

# Horizontal Equity in Medical Care: A Study of the Israeli Public's Views

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## Abstract

**Background:** With market failures characterizing the health care sector, societies are continuously searching for ways to achieve an efficient and fair allocation of resources. A natural source of opinion on the desired allocation of health resources is the public. In fact, several governments have recently involved the general public in decisions about resource allocation in their health systems.

**Objectives:** To investigate the views of the Israeli Jewish public aged 45–75 on horizontal equity in medical care; specifically, the characteristics (including a lottery) for determining which of two individuals with similar medical need should be treated first, against a background of limited resources.

**Methods:** A sample of 2,030 individuals was chosen to represent a population of about 800,000 urban Jewish Israelis aged 45–75. Data were collected in face-to-face full sit-down interviews by trained interviewers between October 1993 and February 1994.

**Results:** The three most preferred prioritizers were chances of recovery, number of dependants, and young age. Random prioritization was preferred by only 8% of the population. Age, level of education and religiosity were the main characteristics associated with the choice.

**Conclusions:** The Israeli adult public does not favor strict horizontal equity in health care. As in other social programs, “equals” were defined in a multi-criteria manner, based on both medical need and other personal characteristics. The preferred prioritizers seem to reflect universal tastes and cast doubt on the traditional distinction between efficiency and equity and between horizontal and vertical equity when applied to health care.

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With market failures due to incomplete information, externalities and to health being a merit good, societies are continuously searching for indicators – other than market prices – as to how to achieve an efficient and fair allocation of resources. Such indicators are sought in economic evaluations (cost-effectiveness analysis), combined with ethical considerations such as the “rule of rescue,” equity, fairness, and justice. The issues of equity, justice and ethics in health care, and the “right” allocation of resources,

setting of priorities, and rationing have been the subject of considerable discussion by economists, physicians, philosophers, and social policy scholars [1–7]. Furthermore, several countries have recently embarked on the difficult task of transforming implicit rules and values into explicit processes of resource allocation [2,5–8].

A natural source of indication on the desired allocation of health resources is the public, who is served by and pays for the system. Although asking the public has its deficiencies in terms of knowledge and consistency, there appears to be a general consensus that it should be one of the major inputs into the decision process [2,6–8].

The present study examines the views of the Israeli public aged 45–75 on prioritizing among patients for medical care. Specifically, it explores the public’s views on the relevance and importance of several personal characteristics in prioritizing patients with *equal medical need* to scarce medical care. Furthermore, it locates the main determinants of these choices, trying to identify the roles of self-interest and values. It should be noted, however, that the findings date to 1993–94, before the implementation of the National Insurance Law (1995) and the Ministry of Finance’s stronger economic pressures that followed, and the Patients’ Rights Bill (1996). The question whether these events have influenced the public priorities remains to be explored.

## The issue: prioritizing among patients with equal medical need

Horizontal equity is traditionally defined as “equal treatment of equals” and has been accepted as a basic command of social justice [9]. When defining “equals,” it is useful to distinguish between cases where a single criterion is used and those where multiple criteria are used. The most popular single criterion used in social programs and regulation is age. Driving age, drinking age, youth discounts, and senior citizen privileges and allowances are all examples of age used as the single criterion for eligibility even when the characteristic that is intuitively relevant could be indicated more accurately by other signals, such as economic status for age-related privileges and discounts. The advantages, however, are simplicity and ease in defining “equals,” universality over time, and ex-ante

equality (on average, all citizens in all generations go through the same ages).

“Equals” are usually defined using multiple criteria. In income redistribution programs, for example, “equals” are defined in terms of utility over multiple characteristics: for example, in addition to the household’s income, family size is used to define “income per standard adult” using a consumption equivalence scale. Other popular adjusters in income redistribution programs are age, marital status, number of dependants, disability status and gender, which are used in conjunction with income to define “equals.”

Some of the above adjusters reflect a social rather than a private utility. For example, age-related and single-mother privileges and discounts, regardless of income levels, are certainly a reflection of traditional social norms and values. In some health, welfare or housing programs, adjusters are related to past contributions to society, such as military service or volunteerism, reflecting again a social rather than a private utility.

Similar issues hold with regard to health. Specifically, the question is whether “equals” should be defined in terms of the natural single-criterion health (medical need), and, if not, what are the most relevant and important characteristics to distinguish among individuals with equal medical need (these characteristics are subsequently termed “prioritizers”). We do not touch upon the issue of vertical equity and how to allocate care among individuals with *different* needs, an area in which the public has only limited knowledge to decide.

