Part I: Multiple choice. Each is worth 2 points.

1. Which of the following will not change the demand for office visits to the physician?
   a. unusually cold and damp weather during the winter.
   b. a change in the price of an office visit.
   c. layoffs at the local plant causing a decrease in the number of people with health insurance in the community.
   d. television advertising by drug manufacturers to promote a new over-the-counter influenza treatment.
   e. they all change the demand for office visits.

2. A shortage of hospital beds will likely lead to
   a. an increase in the supply of hospital beds.
   b. a decrease in the demand for hospital beds.
   c. an increase in the price of a hospital stay.
   d. a decrease in the price of a hospital stay.
   e. none of the above.

3. A physician’s office expenses increase 10 percent, so she decides to raise the price of office visits. Assuming the demand curve for office visits does not shift, what will happen to the total number of office visits and practice revenues?
   a. Office visits and total revenue stay the same if demand is elastic.
   b. Office visits and total revenue rise if demand is inelastic.
   c. Office visits and total revenue fall if demand is inelastic.
   d. Office visits will fall and total revenue will rise if demand is inelastic.
   e. Office visits will rise and total revenue will fall if demand is elastic.

You are a consultant and have been employed by Urban General, a large inner-city hospital, to estimate the demand for its services. Your research indicates that the income elasticity of demand for the target market is +0.50; the price elasticity of demand is -0.15; and the cross-price elasticity of demand with respect to the price of services at St. Elsewhere, a near-by hospital, is +0.35. Answer the following questions.

4. The price of services at St. Elsewhere falls by 10 percent. What happens to the quantity of services demanded at Urban General?
   a. Quantity demanded rises by 35.0 percent.
   b. Quantity demanded falls by 3.5 percent.
   c. Quantity demanded falls by 1.5 percent.
   d. Quantity demanded rises by 5.0 percent.
   e. Quantity demanded stays the same.

5. The price of services at Urban General falls by 10 percent.
   a. Quantity demanded at Urban General increases by 15.0 percent.
   b. Quantity demanded at Urban General increases by 1.5 percent.
   c. Quantity demanded at St. Elsewhere rises by 3.5 percent.
   d. Quantity demanded at St. Elsewhere falls by 5.0 percent.
   e. Quantity demanded at Urban General rises by 5.0 percent.

6. The dead-weight loss from an excise tax
   a. is greater if demand is perfectly inelastic.
   b. is caused by a shift in consumer preferences when the tax is raised.
   c. is the lost surplus that results from higher prices and lower output resulting from the tax.
   d. is of little concern to policy makers since all excise taxes are “sin” taxes.
   e. is the difference between consumer surplus and producer surplus.

7. If a hospital is experiencing economies of scale,
   a. its average cost curve is positively sloped as output increases.
   b. its average cost curve is negatively sloped as output increases.
   c. it should reduce its output level to lower costs.
   d. quality is falling as output is rising.
   e. both b and c are true.
8. Under which of the following circumstances is the principal-agent problem likely to be most serious.
   a. Between general practitioners and patients.
   b. Between surgeons and patients.
   c. Between hospitals and nurses.
   d. Between dentists and physicians.
   e. Between physicians and lawyers.

9. In which of the following countries would an increase in per capita income likely result in the most improvement to health status of the population? (1995 per capita incomes in PPP dollars shown in parentheses.)
   a. Mexico ($7,383)
   b. New Zealand ($16,851)
   c. United Kingdom ($17,756)
   d. Germany ($20,497)
   e. United States ($26,438)

10. Approximately what percentage of total health care spending goes toward hospital care?
    a. One-tenth.
    b. One-fifth.
    c. One-fourth.
    d. One-third.
    e. One-half.

