

# Prioritized list of health services in the Islamic Republic of Iran

B. Larijani,<sup>1</sup> O. Ameli,<sup>1</sup> K. Alizadeh<sup>2</sup> and S.R. Mirsharifi<sup>1</sup>

## قائمة بالخدمات الصحية مرتبة حسب الأولويات في جمهورية إيران الإسلامية

باقر لاريجاني وأמיד عاملي وخليل علي زادة وسيد رسول مير شريفني

**خلاصة:** استهدفنا في هذه الدراسة وضع قائمة بالإجراءات الوقائية والتشخيصية والعلاجية حسب أولوياتها، وتصنيفها على النحو الملائم على أساس تحليل مردود التكاليف. لقد استعملنا طريقة العلامات الوظيفية المميزة من أجل اختيار نموذج للتصنيف. وقامت فرق من الخبراء المؤهلين الذين يعملون بمستشفيات المجتمع بتقدير درجات تقييمية (أحراز) لمختلف الإجراءات وفقاً لتسمياتها الإجرائية الراهنة، بحسب العناصر المتعلقة بتكاليفها وفوائدها. وكنا قد اخترنا نموذج قائمة الخدمات المرتبة حسب الأولويات المستعمل في أوريغون بالولايات المتحدة الأمريكية لتحديد العلامات الوظيفية المميزة وفقاً له. ولكن على خلاف العلامات المميزة المستخدمة في ذلك الدليل فإن قائمة الخدمات ذات الأولوية في بلادنا صُممت أساساً لمساعدة الحكومة في رسم سياسات تقسيم موارد الرعاية الصحية وخاصة فيما يتعلق بالمستشفيات.

**ABSTRACT** We aimed to provide a prioritized list of preventive, diagnostic and therapeutic procedures and their appropriate classification based on a cost-benefit analysis. Functional benchmarking was used to select a rationing model. Teams of qualified specialists working in community hospitals scored procedures from CPT™ according to their cost and benefit elements. The prioritized list of services model of Oregon, United States of America was selected as the functional benchmark. In contrast to its benchmark, our country's prioritized list of services is primarily designed to help the government in policy-making with the rationing of health care resources, especially for hospitals.

## Liste des services de santé par ordre de priorité en République Islamique d'Iran

**RESUME** Notre objectif était de fournir une liste par ordre de priorité en ce qui concerne les procédures préventives, diagnostiques et thérapeutiques et leur classification appropriée sur la base d'une analyse coût/avantage. Des références fonctionnelles ont été utilisées pour sélectionner un modèle de rationnement. Des équipes de spécialistes qualifiés travaillant dans des hôpitaux communautaires ont marqué les procédures à partir de la terminologie des procédures en cours (CPT™) en fonction de leurs éléments de coûts et d'avantages. Le modèle de liste par ordre de priorité de l'Oregon (Etats-Unis d'Amérique) a été choisi comme référence fonctionnelle. Par contraste avec sa référence, la liste des services par ordre de priorité de notre pays est principalement conçue pour aider le gouvernement à élaborer les politiques avec le rationnement des ressources de soins de santé, notamment pour les hôpitaux.

<sup>1</sup>Teheran University of Medical Sciences, Teheran, Islamic Republic of Iran.

<sup>2</sup>Baghiatolah University of Medical Sciences, Teheran, Islamic Republic of Iran.

Received: 07/02/99; accepted: 15/07/99

## Introduction

The Islamic Republic of Iran is a developing country whose economy is mainly dependent on exporting fossil fuels and mineral raw materials [1]. Since 1979, the population of the country has doubled and as a result, national wealth has been compromised [2].

The health care system of the country is managed primarily by the government. Nearly 65% of all hospital beds are managed by medical universities [3]. Another 15% of the beds belong to governmental insurance companies. A number of essential health care resources, especially those related to hospital services, are subsidized. In 1984, a countrywide network for the delivery of primary health care was established with the aid of the World Health Organization (WHO) [4]. This system now delivers up to 70% of the health care services to rural populations and 40% to urban populations [2]. More advanced services, such as complex therapeutic and diagnostic procedures, are not covered within this programme. These are delivered in a variety of hospitals (public, private or semiprivate). The quality of health care services and social access to them are adversely affected by shortfalls in government income.

