

WHY MAKE RATIONING EXPLICIT?
**A review of OECD institutional solutions for priority-setting in health
care using hierarchical cluster analysis**

Yolanda Bravo Vergel and Brian Ferguson
Nuffield Institute for Health, University of Leeds
December 2002

Paper to be presented at the Health Economists' Study Group Conference on "Health Economics into Policy and Practice", University of Leeds, 8– 10 January 2003. Yolanda Bravo is a PhD candidate at the Nuffield Institute for Health and this paper forms part of ongoing research for her doctoral dissertation. We are grateful to Professor Alan Williams for his comments on an earlier draft of this paper. For his valuable help and advice on the statistical analysis of the current version, we thank Dr. Robert West.

ABSTRACT

Objectives : The aim of this paper is to undertake a comparative analysis of institutional solutions for priority-setting in health care, within the context of a review of OECD national health care systems. The hypothesis to falsify is whether the level of decentralisation of health policy provides different political incentives for making rationing explicit.

Methods: The technique of hierarchical cluster analysis is applied to visualize how the different rationing strategies form country-cluster groups. The dimensions included in the analysis are the existence of a national basic benefits package or procedural rights for setting priorities with legislative authority; the presence of national and/or sub-national Health Technology Assessment (HTA) agencies currently operating; and the presence of civil service organisations with responsibility for HTA. A linear discriminant function analysis was performed in conjunction with the cluster analysis, in order to estimate the contribution of the level of decentralisation of responsibilities in health care to the country-cluster classification of rationing strategies. Other variables included in the analysis are the type of health care system, the principal shared-rule arrangement in the country and health expenditure variables.

Results: The results of this research provide an indication of the factors that influence the policy decision of making rationing explicit. The level of public expenditure in health care is the variable that seems to contribute the most, followed by the form of decentralisation of health care systems and the territorial distribution of power in the country. A high level of public expenditure in health care and a decentralised decision-making context seem to favour the adoption of priority-setting policies.

Conclusions: This paper reports on the utilisation of hierarchical cluster analysis in conjunction with discriminant function analysis as a useful tool in the study of health care systems. The findings of the analyses reinforce the political nature of health care rationing decisions.

INTRODUCTION

The aim of this paper is to undertake a comparative analysis of institutional solutions for priority-setting in health care, within the context of a review of OECD national health care systems. The hierarchical cluster analysis is limited to contemporary Welfare States, using the OECD Health Database (2002) and the authors' own research based on literature review.

As the need to ration health care has now been publicly acknowledged in a number of countries, interest in priority setting has increased among academics, health care professionals and politicians. The main systems analysed in the literature are those where the debate about priority setting has been most developed during the 1990s, namely New Zealand, the State of Oregon (USA), Sweden, Norway, the Netherlands and Finland (Ham C. and Locock L. 1997).

The arguments given in the literature to justify a move towards more explicit rationing are inconclusive and based on the assumption that such an approach is more appropriate on efficiency grounds and is therefore a 'natural' way forward. In fact, much of the literature on priority-setting in health care appears to be focused either on the debate about whether rationing is necessary or on the methods for setting rationing criteria (pluralistic bargaining versus technical methods). The question about the incentives for politicians to take the risk of making health care rationing explicit appears to have attracted less attention. Clearly this is not a straightforward issue to address and our aim here is to adopt a systematic approach to understanding the variability of rationing strategies using the comparative data available.

In this sense, the cross-national comparison that we present could fill a niche in the literature. Generally speaking, the analyses of case studies in health care rationing have been more descriptive than analytical, with just a few comparative studies orientated to make practical inferences (Cranovsky R., Matillon Y. and Banta D. 1997; Honigsbaum et al. 1995; Coulter A. and Ham C. 2000; series of reports produced by the Euro-Assess project 1992-1997 and HTA-Europe project 1997-2002).

The hypothesis we will try to falsify here is whether the organisational form of health care decentralisation provides different political incentives for making rationing explicit. After defining a country-cluster classification of rationing strategies using cluster analysis, the technique of linear discriminant function analysis is applied to a set of variables describing important features of each country's health care system. Apart from the form of health sector decentralisation, other dimensions included are the type of health care system, the principal shared-rule arrangement in the country, and public and private health care expenditure measured as a percentage of national GDP.

The paper begins with an updated review of the academic debate on priority-setting in health care and our research question and main hypothesis. This is followed by a description of the construction of variables and study methods, the results of the analysis in general and then specifically in relation to the position of the UK NHS from an international perspective. Key findings are discussed, including the potential for the use of hierarchical cluster analysis applied to health care systems as units of analysis, and policy implications derived from the results.

1. THE CONTEXT AND TERMINOLOGY OF RATIONING

1.1. COST-CONTAINMENT POLICIES

The public share in total expenditure on health grew appreciably over the course of the post-war era as the coverage of public schemes increased (Castles 1999:162-174). Despite the variety of health systems, health cost-containment became prevalent in all OECD member countries during the late 1970s and 1980s. The causes associated with the escalation in health care expenditure are, mainly, cost pressures related to new health care technologies, increasing consumer expectations and the cost and revenue issues associated with increasingly ageing populations (OECD 1998; Mossialos E. and Le Grand J. 1999).

Cost-containment has therefore often been the overriding topic of health care reform at least during the past two decades. The presence of cost-effectiveness criteria in national and regional health target programmes –following WHO’s report ‘Health for All by the Year 2000’- has been researched by Busse R. and Wismar M. in a selection of OECD countries (European Union, Australia, Canada, New Zealand and USA). They conclude that “...regarding priority areas, in 50% of all cases resource allocation and/or the cost-effectiveness of health services are mentioned explicitly as a rationale for setting targets.” (2002: 217). The evidence seems to point to health policy in industrialised countries being more concerned with the objective of cost-containment *per se*: the debate about health targets in these countries has evolved omitting their financial aspect, in almost total separation from the mainstream of the health care reform discussion.

Cost-containment measures can be classified in a number of ways. The most common is to divide them into those designed to affect the demand for publicly funded health care (cost-sharing in the form of co-insurance, co-payments and less generous coverage on concrete benefits) and those designed to reduce its supply (budgets restrictions for health sectors and health providers; direct and indirect controls over health service providers). Here we adopt the threefold classification by Mossialos E. and Le Grand J. (1999): budget shifting, budget setting and direct and indirect controls. All three measures normally co-exist in any health care system, however in the European Union member States, the period of the mid-1970s / mid-1980s has been characterized by an emphasis on direct and indirect controls; the period mid-1980s / mid-1990s show an emphasis on budget setting; and since the late 1990s, the emphasis has been on budget shifting, rationing and evidence-based purchasing decisions.

Possibly the most common method of reducing public expenditure on health is to try to shift health care expenditure on to some other budget: either that of the patients themselves or that of other government’s departments (such as social services). Expenditure can be shifted onto patients either directly through charges or co-payments for the use of medical services and prescriptions, or indirectly through reducing the range of services covered.

Treatment restrictions can take the form of negative or positive lists, and can be based on effectiveness, cost-effectiveness criteria, or other considerations such as whether the treatment is largely cosmetic. Both methods can lead to a greater private health care expenditure, which can also be encouraged by other means such as tax incentives.

Secondly, fixed or hard budgets can be introduced at crucial points in the system, in order to avoid annual budget incrementalism. Budgets could be set at any or all levels: there could be an overall budget cap at government level; different sectors could be given a fixed budget (inpatient care, ambulatory care, pharmaceuticals); in systems with a purchaser/provider split, the providers could be allocated budgets directly; and, finally, patients themselves could be given a budget to spend on their own care.

The third cost-containment measure is direct and indirect control. Governments can try to affect health care costs establishing controls on the way in which providers supply health care, such as: fees or payments made to providers; prices of pharmaceuticals and regulation of medical supplies; regulation of profits of pharmaceutical companies or other medical suppliers; restrictions on capital investments or the supply of medical personnel; regulation of the introduction of new technologies etc.

As with other methods, direct or indirect controls have their difficulties. Basically, only if several elements are controlled simultaneously (price and quantities, wages and employment, technology etc.) are direct controls reasonably certain to have an influence in the right direction, avoiding contraction in one part of the system leading to expansion elsewhere. However, extending controls in this way inevitably complicates the system. The relative effectiveness of these three methods can only be judged by experience, but an obvious difficulty in evaluating many of the cost-containment measures discussed is that they are seldom introduced singly, so that confounding factors make it difficult to evaluate their long-term effects.

By definition, rationing mechanisms are part of the already described cost-containment policies. Mossialos and Le Grand (1999) classify explicit rationing decisions, in general, under the heading of budget shifting; and the role of HTA bodies, in particular, as direct control measures for cost-containment. This classification is reasonable since setting priority criteria normally implies a shift of health expenditure onto patients or other parts of the health and social care system, whereas the controlling character of HTA bodies in coverage and purchasing decisions is more evident, normally in the hands of a central independent agency. In practice, it is often the case that both mechanisms operate together.

National legal frameworks for priority-setting, containing definitions of core services or procedural rights for setting priorities backed up by legislative authority, and HTA agencies, are both explicit rationing mechanisms currently put in place and operating in several OECD countries. Both types of priority-setting strategies can be classified according to the typology of Joanna Coast et al. (1996) as explicit rationing by political processes and methodological techniques, respectively.

1.2. PRIORITY-SETTING AND RATIONING

Over recent years, the concept of priority-setting in health care has been overshadowed by the more emotive term 'rationing', concerned with the denial or dilution of something that is potentially beneficial to the patient. Many of the definitions of health care rationing have in common the notion that the elimination of care that provides no benefits at all does not constitute rationing (Mullen and Spurgeon 2000: 10).

In different cultural settings the perception of what constitutes rationing may be different. In tune with their reliance on the market mechanisms for the provision of health care, some US academics see rationing more widely as denying access to services for which the potential beneficiaries are willing and able to pay. In fact, in the USA the general perception has been that there is no rationing of health care (Coast et al. 1996: 10) while in countries where supply-side considerations have influenced the organisation of their health care systems, most discussion about health care rationing is concerned only with the rationing of publicly funded healthcare.

Drawing on the classification of different forms of rationing represented by the five Ds – Deterrence, Delay, Deflection, Dilution, Denial- originating from Parker (1967), many of the definitions we find in the literature on priority-setting focus largely on Denial. However, organisational arrangements and side-effects such as waiting lists (delay), the gate-keeping role of general practitioners (deflection), and charging and co-payments (deterrence) are not so directly associated with the emotive debate on rationing. Although the above measures are present in virtually all health care systems, they constitute implicit ways of rationing, with no awareness among the public that rationing is occurring and no specific statements of the principles being used to set priorities in health care. Explicit rationing is concerned with *making clear the decisions that have been made about resource allocation and the criteria upon which these decisions have been made* (Coast et al. 1996:13).

Where rationing is explicit it may also be known as *priority-setting* (Coast et al. 1996: 13), and this term will be used hereafter to denote the use of explicit systems for the distribution of scarce health care resources. Implicit rationing is not part of the process of setting priorities, although it will inevitably affect the final distribution of resources.

That is the reason why some authors argue that ‘to ration or not to ration’ is a misrepresentation of the real question, which concerns whether rationing should keep on being decided implicitly by doctors working within fixed budgets or moving towards explicit decisions based on agreed procedures and criteria. In reality, it is very unlikely that explicit rationing could replace implicit rationing entirely, they are the two ends of a continuum and a certain amount of professional discretion is always desirable at the point of delivery of the service, with doctors always likely to play a central role in resource allocation decisions (Mechanic D. 1995, Hunter D. 1993). It is the extent to which a society wishes to move along this continuum that is important, being a political and not just a technical decision that implies making value judgements on national objectives (Green A. and Barker C. 1988).

There is a question, however, as to whether implicit rationing, guided by the practitioner’s professional ethics, might result in higher utility to society generally than explicit priority-setting. This question is related to the principles upon which to base priority-setting, restricted basically to two sets of options: rationing based on *technical methods* (basically cost-effectiveness analysis and programme budgeting and marginal analysis) or based on *pluralistic bargaining*. Each of these alternatives exposes a further conflict: in the case of technical rationing the conflict between equity and efficiency; in the case of rationing via the political process it is the question of the extent to which decisions should be based on medical or lay opinion. Both conflicts, however, exist for both types of rationing methods, to a greater or lesser extent.

A political basis for priority-setting is founded on the idea that decisions about health care provision should be resolved through debate and bargaining. The main reason underpinning this is that because there is no obvious set of ethical principles or analytical tools that can be used by purchasing authorities, given the 'multiplicity of aims', the way in which priority-setting can be made more rational is by concentrating on the processes and structures of decision-making, building up the capacity to engage in such continuous and collective argument (Klein R. et al. 1993).

Apart from the issue of lay participation in decision-making, there are other aspects of pluralistic bargaining which are open to debate. There is an important distinction to be made between micro and macro level decision-making, and further questions about how broad allocations at the macro level are translated into clinical decisions at the micro level. Priority-setting is not about making just one set of decisions, but is concerned with "...the complex interaction of multiple decisions, taken at various levels in the organisation about allocating resources" (Klein R. 1993:309). This approach is quite different from the technical approach, which tends to assume that rules and methods are applicable across priority-setting at different levels.

Pluralistic bargaining also implies that at the end of the bargaining process a decision will have been reached. This decision will usually be based on compromise and it may have a greater chance of implementation than a decision which has been taken primarily on the basis of a particular principle, especially considering that the policy and funding structures of health care may not be related closely to any of the 'techniques' for priority-setting on the basis of equity or efficiency (Coast J. 1996:22).

On the other hand, the use of technical methods may move the health service closer to specified objectives such as efficiency or equity than a system of pluralistic bargaining. A kind of neutrality, in which priorities are set free of political interference or clinical dominance, is also implied, and for many the use of such technical methodologies is an 'easy option' in that the methodology is readily available and has been previously used. However, the search for elegance may prove elusive: first of all, what looks like a sound methodology may be completely impractical (e.g. unavailability of data); secondly, methodological weaknesses and inherent value judgments are also present.

The reality is that neither option alone will fulfill the requirements of explicit rationing. Technical methods will never be able to deal with the entire health service budget, but priority-setting via political processes should ideally utilize the sort of information on effectiveness, efficiency, need and equity provided by technical methods as a basis for bargaining. Inevitably, both elements will be involved in priority-setting, and the question is what respective emphasis is placed on each approach. In reality, a combination of priority-setting based on pluralistic bargaining and using particular methodologies based on effectiveness, appropriateness or cost-effectiveness criteria is most likely (Coast J. et al. 1996). This combination of rationing strategies (including the option of non-explicit rationing) within the context of the OECD will be analysed in the following sections.

