DOWNLOAD PDF WORKING WITH QALYS

Chapter 1 : Talk:Quality-adjusted life year - Wikipedia

The quality-adjusted life year or quality-adjusted life-year (QALY) is a generic measure of disease burden, including both the quality and the quantity of life lived. It is used in economic evaluation to assess the value for money of medical interventions.

The popularity of the QALY approach has been constantly increasing, although the debate on its theoretical underpinnings and practical implications is still ongoing. Disability-adjusted life years DALYs , also widely debated, were shaped some 20 years later, broadly within the same conceptual framework but with a number of important differences. This paper provides a comprehensive formulation of QALY calculation methods, offering practical instruments for assessing the impact of health interventions, similar to those made available elsewhere for calculating DALYs. When a health intervention is aimed at preventing or treating a non-fatal disease, the relationship between QALYs gained and DALYs saved depends on age of onset and duration of the disease, as well as the quality of life and disability weights. In the case of a potentially fatal disease, a larger number of factors may determine differences between outcomes assessed with the two metrics. The relative importance of some of these factors is discussed and illustrated graphically in the paper. Understanding similarities and differences between QALYs and DALYs is important to researchers and policy makers, for a sound interpretation of the evidence on the outcomes of health interventions. Early applications of the health status index include one on tuberculin screening Bush et al. These conditions and the utility theory foundations of QALYs were further discussed in a number of contributions, including those of Myamoto and Eraker , Loomes and McKenzie , Mehrez and Gafni An extensive review published in counted 51 economic evaluations using QALYs as the outcome measure Gerard Only a few years later the QALY framework was widely accepted as the reference standard in cost-effectiveness analysis Gold et al. Bleichrodt and Johannesson Today, QALYs are used in most economic evaluations, and by many regulatory agencies which have made cost-effectiveness analysis an integral part of their decision-making processes. The QALY framework provided a basis for the development of a number of health outcome measures, including the disability-adjusted life year DALY in the early s. The DALY is primarily a measure of disease burden disability weights measure loss of functioning but its use in cost-effectiveness analysis is also relatively common, and this paper is concerned with the latter. Most importantly, the DALY incorporates an age-weighting function assigning different weights to life years lived at different ages, and the origins of disability and quality of life weights differ significantly. Although the disability profiles upon which DALY calculations are based tend to be simple e. On the other hand, quality of life profiles or health profiles for QALY calculations tend to be more elaborate, allowing for sequential upward or downward health status changes over time, but the corresponding calculation methods can be made less cumbersome by using a discrete approximation of a continuous health function Drummond et al. This paper illustrates the methods for calculating QALYs, providing formulas that can be applied directly by researchers, similar to those made available elsewhere for DALY calculations. This paper is about calculation methods, and it does not aim at providing a comprehensive discussion of the conceptual and methodological differences between the two measures, which are well documented in other contributions. In particular, Broome provides a detailed discussion of the conceptual framework of QALYs, while methods for eliciting health state utility values are presented in Torrance Most of the challenges to the QALY framework have been based on the difficulties involved in making interpersonal comparisons and aggregating individual utilities; the assumptions on which health utility elicitation methods are based; and the implicit discrimination against the elderly and the chronically ill or disabled. Key challenges to the DALY framework have focused on the equity implications of age-weighting and of the standard life expectancy assumption used in cross-country comparisons, but also on the methods used to assess disability weights. A direct comparison of the two measures is presented in Gold et al. The number of QALYs lived by an individual in one year is simply: In these cases, L will have to be defined consistently. When time preference, and thus discounting, is incorporated into the equation, QALE becomes: The main use of QALYs is within the framework of cost-effectiveness analysis, to assess the