The introduction of new and expensive technologies has threatened just distribution in the national health care system. Most of the time, these technologies can only be afforded by governmental agencies. Because they may not be purchased due to their expense, their real impact on overall public health remains unknown. Unregulated allocation of resources will adversely affect just distribution in the health care domain.

Accordingly, the amount of scarce public funds spent on advanced technologies should be accurately determined and ra-

tioned. This requires a comprehensive plan and efficient management. The annual inflation rate in the health care field is another reason for adopting managed care plans and rationing models in a country. A number of rationing strategies have been adopted for improving public access to health care and the efficiency of health care resources management. Fair distribution of adequate health care is the hallmark of all of these strategies [5].

In order to define adequate health care, the various levels of the delivery chain of services must be prioritized (diseases and conditions, preventive and therapeutic services, human resources, etc.). Our study describes a local approach to the definition of an adequate level of health care by prioritizing a comprehensive list of health care services that are frequently delivered in hospitals.

## Methods

Strategic benchmarking was adopted as the technique for selection of the framework of prioritization. We made a systematic review of different national health care systems. The basis for selecting health care systems was their reported efficiency in health care delivery, explicitness of rationing models, the target of rationing (patient or service) and similarities in the nature of the governmental and private involvement in health care delivery systems.

The coded list of preventive, diagnostic and therapeutic procedures (services) of Current Procedural Terminology (CPT<sup>TM</sup>) was selected [6]. The titles of separate procedures were included and unnecessary details were discarded. The original categorization, which was mainly anatomic, was modified and completed according to the existing academic specialties ap-

proved by the Ministry of Health and Medical Education. For the purpose of selecting elements of cost and benefit, related reports about the methodology of cost-benefit analysis of medical services were reviewed from Medline. From the list of possible elements of cost and benefit, an advisory committee of the Deputy of Drugs and Medical Therapeutics selected four elements. Qualitative scoring was used to determine the relative importance of each service. Scoring in each of the elements was based on appropriate probes [Ameli O, unpublished document, 1997].

We selected two elements for both cost and benefit. Average vitality of a service was the first benefit element. It was defined as the level of vitality of a service considering its impact on the survival of the patient. The element had four conditions: urgent services were usually mandatory within minutes of the initial assessment of the patient, emergent services were usually required within hours of the initial assessment of the patient, selective services (non-urgent, non-emergent), and services that are performed only on patient demand (e.g. cosmetic surgery). Frequency of need was the second benefit element. The frequency at which a service was needed in the context of a medium-sized urban general hospital with 250-350 beds was divided into four classes.

Level of specialization in human resources needed for a service was the first cost element and was further divided to four conditions: medical or surgical subspecialist, medical or surgical specialist, general practitioner and nurse or technician. The second cost element was the high technology index of a service, which was determined according to the expense of purchasing and maintaining the equipment needed to perform that service.

Twenty-eight (28) teams of medical, surgical, radiological and laboratory specialists were formed. Each member of a team was selected on the basis of their clinical and management experience in the selected specialty. Each of the team members was interviewed to determine the scores of the elements of cost and benefit.

## Results

Available information on rationing models in national health systems of the United Kingdom, Canada, Norway, Oregon in the United States of America and Ghana were reviewed regarding their reported efficiency, explicitness and target of rationing. The Oregon model for prioritizing health services was selected and confirmed by an advisory committee of the Deputy of Drugs and Medical Therapeutics.

In 1989, the Oregon State Legislature, through Senate Bill 27, extended Medicaid coverage to every person from Oregon with an income below the federal poverty level and guaranteed them a basic benefit package based on a prioritized list of health services [7]. Senate Bill 27 created the Oregon Health Services Commission and mandated it to rank medical services from most to least important to the entire population. The legislature defined the standard benefit package from this list. The Oregon list was established using two steps. First the condition/treatment pairs were ordered on the ability of the treatment to prevent death. If any pairs were tied on this basis, then the tied pairs were ordered on the average cost of treatment, with the higher cost pair ranked lower. If any pairs were tied on both of these measurements, they were ordered alphabetically by diagnosis.