2. WHY MAKE RATIONING EXPLICIT?

No matter what methodological approach is adopted, making rationing explicit always involves a political risk. Explicit rationing gives the clear message to patients and the

public that their national health care system is no longer capable of fulfilling the goals of universal and equal access to health care even if costs are kept at a reasonable level.

For clinicians, whose behaviour is driven at least partly by *deontology*, priority-setting means accepting that the needs of an individual patient must be weighed against those of others (*consequentialism*). Unfortunately, the practice of deontology is potentially at odds with the aggregate concerns of health policy makers in achieving the optimal level of utility from public expenditure (i.e. maximizing welfare across society). Many of the conflicting views expressed in the public debate about health policy have their roots in these differing ethical approaches. On the one hand, some authors defend the idea that, given the complexity of medical decisions, implicit rationing by the medical profession at the point of service “(...) offers the best among admittedly imperfect alternatives” (Mechanic D. 1995:1659). On the other hand, explicit rationing is advocated, especially by health economists, as more appropriate on efficiency grounds. In this sense, explicit rationing is presented by those holding consequentialist views as the ‘natural’ way forward. However, many deontological critics have expressed their concern about the potential impact of strict utilitarianism upon the distribution of health care (equity considerations).

Explicit rationing is then expected to collide with the vested interests of the medical profession and, in general, with the interests of those who benefit from the existing pattern of service provision, whether as providers or as patients (Klein R. 1993). Nevertheless, the arguments given in the literature reviewed to justify the movement from implicit towards explicit rationing are inconclusive and no reasoning is given from the point of view of politicians’ incentives: that is, why should they take the political risks?

In fact, much of the literature on priority-setting in health care appears to be focused either on the debate about whether rationing is necessary or on the debate about the methods for setting rationing criteria (pluralistic bargaining versus technical methods). The question about the incentives for politicians to take the risk of making health care rationing explicit, especially bearing in mind the predictable huge institutional resistance they will have to face, seems not to have attracted much attention from academics in the field. Clearly this is not a straightforward issue to address but one approach is to aim to understand the variability in rationing strategies observed across countries.

From a central approach to priority-setting, strategies range from the enactment of procedural rights to the development of a national package of financed treatments for specified clinical conditions (core services), defined either in terms of cost-effectiveness criteria or by some other criterion such as Dworkin’s prudent insurance principle (Harrison 1997). In the OECD, during the 1990s, several governments established working committees to set priorities in health care. This was the case in Denmark, Finland, France, Germany, Hungary, the Netherlands, New Zealand, Poland, Slovakia, Spain and Sweden. However, some of the recommendations produced by those committees were never implemented, and in only a few cases did the proposals have legislative authority. Generally speaking, the implementation of these priority-setting proposals depends on the inclusion of all relevant stakeholders, and this is far way from easy to obtain (Mossialos and Le Grand 1999: 87-100; HiT reports). During the same period, several countries established organisations to assess new technologies, with significant developments in France, Spain, Sweden, Finland, the Netherlands, the UK, Australia, Canada and New Zealand. [See appendices 1 and 3 for details].

The establishment of HTA organizations is a more common strategy than the enactment of a legal national framework for priority-setting, an experience so far reduced to a small number of countries (Sweden, Spain, New Zealand, the Netherlands, Hungary, Poland and Slovakia). However, when this is the case, the national legal framework for priority-setting is normally accompanied by the task of an organization with responsibility for HTA, with the exception of the countries with transitional health care systems.

According to table 1, in many OECD countries independent expert agencies with delegated powers on health care priority-setting are currently operating at national or sub-national levels. Only a minority of HTA bodies are not arm's length organizations, and often they support the task of governmental agencies (e.g. UK and the Netherlands).

The phenomenon of the emergence of HTA agencies during the last two decades seems to be in line with the growth of specialized agencies in Western countries, independent of the central administration and not bound by civil service rules. Often such agencies combine legislative, judicial and executive powers in more or less narrowly defined areas of policy making, and the technocrats who head such agencies are appointed, not elected, so properly designed control mechanisms should be put in place to guarantee democratic accountability. There is one obvious reason that can explain the recent growth of such specialized agencies: they are a means by which governments can solve credibility problems, committing themselves to regulatory strategies that would not be credible otherwise (Majone G. 1996). Making credible policy commitments is especially difficult when controversial issues that attract public attention are involved, notably the issue of making rationing in health care more explicit.

In a broader sense, delegation of decision-making powers to independent agencies has been theoretically justified when there is a need for expertise in highly complex or technical matters and in order to obtain the following goals: to free public administration from partisan politics and party political influence; to provide greater policy continuity; to provide greater flexibility in policy formulation and also in the application of policy to particular circumstances; to protect citizens from bureaucratic arrogance as well as to focus public attention on controversial issues, thus enriching public debate (Majone G. 1997).

Established in 1993, the International Network of Agencies for Health Technology Assessment (INAHTA) now comprises 38 members from 19 countries, most of them OECD members. In general terms, HTA organizations are responsible for the assessment of new and/or existing healthcare technologies¹ as to their effectiveness, appropriateness and/or cost-effectiveness. However, they show interesting variations in terms of: (1) their legal status (public research institutes, research councils within governmental departments, civil service organisations, independent governmental agencies) and accountability in the healthcare system; (2) their primary aim (identifying and commissioning relevant technology assessment research, formulating advice, supporting evidence-based policy, making coverage decisions); and (3) level of enforcement of their respective reports or guidance. [See appendix 1 for further details].

¹ We use the INAHTA definition of healthcare technology, i.e. prevention and rehabilitation, vaccines, pharmaceuticals and devices, medical and surgical procedures, and the systems within which health is protected and maintained. We also use the definition of HTA by the same organization, i.e. a multi-disciplinary field of policy analysis that studies the medical, social, ethical and economic implications of development, diffusion, and use of health technology.

The hypothesis we will try to falsify here is whether *the organisational form of health care decentralisation provides different political incentives for making rationing explicit*. Apart from the political objective of changing population expectations regarding the capability of health care systems, other potential reasons that could explain a move from implicit rationing towards the introduction of explicit rationing are more relevant in decentralised contexts. First of all, it is easier to take unpopular decisions in a context of shared-accountability; secondly, fulfilling the objective of reducing post-code provision; and thirdly, explicit rationing could be used as a subtle central mechanism for controlling health care expenditure in a decentralized system. The last two reasons try to address issues of inter-territorial equity and control of public expenditure in a context of decentralization.

3. FRAMEWORK OF VARIABLES

The data sources used for the analysis are the OECD Health Database (2002) and the authors' own research based on literature review, mainly HiT country profiles by the European Observatory on Health Care Systems and OECD reports.

The variables can be divided into four categories as shown below (the figures in brackets relate to the values of the ordinal variables). The definitions and the relevance of the following nine variables for the construction of the country-cluster groups and the linear discriminant function analysis will be further discussed.

- **Strategies for health care rationing.** Under the assumption that implicit rationing is a current practice present in all OECD countries, the main explicit rationing strategies have been classified as: *presence of a national legal framework for priority-setting*; *existence of a national HTA agency currently operating*; and *existence of a sub-national or regional HTA agency currently operating*. We have also included civil service organisations with responsibilities in HTA and research centres with contractual obligations to DoH as a separate category. All four are indicator variables with values 1 yes, 0 otherwise.
- **Form of health care decentralisation**; and the *principal shared-rule arrangement in the country*. The principal forms of health care decentralisation identified are: (1) none – centralised system, (2) deconcentration, and (3) devolution. The values identified for the territorial power-sharing organisation of the countries are: (1) unitary State, (2) decentralised union -with or without federal arrangements, (3) country with federal arrangements and (4) federation.²
- **Type of health care system.** Ordinal variable, according to their level of reliance on insurance principles: (1) National Health Services, (2) Social Health Insurance systems, (3) Transitional and hybrid systems.
- **Health expenditure** variables, such as *public health care expenditure* and *private health care expenditure*. Both are continuous variables and measured as percentage of national GDP.

² See glossary for definitions based on Watts R.L. 1999.

Strategies for health care rationing

In order to construct indicator variables for the different rationing strategies, we identified all OECD HTA organisations using INAHTA's database. All members affiliated are non-profit organizations, related to regional or national governments and funded at least 50% by public sources. However, not all the organisations that fulfil INAHTA's membership requirements are independent governmental agencies. According to their main aim, legal status and their accountability in the healthcare system we have identified 16 national and regional HTA governmental agencies. The inclusion criteria to be identified as a HTA governmental agency are twofold: (1) the agency must be the object of delegated authority and accountable to the Department of Health or related governmental department; (2) the agency must have a clear and finite function, although the level of enforcement of its decisions can vary. The exclusion criteria are to be a civil service organisation and to pursue sectoral interests.

In all cases, the selected agencies shown in table 1 are institutions accountable to the Department of Health, and their main aim is to produce healthcare technology assessments as a basis for formulating policies on technology selection and implementation in their respective health care systems, that is, with the intention of having an impact on decision-making. The rest are civil service organisations with responsibilities in HTA and research centres with contractual obligations to the DoH. We have included the latest as a separate category because although they are not governmental agencies they also play an important role in HTA in many countries, although the degree of independence they enjoy to elaborate upon their recommendations is much more limited. Organisations with sectoral or for-profit interests have been excluded from the classification, no matter their legal status. The classification of HTA organisations presented in table 1 has been partly validated using the information provided by their representatives as requested via E-mail.

The existence of a national legal framework for prioritisation has been decided based on secondary sources, and it includes definitions of core services and the establishment of procedural rights for setting priorities, both with legislative authority.

The rest of the variables will be used to run the linear discriminant analysis, in order to test our main hypothesis.

Form of health care decentralisation

We have operationalised our key independent variable as the organisational form of decentralization, using Collins's typology (1994). Based on secondary sources, we have classified all health care systems in the continuum centralised – devolved systems, according to their territorial authorities' legal responsibilities. [See appendix 2 for further details].

In short, decentralisation is basically a transfer of authority to make decisions, to carry out management functions and use resources. Focusing on the public sector, it means the passing of these from central government authorities to bodies such as regional or local governments, field administration, specialised authorities and semi-autonomous agencies (Cheema and Rondinelli 1983; Collins 1994).

As this definition suggests, there are different organisational forms of decentralisation. Cheema and Rondinelly (1983) refer to four major forms of decentralisation: deconcentration, delegation to semiautonomous or parastatal agencies, devolution to local governments and transfer of functions from public to non-government institutions. Collins (1994) distinguishes six organizational options for decentralization as experienced in the health sector. For the purposes of our study, we are only going to concentrate on those that involve the transfer of authority to elected intermediate or local tiers of government (devolution) or the transfer of some administrative responsibilities to lower units within the public sector hierarchy (functional deconcentration and integrated deconcentration).

The remaining organizational forms referred to by Collins can either be encompassed in the former ones (e.g. decentralization to local bodies with mixed central and local/regional representation as a special form of integrated deconcentration; federalism as a form of devolution with constitutional guarantees) or represent New Public Management reforms (e.g. decentralisation through public sector markets).

Deconcentration is one of the mildest forms of decentralisation. This is a system of field administration whereby the deconcentrated areas are subordinated units within the overall organizational system: the transfer of resources, responsibilities and authority takes place from the centre to the periphery, but the line authority is maintained. Field officers, within their local jurisdictions, are given semi-autonomous and delegated powers such as routine decision-making discretion, some planning functions and the authority to adapt central directives to local conditions. The recruitment and selection of local field officers are made by the centre according to national rules and procedures.

There are two typical forms of deconcentration: *functional* and *integrated deconcentration*. In the former, field officers possess vertical links with the centre and are functionally specific, so the action of the district level government is typically segmented. In integrated (prefectoral) deconcentration, multifunctional subordinate levels of regional and/or district administration are set up in the periphery. There still exists a line of command between the centre and the periphery but there is also the authority of a regional and/or district officer (prefect) with overall co-ordinating authority in their area, in a position to guarantee the cohesion of central policies to the localities and at the same time ensuring the representation of district interests.

On the other hand, *devolution* involves the transfer of decision-making authority from the central government to other units of government that are outside its direct control. The transfer from the centre is to a multifunctional authority which may be seen as a separate level of government with its own legitimacy, authority and sources of revenue. Devolution is usually seen as a form of decentralisation in which local government units are given primary responsibility for some functions over which the central government often retains some supervisory powers and in which it may play an important financial role (Cheema and Rondinelly 1983:23)

Generally speaking, deconcentration tends to transfer authority from the centre to the periphery within the context of ultimate control of the central government. The emphasis is on policy cohesion together with central planning, control and allocation of resources, allowing therefore for a limited degree of local autonomy in government activities. As a contrast, in devolved systems the decentralized units possess greater autonomy and, theoretically, can exhibit more clearly the advantages of decentralization (Collins 1994).

Based on the above definitions, 14 deconcentrated health care systems have been identified among the OECD members and 12 devolved systems to sub-national units (municipalities or intermediate levels of government)³.

By definition, devolution means the existence of quite distinct levels of government in the country, and probably the existence of federal arrangements in the territorial distribution of power. To disentangle the influence of both factors, we incorporate the principal shared-rule arrangement in the country member as a separate variable.

It is often assumed that federalism is a more extensive form of decentralisation than devolution given its constitutional guarantees (Smith 1985:12). However, this is not always the case: sometimes the fact that the constitutional shared-rule arrangement in a country is federalism does not correspond with the reality of the power-sharing between the central government and the sub-central units. In these cases, the political practice may well contradict the federal principle (e.g. Mexico is a contemporaneous case of formal federalism).

In fact, political scientists have not reached a consensus about the definition of federalism, with many competing definitions and typologies. There appears to be one area of consensus regarding federal countries: political power is not exclusively concentrated at the central level, meaning by political power not just a mere executive capacity, but the existence of the possibility of different policy choices among sub-central units (the federal principles of *self-rule* and *shared-rule*, Elazar 1994:xv). The concept of federalism also implies the constitutional guarantee of the autonomy of the member States (Lane & Ersson, 1997:96; Elazar 1994: xv)

Although the historical federations (USA, Switzerland, Canada, Germany, etc.) have become the federal paradigm, the federal State is not synonymous with any particular institutional design, but instead there are multiple organizational forms that respond to the federal principles. As long as the proper power relations are developed, a wide variety of political structures can be consistent with federal principles.

