Clinical Guidelines That Can Improve Your Care
Prevention and Control of Influenza With Vaccines.
Recommendations of the Advisory Committee on Immunization Practices, 2010

By Diana Heiman, MD, University of Connecticut

Flu season is coming!

The Centers for Disease Control and Prevention (CDC) has updated recommendations for influenza vaccination for this season. Currently, all patients ≥ 6 months of age are recommended for vaccination, adding the age group of healthy adults aged 19–49. This change is based upon an analysis of specific outcomes, including influenza-related morbidity and mortality rates, influenza-related hospitalization rates, vaccine efficacy and effectiveness, cost effectiveness of influenza vaccination, vaccine coverage levels and side effects, and adverse reactions of influenza vaccination and antiviral agents.

Emphasis for early vaccination when supplies are available (or are short) should be placed on the patients listed in Table 1.

The vaccine this year will include A/California/7/2009 (H1N1)-like, A/Perth/16/2009

Teaching Points—A 2-minute Mini-lecture
Geriatric Patient With Fatigue: The Differential Diagnosis Includes Depression

By John R. Freedy, MD, PhD, Medical University of South Carolina

Editor’s Note: The process of the 2-minute mini-lecture is to get a commitment, probe for supporting evidence, reinforce what was right, correct any mistakes, and teach general rules. In this scenario, Dr Freedy (Dr F) works with a third-year student (MS3).

John R. Freedy, MD, PhD, is director of the Behavioral Science Curriculum at the Trident/MUSC Family Medicine Residency, Department of Family Medicine, Medical University of South Carolina (MUSC), Charleston, SC.

MS3: Mrs S is a 65-year-old woman. Until 2 months ago, she hadn’t visited the clinic for over a year due to lapsed insurance. She couldn’t afford to pay out of pocket. This is her third visit in 2 months, since her health insurance was re-established.

Dr F: Unfortunately, finances can be a barrier to care for many patients. How is her health?

MS3: She is fairly healthy. She does have both hypertension and hyperlipidemia, but these are currently controlled with medications (hydrochlorothiazide, lisinopril, and simvastatin). Since getting insurance again, she has been taking medications well. She doesn’t need refills today. She did have one concern, but I wasn’t sure what to make of it.

Dr F: What was the concern?

MS3: Well, she said she has persistent fatigue that just wouldn’t go away. When I probed for possibly related symptoms,
A two-dose regimen is still recommended for all children aged 6 months to 8 years who are receiving their first seasonal influenza vaccine. Also, children who received only one dose of a seasonal influenza vaccine in the first influenza season that they received vaccine should receive two doses, rather than one, this year. Children aged 6 months–8 years who did not receive at least one dose of an H1N1 2009 vaccine should receive two doses of the seasonal influenza vaccine this year, regardless of previous influenza vaccination history. Finally, children aged 6 months–8 years for whom the previous 2009–2010 seasonal or H1N1 2009 vaccine history cannot be determined should receive two doses of a 2010–2011 seasonal influenza vaccine.

The trivalent inactivated influenza vaccine (TIV) may be administered to patients on influenza antiviral medications. Evaluation of the dosing interval must be performed when considering administering the live attenuated influenza vaccine (LAIV—nasal vaccine) when patients are currently or have recently been on influenza antiviral medications as they will reduce replication of the inactivated virus (thus not resulting in appropriate immune response). If the LAIV was given within 2 weeks of starting influenza antiviral medications, a repeat vaccine should be given 48 hours or more after the last antiviral dose. The LAIV should not be used in the patients listed in Table 2.

Happy immunizing!

Reference Material

Caryl Heaton, DO, UMDNJ-New Jersey Medical School, Editor
Diana Heiman, MD, University of Connecticut, Coeditor
Two years ago I wrote an article for *The Teaching Physician* about the iPhone as a teaching and learning tool. So much has happened since then. The iPhone has been improved with higher resolution and better battery life, and the iPad has been released. The iPad is catching on in many medical circles. A number of electronic health records can now be accessed on the iPad. Also, physicians are using it to keep up with their e-mail and the daily news. It can be used to read books and run applications the same way the iPhone does.

