0001$)
  - complete remission (sinusitis severity score = 0) on day 21 in 61% vs. 10% ($p < 0.001$, NNT 2)
  - adverse events in 11.8% vs. 3.8% (no p value reported)
- Adverse events (all mild) = GI complaints and skin allergy.

3. Don't use dual-energy x-ray absorptiometry (DEXA) screening for osteoporosis in women younger than 65 or men younger than 70 with no risk factors.

- DEXA is not cost effective in younger, low-risk patients, but is cost effective in older patients.

USPSTF Osteoporosis Screening Recommendations

- Screen for osteoporosis in women age ≥ 65 and in younger women whose fracture risk is ≥ that of a 65-year-old white woman who has no additional risk factors. Rating: B Recommendation.
- Evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis in men.
- Rating: I Statement.

10-year major osteoporotic fracture (clinical spine, hip, forearm and humerus fracture) risk of a 65-year-old white woman without additional risk factors is

9.3%

Clinical Risk Factors for Fracture

- The most robust risk factors are
  - Advancing age
  - Personal history of fragility fx
- Others include
  - Low BMI
  - Long-term glucocorticoid therapy
  - Cigarette smoking
  - Excess alcohol intake
  - High levels of bone turnover markers
  - Parental history of hip fx

http://www.shef.ac.uk/FRAX/

Consider FDA-approved medical therapies in postmenopausal women and men ≥ 50 years if:

- Hip or vertebral (clinical or morphometric) fx
- T-score ≤ -2.5 at the femoral neck or spine after appropriate evaluation to exclude secondary causes
- Low bone mass (T-score between -1.0 and -2.5 at the femoral neck or spine) and a 10-year probability of hip fx ≥ 3% or a 10-year probability of a major osteoporosis-related fx ≥ 20% by FRAX

4. Don't order annual ECGs or any other cardiac screening for low-risk patients without symptoms.

- **Population** Asymptomatic adults with a 10-year risk of coronary heart disease (CHD) <10% are low-risk
- **Do not screen with resting or exercise electrocardiography (ECG).**
  Grade: D (Not Recommended)
- **Balance of Harms and Benefits**
- The potential harms of screening for CHD with exercise or resting ECG equal or exceed the potential benefits in this population.
- The USPSTF could not determine the balance between the benefits and harms of screening for CHD with resting or exercise ECG in this population.

What about screening asymptomatic adults at intermediate or high risk for CHD events with ECG?

Grade: I (Insufficient Evidence)

- **Risk Assessment**
- Higher risk for CHD events: older age, male sex, high blood pressure, smoking, abnormal lipid levels, diabetes, obesity, and sedentary lifestyle.
- High risk =10-year risk >20%
- Intermediate risk = 10%–20%
- **Screening Tests** Several abnormalities on resting and exercise ECG are associated with an increased risk for a serious CHD event. However, the incremental information offered by screening asymptomatic adults at low risk for a CHD event with resting or exercise ECG (beyond that obtained with conventional CHD risk factors) is highly unlikely to result in changes in risk stratification that would prompt interventions and ultimately reduce CHD-related events.
- **Balance of Harms and Benefits** The potential harms of screening for CHD with exercise or resting ECG equal or exceed the potential benefits in this population. The USPSTF could not determine the balance between the benefits and harms of screening for CHD with resting or exercise ECG in this population.

5. Don't schedule elective, non-medically indicated inductions of labor or Cesarean deliveries before 39 weeks, 0 days gestational age.

- Delivery prior to 39 weeks, 0 days is associated with an increased risk of learning disabilities and a potential increase in morbidity and mortality.
- There are clear medical indications for delivery prior to 39 weeks and 0 days based on maternal and/or fetal conditions.
- A mature fetal lung test, in the absence of appropriate clinical criteria, is not an indication for delivery.

6. Avoid elective, non-medically indicated inductions of labor between 39 weeks, 0 days and 41 weeks, 0 days unless the cervix is deemed favorable.