Accompanying the spread of federalist arrangements during the twentieth century, there has been an expansion of the variety of means for translating the federal idea into practice across the world. Confederations, federacies, associated states and common market arrangements as we now know them are post-modern applications of the federal principles, as well as consociational polities, unions and leagues. Several contemporary States embrace multiple forms of federal arrangements (e.g. USA, U.K., Spain and Canada) so in these cases we have decided upon the principal shared-rule arrangement.

According to Watts (1999) and Elazar's (1994) description and classification of the existing forms of self-rule and autonomy across the world, we have categorised all countries of the OECD as unitary States, decentralised unions, federations and countries with federal arrangements [see table 1 and appendix 4 for further details]. The main

³ A distinction should be made between those cases where intermediate tiers of government, often in the form of regionalization, have been created and those where local reform have just affected the size of municipalities. The first type of local reform occurred in France, Italy, Belgium and Spain, among others, and had the effect of creating new elected councils. On the contrary, the municipal consolidation that took place in England, Federal Germany and Sweden, for example, reduced the number of municipalities through amalgamation, reducing in fact the number of elected local officials (Dente 1988:178-9)

purpose for the inclusion of this variable is to estimate the influence of different territorial distributions of power independently of the organizational forms for decentralization as experienced in the health sector.

Type of health care system

There is evidence that systems characterised by monopsony power through a single purchaser organization (such as national health services) appear to be more successful in containing the growth of health care costs. Part of the reason is that budget-setting as a measure of cost-containment is often facilitated at all levels in countries with national health services funded from general taxation, whereas in SHI systems governments try to affect health care costs relying more on direct and indirect controls on providers and purchasers (Abel-Smith 1992; Mossialos E. and Le Grand J. 1999). Consequently, we can expect the type of health care system to have an important effect upon the classification of rationing strategies.

The ideological debate in the health care context is embodied by the demand-side and the supply-side approaches⁴. In contrast to the demand-side approach (consumers decide whether to buy insurance or to pay directly at the point of delivery), supply-side systems have developed different financing structures. These include financing mechanisms funded through general revenues raised by central, provincial or local governments, including intergovernmental revenue-sharing arrangements; financing structures that use a separate tax, like the Social Security payroll tax; and mixed systems paid for by health insurance, provided through a mixture of private and public plans but extensively regulated by the government.

Demand and supply-side principles both influence the specific structural form of a nation's health care system, that is, countries differ in the degree to which they rely on market forces and public regulation to constrain health care expenditures and to allocate resources. However, while many authors have conducted comparative analyses, few have defined or developed a comprehensive classification scheme for health care systems (Roemer M. 1977 and Gordon M.S. 1988 are among the best examples).

Given the objective of this research, we will concentrate on the funding aspects of different systems. Gordon (1988) provides a typology of public systems of health care based on criteria relevant to funding differences. He defines three major types in descending order of reliance on insurance principles: national health services (funded exclusively from general taxation), national insurance systems (system of compulsory health insurance that operates on a national basis), and traditional sickness insurance systems (coverage continues to be basically employment-related and the system operates through sickness funds). Countries whose health benefit systems do not fall neatly into any of the above classifications are considered by Gordon as hybrid or mixed systems.

Based on Gordon's typology and on the latest studies of health care reform by the European Observatory on Health Care Systems (Saltman R. and Figueras J. 2001;

⁴ The demand-side school argues that health care is like other goods: consumers can exercise control over what services to buy and at what price, no matter the level of total resources devoted to health care. On the other hand, the supply-side school argues that health care has many distinctive features and, in addition, as a result of the prevalence of uncertainty in health care on both the demand and the supply side, serious market failures arise in this sector.

Saltman R., Busse R. and Figueras J. 2002), we have classified the OECD health systems into four different types: National Health Services, Social Health Insurance systems⁵, Transitional systems (specially applicable to Central and Eastern European countries, moving from the Semashko model towards social health insurance systems during the 1990s) and Hybrid systems (countries with means-tested health programmes and others).

Based on the above definitions, 10 tax-funded *national health services* (NHS) and 13 *social health insurance systems* (SHI) are included in the study. Systems on the brink of major structural changes have been defined as *transitional systems* -Hungary, Poland, Mexico and Turkey-. Finally, three health care systems – USA, New Zealand and Korea- had means-tested or residual programmes that did not fall clearly under any of the above three major classifications. These countries are characterized by a lack of a comprehensive health-related social insurance system, so they have been classified as *hybrid systems*. For the sake of simplicity and given their internal heterogeneity, the hybrid and transitional groups will be jointly analysed.

Health expenditure

Health expenditure variables are included as a measure of the level of public commitment that each member country of the OECD has towards spending on health care. The level of private expenditure will be particularly relevant for those countries characterized by the lack of a comprehensive health-related social insurance system.

⁵ Social health insurance systems are complex systems, complicated to describe and difficult to evaluate. The considerable diversity of system designs and governance among the various social health insurance countries further deepens the complexity. Based on the funding features of risk-independent contributions and sickness funds as payers or purchasers, Saltman et al. (2002) provide the following definition: “A country has social health insurance if a majority of or the whole population is legally required to obtain health insurance with a designated (statutory) third-party payer through non-risk-related contributions that are kept separate from taxes or other legally mandated payments.”

Table 1. Cluster analysis variables – OECD countries (2000)

| Countries | Decentralisation of the health care system | Principal Shared-Rule Arrangement in the country | Type of Health Care System | National Framework for Priority-Setting | National HTA agency currently operating | Sub-national or Regional HTA agencies currently operating | HTA civil service organisation or others | Public Health Expend. (% GDP) | Private Health Expend. (% GDP) |
|---------------|--|--|----------------------------|---|---|---|--|-------------------------------|--------------------------------|
| Australia | Devolution states | Federation | SHI | --- | --- | --- | MSAC | 5.9* | 2.6* |
| Austria | Devolution Länder | Federation | SHI | --- | --- | --- | --- | 5.6 | 2.4 |
| Belgium | Deconcentration | Fed. Arrangements | SHI | --- | --- | --- | --- | 6.2 | 2.5 |
| Canada | Devolution provinces | Federation | SHI | --- | CCOHTA | AETMIS | --- | 6.5 | 2.5 |
| Czech Rep. | Deconcentration | Unitary State | SHI | --- | --- | --- | --- | 6.6 | 0.6 |
| Denmark | Devolution municipalities | Fed. Arrangements | NHS | --- | DACEHTA | --- | --- | 6.8 | 1.5 |
| Finland | Devolution municipalities | Fed. Arrangements | NHS | --- | finOHTA | --- | --- | 5.0 | 1.7 |
| France | Centralised system | Fed. Arrangements | SHI | --- | ANAES | --- | --- | 7.2 | 2.3 |
| Germany | Devolution Länder | Federation | SHI | --- | --- | --- | DAHTA | 7.8* | 2.5* |
| Greece | Centralised system | Unitary State | NHS | --- | --- | --- | --- | 4.6 | 3.7 |
| Hungary | Deconcentration | Unitary State | Transitional | 1997 | --- | --- | --- | 5.1 | 1.6 |
| Iceland | Deconcentration | Unitary State | NHS | --- | --- | --- | --- | 7.4* | 1.3* |
| Ireland | Deconcentration | Unitary State | SHI | --- | --- | --- | --- | 5.1 | 1.6 |
| Italy | Devolution regions | Decentr. Union | NHS | --- | --- | --- | --- | 5.9 | 2.1 |
| Japan | Deconcentration | Decentr. Union | SHI | --- | --- | --- | --- | 5.7* | 1.6* |
| Korea | Centralised system | Unitary State | Hybrid | --- | --- | --- | --- | 2.4* | 3.0* |
| Luxembourg | Centralised system | Unitary State | SHI | --- | --- | --- | --- | 5.6* | 0.4* |
| México | Deconcentration | Federation | Transitional | --- | --- | --- | --- | 2.5 | 2.9* |
| Netherlands | Deconcentration | Decentr. Union | SHI | Early 90s. | ZonMW, CVZ | --- | TNO | 5.5 | 2.6 |
| New Zealand | Deconcentration | Fed. Arrangements | Hybrid | 1991 | --- | --- | NZHTA | 6.2 | 1.8 |
| Norway | Devolution municipalities | Unitary State | NHS | --- | --- | --- | SMM | 7.0* | 1.4* |
| Poland | Deconcentration | Unitary State | Transitional | 1991, 1997 | --- | --- | --- | 4.6* | 1.5* |
| Portugal | Deconcentration | Decentr. Union | NHS | --- | --- | --- | --- | 5.8 | 2.3 |
| Slovakia | Deconcentration | Unitary State | SHI | 1995 | --- | --- | --- | 5.3 | 0.6 |
| Spain | Devolution regions | Federation | NHS | 1995 | AETS | AETSA, CAHTA | OSTEBA | 5.4 | 2.3 |
| Sweden | Devolution municipalities | Unitary State | NHS | 1995 | SBU | --- | --- | 6.6* | 1.3* |
| Switzerland | Devolution cantons | Federation | SHI | --- | SWISS-TA | --- | MTU-FSIOS | 5.9* | 4.8* |
| Turkey | Deconcentration | Unitary State | Transitional | --- | --- | --- | --- | 3.5* | 1.4* |
| U.K. | Deconcentration | Decentr. Union | NHS | --- | --- | HTBS, NICE | NCCHTA, NHSC, HSCRD | 5.9 | 1.4 |
| United States | Devolution states | Federation | Hybrid | --- | CPTA, CAG | --- | --- | 5.8 | 7.2 |

Source: OECD Health Data (2002) and authors' own research based on literature review. See appendices for details.

*Results for 2000 not available, figure shown belongs to latest data available, normally 1999.

4. STUDY METHODS

Multivariate analysis is a collection of techniques appropriate for situations in which the random variation in several variables has to be studied simultaneously. Cluster analysis, discriminant function analysis, component analysis and factor analysis are all techniques of multivariate analysis (Armitage 1971).

Cluster analysis classifies a set of observations into two or more mutually exclusive unknown groups. In particular, it identifies a set of groups which both minimize within-group variation and maximize between-group variation. It is a technique appropriate to deal with latent structures as a research design, when in the absence of a dependent variable the objective is rather to find out whether individuals can be formed into a natural system of groups. In particular, we decided to perform a hierarchical cluster analysis, mainly because this method does not require prior knowledge of the number of groups. In addition, the alternative method, k-means cluster analysis, assumes a large sample (>200) (Everitt et al. 2001).

Cluster analysis allows many choices about the nature of the algorithm for combining groups. Each choice may result in a different grouping structure. The robustness of the results was assessed by trying different distance measures and linkage methods. Also, partly with the objective to test the internal validity of the results, cluster analysis was used in conjunction with discriminant function analysis.

In linear discriminant function analysis, the object of the analysis is to find the linear combination of x 's variables (*predicting variables*) which best discriminates among the different categories of the grouping variable ($k \geq 2$). A rule is required for discriminating between the groups, so that for any new individual known to come from one of the groups (the particular group being unknown), the rule could be applied and the individual assigned to the most appropriate group.

Unlike in multiple regression, where y is a random variable and the x 's are arbitrary variables, in discriminant function analysis the x 's are random variables and y is an arbitrary score characterizing the k groups. In all applications of discriminant functions, the original classification into groups must be made independently of the x variables. In our study, this has been previously done using the cluster analysis method (see figure 1 below) and the resulting grouping variable has been named 'rationing strategies'.

The statistical analysis was performed using SPSS v.10 and Minitab v.13.

2.1. Cluster Analysis

Hierarchical cluster techniques can be subdivided into *divisive* methods, which start by assuming a single group and partitioning it into sub-groups until only one group remains, or *agglomerative* methods, which start with each object describing a subgroup and then combining them into more inclusive subgroups until only one group remains. The groups defined by either methods are nested rather than being mutually exclusive and may be represented by a two-dimensional diagram known as a dendrogram which illustrates the divisions or fusions that occur at each successive stage of the analysis. A dendrogram that clearly differentiates groups of objects will have small distances in the far branches of the

tree and large differences in the near branches. Hence, when the distances on the far branches are large relative to the near branches, the grouping is not very effective.

In this study agglomerative methods are used, which means that variables are successively fused from 30 separate cases into a single cluster containing all the health care systems. Before performing the analysis, a number of basic choices have to be made related to the measurement of distances. First of all, we need to convert our data matrix into a proximity matrix (contains similarities between observations (O_1, O_2), in our case countries). It is necessary to consider the relative scaling of the data to be included as any distance measure will reflect primarily the contributions made by variables with the largest units.

A number of distance measures exist which provide their own weighting to the data. The most commonly used method is the squared Euclidean distance in which the distance between two items is the sum of the squared differences between the values of the items. Sometimes simply the Euclidean distance is adopted, which is the square root of the sum of the squared differences between the values for the items:

$$\text{Distance (A,B)} = \sqrt{\sum (A_i - B_i)^2}$$

We adopted this method to deal with our binary data. The variables included in the analysis are shown in table 1 and were presented and justified in the previous section. Briefly, we want to classify OECD countries according to their different rationing strategies in health care using the following four variables:

- the existence of a national basic benefits package or procedural rights for setting priorities, both backed up by legislative authority;
- the presence of civil service organisations with responsibilities in HTA and/or research centres with contractual obligations to the DoH;
- the presence of national HTA agencies currently operating; and
- the presence of sub-national HTA agencies currently operating.

After the distances between the countries have been found, the next step in the cluster analysis procedure is to divide the countries into groups based on these distances (inter-group linkage methods). A number of techniques are available which can be used to link clusters within the agglomerative process. The one adopted here is one of the most common ones, the *average linkage* method. In this method the average distance between two clusters is calculated and forms the basis of new fusions.

The clustering process can be described as follows: after finding the nearest pair of distinct clusters, say O_1 and O_2 , both are merged and the number of clusters is decremented by one. The process is repeated until the number of clusters equals one, then the analysis process is finished and the dendrogram will reveal a finite number of groups.

2.2. Linear Discriminant Function Analysis

The dimensions included in the this analysis were also presented and justified in the previous section. Briefly, we want to predict which rationing strategy a country operates given the following five variables:

- The form of decentralisation of the health care system
- The principal shared-rule arrangement in the country
- The type of health care system
- Public health care expenditure (% national GDP)
- Private health care expenditure (% national GDP).

If some of these variables prove to be useful in prediction, the results of this research could provide an indication of the factors that influence the policy decision of making rationing in health care explicit. If the form of decentralisation of the health care system and the principal shared-rule arrangement in the country appear to be sufficiently relevant, we could validate our hypothesis that the level of decentralisation of health policy provides different political incentives for making rationing explicit.