The iPhone now has many competitors, including the Google Android. The Android is a powerful smartphone with features that rival the iPhone. The number of software applications for the Google operating system in the field of medicine is expanding rapidly but has not caught up to what is available through iTunes. The applications in iTunes will only work on the iPhone, iPad, or iPod touch. While some of the applications in iTunes have been written for the Google operating system too, many have not.

Epocrates remains one of the most useful programs available for a smartphone. Epocrates Rx is a comprehensive drug guide free for the iPhone, Blackberry, Palm, Windows Mobile, online, and the Android. Epocrates Essentials is not free but includes information on diseases and labs. Some medical schools have free access to the full program for all their medical students. One free app that rivals the Epocrates app is the Medscape app. It is entirely free and includes a drug guide with over the counter and herbal drugs, an interaction checker, clinical procedure guide, and a disease and conditions database. It also has a medical news section. Epocrates Essentials has a Pill ID application and a whole set of medical calculators. The pediatric dose calculator is especially helpful. The “Diagnose the Disease” app by Epocrates is a fun game to play, and you might even learn something.

The “Emergency Medical Spanish Guide” provides simple yes/no questions to ask patients and will also pronounce the questions for you if needed. This is available for iPhone and Android. It was developed by one of our medical students at the University of Texas Health Science Center at San Antonio. He was an EMT before starting medical school and saw a need. With his brother, they developed this application. It is now putting him through medical school.

The STFM Group on Immunization Education just released their Shots 2010 for the iPhone. Shots 2010 contains the...
childhood, adolescent, catch-up, adult, and medical immunization schedules for the United States for 2010. Important information is available for each vaccine, including basics, high-risk indications, adverse reactions, contraindications, catch-up, administration, epidemiology, and brand names. Shots software is updated two to three times per year when new vaccines become available and new recommendations are made. The app has the same great content and navigation system as seen on the previous PDA versions. Getting back to the home screen is a bit tricky. You may need to tap the “More” box in the top left hand corner more than once to get back to the home menu.

"Dermatomes" is a well-done, simple, and inexpensive program that makes visualizing dermatomes easy. The color coding is excellent and easy to read. PediDoser is a handy and affordable program from family doctor Andrew Schechtman and the MeisterMed Web site. It is available for almost any PDA platform out there. Other excellent MeisterMed apps designed for the iPhone include STD-Meister, ICDMeister 2010, and various procedural apps.

Five STFM members teamed up to write The Color Atlas of Family Medicine, published in 2009. As the lead author of this textbook, I wanted to see it available for family physicians in a digital format. So I teamed up with my son-in-law who is a full-time programmer. We worked nights and weekends and just 1 month ago released our first iTunes app. It is remarkable that you can put more than 1,000 pages and more than 1,500 photographs on an iPhone or iPad and only use 275 MB of memory. I encourage anyone with an interest in digital publishing to team up with a programmer and create your dream app.

Having only touched the tip of the iceberg, I encourage all smart-phone users to go to the application store for their device. For the iPhone and iPad, the best way to find medical apps is to open your iTunes application on your computer and click on the small arrow to the right of “App Store” and then click on Medical from the pull-down screen. The tricky part is that you won’t see the small arrow until your cursor hovers over the “App Store” letters. Once there you can find apps that are new and noteworthy, what’s hot, what apps are at the top of the charts sorted by paid apps, and free apps. As I write this article, there are 2,612 medical iPhone apps. The category of medical is loosely defined so it does include self-help apps and dental, pharmacy, and nursing apps. There are even diet trackers for patients with diabetes.

Joshua Steinberg, MD, has created a useful list of medical software applications for family physicians found on iTunes. His list can be found on the STFM Resources Library at the following Web site: http://www.fmdrl.org/2423. This list is divided into free and paid applications along with his comments about the applications themselves. While this is one family doctor’s opinion, the list is a good start for exploring the apps that are out there.

Whatever your electronic devices are, and whatever software you use, share your resources with your learners. Show them the programs you use and how you use them. You will be delighted to find that the students and residents will have much to show you in return. Once you know what software they have, put them to work looking up important medical questions that will help you take better care of the patients. The students love to be useful and can help to find answers about many questions from drug interactions, preferred dosing, pediatric dosing, and differential diagnoses. If you still don’t have a PDA or smartphone, look around and see how others are using the newest technology. The holidays are coming up and you might need to treat yourself to something small, shiny, and incredibly useful this year.

