Exercise 1: Costing of health services

Estimated time to work (10 min)

You have the following information from a trial for settings up an outpatient service for administration a chemotherapy drug for **patient** *with colon cancer* **per year**

Resource use per year	Frequency per year	Unit cost for one unit (Chemotherapy A)	Unit cost for one unit (Chemotherapy B)
Drug regimen per patient	12	12	25
Disposable equipment (infusion) (JDs)per patient	36	10	10
side effect treatment	25% for A, 30%, for B	40	30
Other resource uses			
Monthly salary (capacity 200 patients per year)	12	300	300
Time of nurse needed to administrate chemotherapy (min) min		25	15
Overtime salary (JDs/hr)		20	20
Laptop	1	300	300
Chemotherapy unit overheads (lighting, heating) (JDs/ month)	12	30	30

Calculate the following cost for setting up the service for chemotherapy A and B during the first year

A. Which costs are variable cost?

Drug regimen per patient , Disposable equipment (infusion) (JDs)per patient , side effect treatment , Time of nurse needed to administrate chemotherapy (min) , Overtime salary (JDs/hr)

B. Which costs are overhead fixed?

Chemotherapy unit overheads (lighting, heating) (JDs/ month)

C. Which costs are fixed capital/overhead costs?

Laptop : capital
Chemotherapy unit overheads (lighting, heating) (JDs/ month) : overhead

D. Which costs are semi fixed?

Monthly salary (capacity 200 patients per year)

E. Variable costs associated with treating 200 patients per year ?

A:((12*12)+(36*10)+(0.25*40))*200=102800
B:((12*25)+(36*10)+(0.3*30))*200=133800

F. Fixed cost associated for setting up the service (assuming the capacity) per year?

Fixed is equal in A+B
=(12*300)+(1*300)+(12*30)=4260

G. Total costs associated with setting up the service (assuming the capacity) per year ?

A=102800+4260=107060
B=133800+4260=138060

H. Average costs per patient for setting up the service over the first year?

A=107060/200=535.3
B=138060/200=690.3

A=>((12*12)+(36*10)+(0.25*40))*30=15420
Every one nurse need 25min for per
pt=>25*30=750min*12months=6000min (150hr/year)
Over time salary for one hour =20JD so for 150hr is 3000
Avg marginal =(15420+3000)/30=614
Same steps for B
Avg marginal for b =729

I. *The average marginal cost for treating new 30 patients?*

Exercise 2 what type of cost ?

- *If a new clinic required a part-time pharmacist and a currently employed pharmacist was asked to fill in at the clinic as part of his or her duties (instead of hiring a new part-time pharmacist for the clinic). The hourly rate of the pharmacist multiplied by the number of hours spent at the clinic would be ----------*Fixed*-------------*

- *For chemotherapy treatment, costs of the chemotherapy products themselves, other medications given to reduce side effects of the chemotherapy, intravenous supplies, laboratory tests, clinic costs, and physician visits are* __Variable (direct medical)__

- *Benefits or costs result from a reduction in pain and suffering related to a product or intervention is* __Intangible____

- *The costs that is related to patient, care govern loss of productivity or because of premature mortality is* __Indirect_____
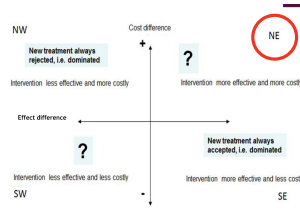
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Exercise 3

Assuming the percentages of patients who remained alive LYG following the administration of chemotherapy A and B were 60%, 70% year, respectively over the first year. Please calculate the followings for the capacity (200 patients)

Is Chemotherapy B cost-effective compared with A ?

ICER=(690.3 – 535.3)/(0.7–0.6)=1550jd/LYG

Draw the cost-effectiveness plan

Decide which quadrant the incremental CE point is in?

B more costly and more effective so
it's in north east quadrant

Do we need a cost-effectiveness threshold?
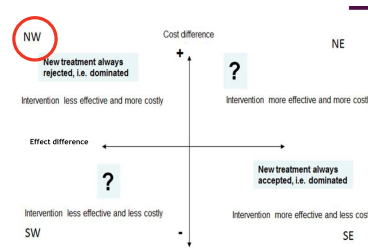
Exercise 5 CUA analysis

If the average utility associated with administering chemotherapy A and B were 0.8, 0.5 respectively? Using CUA analysis?

Calculate the average QALY for each intervention?

QALY for A=0.8*0.6=0.48
QALY for B=0.5*0.7=0.35

Draw the cost-effectiveness plan

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Decide which quadrant the incremental CE point is in?

More costly less effective(north west)

Do we need a cost-effectiveness threshold?

✕

Perspective workshop:

Case1:

Patient A (have an insurance in the MOH and he cover 20% of his insurance) has been transferred from MOH to JUH to get a medical treatment. The actual costs of the medical service provided by the JUH were 100 JD.

What the cost considered from the payer perspective? 80

What the cost considered from the provider perspective?100

Case 2:

Which of these costs will be considered from payer and provider perspective (e.g. MOH)?

•Prescriber time

•Time in hospital

•Drug costs

•Time off work (For patients)

•Time off work (For MOH's employee)

•Out of pocket transport expenses

•Time to dispense the medicines

All except time in hospital/time off work (for patient)/out of pocket expenses

Case 3:

The costs of Drug A, on average

• Drug costs =10,000 JDs over 10 years

• Prevent 5 doctor visits / over 10 years = 500 JDs

• Prevent 1 hospitalisation/ over 10 years = 2000 JDs

• Saves 10 working days for patients/ over 10 years = 2000 JDs

What would be the cost from:

•Payer perspective (e.g. health insurance company)?7500

•Societal perspective ?5500

Economic evaluation workshop

Case1:

Let us once again consider which medicines should be used to treat hypertension.
Drug A causes a 10mmHg drop in blood pressure and costs 120 JDs per year
OR
Drug B causes a 15mmHg drop in blood pressure but costs 180 JDs per year.
Can we use cost minimisation?
No =>different outcome

Case 2:
¢If a treatment increases one's life expectancy by 2 years, but causes adverse effects or inconvenience, such that one's utility are decreased by 25%, the net gain or QALY gained will be

QALY = 2*0.75=1.5

Case3:
Suppose decision maker had to choose between two proposals for implementation. Also assume that the projects are for 1 year
¢Proposal A: Cost=$1000; Benefit=$2000
¢Proposal B: Cost=$5000; Benefit=$7500

Calculate Net benefit for A and B?A=1000/B=2500
Calculate Net cost for A and B?A=-1000/B=-2500
Differences in net benefit of B as compared to A?1500