

REFLECTIONS ON THE NICE DECISION TO REJECT PATIENT PRODUCTION LOSSES

James Shearer

King's Health Economics, King's College London

james.shearer@kcl.ac.uk

Sarah Byford

King's Health Economics, King's College London

Steve Birch

Centre for Health Economics and Policy Analysis (CHEPA) McMaster University

Objectives: Patient production losses occur when individuals' capacities to work, whether paid or unpaid, are impaired by illness, treatment, disability, or death. There is controversy about whether and how to include patient production losses in economic evaluations in health care. Patient production losses have not previously been considered when evaluating medications for reimbursement under the U.K. National Health Service. Proposals for value-based assessment of health technologies in the United Kingdom created renewed interest in whether and how to include costs from a wider societal perspective, such as patient production losses, within economic evaluation of healthcare interventions.

Methods: A narrative review was undertaken of theoretical, ethical, and policy issues that might inform decisions that involve the normative question of whether or not to include patient production losses in economic evaluation.

Results: It seems difficult to reconcile the implications of including patient production losses with the objectives of a healthcare system dedicated to providing universal healthcare coverage without regard to patients' ability to pay.

Conclusions: Tax payer funded healthcare systems may legitimately adopt maximands other than health gain, but these will be at the opportunity cost of less than maximum health gains.

Keywords: Production losses, Economic evaluation, Health policy

The key messages of this study are: (i) The decision by the U.K. National Institute for Health and Care Excellence to exclude patient production losses in health technology assessments has renewed interest in the normative issues around this question; and (ii) This study reviews the theoretical, ethical, and policy issues around patient production losses and concludes that patient production considerations are generally incompatible with the objective of health gain maximization and specifically inconsistent with the objective of a national healthcare system of comprehensive healthcare coverage without regard to patients' ability to pay.

In the United Kingdom, patient production losses are specifically excluded when determining the value of a new health technology for reimbursement under the National Health Service (NHS) (1). This position was recently revisited under proposals for Value Based Pricing (VBP) of medicines which included consideration of the wider societal benefits of interventions beyond the health of a patient. Patient production losses are a key driver of nonhealth related wider societal benefits. However, a draft public consultation document released by the National Institute for Health and Care Excellence (NICE) on 22 January 2014 rejected the wider societal benefit approach due to difficulties the working party had with equity implica-

tions and the underpinning theoretical economic arguments (see National Institute for Health and Care Excellence, Value Based Assessment of Health Technologies [Item 4] draft proposals for public consultation: <http://www.nice.org.uk/media/B00/0E/January2014PublicBoardMeetingAgendaAndPapers.pdf>). Decision makers in the United Kingdom and many other countries continue to balk at imposing these costs on health budgets for a mixture of administrative, methodological, and ethical reasons (2).

The debate on the inclusion of patient production losses in economic evaluation in health care revolves around two questions: (i) the normative question of whether these costs should be included; and, if so, (ii) the methodological question of how should they be included (3). The aim of this study is to consider the normative question and the ethical, theoretical, and policy arguments about the relevance of patient production losses when evaluating the relative costs and benefits of healthcare interventions.

What Are Patient Production Losses?

Patient production was defined by the U.K. Department of Health as the sum of *paid production* (labor provided by patients in paid employment) plus *unpaid production* (unpaid work done by patients but valued by others) (see Methodology for estimating "Wider Societal Benefits" as the net production

We acknowledge feedback from the Health Economists Study Group Summer 2014 meeting held at Glasgow Caledonian University.

impact of treatments: http://www.nice.org.uk/media/FE2/F0/DH_Documentation_for_Wider_Societal_Benefits.pdf). Unpaid patient production includes domestic work, child care, voluntary work, and informal health care (4). Production is a function of time spent working and the rate of production (or productivity). Lost working time due to illness can take the form of absenteeism (long or short term), reduced working hours, early retirement (all reductions in time spent working) and/or presenteesim (reductions in productivity) (4). In terms of a cost-effectiveness ratio, avoided patient production losses would be subtracted in the numerator. In cost benefit analysis, avoided patient production losses would be added as a benefit.

