

Needs-Based Approach to Allocate Healthcare Resources

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Abstract: The purpose of this study is to review the need based resource allocation to health care. It will shed light on the loop holes in the need based approaches for allocation of resources. In the first section need based approaches are defined. And then there is an explanation of their objective related to health care and what difficulties policy makers encounter while making policy. Then there is a review of the mechanism of current need based planning to allocate resources. And the last section defines what should be done to make a practical and efficient policy which solves the real-time problems of health care.

Key words: Need based approaches, resources, health care, encounter, mechanism

INTRODUCTION

Needs based approaches are methods that calculate how much resources are required by a family or an individual to meet their expenses. In health care need based approaches refers to the calculation of all the requirements which are needed for the health and wellbeing of humans. These approaches estimate and improve the level of efficiency of combining human resources to deliver on health care services.

Objective of needs based approaches: The primary objective of health care policy of any country is to promote wellbeing of its residents and their better mental health. It is also concerned with providing its residents better medical facilities and reasonable access to all medical services without any financial or another barrier (Hope *et al.*, 1998).

Why are they needed?: These approaches are needed to define a criterion to allocate reasonable resources to healthcare and easy access of medical services to patients.

A major challenge for healthcare policy makers:

- Identification of methods of resource planning
- Implementation of methods of resource planning
- Allocation of resources which are consistent with these methods

However, the idea of allocation of resources considering needs across the different public services provides a lot

of data to debate. (In 2002 Midwinter said that normally allocation of resources depends on selection and many other factors which are under strong political influence)

However, if the past trends were considered from the year 1970 needs based resource allocation to health care became a much-accepted approach for funding health care in many countries over the globe. The main problem was to design such a method or practical tools that would correctly estimate the needs of a population. Such a system can be designed by implementing the concept of horizontal and vertical equity.

However mostly health care departments are funded by following direct needs based approach along with more efficient and developed marketing mechanism of allocation of resources to health care (Folland *et al.*, 2007; Haroton, 1991).

What do they offer?: They offer following two services.

Efficiency: Greater level of resources is allocated to populations with greater health-care needs or to the populations with higher potential of improvement in health status.

Equity: This defines that populations are allocated with resources according to their needs.

Horizontal equity: Equal resources are allocated to the populations which have equal needs.

Vertical equity: Unequal resources are allocated to the populations which have unequal needs

However, the aim of this study is to review the methods of needs based allocation of resources to health care department over the globe.

REVIEW OF THE MECHANISM OF NEEDS BASED PLANNING TO ALLOCATE RESOURCES

The initial step of this planning is to define what a “need” is what is a common interpretation of this word This word should fulfill the typical properties of interventions of health care. These properties include:

- It should have probabilistic nature
- It should take into account the variations between the effects of different treatments in the time period (allocated to a certain treatment to analyze its after effects)
- Effective treatments often combine more than one intervention

It has been seen that this approach is driven much by the fact that cost effectiveness analyses plays a major role while making a priority list for allocation of resources and as well as it effects actual decisions too.

This trend can be clearly seen in United Kingdom by analyzing A Guide to NICE by National Institute for Health and Clinical Excellence. Local decision making forums are also driven by cost effective analyses.

The concept of a “need” is utilized to make a priority list according to cost effective analyses. It can be explained as that an intervention or service which is less cost effective but it responds to certain needs so it will be given higher priority over more cost effective interventions. The interpretation of “need” can also be used to identify those health care services that must be ensured by health care department so that these services can be easily available for every citizen. This gives health care department an idea that these services should be made available at any cost to most possible extent. But it is useful only if claim a certain medical service or intervention as “need” or more explicitly a “common need”. Some researchers gave a different perspective of “need based resource allocation”.

Their perspective can be interpreted as welfare based framework: A layman approach of this perspective is that the principles to allocate resources to health care should not be mixed with the idea of to maximize health care welfare services. If the idea of “need” is to be used practically for decision making, then it should be efficient enough to cope with the realities of decision that are made using this idea.

To claim that a service is a need, it must have to benefit people in some distinct and significant ways. But what defines “significant” here? What criteria should a service must meet to be termed as a “need”? For an intervention to be termed as need is:

- It provides benefits to patients that are too poorly off
- It improves patient’s quality of life. It also improves functioning across a threshold
- Major improvement in relative or absolute terms

All need based approaches are analyzed using these three above mentioned features. The first feature implies that many medical services have a probability to achieve a desired effect. To make a more practical and general health care policy it should be made consistent to this feature. Because in the cost effective analyses uncertainty can be removed by evaluating expected outcomes. Expected outcomes here refer to “desired results”. The second feature states that the beneficial results of a certain medical service or treatment appear at different times during the intervention. So there should be a reasonable way to implement this in health care policy if the claimed intervention is to be used practically as “beneficial”. It should also be taken into account that at what age a certain intervention has an effect on patient. It can be said that need based approaches are not really good at handling these temporal effects of interventions because cost effective analyses use discounts to give meaning to inter temporal comparisons of costs and effects. The third feature defines that often a medical treatment is a combination of “many other interventions”. It makes the difficulty level more complex for policy makers because it is not possible to explicitly define the specification of medical services by accessing individual needs.

Framework for analyzing the needs based approaches:

We will use the term “health state” in this strategy. This term defines the state of the health of person. It includes all the relative aspects which are involved in the decision of resource allocation. Health states are referred as alphabets A, B and C etc. This analysis does not take into account any particular assumptions about health states. Health states are ranked according to the bitterness in the health of a person.