- Ideally, labor should start on its own initiative whenever possible.
- Higher Cesarean delivery rates result from inductions of labor when the cervix is unfavorable.
- Clinicians should discuss the risks and benefits with their patients before considering inductions of labor without medical indications.

7. Don't screen for carotid artery stenosis (CAS) in asymptomatic adult patients.

- **USPSTF Recommendation** Grade: D
- **Risk Assessment** The major risk factors for CAS = older age, male gender, hypertension, smoking, hypercholesterolemia, and heart disease. However, accurate, reliable risk assessment tools are not available.
- **Balance of Benefits and Harms**
- **Harms outweigh benefits.** In the general population, screening with carotid duplex ultrasound would result in more false-positive results than true positive results. This would lead either to surgeries that are not indicated or to confirmatory angiography. As the result of these procedures, some people would suffer serious harms (death, stroke, and myocardial infarction) that outweigh the potential benefit surgical treatment may have in preventing stroke.
- **Other Relevant Recommendations from the USPSTF**
- Adults should be screened for hypertension, hyperlipidemia, and smoking. Clinicians should discuss **aspirin chemoprevention** with patients at increased risk for cardiovascular disease.

8. Don't screen women <30 years of age for cervical cancer with HPV testing, alone or in combination with cytology.

- There is adequate evidence that the harms of HPV testing, alone or in combination with cytology, in women <30

USPSTF 2012 Recommendations Screening for Cervical Cancer (endorsed by AAFP in 2012)

he USPSTF recommends against screening for cervical cancer in women younger than age 21 years. Grade: D Recommendation

- Screen for cervical cancer in women ages 21 to 65 years with cytology (Pap smear) every 3 years or, for women ages 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and HPV testing every 5 years. Grade: A Recommendation.
- *These recommendations apply to women who have a cervix, regardless of sexual history. These recommendations do not apply to women who have received a diagnosis of a high-grade precancerous cervical lesion or cervical cancer, women with in utero exposure to diethylstilbestrol, or women who are immunocompromised (such as those who are HIV positive)*

From the American College of Physicians

1. **In the evaluation of simple syncope and a normal neurological examination, don't obtain brain imaging studies (CT or MRI).**

In patients with witnessed syncope but with no suggestion of seizure and no report of other neurologic symptoms or signs, the likelihood of a CNS cause of the event is extremely low and patient outcomes are not improved with brain imaging studies.

2. **Don't obtain preoperative chest radiography in the absence of a clinical suspicion for intrathoracic pathology.**

In the absence of cardiopulmonary symptoms, preoperative chest radiography rarely provides any meaningful changes in management or improved patient outcomes.

From the American Academy of Allergy, Asthma & Immunology

- **Don't routinely do diagnostic testing in patients with chronic urticaria.**
- In the overwhelming majority of patients with chronic urticaria, a definite etiology is not identified.
- Targeted laboratory testing based on clinical suspicion is appropriate. Routine extensive testing is neither cost effective nor associated with improved clinical outcomes.
- Skin or serum-specific IgE testing for inhalants or foods is **not indicated**, unless there is a clear history implicating an allergen as a provoking or perpetuating factor for urticaria.

Tarbox et al. Utility of routine laboratory testing in management of chronic urticaria/angioedema. Ann Allergy Asthma Immunol. 2011 Sep;107(3):239-43.

Background

Laboratory tests are routinely ordered to identify or rule out a cause in patients with chronic urticaria/angioedema (CUA). The results of these tests are usually within normal limits or unremarkable.

Objective

To investigate the proportion of abnormal test results in patients with CUA leading to a change in management and in outcomes of care.

Methods

Retrospective analysis of a random sample of adult patients with CUA from 2001–2009.

