

## TBL CASE 1 OSTEOPOROSIS

A 65 y/o woman presents as a new patient to your clinic. She has not had regular medical care in the past 10 years since losing her insurance coverage. She had received regular medical care before that, including a colonoscopy at age 50 with negative findings, and annual mammography from age 50 to 55, also with negative findings. She had a tetanus shot 10 years ago during a routine physical, but has never received influenza vaccine. She has had no major illness or hospitalizations. She is on no chronic medications, having discontinued hormone replacement therapy at age 55 when she lost her insurance coverage. She had started these medications after going through menopause at age 50 to control climacteric symptoms. She complains of some vague mid thoracic back pain over the past few years, but otherwise is asymptomatic. She does not smoke tobacco, and drinks 1 glass of wine nightly with dinner. She frequently provides childcare for her 5 month old granddaughter. Blood pressure is 126/78, pulse 76, resp 16. Weight is 122 pounds, and she is 5'4". Physical examination is unremarkable.

Residents will receive the above vignette before the TBL session, with instructions to anticipate a discussion of preventive care at the TBL session. The following questions, and a review of the case, will be presented at the beginning of the TBL.

Question 1: What general screening tests are appropriate at this time?

Per epss (<http://epss.ahrq.gov/>) recommended screening for a 65 F nonsmoker includes pap smear, colon cancer screening, mammography, HIV serology if not previously done, HCV testing, osteoporosis screening. All of these are A or B recommendations. Prompt to consider osteoporosis screening if they omit this.

List at least 3, and for each test chosen indicate the following:

Society / Agency recommending test?

Strength of recommendation and level of evidence?

Cost of test?

Anticipated clinical benefit? (i.e. number needed to prevent one disease, endpoint, or death)

Potential risks?

Answers will vary depending on tests chosen, but ask for supporting data on each point.

Question 2: What vaccinations are appropriate?

List at least three, and indicate the following:

Cost of vaccine?

Clinical impact of vaccination? (i.e. efficacy or number needed to treat to prevent 1 infection)

Potential adverse effects of each vaccine?

What source did you use for vaccine information?

Influenza vaccine, pneumococcal vaccine, Tdap, and Zoster vaccine are recommended by CDC. CDC adult immunization page is the preferred source for this information, and includes downloadable tools that can be incorporated into clinic workflow.

<http://www.cdc.gov/vaccines/schedules/Schedulers/adult-scheduler.html>

Question 3: What general lifestyle counseling would you recommend?

Screening questions for depression and alcohol abuse could be considered. Counseling on vitamin D therapy, and possibly oral aspirin are warranted. Healthy diet and exercise. Other answers may vary. Ask group how they would manage recommended counseling discussions in a time constrained clinic, and ask them to identify resources they would refer patients to for additional information.

Results of screening tests will be provided at next session.

Facilitator should have residents discuss how this information on screening tests and immunizations could be incorporated into standard clinic workflow – posters, apps, emr reminders, etc.

Case – continued.

Your patient returns to follow up the results of your recent screening tests. Interval history and examination are unchanged.

Results:

Cholesterol panel: Total cholesterol 145, LDL 95, HDL 45

Chem 7: normal

HCV Ab: neg

HIV Ab: neg

Mammography: normal

Pelvic/PAP smear: normal

Bone Mineral Density: T score -3 in the L spine and -2.7 in the femoral neck

Introduce the case, then go through the list of items below. Emphasize that the teams are to bring to the discussion a deeper understanding of the therapeutic chosen, such a clinical trial report, rather than a brief review from a text or review article. Tell them that they may need additional information to complete their work, and they can text you for additional information as needed. The missing piece in this case is a family history of osteoporotic fractures, which she has. She also does not smoke, nor drink heavily (covered during initial part of this case).

Question 1: What medication therapy is appropriate at this time, and what guidelines support this choice?

The most cost effective therapy, with the best evidence at preventing femoral fractures ,is an oral bisphosphonate, either alendronate or risedronate. See attached article (to share with group at completion of exercise) for discussion of data (n engl j med 363;21 november 18, 2010).

Question 2: What is the annual drug acquisition cost for your chosen therapy? (total and patients share, assuming part D coverage)

Question 3: How long should treatment continue for?

Most recommend ~5 years

Question 4: What is the expected clinical impact of this treatment, and what clinical trials provide supporting evidence for this?