improvement in quality-adjusted life expectancy obtained through a specific health intervention i relative to a situation in which either no intervention or a standard alternative intervention is provided. In such analysis, the number of QALYs gained can be determined as follows: When QALY calculations are undertaken for the purpose of assessing the QALY gain following an intervention, the focus is on the time period during which an individual is affected by a disease, or by the effects of its treatment. Therefore L should be defined as the duration of the disease, while Li is the period over which the individual enjoys the benefits of treatment or possibly suffers the adverse consequences of it. Although measured on similar scales, the former represent levels of quality of life enjoyed by individuals in particular health states, while the latter represent levels of loss of functioning caused by diseases. The former are normally measured on a scale in which 1 represents full health and 0 represents death, therefore higher values correspond to more desirable states and states deemed worse than death can take negative values. The latter are measured on a scale in which 0 represents no disability, therefore lower scores correspond to more desirable states. The two types of weights are also derived in different ways, using different elicitation techniques and different groups of subjects. In practice, DALY calculations tend to be based on a universal set of standard weights based on expert valuations, while QALY calculations often rely on preference-based health-related quality of life measures directly elicited from general population samples or from groups of patients. The most common preference elicitation techniques are the standard gamble and the time trade-off, both choice-based Torrance These may be applied directly, or indirectly in the assessment of the value of individual dimensions of multi-attribute systems like the Health Utilities Index Torrance et al. QALYs do not incorporate an age-weighting function. Therefore, one QALY has always the same value, regardless of the age at which it is lived, although this does not imply neutrality over age distributions Sassi et al. The corresponding formula for QALYs gained follows from this: This situation is illustrated in Figure 1 , in which the QALY gain is the area between the health profiles. Health profiles with constant quality of life. Health profiles with intervention i solid line , and without intervention broken line. View large Download slide Health profiles with constant quality of life. While this assumption is common in DALY calculations, it is much less so in QALY calculations, in which health-related quality of life is normally allowed to vary with disease progression. The time periods nm may be of different durations. Based on this information, the QALE formula can be re-written as: V where the life expectancy with the intervention Li is divided into P time periods np, defined in the same way as the nm above, and Qip is a vector of health-related quality of life weights predicted or observed for each time period np following the intervention, as illustrated in Figure 2. Health profiles with variable quality of life. In both examples, it is initially assumed that the loss of quality of life determined by the respective diseases in QALY calculations is exactly equivalent to the level of disability estimated in DALY calculations i. This assumption will be later relaxed to illustrate the impact of potential differences between the two. Finally, quality of life is assumed stable throughout the duration of the disease. A non-fatal condition An individual affected by tuberculosis will experience a temporary, non-fatal disability if the disease is appropriately diagnosed and treated. The level of disability attributed to tuberculosis in the GBD study varies in a relatively narrow range 0. The number of QALYs an individual will live while affected by the disease can be determined using equation I. We shall assume that the average duration of the disease L is 6 months or 0. If such a case of tuberculosis could be prevented, for instance by administering a vaccine, 0. This can be determined using equation III as follows: The QALY gain would be greater if the expected duration of the disease were longer than 6 months. Figure 3 shows the number of QALYs gained by preventing one case of tuberculosis, as a function of the expected duration of the disease had it not been prevented. The same figure also shows what the corresponding numbers of DALYs saved would be, depending on the age of onset of the disease, had this not been prevented. This allows the calculation of conversion factors indicating the extent of the divergence between the two measures as illustrated in Table 1 , which are valid only under the restrictive assumptions previously discussed. Conversion factors vary by age of disease onset and by disease duration. Discount rate variations have a very limited impact on them. Benefits of preventing a non-fatal disease, by disease duration Figure 3. A potentially fatal condition Our second example refers to a chronic disease affecting both quality and duration of life, and is based on a case described by Fox-Rushby and Hanson to illustrate DALY calculations. A Chilean woman

becomes affected by bipolar depression at age In the absence of treatment, this woman would live a further 10 years with a disability D of 0. The life expectancy lost is simply ignored, as QALYs focus on the duration and quality of life of the years actually lived by individuals. If treatment were available, the woman would be able to live her entire residual life expectancy, with a disability reduced to 0. Female life expectancy in Chile at the age of 35 is

Chapter 2 : Valuing life: Exploring the history of Quality-Adjusted Life-Years (QALY) | REMEDIA

To find out the QALYs gained by using the new treatment, we need to work out the difference between the QALYs for each alternative. Skip to 2 minutes and 14 seconds With the existing treatment, a patient can expect to live for four years, at a quality of life valued as 4 x equals 2, therefore the existing treatment has a total of.