The approach to the discrimination problem based on a data matrix can be made by assuming a particular parametric form for the distribution of the groups. The maximum likelihood discriminant rule and the Bayes discriminant rule are useful methods when the p.d.f.s $f_i(x)$ are known, although this is not realistic in practice. A variant of this situation occurs when the form of the probability density function for each group is known, but there are parameters which must be estimated. In these situations, methods like the sample discriminant rule and the likelihood ratio discriminant rule can be used.

As an alternative, there is an empirical approach to discriminant analysis where we do not assume any particular form for the groups, but we merely look for a ‘sensible’ rule which will enable us to discriminate between them. One such rule is based on Fisher’s linear discriminant function (Mardia, Kent and Bibby 1979). Fisher’s suggestion was to look for the *linear function* which maximized the ratio of the between-groups sum of squares to the within-groups sum of squares.

When the number of groups is $k=2$, the linear discriminant function maximizes the ratio of the difference in means between the groups to the standard deviation within groups. A natural generalization of this criterion is to maximize the ratio of the SSq between groups to the SSq within groups. This requirement leads to a standard technique of matrix algebra: the calculation of eigenvalues or latent roots of a matrix.

The appropriate equation, in fact, has several solutions. One solution, corresponding to the highest latent root, gives the coefficients in the linear function that maximizes the ratio of SSq. This is called the first *canonical variate* or Fisher’s linear discriminant function, F_1 . If one wanted as good discrimination as possible from a single linear function, this would be the one to choose. The second canonical variate, F_2 , is the function with the highest ratio of SSq, subject to the condition that it is uncorrelated with F_1 both between and within groups. Similarly, F_3 gives the highest ratio subject to being uncorrelated with F_1 and F_2 . (Armitage 1971). The number of linear functions is $k-1$, so given that in our study the grouping variable (‘rationing strategy’) has three groups, that gives a total number of two linear functions. This result is very convenient to plot the data as a scatter diagram with F_1 and F_2 as the two axes, so we can have a clear picture of any tendency of the groups to form clusters (see figures 2 and 3 below).

5. RESULTS

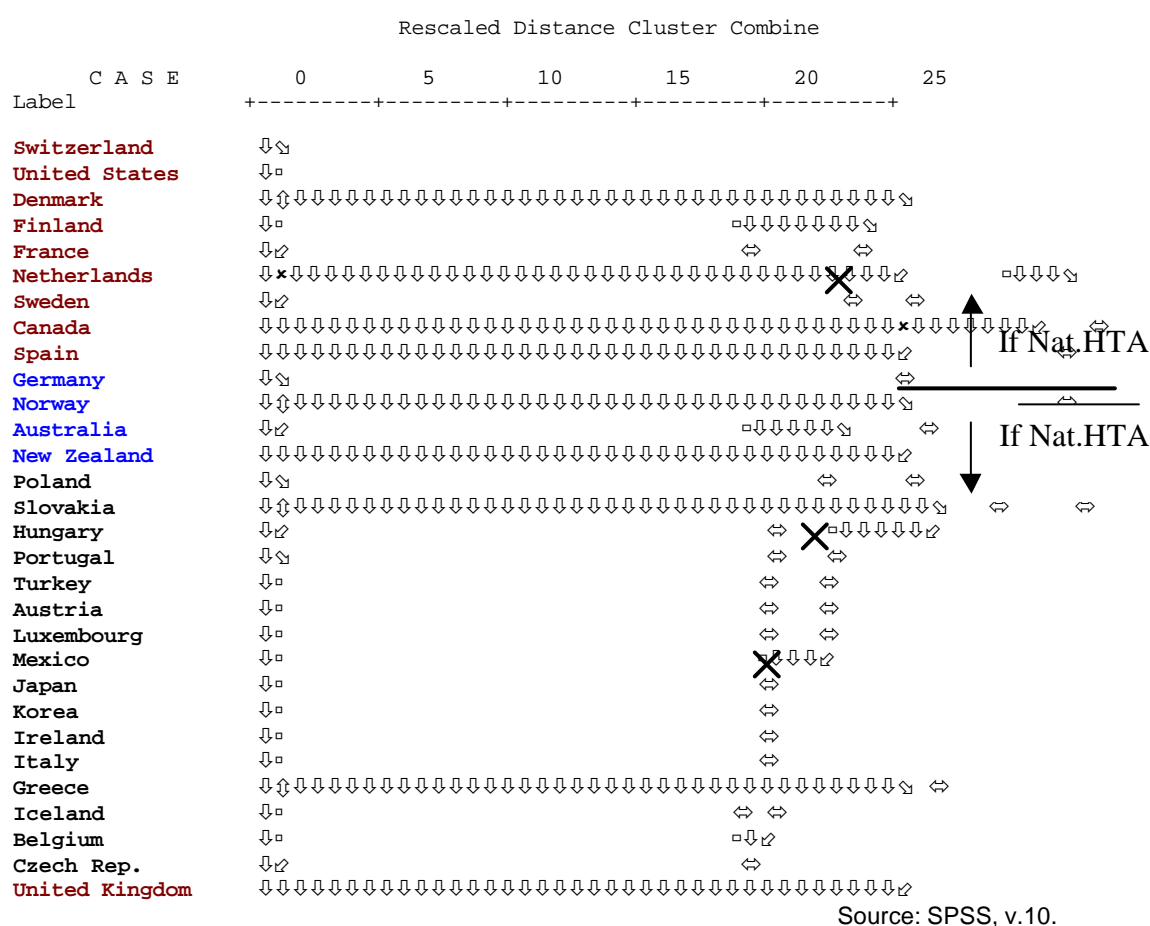
The results of the cluster analysis containing all four variables are shown in the dendrogram of Figure 1. Examination of the dendrogram indicates that a three cluster solution could be optimal, at a rescaled distance of approximately 20. The distances of the far branches are small relative to the near branches, so the grouping seems to be quite effective. The resulting groups are:

Group 1: Poland, Slovakia, Hungary, Portugal, Turkey, Austria, Luxembourg, Mexico, Japan, South Korea, Ireland, Italy, Greece, Iceland, Belgium and Czech Republic. The U.K. stands out as a separate category.

Group 2: Germany, Norway, Australia and New Zealand

Group 3: Switzerland, United States, Denmark, Finland, France, the Netherlands, Sweden, Canada, Spain.

Figure 1. Dendrogram for rationing strategies using hierarchical cluster analysis



There are wide variations between OECD countries in terms of rationing strategies, as illustrated in table 1 and documented in the appendix, but the clustering has produced a basic twofold classification between countries with national HTA governmental agencies and countries without them. Among those countries without national HTA agencies, a

second sub-grouping is produced between those with other type of HTA organisations and those countries without none at all.

There exist further sub-classifications according to whether or not the country has a legal framework for priority-setting, but this is a sub-category less subordinated to the main criterion for classification: the presence or absence of HTA agencies.

With the exception of Poland, Slovakia and Hungary, the rest of the countries that do not have any sort of HTA organisations currently operating also do not have any legal framework for priority-setting. These Central and Eastern European (CEE) countries have legislated basic benefits packages during the mid-90s. However, the main aim of legislation was not to address the issue of priority-setting in a systematic and coherent way, but to guarantee a range of basic services and it was normally developed as an urgent response to circumstances of economic crisis. For this reason and for the sake of simplicity we do not take into consideration this sub-classification.

So based on the country-cluster groups, three major rationing strategies have been identified in the OECD:

- (1) Countries that do not have an explicit rationing policy;
- (2) countries with civil service organisations with responsibility for HTA; and
- (3) countries with HTA governmental agencies.

Group 1 is made up of a rather heterogeneous group of countries, including some of the members of the G-7 (Italy and Japan), CEE countries (Czech Republic, Slovakia, Hungary and Poland) and some of the smallest European countries (Luxembourg and Belgium).

Group 2 comprises four countries, that apparently do not share much in common, apart for high levels in public health care expenditure.

Group 3, apart from the USA and Canada, is made up of European countries and it includes some of the historical federal systems (USA, Switzerland and Canada), as well as three Scandinavian countries (Sweden, Finland and Denmark). This is the most homogeneous group of the overall classification.

The classification of the U.K. needs special consideration. The U.K. has been clustered with group 1, as a country without a national HTA agency. The reason for this is that, in reality, the U.K. is an exceptional case with two sub-national HTA agencies but not a national one. The National Institute for Clinical Excellence (NICE) is accountable jointly to the Secretary of State of England and the National Assembly for Wales, while the Health Technology Board for Scotland (HTBS) is accountable to the Scottish Executive Health Department. Both institutions serve their respective populations although coordination of their activities is currently fostered.

In this sense, the U.K. represents an exception: the other two countries that have regional HTA agencies (Canada and Spain) also have national agencies in operation, contributing to national co-operation in HTA and facilitating resource-pooling. However, classifying the U.K. with the group of countries without national HTA agencies does not intuitively make sense, especially since one of its sub-national agencies (NICE) covers in reality about 85% of the U.K. population. In addition, the U.K. is among those members of the

European Union that has experienced more significant developments in health technology assessment in recent years (Mossialos and Le Grand 1999). For these reasons, in order to construct a grouping variable for the linear discriminant analysis we have re-classified the U.K. as a member of group 3.

In order to undertake the discriminant function analysis, a grouping variable named 'rationing strategies' has been created, based on the three major rationing policies identified above. Table 2 contains the discriminant function coefficients for the interaction terms. The magnitude of the standardized coefficients conveys the importance of the contribution from each variable in predicting the grouping variable ('rationing strategies').

The three variables that have the largest coefficients for function 1 are the public expenditure on health care, the principal shared-rule arrangement in the country and the form of decentralisation of the health care system. For function 2, the largest coefficients are shown by the type of health care system and the level of private expenditure in health care, followed by the level of public expenditure.

Table 2. Standardized Canonical Discriminant Function Coefficients

| | Function | |
|--|----------|-------|
| | 1 | 2 |
| Form decentralization | .338 | .257 |
| Shared-rule system in the country | .523 | -.101 |
| Type health care system | -.073 | 1.062 |
| Public expenditure (% GDP) | .604 | .597 |
| Private expenditure (% GDP) | .198 | -.663 |

A measure of the strength of the association between the linear discriminant functions and the grouping variable is the canonical correlation coefficient. Its square is the proportion of variability in the discriminant function scores explained by the independent variables. Thus, about 46% of the variability in the discriminant scores is attributable to between-group differences ($.681^2 = .463$) for the first canonical function, although this is reduced to 16% for the second function ($.399^2 = .159$). These results are consistent with the results of the multivariate tests of significance shown below.

Three out of the five variables (form of decentralisation, shared-rule system in the country and public expenditure) indicate that there are significant differences between countries without any explicit rationing strategies (group 1), civil service organisations with responsibility for HTA (group 2) and HTA governmental agencies (group 3).

These three significant variables indicate that there is sufficient evidence to reject the null hypothesis that the means of the predicting variables do not differ for the three categories of the grouping variable ('rationing strategies'). However, this is not the case for the canonical function 2: neither the predicting variables that show a largest contribution are significant (type of health care system and private expenditure in health care) nor the function itself (.363).

Table 3. Multivariate tests of significance

Tests of Equality of Group Means

| | Wilks' | F | df1 | df2 | Sig. |
|--|--------|---|-----|-----|------|
| | | | | | |

| | Lambda | | | | |
|-----------------------------------|--------|-------|---|----|------|
| Form decentralization | .727 | 5.058 | 2 | 27 | .014 |
| Shared-rule system in the country | .722 | 5.193 | 2 | 27 | .012 |
| Type health care system | .918 | 1.199 | 2 | 27 | .317 |
| Public expenditure (% GDP) | .761 | 4.246 | 2 | 27 | .025 |
| Private expenditure (% GDP) | .896 | 1.567 | 2 | 27 | .227 |

Wilks' Lambda

| Test of Function(s) | Wilks' Lambda | Chi-square | df | Sig. |
|---------------------|---------------|------------|----|------|
| 1 through 2 | .451 | 19.886 | 10 | .030 |
| 2 | .841 | 4.333 | 4 | .363 |

The fact that the canonical function 2 is not significant may be due, first of all, to the circumstance that if most of the variation between groups has already been explained by the canonical function 1, the ratios of SSq corresponding to subsequent functions would be relatively small (Armitage 1971: 341), and as a result, function 2 is not statistically significant. Secondly, the relatively small sample size of the study could explain the lack of significance.

However, the degree of prediction of the original five predicting variables altogether is rather important: 70% of cases were correctly classified, and the territorial map displayed by SPSS shows a clear division of the 30 countries in three well delimited areas, roughly approximated here by straight lines (see figure 2).

Table 4. Predicted group membership and misclassifications

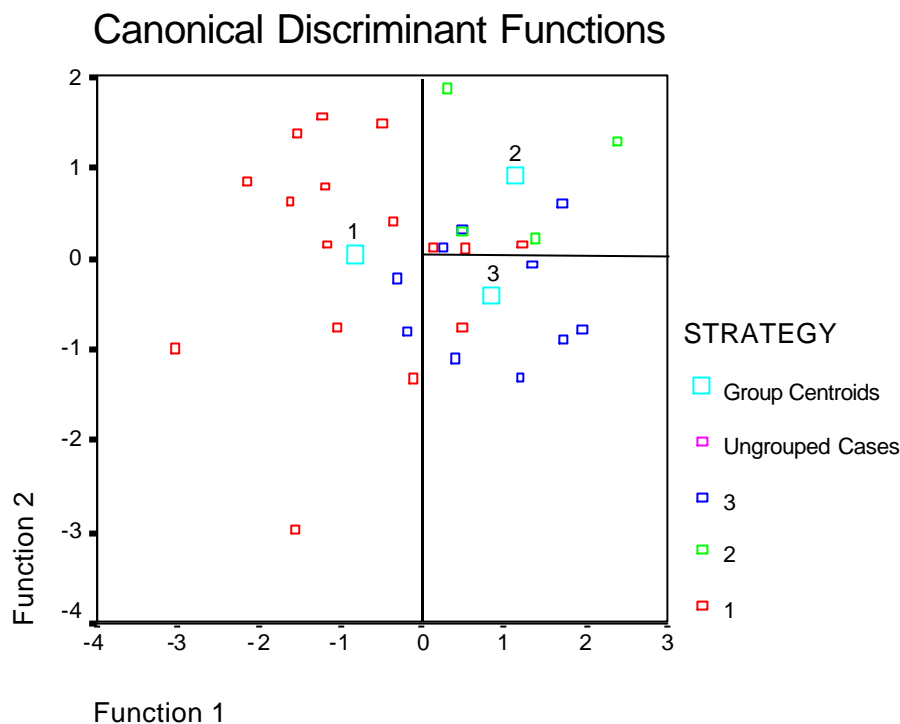
Classification Results^a

| | | STRATEGY | Predicted Group Membership | | | Total |
|----------|-------|----------|----------------------------|------|------|-------|
| | | | 1 | 2 | 3 | |
| Original | Count | 1 | 11 | 0 | 5 | 16 |
| | | 2 | 0 | 3 | 1 | 4 |
| | | 3 | 2 | 1 | 7 | 10 |
| % | | 1 | 68,8 | ,0 | 31,3 | 100,0 |
| | | 2 | ,0 | 75,0 | 25,0 | 100,0 |
| | | 3 | 20,0 | 10,0 | 70,0 | 100,0 |

a. 70,0% of original grouped cases correctly classified.