There is a transitive and complete bitterness relation between the health states. This terminology is adopted from Broome “Weighing Goods” published in 1991. We can restrict the attention to limited or finite number of health states. Because there exists an index $m(.)$ such that

$m(B) < m(C)$ provided that state B is less than state C. This expression (B, C) refers to a medical treatment which takes the patient from state B-C. For the sake of simplicity only ex ante and ex post states of health are specified.

This implies that the two interventions which have the exact same effect cannot be distinguished because this is not required to prove our argument. Although if two medical treatments have the same effects on a specific set of patients then there might be different reason to prefer one treatment over other. Reason can be difference in cost and degree of convenience to provide the facility. But it certainly cannot be decided on the basis of the degree of need.

We can use this notation to analyze three models of “interpretation of need”. This helps in defining what medical treatment or intervention can be termed as need to particular state of health of patients. Models of interpretation are:

- Interpretation of poor initial state
- Interpretation of range of normal functioning
- Interpretation of significant improvement in health state

According to the first model of interpretation of poor initial state the intervention B, C is termed as “need” if $v(B) < v(C)$ and $v(B) < a$ (a is the given threshold). In this model health state C must be better than the health state B. But the reason why this intervention is a need is because low level of health state B and not due to gain of magnitude in health state C.

Now if we consider the second model of interpretation of normal functioning range the intervention B, C is termed as need if $v(B) < b < v(C)$. “b” is a threshold for normal functioning range. In this model the concept of need is that it takes the patient with some low level of functionality and takes the patient to above the level of functionality.

Now if we consider third level of interpretation of significant improvement in health then we encounter two types of sub models.

- Interpretation of significant relative gain
- Interpretation of significant absolute gain

In the significant relative gain, we term the intervention as need is if

$$v(C) - v(B) / v(B) \geq c$$

for some positive threshold c. In the significant absolute gain we term the intervention as need is if:

$$v(C) - v(B) \geq d$$

for some positive threshold d. But for a given health index $v(.)$ it is obvious that both interpretations of significant gain are different. But they can be transformed into each other by logarithmic or exponential transformation of health index. They have similar properties and also they have roots from the same family.

So we can sum up by saying that interventions can be termed as needs by fulfilling the criteria of four thresholds (a, b, c and d). Thresholds can be interpreted as exogenous parameters. These parameters (thresholds) can be determined from a stock of available resources.

Now we will shed light briefly on these aspects of health care interventions that have connection to the health care need and priority list in health care. We will discuss their relationship to time, multiple interventions and uncertainty.

Need and uncertainty: To define need we have assumed that an intervention will take the patient from one state to another. But we have not considered the probability of treatment being successful. It is common property of all medical treatments that they are normally successful to a specific amount of patients under some relevant conditions.

This notation (B, C, p) will be used to define the relationship of need and uncertainty. This notation will refer to a medical state that will take the patient or group of patients from a particular state B to a particular state C with the probability p. “p” ranges from 0-1. Now if we considered this treatment as need when the probability is 1 then the question is how the status of “being termed as need” is effected when the p changes.

So a health care policy must also consider the probability changes with the above mentioned interpretations. For initial or poor interpretation, it can be said that if resources are allocated according to needs then it is all about simply who are worst off prior to intervention. Any measured or calculated chance of success of treatment is enough for the treatment to be termed as “need”.

If we consider normal functioning range interpretation it takes the patient from a certain level and takes it to a level above of normal functioning range. So both B, C, 1 and B, C, 0.1 have a certain effect on health status of patient but they have huge difference in

probability. One might be successful in all 10 patients and the other might barely affects 1 patient. So, it implies that if we consider need base resource planning in the light of functioning range intervention it does not take into account uncertainty factor.

The third model of interpretation that is significant gain interpretation also have similar implications of need interventions. So this model states that it is the size of the gain of an intervention that have the decision power to term an intervention as need or not. This approach is also consistent with the idea that for an intervention to be termed as need it should have significant probability of success.

In the sum up it can be said that id need base decisions are to be made in the light of functioning range and significant gain interpretations then these decisions must also consider the probability of success of an intervention. So what is required is basically that if an intervention is to taken into account as need and to make it of practical value it should define how it incorporates the factor of probability in it.

Need over time: If we consider how the health care policies should take into account, the delay of effects on need and health care then it leaves a great room for debate. How can policy makers differentiate that a medical treatment which has long time effects has less degree of need than that treatment which has immediate effect? For this some factors have to be considered.

Need based approach is perfect if the need intervention has immediate effects but not for an intervention which has its effects in distant future.

So for both significant range intervention and functioning range intervention it is the impact of intervention which should have the decision power. And the delay in effect should not impact the chance of an intervention being a need unless the delays in effect have sound effects on probability of treatment being effective or if the patient can no longer enjoys the benefit of results from delays.

Multiple 'needed' interventions: A third feature of health care treatments is that they are often a combination of multiple treatments. And then these "multiple treatments" produce desired result in a particular time period. So here

the problem is while referring an intervention as need how can we judge that the paring treatment is also a need?

The critical problem is that methods of allocation of resources are based on interventions of need as they are characterized themselves. It is often seen that there is a no unique way to define what an intervention is. Interventions are normally made up of many treatments. So there is no defined way to decide whether which treatment in the package is necessary and which is not in health care need based planning.

CONCLUSION

To solve practical problems in health care, policies will have to be made in more generalized way. And this can be done by incorporating the entire above mentioned features

IMPLICATIONS FOR NEEDS-BASED ALLOCATION METHODS

In this study, we have argued that policy makers should have to take into account what actually a need is, proper incorporation of probability and uncertainty factor, effects of treatment in distant future and multiple interventions while allocating resources in terms of needs.

There can be so many approaches to deal with these factors other than mentioned here but in order to make a practical and efficient health care policy these factors must be considered.

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