We consider seven potential prioritizers: chances of recovery, chances of returning to work, young age, number of dependants, past contribution to society, health behavior, and lottery. The specification of these prioritizers was based on the adjusters commonly used in other social programs as mentioned above and in previous research [7,11,12].

- **Lottery:** Choosing the lottery option from among the seven categories means that horizontal equity should be maintained *strictly* on the basis of medical need, so that prioritization should be random. This is the view implied from the ethical guidelines of the American Medical Association [3]. Choosing any of the other prioritizers means that “equals” should be defined in a multi-characteristic way.
- **Chances of recovery:** Prioritizing according to chances of recovery reflects the efficiency principle, namely, resources should be allocated to maximize the total level of health in the society. This is similar to the Quality-Adjusted Life Years approach in economic evaluation. It reflects a concern for the outcome of the treatment. It also acknowledges that chances of recovery are determined not only by medical need but also by other traits such as co-morbidities, age, genetic proper-

ties, ambition, will power, or mental and emotional state.

- **Chances of returning to work:** Chances of returning to work is essentially the same, but focuses on one aspect of recovery – productivity.
- **Age:** Age is a classic characteristic used to distinguish people in health and welfare programs, as discussed above. Its use in rationing health care is a subject of an ongoing debate [13–15]. In this context, age reflects life horizon and possibilities: younger individuals have a longer life span ahead of them with greater possibilities and opportunities. Prioritizing in favor of the young reflects, as did the two previous prioritizers, an efficiency concern over the total (present and future) healthy years resulting from the use of medical resources. We note that advanced age is related, in general, to greater (past) contribution to society, to lower chances of recovery, and to smaller number of dependants (see below).
- **Number of dependants:** The number of dependants (small children, elderly parents or sick or disabled relatives) reflects possible different levels of “social value” attached to the individual’s health. The increased social value relates to the externalities originating from the importance of the (good) health of the individual to the dependants’ welfare. The number of dependants serves as an adjuster in income tax and transfer programs and in paid vacation and sickness leave in many employment contracts.
- **Past contribution to society:** Different levels of past contribution to society (military service, volunteerism, or employment) may entitle individuals to different shares in society’s resources, including health care. As mentioned above, several public programs (housing, higher education, tax-deductibles) include it as an eligibility condition. This is a purely social, rather than private utility argument.
- **Health behavior:** Health behavior (smoking, drinking, exercising, and nutrition habits) reflects the level of efforts made by the individual to be healthy. Distributive justice considerations relate such effort directly to one’s share in society’s health resources. Already, smokers pay more for health insurance, and alcoholics are discriminated against for liver transplants [16,17]. While it is true that health behavior is a major determinant of general health status and chances of recovery – which had apparently led to the above discrimination – the legal system and the insurance industry are increasingly making a clear distinction between misfortune and mischief, between bad luck and irresponsibility, and between appropriate need and moral hazard.

## Means and methods

### The survey

A population survey was conducted to examine the public views on the above issues. Between October 1993 and February 1994, the Gertner Institute for Health Policy Research conducted a national survey on health issues in a sample of 2,030 individuals chosen to represent a population of about 800,000 urban Jewish Israelis aged 45 to 75. Data covering several areas relevant to health were collected in face-to-face full sit-down interviews. The questionnaire was first pre-tested (50 interviews) and was modified according to a statistical analysis of the data and the interviewers' impressions. A profile of the survey population is presented in Table 1.

### The variables

- **Attitude toward prioritizing.** The question was worded as follows: "Two patients are waiting for an elective open heart surgery. Both applied at the same time, have the same severity of the disease, and equally need the treatment. What is the most important characteristic by which the first to get the treatment should be chosen?". The trained interviewers presented the respondents with a list of eight categories. The first six included the six prioritizers described above, each followed by examples. The seventh category allowed for "other characteristics" to be the most important. The eighth option presented was "randomly." The last category (which was not presented to the respondents) allowed for refusals and other missing values. Since all the categories were presented to the respondents before the choice was made, choosing young age or healthy behavior as the most important prioritizer does not represent an indirect selection of better chances of recovery.
- **Other characteristics of the population.** Age was defined by three age groups: 45–54, 55–64, and 65–75 years. The 55–64 age group served as the base category in the analysis. Gender was indicated by a binary variable having the value of 1 for men. Level of education was measured as three levels: 0–8, 9–12, and

13+ years of schooling, with 9–12 years schooling serving as the base category. Religious observance was measured as a binary variable where 1 indicates observance. General health was measured using a Hebrew translation of the SF-36 [18]. The scale used here was the average of the eight scales (alpha reliability = 0.89), and was recoded into a binary variable where 1 indicates an above average score. Finally, subjective economic status was recoded into excellent and very good denoted by 1, and good, fair and poor denoted by 0.

