

**Economics of Health and Healthcare**  
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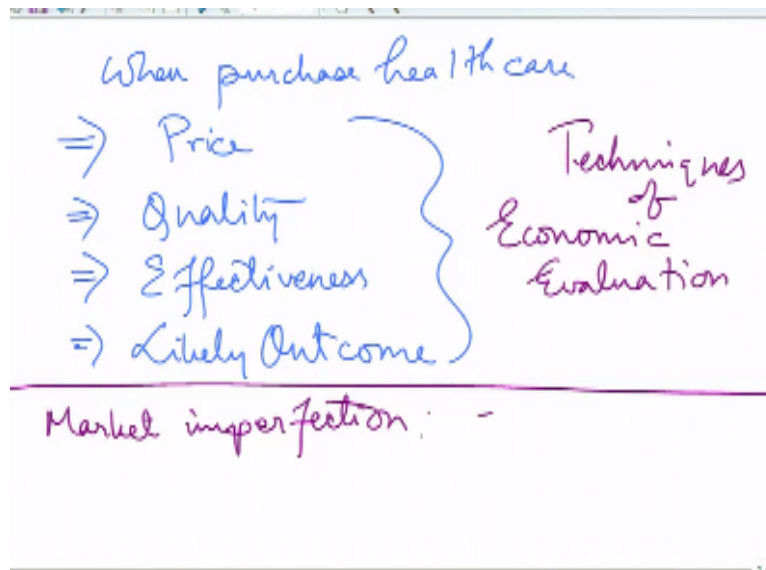
**Lecture – 36**  
**What is Economic Evaluation?**

Hello everyone, in this session, we will discuss about economic evaluation whenever, we are talking about economic evaluation, the first word says us that again, we are discussing something about economics, you know and something related to economic variables or economic perspectives now, economic evaluation being one of the core and most important area studied under health economics.

Or this is a subject or a stream under health economics, which tries to estimate the economic impacts of a particular process; healthcare process and why it is important or unique is before going to that why it is unique or important, we know it is important because we have to estimate the benefit against the costs of a particular process. Now, as during our lectures we have learned that it has been really, really difficult to quantify health as a particular commodity or a just one; you know, just one unit.

Quantifying under one unit has really been difficult because of its heterogeneous characteristics as well as and its volatile nature in terms of several components under health services or you know be it from the demand side or from the supply side. So, what we generally look at when we you know, when we kind of demand for health care or we try to purchase health care as a product or as a service.

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So, the first thing is of course, we look at you know, when we purchase health care, the first thing we look at of course, as any rational buyer the price of the product, right, price of the services, price of the medicine, price of a diagnostic service, so the first thing is price, the second thing or is of course, the quality because health is an area where quality is very important, the margin of error is very, very low.

And we all look at the maximum effectiveness therefore, and the effectiveness in terms of how my health is being better off, being improved, so that is my that is; that is and if it is really making sense, if it is increasing my health, it is increasing my satisfaction to that extent, which I want, which should be then, quality is ensured so, it is not only the price, people also look at the quality whenever it comes about healthcare.

And then, the third one is as I said that effectiveness you know, even if the better quality may not be the most effective for me because effectiveness has been always a relative measure you know, you pay more maybe the particular treatment process is more effective but paying more is always not a possibility you know, so because considering affordability, considering accessibility, so effectiveness whenever, we talk about effectiveness, we have to talk about what kind of inputs you know the resources I am pouring in.

And based on that what is the effectiveness you know and whether the kind of input I am giving that is giving me the right outcome or desired outcome, so the effectiveness cannot be in just in terms of the health I have gained and again measuring health, what I have gained has remained a challenge and this effectiveness you know related to price and finally related to likely outcome will be measured under cost effectiveness analysis.

