



## CHOOSING WISELY XXVI

*Recommendations from the American Academy of Family Physicians,  
American Academy of Pediatrics—Section on Nephrology,  
American Society of Pediatric Nephrology, American Epilepsy Society*  
**Alan S. Peterson, M.D.**

*Emeritus Director, Environmental and Community Medicine  
Walter L. Aument Family Health Center*

This is my 26th article on Choosing Wisely from the Board of Internal Medicine Foundation. As previously noted, each specialty group is developing a “Five, Ten, or More Things that Physicians and Patients Should Know.”

### I. RECOMMENDATIONS FROM THE AMERICAN ACADEMY OF FAMILY PHYSICIANS (AAFP)

At various times I have previously covered the first 10 of the now 20 things that doctors and patients should question, and I will update them in a future article. Here, I will outline the 11th through the 20th.

**11. Otitis media in children aged 2-12 years with non-severe symptoms should not routinely be treated with antibiotics if the observation option is reasonable.<sup>1</sup>** The “observation option” refers to deferring antibacterial treatment of selected children for 48 to 72 hours, and limiting management to symptomatic relief. Observation or treatment is based on the child’s age, diagnostic certainty and illness severity. Re-evaluation of the child must also be available.

**12. A voiding cystourethrogram (VCUG) should not be performed routinely on the first febrile urinary tract infection (UTI) in children aged 2-24 months.** Risks associated with radiation (plus the discomfort and expense of the procedure) outweigh the risk of delaying the detection of the few children with correctable genitourinary abnormalities until their second UTI.

**13. Screening for prostate cancer using a prostate-specific antigen (PSA) test or digital rectal exam should not routinely be performed. For men who desire PSA screening, the PSA should only be performed after engaging in shared decision making.<sup>2</sup>** Screening using PSA may prevent mortality for prostate cancer for a small number of men, while putting many men at risk for long-term harms, such as urinary incontinence and erectile dysfunction. PSA-based prostate cancer screening should not be performed in men over 70 years of age.

**14. For adolescent idiopathic scoliosis in children and adolescents aged 10 to 18 years,** the AAFP had previously relied on the recommendation of the USPSTF that current evidence is insufficient to assess the balance of benefits and harms of screening. This recommendation has recently been withdrawn due to recently published evidence.

**15. Prescription of oral contraceptive medications does not require a pelvic exam or other physical exam.** These contraceptives are safe, effective, and well-tolerated by most women. They can be prescribed on the basis of medical history and blood pressure measurement alone.

**16. Asymptomatic, nonpregnant women do not need pelvic exams except for guideline-appropriate screening for cervical cancer.** Screening pelvic examinations have not led to reduction in mortality or morbidity, and expose asymptomatic women to unnecessary invasive testing. Screening for sexually-transmitted infections can now be done with noninvasive options rather than with invasive endocervical cultures. Pelvic exams can even lead to unnecessary surgery as well as unnecessary costs including evaluations of false-positive findings.

**17. Routine home glucose monitoring for patients with Type 2 diabetes who are not using insulin is not recommended.** Self-monitoring for glucose control is important in Type 1 diabetes mellitus, but it has no benefit in patients with Type 2 diabetes who are not on insulin, or on medications associated with hypoglycemia. Self-monitoring should be reserved for Type 2 patients during the initial titration of their medication doses, during periods of changes in their doses, or during periods of illness.<sup>3</sup>

**18. Screening for genital herpes simplex virus (HSV) in asymptomatic adults, including pregnant women, should not be done.** This testing has low specificity and a high false-positive rate, and no confirmatory test is currently available. Positive predictive value, given the prevalence of infection in the United

States, is estimated at about 50%. A positive test can obviously cause considerable anxiety and disruption of personal relationships.

**19. Screening for testicular cancer in asymptomatic adolescent and adult males should not be done.**

There is no benefit for clinical or self-examination due to the low incidence of disease and the high cure rates of treatment, even in patients with advanced disease. Potential harms associated with screening include false-positive results, anxiety, and harms from the diagnostic tests or procedures.

**20. Transfusion of red blood cell (RBC) units should be limited to the minimum amount necessary to relieve symptoms of anemia or to return a patient to a safe hemoglobin range (7 to 8g/dL in stable patients).** Unnecessary transfusion exposes patients to potential adverse effects without any likelihood of benefit and generates additional costs. The patient's symptoms and hemoglobin concentration should determine transfusion decisions.