### The statistical strategy

First, bivariate analysis was used to explore the relationships between the choice of prioritizer and several personal characteristics. For the multivariate analysis, since the preferences are indicated by a multi-category variable the Multinomial Logit Model was used [19]. The model provides a set of probabilities for all possible pairs of options. The log-odds ratios were used to analyze the estimation results.

### Results

The most important prioritizer for 32% of the population was chances of recovery. However, chances of returning to work, a more specific expression of recovery related to market productivity, was considered unimportant (2%). The number of dependants was the second most important characteristic, with 27% of the sample choosing it as the most important prioritizer. Young age was chosen by 22% as the most important prioritizer among patients with equal need for heart surgery, while 8% thought that a lottery (luck) should determine priority to medical care among equal needs. Contribution to society and efforts made to be healthy were not considered important in allocating medical resources (3% each). Finally, 2% either did not understand or refused to relate to the question, and about 2% suggested other ways to choose among the patients, half of them wanting the physician to make the decision.

Table 2 presents the bivariate analysis relating the public choices to several personal characteristics. Of the characteristics considered, only age and religiosity were significantly related to the choice of prioritizer although several other consistent patterns emerged. Increasing age was associated with a decline in the importance of chances of recovery and of health behavior as prioritizers. Young age, number of dependants and a contribution to society gained increasing importance with increasing age.

Non-observers of a religious lifestyle tended, more than observers, to cite number of dependants, chances of recovery or "other" characteristics; they were less likely to choose health behavior, lottery or to have missing data.

We turn now to the Multinomial Logit estimates of the public choices. For brevity, we present the choices between the four most popular prioritizers: chances of recovery (including chances of returning to work), number

**Table 1.** Profile of the survey population (n=2,030)

Gender (men)	47%
Age (mean)	58%
45–54	46%
55–64	26%
65–75	28%
Years of schooling (mean)	10.8%
0–8	27%
9–12	52%
13+	21%
SF-36 (mean)	71.3%
Above average SF-36	62%
Religious observance	36%
Excellent or very good economic status	47%

**Table 2.** Bivariate associations of the public choices (%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Total
<b>Age (yr)</b>										
45–54	38.7	1.1	21.7	24.6	2.5	4.0	4.8	1.4	1.3	100
55–64	29.9	2.2	20.2	29.5	2.4	3.3	7.9	0.6	4.0	100
65–75	26.0	1.7	23.8	28.1	3.9	2.4	8.0	1.3	4.7	100
<i>P</i> =0.00										
<b>Gender</b>										
Women	32.3	1.5	23.4	27.3	2.6	2.9	6.2	1.2	2.3	100
Men	32.1	1.7	20.4	26.7	3.2	3.8	7.2	1.0	4.0	100
<i>P</i> =0.32										
<b>Education (yr)</b>										
0–8	31.3	2.1	22.4	27.4	4.1	2.8	5.4	1.3	3.2	100
9–12	31.2	1.5	22.8	27.2	2.8	3.5	6.4	1.1	3.5	100
13+	36.5	0.9	19.8	26.3	1.6	3.7	9.1	0.9	1.9	100
<i>P</i> =0.25										
<b>Religiosity</b>										
Observant	32.3	1.4	22.5	24.3	2.0	4.4	8.3	0.5	4.4	100
Non-observant	32.4	1.7	21.7	28.5	3.4	2.7	5.7	1.5	2.4	100
<i>P</i> =0.00										
<b>General health (relative to the mean)</b>										
Below	30.3	1.7	23.8	27.3	2.6	3.0	6.4	1.3	3.8	100
Above	33.6	1.5	20.9	26.8	3.1	3.5	6.8	1.0	2.8	100
<i>P</i> =0.64										
<b>Subjective economic status</b>										
EV	33.9	1.5	22.2	27.0	2.5	2.9	6.1	1.4	2.5	100
GFP	31.0	1.7	21.8	27.0	3.2	3.6	7.1	0.9	3.6	100
<i>P</i> =0.56										

(1) Chances of recovery, (2) Chances of resuming work, (3) Age, (4) No. of dependants, (5) Past contribution to society, (6) Past health behavior, (7) Lottery, (8) Other, (9) Missing.