It assumes that health is a function of length of life and quality of life, and combines these values into a single index number. To determine QALYs, one multiplies the utility value associated with a given state of health by the years lived in that state. A year of life lived in a state of less than perfect health is worth less than 1 QALY; for example, 1 year of life lived in a situation with utility 0. Similarly, half a year lived in perfect health is equivalent to 0. Death is assigned a value of 0 QALYs, and in some circumstances it is possible to accrue negative QALYs to reflect health states deemed "worse than dead. Respondents are asked to choose between remaining in a state of ill health for a period of time, or being restored to perfect health but having a shorter life expectancy. Respondents are asked to choose between remaining in a state of ill health for a period of time, or choosing a medical intervention which has a chance of either restoring them to perfect health, or killing them. Visual analogue scale VAS: Respondents are asked to rate a state of ill health on a scale from 0 to , with 0 representing being dead and representing perfect health. This method has the advantage of being the easiest to ask, but is the most subjective. This parameter can be used to develop a cost-effectiveness analysis of any treatment. This incremental cost-effectiveness ratio ICER can then be used to allocate healthcare resources, often using a threshold approach. Then, in , Pliskin et al. Debate[edit] According to Pliskin et al. Some argue that there are health states worse than being dead, and that therefore there should be negative values possible on the health spectrum indeed, some health economists have incorporated negative values into calculations. Determining the level of health depends on measures that some argue place disproportionate importance on physical pain or disability over mental health. Another concern is that it does not take into account equity issues such as the overall distribution of health states â€” particularly since younger, healthier cohorts have many times more QALYs than older or sicker individuals. As a result, QALY analysis may undervalue treatments which benefit the elderly or others with a lower life expectancy. Also, many would argue that all else being equal, patients with more severe illness should be prioritised over patients with less severe illness if both would get the same absolute increase in utility. First, QALYs are better than alternative measures.

Chapter 3 : Do you know what a QALY is, and how to calculate it? | blog.quintoapp.comrma

Therefore, the benefit of the new medicine will be counted as QALYs as this is the increase over the current standard of care. (3 Years of Life x Additional Utility Level = QALYs) Similarly, if a new medicine (Med B) prolongs the patient's life by 2 years, at a utility level of , the new medicine will provide the person with 1.