Results

Cases totaled 356: 166 with urticaria and angioedema (AE), 187 with urticaria, and 3 with only AE. Patients were predominately women (69.1%) and white (75.6%), with a mean age of 48 ± 15 years. Abnormalities were commonly seen in complete blood counts (34%) and in complete metabolic panels (9.4%). Among the 1,872 tests that were ordered, results of 319 (17%) were abnormal. Of 356 patients, 30 underwent further testing because of abnormalities in laboratory work. This represented 30 of 1,872 tests (1.60%). **Only 1 patient benefited from a subsequent change in management.**

Conclusions

Laboratory testing in CUA patients referred for an Allergy and Immunology evaluation rarely lead to changes in management resulting in improved outcomes of care.

American Academy of Allergy, Asthma & Immunology

- **Don't diagnose or manage asthma without spirometry.**
- Beyond the increased costs of care, repercussions of misdiagnosing asthma include delaying a correct diagnosis and treatment.

American Academy of Neurology

- **Don't perform imaging of the carotid arteries for simple syncope without other neurologic symptoms.**
- Occlusive carotid artery disease does not cause fainting but rather causes focal neurologic deficits such as unilateral weakness. Thus, carotid imaging will not identify the cause of the fainting and increases cost. Fainting is a frequent complaint, affecting 40% of people during their lifetime.
- **Don't use opioid or butalbital treatment for migraine except as a last resort.**
- Opioid and butalbital treatment for migraine should be avoided because more effective, migraine-specific treatments are available. Frequent use of opioid and butalbital treatment can worsen headaches. Opioids should be reserved for those with medical conditions precluding the use of migraine-specific treatments or for those who fail these treatments.

American Academy of Otolaryngology

- **Don't prescribe oral antibiotics for uncomplicated acute external otitis.**
- Oral antibiotics have significant adverse effects and do not provide adequate coverage of the bacteria that cause most episodes; in contrast, topically administered products do provide coverage for these organisms. Avoidance of oral antibiotics can reduce the spread of antibiotic resistance and the risk of opportunistic infections.
- **Don't obtain CT or MRI in patients with a primary complaint of hoarseness prior to examining the larynx.**
- Examination of the larynx with mirror or fiberoptic scope is the primary method for evaluating patients with hoarseness. Imaging is unnecessary in most patients and is both costly and has potential for radiation exposure. After laryngoscopy, evidence supports the use of imaging to further evaluate 1) vocal fold paralysis, or 2) a mass or lesion of the larynx**.**

The American College of Obstetricians and Gynecologists

- **Don't perform routine annual cervical cytology screening (Pap tests) in women 30–65 years of age.**
- In average risk women, annual cervical cytology screening has been shown to offer no advantage over screening performed at 3-year intervals. However, a well-woman visit should occur annually for patients with their health care practitioner to discuss concerns and problems, and have appropriate screening with consideration of a pelvic examination.
- **Don't treat patients who have mild dysplasia of less than two years in duration.**
- Mild dysplasia (CIN 1) is associated with HPV, which does not require treatment in average risk women. Most women with CIN 1 on biopsy have a transient HPV infection that will usually clear in less than 12 months.
- **Don't screen for ovarian cancer in asymptomatic women at average risk.**
- There is only fair evidence that screening of asymptomatic women with serum CA-125 level and/or transvaginal ultrasound can detect ovarian cancer at an earlier stage than it can be detected in the absence of screening. Because of the low prevalence of ovarian cancer and the invasive nature of the interventions required after a positive screening test, the potential harms of screening outweigh the potential benefits.