What constitutes lost patient production depends on the analytical perspective of the evaluation (5). A societal perspective includes all relevant costs and consequences of healthcare decisions regardless of who pays or who benefits, thereby providing a total assessment of efficiency (6). A tax funded healthcare system perspective will not normally consider patient production losses because statutory goals are usually to maximize health gains based on need and also because patient production losses do not directly fall on healthcare budgets. The government perspective is broader than the narrow tax funded healthcare system and so is also concerned with spillover effects on other government funded services such as education and criminal justice. The government perspective would also include production losses in the form of lost tax revenue from reduced wages and increased welfare payments payable to previously employed patients (5;7), although such transfer payments do not consume societal resources and so would be excluded from a societal perspective (8).

There are two main methods used to value production losses (9;10): the human capital and the friction cost approaches. The human capital approach (HCA) treats patients as assets that contribute production to the economy. The value to the economy of their lost production is calculated by applying gross wages plus benefits to the time taken off work due to illness. Gross wages are used as a proxy value of the marginal product of labor theoretically capturing the total labor market value of an individual's contribution to the output of the economy (11;12).

The human capital approach has been criticized for overestimating the costs of lost production because it fails to account for the possibility that sick or incapacitated workers can be replaced thereby limiting the societal economic loss (5;12). The friction cost approach focuses on the replacement cost based on the time and cost of replacing an absent ill worker such as recruiting, training, and advertising (13). Essentially production losses are limited due to the availability of other unemployed or underemployed workers. Friction cost based estimates of production losses are often only a small fraction of estimates based on the human capital approach (9). However, the use of the friction cost approach has largely been limited to the Netherlands, where it was first developed (14). It is also more complicated

than the human capital approach as it requires detailed and specific information about labor markets which change over time.

METHODS

We conducted a narrative review of the literature including previous reviews, journal articles, books, and reports commissioned as part of the VBP initiative. The results were then organized to address the ethical, theoretical and policy questions surrounding patient production losses. A draft paper was discussed at the U.K. Health Economists' Study Group in Summer 2014.

RESULTS

Is It Ethical?

Article 2 of the NHS constitution states "Access to NHS services is based on clinical need, not an individual's ability to pay." Health economists generally interpret clinical need as the capacity to benefit from treatment in terms of improved health (15) (p. 9). Thus, the implicit decision model is based on prioritizing treatments based on a patient's capacity to benefit irrespective of how health is measured. When healthcare resources are not prioritized according to patients' capacity to benefit, then there is a risk of discrimination. That some patients benefit more than others is not necessarily discrimination. Indeed, article 1 of the NHS constitution states a social duty to promote equality in sections of society with relatively poorer health or life expectancy. Discrimination occurs, and is potentially unethical, when patients benefit more than others based on non-health related characteristics. As Alan Williams wrote "Costs must always be considered systematically alongside effectiveness, since costs represent health gains that have been denied to others" (16) (p. 120). Thus, it can be argued that counting production losses ultimately denies health gains to patients who are less able to work.

Incorporating patient production losses into decision making prioritizes access to treatments according to the value of patients' economic participation which is the equivalent to their ability-to-pay. This suggests higher values for the health of professional workers over manual workers, men over women (8), and for workers over nonworkers (17). Table 1 is a simplified illustration of the potential impact of production losses on cost calculations based on U.K. data (18). Here, avoided production losses are treated as savings, in this case they offset the acquisition cost of a novel and costly drug. *Ceteris paribus*, the drug is a cost saving proposition for younger, male patients becoming less affordable in female and older patients. If patient production losses are incorporated into cost-effectiveness ratios, then ratios for conditions affecting women will be higher than for those affecting men. Indeed, the gender difference in the value of lost production due to higher wage rates and longer working hours for males, would mean that some treatments for males

Table 1. Impact of Production Losses on Costs by Age and Gender

	Aged 45		Aged 55		Aged 65+	
	Male	Female	Male	Female	Male	Female
Average weekly earnings	GBP668.30 × 0.79	GBP528.60 × 0.70	GBP648.70 × 0.79	GBP496.1 × 0.70	GBP557.90 × 0.102	GBP430.40 × 0.102
x participation rate	EUR768.55 × 0.79	EUR607.89 × 0.70	EUR746.00 × 0.79	EUR570.52 × 0.70	EUR641.59 × 0.102	EUR494.96 × 0.102
Value of one working year	GBP 27,454	GBP 19,241	GBP 26,649	GBP 18,058	GBP 2,959	GBP 2,283
	EUR 31,572	EUR 22,127	EUR 30,646	EUR 20,767	EUR 3,403	EUR 2,625
New drug GBP20,000	GBP -7,454	GBP 759	GBP -6,649	GBP 1,942	GBP 17,041	GBP17,717
EUR23,000	EUR -8,572	EUR 873	EUR -7,646	EUR 2,233	EUR 19,597	EUR20,375

Note. GBP to EUR conversion rate of 1:1.15 as of 31/05/2017.

