

GENERAL INTERNAL MEDICINE & HEALTH SERVICES RESEARCH CASE CONFERENCE TEACHING MODULE

Preventive Medicine Week # 2 Jodi Friedman, MD Updated 7/2009

Case 1:

PS is a 21 yo female who comes to your office for a routine physical exam. She needs to have a history and physical before going to graduate school. She has no current complaints. Her past medical history is unremarkable and she takes no medication. She has never had a Pap smear and has had sexual intercourse only once (and used a condom). Her family history is significant for an ovarian cyst in her mother at age 48yo and high cholesterol in her maternal grandmother. Her father had a myocardial infarction at age 52yo. She rides her bicycle regularly for exercise, is a non-smoker and follows a vegetarian diet.

What preventive services will you provide for PS? Consider screening tests, health counseling, immunizations and medications (if appropriate).

Screening

- *height, weight, blood pressure*
- *Pap smear recommended for all women who have been sexually active and have a cervix. USPSTF recommends beginning within 3 years of onset of sexual activity or age 21, whichever comes first. Frequency of testing is debatable - there is no direct evidence that annual screening achieves better outcomes than q 3 years (after 3 annual paps have been normal), although in high risk women (multiple partners, h/o STD's) more frequent screening is probably advisable.*
- *Screening for chlamydia is recommended for sexually active women <26 yo.*
- *CBE - Really no recommendations for or against CBE in women under 40 yo.*

Counseling

- *a good deal of the visit will be aimed at discussing the pt's lifestyle, behaviors, etc. to determine if she falls into any high risk groups that warrant specific screening or interventions*
- *basic counseling should include safe sex, birth control methods, helmets/seat belts, inquire about substance use, diet, exercise, adequate calcium intake, dental health*

Immunizations

- *Td q 10 years*
- *Hep B if not already given - USPSTF recommends immunizing all young adults (up to 24 yo) if not previously immunized. Over 24 yo - immunize high risk grps or anyone who asks for it.*
- *Rubella – if she does not have documentation that she received an MMR after 12 mos of age, then give MMR. You can also check antibodies, but it is probably more cost-effective to just give the MMR and document it. (more on immunizations next week)*
- *Varicella – if she says she has never had chicken pox, then check antibodies and if negative she should be vaccinated (booster in 4-8 wks)*

Chemoprophylaxis

- *multivitamin with folate (0.4-0.8 mg/day) if she is planning or likely to become pregnant*

How frequently does she need to get a Pap smear? She heard about a new test called “Thin Prep” for cervical cancer. What is this and what are general recommendations regarding its use? She also heard something about testing her cervix for a virus to see if she has cancer... what will you tell her?

After 2-3 normal annual Pap smears she may get Paps every 3 years if she remains in a low risk group.

Thin Prep is a liquid based preparation (thin layer cytology) of cervical smears in which the sample is suspended in a solution, and in the lab the cells are spun down and distributed in a monolayer on a slide for the pathologist to review (removing mucus, debris, etc.). USPSTF found poor evidence to determine whether liquid-based cytology (or computerized rescreening [PapNet] or algorithm based screening [AutoPap]) are more effective than conventional Pap smear screening in reducing incidence of or mortality from invasive cervical cancer (the most important health outcome). While evidence to determine sensitivity and specificity of these technologies is limited, Thin Prep probably has increased sensitivity, but at a considerably higher cost and possibly at the expense of lower specificity for high-grade lesions. And, as stated above, there is no data regarding the more important health outcome of incidence of and mortality from cervical cancer using this technology. Modeling studies suggest that if sensitivity is indeed increased, then Thin Prep may be cost-effective if used with screening intervals of 3 years or longer. The USPSTF concludes that the evidence is insufficient to recommend for or against the routine use of new technologies to screen for cervical cancer.

HPV testing is also now available, which tests for the 13 most common oncogenic serotypes of HPV. The benefits of HPV testing as an alternative or adjunct to primary Pap screening have not yet been tested in prospective studies, but adding HPV testing to conventional screening in low-risk women is unlikely to be worthwhile. HPV testing may have a role in primary screening if it can reliably distinguish between women who would benefit from more intensive screening (those who are HPV positive), from women for whom screening can be less intensive or perhaps even discontinued. There are 8 large studies underway to evaluate these possible strategies. For the meantime, it looks like HPV testing is most useful in women who have ASCUS on Pap - -if they are HPV positive, there is an at least 15% chance of having a high grade cervical lesion, and these women should be referred for colposcopy. If they are HPV negative, there is basically no chance of a high grade lesion, and these woman can return to regular interval screening. For now, the USPSTF concludes evidence is insufficient to recommend for or against routine use of HPV testing as primary screening for cervical cancer.