I could draw a connection if forced, but It is also appropriately listed as a medical stub. Healthcare planners use these to estimate resource allocation. It is rarely used in resolving ethical dilemmas in health care, except on the large-scale planning economic level. This article should not be cited without additional remarks. It might confuse the uninformed reader. The problem mentioned is that utility measured on interval scales can not be multiplied with any value, because the outcome is not invarirant w. One can only use utility differences; and that is what they actually did in their so-called comple number model figure 6. But you do not need the complex number model, one can simply multiply utility models with time. Some such states were regarded as "worse than death" and so gained negative values. I think hospital patients and professionals working with disabled people turned out to have similar values. The original work was led by Rachel Rosser, a professor of psychiatry in London, in the s. A person in full health has no capacity to benefit from health care, whilst someone not in full health does. The focus of economic evaluation at least on the outcomes side of the equation is the gain in health from an intervention or rather, the extra gain from one intervention compared with another. The QALY is simply a means of measuring overall health gain in a generic way, allowing comparison between many diverse interventions. EdW UK talk My wishes should be the final answer, regardless of the religious beliefs and financial incentives of the doctors, relatives, and institutions involved. If I were lucky enough to live where assisted suicide was a legal option, that should also be made available if I demand it. Given a person in a wheelchair who cannot communicate, the average opinions of those who can communicate are the best available basis for decision-making. The article now is disparaging of QALY, which is not justified. QALYs may also be inherently biased against older people who have fewer expected years of life. At least, this implicit assumption should be made clear whenever QALYs are the basis for scarce resource allocation. QALYs therefore also violate the Pareto improvement principle which is at the core of all modern microeconomics, because QALYs inherently make interpersonal utility comparisons and therefore rely on "greater good" arguments rather than efficiency and mutual gain arguments for its theoretical underpinnings. This comes from my understanding of QALYs from my past reading and reflection on this modeling approach. It is quite likely that someone out there or perhaps many have come up with similar critiques and published them. I would appreciate if you could add some references for this section if you have found some. I would also appreciate if you could email me at ghol gmp. Holt â€”Preceding unsigned comment added by If we are spending public money and have no medical directive for guidance, extending a year old for 2 years should be given less value than extending a year old for 3 years if no other factors are relevant. BTW, I think rich people should be allowed to waste money any harmless way they please, but medical directives should still be subject to finite financial limits based on QALY if using public money. For example, a renowned scientist, teacher, etc. QALY does not seem to consider this at all. If, as you say it, "quality" sounds like "kwa-lit-ee," then "QALY" might well be "kwa-lee. The first definition sentence of this article is technically wrong. This is not hard to do. The article presently lacks international perspective, I think showing an overly UK-centric approach, and would benefit from, amongst others, German and US perspectives. Both preventive care and care that avoids complications can be conceptualized as preventing loss of quality of health, so the present linguistic notion I perceive in the article that only actual "improvement" can be "captured" in QALY needs gentle expansion to allow for this for the "prevention of loss". The QALY concept is the "standard" metric in the field, but as the article presently points out, the scoring systems for "what is Q" is often highly subjective, and has been shown to be dissimilar between different diseases or conditions, and between different "tester populations," impacting cost considerations by factors of as much as fold obviously very significant! I agree with the tag that indicates that refs to high quality, secondary sources that are easily accessible and understandable is needed. A brief encyclopedic approach to this would not be too hard on my

QALY either. For example what is the QALY adjustment factor corresponding to: Sorry to be gruesome, but this seems to be inherent to the topic. I assume there is considerable variation in the estimation of these inherently subjective values, so that can also be illustrated and addressed. I think this would be very helpful to somebody new to the concept. A number of meta-analyses of health state utility values for certain conditions have been carried our recently; I would advise that these be used as sources. Please take a moment to review my edit. If you have any questions, or need the bot to ignore the links, or the page altogether, please visit this simple FaQ for additional information. I made the following changes: Y An editor has reviewed this edit and fixed any errors that were found. If you have discovered URLs which were erroneously considered dead by the bot, you can report them with this tool. If you found an error with any archives or the URLs themselves, you can fix them with this tool.

Chapter 4 : Quality-adjusted life year - Wikipedia

The integrating role of QALYs. In an attempt to integrate the biomedical and psycho-social models, a new approach has been proposed which can be labelled the bio-psycho-social model [5,6].