Richard Usatine, MD, University of Texas Health Science Center at San Antonio, Editor

Thomas Agresta, MD, University of Connecticut, Coeditor
Geriatric Patient With Fatigue

continued from page 1

I didn’t come up with anything that made much sense to me.
Dr F: Tell me some more.
MS3: Okay. She doesn’t have systemic symptoms like fever, chills, or weight loss. No headaches or other neurologic complaints. No nausea, vomiting, or other digestive issues. No palpitations. No respiratory issues. No urinary tract complaints. Other than minor aches and pains (knees stiff in the morning), limited musculoskeletal complaints. I’m not sure why she’s fatigued, but she said it’s a big issue and has been going on at least for 6 months, if not a year.
Dr F: With middle aged and older patients, it’s helpful to think about the most likely reason for symptoms like fatigue. Common factors include physiologic (like anemia, hypothyroidism), medications (like beta blockers, or longer-acting benzodiazepines), or individual (like depression, anxiety, life stress). Let’s review her recent lab panels and medications before going in to speak with her together.

Dr F and his MS3 look up recent lab results in the electronic health record.

MS3: Well, it looks like her lab results since returning to the clinic in the past 2 months have been essentially normal, except for her LDL cholesterol.
Dr F: I agree. Her lab results have been normal (CBC, CMP, TSH, FT3, FT4, and UA) or corrected to normal in the case of her LDL cholesterol. What do these results suggest about her fatigue?
MS3: I guess that she has no obvious physical cause for her fatigue such as anemia, renal or liver problems, electrolyte imbalances, or hypothyroidism. Right?
Dr F: Yes, I agree. What about her current medications? Anything there that should make her fatigued?
MS3: I don’t think so.
Dr F: So, it seems like factors such as depression, anxiety, or life stress may be worth exploration with regard to Mrs S’s fatigue. How does that strike you?
MS3: What you say makes sense. I know that any adult can become depressed. But, she didn’t seem depressed to me. When I asked if she was depressed, she denied it. Your last two visit notes don’t mention depression.
Dr F: I agree with you. Her initial clinical data do not point toward depression. She has denied direct questions about depressed mood when previously asked. On the other hand, she continues to complain of fatigue and other factors such as physical causes and medication side effects seem less likely upon testing and medication review. I think we should revisit the issue with the patient and see what results.

They enter the room.

Dr F: Mrs S. it’s good to see you again. I was just discussing your situation with my medical student. Your blood pressure and cholesterol are looking great now. But you are still bothered by fatigue.
Mrs S: Yes, doctor. Did you tell him about how tired I am?
MS3: Yes ma’am, I did. Dr Freedy and I reviewed your labs and medications in an effort to make sense of your tiredness.
Mrs S: And?
Dr F: Well, feeling tired or having fatigue can be caused by several factors. Physical problems like a low number of red blood cells (anemia), low thyroid function (hypothyroidism), and kidney or liver problems might cause you to feel tired. But, for you, we know that all of your lab tests in the past 2 months looked for these causes, and the results were normal. Medications can also sometimes contribute. But, you are not on any medications that are typically associated with fatigue. Has your fatigue worsened since starting back on your medications in the past 2 months?
Mrs S: Not really. I’d say that I’m more tired now than I was 1 year ago, though. It’s been getting steadily worse for at least 6 months.
Dr F: Well, that leads us to the third area that may cause fatigue in your age group. Stress, depression, anxiety… these sorts of issues. How are things going in your life? Are you under an increased amount of stress lately?

Mrs S pauses as her eyes well up with tears. She stares straight ahead for a few seconds, looks at Dr F for a few seconds, and then looks down at the floor. She begins to speak.