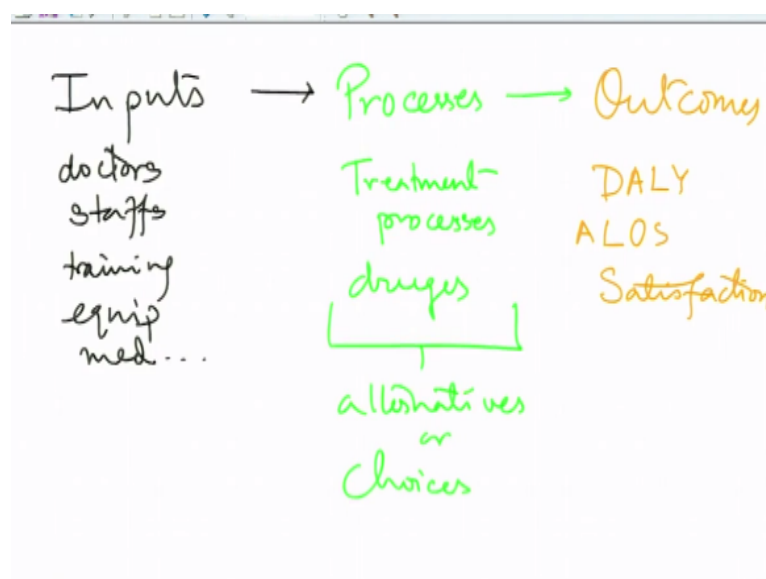
I mean or economic evaluation techniques yeah, however getting you know, these things right both price, quality, effectiveness likely outcome getting these things right are very, very challenging that is primarily because the market imperfection in health care; in health care. Why this market imperfection in health care we have learned that you know, there is inefficient output, there is high level of externality, there is lack of information among the buyers, among the suppliers, moral hazard when somebody purchases the life insurance.

From the life insurance perspective, there is adverse selection again, the externalities which is untapped, the market power, so all these and then the demand and supply, demand and consumer and supplier and excess, so there are several things which actually play a major role you know pushing that towards market imperfection and when there is a market imperfection, so you know the getting the price right or getting an idea about the right price, getting the idea about the right quality or its effectiveness.

Or the likely outcome all have been you know under question as far as the you know, when, when a person ventures in you know health care market or as a consumer you know asks for the health care is a product or services, so this all have not really made their the decisions very efficient but the challenge remains challenge still we try to estimate the economic impact of a particular process.

It can be a treatment process, it can be a production process, it can be an operational process, so and because everything has an outcome, right and then the challenge is that how we measure this outcome as therefore, whenever we are thinking about this you know based on inputs, we are evaluating the processes, looking at the outcomes.

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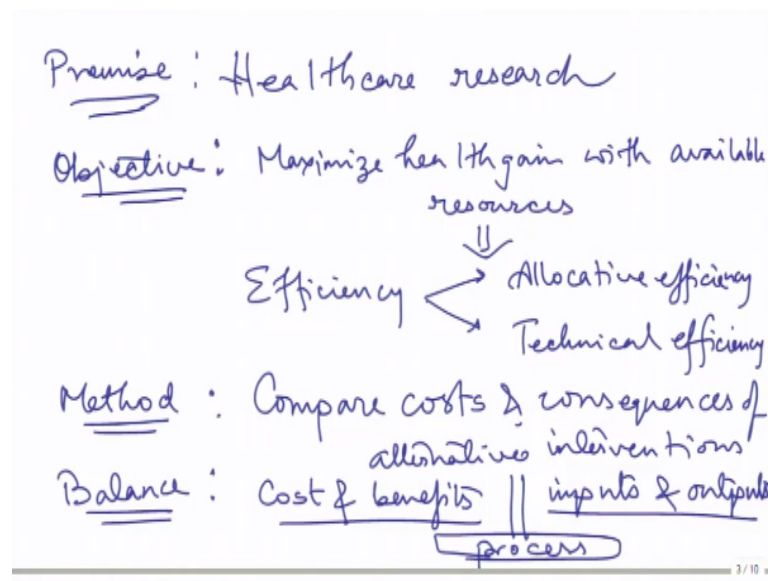


So, if I place it like this, I have a list of inputs, now it goes, pass the processes and finally, it has output or outcomes, right and these inputs are the doctors, staffs you know, so the training, equipment's, medicines and so on and so forth, diagnostic systems, the processes can be the treatment processes, several treatment processes, different drugs you know and here we are talking about the alternatives or the choices available; alternatives or choices.