GBP, Great Britain pound.

with relatively poorer health outcomes will be prioritized over those with relatively better outcomes for females.

One approach to overcome this concern is to apply a general wage rate to all lost working hours whether paid or unpaid (9), although this approach may either overstate or understate the value of actual production losses. This approach only partially overcomes the inherent discrimination against treatments for conditions predominantly affecting retired patients or those whose physical or mental condition limit their workforce participation whether paid or unpaid. Such conditions include those affecting the elderly such as Alzheimer's and Parkinson's disease; chronic, relapsing mental health problems, such as severe depression and drug addiction; lifelong conditions, such as autism and physical and mental handicaps; healthcare for prisoners; or life extending treatments for the terminally ill.

Claxton and colleagues (19) examined the impact of including nonhealth costs and benefits such as patient production losses on net consumption costs (the difference between an individual's production and consumption) using previous NICE appraisals. They found that age had a significant positive effect on net consumption costs, favoring treatments for younger over older people (20). An age bias in favor of middle-aged patients over younger and older patients in poorer health was also evident in the methods of calculating paid production produced by the U.K. Department of Health as part of the VBP initiative. These methods provided the means of calculating the "net resource contribution" to society from treating patients based on their age, gender, disease, and health status.

There are also ethical concerns about placing monetary values on human life and suffering based on patients' productive potential (17). However, monetary values are routinely used in economic evaluation of healthcare interventions as well as in other areas of applied microeconomics to value the potential human costs of public investment decisions. In cost-benefit analysis, the social value of preventing a death can be estimated as the value of a statistical life (VSL) calculated by aggregat-

ing willingness-to-pay across a large group of individuals for a small reduction in the certain risk of death from a specific cause such as traffic accidents, pollution or ill health (21). The VSL is not a valuation of a human life *per se* but rather it is the aggregated value of very small reductions in the risk of death.

The life that is saved is *statistical*, which is neither identifiable nor inherently discriminatory unless adjusted for lost production. In health care, however, the lives at risk are identifiable and choices must be made about who to treat and how. This forms the basis of the "rule of rescue" which is the moral imperative to rescue identifiable individuals at risk of avoidable death or injury if rescue resources are to hand without regard to opportunity cost (22). In addition to all of this, the risks are not small or certain, limiting the transferability of VSL values and techniques to the healthcare market.

Olsen and Richardson (1999) (7) suggest that not all resource flows between patients and society are likely to be ethically acceptable. For example, savings in transfer payments from the governmental perspective might suggest economic gains from reduced morbidity in those who do not work will be greater than those from reduced mortality, that is, the dead do not collect welfare payments (7). They suggest that, in collectively funded health systems, only socially relevant production losses should be considered in cost-effectiveness analyses. The social relevance of the production losses would depend on the strength of preferences for "equal access for equal need" which will vary by country and healthcare funding, that is, collective versus private. They propose the concept of "potentially relevant production gains" where patient production losses would be limited to the proportion of general taxation needed to fund national health systems (7). The technical difficulties with using this approach are that proportions change year on year and the approach assumes that the health care at any time is optimal. In any event, this approach still prioritizes treatments for employed workers over those who are unemployed or otherwise unable to work.

More recently, Garau and colleagues (2) have argued that prioritizing diseases affecting individuals of working age, such as cardiovascular disease or back pain, may create a “virtuous cycle” by expanding taxable income for governments to invest in public services including health. Apart from uncertainty about how much additional tax income would actually be invested in health care, any additional resources would continue to be allocated in favor of economically active patients reinforcing discrimination.

Is It Efficient?

The answer to this question will depend on whether the goal of a healthcare system is to maximize health or maximize welfare. Neoclassical welfare economic theory has been used to argue for the inclusion of patient production losses whenever a treatment affects patients’ ability to work because to ignore them would negatively impact total social welfare expressed as the sum of individual utilities (4;6). In other words, the opportunity cost of patient production losses is foregone welfare.

