1. (20 minutes) The Ellis and McGuire (1986) model hospitals as caring about profits and patient benefits.
   a) Assume that the marginal cost of medical care is always 1, so that the cost of medical care is just \(1 \cdot m = m\). Using either of the following two sets of axes, put profits \((\Pi)\) and quantity of medical care \((m)\) on the two axes. Draw the budget constraint that corresponds to the hospital receiving a fully prospective payment of \(R=5000\) for treating disease XYZ. Label the two intercepts.

![Budget Constraint Diagram]

b) On the same diagram, draw hospital indifference curves for the Mercifully Good Hospital (MGH) for two different patients, John and Mary consistent with the following situation. The MGH is a perfect agent, in the sense that it values benefits to its patients and profits equally. When MGH chooses its most desired level of treatment for John, it provides $3000 of care, while when MGH provides its most preferred level of treatment for Mary it provides $7000 of care to her. Label the two points J and M where MGH will choose \(m\) and \(\Pi\) for each patient.

c) If John and Mary have complete insurance paid by the government, is this quantity of care their most preferred quantity of care, or would they prefer a different quantity? If they have to pay for the insurance out of pocket would your answer differ? Explain why or why not.
d) Now assume that John and Mary switch to the Your Everloving Children’s Hospital (YECH) that is an imperfect agent, and values patient benefits only half as much as profits. Assume that the reimbursement formula remains the same. On one of the following sets of axes, draw a new set of indifference curves for John and for Mary that characterizes the new quantity of care that they will receive at YECH. Give numeric examples to illustrate the new equilibrium.

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e) What can you say about profits at YECH versus MGH? What can you say about quantity of medical care for Mary and John? Are Mary and John better or worse off than at MGH?
2. (15 minutes) Consider the following table with three consumers who are all considering whether to purchase health insurance from either a health maintenance organization (HMO) or a Fee for service (FFS) plan. Costs and value to each consumer are measured in thousands of dollars. Assume that the HMO and the FFS plans have no loading costs, and hence are able to offer actuarially fair insurance. Both cover all costs to the consumer.

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Cost if in HMO</th>
<th>Cost if in FFS</th>
<th>Value of HMO</th>
<th>Value of FFS</th>
<th>Premium in HMO</th>
<th>Premium in FFS</th>
<th>Net value in HMO</th>
<th>Net Value in FFS</th>
<th>Preferred plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) If everyone enrolls in the HMO, what will be the average cost of care to the HMO? Call this amount \( P_{HMO} \).

b) If everyone enrolls in the FFS, what will be the average cost of care to the FFS? Call this amount \( P_{FFS} \).

c) Suppose that the HMO decides to offer coverage for a premium of \( P_{HMO} \) while the FFS plan offers coverage at \( P_{FFS} \). If consumers simply choose the plan that maximizes their Net Value, which is the Value of a plan minus the plan’s Premium, use the above table to calculate who will enroll in the HMO and who will choose the FFS? Is this an equilibrium? Explain why or why not.
Multiple choice (3 minutes each. Circle your choice.)

3. Which of the following statements is NOT implied by the Goddeeris model of the tradeoff between increases in health spending and improvements in health.

a. Increases in insurance coverage will tend to improve health status
b. Increases in insurance coverage will tend to increase total spending on health care
c. Health insurance coverage may induce consumers to adopt new technologies that are not worth their full cost
d. Increases in health insurance coverage may cause some people not to purchase any insurance.
e. Health insurance coverage may create a preference for cost-increasing over cost-reducing innovations.

4. Which of the following is NOT a mechanism commonly used by US managed care plans to control costs and/or improve quality of care:

a. Selective contracting to influence which providers a patient may see and which consumers will join.
b. Payment incentives to influence the provider behavior
c. Utilization review of the appropriateness of provider practice
d. Increased demand-side cost sharing.
e. Skimping of coverage for certain services

5. Suppose that an employer that did not previously offer health insurance is required to do so. It now offers health insurance to its employees as part of the employment contract at a cost of $3000 per year. This insurance is valued by the firm’s employees at $4000 per year. Which of the following statements is NOT implied by analyzing this policy change with supply and demand curves.

a. The demand curve for labor by the firm as a function of the market wage will shift down.
b. The supply curve of labor to the firm as a function of the market wage will shift down.
c. The firm will hire fewer workers
d. Market wages will tend to decrease.
e. Total compensation for the marginal worker in the firm will increase.

6. Which of the following statements about job lock due to health insurance is NOT true.

a. Workers in firms that offer health insurance are less likely to change jobs.
b. Workers with spouses that have health insurance are more likely to change jobs than workers that do not have spouses that have health insurance.
c. Job lock reduces employee mobility between jobs.
d. The employees who are least likely to change jobs are those where both the employee and the spouse have insurance offered through their employers.
e. If insurance was not tied to employment, then job mobility would be higher.

7. Which of the following observations is NOT one of the points made by Martin Feldstein in his article The Welfare Loss of Excess Health Insurance.

a. Increases in cost of hospital care increase the demand for insurance.
b. US consumers would be better off bearing more risk and having less insurance coverage.
c. US consumers purchase too much insurance because of tax subsidies on insurance.
d. More Americans should have health insurance.
e. Welfare losses from excess health insurance is in the billions of dollars.