Mrs S: So much has happened in the last year of my life that I don’t know where to start.
Dr F: Go on. What’s troubling you?
Mrs S: My daughter had a brain aneurysm repaired about 6 months ago. She’s fine now. But her husband couldn’t handle having a sick wife, and he took off. She’s got a young child, no job, no insurance. It’s just not fair, and I’m doing what I can to help her get over it and get back on her feet.
Dr F: Sounds difficult. Anything else?
Mrs S: Well, I’m going through my own divorce after 20 years of marriage. My marriage started to fall apart a few months before my daughter’s problems started. This is my second marriage, and I didn’t expect it to end up in a divorce. My first marriage ended when my husband died from a heart attack.
Dr F: I am sorry. How has all of this affected your finances?
Mrs S: Well, it had everything to do with my lapse in insurance. I’m now back to work after 20 years and just got my insurance benefits, so I’ve come back to the clinic for the sake of my own health.
Mrs S: My husband moved out about 6 months ago, and I can’t afford our house alone, so I think I’m going to have to sell it and move out. It’s really not a good time at all for me. I don’t know how all of this will turn out.

(Dr F assessed Mrs S for symptoms continued on page 6...)
Geriatric Patient With Fatigue

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of depression. She expressed the following symptoms: depressed mood, anhedonia, insomnia, psychomotor retardation, fatigue/low energy, feelings of worthlessness, reduced concentration, but no suicidal thoughts. The patient was educated regarding symptoms of depression and appropriate treatment (including medication and psychotherapy). Based on her treatment preference, she was started on the following medication: Citalopram 10 mg po qday and Zolpidem 5 mg po qhs prn. She is to return to see Dr F within 2–3 weeks. At that time, if she is tolerating the Citalopram, the plan is to increase her dose to 20 mg po qday with a repeat visit in another 2–3 weeks. It is expected that she may use Zolpidem 5 mg po qhs prn intermittently over the next 4–6 weeks while awaiting a therapeutic response to Citalopram. Frequent, supportive, problem-focused physician visits and encouragement toward remaining active are also part of her initial depression treatment plan.)

After Mrs S left the consultation to reschedule her next appointment, Dr F and MS-3 sat down to discuss the consultation. This discussion emphasized relevant facts to keep in mind regarding geriatric depression. The following teaching points were offered to MS-3:

- Up to one third of geriatric primary care consultations involve depression
- Chronic medical problems increase the probability for depression (eg, CAD, CVA, cancer, dementia, Parkinson’s Disease)
- Other risk factors for geriatric depression (eg, acute illness, hospitalization, functional decline, bereavement or other loss events, or prior depression, including minor depression)
- Minor depression: natural course of minor depression is 1–2 years of symptoms and functional impairment; up to 50% with minor depression go on to develop major depression
- Tips for managing geriatric depression
  - Educate patient and family/caregivers regarding diagnosis and treatment (both medications and psychotherapy are geriatric treatment options)
  - Treat comorbid physical illnesses to maximize function
  - Assess psychosocial status and social support network (consider activating sources of support)
  - SSRIs are first line agents (“start low and go slow” in terms of dosing selection and changes)
  - 6–12 weeks to achieve a treatment response (40% will respond to first agent used)
  - Monotherapy preferred in elderly due to possibility of drug-drug interactions
  - Consider costs (eg, the following agents are currently on the Walmart $4 list for a 30-day supply: Citalopram, Fluoxetine, Paroxetine, and Trazodone)
- Recurrence common with geriatric depression
  - First episode = treat for 12 months with an antidepressant
  - Second episode = treat for 12–24 months
  - Third episode = treat for 3 or more years
- Consider ECT for patients with severe, non-responsive depression (predictors of positive ECT response: >60 years old, delusions, psychomotor retardation, early morning awakening, and family history of depression)
- Geriatric suicide is particularly lethal (males >65 years 67/100,000, females >65 years 30/100,000)
- Take risk of geriatric suicide seriously
- Assess and treat depression (assessing suicidality is part of depression assessment)

References


Alec Chessman, MD, Medical University of South Carolina, Editor
What Are the Benefits of Treating Subclinical Hypothyroidism?

By Gerard Bitar, MD, and Corey Lyon, DO, Research Family Medicine, Kansas City, MO

Evidence-based Answer

While subclinical hypothyroidism (SCH) has been associated with increased cardiovascular morbidity, no clear evidence exists to suggest that treatment improves patient-oriented outcomes. In the short term, treating SCH improves diastolic function and cardiac relaxation time, but the clinical significance of these changes is uncertain. (SOR A, based on a systematic reviews.)

