

Limited Resources Limiting Life? Applying Resource Allocation Models to a “Highest Value on Life” Policy

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Limited resources and the need to ration resources are a constraint on preserving life, or satisfying a preference for life. For example, if a physician was not able to ventilate a patient because all of the ventilators were in use, this is not that physician letting a patient die or rejecting a policy of placing the highest value on life (HVL). Society may accept the responsibility for letting die if at a macro allocation level not enough resources were allocated to health care and then within the health care budget buying ventilators was not a priority. The decision not to buy an adequate number of ventilators may reflect a hierarchy of values where life was placed below other primary goods. If, however, a ventilator was available but the physician did not use it for a particular patient, this may fulfil the requirements of letting die. If the reason was to save money, it could be said that economic considerations were being placed ahead of life at a micro level.

A highest value on life policy, therefore, impacts on both macro allocation issues in the priorities that a society uses in allocating resources as well as the micro issues of resource allocation at the individual patient level.

Distribution of Resources

Sometimes a limitation upon a resource is absolute. More often, however, resource restrictions in one area are relative, being a trade off between the needs of one area and another. Governments for example must balance health with social welfare or education in apportioning each a budget from the fixed revenues available.

The just allocation of resources could be predicated upon egalitarianism, libertarianism or utilitarianism¹. Will justice best be served by aiming for equal access to health care or equal outcomes in the distribution of health resources, particularly given that individuals have inequalities in health care needs based both on factors within and beyond their control? Should we be trying to satisfy people’s health care needs or desires? Is there a basic minimum of health care that a society has a responsibility to provide for its citizens and how will that minimum be determined? In times of limited resources can we only hope to satisfy both justice and autonomy by having majority agreement to the methodology of health resource allocation rather than focussing on outcomes for each individual? Do we limit the range of treatments available or the individuals who have access to them, dependant on potential but uncertain outcomes? What are possible solutions to the problem of rationing?

Distributive Justice

The just distribution of health care may not be independent of the equitable division of other goods. However, society may wish to place a special emphasis on the distribution of health care particularly if it places a high value on life or indeed even quality of life, since without these the ability to benefit from any other goods that society distributes can be severely restricted. It is not just that health may provide a means to other ends. Societies that place a high value on life, will view health care as a commodity that impacts on life and death itself in a way that many of the other commodities to be justly distributed do not. This would foster a special desire to ensure justice in the distribution of health care, at least where it impacted on life itself. Initially I want to examine theories of distributive justice for health that are advocated as applying to global health policy.

Libertarian Theories of Justice

Under a libertarian view, free choice is essential to distributive justice. This view champions a free market system where the procedures are fair, as individuals receive benefits in relation to their contributions. Much of the American health system operates in this way. No one would be forced to redistribute their resources in order to benefit others. The justice comes from ensuring that there are no restrictions to the free market procedures. Government action, according to Nozick, is then only appropriate to protect the entitlements and rights of its citizens rather than be responsible for the distribution of the health resources².

A libertarian may agree to the distribution of health services based on other principles such as utilitarianism or egalitarianism where all of a society freely agrees to a chosen method of resource distribution³. Justice is satisfied by the free choice after group consultation rather than the liberty of each individual having to be satisfied for each allocation decision. Now it is highly unlikely that each individual would agree to a particular methodology of distribution of health care and it cannot be said that merely a majority view satisfies the libertarian view of justice. It is possible that a compromise could be reached in the health care system say by allowing both a public and private system of health insurance.

The other problem with a system of prior agreement about the methodology of resource distribution is that views may change when individuals become ill, or as they become older and the prospect of illness is of more immediate concern^{4,5}.

Now, whereas an individual in the free market under libertarian policies may choose to pursue a policy, for example an HVL policy, for himself, the extent to which he can satisfy his desires will be limited by his resources. We will have to examine other than libertarian options if we want to explore the possibility of a policy of macro allocation that satisfies an HVL policy across a society.

Utilitarian Theory and Distributive Justice

Utilitarian theory suggests that resource allocation decisions should create the greatest good for the greatest number of people as part of maximising value. Distributive justice is an obligation of the theory that involves tradeoffs between risks and benefits^{6,7}. To put this into practice in the health care setting, we must be able to decide what good we should be maximising, whether we can measure it and how we can balance the quality of a good with the quantity of that good.

