University of Victoria
Department of Economics

Economics 317
Health Economics III

Sample questions for midterm examination I
February, 2011

1 Multiple guess questions.

1. The RAND Health Insurance Experiment

   (a) randomly assigned levels of health care to people.

   (b) randomly assigned tax rates to different insurance companies.

   (c) randomly assigned levels of health insurance coverage to people.

   (d) randomly assigned workers to firms.

2. The economic value of a human life

   (a) is infinite.

   (b) equals the present value of future labor market income.

   (c) equals willingness to pay to reduce social risk by an amount sufficient to save one life.

   (d) equals aggregate fixed costs of hospitals plus physician salaries.

3. The police departments in City A and City B are comparable except that officers in City A face a risk of death on the job of 1/10,000 per year, compared to 1/20,000 per year in City B. Officers in City A earn $1,000 per year than in City B. We can infer that police officers are willing to pay how much at the margin to save an officer's life?

   (a) $1,000,000

   (b) $2,000,000

   (c) $10,000,000

   (d) $20,000,000

4. Contingent valuation is

   (a) an econometric method used to reduce bias in clinical trials.

(b) a method to elicit preferences.

(c) used to set insurance premiums in the presence of unquantifiable risk.

(d) an alternative to Cost-Benefit Analysis.

5. The government has a total of M dollars to allocate on two programs which reduce risk of death. The most lives can be saved if the money is allocated such that

   (a) marginal lives saved are equalized across the two programs.

   (b) the marginal rate of substitution between lives and other goods equals the price ratio.

   (c) profits are maximized subject to resource constraints.

   (d) the marginal rate of transformation is fully internalized.

6. Life expectancy in the developed world has increased in the last 200 years largely because

   (a) of vaccination programs which eradicate communicable diseases.

   (b) treatments for heart disease and cancer became much more effective.

   (c) adults 200 years ago rarely lived past 65 but now commonly live into their 80s.

   (d) standards of living and public health programs have greatly improved.

7. Estimates of the economic value of improvements to health since about 1970 show that

   (a) enormous expenditures on health care are largely wasted because health care is not very productive at the margin.

   (b) enormous expenditures on health care may be worthwhile even if they are not very effective at the margin because improvements in health are extremely valuable.

   (c) the economic value of improvements to health is surprisingly small.

   (d) health could be improved more by vaccination programs than by more funding for hospitals.

8. If econometric evidence shows that the marginal cost of saving a life through cancer screening is \$2M and the marginal cost of saving a life through highway maintenance is \$1M,

   (a) more lives could be saved if resources were reallocated from cancer screening to highway maintenance.

   (b) more lives could be saved if resources were reallocated from highway maintenance to cancer screening.

(c) more lives could be saved if resources devoted to highway maintenance were equal to resources devoted to cancer screening.

(d) the situation is optimal and no more lives could be saved.

9. A regulation requiring asbestos removal generates costs of $15,000,000,000 and is estimated to save 80 lives. The regulation has no other effects. The regulation

(a) would not pass a CBA, because the cost per life saved is much higher than conventional value placed on life.

(b) would probably pass a CBA, because the cost per life saved is roughly equal to the conventional value placed on life.

(c) easily passes a CBA, because the cost per life saved is much lower than the conventional value placed on life.

(d) is good policy, because it saved the lives of 80 people.

10. In Grossman's model, education affects health because

(a) health and education are both caused by rate of time preference.

(b) healthier people choose to obtain higher levels of education.

(c) educated people earn more money, and money is an input into the production of health.

(d) educated people are assumed to be more efficient producers of health.

11. In Canada, people with a university degree live an average of 4.4 years longer than people with a high school diploma. Therefore,

(a) a policy which succeeds in getting another person to get a university degree would increase that person's life expectancy by 4.4 years.

(b) a new medical treatment which improves life expectancy would induce more people to go to university.

(c) some "third variable" like rate of time preference drives both health and educational choices.

(d) we cannot deduce anything about the effect of education on life expectancy without more information.

12. As people age in Grossman's model,

(a) their optimal health stock goes up because they tend to take fewer risks.

(b) their optimal health stock goes down and they use less medical care.

(c) their optimal health stock goes down and they use more medical care.

(d) their optimal health stock goes down; whether they use more or less medical care depends on the elasticity of the MEI schedule.

13. Jerry gets $u(w) = 10 + 5w$ units of utility from wealth w. Jerry has \$10 and is considering buying a lottery ticket which costs \$5. With probability 0.9 the ticket pays nothing and with probability 0.1 the ticket pays \$50.

    (a) Jerry will buy the ticket.

    (b) Jerry will not buy the ticket.

    (c) Jerry is indifferent: he gets equal utility from buying or not buying.

    (d) There is not enough information to determine if Jerry will buy the ticket.

14. In the context of health insurance, *moral hazard* refers to

    (a) increased use of health care resulting from decreased effective prices.

    (b) increased use of health care resulting from sexually transmitted diseases, alcoholism, and drug abuse.

    (c) increased use of health care resulting from increased risk aversion.

    (d) increased use of health care resulting from decreased elasticity of the MEI schedule.

2 Short-answer questions.

Instructions. Answer each question clearly and concisely. No question requires more than a sentence or two and possibly an equation or a single graph. Ensure graphs are clearly labeled.

1. Treatment A and Treatment B each improve quality of life and probability of survival. In a group of patients who live at least one more year and, with some probability, two more years, patients given treatment A live one year in health state $q = 0.8$ (where $q = 1$ means perfect health and $q = 0$ is a state equivalent to dead) and certainly live for another year in health state $q = 0.5$. Patients given treatment B live for one year in health state $q = 1.0$ and live for another year in health state $q = 1.0$ with probability 0.3. If the second year is discounted at rate $d = 0.10$, which treatment yields more QALYs?

2. Draw a diagram representing a person's feasible allocations of "bread" and health. Show the optimal allocation for someone who directly values only bread and show the indifference curve for that person passing through the optimal allocation. Also show an optimal allocation for someone who directly values both bread and health and show an indifference curve passing through that allocation.

3. Use a diagram to illustrate what happens to stock of health capital in Grossman's model if the agent's wage rate increases, all else equal. Very briefly explain.

4. You are uncertain whether Economics 317 will be an easy course or a hard course. You think it is equally likely that the course is easy or hard, and you think that if the course is easy, you will get a final grade of G=81%, and if the course is hard you will get a final grade of G=64. Your utility function for grades is $U(G) = \sqrt{G}$. Before the final exam, the benevolent instructor, who does not like grading finals, offers to give you a final grade of 74 with certainty in lieu of writing the final. Should you take the 74 or should you write the final?