

Health Economics

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Week – 05

Lecture 23- Uncertainty and Risk: Health Insurance-II

Welcome, friends, to this Health Economics module. So far, I am sure it has been useful for you to understand how risk or uncertainty is attached to healthcare. However, risk is dealt with by quantifying the measures that address the extent of uncertainty. We discussed in the previous lecture about different types of risk and how the risk parting is indeed paying different average utility with effort to the context of the expected utility theorem of Bernoulli and Morgenstern where we tried our best to understand whether the person should bear the risk or to averse the risk and in which way it has to be discussed. We are going to discuss patient payments, and how out-of-pocket is one of the important aspects of patient payments. However, we will be emphasizing each of the directions for patient payments.

There are indeed different sources of funding in different countries. 10 to 15 percent are the funding sources in Northern Europe and more than 50 percent in poor countries so far as patient payments are concerned. And there is indeed a lack of institutional arrangements in poor countries. Hence, funding sources really matter, especially in less developing or underdeveloped countries.

There are arguments in favour to patient payments as well that the public poor cannot afford to pay for all healthcare, and unnecessary demand will be deterred when people pay for themselves, such as moral hazard, which we also discuss in different units. We have already discussed the issues of moral hazard. However, unnecessary or over-demanding healthcare can also be checked when patients' payments are made from their own pocket. And then the third aspect of patient payment is on effects of patient payments. Some of the findings of different experiments were discussed in our different units.

We have carefully mentioned about Rand health insurance experiment. Please refer to the unit number 2 in the chapter called demand in healthcare. We have carefully emphasized Rand health insurance experiment where co-payment reduces total, or the quantity demanded. Demand for unnecessary healthcare was not reduced any more than the demand for necessary healthcare. And then the third aspect of this experiment is that on-demand was reduced more among poor people than rich people, particularly among the children of poor people.

Please refer to unit number 2 for further clarification on the Rand experiment related to patient payments. Then, a structure will clarify how payments by the patients are made, either patients pay through insurance or no insurance. If it is a no-insurance case, cross-subsidization might be possible through the different income quintile groups paying differently. Hence, it is cross-subsidizing to the fewer income people or through the patient payment where insurance is not available or the patient is directly paying. In case of cross-subsidization there might be a possibility of no patient payment.

And another case is through insurance, where the patient is not paying at the point of access and premiums are paid before. So, patients still pay some or more costs and may share the cost involved in insurance. Insurance may not cover the whole set of health care. We will discuss all of this in detail soon. So, then, what are the different types of patient payments? There are broadly four: one is called out-of-pocket expenditure, then another is called copayments, the third one is called deductibles, and the fourth one is called co-insurance.

So, out-of-pocket expenditure is where the money is paid directly by households at the point of receiving health care. This occurs when services are not provided free of cost through a government health facility, nor is the individual covered under any public or private insurance or social protection scheme. So, it is basically the spending from the consumer's pocket and is not covered by either insurance or any public institution. So, some cost-sharing plans exist, such as copayments or sometimes through deductibles and co-insurance. And both will address to the issues of cost sharing.

It might happen that copayments, once they are made, we can discuss their deductibles and co-insurance. We will discuss all these things one by one. Copayment refers to a fixed amount or the percentage of an approved medical bill that needs to be paid by the insurer. The insurer will settle the remaining amount. Therefore, it is called copayment.

If the total treatment cost is rupees 50,000, the copayment is of 10,000, which is precisely 10 percent of the total treatment cost and the patient finally pays 10,000, and the insurer pays 40,000. So, out of the 10 percent is the copayment; accordingly, we can find out the respective share. And so far as deductible is concerned, it refers to a fixed sum payable by the insurer towards medical expenses. Once the sum runs out, the insurer will start pitching in and cover medical expenses up to the sum insured. So, let us say you are availing medical treatment of 50,000 and rupees 7,000 is the defined deductible.