And these outcomes are primarily, my health outcomes in terms of maybe, we have outcomes like disability adjusted life here you know, length of stay or average length of hospital stays, so all these can be my or my eventually, my satisfaction out of these you know the or the opportunity cost gained that means, the benefits you know several wise, yeah, so I can measure these outcomes of my or the days to take up; the days of a treatment process lesser the number of days of a treatment process the better my outcome is.

So, but again you see that getting these outcomes in terms of health is not an easy task you know as far as this quantification is concerned right, so basically then what does this economic evaluation to; the economic evaluation first sets is its objective.

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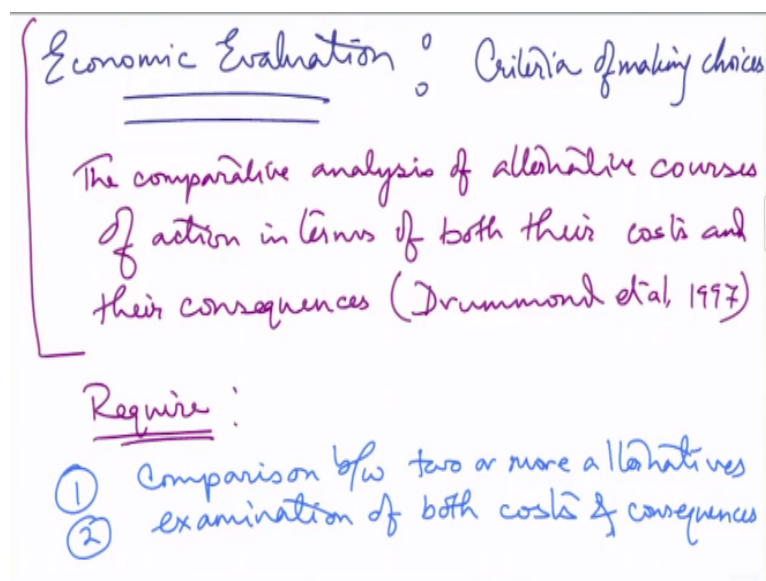
The or before objective, maybe yeah it is the premises primarily, health research know, healthcare research, the objective can be 2 ways; allocative or you know objective is to gain efficiency primarily but to maximize health, gain, weight, available, resources, so which talks about efficiency, right and then, efficiency as we learned can be either allocative efficiency which says that benefit is maximized based on the best allocation, benefit is maximized based on the best allocation, so that the opportunity cost lost is reduced.

And that is how I estimate the benefit, my opportunity lost my opportunity for gone that is reduced that means, I am not losing much that is that should be the priority and technical efficiency, where you again maximize your benefit based on the given resources or minimize the cost you know, get an optimum minimum, minimize, minimized cost you know, to achieve a particular amount of production.

The finally the methods are in a nutshell you know, the compare costs and consequences that is the benefits, right of an intervention or of severally of alternative interventions yes, so and while we are you know comparing between the cost and consequence, we have to balance between which we balance, one is cost and consequences or I will say benefits, yes and the other one is inputs and outputs.

Because what is falling in between; is process, right in the both the ways, the process is what we are trying to evaluate yeah and under like understanding the cost and the benefit as well as the input and the output.