American College of Radiology

- **Don't do CT for the evaluation of suspected appendicitis in children until after ultrasound has been considered as an option.**
- Although CT is accurate in the evaluation of suspected appendicitis in the pediatric population, ultrasound is nearly as good in experienced hands. Since ultrasound will reduce radiation exposure, ultrasound is the preferred initial consideration for imaging examination in children. This approach is cost-effective, reduces potential radiation risks and has sensitivity and specificity of 94%.
- **Don't recommend follow-up imaging for clinically inconsequential adnexal cysts.**
- Simple cysts and hemorrhagic cysts in women of reproductive age are almost always physiologic. Small simple cysts in postmenopausal women are common, and clinically inconsequential.
- After a good quality ultrasound in women of reproductive age, don't recommend follow-up for a classic corpus luteum or simple cyst <5 cm in greatest diameter. Use 1 cm as a threshold for simple cysts in postmenopausal women.

American College of Rheumatology

- **Don't routinely repeat DXA scans more often than once every two years.**
- Changes in bone density over short intervals are often smaller than the measurement error of most DXA scanners.
- Even in high-risk patients receiving drug therapy for osteoporosis, DXA changes do not always correlate with probability of fx.
- DXAs should only be repeated if the result will influence clinical management or if rapid changes in bone density are expected.
- Healthy women age 67 and older with normal bone mass may not need additional DXA testing for up to 10 years if osteoporosis risk factors do not significantly change.

American Gastroenterological Association

- **Do not repeat colonoscopy for at least five years for patients who have one or two small (< 1 cm) adenomatous polyps, without high- grade dysplasia, completely removed via a high-quality colonoscopy.**
- Evidence- based (published) guidelines provide recommendations that patients with one or two small tubular adenomas with low grade dysplasia have surveillance colonoscopy five to 10 years after initial polypectomy. "The precise timing within this interval should be based on other clinical factors (such as prior colonoscopy findings, family history, and the preferences of the patient and judgment of the physician)."
- **For a patient with Barrett's esophagus, who has undergone a second endoscopy that confirms the absence of dysplasia on biopsy, a follow-up surveillance examination should not be performed in less than 3 years.**
- In patients with Barrett's esophagus without dysplasia (cellular changes) the risk of cancer is very low. If these cellular changes occur, they do so very slowly.

American Geriatrics Society

- **Avoid using medications to achieve HbA1c <7.5% in most adults ≥age 65; moderate control is generally better.**
- Among non-older adults, except for long-term reductions in MI and mortality with metformin, using medications to achieve glycated HbA1c <7% is associated with harms, including higher mortality rates.
- Tight control has been consistently shown to produce higher rates of hypoglycemia in older adults.
- Given the long timeframe to achieve theorized microvascular benefits of tight control, reasonable glycemic targets:
  - 7.0 – 7.5% in healthy older adults with long life expectancy,
  - 7.5 – 8.0% in those with moderate comorbidity and a life expectancy < 10 years
  - 8.0 – 9.0% in those with multiple morbidities and shorter life expectancy.

American Geriatrics Society

- **Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium.**
- Risk of MVA, falls and hip fx leading to hospitalization and death can more than double in older adults taking benzodiazepines and other sedative-hypnotics.
- Use of benzodiazepines should be reserved for alcohol withdrawal symptoms/ DTs or severe generalized anxiety disorder unresponsive to other therapies.
- **Don't use antimicrobials to treat bacteriuria in older adults unless specific urinary tract symptoms are present.**
- Cohort studies have found no adverse outcomes for older men or women associated with asymptomatic bacteriuria. Antimicrobial treatment studies for asymptomatic bacteriuria in older adults demonstrate no benefits and show increased adverse antimicrobial effects.

Resources

- http://www.choosingwisely.org
- http://www.uspreventiveservicestaskforce.org
- http://www.shef.ac.uk/FRAX/
- The "Top 5" Lists in Primary Care: Meeting the Responsibility of Professionalism. Arch Intern Med. 2011;171(15):1385-1390.
- Kale MS, Bishop TF, Federman AD, Keyhani S. "Top 5" Lists Top $5 Billion. Arch Intern Med. 2011;171(20):1858-1859.
- The Development of Clinical Practice Guidelines and Guidance Statements of the American College of Physicians: Summary of Methods. Ann Intern Med. 2010;153:194-199.