The theoretical assumptions underpinning traditional welfare economics, such as consumer sovereignty, are less realistic in the market for health care. Consumers of health care generally do not have the information, resources or choice to rationally maximize utility in the presence of uncertainty about the incidence of ill health and the effectiveness of treatment (23). Furthermore, the implicit Paretian acceptance of the distribution of income which underpins welfare economics is also unlikely to hold for the distribution of health; in the words of Arrow “the laissez-faire solution for medicine is intolerable” (Arrow, 1963 p. 967). The caring externality (23) and the rule of rescue (22) suggest that individuals value the health of others more highly than their welfare which is inconsistent with a competitive market model and utility maximization. In the case of the caring externality, healthcare markets will not be Pareto efficient because individual marginal costs and benefits will diverge from social marginal costs and benefits (15 p. 132). The rule of rescue overrides opportunity cost and the assumption of welfare maximization where identifiable individuals face an avoidable death or injury (22).

Instead, economic evaluation in health economics has evolved to inform the efficient allocation of healthcare resources in the almost complete absence of the conditions necessary for a perfect market. Extra-welfarism is a variant of welfare economics that views health care as a social good with health-related metrics of efficiency rather than individual utility (24). The extra-welfarist theoretical position rejects the notion that societal welfare is a function of individual decisions to maximize utility thereby allowing economic evaluations to be conducted using viewpoints and outcomes other than individual utility such as population health (24). Once maximizing health-related outcomes become the primary economic objective, the logic of including patient production in economic evaluation is

removed because the opportunity cost of healthcare resource use is foregone health (25). Patient production losses under this scenario are limited to those that affect resources available to the healthcare sector such as that proportion of general taxation needed to fund national health systems (7), although this approach will still prioritize more economically active patients and confounds taxation (a transfer) with resource consumption.

The opportunity cost of adopting new healthcare technologies based on net production necessarily displaces health outcomes within a fixed healthcare budget (19). In other words, more effective interventions for patients with lower economic participation (i.e., the elderly and the chronically ill) will be displaced by less effective interventions for patients with greater economic participation (i.e., working aged adults). However, the exclusion of patient production losses does not suggest exclusion of all nonhealthcare costs. Indeed, NICE continues to consider benefits for other government departments such as reductions in crime resulting from drug treatment programs (1). The U.S. Panel on Cost Effectiveness in Health and Medicine also recognized the uncompensated time of caregivers (also referred to as informal care) as a direct healthcare service cost (Gold et al. 1996) (26) p. 38). Ultimately, the choice of which costs to include in an economic analysis depends on their relevance to the economic question and policy context.

Is It Policy-Relevant?

Priority setting based on patient production losses may be inconsistent with the stated policy objectives of government funded healthcare services. The founding principles of the National Health Service were to provide a comprehensive and free health service for the improvement of the physical and mental health of the people of England and Wales without regard to “whether they can pay for them, or on any other factor irrelevant to the real need; the real need being to bring the country’s full resources to bear upon reducing ill-health and promoting good health in all its citizens” (National Health Service 1944 White Paper, as quoted in Klein (27)). The policy commitment to maximizing population health was recently restated in the NHS constitution as “access to NHS services is based on clinical need, not an individual’s ability to pay” (28). Thus, priority setting based on the value of patients’ economic activity rather than their ability to benefit from health care could be argued to be inconsistent with the stated policy objectives of the NHS to maximize population health.

The mission of the U.K. NHS to provide universal coverage for health care free at the point of delivery without regard to patients’ ability to pay has enormous political and cultural potency in the United Kingdom. However, this is not the case in countries with traditions of either private health insurance or social health insurance. Patient production losses may be more relevant in social insurance systems where access is determined by employment status. The relative success of different

funding systems in different types of patients may reflect priorities based on patient production losses. Social insurance systems are recognized as highly efficient at delivering acute care but less successful at treating chronic illnesses and providing preventative care (29). A competitive private health system will limit insurance coverage for those on low incomes and high service users such as the elderly and the chronically ill (30). Thus, both private and social insurance systems accept a degree of unequal access and a less efficient health system in terms of maximizing health gains (31).