Are we to maximise health outcomes, which will almost certainly mean unequal distribution of health care, or will the most good be done to maximise access to health care or to satisfy peoples needs for health care? Norman Daniels argues that the role of the health care system is to protect an individual's share of the normal opportunity range, both by curing disease and preventing disease⁸. It is the range of opportunities that are being maximised.

The concept of agent neutral impartiality of ethical principles is exemplified by Peter Singer's principle of equal consideration of interests that he discusses as a minimal principle of equality in resource allocation⁹. Here the interest, say in the relief of intolerable pain, would be the same no matter which agent required the resource to achieve it.

To implement a utilitarian theory we face dilemmas over what to maximise and the calculation of the greatest number. Veatch in an article on research on "big ticket items" contends that although utilitarian theory may appear to support the wide distribution of low tech preventative health services, it may also support very expensive high technology procedures which are evolving, based on their likelihood of benefit to future generations¹⁰.

A further problem is quality versus quantity of a good if we are to use utilitarian principles to ensure just distribution of resources. A longer life of poorer quality may not necessarily be preferable to a shorter life of high quality. In trying to spread health resources to the greatest number, could the good be minimised at least to some groups to an unacceptably low quality?

Nicholas Rescher proposed a utility floor or safety net below which no one should fall¹¹.

Let us discuss practical applications of a policy seeking to achieve the greatest good for the greatest number of people. An example is to utilise with the quantification of health outcomes using quality adjusted life years (QALYs).

QALYs

Cost utility analysis as exemplified by QALYs uses an index which combines changes in lifespan and quality of life to assess the utility of a health program and therefore could form a measure by which health

resources could be allocated in a utilitarian model. It is an attempt to make the method of rationing accountable, but to derive a number, as a bottom line cannot be done without making assumptions and value judgements. QALYs can be calculated in several ways involving trades between years of life for quality of life¹². One can trade the longer time that a medical intervention may give for a shorter time with a better quality of life without the intervention. In times where rationing is required, a cost can be calculated per quality adjusted life year and used to construct a league table of medical interventions.

The calculation is based on probabilities and uncertainties about outcome and the validity of its measurement can always be questioned.

The QALY is calculated by sampling what is hoped is a representative population, but if used for resource allocation, a major assumption is that community preferences can be substituted for those of an individual. Clinical practice has not traditionally been conducted to benefit the public good over that of the individual patient¹². Clinical practice has traditionally focussed on the individual patient irrespective of how that patient's needs compare to the rest of the community. QALYs try to provide information about health resource allocation based on populations.

Identifiable cases are particularly problematic when compared to statistical cases. Often prevention of an illness may be a better strategy across a population but the beneficiaries are anonymous. Patients requiring acute treatment can be identified which carries more emotional impact and may sway resource allocation decisions towards acute treatments. This is well illustrated by the example of the implementation of a practically applied utilitarian theory of health distribution that used QALYs, as developed in Oregon²⁹.

The Oregon Plan

In 1987 the Oregon legislature decided to modify its publicly and capped Medicaid program to increase the number of people covered, by eliminating from the Medicaid program funding for high cost, low success rate medical interventions, in this case various organ transplants. Whereas this sensible sounding global strategy could be easily defended on utilitarian grounds, it was immediately under public challenge when a seven year old boy, dying of acute leukaemia may have benefited from a bone marrow transplant. He subsequently died, but the widespread emotive media attention that the case attracted forced the Oregon community to examine the question of how to ration health care and it highlighted the problems of decision making when applied to abstract statistics as compared to an identifiable case. It raises for me the question of whether health care, particularly as it applies to life or death decisions can be rationed like other commodities such as money, or whether it has a special status because of the gravity of the consequences of denying any individuals access to potentially life saving treatment.

Oregon developed a health plan where the majority of citizens would have access to basic health care. The aim was to prioritize health services based on their comparable benefits to the population to be served¹³. The methodology was to ascertain by telephone poll what health care the community valued and rank disease treatment pairings based on likely benefit. The number of these covered depended on when the money ran out. A telephone poll asked individuals asking to project their feelings as if they had symptoms, and community meetings to elicit community values about health care. Critics focussed on the fact that well people were polled and outcomes didn't account for how well people adapted to their illness or whether concomitant illnesses reduce benefits and the fact that the focus is on community consensus rather than individual need.