Advanced Search Abstract The quality-adjusted life year QALY is routinely used as a summary measure of health outcome for economic evaluation, which incorporates the impact on both the quantity and quality of life. Key studies relating to the QALY and utility measurement are the sources of data. Areas of agreement include the need for a standard measure of health outcome to enable comparisons across different disease areas and populations, and the methods used for valuing health states in utility measurement. Areas of controversy include the limitation of the QALY approach in terms of the health benefits it can capture, its blindness towards equity concerns, the underlying theoretical assumptions and the most appropriate generic preference-based measure of utility. There is growing debate relating to whether a QALY is the same regardless of who accrues it, and also the issue as to who should value health states. Research is required to further enhance the QALY approach to deal with challenges relating to equity-weighted utility maximization and testing the validity of underlying assumptions. Issues around choosing between condition-specific measures and generic instruments also merit further investigation. Healthcare studies use many different measures of health outcome to demonstrate the effect of a treatment. For example, one study may report survival rates, whereas another may focus on pressure ulcer incidence and pain-free days. When faced with such different types of outcome measures arising from different interventions, it is difficult to determine where healthcare resources should be most efficiently directed. If survival alone is used to differentiate between different healthcare interventions, any impact on the quality of life associated with an intervention is ignored. To enable comparisons across different areas of healthcare, a common measure is needed. The quality-adjusted life year QALY has been developed in order to capture both of these impacts and is widely used in health economics as a summary measure of health outcome, which can inform healthcare resource allocation decisions. Utilities are preference weights, where preference can be equated with value or desirability. States worse than death can also be accounted for, with such states taking a negative value. Over time, individuals experience different health states, where the health states are weighted according to the utility scores associated with them. This demonstrates the QALYs that can be gained by an individual from receiving treatment as opposed to no treatment. The area under the curve equates to the total QALY value. The lower path shows the health profile if no treatment is received; the HRQoL of the individual reduces over time, until they die Death A. If a treatment is received, however, the individual follows the higher path; their HRQoL remains at a higher level for longer, in addition to living for longer die at Death B. Hence, the total area between the two curves indicates the number of QALYs gained by the treatment.

Chapter 5 : QALYs and the original position

New developmental work is needed to construct better QALY-measuring tools for use in the mental health field. Both the conceptualisation and measurement of QALYs need to be built on a valid, comprehensive model of quality.

This is an Open Access article: This article has been cited by other articles in PMC. Since health is a function of length of life and quality of life, the QALY was developed as an attempt to combine the value of these attributes into a single index number. The QALY calculation is simple: This parameter can be used to compare the cost-effectiveness of any treatment. Nevertheless, QALYs have been criticised on technical and ethical grounds. A salient problem relies on the numerical nature of its constituent parts. The appropriateness of the QALY arithmetical operation is compromised by the essence of the utility scale: In order to be able to obtain coherent results, both scales would have to be expressed in the same units of measurement. The different nature of these two factors jeopardises the meaning and interpretation of QALYs. A simple general linear transformation of the utility scale suffices to demonstrate that the results of the multiplication are not invariant. Mathematically, the solution to these limitations happens through an alternative calculation of QALYs by means of operations with complex numbers rooted in the well known Pythagorean theorem. Through a series of examples, the new calculation arithmetic is introduced and discussed. These classical indicators represent the paradigm of a theoretical model, devised ex professo, which help us to understand the complex reality implied by the term "health". The main aim of this model is to understand the mechanisms causing disease so as to be able to guide physicians in diagnosing and treating the disease [2]. Although these epidemiological indicators are extremely useful in depicting population health, by estimating life expectancy and identifying the causes of death, relatively recent changes in the way health is conceptualised have also led to changes in the way health is measured and the type and quantity of information gathered. This transformation is to a large extent the result of scientific and technical advances in medicine and improved living conditions in terms of housing, hygiene and food. These changes have led to increases in life expectancy and changes in the dominant pattern of morbidity, with the focus shifting from highly-lethal acute diseases to disabling chronic conditions. While the intellectual and methodological foundations of the bio-medical model are rooted in disciplines such as biology, biochemistry and physiology, the new psycho-social model is founded in sociology, psychology and economics. The integrating role of QALYs In an attempt to integrate the biomedical and psycho-social models, a new approach has been proposed which can be labelled the bio-psycho-social model [5 , 6]. The aim of this model is to combine the biological, individual and societal perspectives of health in a coherent fashion. A paradigmatic indicator within this model is the quality-adjusted life-year QALY , which serves as a composite indicator allowing quality and quantity of life to be combined in a single index [7]. The possibility of combining quantity and quality of life in a single index can be combined is based on the idea that the quality of life can be quantified by applying the concept of "utility" [8], a concept rooted in the school of political philosophy known as utilitarianism. Consumer Choice Theory likewise describes how consumers decide what to buy on the basis of two fundamental elements: Consumer preferences for different consumables are also often represented by the concept of "utility" [9]. Within health and health care, the greater the preference for a particular health state, the greater the "utility" associated with it. The utilities assigned to a specific state of health can be estimated using a series of techniques such as Standard Gamble, Time Trade-Off or Rating Scale, or by means of pre-scored health state sorting systems i. The basic idea underlying the QALY is simple: In order to determine the exact QALY value, it is sufficient to multiply the utility value associated with a given state of health by the years lived in that state. QALYs are therefore expressed in terms of "years lived in perfect health": The application of QALYs in the economic analysis of health-care activities Over the last two decades, QALYs have become increasingly widely used as a measure of health outcomes. This is largely due to three important characteristics. Firstly, the QALY combines changes in morbidity quality and mortality amount in a single indicator. Secondly, QALYs are easy to calculate via simple multiplication, although the prior estimation of utilities associated with particular health states is a more complicated task. Finally, QALYs form an integral