As the scatter plot shows, function 1 divides the data clearly into two sections: countries that have and do not have an explicit rationing policy. The linear function 2 divides the data between those countries with civil service organisations with responsibility for HTA and those with HTA governmental agencies. However, product of its inferior power of discrimination, a few misclassified countries lie very close along the frontier between groups 2 and 3.

Figure 2. All-groups scatter plot



Source : SPSS v.10

When considering the information that the scatter plot provides, some interesting findings are evident. Countries placed on the left of the function 1 axis, with a low level of public health care expenditure, without any federalist arrangements and centralised health care systems have a greater probability of not having any explicit health care rationing policy, and so belonging to *group 1* of our classification. The only obvious exceptions are Austria, Belgium and Italy, countries predicted as members of the group of countries with explicit rationing strategies currently operating (groups 2 and 3). Iceland and Portugal are misclassified as well, however, they are placed just next to the frontier so their position is more ambiguous.

Traditionally HTA has not been accorded particular importance in Austria, due in part to the large variety of financing systems in Austrian hospitals, as a direct result of the autonomy allowed under State laws and regulations. In Belgium, HTA is performed by INAMI/RIZIV's technical councils, composed of representatives of health insurance associations, health care providers and university experts. Each council advises a committee (composed of representatives of the relevant providers and health insurance associations) on whether old technologies should be replaced by modern ones, and at what level the fee for use and reimbursement should be set. It is striking that providers, funders and managers play the major part in this system, whereas attention to the cost-effectiveness of technologies is lacking. Finally, in Italy early experiences in HTA are developing in the regions of Friuli-Venezia Giulia and Veneto (see HiT reports by the European Observatory on Health Care Systems).

On the contrary, countries placed on the right of the function 1 axis (*groups 2 and 3*) share the characteristics of higher levels of public expenditure in health care, the presence of some federalist power-sharing rules and more decentralised health care systems. The only

exceptions are the Netherlands and the U.K. Although members of the group of countries with HTA agencies, they were predicted as countries without explicit rationing mechanisms operating. We will discuss the position of the U.K. in relation to the OECD and European Union countries in the following section.

Linear function 2 provides further information about the sub-division of countries with explicit rationing strategies depending on the level of independence of their HTA agencies. Countries placed on the left of the function 2 axis are those with civil service organisations with responsibility for HTA (group 2). All share in common a higher level of private expenditure and a higher probability of having a non-NHS system. The only exception appears to be Norway, a member of group 2 although predicted to be a member of group 3. However, according to the territorial map, it is a more ambiguous case, placed in the frontier between both groups.

Group 3 countries are placed on the right of the function 2 axis, and all share in common lower levels of private expenditure and a higher probability of having a national health system than other type of health care system. Apart from the already mentioned exceptions of the Netherlands and the U.K., Canada is the third exception of group 3, having been predicted as group 2.

It is obvious that the discrimination power of linear function 2 is not as good as that of linear function 1. The blurred area between groups 2 and 3 seems to confirm this fact, although it is true that the difference between these two groups must be much more subtle than between countries with or without explicit rationing strategies.

We have further explored the contribution of the predicting variables in function 1. After re-classifying the 30 countries in only two groups, with or without explicit rationing strategies ('strategy 1') the significant variables are still the same: form of decentralisation, shared-rule system in the country and public expenditure. This suggests that these variables are robust predictors. They also maintain the same level of contribution to the classification but the level of prediction of the first canonical variate is higher: 80% of cases were correctly classified.

Table 5. Standardized Canonical Discriminant Function Coefficients for grouping variable 'strategy1'

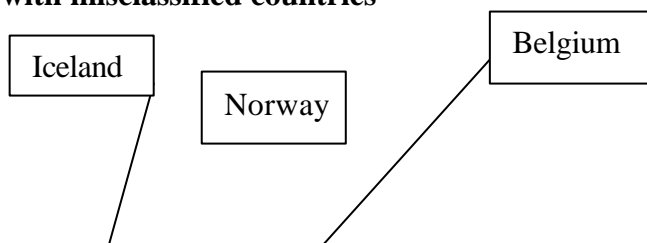
| | Function 1 |
|------------------------------------|------------|
| Form decentralization* | .318 |
| Shared-rule system in the country* | .528 |
| Type health care system | -.155 |
| Public expenditure (% GDP)* | .566 |
| Private expenditure (% GDP) | .251 |

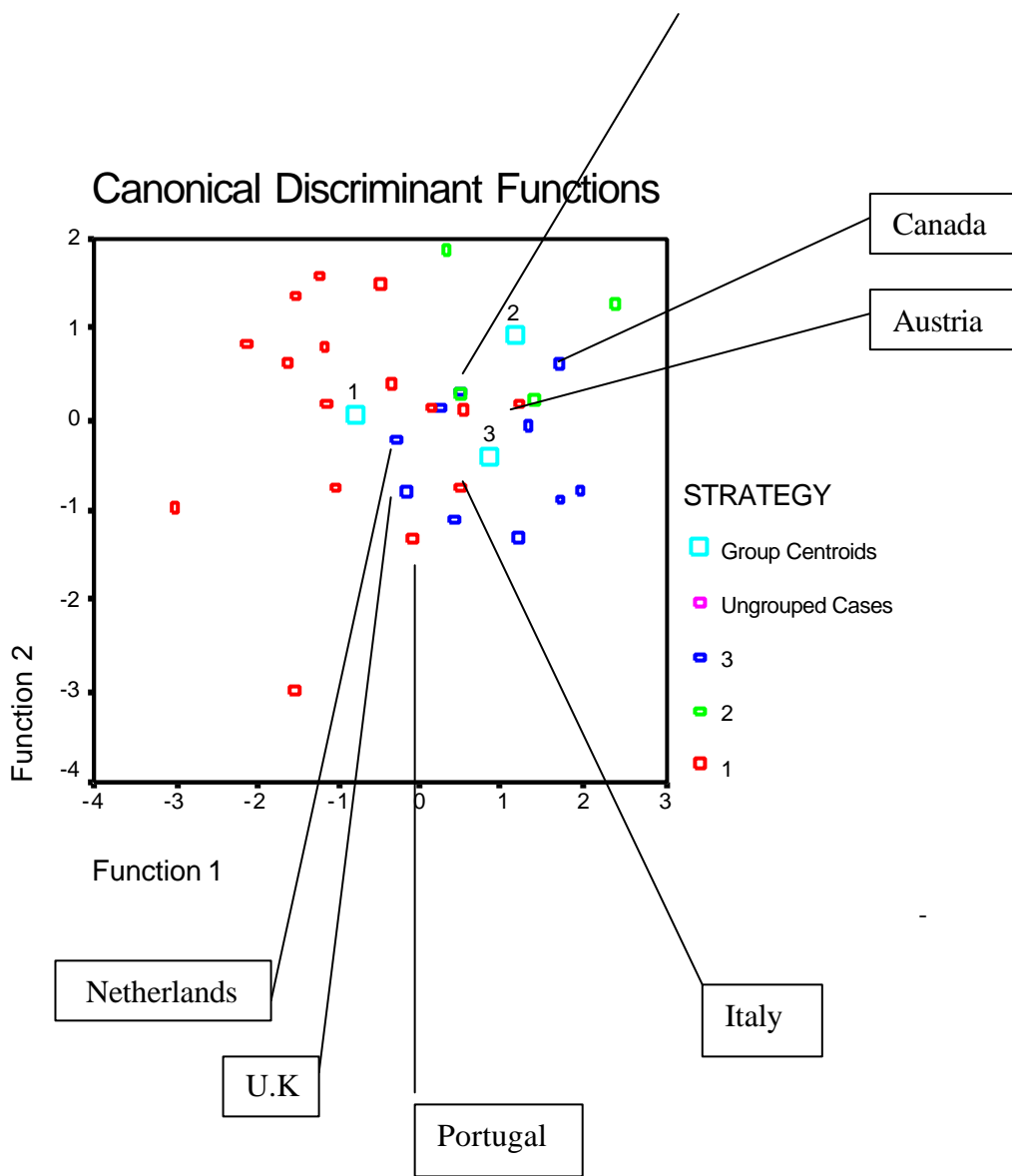
*Statistically significant at the 0.05 level

Wilks' Lambda

| Test of Function(s) | Wilks' Lambda | Chi-square | df | Sig. |
|---------------------|---------------|------------|----|------|
| Function 1 | .540 | 15.710 | 5 | .008 |

Figure 3. All-groups scatter plot with misclassified countries





6. DISCUSSION

This paper attempts to synthesise the great diversity of rationing strategies in health care as experienced among OECD member countries. In spite of the great diversity of formulae for the decentralisation of health care systems and for the territorial division of power, this research shows that there is scope for simplification and operationalization of these complex variables. Both of them have proved to be relevant for analysing the political incentives behind explicit rationing policies.

Cluster analysis results must be always considered with caution. Cluster methods are rather sensitive to the method of standardisation and the method of clustering. However, the fact that we are working only with binary data simplifies the process, making unnecessary the use of any method of standardisation. Regarding the framework of variables used, the groupings produced show a logical and good synthesis of rationing strategies in health care among OECD countries. In particular, we have illustrated how the use of HTA has reached different stages in OECD countries.

The distributional assumptions for traditional discriminant analysis, that the sample is multivariate normal, are clearly not satisfied. It is common practice however to employ the above procedures, at least as a first analysis, since the method can be seen to produce satisfactory results even for scenarios where the distributional assumptions cannot be met (Asparoukhov, O. and Krzanowski, W.J. 2001).

The primary division into groups of countries that have and do not have an explicit rationing policy is seen to be statistically significant. There is a less clear success in discrimination at the second level, in the continuum of level of independence of HTA organisations, between those countries with civil service organisations with responsibility for HTA and those with HTA governmental agencies.

Although the results are not significant for this second canonical function due to the small sample size of this initial study, all the results are considered worthy of further analysis. This analysis should explore other classification tools such as classification trees. The structure of division points to this approach has being fruitful and perhaps superior to traditional discrimination.

The results of this research give us a good guide to the factors that influence the policy decision of making rationing explicit. The level of public expenditure in health care is the variable that seems to contribute the most. In the context of comprehensive health-related social insurance systems, this is not a surprising result but an intuitively reasonable one. As the public expenditure needed to finance the system increases, not only the real size of the problem but also public awareness can put pressure on incumbent governments to take a political decision about rationing.

Secondly, the form of decentralisation of the health care system and the presence of federal arrangements in the country appear to be relevant enough to validate our hypothesis. In fact, 10 out of the 14 members of the OECD that have an explicit rationing policy show devolved health decision-making authority to regional or local governments. In contexts of shared-accountability it should be easier to take unpopular rationing decisions. At the same time, rationing strategies could be used as a subtle central

mechanism to address issues of inter-territorial equity and control of public expenditure, potentially problematic in a context of decentralization.

If we examine the position of the U.K. within the context of the findings reported above, it is possible to conclude that the U.K. is something of an exception. Together with the Netherlands, both are predicted as countries without national HTA organisations operating, a classification that does not correspond with reality. However, taking into account that public expenditure is the predicting variable with the highest contribution on the classification, the overall picture for the U.K. in comparison to the members of group 3 (the majority of them members of the E.U.) becomes clearer.

Recent analyses have revealed a common trend in that Southern Mediterranean countries have generally exhibited upward convergence towards the mean in health expenditure, while, E.U. countries of the North, particularly those of Scandinavia, exhibit downward convergence towards the E.U. mean or below it in health expenditure (Nixon 2000a). Although the level of public expenditure needs to be considered as well in relation to a country's GDP income and its population size, we measured public expenditure as a percentage of the national GDP as an indicator of the level of national economic effort and public commitment of each country. According to this measure, the UK was below the E.U. mean during the 1990s, just catching up with the E.U. mean of 5.9% GDP in the year 2000 (OECD Health Data 2002).

Regarding the decentralisation of the health care system, the Department of Health under the direction of the Secretary of State for Health, is responsible for health and personal social services in England. Separate responsibilities are held by the Secretaries of State for Scotland, Wales and Northern Ireland. However, although one can argue that this is a devolved system, health services in England account for about 80% of total U.K. public expenditure on health. The key features of the structure of the health care system are the separation between commissioners/purchasers and providers, and the direct line of accountability ultimately to the Secretary of State for Health. The organization and management of the health service in Scotland, Wales and Northern Ireland are similar to the English system. Therefore it appears reasonable to argue that the structure of the U.K. NHS is closer to a deconcentration model than to a devolved system. In contrast, the majority of countries classified in group 3 have devolved systems, with the exception of France and the Netherlands.

7. CONCLUSIONS

Cluster analysis comprises a range of methods for classifying multivariate data into sub-groups, revealing the characteristics of any structure or patterns present. These techniques have been employed in a diverse range of disciplines, such as biology, botany, medicine, psychology and archaeology. However, with the exception of its use in anthropology, the method is not generally applied to the classification of complex cases but to produce classifications at the individual level (i.e. patients, consumers, animals, flowers, etc.). This paper has reported on the utilization of hierarchical cluster analysis in conjunction with linear discriminant function analysis as a useful tool in the study of health care systems and particularly useful in generating hypotheses.

The findings of the analyses reinforce the political nature of health care rationing decisions and underline important factors that appear to favour their adoption. Our model

would predict that Italy, Austria and Belgium will experiment with developments in priority-setting in the near future.

In assessing the reasons for the lack of use of HTA information in informing pricing and coverage decisions, recent European research pointed not only to lack of information on effectiveness, costs and appropriateness, but also crucially to the political nature of the decisions involved (Cranovsky R et al. 1997) and the structure of individual healthcare systems (Henshall et al. 2002). If the *formulation* of priority-setting policies is influenced by the form of decentralisation of health care systems and the territorial distribution of power in the country, it could be the case that those same factors can affect the *implementation* of such policies.