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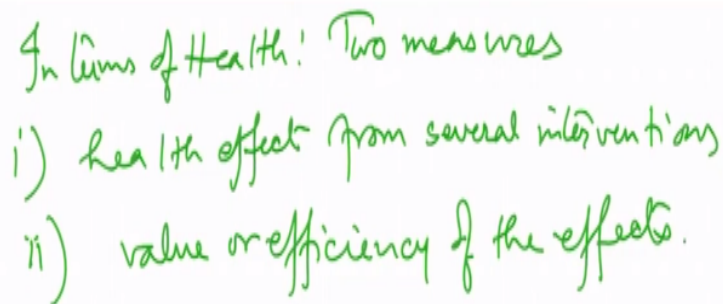


Now, the final thing is economic evaluation, after we compare then that can be considered as economic evaluation which is you know, criteria; setting a criteria of making choices, right. By definition, this economic evaluation can be known as the comparative analysis of alternative resource; alternative courses of action in terms of both their costs and their consequences, this definition is given by Drummond et al in the year of 1997.

Yes, so to do this economic evaluation, we will require 2 things; 1, a comparison between 2 or more alternatives, 2; examination of both costs and consequences or benefits, right, so we

basically do these 2 things. In terms of health, in terms of health intervention basically, measures like involves 2 measures.

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In terms of Health! Two measures  
i) health effects from several interventions  
ii) value or efficiency of the effects.

In terms of health, it has 2 measures; 1; health effects from an intervention from or say from several interventions targeting the same thing of course, number 2; value or efficiency of the effects, so which basically, means that in terms of intervention, I have a health effect right that is what the primary target is, so now my health effect is it or are they really valuable, are they really making sense to me, right.

I went to a doctor, so that I do not you know, I have a movement problem in my legs, so I went to a doctor he did something and then I used to feel a pain on my knees now probably, the pain is gone but I still I am not comfortable you know, while walking my problem persists but only the thing that the knee; pain is gone, so the value eventually because my major problem was not probably the knee pain, my major problem was difficulty in movement.

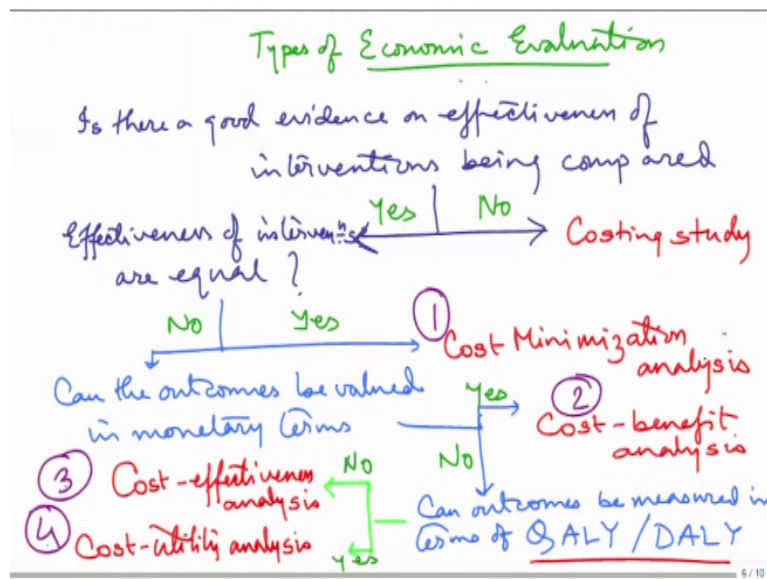
And the difficulty in movement that you know sustains, what is gone is the secondary problem, so the value which I gained eventually by that intervention is not making me that sense you know, so we have to we know, the health effects we know there is some positive effect but in terms of that health effects also, we need to bring a comparison that how efficient are those effects.

So and therefore, while we are doing an economic evaluation say for it can be a hospitalized physician process, it can be an awareness generation program under public health operations, it can be an immunization program, it can be you know say a treatment based or clinical program, pharmaceutical program, so and which requires different types of based on different outcomes,

they will require different types of interventions like right, economic evaluation methods or techniques.

So, there are primarily 4 techniques or 5 techniques of economic evaluation, I will say there are basically 4 economic evaluation techniques, though the first one is very rudimentary in nature, you know, very simplistic in nature, let us start with that itself and you know not considering that we have 4, let us say. So, how we try to understand that which particular economic evaluation technique we will use.