A recent Cochrane review evaluated the effects of thyroid hormone replacement for SCH. This review included 12 randomized controlled trials involving 350 patients. The results were as follows:

- None of the seven studies that assessed health-related quality of life demonstrated a significant difference between intervention groups.
- Six studies assessed serum lipids and found a change from baseline of total cholesterol favoring placebo (−15 versus −3.1 mg/dL in the levothyroxine group).
- Three trials assessed cardiac function and found significant improvement in diastolic function in isovolumic relaxation time (weighted mean difference −8.5 ms, 95% confidence interval [CI], −15 to −1.1) and left ventricular relaxation time with thyroid hormone replacement. However, these studies included individuals with high serum thyroid-stimulating hormone (TSH) levels and previous thyroid disease. The clinical significance of these cardiac changes was not described.

The Cochrane review also summarized two large cohort studies that evaluated cardiovascular morbidity and mortality. One was a 12-year cohort study of 3,233 people older than 65 years. This study did not find any difference in the risk of coronary heart disease, cerebrovascular disease, or cardiovascular death between euthyroid and SCH patients. In another cohort study of 2,730 men aged 70 to 79 years, over a 4-year period, the rate of congestive heart failure was increased among patients whose TSH was higher than 7 mU/L (hazard ratio 2.49; 95% CI, 1.2–5.18); the rate of coronary heart disease events, strokes, and mortality did not differ among TSH levels.

A recent meta-analysis published since the Cochrane review identified 15 studies (2,531 SCH patients and 26,491 euthyroid patients) investigating whether age and sex influence ischemic heart disease (IHD) prevalence and mortality in people with SCH. Among patients younger than 65 years, patients with SCH had a higher prevalence of IHD (odds ratio [OR] 1.57; 95% CI, 1.19–2.06) and a slightly increased risk of cardiovascular mortality (OR 1.37; 95% CI, 1.04–1.79) compared with euthyroid patients in the same age group. For patients older than 65, the presence or absence of SCH did not affect the incidence of IHD (OR 1.01; 95% CI, 0.87–1.18) or alter cardiovascular mortality (OR 0.85; 95% CI, 0.56–1.29). However, this review did not evaluate if treatment decreases this risk, or which vascular risk factors would benefit from treating SCH.

References


SOR—strength of recommendation

LOE—level of evidence

Jon O. Neher, MD, University of Washington, Editor

HelpDesk Answers are provided by Evidence-based Practice, a monthly publication of the Family Practice Inquiries Network (www.fpin.org).
POEMS for the Teaching Physician

Household Teaspoons and Tablespoons Unreliable for Dosing Meds

Clinical Question: Are commonly available household teaspoons and tablespoons accurate for dosing liquid medications?

Study Design: Descriptive

Funding: Unknown/not stated

Setting: Population-based

Synopsis: Household teaspoons and tablespoons are frequently used by parents and patients to measure and administer liquid medications. To evaluate potential dosing inaccuracies these investigators studied 25 households and asked occupants to collect all the different teaspoons and tablespoons available in their homes. Two individuals separately measured the volume capacity of each teaspoon and tablespoon with a calibrated syringe. In addition, all participants were asked to fill a standardized 5 mL volume capacity commercially available dosing device until it was “full.” A total of 25 participants provided 71 teaspoons and 49 tablespoons. The volume capacity of the 71 teaspoons ranged from 2.5 mL to 7.3 mL. The volume capacity of the 49 tablespoons ranged from 6.7 mL to 13.4 mL. Finally, the volume capacity of the “full” standardized commercially available 5 mL teaspoon ranged from 3.9 mL to 4.9 mL water.

Bottom Line: Household teaspoons and tablespoons are unreliable devices for measuring and administering liquid medication. Patients and their parents are also unreliable in using a standard commercially available teaspoon. Although not specifically evaluated in this study, the authors recommend the use of a calibrated oral syringe for dispensing liquid medication. (LOE=1b)


LOE—level of evidence. This is on a scale of 1a (best) to 5 (worst). 1b for an article about treatment is a well-designed randomized controlled trial with a narrow confidence interval.

Mark Ebell, MD, MS, Michigan State University, Editor

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