LIST OF ABBREVIATIONS

| | |
|-----------|--|
| AETMIS | Agence d'Évaluation des Technologies et des Modes d'Intervention en Santé, Canada |
| AETS | Agencia de Evaluacion de Tecnologias Sanitarias, Spain |
| AETSA | Andalusian Agency for Health Technology Assessment, Spain |
| AHFMR | Alberta Heritage Foundation for Medical Research, Canada |
| AHRQ-CPTA | Agency for Healthcare Research and Quality, Center for Practice and Technology Assessment, USA |
| ANAES | National Agency for Accreditation and Evaluation in Health, France |
| ASERNIP-S | Australian Safety and Efficacy Register of New Interventional Procedures – Surgical, Australia |
| CAHTA | Catalan Agency for health Technology Assessment and Research, Spain |
| CCOHTA | Canadian Coordinating Office for Health Technology Assessment, Canada |
| CEDIT | Committee for Evaluation and Diffusion Innovative Technologies, France |
| CMS-CAG | The Coverage Group at the US centers for Medicare & Medicaid Services, USA |
| CMT | The Center for Medical Technology Assessment, Sweden |
| CVZ | College voor zorgverzekeringen, Health Care Insurance Board, The Netherlands |
| DACEHTA | Danish Center for Evaluation and Health Technology Assessment, Denmark |
| DIMDI | The German Institute for Medical Documentation and Information, Germany |
| DSI | Danish Institute for Health Services Research, Denmark |
| FinOTA | Finnish Office for Health Technology Assessment, Finland |
| FIOS-MTU | Federal Social Insurance Office, Medical Technology Unit, Switzerland |
| HTBS | Health Technology Board for Scotland, UK |
| HunHTA | The Unit of Health Economics and Health Technology Assessment, Hungary |
| ITA | Institute of Technology Assessment, Austrian Academy of Sciences, Austria |
| GR | Gezondheidsraad, Health Council of the Netherlands, The Netherlands |
| MSAC | Medical Services Advisory Committee, Australia |
| NCCHTA | National Coordinating Centre for Health Technology Assessment, UK |
| NHS CRD | The NHS Centre for Reviews and Dissemination, UK |
| NHSC | National Horizon Scanning Centre, UK |
| NICE | National Institute for Clinical Excellence, UK |
| NZHTA | The Clearing House for Health Outcomes and Health Technology Assessment, New Zealand |
| OSTEBA | Basque Office for Health Technology Assessment, Spain |
| SBU | The Swedish Council on Technology Assessment in Health Care, Sweden |
| SMM | The Norwegian Center for Health Technology Assessment, Norway |
| SWISS-TA | Swiss Science Council/Technology Assessment, Switzerland |
| TNO | The Netherlands Organisation for Applied Scientific Research, The Netherlands |
| VA TAP | Department of Veterans Affairs (VA) Technology Assessment Program, USA |
| ZonMw | The Medical and Health Research Council of the Netherlands |

GLOSSARY OF FEDERAL POLITICAL SYSTEMS

Unions

Polities compounded in such a way that the constituent units preserve their respective integrities primarily or exclusively through the common organs of the general government rather than through dual government structures. Belgium prior to becoming a federation in 1993 was an example (when central legislators served also with a dual mandate as regional or community councillors)

Constitutionally decentralized unions

Basically unitary in form in the sense that ultimate authority rests with the central government but incorporate constitutionally protected subnational units of government which have functional autonomy. The United Kingdom of Great Britain and Northern Ireland is a good example.

Federations

Compound polities, combining strong constituent units and a strong general government, each possessing powers delegated to it by the people through a constitution, and each empowered to deal directly with the citizens in the exercise of its legislative, administrative and taxing powers, and each directly elected by the citizens. Currently there are some 24 in the world that meet the basic criteria of a federation.

Quasi-federations

Those polities which are predominantly federations in their constitutions and operation but which have some overriding federal governments powers more typical of a unitary system. South Africa is a recent example (1996), which has most of the characteristics of a federation but retains some unitary features.

Federacies

Political arrangements where a large unit is linked to a smaller unit or units, but the smaller units retains considerable autonomy and has a minimum role in the government of the larger one, and where the relationship can be dissolved only by mutual agreement. Examples are the relationship of Puerto Rico to the USA and of Kashmir to India.

Associated states

These relationships are similar to federacies, but they can be dissolved by either of the units acting along or prearranged terms established in the constituting document or a treaty. The relationship between New Zealand and the Cook Islands is an example.

Source: Watts R.L. 1999.

REFERENCES

- Abel-Smith B. 1992. *Cost Containment and New Priorities in Health Care*. Avebury: Aldeshot.
- Armitage P. 1971. *Statistical Methods in Medical Research*. Oxford: Blackwell Scientific Publications.
- Asparoukhov O. and Krzanowski W.J. 2001. A comparison of discriminant procedures for binary variables. *Computational Statistics and Data Analysis* 38:139-160.
- Busse R. and Wismar M. 2002. Health target programmes and health care services - any link? A conceptual and comparative analysis (part I). *Health Policy* 59:209-221.
- Castles F.G. 1999. *Comparative Public Policy. Patterns of Post-War Transformation*. Cheltenham: Edward Elgar.
- Cheema G.S. and Rondinelly D.A. 1983. *Decentralisation and Development*. Beverly Hills: Sage.
- Coast J, Donovan J, and Frankel S. 1996. *Priority Setting: the Health Care Debate*. Chichester: John Wiley & Sons Ltd.
- Collins Ch. 1994. *Management and Organization of Developing Health Systems.*, Oxford Medical Publications. Oxford: Oxford University Press.
- Colombo F. and Hurst J. Review of the Korean Health Care System. 2002. Paris, OECD.
- Coulter A. and Ham C. 2000. *The Global Challenge of Health Care Rationing*. Buckingham: Open University Press.
- Cranovsky R., Matillon Y., and Banta D. 1997. Eur-Assess project subgroup report on coverage. *International Journal of Technology Assessment in Health Care* 13, no. 2:287-332.
- Dente B. 1988. Local government reform and legitimacy. In *The Dynamics of Institutional Change. Local Government Reorganization in Western Democracies*, edited by Dente B. and Kjellberg F. (London: Sage).
- Elazar D.J. 1994. *Federal Systems of the World. A Handbook of Federal, Confederal and Autonomy Arrangements*. 2 ed. Essex: Longman Group Limited.
- European Observatory on Health Care Systems. 1996a. *Canada.*, *Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1996b. *Greece.*, *Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1996c. *Turkey.*, *Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1998. *Ireland.*, *Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1999a. *Hungary.*, *Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1999b. *Luxembourg.*, *Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.

- European Observatory on Health Care Systems. 1999c. *Poland., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1999d. *Portugal., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 1999e. *United Kingdom., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000a. *Belgium., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000b. *Czech Republic., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000c. *Germany., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000d. *Iceland., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000e. *Norway., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000f. *Slovakia., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000g. *Spain., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2000h. *Switzerland., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2001a. *Australia., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2001b. *Austria., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2001c. *Denmark., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2001d. *Italy., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2001e. *New Zealand., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2001f. *Sweden., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- European Observatory on Health Care Systems. 2002. *Finland., Health Care Systems in Transition*. Copenhagen: WHO Regional Office for Europe.
- Everitt B., Landau S., and Leese M. 2001. *Cluster Analysis*. 4th ed. London: Arnold Publishers.
- Gordon M.S. 1988. *Social Security Policies in Industrial Countries*. Cambridge: Cambridge University Press.

- Green A. and Barker C. 1988. Priority setting and economic appraisal: whose priorities -the community or the economist? *Social Science and Medicine* 26:919-930.
- Ham C. and Locock L. International Approaches to Priority Setting in Health Care. 1997. Health Services Management Centre. University of Birmingham.
- Harrison S. 1997. Central government should have a greater role in rationing decisions. The case against. *British Medical Journal* 314:970-973.
- Henshall C. and et al. 2002. Health Technology Assessment in policy and practice. *International Journal of Technology Assessment in Health Care* 18, no. 2:447-455.
- Honigsbaum F., Calltorp J., Ham C., and Holmstrom S. 1995. *Priority Setting Processes for Healthcare*. Oxford: Radcliffe Medical Press Ltd.
- Hunter D. Rationing Dilemmas in Health Care. 1993. Birmingham, NAHAT.
- Jacobs R. and Goddard M. Social Health Insurance Systems in European Countries. 2000. York, University of York. Centre for Health Economics, Occasional Papers.
- Jeong H. and Hurst J. An Assessment of the Performance of the Japanese Health Care System. Occasional papers 56. 2001. Paris, OECD. Labour Market and Social Policy.
- Jonsson E. 2002. Development of Health Technology Assessment in Europe. *International Journal of Technology Assessment in Health Care* 18, no. 2:171-183.
- Klein R. 1993. Dimensions of rationing: Who should do what? *British Medical Journal* 307:309-311.
- Lane J. and Ersson S. 1997. Is federalism superior? In *Political Institutions and Public Policy*, edited by Steunenberg B. and Van Vught F. (London: Kluwer Academic Publishers).
- Majone G. 1996. *Regulating Europe*. London: Routledge.
- Majone G. 1997. Independent agencies and the delegation problem. In *Political Institutions and Public Policy: Perspectives on European Decision Making*, edited by Steunenberg B. and Van Vught F. (Dordrecht: Kluwer Academic Publishers).
- Mardia K.V., Kent J.T., and Bibby J.M. 1979. *Multivariate Analysis*. London: Academic Press.
- Mechanic D. 1995. Dilemmas in rationing health care services: the case for implicit rationing. *British Medical Journal* 310:1655-1659.
- Mossialos E. and Le Grand J. 1999. *Health Care and Cost Containment in the European Union*. Edited by Ashgate Publishing Ltd. Aldershot.
- Mullen P and Spurgeon P. 2000. *Priority Setting and the Public*. Abingdon: Radcliffe Medical Press Ltd.
- Nixon J. Convergence of Health Care Spending and Health Outcomes in the European Union, 1960-95. [183]. 2000a. York, University of York. CHE Discussion paper.
- Nixon J. How does the UK NHS compare with European standards? A review of EU health care systems using hierarchical cluster analysis. [182]. 2000b. York, The University of York. CHE Discussion Paper.
- OECD. The Caring World: National Achievements. OECD. 1998.

- Roemer, M. I. 1977. *Comparative National Policies on Health Care*. Edited by Marcel Dekker, Inc. New York.
- Saltman R.B., Busse R., and Figueras J. 2002. Social Health Insurance Countries in Western Europe.
- Saltman R.B. and Figueras J. 2001. *European Health Care Reform. Analysis of Current Strategies*. Copenhagen: European Observatory on Health Care Systems.
- Smith B.C. 1985. *Decentralisation. The Territorial Dimension of the State*. London: Allen & Unwin.
- Taylor R. 2002. National Institute for Clinical Excellence (NICE). HTA Rhyme and Reason? *International Journal of Technology Assessment in Health Care* 18, no. 2:166-170.
- Thai K., Wimberley E.T., and McManus S.M. 2002. *Handbook of International Health Care Systems*. New York: Marcel Dekker, Inc.
- Watts R.L. 1999. *Comparing Federal Systems*. 2 ed. Kingston, Ontario.: McGill-Queen's University Press.
- Woods K. 2002. Health Technology Assessment for the NHS in England and Wales. *International Journal of Technology Assessment in Health Care* 18, no. 2:161-165.

Appendix 1. Characterization HTA agencies – OECD countries

| Countries | H.T.A. Agencies | Legal status | Accountability in the healthcare system | Principal aim |
|-----------|---------------------------------------|--|--|--|
| Australia | ASERNIP-S MSAC | Program of the Royal Australasian College of Surgeons (Medical Association), set up in 1998. Advisory committee (1997) within the Diagnostics and Technology Branch Committees, Health Access and Financing Division. | --- Department of Health and Aged Care. | -Collect and assess evidence-based information in regard to the safety and efficacy of selected new surgical procedures. - Advise the Minister for Health and Aged Care on the strength of evidence on new medical technologies and under what circumstances public funding should be supported by the Medicare Benefits Scheme. |
| Austria | ITA | Public-funded research center (1994; replacing TAU funded in 1988) – Austrian Academy of Sciences | --- | Assessment of new technologies within their societal context, among their clients national and supra-national institutions. Reports are sold and not widely disseminated. Plans to create a national HTA agency for developing national health policy decisions in the future. |
| Canada | AETMIS AHFMR-HTA CCOHTA | Governmental agency (2000, replacing the Conseil d'Evaluation des Technologies funded in 1988) HTA unit of the AHFMR (medical research foundation) set up in 1995 in collaboration with Alberta Health & Wellness. Private non-profit organisation (1990), contractual obligations with the Board of 14 jurisdictions, 5-year business plan. | Minister of Finance, Economy and Research, Quebec Government. --- Conference of Deputy Ministers of Health (of the federal government, 10 provinces and 2 territories), 14 jurisdictions in all. | - Advise the Minister and to support, by means of assessment of health technologies, decision-makers in the Quebec health care sector. - Undertake assessments in response to requests from organisations and individuals, related to health technologies of significance to Alberta. Alberta Health and regional health authorities are important sources of requests. - Provide evidence-based information on emerging and existing health technologies, primarily to Canadian health care policy makers and managers, in order to help with healthcare decisions. As a national organization, facilitates resource pooling. |
| Denmark | DACEHTA DSI | Separate entity within the framework of the National Board of Health (2001; replacing DIHTA funded in 1997). Independent not-for-profit research institute (1975). | Ministry of Health --- | - Establish a solid and comprehensive basis for decision-making for introduction and application of health technology at all levels, from political decision-making in health care to clinical practice. - Provides research and consultancy services for local, regional and national health authorities, international organisations and private companies. |