PS's best friend's mother just died of ovarian cancer, and she wants to discuss screening with you. What will you tell her? Are there any interventions that might decrease one's risk of developing ovarian cancer?

Screening for ovarian cancer is not recommended for women of average risk. Two major problems with screening for ovarian cancer are that, 1) there is no identifiable precursor lesion so early detection is less likely to improve outcome, and 2) working up positive tests requires surgery for tissue diagnosis - there is no other way to make the diagnosis. Therefore, without essentially 100% specificity of a screening test, we will be subjecting many healthy women (with false positive results) to surgical interventions/complications. Additionally, it is (luckily) not a very common cancer, so the low prevalence makes the positive predictive value of a screening test quite low. OCP's significantly decrease the incidence of ovarian cancer by anywhere from 40 - 80% for women on the pill between 5 and 12 years. USPSTF recommends against routine screening by ultrasound, tumor markers or pelvic exam(2004).

Case 2:

BC is a 32 yo woman who comes to you for a physical exam. She is very concerned about developing breast cancer because her mother was just diagnosed with breast cancer (age 62), and she has a great aunt on her father's side who also had breast cancer when she was in her 70's. There are no other cancers in the family.

She wants to get a mammogram, what will you tell her? What are the USPSTF's recommendations regarding mammography? When should women stop getting mammograms? The patient heard Dr. Susan Love say at a lecture that self breast exams are basically useless and there is no evidence to support their use – what do you think about this?

There is no indication for a mammogram before age 40. This patient's family history does not significantly increase her risk of breast cancer. In women with a first-degree relative with pre-menopausal breast cancer (higher risk than present patient), the recommendations are still to begin screening at 40. Mammograms are not very accurate tests in young women because the breast tissue is usually too dense – as women age the

mammary glandular tissue begins to be replaced with fat which greatly improves the sensitivity and specificity of mammography.

USPSTF recommendations: begin screening mammography (with or without clinical breast exam) every 1-2 years for women aged 40 and older. Note that this is a change from prior recommendations which stated there was not enough evidence to recommend screening for women in their 40's, and therefore recommended beginning at age 50. Evidence on effectiveness of mammography in reducing breast cancer mortality is strongest in women ages 50-69, but there are some studies that do show a mortality benefit for women aged 40-49, though the benefit is smaller and delayed, thus making it difficult to determine the incremental benefit of beginning screening at age 40 vs. 50. There is no precise age at which to discontinue screening mammography. Only 2 of the 8 available RCTs included women over 69, and none enrolled women over 74. Mammography itself improves in sensitivity and specificity as women get older, and the incidence of breast cancer increases, so the positive predictive value of the test only increases with age. However, as women age they have more comorbidities that may affect mortality making it less likely that any one single intervention will improve overall mortality. It is probably reasonable to continue screening mammography as long as your patient is reasonably functional and is expected to live for 5 or more years.

The accuracy of breast self exam is not really known. Sensitivity ranges from 26-41% and specificity is unknown. There are 2 RCTs and one non-randomized controlled trial looking at effectiveness of BSE. None of the 3 trials has demonstrated a reduction in breast cancer mortality or significant improvements in numbers or stage of cancers detected (f/u up to 14 yrs). Another good quality case-control study also showed no benefit. Although BSE is felt to have little harm (i.e., there's no reason not to do it), in the 2 RCT's, BSE education did result in a nearly 2-fold increase in false positive results, physician visits, and biopsies for benign disease. The USPSTF has concluded that the available studies still have not ruled out the possibility of benefit (may take many more years of follow-up to show benefit), therefore they state there is insufficient evidence to recommend for or against instructing women on BSE.

Case 3:

CM is a 78 yo woman with DM, PVD, CRI, critical AS with a valve area of .7cm, poorly compensated CHF, and moderate to severe CAD. She is not felt to be a surgical candidate for valve replacement. Her Cr = 2.7, her Na = 127 and her albumin = 2.9. Her LDL cholesterol is 142 and her HDL's are 36. She had a DEXA scan 5 years ago that showed normal BMD. Her last Td was about 15 years ago and she has never had a pneumovax. She has had normal Pap smears in the past but she is not sure when her last one was, although she thinks it was about ten years ago. She used to get mammograms every 1-2 years, but her last doctor told her she did not need them anymore after age 70 yo. She has never had colorectal cancer screening.

What preventive services will you recommend for CM?

The key to this case is the pt's co-morbidities. Her poor prognosis given her other medical problems would make screening for cervical cancer, breast cancer or colorectal cancer relatively inappropriate. It is appropriate to keep her LDL's less than 100 given her vasculopathy. She should also be taking one aspirin, 1200 mg calcium and 400-800IU vitamin D each day. Tetanus toxoid, pneumovax, zostavax, and annual influenza vaccines should be given. Counseling should include fall prevention, dental health (including antibiotic prophylaxis), diet and exercise.