As per your policy, you just need to pay 7,000 from your pocket, and your health insurer will contribute the remaining 43,000. That is called deductibles. Then deductibles might cover the base, or it is done through the top-up. So, there are two types of deductibles: the base cover deductible and the top-up deductible. So, in the case of base cover, a fixed amount is payable by the insured out of the total medical bill, and in the case of top-up

cover is sold on top of the base cover of the sum insured or insured.

The top-up sum insured triggers once the base sum insured is exhausted. Hence, the base cover sum insured is referred to as deductible. Then what is co-insurance? Co-insurance is similar to co-payment. Co-insurance is a fixed percentage of the medical bill that needs to be paid from the side of the insured. The insurer will bear the remainder of the amount.

However, this clause usually comes into play only after the deductible has been paid. Let us say you are availing of medical treatment of 50,000 rupees with a 7,000 deductible and 20 percent co-insurance. So, once the deductible is paid, the sum will come down to 43,000. Then 20 percent of that amount, which is 8600 rupees 8,600, will have to be paid by you, and the insurer will pay the remaining 34,400. Let us understand further by this Q&A.

Is a co-pay the same as co-insurance? In that case, you may have to pay both co-payment and insurance. And do co-pays count towards deductibles? You might not need to pay a co-payment until you hit your deductible. So, we need to check the insurance plan terms carefully.

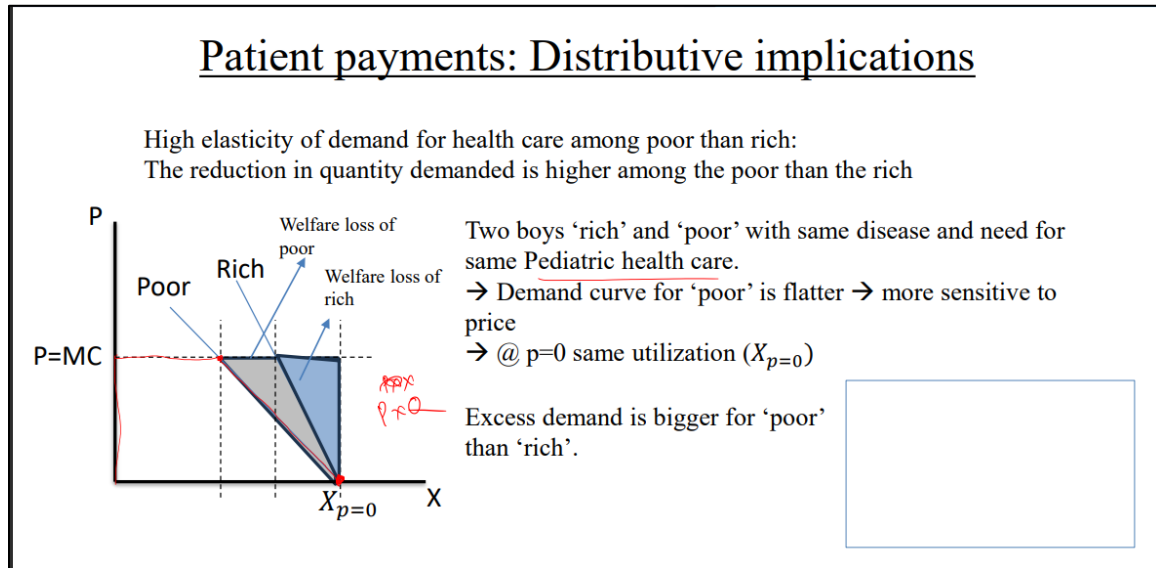
We are presenting how the insurance company and their details are provided. Here is a sample health insurance ID card.

This gives so much information, and we are referring to a standard card of in Western countries, and we are mentioning when the names are mentioned, we start with ID and their contact number details. And here, they mention co-pay for their visits and co-pay for visits to the primary care provider and speciality care. So, for primary and speciality care providers, the co-pay amount is retained and they also mention co-pay for emergency and urgent care visits. So, a pure percentage or the amount is mentioned. And here is, primary care and speciality care details are given.

Then, they also clarify whether you are purchasing a generic or a branded one and plan accordingly. They specify the in-network and out-of-network deductibles and their co-insurance. So, OON stands for out-of-and in-network is mentioned, and clarity is indeed given for their deductibles, etc. Along with that, emergency help lines are also presented on the card itself. So, again, regarding patient payments, we have discussed different types of patient payments.