In our study, 6400 medical, surgical and diagnostic (radiological and laboratory) services were categorized into 28 groups. Eighty-four (84) specialists were interviewed to score each one of the cost and benefit elements for any one service in a specialty (Table 1). The scored procedures were prioritized in a stepwise manner. Four major groups of services were generated based on their vitality score: V score = urgent (lines 1–20), emergent (lines 21–40), selective (lines 41–60) and miscellaneous procedures (lines 61–80). Further prioritization

was carried out according to the overall need to perform a procedure (N score) and then based on the level of specialized human resources needed. Services with the same score in the three elements of vitality, need and level of specialization were grouped in the same "line" of services. Eighty (80) lines of services were identified, examples of which are shown in Table 2.

Due to the diverse heterogeneity of the high technology index of procedures in different specialties and the subjective and

**Table 1 Examples of scores of coded procedures in the prioritized list of services in the Islamic Republic of Iran**

CPT™ codes	Line no. (attributable)	V score <sup>a</sup>	N score <sup>b</sup>	S score <sup>c</sup>
90-788	1	+++	++++	+
93-005	2	+++	++++	++
43-460	14	+++	+	+++
20-600	25	++	+++	+++

<sup>a</sup>Vitality (0 to 3+)

<sup>b</sup>Frequency of need (0 to 4+)

<sup>c</sup>Level of specialized human resource needed (1+ to 4+)

**Table 2 Examples of the prioritized list of services of the Islamic Republic of Iran**

Line number	Some CPT™ codes included
1	90-788
2	90-200, 36-405, 36-406, 36-415, 36-400
3	90-500, 90-217
12	40-184, 40-223, 50-640, 90-941
14	82-320
15	23-580, 41-000, 43-460, 45-337, 59-351, 78-760
27	10-100, 10-180, 20-600, 23-650, 24-530, 25-545, 59-400, 59-800, 90-610, 94-664

qualitative basis of the scoring system, the scores in various specialties cannot be used for interspecialty prioritization. Therefore, this element was not used for prioritization.

## Discussion

The standard benefit package of Oregon consists of several hundred lines of diagnosis-treatment groups that have been prioritized [8]. The lines of the Islamic Republic of Iran's prioritized list of services (PLS) include only the services (procedures), not the related diagnoses. This is because of the framework the PLS is applied to. Our PLS is primarily designed to help administrators with the rationing of health resources (technology, human resources and number of hospital beds).

According to the cost and benefit elements considered in the project, the preventive services fall behind their

therapeutic counterparts in many cases, which is a systematic shortcoming in this method of prioritization. The project's technical committees consisted of clinical specialists whose primary focus is on therapeutics. On the other hand, the list was primarily intended to address the problems of hospitals. This bias was inevitable with the selected method but could be adjusted with an organized critical review. National and regional health policies should be considered as another legitimate modifier for the list.

## Acknowledgements

This project was supported by a grant from the Iranian Ministry of Health and Medical Education. The authors also appreciate Dr M.S. Yazdi's considerable contribution to the systematic data collection and analysis of the project.

## References

1. *Annual report of Centre of Statistics of Iran*. Teheran, Islamic Republic of Iran, Organization for Budget and Planning, 1996.
2. Shahrestani et al. *Database of Iranian hospitals information*. Teheran, Islamic Republic of Iran, Ministry of Health and Medical Education, 1997.
3. Farhadi M et al. *Report of bed occupancy rate, mean length of stay in hospitals of the Ministry of Health and Medical Education*. Teheran, Islamic Republic of Iran, Ministry of Health and Medical Education, 1998.
4. Shadpoor K. *The network of primary health care in Iran*. Teheran, Islamic Republic of Iran, Ministry of Health and Medical Education, 1993.
5. Maynard A, Bloor K. Help or hindrance? The role of economics in rationing health care. *British medical bulletin*, 1995, 51(4):854-68.
6. *CPT™*, 4th ed. Chicago, American Medical Association Press, 1997.
7. *Legal frameworks: United States Senate Bill 27*. Salem, Oregon, Oregon Health Plan Policy and Research Office, 1997.
8. *Prioritized list of health services*. Salem, Oregon, Oregon Health Plan Policy and Research Office, 1998.