## II. RECOMMENDATIONS FROM THE AMERICAN ACADEMY OF PEDIATRICS-SECTION ON NEPHROLOGY, AND THE AMERICAN SOCIETY OF PEDIATRIC NEPHROLOGY

**1. Routine urine analyses (UA) in healthy, asymptomatic pediatric patients should not be ordered as part of routine well child care.**<sup>4</sup> There is a low prevalence of chronic kidney disease (CKD) and bladder cancer in children, and false positive/transient abnormality rates have been calculated to approach 84%. The high incidence of misinterpretation of positive tests of screening urinalysis has been shown to cause multiple testing, increased cost, and family anxiety. Screening UA in patients should be limited to those at high risk for CKD, including – but not necessarily limited to – patients with a personal history of CKD, acute kidney injury, congenital anomalies of the urinary tract, acute nephritis, hypertension, active systemic disease, prematurity, intrauterine growth retardation, or a family history of genetic renal disease.

**2. A workup for hematuria or proteinuria should not be initiated before an abnormal urine dipstick analysis (UA) has been repeated.** Dipstick analyses have a high incidence of false-positive tests. Patients with microscopic hematuria should have 3 repeated clean-catch UA's with microscopy, to look for chronic hematuria. Also, patients with proteinuria on a random UA should have a repeat UA as a first AM void, with a urine protein/creatinine ratio.

**3. After treatment for an uncomplicated UTI**

**in patients who show evidence of clinical resolution of infection, follow-up urine cultures should not be ordered.** Studies have shown that clinical resolution of infection is adequate for determining effectiveness of antibiotic therapy after treatment for a UTI.

**4. Don't initiate an outpatient work-up for hypertension in asymptomatic pediatric patients until the blood pressure measurement has been repeated.** False-positive BP readings can often be seen in pediatric patients. Methodology should include assessment of blood pressure in the upper extremity by manual auscultation and with an appropriate-sized cuff. Prior to initiating a work-up for pediatric hypertension, persistent BP elevation should be documented by repeating blood pressures x 3 at the same visit, and at 2 additional visits.

**5. Central lines, or peripherally inserted central lines (PICC), should not be placed in pediatric patients with advanced (Stage 3-5) chronic kidney disease (CKD)/end-stage renal disease (ESRD) without consultation with pediatric nephrology.** The goals of this recommendation are to avoid adverse events, preserve long-term vascular access, and avoid unnecessary and costly procedures. Placement of these lines has been associated with an increased incidence of complications, including vascular injury, thrombosis, and central venous stenosis that can limit the future use of dialysis access. Cost is also increased due to the treatment of complications from the lines, requirement for radiological tests to identify patent vessels for dialysis, and the necessity for repeat surgical procedures to create vascular access for dialysis. Studies in children are limited, but research about PICC lines demonstrates a 23-57 percent incidence of thrombosis in adults and increased complications in children exposed to multiple PICC line placements. The recommendation to avoid central line placement is the basis of vascular access preservation in the "Fistula First Innovation" program for adult dialysis patients. Special consideration may be necessary in emergency circumstances in which no other safe access is achievable.

## III. RECOMMENDATIONS FROM THE AMERICAN EPILEPSY SOCIETY

**1. Avoid routine testing for anti-epileptic drug (AED) levels in patients with epilepsy** if their seizures are well controlled, and no adverse effect is suspected. Also, reference ranges should not be used as a rigid framework. Some examples where testing might be considered include weight-based dosing adjustments

in young children, adherence problems, suspected toxicity, and in pregnant women.<sup>5</sup>

**2. Females of childbearing potential should not be treated with Valproate if other effective treatments are available.** Risks to the unborn child are significant enough to warrant avoiding this medication if possible. If deemed necessary, aim for the lowest effective dose. First trimester exposure is associated with the possibility of malformations, which should be discussed prior to conception. Also, exposure throughout pregnancy incurs risks of long-term cognitive and behavioral effects (lower IQ and increased risk of autism spectrum disorder and ADHD).

**3. The initial work-up for syncope should not routinely include an electroencephalogram (EEG).** False-positive EEG findings commonly lead to unnecessary use of antiepileptic drugs and may delay the diagnosis and treatment of syncope. EEGs are most helpful in specific situations when there is high pre-test probability of epilepsy based on history, exam, and clinical presentation.

**4. After withdrawal seizures do not prescribe long-term treatment with antiepileptic drugs.** Alcohol and other withdrawal seizures occur due to abrupt cessation in people who are substance-dependent, and can usually be readily identified by the clinical scenario. It is, however, important to identify scenarios where there is increased risk of epilepsy such as a prior epilepsy diagnosis, acute intoxication-related brain injury, and seizures with a history of alcohol use but without acute withdrawal.

**5. After an acute seizure in those with established epilepsy, one should not routinely perform brain imaging.** This test obviously increases radiation exposure and medical costs without benefit, yet is often done after habitual seizures when the patient is at baseline. Brain imaging should be considered in certain clinical situations, such as when there is seizure-related trauma or postictal deficits on exam.