| Countries | H.T.A. Agencies | Legal status | Accountability in the healthcare system | Principal aim |
|-------------|-----------------|--|---|---|
| Finland | FinOHTA | Independent HTA unit (1995) within STAKES (National Research and Development Centre for Welfare and Health). Contractual obligations with Ministry of Health, annual plan. | Health and Social Services Division, Ministry of Health and Social Affairs | Promote the effectiveness of the Finnish health care system. It concentrates on technologies that deal with major health problems or of economic importance for the country |
| France | ANAES | Governmental agency (1997) | Direction Generale de la Sante (DGS), Ministere de la Sante, de la Famille et des Personnes Handicapees. | - To continue the task of the National Agency for the Development of Medical Evaluation (evidence-based guidelines production, physicians performance assessment etc.); to develop a National Accreditation Program (NAP) and other activities in healthcare policy and research. |
| | CEDIT | Hospital-based agency (1982) | Direction de la Politique Medicale de l' Assistance Publique-Hôpitaux de Paris (AP-HP, regional university hospital group for Paris area, 50 hospitals) | - Assessment of medical technology. Responsible for formulating advice for the Director General of the AP-HP on the opportunity, extent and model of diffusion of technological innovations in AP-HP hospitals. |
| Germany | DAHTA@DIMDI | Research centre (2000), within the German Institute for Medical Documentation and Information (DIMDI, founded in 1969). | German Federal Ministry of Health (BMG) | Establish a database – supported information system in the field of HTA and evidence-based medicine. Support decision-making processes by Federal Committee of Physicians & Sickness Funds |
| Hungary | HunHTA | Research Institute (2001) – Budapest University of Economic Sciences and Public Administration. | --- | Provide education and training in HTA to professionals in the Hungarian healthcare system and students in general. |
| Netherlands | CVZ | Governmental agency. HTA program started in 2001 and is managed by ZonMW | Health Insurance Department, Ministry of Health, Welfare and Sport. | -Assessing importance for policy of new proposals sent to ZonMW from a health-insurance perspective. General task of supervising, coordinate and improve the health insurance and financing system, part of this mission is to stimulate HTA. After having received a final report, advises the government about implementation of the results (coverage decisions, implementation clinical guidelines, setting of tariffs, etc.) |
| | GR | Statutory scientific advisory body, set up in 1902. | Dutch government | - Advise Ministers and Parliament in the field of public health, providing scientific support for the development of ministerial policy. Indirectly involved in priority setting. |
| | TNO-HTA group | Private research organisation (1987). Contractual agreements with Dutch government, 4 years basis. | --- | - Carries out HTA projects on request of patrons such as the Ministry of Health, the Health Insurance Council and health insurers. |

| Countries | H.T.A. Agencies | Legal status | Accountability in the healthcare system | Principal aim |
|-------------|----------------------------------|---|---|---|
| Netherlands | ZonMW | Research council (2001) member of the Netherlands Organisation for Scientific Research (NWO). | Ministry of Health, Welfare and Sport | - Research program on the efficiency of health care. There is an active policy to achieve implementation of the results of the HTA projects. |
| New Zealand | NZHTA | Research centre (1997) - Univ. of Otago. Contractual obligations with the Ministry of Health and the Health Funding Authority. | --- | Identify effective healthcare interventions and technologies and thereby facilitate evidence-based policy making and purchasing by the New Zealand funders of health services (Ministry of Health and Health Funding Authority) |
| Norway | SMM | Research foundation (1997, initiated and financed by Ministry of Health and Social Affairs) – unit within SINTEF Unimed, a non-profit independent research organisation. Contractual obligations DoH. | --- | Identify effective and ineffective health practices, and evaluate future technologies. Reports disseminated to defined target groups, policy makers, healthcare providers & patients. |
| Spain | AETS AETSA CAHTA OSTEBA | Public research centre (1994), branch of the Instituto de Salud Carlos III. Non-profit public agency affiliated to the Andalusian Health Service (1996) Non-profit public agency affiliated to the Catalan Health Service (1994) Departmental public agency (1992) within the Planning and Evaluation Directorate. | Ministry of Health Andalusian Health Department Catalan Health Department Basque Health Department | - Assessment as a basis for formulating policies on technology selection and implementation in the NHS. Contribute to national cooperation in HTA. - Assessment is directed to help decision-makers and to facilitate information to health professionals on the more efficient use of clinical resources. - Provide guidance to decision-makers and health professionals as requested, regarding adoption and utilization of health technology according to proven scientific knowledge. - Provide guidance on safety, efficacy, effectiveness, accessibility and equity about different technologies as requested by decision-makers in the Basque Country |
| Sweden | SBU CMT | Governmental agency since 1992 (established in 1987). Research centre (1984) - Univ. Linköping | Ministry of Health --- | - Promote the rational utilization of health care resources, via the elaboration and dissemination of HTA reports at the central, local and clinical levels (Ambassador program) to help make decisions which promote the efficient delivery of high quality care throughout Sweden. - Applied research sponsored by healthcare providers in the local community (Östergötland county) or projects externally commissioned by commercial clients |

| Countries | H.T.A. Agencies | Legal status | Accountability in the healthcare system | Principal aim |
|----------------|-----------------|--|---|---|
| Switzerland | MTU-FSIOS | Administrative section (1992) attached to the Sickness Insurance Division | Federal Social Insurance Office | <ul style="list-style-type: none"> - Advisory body, responsible for the assessment of contested or controversial procedures, as to their effectiveness, appropriateness and/or cost-effectiveness, for the Swiss Federal Coverage Committee. - Provide the public and Parliament with information needed to assess the consequences of technological innovations on health, as well as the economy, environment etc. |
| | SWISS-TA | Governmental agency (1992) | Swiss Science Council, Federal Council. | |
| United Kingdom | HTBS* | Special Health Board | Scottish Executive Health Department/ Minister for Health and Community Care | <ul style="list-style-type: none"> - Single source of authoritative advice to NHSScotland on clinical and cost-effectiveness of new and existing health technologies. - Coordinates and manages the NHS HTA Programme. The NCCHTA supports the work of the HTA Programme in identifying and commissioning relevant technology assessment research. - Advance notice to DoH on new and emerging technologies, information used to prioritise work for the NICE. -Single access point to research reviews for enquirers in the NHS. Centre commissioned by the NHS R&D Programme to provide the NHS with information on the effectiveness of treatments and the delivery and organisation of health care. -Provides authoritative and reliable clinical guidance for the NHS in England and Wales. |
| | NCCHTA | Research centre (1996) – University of Southampton | --- | |
| | NHSC | Research centre (1998) -Univ. Birmingham | --- | |
| | NHSCRD | Research centre (1994) - Univ. of York | --- | |
| | NICE | Special Health Authority (1999) | Accountable jointly to the Secretary of State for England and the National Assembly for Wales | |
| United States | AHRQ-CPTA | Research centre (1997), branch of the Agency for Healthcare Research and Quality, a public health agency. | Secretary of the Department of Health and Human Services (DHHS). | <ul style="list-style-type: none"> - Provides national leadership in evidence-based systematic assessment of clinical practices and technologies to private and public organisations. - Makes coverage determinations based on HTA conducted by staff or commissioned through the AHRQ. - Supports VA evidence-based policy. |
| | CMS-CAG | Research centre (1997). Component of the Office of Clinical Standards and Quality (OCSQ) within the US federal agency Centers for Medicare and Medicaid (CMS). | Secretary of the Department of Health and Human Services (DHHS). | |
| | VA-TAP | Research centre (1994) - Office of Patient Care Services, Veterans Health Adm. | Department of Veterans Affairs (VA) | |

Source: INAHTA members' profiles and information available in the HTA organisations' websites.

* The Scottish Intercollegiate Guidelines Network (SIGN) is currently an organisation funded by the Clinical Resource and Audit Group (CRAG), a lead body within the Scottish Executive Health Department promoting clinical effectiveness in Scotland. Although SIGN operates differently from the HTBS in organisational terms, SIGN clinical guidelines are endorsed by the Scottish Executive and NHSScotland as those to be implemented across Scotland.

Appendix 2. Form of healthcare decentralisation and territorial authorities' responsibilities.

| | |
|------------|--|
| Australia | The health care system in Australia is decentralised and pluralist. The States administer and deliver many health services (principally public health and public hospital services), while local government has only limited health care functions. In the Australian federal system, the States ceded some powers to the national government at federation in 1901. State health departments in the 1980s decentralized to regional health administrations, and the management of public hospitals mostly was devolved from state health departments to autonomous hospital boards in the mid-1980s. |
| Austria | The Austrian Constitution stipulates that responsibilities for almost all areas of the health care system lie with the federal government. The most important exception concerns the hospital sector, where the federal government is only responsible for the basic law. Responsibility for enacting legislation and implementation lies with the nine Länder whilst sanitary supervision of the hospital sector remains the responsibility of the federal authorities. A few responsibilities are held by the communities (local governments), e.g. those for the local sanitary inspectors. The implementation of social insurance laws is up to the social insurance funds and constitutes a separate sphere of responsibility. |
| Belgium | The process of federalization of Belgium has not had a great effect on the health insurance system. Health insurance is part of the social security system, so it has remained under the federal government's power. Regulation and supervision of the health insurance system takes place at federal level and the national government also transfers some funding (drawn from general taxation) to the insurance system. The three communities are responsible for all health education and preventive medicine, except certain national preventive measures such as compulsory vaccinations. The system is characterized by its heterogeneity and fragmentation: health care is privately managed and delivered, whilst responsibility for the funding of health care and oversight of its organization are in the public sector, and are shared out between numerous public authorities. |
| Canada | The organisational structure of the Canadian health care system is largely a function of the constitutional division of power in the country. The provinces have most of the responsibilities for social services, including health care, but limited taxation powers. A national legislative framework, the Canada Health Act, has ensured a national health system which exhibits the same fundamental characteristics across the country and yet also reflects provincial priorities. |
| Czech Rep. | Decentralisation has been a major feature of Czech health care reforms, but its implementation has not yet been completed. The task of financing health care has been delegated to health insurance funds, which are under the supervision of the State. Some regulatory functions have been devolved to the district health offices at district level (e.g. authorisation permits to private physicians and health facilities). However, the preferred method of decentralizing health care provision has been through privatisation. |
| Denmark | The defining feature of the Danish health care system is decentralized responsibility for primary and secondary health care. The reform of the public administrative structure in 1970, which reduced the number of counties from 24 to 14 and the number of municipalities from over 1300 to 275, led both to a centralization and a decentralization of responsibilities. In 1970 the Danish parliament delegated responsibility for financing and providing almost all health care in Denmark to the counties and municipalities, but responsibility for the hospitals moved from local hospital boards to county councils. Responsibility for preparing legislation and providing overall guidelines for the health sector lies with the Ministry of Health, but most decisions regarding the form and content of health care activity have been taken at county and municipal level. Deconcentration of state functions in health care is rarer, one of the few examples being the public health officers, employed by the state. |
| Finland | Health care devolved to the level of the 448 municipalities, responsible for health care and regulation. Legislation provides a framework for the provision of services that allows for different local solutions, so it does not regulate in great detail the range, content and way of organising the provision of services. The 1972 Primary Health Care Act obliges municipalities to provide health promotion and disease prevention, medical care, medical rehabilitation and dental care. Municipalities are also obliged by law to arrange specialized medical care for their inhabitants (1991 Specialised Health Care Act and the 1991 Mental Health Act). |
| France | The French system is very centralised, with most system-wide organisational, financing and health care provision decisions made in Paris. However, achieving consensus within the government is hampered by the dispersion of budgeting, financing, pricing, quality assurance, and education functions among six different ministries. The responsibilities of the regions, <i>departements</i> and municipalities are limited to preventive activities, despite the post-1982 political and administrative decentralisation. |

| | |
|---------|---|
| Germany | The usual term decentralisation does not capture the entire realm of German-style federalism. At first sight the considerable power of the Länder may look like a case of devolution but this is not a true description as powers were never passed down from the federal level to the Länder; the latter had existed before the Federal Republic. Deconcentration is only of minor importance in the German health care system, e.g. in the area of public health services. This is due to the fact that most levels of administration do not have any sub-level administrative offices as all political units from the local level upwards have their own autonomous, elected representatives and governments. |
| Greece | The structure of the NHS is based on the regional and district division of the country, i.e. the 13 regions and 52 prefectures or districts (<i>nomoi</i>). The 13 regions are in principle (based on the 1983 legislation) responsible for planning and coordinating regional development for the whole country. However, due to lack of human resources and lack of a managerial structure, the regional health departments have not become operational, so the regions have no responsibilities at present. In practice, the administration of the whole system has for many years been run centrally, however recent developments suggest that the decentralization of the health care system, in the form of deconcentration, will be set into motion in the near future. The Ministry of Health and Welfare is responsible for provision and financing of the NHS as well as health and social services for the poor, the elderly and the disabled. As to the local level of the system, the municipalities and the communities play no significant role in the provision or financing of health care services, except in the large cities. |
| Hungary | Health sector reform at the beginning of the 1990s sought to move away from central government control. The shift to SHI involved the withdrawal of the central government from the direct management of health care, ownership was passed on to the local governments and privatisation was encouraged, specially in primary care. Health policy making and regulation have remained with central government though some functions have been delegated to quasi-public organizations and others deconcentrated. Financing of health services was delegated to the Health Insurance Fund in 1992 and the administration of its contracts and payments was deconcentrated to the county level. Since the establishment of the two-tier local government system in 1990, local governments have become key actors in the health sector. The municipal local governments (3131) and the county local governments (19) divide up responsibilities on the principle of subsidiarity. By the 1990 Local Government Act local governments have become the main health care providers in the Hungarian health system. |
| Iceland | The central government is responsible for the health care sector. The administration is divided between the government and local boards. Most of the nursing and old-age homes function as private foundations, and they are run by the municipalities, charitable organizations and others. Recently attempts to transfer the responsibility for health services to the municipalities |
| Ireland | The DoH has a planning, budgeting and coordinating role but is not directly involved in the provision of services. This is the responsibility of the eight regional health boards serving populations of 200,000-1.25 million. They are made up of elected local representatives, health professionals and ministerial nominees, with a chief executive officer heading the managerial structure. |
| Italy | Regionally based NHS. The national level is responsible for ensuring the general objectives and fundamental principles of the national health care system. Regional governments, through the regional health departments, are responsible for ensuring the delivery of a benefit package through a network of local health units and public and private accredited hospitals. The NHS underwent a process of delegation during the 1990s, providing the regional health departments more autonomy in policy-making, health care administration and management, resource allocation and control. Several legislative measures approved during the period 1997-2000 have further promoted the devolution of political power to the regions. |
| Japan | Japan's health care system possesses the diversity of a private market, but is to a degree supervised by the government. The central government sets the legal framework for the health care system, for the demand and the supply side. Local governments undertake planning for the construction of new hospitals and for the acquisition of medical equipment. The central government together with local governments play a role as third-party insurers and provide the Medical Aid program for the very poor. Local governments, assisted by the central government, are also involved in the provision of public health services in their region, through Prefecture Health Centres and Municipal Health Centres. |
| Korea | Korea is among the few OECD countries that rely to a large extent on the market for both financing and provision of medical care. In combination with this, Korea achieved universal public health insurance in a remarkably short period of time, but it greatly relies on consumer cost sharing. Korea's health care system can be seen as a mix of a "public contract model" and a private market where patients pay providers directly (OECD 2002). The Ministry of Health and Welfare has overarching responsibility for establishing the legal framework of the Korea health care system, other responsibilities concern insurance and, to a minor extent, provision. |