However, it has distributive implications, with a higher elasticity of demand for healthcare network among the poor than the rich, and the reduction in quantity demanded is higher among the poor than the rich. We are now citing the example of two boys who are rich and poor with the same disease and need the same pediatric healthcare. The demand for the poor is indeed relatively flatter, whereas that is more sensitive to the price, which we already said, and that is at  $P$  equal to 0; utilization is the same, which we already said they started with the same level of pediatric healthcare that is  $X_p$  equal to 0, we are referring to

this point. On the other hand, the rich and their sensitivity are different and relatively elastic. So, the excess demand is bigger for the poor than for the rich.



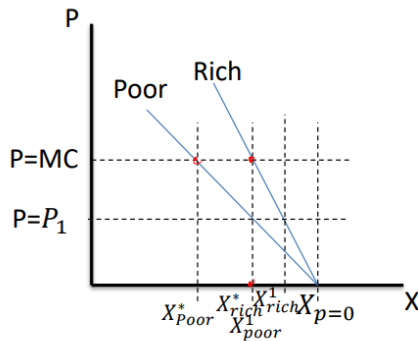
Hence, welfare loss will be due to a payment structure equivalent to the market. They are paying this; their willingness to pay will be of this much for the rich. For the poor and for the rich, it is different; however, they are in fact, paying this is  $P$  times  $X$ , or usually, we say  $P$  times  $Q$ . So hence the welfare loss for the market-based approach at  $P$  equal to  $MC$  will be of the bigger triangle area and for the rich it will be of the small triangle area. So, the excess demand is bigger for the poor and then the rich to deter excess demand co-payments is introduced to understand the excess demand.

So, co-payment structure we have introduced for poor  $X_p$  is equal to 0 and at  $X_p$  equal to 0 we start with the poor as  $X_1$  and again, with  $X_p$  equal to 0, we start with  $X_1$  for the rich. Further, to get rid of all welfare losses, payments are increased. Initially, we said there is huge welfare loss if a market-based payment exists. To reduce welfare loss, we started by discussing some forms of co-payments. So, we are now discussing co-payments.

So, there will be some distributive implications in eliminating all welfare losses due to the market-based evaluation. So, however, the optimal point is actually  $X$ , and as per the market, one will be  $X^*_{poor}$  and  $X^*_{rich}$ . This is basically the one we discussed. The excess demand depends on people's ability to pay. When there are positive prices, if  $P$  increases, demand falls, and there will be negative prices. Where  $P$  increases, demand also increases.

## Patient payments: Distributive implications

Excess demand is bigger for 'poor' than 'rich'.



To deter excess demand, copayment ( $p = p_1$ ) is introduced.

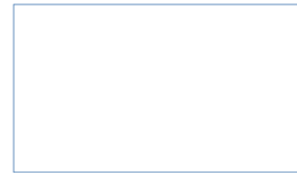
→ For poor,  $X_{p=0} \rightarrow X_{poor}^1$