part of one particular type of economic analysis within health-care, i. Whereas in Cost-Effectiveness Analysis CEA , incremental effects are assessed in natural units such as lives saved, years of life gained, blood pressure measured in mm of Hg, etc. A further advantage of QALYs, is that they allow the effectiveness and cost-effectiveness or cost-utility of interventions applied in very different disease areas to be compared, even when, because of their different outcomes, they would not be comparable within a CEA [8]. In a cost-utility analysis, costs and outcomes are compared by dividing the incremental cost by the incremental outcome of one treatment over the other, which will indicate how much each additional QALY gained with the new treatment will cost. Incremental QALYs are often pictured as the difference in the rectangular areas resulting from the multiplication of life-years and utility.

Chapter 6 : QALY: measuring the quality of life - Economic and Social Research Council

In this video, Katherine demonstrates how to calculate Quality Adjusted Life Years or QALYs; a unit of benefit that can be used to assess the extent of the benefits gained from a variety of.

We need to understand how QALYs have become taken-for-granted metrics by academics, policy-makers and the medical profession, and how economics was mobilized politically to support this concept. Rooted in decision-making theory, the QALY moves beyond consideration of mere survival rates from treated conditions. The status of health is weighted and ranked: For example, if a patient has kidney disease, QALYs will help to guide clinical decision making about whether a kidney transplant is more cost-effective than hemodialysis. More controversially, QALYs also allow evaluation of which patients would benefit most from the same treatment the age of the patient and the particular type of a disease they have, as well as their baseline risk factor. QALYs therefore attempt to place a value on life, something that ethicists like Professor John Harris contend is too abstract and un-costable to be monetized. In Britain, the development and use of the QALY from the s by policy makers is linked to the rising costs of running a national healthcare system with growing population morbidity, and can be seen as an indirect form of healthcare rationing. The cost of healthcare was also growing, with new, technological innovations such as new transplants and renal dialysis. Figure 1 below highlights how, between and , healthcare costs increased from 3. Due in part to health innovations such as new drugs and treatments, people in the UK were living longer, and therefore spending more years living in retirement and with potentially greater occurrence of ill health due to longer life. Indeed, the creation of the service in had led to a near monopoly where, unlike systems of social or private insurance in continental Europe and the US, health demand could not be limited by the market. Rationing, which until then had been limited to waiting lists, would have to be imposed or implemented by the government. What were the debates around quality of life? QALYs developed from a number of ideas circulating in different policy communities and networks. For instance, philosophers discussed the question of cost of life from as early as the s in relation to issues of the right to live and eugenism. Classification of illness states Source: Moreover, this research was not having a significant impact on the actions of clinicians, social scientists or policy-makers within and beyond the DH. The s political context and growth of the discourse of economics From its creation in , the NHS was treasured by the British public, particularly its public funding and almost free access to care. This question of the cost of the NHS had emerged very soon after the creation of the NHS, with for instance the Guillebaud Committee being commissioned by government to examine this particular question as early as Over the following decades, discussions in government, academia and society had grown over what could and could not be afforded, the successive Thatcher victories highlighting the grip of the idea of cutting costs and living within our means. When Labour was elected in , only 25 full-time economists were employed by Whitehall. Five years later, just under were employed, albeit on short-term contracts. This number doubled between and And yet, health was a latecomer to this trend, with the first two economists to work specifically on health being hired in , although the famous special adviser and economically trained Brian Abel-Smith had been working on health issues in the Ministry of Health since the s. These entrepreneurs played a key role in policy-making by bringing together, or coupling, the three streams, seizing the opportunity of a particular problem grabbing the nation, and coupling it with a policy solution that had gained ground over the years in the policy stream. For example, they gathered the support of different think tanks, academics and government departments. Professor Alan Williams Source: Although QALYs were largely formulated by Rachel Rosser, it was Williams who made the concept more palatable, softening it up to make it easy to understand by a non-specialist audience. Therefore, in understanding past and present policies, it is necessary to examine their multiple origins, the economic, social and political contexts at the time, as well as the protagonists at play. The Wellcome Trust-funded project I am currently collaborating on at the University of Liverpool demonstrates how the history of policy-making â€” notably by bringing together policy-makers and other actors to discuss past healthcare reforms â€” can help these protagonists reflect on their roles and actions, as well as provide insight into current policy-making. You can follow her on Twitter at esmackillop.

