Module 10: problems

COST-BENEFIT ANALYSIS

Jason is 35 and morbidly obese. With a family history of diabetes, his physician has been monitoring his blood glucose levels and has noticed a steady increase over the past year. Jason has been told he may be able to avoid diabetes and/or complications if he loses weight. His doctor suggested a diet and exercise regime for him. His doctor told him if he doesn’t he will be more than likely put on medication within 6 months and would recommend Byetta, Metformin, and Glimiperide all which carry a $25.00 a month co-pay with his insurance. Do a CBA of Diet and Exercise or Medication and determine which one you would choose. (Hint: Pros and Cons with dollar amounts).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Pros | Sign | $$ |  | Cons | Sign | $$ |
| 1 |  |  |  | 1 |  |  |
| 2 |  |  |  | 2 |  |  |
| 3 |  |  |  | 3 |  |  |
| 4 |  |  |  | 4 |  |  |
| 5 |  |  |  | 5 |  |  |
| 6 |  |  |  | 6 |  |  |
| TOTAL | N/A |  |  | TOTAL | N/A |  |

**MARGINAL BENEFIT/MARGINAL COST (STEP-WISE)**

You are thinking of opening an urgent care clinic. I’m unsure of how many hours I should open my clinic. I do some research and find the 4 following options to be the most optimal in regards to days and times open.

* Option 1 = 8 hours a day/5 days a week = no holidays
* Option 2 = 20 hours/7 days a week = no holidays
* Option 3 = 24 hours/7 days a week = no holidays
* Option 4 = 24 hours/7 days a week = all holidays

|  |  |  |
| --- | --- | --- |
| Option | MARGINAL BENEFIT | MARGINAL COST |
| OPTION 1 | $50,000 | $35,000 |
| OPTION 2 | $50,000 | $45,000 |
| OPTION 3 | $50,000 | $50,000 |
| OPTION 4 | $50,000 | $65,000 |

**Questions:**

1. Which option would you choose? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Why would you choose that option? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which would you choose if option 3 were eliminated? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MARGINAL/AVERAGE COST

SCENARIO: You are the new supply manager for the ED at Mercy Hospital. You are putting your order in for chest tubes.

|  |  |  |  |
| --- | --- | --- | --- |
| NUMBER OF CHEST TUBES | TOTAL COST | MARGINAL COST | AVERAGE COST |
| 99 | $9,900 |  |  |
| 105 | $9,950 |  |  |
| 110 | $10,000 |  |  |
| 125 | $11,000 |  |  |
| 132 | $12,500 |  |  |
| 135 | $13,200 |  |  |
| 140 | $14,100 |  |  |
| 141 | $16,000 |  |  |

1. FILL IN THE CHART ABOVE
2. What is the optimal number of chest tubes that you should order? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INTENSITY/QUALITY**

INTENSITY MARGIN: People who suffer from migraines have the option to take prescription drugs to ease their symptoms. Without treatment, on average, people will have 40 days in which they suffer from migraines per year. One prescription drug, Relpax, costs $300 for an annual prescription and patients will suffer from 12 migraines a year, whereas Axert, costs $450 for an annual prescription and patients will suffer from 10 migraines a year. Another option is for patients to receive monthly Botox injections at $600 for a year of injections and patients will suffer from 5 migraines a year.

|  |  |  |  |
| --- | --- | --- | --- |
| OPTION | # DAYS | COST | COST PER DAY OF SYMPTOM RELIEF |
| No treatment |  |  |  |
| A – Relpax |  |  |  |
| B – Axert |  |  |  |
| C – Botox |  |  |  |

What is the average cost per day of symptom relief with Relpax (A)? \_\_\_\_\_\_\_\_\_\_\_\_\_

What is the average cost per day of symptom relief with Axert (B)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the average cost per day of symptom relief with Botox (C)? \_\_\_\_\_\_\_\_\_\_\_\_\_

If you were an insurance company, which 2 drugs would you cover? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
| Option | # Days | Cost | Cost per additional day of relief |
| A 🡪 B |  |  |  |
| A 🡪 C |  |  |  |
| B 🡪 C |  |  |  |

What is the marginal cost per additional day of relief if a patient is switched from Relpax to Axert? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the marginal cost per additional day of relief is a patient is switched from Relpax to Botox? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the marginal cost per additional day of relief if a patient is switched from Axert to Botox? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If you were an insurance company, which 2 drugs would you cover? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SEVERITY MARGIN**

You work in a neurological clinic and the Neurologist is considering offering a very expensive treatment that can relieve individuals of seizures. Use the information below to answer the following question.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Multiple seizures daily | At least one seizure a day | At least two seizures a week | At least one seizure a month | No seizures | Cumulative total |
| Gain (each person) | 50 | 20 | 10 | 5 | 0 |  |
| Number of patients coming to the clinic | 5 | 20 | 25 | 30 | 50 |  |

1. How many people do not need to receive the seizure treatment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. How many people should receive the treatment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-
3. Draw the cumulative benefits of treatment on the graph. In addition, draw a circle around the area that is the “Flat of the Curve of Medicine”



**QALY**

A person has a serious life-threatening condition and is currently receiving medicine A. If he continues to receive medicine A he will live for 10 years and his quality of life will be 50% of normal. If he receives a new medicine, medicine B, for the same condition, he will live for 12 years and his quality of life will be 70% of normal. Medicine B cost $10,000 more than Medicine A.

1. What is the QALY for medicine A: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the QALY for medicine B: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the different in treatment cost between medicine A and medicine B? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_