→ For rich,  $X_{p=0} \rightarrow X_{rich}^1$

Further, to get rid of all welfare losses (payments were increased) →  $P=MC$

=> optimal utilization will be  $\{X_{poor}^*, X_{rich}^*\}$

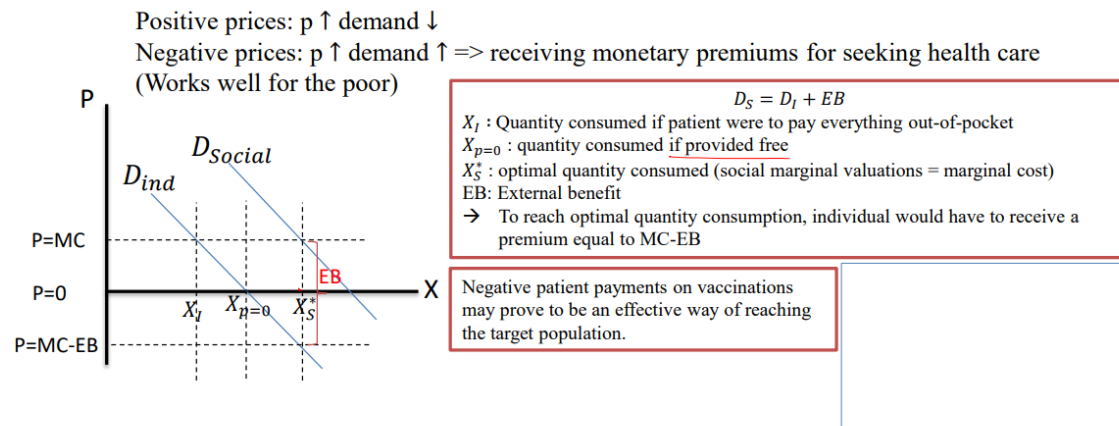
Excess demand depends on people's ability to pay.



This means receiving monetary premiums for seeking health care, and this works well for the poor. More details you can find out in our unit number 7. Some of the discussion we are going to make it further. And ideally, we are clarifying the demand curve to distinguish these two; we are clarifying these through the individual demand curve and social demand curve. In the equation, we are trying to mention the  $X_1$  that is quantity consumed if the patient were to pay everything out of pocket, and  $X_{p=0}$ , the quantity consumed if provided completely free.

And  $X^*$ , which we have highlighted, is basically the optimal quantity consumed where social marginal valuation equals the social cost. And EB is our external benefit. To reach optimal quantity consumption, an individual would have to receive a premium equal to the difference between the MC and EB. So, the negative patient payments on vaccinations may prove to be an effective way of reaching the target population. Further on this, you can refer to unit number 7.

## Negative patient payments



We are discussing on the difference between the marginal social valuation in the context of the individual and in the case of demand for social valuation and demand at the individual valuation for health care. So, other aspects, such as reimbursement, are also important. This relates to how healthcare providers are paid for their health services. The methods of reimbursement may be retrospective reimbursement or prospective reimbursement. So, retrospective reimbursement means hospitals receive full payment for all healthcare expenditures incurred in some pre-specified period.

There are two models we are presenting. One is called the actual cost model; another is called free-for-service, FFS-based. In the case of the actual cost model, hospital income depends on workload and the actual cost incurred. So,  $R$  stands for total reimbursement equal to the workload times the average cost of the services provided per care or case.

$$R = W * AC$$

And whereas in the case of free-for-service, it is basically  $W$  into  $S$  into  $I$ ,  $W$  stands for the workload that, is basically the number of cases treated times the number of services provided per case and  $I$  stands for fee per service item.

$$R = W * S * I$$

In the case of the prospective reimbursement, payments are agreed in advance, but in the retrospective, one is full for all healthcare expenditures incurred in some pre-specified period. So, in the case of the prospective one, as I already said, the advance payments are agreed upon in advance and are not directly related to the actual cost incurred. And this involves payment is not related to actual cost, the incentive to reduce actual cost and the need for monitoring the quality of care; this is part of the prospective reimbursement. Diagnostic-related groups are also required to use the DRG pricing scheme. We are referring to some examples here, such as the DRG pricing scheme introduced in 1984 to the Medicare

system in the USA. DRG payments are based on the average cost per case in each diagnostic group derived from the sample of hospitals.

So, this is basically evaluated through diagnostic-related groups such as DRG. Total reimbursement to the hospital is basically on R equal to W times the diagnostic-related groups.

$$R = W * DRG$$

So, DRG is DRG-based prospective payments. So, diagnostic-related groups versus average cost, we are again clarifying it. The effect of prospective DRG-based payments is the case when DRG is less than the average cost; hospitals will reduce the average cost until DRG is equal to the average cost, which means hospitals have an incentive to minimize cost.

And if it is just the reverse, then the hospital will increase costs until DRG is equal to the average cost. This means that the hospital will spend more on amenities to improve its competitive position in the market. So, cost shifting and patient shifting etc. is also discussed in the context of distinguishing diagnostic-related groups versus average cost. In this case, to circumvent the cost, the effect of DRG pricing must be minimized by shifting patients and some services provided to patients out of DRG pricing schemes and into other parts of the system not covered by DRG pricing.