Chapter 7 : WHO | Metrics: Disability-Adjusted Life Year (DALY)

QALYs were developed in the s to facilitate cost-effectiveness analysis (CEA). One of the earliest works using QALY was Klarman and colleagues, who analyzed chronic renal disease in Quality-adjusted life-year represents the morbidity of diseases by a scale of 0 to , representing the extremes of death and full health.

So how should you decide who gets the heart? Here is what Singer et. I think Harris is right to say that this is unsatisfactory. So why would they assume that they are the person who would benefit the most from getting the heart? However an expected utility calculation gets the answer that Singer et. Of course, what is needed is an explanation of why it makes sense to maximize expected utility when making these kinds of decisions. Again, I think the best argument has to be that this is the only rational way of making decisions in general. They might add that it helps them to avoid apparently absurd outcomes, like flipping a coin to decide between giving a heart transplant to someone who will live for another month and giving it to someone who will live for forty more years. Scarcity and the original position We were puzzled by cases involving scarce resources, like transplantable hearts. In these cases, the decision is a matter of life or death. The person who gets the heart lives, the other one dies. Rawls had said that the parties in the original position, that is, people behind a veil of ignorance, would choose the best worst outcome. Strictly speaking, he said that is what they would choose in the special circumstances of the original position: For example, they all benefit from property rules since people in a society with property rights are more willing to work to produce things than they would be if they could not keep the results of their efforts as their own property. The cases at hand have many of these features, but not all of them. The worst outcomes are the same: There is no acceptable alternative: You can estimate the probabilities: The people are not in the circumstances of justice: Maybe the answer is that they would opt for giving everyone an equal chance, as Harris suggests. Or maybe they would choose to maximize expected utility, as I think Singer et. Or maybe they would be incapable of making a decision. If so, as Samuel argued, that appears to be an important limitation on original position arguments. Harris thinks that this is unjust because it does not put an equal value on lives. As we saw, Harris is suspicious of original position arguments. Suppose the parties in the original position had to choose between two ways of allocating resources in their medical system: Give priority to saving lives, and only then spend resources on improving the quality of life. The worst possible outcome under the QALY system is that you die because your society took the resources that could have been used to keep you alive and spent them instead on improving the quality of life for others. For example, suppose you need kidney dialysis to live but your society devotes the resources that could have gone to kidney dialysis to hip replacements instead. The worst possible outcome under the second system is that you live with a debilitating condition, like an arthritic hip, that could have been cured. It was not cured because your society devoted the resources that would have gone to hip replacements to very expensive life saving treatments like kidney dialysis. In short, these are the worst possible outcomes: Death Life with an arthritic hip. Living with an arthritic hip is better than being dead. So if the parties in the original position choose the best worst outcome, as Rawls said they would, they would agree with Harris. They would reject maximizing QALYs and instead insist that resources go to life saving treatments, like kidney dialysis, over life enhancing treatments, like hip replacements. In discussing these cases, we have made an assumption about scarcity: Aaron rejected that assumption as artificial and possibly pernicious. Wealthy societies can choose to spend a lot more on health care than they do. They just have to take the money from something else, like the military. Or fancy private colleges? We should not simply assume that this option is not available. And we should especially not let an assumption that we make for the purposes of a highly stylized discussion in a seminar spill over into our real political lives, such that we simply take scarcity for granted in the real world. These are excellent points. That said, there are cases where scarcity is hard to avoid. There have to be some limits to what we want to spend on health care, even if other ways of spending our resources merely enhance the quality of life rather than saving it. I am a doctor of philosophy rather than a medical doctor, after all. But our demand for health is inexhaustible: So I think there will always be a gap between our demand for health care and the resources available to meet the demand. If that is too abstract, just think about transplantable