## Top Tips

### INFECTIOUS DISEASES SOCIETY OF AMERICA (IDSA) UPDATED GUIDELINES FOR DIAGNOSIS AND MANAGEMENT OF INFECTIOUS DIARRHEA<sup>6</sup>

Evaluation of patients with fever or bloody diarrhea for pathogens such as *Salmonella enterica*, *Shigella*, and *Campylobacter*, which can be treated with antimicrobial agents, can avoid unnecessary therapy, colonoscopy, abdominal surgery, and

treatment for ulcerative colitis.

Enteric fever should be considered in those with fever and a relevant history, with or without diarrhea.

Patients with diarrhea might also have other extra-intestinal manifestations such as reactive arthritis, erythema nodosum, or glomerulonephritis.

Stool testing is indicated in patients at high risk of severe illness, and when identification of a pathogen is important either for the patient or for public health. Of course, this imperative strengthens if the diarrhea is accompanied by fever, bloody or mucoid stools, severe abdominal cramping or tenderness, or signs of sepsis. Stools should be tested for *Salmonella*, *Shigella*, *Campylobacter*, *Yersinia*, *Clostridium difficile*, and Shiga toxin-producing *Escherichia coli* (STEC).

Early detection of infection with STEC is important to reduce complications and transmission. If there is a history suggesting STECs, diagnostic testing should be initiated to identify a Shiga toxin and to distinguish STEC O157:H7 from other STEC infections. If possible, tests should also distinguish Shiga toxin 1 from Shiga toxin 2. Testing for Shiga toxins (and genes that encode them) should be accompanied by culture for STEC O157.

In the United States, antimicrobial therapy is generally not recommended for treatment of STEC O157 infections because of the potential for the release of Shiga toxin, thereby leading to hemolytic uremic syndrome. The guidelines also advise avoiding antimicrobial therapy for Shiga toxin 2, or STEC of unknown genotype. There is insufficient evidence to make a recommendation for patients with other STEC infections.

Immunocompromised patients should have bacterial cultures as well as tests for viral and parasitic infections. Patients with AIDS require testing for additional organisms, including *Cryptosporidium*, *Cyclospora*, *Cystoisospora*, *microsporidia*, *Mycobacterium avium* complex, and cytomegalovirus.

Most patients with uncomplicated traveler's diarrhea do not require diagnostic testing unless one feels that treatment is needed. Diarrhea lasting 14 or more days should be tested for intestinal parasites, and those who were treated with an antimicrobial within the preceding 8-12 weeks should be tested for *C. difficile*. Testing for *C. difficile* should also be considered in those over 2 years of age with a history of diarrhea following antimicrobial use, and in those with health care-associated diarrhea. One stool specimen is adequate because multiple specimens do not

increase diagnostic yield.

Other specific management recommendations for infectious diarrhea may be obtained from the referenced article.<sup>6</sup>

#### ARE WE PREPARED FOR NUCLEAR TERRORISM? <sup>7</sup>

Nuclear terrorism comes in several forms, such as forceful takeover of a nuclear power facility by terrorists (we have 2 nuclear power plants in close proximity to Lancaster); targeting of a country's nuclear power facilities by terrorists or rogue states with conventional or nuclear weapons or commercial aircraft; intentional detonation of a nuclear weapon by a terrorist organization or a rogue state; or terrorists' use of radiologic dispersion or exposure to nuclear devices such as radioactive material from a stolen nuclear weapon or a conventional explosive device ("dirty bomb").

Fear has been heightened recently by the nuclear weapons capability of North Korea and the seeming ability of that country to target the United States with an intercontinental ballistic missile. Russia is also increasing its nuclear attack capabilities. Our own Congress has approved measures to expand and increase the capability of our nuclear weapons.

Planning for nuclear events in most cases is unrealistic and unlikely to be effective, especially for large nuclear or radiologic terrorist events. Little progress has been made in educating government officials, policymakers, and the public about the real consequences of exposure to ionizing radiation. I am a member of The Pennsylvania Medical Service Corps, which tries to prepare for mass casualties. Speaking for myself, I do not feel we have made anywhere near adequate preparations.

As in all of medicine, prevention is better than cure, but prevention of nuclear terrorism is unlikely to be universally successful. The authors of this article feel, and I would agree, that all physicians should be required to take an informational course, much as is required for responses to child abuse.

Dealing effectively with nuclear events requires diverse strategies, including policy decisions, public education, prevention, and, as a last resort, medical preparedness. Planning for these events is important, but we should realize its limitations and not be misled into thinking that preparedness outdoes prevention.

The average destructive force of modern nuclear

weapons is equal to approximately 1 megaton of TNT, but some weapons, such as the Soviet RDS-220 hydrogen bomb, are equivalent to 50 megatons of TNT or approximately 5,000 times the power of "Little Boy," the bomb we dropped on Hiroshima.