Triage

Another practical application of a utilitarian calculation in distributing medical resources is the triage model. This is most often used in making micro allocation decisions, but the principles of triage require definition. Triage arose in the emergency situation of wartime and having to deal with casualties when resources were limited¹⁴. Some will require immediate treatment or evacuation to survive, others can have treatment delayed, whereas some will not survive even with medical help and therefore do not have a claim on utilising the scarce resource. In the peacetime setting the same principles often need to be applied in a busy emergency department or when allocating limited intensive care beds.

The usual principle under which triage decisions are made is that of medical utility, maximising the welfare of patients in need of treatment¹⁵. What this means is that the urgency of treatment, or the use of specialist resources such as intensive care, or the decision about who should receive the transplant, will be based on the patients likely prognosis after the medical intervention. The first problem with this is the uncertainty of the prediction of the outcome.

Egalitarian Theories and Resource Allocation

Egalitarian theory holds that individuals who are morally similar should be treated similarly. Most theories explore what are morally relevant grounds for equality and differences and what constitutes similar treatment¹⁶. In the distribution of health resources for example are we talking about equal distribution or equal outcome? This is important for being able to translate the theory into practice. If distributive equality is the goal, we need to decide what aspects of health care we are equally distributing. If outcomes are the goal, are we trying to satisfy peoples' needs or their desires?

People can be given equality of opportunity or equality of resources but that still will not translate into equal outcomes. With the diversity of human conditions it would seem that in practical terms total equality is not possible therefore the practical aim is to reduce the inequalities as much as possible. However, that will mean deciding what are the morally relevant characteristics that need to be equalised and whether there are some differences between people that we have no need to equalise. Equality of outcomes will necessitate unequal distribution. This can be easily recognised in an example where quality of life is what is being equalised.

The implementation by society of an egalitarian concept of justice could be overwhelming unless a minimum requirement can be determined.

Rawls' Theory of Justice

Rawls' theory of justice equates justice with fairness. He sees society as responsible for guaranteeing individuals their fair share of what they require to pursue their chosen ends. For example, they should have their fair share of liberty and opportunity. We may add health resources to this. Rawls contends that what constitutes a just share could be theoretically decided behind a "veil of ignorance" of individual positions. This just distribution of social goods would not necessarily satisfy peoples' actual desires but would aim at providing them equality of opportunity to satisfy their preferences. In an attempt to compensate for undeserved differences between people, a modification of his second principle allows unequal distribution as long as it will work to the advantage of all, but especially the least advantaged¹⁷. Individuals have different skills. What is more, society may do well to encourage the differences rather than try to compensate for them; if preferentially allocating resources to the individual judged as the least advantaged would prove a disincentive to the individual with the greater advantage to exercise it to society's benefit.

Health Distribution Policies to Support a 'Highest Value on Life Policy'

How does a highest value on life policy sit with the principles for deciding health distribution described above? Let us look first at the concept of a basic minimum of health care that would satisfy an HVL policy. Essentially it would be required to guarantee that life saving treatments were available to all. HVL would provide life and death treatments in preference to cosmetic treatments, and would mandate the opportunity to have any treatment where there was a reasonable probability of extending life.

Certainly an HVL policy could be sustained under a libertarian system if society freely decided to apportion health care so that life-saving treatments were given priority. However libertarian arguments could be mounted against an enforced HVL policy. This may occur if health distribution sought to limit choice by insisting upon protecting the population against loss of life.

Under an egalitarian system, fulfilling an HVL policy would involve the distribution of health care to ensure equal chances of remaining alive. I have suggested in line with an HVL policy, the minimum under an egalitarian policy would be to preserve the fair range of opportunities by at least ensuring the availability of life saving procedures. Note that we are not talking about minimal as simple health care, since some procedures, such as organ transplants or dialysis could be complex or expensive. We would have to ensure

that there were no barriers to access to these medical procedures based on morally irrelevant features such as race or socioeconomic group. HVL provides a criterion for determining a basic minimum, but from this the procedures for determining what health care fits into the category would need to be developed, and then we would need to actually list the items to be covered. This would be a dynamic process, as medical progress is made. Note that such a policy may not meet everyone's medical needs or preferences but is designed to satisfy the most basic requirement, so that individuals can continue to explore life's options. Just distribution of health care under HVL would prevent inequities relating to the primary good that an HVL policy places on top of the hierarchy of goods, life itself.