EV = excellent and very good. GFP = good, fair and poor.

of dependants, young age, and lottery (the other choices will be described briefly at the end). Table 3 presents the results for the six possible pair-wise choices. All the explanatory variables are binary variables, and the entries under the OR columns are the odds ratios.

In general, three characteristics – age, education and religiosity – had significant net impact on the choice among the four most popular prioritizers. As was found in the bivariate analysis, gender, health, and economic status were not related to that choice.

Younger respondents (age 45–54) did not favor lottery as prioritizer. They were 97% and 76% more likely than the 55–64 year age group to choose chances of recovery and young age respectively over lottery (no difference was found between the 65+ and the 55–64 age groups). However, between young age and chances of recovery, older individuals (65+) were 33% more likely than respondents aged 45–64 to choose age. Younger individuals (aged 45–54) were 40% more likely than respondents aged 55+ to choose chances of recovery over number of dependants as well.

Higher education was associated with the choice of lottery over the three other prioritizers, although the effect was significant only in choosing between lottery and young age. Respondents with 13+ years of schooling were 34% less likely than the rest of the population to

choose young age over lottery. Young age was also significantly inferior to chances of recovery among highly educated people, who were 25% less likely than those with less than 12 years of schooling to choose age.

Religious observance was clearly related to the choice of number of dependants over the other three options. Religious people were 57% more likely than the non-observant to choose number of dependants over lottery, 28% more likely to choose number of dependants over young age, and 18% more likely (not significant) to choose number of dependants over chances of recovery.

## Discussion

Those who defined “equals” (for horizontal equity purposes strictly) as having similar medical need were expected to choose, against a background of scarce health resources, a random prioritization mechanism to medical care. This was the view held by about 8% of the population, mainly the highly educated and the older individuals. Choice of another option, namely, a specific personal characteristic, meant that the definition of “equals” should, under circumstances of limited resources, be adjusted.

Choosing chances of recovery (ability to benefit) as the most important prioritizer implies the view that society

**Table 3.** Multinomial Logit Model of the public choices\*

	A vs. C		D vs. C		C vs. L	
	OR	t-value	OR	t-value	OR	t-value
Age (yr)						
45–54	0.89	0.7	0.71	2.4**	1.97	2.8**
65+	1.33	2.1**	1.12	0.7	0.74	1.2
Gender						
Men	0.85	1.3	0.96	0.3	0.90	0.5
Education (yr)						
0–8	0.86	1.0	0.85	1.1	1.42	1.4
13+	0.75	2.8**	0.87	0.9	0.88	0.5
Religious observance						
Yes	0.92	0.6	1.18	1.3	1.33	1.4
Health above average	0.85	1.2	0.99	0.1	0.90	0.5
Economic status						
Good	1.01	0.0	0.96	0.3	1.29	1.3
Constant***	-.13	0.7	-.08	0.5	1.22	4.2

  

	A vs. D		A vs. L		D vs. L	
	OR	t-value	OR	t-value	OR	t-value
Age						
45–54	1.26	1.5	1.76	2.3**	1.40	1.4
65+	1.19	1.0	0.99	0.1	0.83	0.8
Gender						
Men	0.88	0.9	0.76	1.3	0.86	0.7
Education						
0–8	1.01	0.1	1.22	0.8	1.21	0.7
13+	0.86	0.9	0.66	2.1**	0.77	1.1
Religious Observance						
Yes	0.78	2.0**	1.23	1.0	1.57	2.2**
Health above average	0.86	1.0	0.77	1.2	0.89	0.5
Economic status						
Good	1.05	0.3	1.30	1.2	1.24	1.0
Constant***	-0.05	0.2	1.09	3.6	1.13	3.8

\* A = age; C = chances of recovery; D = number of dependants; L = lottery

\*\* OR significantly differs from 1 at 5%

\*\*\* b (coefficient and not OR)

should allocate its resources so as to maximize the “total health” of its members. This was the most accepted criterion for rationing among the study population, with 32% choosing it as the most important prioritizer. Interestingly, this criterion is apparently used in the triage guidelines for behavior in mass emergency situations and for admission practice to intensive care units.

The choice of lottery or chances of recovery as prioritizers implies the view that societal utility is defined only by the *health* (pre or post-treatment) of society’s members. The selection of another prioritizer implies that not only health is important from society’s point of view, but also the *identity* of the individual in the given health state with respect to the selected prioritizer. The results indicate that more than half the population believes that this should be the case. The Quality-Adjusted Life Years approach, for example, assumes faceless health states,

with all quality-adjusted life years treated equally regardless of over which individuals they are distributed [20].