| | |
|-------------|--|
| Luxembourg | The role of local authorities is for the most part restricted to various environmental health responsibilities such as the supply of drinking water, sewage and waste disposal. Some also provide community preventive health care such as schools health services, and some play a fairly powerful role as the owners of hospitals. |
| Mexico | The health care system is organised in segments, each of which covers different population groups. Those segments (Social Security Health Services –IMSS and others-, public services for the uninsured –SSA and others-, private sector) generally operate independently of one another. In 1997 the National Agreement on the Decentralisation of the Health Services was signed between the Federal Executive and the state governments, creating decentralized public agencies, new administrative entities responsible for administering the health facilities and the resources transferred by the SSA. The IMSS has decentralized functions and responsibilities to its seven administrative regions. |
| Netherlands | The key actors in the Dutch health care system form part of a corporatist administrative structure within the Netherlands. There are a number of key characteristics of this structure which influence decision-making: an absence of a legitimised power centre for taking important decisions and implementing them; a high degree of professional and organisational autonomy; and administrative system marked by a high degree of mutual dependency. This means that within the health care sector, the government, providers of care and insurers are all dependent on one another to meet their own objectives. It has been argued that this structure has come under pressure in recent years as individualism and decentralisation have assumed greater importance. |
| New Zealand | Historically district health authorities ran health services under powers devolved from the central DoH. After an experiment of splitting purchasers and providers in the public sector, the new 2000 legislation has returned to a regionalized system, again responsible for both funding and providing health care in their districts. The Ministry of Health has regained a stronger policy role and will be responsible for funding some national level services. |
| Norway | Contemporary Norway is governed by a three-tiered parliamentarian system, with each tier governed by a popularly-elected body: the national parliament, county councils and municipal councils. Following these political structure, the organizational structure of the health care system has three levels: the central state, county and municipalities. While the role of the state is to provide national health policy, to prepare and oversee legislation and to allocate funds, the main responsibility for the provision of health care services lies with the 19 counties and the 435 municipalities. The counties are responsible for the financing, planning and provision of specialized care, whereas the municipalities are responsible for the provision and financing of primary health care and social services. |
| Poland | The health care system in Poland is on the brink of major structural changes to take it beyond 2000. During the 1990s Poland proceeded with gradual public sector devolution, including reorganizing the previously hierarchical health care system. The major structural changes have been to transfer the administration of most health services in 1991 from the national Ministry of Health and Social Welfare to the provinces and local authorities, followed in 1993 by a transfer of ownership of most public sector health facilities. Health care was mainly delivered through a three tier regional system in 1998. |
| Portugal | The central government, through the Ministry of Health, holds the main responsibility for the regulation, organization and direction of the health care system as a whole. The core function of the Ministry is the regulation, planning and management of the NHS. The Portuguese NHS, though centrally financed by the Ministry of Health, has a strong regional structure of health administrations. There are five regional health administrations (RHAs.), whose board is accountable to the Minister of Health. The RHAs. are responsible for the local implementation of national health policy objectives, they coordinate all levels of health care and allocate resources to hospitals and health centres. |
| Slovakia | The organization of the current health care system is a mixture of decentralised and centralised structures. The goal of reducing the state monopoly of health care provision has been achieved through the privatisation of health care providers, particularly primary health care doctors. However, the process of territorial decentralization has proved to be difficult: some administrative tasks of the Ministry of Health have been passed to district and regional state physicians, now responsible of the outpatient health care provision in their territories and also involved in the analysis and development of the network of health care facilities. Financing has been fully delegated to the health insurance companies since 1994. |
| Spain | The process of administrative and political decentralization of the health care system has taken places in three major stages since 1978, finally accomplished in January 2002 with the complete devolution of health care responsibilities to the 17 Autonomous Communities. Since the 2001 fiscal reform, the principle of regional fiscal co-responsibility applies to the national budget of health care. |

| | |
|----------------|---|
| Sweden | Decentralization of responsibility within the Swedish health care system not only refers to legislative devolution between central government and local governments, but also to decentralization within each county council. Except for some national policy development, legislation and supervision, the responsibility for health care is decentralized to local governments. The political responsibility for financing and providing health services has been decentralized to the county councils. Local municipalities are responsible for delivering and financing long-term care for the elderly and the disabled and for long-term psychiatric care. Local municipalities are not subordinated or accountable to county councils. |
| Switzerland | The regulatory powers of the federal government over the health care system have increased considerably in recent decades, in particular with the changes to the statutory health insurance (1996), which have fundamentally affected how the cantons finance health care services. This process towards greater centralization is intended to continue, however, health service is one of the areas of government activity in which the cantons have still a relatively high degree of independence. The cantonal responsibilities include provision of health care (inpatient care, nursing and home care), regulation of health matters (licensing of the health professions, authorization to open medical practices, control of medicines), disease prevention and health education, and implementation of federal laws. Responsibility for providing nursing care is usually delegated to the municipalities, with the emphasis on home care. |
| Turkey | At the central level, the MoH is responsible for the country's health policy and health services. Decentralisation of the system is in line with deconcentration. The provincial health administrations are subordinate units of the MoH and possess some administrative functions. While technically responsible to the MoH, the provincial health administrations and the provider units are administratively responsible to the governors who ensure the inter-ministerial co-ordination at the provincial level. |
| United Kingdom | The key features of the structure of the health care system are the separation between commissioners/purchasers and providers, and the direct line of accountability ending in the Secretary of State for Health. The organization and management of the health service in Scotland, Wales and Northern Ireland is similar to the English system. The English NHS is currently undergoing a process of administrative decentralisation towards a primary care-led system (PCTs) and with a new role for the new Strategic H.As. to the detriment of the RHAs. |
| United States | The USA is the only major industrialized country that has neither planned nor provided universal access to health care services for its population. Universal health policies and planning efforts at the federal level remain sporadic and at the whim of the political party currently in power. Some federal programs designed for specific populations who were viewed as needy, such as Medicare, Medicaid and the Veterans Administration Health program, had been implemented in spite of controversy. |

Source: HiT European Observatory on Health Care Systems series and OECD reports. Latest available documents.

Appendix 3. Legal frameworks for priority setting and other initiatives.

| | |
|-----------------|---|
| Denmark | Treatment priorities in the Danish county of Funen (1996) and Storstrom (1995), designed to supplement the contract system with hospitals. Based on the criteria of severity of illness and the documented applicability of the treatment, a list of priorities was established, with the objective to guide in decision-making process at hospital level. In addition, the Danish Council on Ethics published a report on priority setting in the health service in 1996. The Council emphasized that the establishment of general and partial goals for the health service does not help taking specific decisions in everyday practice in health service, but they are helpful when considering health care reforms or evaluating existing patterns of financing and delivering care. |
| Finland | Appointment by STAKES of a working group to recommend health policy priorities in Finland (1995). The report focuses on the process of establishing priorities and the underlying values. The report deals with ethical, economic and administrative issues surrounding the choices process but does not offer specific guidelines for prioritisation services or interventions for individuals or groups. It emphasizes that priority should be given to cases where interventions is needed to preserve or rehabilitate the age-specific functional capacity. No recent plans for an explicitly stated basic package of benefits. |
| France | In 1994 the Ministry of Health defined priorities on the basis of three criteria: severity, frequency and socio-economic impact of diseases, using the Delphi technique and questionnaire survey. The result was a ranking of health problems and suggested specific proposals for the improvement of the four most important problems of organisation. The highest priority problems were considered to be accidents, major types of cancer, AIDS and other sexually transmitted diseases and mental illness. |
| Germany | Considerable inconsistencies in the different health care sectors with regard to coverage decisions and the steering/managing of diffusion and usage of health technologies in Germany. Explicit coverage decisions regarding medical and surgical procedures are currently non-existent for the hospital sector. The coverage of drugs is regulated in the pharmaceutical guidelines (legally binding) of the Federal Committee of Physicians and Sickness Funds, which forms part of the contract between the two sides at the federal level. Unequal situation between the hospital and the ambulatory care sector, which constitutes a barrier to regulation approaches and to making HTA an effective instrument. Report by the Advisory Council for Concerted Action in Health Care (1994) identifying areas for health targets as a precondition for an outcome-oriented health care policy and grouped them into three dimensions: medical targets, strategies and areas of support. |
| Hungary | The first steps towards the definition of a benefit package were taken during the economic crisis of 1995, when the Health Insurance Fund deficit called for urgent action (Act XLVIII of 1995). In 1997, new legislation addressed the issues of rationing and priority setting in a more systematic manner (waiting lists criteria, exclusion of treatments for aesthetic or recreational purposes and those not proved effective in improving health). Health care technology was neglected during the communist regime. The national government funds some health care institutions in improving their health care technology, after a central assessment of needs, a cost-benefit analysis and a central bidding procedure. |
| The Netherlands | The 'Dunning Committee' was established in 1990 by the Secretary of State responsible for health in the Netherlands. The Committee published it report in 1991, using the community approach to define health as the ability to participate in society. It discussed the 'fair innings' principle and rejected it, as well as the counting of QALYs as a criterion for establishing priorities. They recommended that each health care intervention should go through four different sieves: was the care necessary, was it effective, was it efficient and should it be left to individual responsibility? Based on the above criterion, the Committee decided that necessary services fell into three groups: those that benefit every member of the community and which guarantee normal functioning as a member of the community; those that benefit every member of society but principally aimed at restoring ability to participate in social activities; and finally, services the necessity of which is determined b the severity of the disease and the number of persons with that disease. The impact of the Dunning report has been relatively significant, being effective for instance in materialising legislation to withdraw homeopathic drugs and dental care for adults from the scope of health insurance. |

| | |
|-------------|---|
| New Zealand | New Zealand has considered ways to ration health care services. The National Health Committee in the early 1990s defined criteria for service priorities, based on identifying the most effective treatments for particular conditions according to clinical practice guidelines from evidence-based medicine. A recommended booking system based on those criteria have been fully applied to waiting lists for surgical procedures from 1998 onwards. A Core Services Committee was set up in 1992 identified broad areas of priority, publishing two reports (1992, 1994). HTA is an important area for the future of health decision-making and projects currently underway in the Ministry of Health and National Health Committee hope to outline a framework that will ensure consistency and transparency across the sector. |
| Poland | Health sector reforms during the 1990s have sought to maintain the commitment of universal access. The 1991 Health Care Institutions Act and subsequent regulations (1997) set out a range of basic services which must be provided. Only a few health services were excluded, such as alternative therapy and cosmetic surgery. It also excluded some services in health resorts. |
| Slovakia | Health care benefits are very comprehensive. Almost all health care services are covered based on the Act. 98/1995. There is a great deal of interest in excluding the lists from the act and in introducing a regulation of lower legal force. |
| Spain | In 1994 a working group of the Interterritorial Committee, which coordinates the regional health services of Spain, proposed a basic package of health to be provided by the NHS. It developed criteria for excluding services: lack of sufficient evidence of clinical effectiveness, no proven impact on life expectancy, no increase in patient self-reliance or diminution of patient distress. In the case of new treatments, the criteria proposed for inclusion were clinical effectiveness, the absence of cost-effective alternatives and the availability of technology and health professionals to provide the treatment. In 1995 the parliament issued a Decree on a Guaranteed Health Care Entitlement (Royal Decree 63/1995) in order to define services covered by the NHS. The two main objectives of this regulation were: to complement the 1986 General Health Care Act with an explicit list of benefits guaranteed by the public health system all over the country; and to regulate the introduction of new services and technologies, applying the above criteria. |
| Sweden | A Commission was set up by the government in 1992. The 1995 report was adopted as a framework for priority-setting based, defining three principles that should form the basis for the decision-making process: human worth, need and solidarity and cost-effectiveness (listed by hierarchical order). On the basis of this framework the Commission listed priority groups for the clinical activity/level; and for priority setting at the political/administrative level. The priority-setting framework in Sweden was criticized for being vague and lacking specific recommendations regarding real priority-setting situations. However, there have been positive reactions to some of the Commission's recommendations, being one of the EU Member States where the impact of rationing proposals have been more significant. |

Source: Mossialos and Le Grand 1999; HiT European Observatory on Health Care Systems series and OECD reports. Latest available documents.

Appendix 4. Principal shared-rule arrangements in the OECD member countries

| | |
|--|---|
| Australia | Federation (6 states, 2 territories, 7 administered territories) |
| Federal Republic of Austria | Federation (9 states, <i>Länder</i>) |
| Belgium | Mixed consociational / territorial federation (3 regions + 3 cultural communities) |
| Canada | Federation (10 provinces + 3 territories) |
| Czech Republic | Unitary State |
| Denmark | Federal arrangements: 2 federacies (the Faroe Islands, Greenland) |
| Finland | Federal arrangements: 1 federacy (Aaland Islands) |
| France | Federal arrangements: 1 associated state (Monaco) |
| Federal Republic of Germany | Federation (16 states, <i>Länder</i>) |
| Greece | Unitary State |
| Hungary | Unitary State |
| Iceland | Unitary State |
| Ireland | Unitary State |
| Italy | Decentralised union with some federal features: <ul style="list-style-type: none"> - 15 ordinary regions - 5 special status regions |
| Japan | Decentralised union with some federal features: 43 prefectures (<i>ken</i>) |
| Korea | Unitary State |
| Luxembourg | Unitary state |
| United Mexican States | Federation (31 states + 1 federal district) |
| The Netherlands | Decentralised union with some federal features: <ul style="list-style-type: none"> - 11 provinces - 1 associated state (Netherlands Antilles) |
| New Zealand | Federal arrangements: 2 associated states (Cook Islands, Niue Islands) |
| Norway | Unitary State |
| Poland | Unitary State |
| Portugal | Decentralised union with some federal features: 2 federacies (Azores Islands, Madeira) |
| Slovakia | Unitary State |
| Spain | Quasi-federation (17 autonomous regions) |
| Sweden | Unitary State |
| Switzerland | Federation (26 cantons) |
| Turkey | Unitary State |
| United Kingdom of Great Britain and Northern Ireland | Decentralised union with some federal features: <ul style="list-style-type: none"> - 1 quasy-federal constituent unit (Northern Ireland); - 2 functionally autonomous constituent units (Scotland, Wales); - 3 federacies (Isle of Man, Channel Islands, Jersey) |
| United States of America | Federation : 50 states + 1 federal district + 2 federacies (Puerto Rico, Northern Marianas) |

Source: Watts R.L. 1999 and Elazar D.J. 1994.