CONCLUSION

The distribution of health and risks to health in society is unequal and unpredictable. The U.K. NHS is aimed at ensuring resources devoted to health care responds to these distributions by prioritizing those with greatest healthcare needs (i.e., the ability to benefit) and hence maximize the impact of those resources on population health gain. Introducing patient production losses into the evaluation framework diverts attention from producing health gains in response to the prevailing distributions and instead incorporating implicit goals of maximizing the gain in production. We conclude that production considerations are incompatible with the objective of health gain maximization, and are specifically inconsistent with the objectives of a national healthcare system of universal coverage to comprehensive health care without regard to patients' ability to pay.

Limitations

The arguments presented here are specific to the relevance of patient production losses to resource allocation decisions in universal tax payer funded healthcare systems such as the U.K. NHS. The focus on patient production losses was motivated by the valuation exercise commissioned by the U.K. Department of Health as part of the Value Based Pricing initiative. This does not suggest support for any particular method of economic evaluation or economic perspective. Specifically, we do not argue for a narrow healthcare evaluative perspective against a more comprehensive societal perspective but rather consider the arguments for including a specific category of costs (patient production losses) in a specific healthcare system (the U.K. NHS). We have had to balance in-depth descriptions of complex arguments against the goal of informing decision makers and patients of the potential consequences of considering production losses when prioritizing health technologies.

Health technology assessment (HTA) bodies throughout the world face pressures to consider wider economic perspectives or to privilege specific patient groups in decision processes. It can be difficult for decision makers to fully appreciate that by prioritizing identifiable groups of patients such as the working aged, health losses are imposed on other patients. It is, therefore, essential that the methods and processes used by HTA programs are transparent and subject to academic scrutiny

and critique. At a minimum, proposals to include production losses should acknowledge consequent health losses and attempt to estimate the opportunity cost (32). It is legitimate for policy makers to use tax payer funded health budgets to prioritize employment, industry, or trade, but the attendant sacrifice of health should not be ignored (33). In such cases, the guidelines or laws governing HTA bodies should explicitly mandate the societal perspective in decision making or reference stated government health system goals of economic development or growth.

Whether or not maximands other than health should be a health system goal is ultimately a normative question determined by prevailing social values. The issue of value based pricing in the United Kingdom led to work exploring social preferences for alternative goals to maximizing population health for the U.K. NHS (34). None of this work asked respondents to explicitly trade patient production losses for patient health gains yet, arguably, the impact of including patient production losses would have the largest potential impact on the allocation of healthcare resources. As Linley and Hughes (34) warn, policies based on perceived rather than actual societal preferences may "lead to inappropriate resource allocation decisions with the potential for significant population health and economic consequences". If policy makers wish to focus tax payer national health systems on the goal of getting people back to work by prioritizing treatments based on production losses rather than health gains the attendant sacrifice of health gains forgone should be made explicit.

CONFLICTS OF INTEREST

The authors did not receive funding for this study and have no conflicts of interest.

REFERENCES

1. NICE. *Guide to the methods of technology appraisal*. London: National Institute for Health and Clinical Excellence; 2013.
2. Garau M, Shah K, Sharm P, Towse A. Is the link between health and wealth considered in decisionmaking? Results from a qualitative study. *Int J Technol Assess Health Care*. 2016;31:1-8.
3. Krol M, Papenburg J, Koopmanschap M, Brouwer W. Do productivity costs matter? The impact of including productivity costs on the incremental costs of interventions targeted at depressive disorders. *PharmacoEconomics*. 2011;29:601-619.
4. Brouwer W, Rutten F, Koopmanschap M. Costing in economic evaluations. In: Drummond C, McGuire A, eds. *Economic evaluation in health care: Merging theory with practice*. Oxford: Oxford University Press; 2001:68-93.
5. Drummond M, Sculpher M, Torrance G, O'Brien B, Stoddart G. *Methods for the economic evaluation of health care programmes*. Oxford: Oxford University Press; 2005.
6. Sculpher M. The role and estimation of productivity costs in economic evaluation. In: Drummond M, McGuire A, eds. *Economic evaluation in health care: merging theory with practice*. Oxford: Oxford University Press; 2001:94-112.