How would an HVL policy sit in relation to a utilitarian theory of health distribution? Firstly, it would provide some guidance as to the greatest good. If life is highly valued, a medical intervention that saved a life or allowed people to live a normal lifespan would count as a greater good than a medical intervention that did not save a life. This would be agent neutral. The policy is not absolutist and does not commit us to medical interventions that are predicted to be unlikely to alter the fact of a person's dying. Since we are discussing policies to be employed when rationing is unavoidable, the resources would be directed toward lifesaving treatment. If a society adopted an HVL policy it may ensure that the basic minimum health care ensures the availability of treatments that are predicted to have a reasonable chance of saving a life. A highest value on life policy does not drive the need for rationing. Quite the converse, the need for rationing may limit the ability to achieve the highest possible value on life. Rationing can occur, guided by a principle that life saving treatment has priority over other treatments.

QALYs and HVL are not necessarily mutually exclusive. The weighting of QALYs under HVL would be very much towards duration of life rather than quality. HVL is not an absolutist policy. For example, patients in the terminal phase of an illness where dying is inevitable and a medical intervention cannot change that fact could have quality of life factors predominating in their treatment decisions.

The Oregon plan for rationing could, in principle, accommodate an HVL policy. Life-saving treatments would be ranked higher than more palliative treatments would be ranked towards the bottom of the list under HVL as they were in Oregon. Fine tuning and exceptions for life and death cases which displayed anomalous results because of the assumptions and averaging that are a part of developing any global policy would have to occur, but the basic principles of the system could be adapted to an HVL policy. There would need to be an agreed definition of how a minimum of health care could satisfy an HVL policy. The problem of public disquiet about identifiable cases that need acute care would to some extent be alleviated because they usually involve life saving treatments, which would be receiving priority both individually and globally. This may also help the tension created when treatments offered to individuals, are different to that available under a model where society's values predominate, since in life and death issues they would be identical. On a macro level, hopefully there would be enough resources to provide for treatments that would both save lives and promote quality of life. If not, we would still favour saving a life over using the same resource to promote quality of life but since HVL is not absolutist we may need to make hard decisions about what probability of successfully saving a life a treatment should have before it should be funded. Also, an HVL policy would encourage experimental, potentially life saving treatments like the development of an artificial heart for the benefit of future generations, but we would need to decide when the success rate was such that the procedure warranted being taken from a small experimental subset of patients to being made more generally available. HVL is a principle to which a policy aspires and it provides a useful rule of thumb for choosing between two alternatives but it does not mean that difficult decisions can be avoided. The decisions become more difficult as resources become more limited.

With regard to triage, HVL helps in defining some of the value judgements that would be part of decisions based on medical utility. A medically desirable outcome would be to save a life, and this would be held above other outcomes as a principle for triage. If there were doubt about the outcome, life would be given the benefit of the doubt. This sounds vague but in the practical application of HVL amounts to the same as the reasonable doubt accepted both medico-legally and in making other treatment decisions. I have previously stated that the medical decision making process is no different at the end of life than at other times. Weighing probable benefits with possible toxicities doesn't ignore the extreme cases but recognises them as such in deciding the likely outcome of a choice of whether or not to institute or withdraw a treatment. HVL is not an absolutist policy mandating the absurd long shot but where reasonable doubt

exists of the ability of a treatment to save a life then the HVL policy would tip the balance in favour of trying the treatment.

Finally, on the issue of how to allocate resources if medical utility did not discriminate between two cases, I believe that an HVL policy would see life as so important that the preference would be to try to make a decision based on the more difficult social utility factors rather than leave such a vital decision about an individual to chance. If, indeed, maximising social utility resulted in saving lives, an HVL policy would mandate that choice to be made. This does not mean that an individual life could be devalued for the good of the whole but is confined to those situations when there is no basis for choosing between two individual cases on HVL grounds.

HVL and Distributive Justice for Health Care

How a society distributes health care can say a lot about how it values life, autonomy and justice. A libertarian system relying on a free market may signal a society which values individual autonomy highly, perhaps at the expense of what an egalitarian would see as justice. Likewise an egalitarian or utilitarian system of preventative public health measures may be viewed by a libertarian as undermining individual autonomy. A utilitarian may aim for the greatest good for the greatest number, which again may mean less advantage to the least advantaged as compared to an egalitarian system. A society valuing life above individual autonomy or egalitarian notions of liberty will have preservation of life underpinning the application of one or other system of distributive justice. Can a compromise system satisfy some of the requirements of each system of distributive justice?

