Epi213: Cost-Effectiveness in Medicine and Public Health
Assignment#1
v2017
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Assigned Jan 13, 2017
Due Jan 18, 2017 by 5pm PST

Student's Name: _____

1. An epidemiologist is following a cohort of 1,000,000 individuals. In this cohort, there are 100,000 deaths each year. Draw a graph of number of surviving individuals (y axis) against time (x axis).

2. Consider a different cohort of 1,000,000 individuals in which 10% of the living population dies each year. Draw a graph of number of surviving individuals (y axis) against time (x axis).

3. For each of the two cohorts presented above, plot a graph of the death rate (deaths per 100 persons per year) over time. How do the two graphs differ?

There is no "correct" answer to the questions that follow. These are thought experiments, the purpose of which will become clear over the next few lectures. These work best if you answer each question sequentially (and thoughtfully). Do not read all the questions first, and do not go back and change any answers.

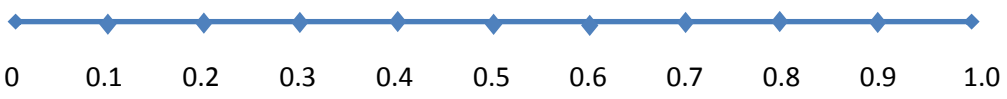
4. Consider the following two alternative:
    a. I give you $100 right now, OR
    b. I give you $x one year from now. There is no risk of default; $x will you yours exactly a year from now.

What would the value of x have to be for the two alternatives to be perfectly equivalent for you?
Answer : $ x = $_____

5. If the value of X is different from 100, why is that so?

6. Imagine that you are 63 years old, are mildly overweight, and have high blood pressure and diabetes. In your late fifties, you were hospitalized for a heart attack and admitted to the hospital for five days, when you had a stent placed to open a blockage in one of the blood vessels in your heart. Since then you've been taking five pills a day, and seeing a doctor every 3 months. You feel well: you do not have any chest pain, though you get somewhat short of breath when you climb two flights of stairs and need to take a break. This means you cant hike as much as you used to before the heart attack, but you don't have any symptoms at rest.

    How would you rate your quality of life on the scale below? Make a vertical line where you think your quality-of-life estimate would be. Assume this is a linear scale from 0 (death) to 1 (perfect health). You can also choose values below 0 if you think your quality-of-life is worse than death.



(death) (perfect health)

7. What is your estimate of the quality-of-life above? Y = _____
8. If you chose 1 in the answer above, skip this question. If you chose any other value: how much would you be willing to pay to restore your quality-of-life to perfect health? Assume that you have access to a reasonably priced loan to pay the money back over time (if you needed it).

    $z = _____

9. Calculate the following sum:

   WTP = $z / (1-Y) = _____

   Thanks!