7. Olsen J, Richardson J. Production gains from health care: What should be included in cost-effectiveness analysis. *Soc Sci Med.* 1999;49:17-26.
8. Luce B, Manning W, Siegel J, Lipscomb J. Estimating costs in cost-effectiveness analysis. In: Gold M, Siegel J, Russell L, Weinstein M, eds. *Cost-effectiveness in health and medicine.* New York: Oxford University Press; 1996:176-213.
9. Lensberg B, Drummond M, Danchenko N, Despiegel N, Francois C. Challenges in measuring and valuing productivity costs, and their relevance in mood disorders. *Clinicoecon Outcomes Res.* 2013;5:565-573.
10. Zhang W, Bansback N, Anis A. Measuring and valuing productivity loss due to poor health: A critical review. *Soc Sci Med.* 2011;72:185-192.
11. Herrero C, Moreno-Ternero J. Estimating production costs in the economic evaluation of health-care programs. *Health Econ.* 2009;18:21-35.
12. Brouwer W, Koopmanscahp M, Rutten F. Productivity costs measurement through quality of life? A response to the recommendation of the Washington Panel. *Health Econ.* 1997;6:253-259.
13. Koopmanschap M, Rutten FFH, Vanineveld B, Vanroijen L. The friction cost method for measuring indirect costs of disease. *J Health Econ.* 1995;14:171-189.
14. Kigozi J, Jowett S, Lewis M, Barton P, Coast J. Estimating productivity costs using the friction cost approach in practice: a systematic review. *Eur J Health Econ.* 2016;17:31-44.
15. Morris S, Devlin N, Parkin D, Spencer A. *Economic analysis in health care.* 2nd ed. Chichester: Wiley; 2012.
16. Williams A. Cochrane lecture. All cost effective treatments should be free... or, how Archie Cochrane changed my life! *J Epidemiol Community Health.* 1997;51:116-120.
17. Richardson J. Economic assessment of health care: Theory and practice. *Aust Econ Rev.* 1991;24:4-21.
18. Office for National Statistics. Annual survey of hours and earnings: 2016 provisional results. 2016. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2016provisionalresults> (accessed February 25, 2017).
19. Claxton K, Sculpher M, Palmer S, Culyer A. Causes for concern: Is NICE failing to uphold its responsibilities to all NHS patients? *Health Econ.* 2015;24:1-7.
20. Claxton K, Walker S, Palmer S, Sculpher M. Appropriate perspectives for health care decisions. York: Centre for Health Economics, 2010; Paper 54.
21. Mason H, Jones-Lee M, Donaldson C. Modelling the monetary value of a QALY: A new approach based on UK data. *Health Econ.* 2009;18:933-950.
22. McKie J, Richardson J. The rule of rescue. *Soc Sci Med.* 2003;56:2407-2419.
23. Arrow K. Uncertainty and the welfare economics of medical care. *Am Econ Rev.* 1963;53:941-973.
24. Brouwer W, Culyer A, van Exel N, Rutten F. Welfarism vs. extra-welfarism. *J Health Econ.* 2008;27:325-338.
25. Gerard K, Mooney G. QALY league tables: Handle with care. *Health Econ.* 1993;2:59-64.
26. Gold M, Siegel J, Russell L, Weinstein M. *Cost-effectiveness in health and medicine.* New York: Oxford University Press; 1996.
27. Klein R. *The new politics of the NHS.* 7th ed. London: Radcliffe Publishing; 2013.
28. Department of Health. *The NHS Constitution for England.* London: Department of Health; 2013.
29. Gottret P, Schieber G. *Health financing revisited: A practitioner's guide.* Washington DC: The World Bank; 2006.
30. Donaldson C, Gerard K. *Economic of health care financing: The visible hand.* 2nd ed. Basingstoke: Palgrave Macmillan; 2005.
31. Layte R, Nolan A. Income-related inequity in the use of GP services by children: A comparison of Ireland and Scotland. *Eur J Health Econ.* 2015;16:489-506.
32. Paulden M. Recent amendments to NICE's value-based assessment of health technologies: Implicitly inequitable? *Expert Rev Pharmacoecon Outcomes Res.* 2017;17:239-242.
33. Walker S, Griffin S, Claxton K, Palmer S, Sculpher M. Appropriate perspectives for health care decisions. In: Curtis L, ed. *Unit costs of health and social care 2012.* Canterbury: Personal Social Services Research Unit; 2012:8-11.
34. Linley W, Hughes D. Societal views on NICE, cancer drugs fund and value based fundig criteria for prioritising medicines: A cross-sectional survey of 4118 adults in Great Britain. *Health Econ.* 2013;22:948-964.