organs. There are things we can do to increase the supply, like allowing economic markets for organ transplants. But even then, we will probably face shortages. Handout There was a handout for this class:

Chapter 8 : Problems and solutions in calculating quality-adjusted life years (QALYs)

The Quality-Adjusted Life-Years (QALYs) measurement - a tool developed to evaluate the cost-effectiveness of treatments - is central to healthcare decision-making in Britain - where it forms the basis of the work of the National Institute for Health and Care Excellence (NICE) - and in many other countries.

Yes, I know it is hard to put a price on your life. Furthermore, I would answer differently if I were a year-old, full of life and have an average 60 years more to live or if I were a 78 year old with heart conditions. Economists have to find some way to put values on health since they have to compare one health intervention to another. The objective is to evaluate the costs and consequences benefits, potential complications and safety issues of a health intervention, so they can find ways to maximize the benefits, given limited health care resources. So, in order to put all health outcomes, from prolongation of life, pain reduction to prevention of diseases into the same frame of reference, health economists invent the concept of a quality-adjusted life-year QALY to facilitate cost-effectiveness analysis. One of the earliest works using QALY was Klarman and colleagues, who analyzed chronic renal disease in Quality-adjusted life-year represents the morbidity of diseases by a scale of 0 to 1. In other words, your quality-adjusted life-year would be only 0. In earlier days of quality-adjusted life-year, in each cost-effectiveness analysis, health economists must collect data on quality-adjusted life-year on the disease s that they investigated. To avoid this rather arbitrary method and inconsistencies between different cost-effectiveness studies, the Panel on Cost-Effectiveness in Health Medicine PCEHM organized by the US Public Health Service recommended establishing a national catalogue of preference weights that could be used by cost-effectiveness researchers. The catalogue will be built from a sample that represents the U. You can now search for your favorite value of QALY at http: But it seems that EQ-5D is the one most frequently used right now. The EQ-5D index is a 5-item descriptive system. It quantifies 5 dimensions of health status: Each dimension is accessed at 3 levels, namely, no problem, some problems and extreme problems. The EQ-5D is adjusted for other factors including age, gender, race, ethnicity and income. So if you had colon cancer and you are a 65 year old white female, your EQ-5D index for quality-adjusted life-year is 0. Now, you know what a QALY is, how much do you think a quality-adjusted life-year costs? Cost-effectiveness analysis applied to the treatment of chronic renal disease. We will review how health economics influence decision making process in health care and the basic tools used in health economics.

Chapter 9 : Policies & publications

Although QALYs and DALYs stem from the same broad conceptual framework, they are not interchangeable, as they are partly based on different assumptions and different methodologies (for instance, methods for eliciting quality of life and disability scores).