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So, the first question we asked while deciding an appropriate economic evaluation technique is; so I will write it, types of economic evaluation, so first question we ask is there a good evidence, I just use some other colour; on effectiveness of interventions being compared yeah, so if I do not have any evidence, I cannot do anything right, I do not if I do not have much evidence because I am not sure that you know what is the basically, what are the effects.

And if we are not very sure, we cannot really compare based on the effects, right so and still if I am asked to make a decision or make a judgement that which one I will take as it is an economic evaluation as we need to bring and you know an optimization, we need to achieve an optimization minimizing cost or maximizing benefit and we are unsure about the benefit component, we go for this minimizing cost, right.

So, it is simply then in that case, we, we do a costing study as simply, if no then we do a costing study, yes but if yes, then the next question we ask, is, is effectiveness of interventions are equal or not, effectiveness of interventions are equal or not, right and I raise a question on this, if they are equal, then the second question comes, I mean okay that whether they are equal or not then,

I will choose maybe a different colour here and if it is yes, then we do cost minimization analysis that means, now I have from here to here, the difference is I have idea about my interventions or my outcomes, right, outcomes of the interventions, now I have got the good evidence, yes.

So, once I have the good evidence, then I can start comparing between the cost; between the interventions and I mean, both the costs as well as its impact on the effectiveness and then, once we started doing that the first question we asked that whether the effectiveness you know is similar or not or equal or not and if they are equal that both these you know whatever process we do both the effectiveness is same.

Then if they are same, we straightaway ask for both of them my result is same, my outcome is same and if my outcome is same, I will of course choose which is the cheaper one right, so there my objective is straightaway minimize the cost, so it is known as the cost minimization analysis, right. Once we, we do not have, we have idea about the effectiveness but they are not similar, so we come to this know, now right.

So, over here now, I ask the question that can all outcomes now, my interventions are not similar yes, I know that then, the next question okay fine, they are not similar now, can these interventions or can this effectiveness or the outcome can be valued in many monetary terms you know, can the outcomes be valued in monetary terms right, it again has a, yes and no, yes. So, if it is yes; if it is yes, then we do cost benefit analysis.

If the outcome can be you know, measured in monetary terms but if no; if no, then we ask a further question, I will keep it like this, if it is no, then we ask another question, then the question is; can outcomes be measured as quality adjusted life years, yeah, in terms of quality adjusted life years QALY or DALY or this is adjusted life years, we will learn about them here, what is QALY and what is DALY when we learn about this particular technique, we are more closely.

So and we see that again the response is yes and no, if they are no that they cannot be measured in terms of quality adjusted life years, then we will do cost effectiveness analysis and if it is yes, then we do cost utility analysis, let us say, so this is my cost effectiveness analysis and this is my cost utility analysis again, utility or satisfaction is not easy to easy to measure or quantify that is why we measure in terms of QALY or DALY.

That is this QALY or DALY says primarily that the number of years a person either is losing because of a particular disease or the quality of; QALY is primarily, you know even if we talk



about DALY but QALY is the sole measure which you know gives an estimate about the satisfaction yeah but we still can keep DALY because it is very difficult to estimate QALY because it is very relative, it is very abstract in nature as the utility is; the satisfaction is very abstract in nature.

So, we can; we often do supplement QALY with DALY, yes we will talk about this more in after sometimes but so we will slowly start understanding that these this economic evaluation techniques, so we know the costing study is basically, we are not you know able to compare between effectiveness or to effectiveness, so we cannot really do much here, so we want to be you know talking over here, so we are not; we are restricting in 4, which are basically the economic evaluation.

Because we evaluate the effectiveness and we have idea about those effectiveness from this cost minimization, cost benefit, cost effectiveness and cost utility, so we have 4 here, this is 1, this is 2, this is 3 and this is 4, while I am describing I will not follow this order, first I will talk about cost minimization, then we will go to cost effectiveness analysis, thank you.