A two tiered system combining a public with a private health system has been adopted by many countries. Engelhardt sees such a system as unavoidable because “no single, canonical, content-full, secular account of fairness, justice and rights does not beg cardinal moral questions”¹⁸. The basic tier that provides a decent minimum of health care is what society accepts responsibility for. The next tier or tiers can be subject to market forces. This would certainly sit well with a libertarian system but also the basic tier could be the utility floor of Rescher’s modification of a utilitarian system¹¹. A two tiered system which gives equal access to health services that meet basic health care needs as judged by their impact on the normal opportunity range also satisfies an egalitarian approach. I would be more satisfied with the justice of a two tiered system if everyone had sufficient finances above their subsistence needs to be able to choose whether to spend the excess on health insurance to buy more exotic health care or on other commodities to enhance their lifestyles. The assurance that all had the ability to make choices about more substantial coverage could also allow solving the problem of self inflicted illness by making greater risk takers pay more for the second tier, for which the rest of society would not have to be responsible.

An HVL policy could be consistent with such a two tiered system. As a general principle, life saving treatments would be included in the basic tier for which society would accept responsibility. The second discretionary tier would then be for those seeking care that would impact more on their quality of life. Again medical interventions (and I include prevention and early detection strategies such as breast screening) would be ranked in a hierarchy based on their likelihood of saving life. An HVL global policy would fund as many of these as resources would allow with those most likely to save lives most strongly mandated by the policy. HVL provides a basis for comparing any two medical management strategies to decide the allocation of funding based on the potential to save lives.

Health Resource Allocation as a Constraint on HVL

Health resource allocation cannot be taken in isolation from a society’s underlying resource distribution philosophy. Not only will that determine the slice of the pie that is allocated to health, but may also determine what is to be achieved by the health care budget. Having different agendas in implementing a health care rationing system can impact on the practical application of that system. This may act as a further constraint on the practice of an HVL philosophy, although the HVL philosophy could influence the global funding priorities to minimise the constraint. The implementation of a casemix funding system serves as an example.

Casemix which has been used as a model for health funding by health systems including the USA and Australia is a term describing classification of patients into diagnosis related clinical groups expected to

have consistent resource consumption, for the purpose of calculating reimbursement for hospital based activity. As an approximate indicator of the resources consumed, the length of inpatient hospital stay has been used¹⁹. Casemix is no different to other possible funding models in having to make assumptions and use averaging and approximations to create a system that can be universalised. As a model of health care distribution the casemix system is reasonable; most of the ethical dilemmas arise from how or why it is implemented.

One of the difficulties of a system such as casemix to distribute health resources is its reliance on measurable outcomes. The use of length of inpatient stay to determine funding may introduce systematic biases against patients with chronic illnesses, or the elderly, who may require a longer time period than the young to recover from illness²⁰. Also using a measurable outcome to distribute resources raises concerns about the effect of outcomes that are difficult to quantify. Quality of care is always difficult to measure, particularly if outcomes are to be assessed from the patients' perspectives rather than in terms of the patient throughput that the hospital achieves. There will be tradeoffs between values in any time of diminished resources, but no guidance could be given from the parameters measured for a casemix system as to whether justice was being achieved. If an HVL policy was thought desirable a system such as casemix may be a constraint on its implementation.

Should Clinicians Have a Dual Role?

Should a doctor be expected to be a steward of society's resources as opposed to an advocate for his individual patients^{21,22}?

If resources are limited there may need to be individual restraint for the good of the community²³. However, as Kennedy suggests, it is society's role, not the individual practitioner's to set the parameters for resource utilisation²⁴. An advocate of an HVL policy would want to implement it at the bedside, but if it were not societal policy he would be constrained by the prevailing social policy. If resources were not made available to him then he could not be held responsible for not being able to fulfil an HVL policy since he was not also responsible for making the global resource decision. It would be highly desirable from his viewpoint if social macro policy and his micro policy were aligned but that may not always be the case.

The doctor would have one further responsibility to his patient, and that is to provide full information so that the patient could make an autonomous decision about his treatment.