If residents use frax, they will need additional data – namely family history – in this case if they ask,. She has a sister and mother who had osteoporotic fractures. Clinical impact depends on agent chosen, but in the range of 5% absolute risk reduction for risedronate for vertebral fractures. For alendronate, there

is an ~7% ARR for vertebral fractures, and a 1% ARR (2.1 down to 1.1) ARR for hip fractures. IV zoledronic acid had similar effectiveness to alendronate for both vertebral and hip.

Question 5: What side effects / complications should you counsel her about?

Question 6: Is there any cost/benefit data for the therapy chosen?

Question 7: What improvement in diagnostics or therapeutics would be most helpful to your patient

### Preceptor Checklist Day 1

Team:

Preceptor:

Team identified the following items	Yes	Yes, w/ Prompt	No
Q1 Screening Tests Needed			
Mammogram			
DEXA			
Lipid Panel			
HIV			
Hep C			
Colon Cancer Screening			
Provides adequate discussion of costs, risks, effectiveness, etc.			
Q2 Recommended Vaccinations			
Influenza			
Pneumococcal			
Tdap (Td not adequate due to contact with baby)			
Zoster			
Discussion of costs, side effects, effectiveness adequate			
Q3 Counseling			
Adequate discussion of basic lifestyle counseling			
Able to identify resources for further patient education			

Comments:

## Therapeutics Worksheet for TBL Exercises

Team:

Condition being treated:

Drug chosen:

Practice guideline used:

Cost of therapy (annual for chronic disease, total for episodic treatment):

NNT, based on trial data:

Outcome prevented (death, MI, hospitalization, etc):

Cost per outcome prevented (NNT x cost of therapy):

Published cost effectiveness, in dollars / QALY:

Attach most significant supporting studies and calculations.

## TBL CASE 1 HANDOUT 1

A 65 y/o woman presents as a new patient to your clinic. She has not had regular medical care in the past 10 years since losing her insurance coverage. She had received regular medical care before that, including a colonoscopy at age 50 with negative findings, and annual mammography from age 50 to 55, also with negative findings. She had a tetanus shot 10 years ago during a routine physical, but has never received influenza vaccine. She has had no major illness or hospitalizations. She is on no chronic medications, having discontinued hormone replacement therapy at age 55 when she lost her insurance coverage. She had started these medications after going through menopause at age 50 to control climacteric symptoms. She complains of some vague mid thoracic back pain over the past few years, but otherwise is asymptomatic. She does not smoke tobacco, and drinks 1 glass of wine nightly with dinner. She frequently provides childcare for her 5 month old granddaughter. Blood pressure is 126/78, pulse 76, resp 16. Weight is 122 pounds, and she is 5'4". Physical examination is unremarkable.

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Question 2: What vaccinations are appropriate?

List at least three, and indicate the following:

Cost of vaccine?

Clinical impact of vaccination? (i.e. efficacy or number needed to treat to prevent 1 infection)

Potential adverse effects of each vaccine?

What source did you use for vaccine information?

Question 3: What general lifestyle counseling would you recommend?

Results of screening tests will be provided at next session.

## TBL CASE 1 HANDOUT 2

Case 1 – continued.

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Results:

Cholesterol panel: Total cholesterol 145, LDL 95, HDL 45

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HCV Ab: neg

HIV Ab: neg

Mammography: normal

Pelvic/PAP smear: normal

Bone Mineral Density: T score -3 in the L spine and -2.7 in the femoral neck

Question 1: What medication therapy is appropriate at this time, and what guidelines support this choice? Present two options that cover questions 2 – 6 below. Use the attached worksheet.

Question 2: What is the annual drug acquisition cost for your chosen therapy? (total and patient's share, assuming part D coverage)

Question 3: How long should treatment continue for?

Question 4: What is the expected clinical impact of this treatment (difference between baseline risk and risk on treatment), and what clinical trials provide supporting evidence for this?

Question 5: What side effects / complications should you counsel her about? Cite relevant study.

Question 6: Is there any cost/benefit data for the therapy chosen?

Question 7: What improvement in diagnostics or therapeutics would be most helpful to your patient? Please generate a brief concept statement (250 words) for a clinical study that could be accomplished in your population to answer this question.

## Therapeutics Worksheet for TBL Exercises

Team:

Condition being treated:

Drug chosen:

Practice guideline used:

Cost of therapy (annual for chronic disease, total for episodic treatment):

NNT, based on trial data:

Outcome prevented (death, MI, hospitalization, etc):

Cost per outcome prevented (NNT x cost of therapy):

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