## Diagnostic-related Groups Vs Average Cost

Effect of prospective DRG based payments,

1.  $DRG < AC$  : hospitals will reduce AC until  $DRG = AC$  (hospitals have incentives to minimize costs)
2.  $DRG > AC$  : hospitals will increase costs until  $DRG = AC$  (will spend more on amenities to improve their competitive position in market)

Cost shifting & Patient shifting: To circumvent the cost-minimizing effect of DRG pricing by shifting patients and some services provided to patients out of DRG pricing scheme and into other parts of system not covered by DRG pricing.

DRG creep: When hospitals classify cases into DRGs that carry a higher payment.

And DRG creep is when hospitals classify cases into DRGs that carry higher payments. These are some of the examples usually discussed. Now, we are discussing the types of health insurance plans. So, in the Indian context, these are individual-based or self-insurance, then family plotters that are entire family-based plans, senior citizen plans, which usually above 65 years, critical illness plans, illness with expensive treatments, group plan for a group of employees etc. When some insurance of the existing policy gets exhausted, then another

plan called ULEAP, unit linked insurance plan, basically called investment plus health cover.

We need to refer to the policymaking body related to insurance, it is none other than IRDAI, the Insurance Regulatory and Development Authority of India. This is a statutory body under the jurisdiction of the Ministry of Finance, Government of India. The body tasked with regulating and licensing the insurance and reinsurance industries. This was established in 1999 with the special IRDAI act 1999, and the head office is in Hyderabad, India.

It has different duties, powers and functions. This has a duty to regulate, promote and ensure orderly growth of the insurance business and reinsurance business. It satisfies insurance companies, then protects the interest of the policy holders and adjudication if any related to some disputes out of insurance. Some other details related to insurance is compulsory versus voluntary insurance. Voluntary is usually costly to manage and involves inequitable healthcare access, and premiums are based on individual rating; that is, higher individual risk means higher premiums to be paid. However, compulsory insurance based on community removes these shortcomings of voluntary insurance; it ignores the variations in individual risk so far as compulsory insurance is concerned.

We also discussed the redistribution perspective. Non-wise, such as low-risk groups to high-risk groups based on health conditions, redistributive channels are through high-income groups to the low-income groups. And there are two different ways of organizing revenue collections in insurance. We will also discuss this in unit number 7. That is precisely on social health insurance and taxation.

And you can compare the three categories in terms of different indicators: private health insurance, social health insurance and taxation-based provisions. Here, we discuss the important characteristics of three different health insurance schemes mentioned in Olson's 2009 work. And rest of the details, like the economic health system etc. are dealt in unit number 7. On a cost perspective, private insurance is expensive, social insurance varies between insurance companies and taxation-based is usually cheap.

Similarly, coverage, choice of participation, cross-subsidization etc. are defined. Meanwhile, in private health insurance schemes, there is no cross-subsidization. In other cases, there are, regarding sources of funding, in the case of private, it is indeed called individual; in the case of social, it is payroll and related to access, it is the income; in the case of private health insurance where it is in the social health insurance it is based on need and taxation based it is also need. There are also differences between the size of one's own contribution and one's own expected use. You can find the readings very carefully, and we have tried our best to simplify private insurance where the link between your own contribution and expected use is there.

On the other hand,, there is hardly any relationship between the two. Similarly, other



points, 7-8 points we have carefully addressed. There might be some questions. I am sure it will be useful. And after covering these two lectures on uncertainty risk and the financial structures for households, I think you need to read Olson and even another we have cited on Perloff in 2011 published work, which will be quite useful for your study. In our next lecture we will discuss on the problems associated with insurance, such as moral hazard and offer selection.

I think that it is very clear that the challenges faced by health insurance providers are addressed. So, the rest will be understood in detail. I think in between, please go through and try to solve problems and ask your questions. We will be happy to address it. Thank you.