Conclusions

Although we have previously discussed HVL in terms of micro allocation and individual patient issues, we have seen that macro allocation decisions can have a significant impact upon the ability to pursue an HVL policy. Society's handling of health resource allocation will say a lot about its attitude to the importance of life. Macro allocation decisions can both constrain the application of an HVL policy at the individual patient level and could even drive individual practitioners to pursue society's economic goals instead of providing the best treatment for their individual patients. However, an HVL policy can be accommodated within libertarian, utilitarian and egalitarian theories of distributive justice for health care, particularly by defining the basic minimum health care that forms part of a compromise between the theories. Finally, both macro and micro allocation decisions could be made within the common HVL framework, reducing the tension between the two and for the practitioners who participate in decision making at both levels.

Finally, I have suggested that an HVL policy requires that medical resources be allocated with life saving procedures being given the highest priority. How does a society with very limited resources cope with very expensive life saving treatments? At one end of the scale the most basic life sustaining treatment may be the provision of food and water to the population. Perhaps then simple antibiotics to control infection would be funded. There may be very little left after this and therefore more expensive sophisticated treatments could not be made available even if they were desired. The finite resources would constrain the HVL policy but as many lives as possible would be preserved in line with the policy.

Exploring hypothetical cases can demonstrate the dilemmas of an HVL policy when finite resources force a balance between life saving and other treatments. A two tiered system with a basic minimum level of life preserving treatments is one practical solution.

References

1. Beauchamp TL, Childress JF eds. Principles of Biomedical Ethics. Oxford University Press, New York. 3rd ed.1989, 265-270.
2. Nozick R. Anarchy, State and Utopia. New York: Basic Books 1974, 149-82.
3. Menzel PT. Strong Medicine. Oxford University Press, N.Y. 1990, 7.
4. Emanuel EJ, Emanuel LL. The economics of dying. The illusion of cost savings at the end of life. N Eng J Med. 1994, 330; 540-544.
5. Slevin ML et al Attitudes to chemotherapy:comparing views of patients with cancer with those of doctors, nurses and general public. BMJ 1990; 300: 1458-1460.
6. Beauchamp TL, Childress JF. *op. cit.*, p265-266.
7. Macklin R. Mortal Choices. Houghton Mifflin Company, Boston 1987, 149-164.
8. Daniels N. Just Health Care. Cambridge University Press, Cambridge 1985, 140-142.
9. Singer P. Practical Ethics. Cambridge University Press, Cambridge. 1979, 14-23.
10. Veatch RM. Research on "big ticket" items: ethical implications for equitable access. The Journal of the American Society of Law Medicine and ethics. 1994; 22: 148-151.
11. Rescher N. Distributive Justice. Bobbs-Merrill, New York 1966.
12. La Puma J, Lawlor EF. Quality-adjusted life years. Ethical implications for physicians and policy makers. JAMA 1990; 263:2917-2921.
13. Thorne JJ. The Oregon plan approach to comprehensive and rational health care. In Rationing America's Medical Care: The Oregon Plan and Beyond. Strosberg MA, Wiener JM, Baker R, Fein AI eds. The Brookings Institute, Washington DC 1992: 24-34.
14. Macklin R. *op. cit.*, p 154-164.
15. Beauchamp TL, Childress JF, *op. cit.*, p 296-297.
16. Honderich T (Ed.) Oxford Companion to Philosophy, Oxford University Press, Oxford 1995, 248-249.
17. Honderich T (Ed.) Oxford Companion to Philosophy, Oxford University Press, Oxford 1995, 248-249.
18. Engelhardt HT Jr. Why a two-tier system of health care delivery is morally unavoidable. In Rationing America's Medical Care: The Oregon Plan and Beyond. Stosberg MA, Wiener JM, Baker R, Fein IA. The Brookings Institution Washington, D.C. 1992: 196-207.
19. Australian Government Department of Health, Housing, Local Government and Community Services. Casemix: a new direction in health care management. The National Casemix Education Series 1993, 4-5.
20. Herron J. Current problems in health care - government criteria in resource allocation today and in the future. Aust NZ J Obstet Gynaecol 1991, 4: 351-354.
21. Pellegrino ED. Rationing health care: the ethics of medical gatekeeping. Contemp Health Law Policy 1986; 2: 23-45.
22. Horvath DG. The ethics of resource allocation. Med J Aust 1990; 153: 437-438.