Age and the number of dependants were the most relevant characteristics forming that identity. However, 97% of the Israeli public does not distinguish between medical need as a result of misconduct and medical need as a misfortune, and does not accredit military service and other past contributions to society in prioritizing health care.

Social choices made by individuals – such as the choice of prioritizers – are a result of a complex process shaped by values and self-interest. Younger people oppose and older people support lottery as a prioritizer in health care. Younger individuals tend to adjust the weight of the medical need by other characteristics in such cases. Older people tend to oppose and younger individuals to support chances of recovery as a means to choose among patients with equal medical need. As found in other surveys of

public opinion [21], we observed a clear age-group interest in choosing the most important prioritizer, although the choice of age as a prioritizer was independent of age. While no self-interest was revealed in the preferences of the healthy, those with higher education found it difficult to prioritize individuals to medical treatment on any basis other than medical need.

The particular effect of religiosity by itself shows the dependence of the choices on values and norms. Religious people chose the number of dependants, which is related to the common religious themes of charity and mutual help, and rejected health behavior or chances of recovery as legitimate prioritizers. It should be remembered that Israeli religious families are larger than average, have more dependants, and tend to disregard preventive actions such as mammography tests [22].

Britain, with its resource-limited National Health Service, is probably the nation that has focused most on issues of rationing and priority setting. Several UK studies provide some comparative findings. A recent national British survey [23] confirms the Israeli findings. In the British study more than 2,000 respondents aged 16+ were asked to rank 12 services by order of priority and to express their attitude concerning certain health priorities. First, the top priority service was treatment for children with life-threatening conditions, while the same treatment for the elderly (aged 75+) received the last (12th) priority rank. When asked directly, 50% of the respondents agreed with the statement that higher priority should be given to the young. About 40% agreed and 40% disagreed (and 20% neither agreed nor disagreed) to assign lower priority to people who contribute to their own illness through smoking, obesity or drinking. Finally, one of the most agreed upon statements (74% agree, 14% disagree and 12% neither agree nor disagree) reflected the view that the patient's expected quality of life (which may correspond to chances of recovery, and is anyway related to the treatment outcome) should be considered when determining whether or not to use lifesaving treatments. Another study [16] found that the British general public chose (by descending order of importance) young age, outcome and work status as criteria for selecting patients listed for liver transplantation when a suitable donor became available. Value to society, and alcohol and drug consumption were found to be the least important characteristic for the critical selection (random prioritization was not an option).

The issue of health care rationing and prioritization is complex. Clearly, participants in such opinion polls are highly sensitive to how the question is formulated. In addition, the present study employed a specific medical need, namely heart surgery. The generalizability of the results to some broad principles is obviously limited. However, the consistency of the results among the several studies mentioned above (each framing the issue differently and focusing on different medical need) leads to the speculation that the public's views on horizontal

equity and prioritization expressed in the present study might represent some more general "accepted commands."

On the whole, only a minority adhered to strict horizontal equity (and to the general ethical medical guidelines) and to random prioritization. The majority of the public, both in the UK and in Israel, declared that they favor a rationing scheme based on some personal characteristics. These findings cast some doubts on the traditional distinction between equity and efficiency and between horizontal and vertical equity, at least with regard to medical care. It seems that a majority of the public favor an "ability to benefit" criterion as the preferred prioritizer, where equity and efficiency considerations coincide. On the other hand, a significant portion of the public recommended the inclusion of other characteristics (for an equal medical need) in the prioritization process. The classic Aristotelian concept of vertical equity is that unequals should be treated unequally in proportion to their "morally relevant differences." Once a multi-criteria prioritization process is chosen, it is no longer clear which characteristic should serve to define "unequals" and which characteristics are "morally relevant."

Some may question the relevance and realism of questions built on the premises of scarce resources and the need for prioritization in health care. Reports from Oregon in the U.S., the UK, Sweden, Norway, the Netherlands, and New Zealand on rationing and priorities demonstrate that these issues are emerging worldwide and are becoming extremely relevant. Waiting lists for elective medical services are common in many societies as a result of limited resources, inefficiency, or as a way to control moral hazard. Waiting lists for organ transplants and selective admissions to intensive cardiac care units are dramatic examples. In such cases, the clinical or managerial professionals are making the prioritization decisions. As several researchers indicated [11,16], their beliefs do not necessarily represent those of the public and their decisions are not necessarily the best for society. In such cases, the views of the public must be identified and considered.

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