11. When measuring effectiveness of a treatment, surrogate measures reflect clinical efficacy and include
    a. recurrence of the disease
    b. death
    c. bone-mass density (BMD)
    d. hip fractures
    e. scores on standard evaluative exams such as EuroQol or SF-36

12. Suppose you are asked to use the standard time trade-off approach to measuring quality of life and are given the following information. An individual is faced with living the remaining 10 years of her life suffering from severe osteoporosis. She reveals that she would be willing to give up two of those years to live the remaining six in perfect health. What is the utility of one year in the chronic health state relative to perfect health?
    a. 2
    b. 8
    c. 0.2
    d. 0.8
    e. There is not enough information to determine the utility of life in this case

13. The standard cut-off for cost per QALY is
    a. equal to per capita income
    b. 2 times per capita income
    c. 3 times per capita income
    d. 4 times per capita income
    e. 5 times per capita income

Problems

14. What are the three areas objectively used to evaluate the effectiveness of medical care delivery? Why are they important?

15. What are the benefits of a mass population vaccination program? What are the risks? Why do U.S. public schools require that students be vaccinated against certain diseases? Should citizens be free to choose whether to receive a vaccination?

16. Choices in health care delivery must be made at two levels: (1) the individual physician prescribing a course of treatment for an individual patient and (2) the policy maker determining the availability of medical care to an entire group of patients or a community. One way to choose among alternative treatment regimes and community programs is by using the criterion of economic efficiency. Briefly describe the three types of economic evaluation that enter into medical decision making. Discuss the unique features of each and describe their basic strengths and weaknesses.
The public health director of a large city has a discretionary budget of $500,000 and wants to spend it to save as many lives as possible. Two of the approaches being considered seem most promising: high-blood pressure screening of the population and mobile cardiac arrest units. Medical studies indicate the following results for the two alternatives.

<table>
<thead>
<tr>
<th>High-blood pressure screening</th>
<th>Mobile cardiac units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age cohort</td>
<td>Units</td>
</tr>
<tr>
<td>Cost</td>
<td>Cost</td>
</tr>
<tr>
<td>Total Lives Saved</td>
<td>Total Lives Saved</td>
</tr>
<tr>
<td>Over 65</td>
<td>1</td>
</tr>
<tr>
<td>$100,000</td>
<td>$100,000</td>
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<td>30</td>
<td>100</td>
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<tr>
<td>55-64</td>
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<td>50</td>
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<td>65</td>
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<td>75</td>
<td>190</td>
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<td>25-34</td>
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</tr>
<tr>
<td>500,000</td>
<td>500,000</td>
</tr>
<tr>
<td>80</td>
<td>200</td>
</tr>
</tbody>
</table>

The public health director hires you to solve a dispute among members of her staff. A vocal segment of the staff argue that the entire budget be spent on mobile cardiac units (saving a total of 200 lives) rather than on high-blood pressure screening (saving only 80 lives). What do you recommend? Explain.

A recent study examined the effects of 5 different breast-cancer screening strategies on costs and mortality in a cohort of women. The strategies differed in terms of starting age, screening interval, and stopping age.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Age Group</th>
<th>Interval*</th>
<th>Cost</th>
<th>LYS**</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>50-70</td>
<td>2</td>
<td>$9,320</td>
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<tr>
<td>B</td>
<td>40-70</td>
<td>2</td>
<td>13,840</td>
<td>0.640</td>
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<tr>
<td>C</td>
<td>50-70</td>
<td>1.3</td>
<td>13,120</td>
<td>0.700</td>
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<td>D</td>
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<td>10,600</td>
<td>0.645</td>
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<tr>
<td>E</td>
<td>50-65</td>
<td>3</td>
<td>5,320</td>
<td>0.410</td>
</tr>
</tbody>
</table>

* in years  
** life-years saved  

a) Identify all dominated screening strategies. Explain why each is dominated.  
b) On a graph sketch out the frontier of economically rational strategies. (Plot cost on the horizontal axis and effectiveness on the vertical axis.)  
c) Calculate the incremental cost, incremental LYS, and incremental CE ratios for all economical rational strategies. Why are these considered economical rational?