Effective therapy for persons exposed to ionizing radiation requires an accurate dose estimate, which is usually available only in highly specialized centers that could also be damaged in an attack. One simple way to clinically triage large numbers of potentially exposed persons is to exclude those who have not had nausea and emesis within 4 hours of the exposure. Not everyone with those symptoms has had a radiation dose of more than 2 Gy,\* but patients without such symptoms can be reasonably excluded. Persons exposed to less than 2 Gy of uniform-whole body ionizing radiation generally do not require immediate medical intervention and will probably recover without medical intervention. Those exposed to between 2 to 10 Gy will have the most immediate problems of bone marrow failure and gastrointestinal damage. Those persons exposed to more than 12 to 15 Gy will probably die despite medical intervention.

#### FLU SHOTS AND EGG ALLERGY

Influenza vaccines contain various components that might cause allergic and anaphylactic reactions. Not all such reactions are related to egg proteins, but the possibility of reactions to influenza vaccines might be of concern to persons allergic to eggs, and to vaccine providers. Presently only the RIV4 (Flublok Quadrivalent vaccine) is considered egg-free.

Severe allergic reactions to the vaccines, although rare, can occur at any time, even in the absence of a history of previous allergic reaction. All vaccine providers should therefore be familiar with the office emergency plan, and be certified in cardiopulmonary resuscitation.

The ACIP recommends the following policies, based upon the recipient's previous symptoms after exposure to egg:

1. Persons with a history of egg allergy, who have experienced only hives after exposure, should receive influenza vaccine. Any licensed, recommended, and age-appropriate influenza vaccine that is otherwise appropriate for the recipient's health status may be used.
2. Persons who report having had reactions

\* Gy (Gray): The international unit of radiation dose, expressed in terms of absorbed energy per unit mass of tissue (Joules/Kg.), has replaced the rad. One gray = 100 rad, and is equivalent to approximately 200,000 chest radiographs.

to egg involving symptoms other than hives, such as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who required epinephrine or another emergency medical intervention, may similarly receive any licensed, recommended, and age-appropriate influenza vaccine that is otherwise appropriate for their health status. The vaccine should be given in an inpatient or an outpatient medical setting (including, but not necessarily limited to, hospitals, clinics, health departments, and physician offices). The administration should be supervised by a health care provider who is able to recognize and manage severe allergic reactions.

3. A previous severe allergic reaction to influenza vaccine, regardless of the component suspected of being responsible for the reaction, is a contraindication to the future receipt of the vaccine.

No postvaccination observation is recommended specifically for egg-allergic persons. The ACIP recommends though that the vaccine providers consider observing patients (seated or supine) for 15 minutes following the administration of any vaccine to decrease the risk of injury, should syncope occur.

#### RADON: A LEADING ENVIRONMENTAL CAUSE OF LUNG CANCER<sup>8</sup>

Physicians should play a key role in informing their patients about the health risks posed by radon exposure and in recommending proactive actions to reduce radon exposure. In Lancaster County, for example, one has a risk of 40-60% of having radon in their home.

Radon is a tasteless, colorless, and odorless radioactive noble gas formed from the radioactive decay of radium, a natural component of soil and bedrock. The U.S. Environmental Protection Agency recommends

that all houses be tested for radon, and that action be taken to reduce radon concentrations equal to or greater than 4 pCi/L (picocuries per Liter) or 150 Bq per m<sup>3</sup> (Becquerels per cubic meter). There is no “safe” level of radon.

Do-it-yourself radon measurement kits can be purchased from many hardware stores for \$15-\$25. Mitigation costs of homes generally range from \$800 to \$1,500 and are eligible for Health Savings Account or Flexible Spending Account expenses.

Overwhelming evidence of radon’s carcinogenicity comes from 11 large epidemiologic studies of underground miners exposed to radon and from the 1999 National Research Council’s pooled analysis of those studies. Pooled analyses have been conducted in China, Europe, and North America. The EPA estimates that 21,000 people die from radon-induced lung cancer each year in the United States, comprising about 13% of annual U.S. lung cancer deaths. If one smokes and is also exposed to radon, the effects are synergistic rather than additive.

Radon decays into a series of a solid radioactive products that can be inhaled and then deposited onto the pulmonary epithelium. These can cause single- and double-strand DNA breaks, as well as other toxic effects which can lead to malignancy.

The National Comprehensive Cancer Network guidelines recommend low-dose CT screening beginning at 50 years of age for individuals with at least a 20 pack-year smoking history and documented high radon exposure. The American Academy of Family Physicians concludes that the evidence is insufficient to recommend for or against screening for lung cancer with low-dose CT, in persons at high risk based on age and smoking history.

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Alan S. Peterson, M.D.  
717-786-7383  
ASPeters@lghealth.org