

# Measuring the quality of health care outputs and its possible impact upon the cost containment of health care

La medición de la calidad de los productos y su posible impacto en la contención de los costos en la atención de la salud

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## **ABSTRACT** ■

**T**his paper intends to answer the following research question: On which extent are these measures effective and efficient with regard to Cost-containment in health care? A descriptive study is done starting from a revision of the published literature in the European Union member states. With the objective of responding to this question, a description of what health is and also what health care is, which its components of costs in health are, what is understood by Health Technology Assessment and which are their applications and the utility of that this tool represents to control the costs in health. It is described in the health output measurement and which are the mostly used tools to measure the gain in health of the patients after doing an intervention on him/her in the System of health. A description of the diverse components of Costs-containment is done, which of these are used, how they are used, what impact they have on health systems and finally, it concludes that one of the best tools for the cost-containment is the products that the agencies/offices of Health Technology Assessment generate, products generated from researching interventions on health, assessing its effectiveness, its scientific evidence and the impact on the population's health. It is worth mentioning that the products of the Health Technology Assessment Agencies are a fundamental tool for the decision making in the health systems.

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## **KEY WORDS**

Health Care  
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Health Technology Assessment  
Cost Containment  
Quality

## **RESUMEN**

*Este artículo pretende responder la siguiente pregunta de investigación: ¿Hasta qué punto las acciones en salud son eficaces y eficientes para controlar los costos? Se realizó este trabajo a partir de una revisión de la literatura publicada en los países miembros de la Unión Europea. Con el objetivo de responder esta pregunta se realiza una descripción de lo que es salud y el cuidado de la salud, cuáles son sus componentes de costos en salud, qué se entiende por evaluación de tecnología en salud y cuáles son sus aplicaciones y la utilidad que esta herramienta representa para controlar los costos en salud.*

*Se describe la medición de los resultados (outputs) en salud y cuáles son las herramientas más utilizadas para medir la ganancia en salud de los pacientes luego de efectuar una intervención en el Sistema de Salud. Se realiza una descripción de los diversos componentes de contención de costos, cuáles de estos son los más utilizados, cómo se utilizan, qué impacto tienen en los sistemas de salud; y se concluye que una de las mejores herramientas para la contención de costos son los productos que genera las agencias o las oficinas de Evaluación de tecnologías en salud, generados a partir de la investigación de las intervenciones en salud, evaluando su efectividad, evidencia científica y el impacto en la salud de la población. Es de anotar que los productos de las Agencias de Evaluación de Tecnologías en Salud son una herramienta fundamental para la toma de decisiones en los sistemas de salud.*

## **PALABRAS CLAVES**

*Cuidado de la salud  
Atención en Salud*

*Evaluación de Tecnologías en Salud  
Contención de costos  
Calidad*

## **INTRODUCTION**

This paper intends to answer the following research question: On which extent are these measures effective and efficient with regard to Cost-containment in health care? A descriptive study is done starting from a revision of the published literature in the European Union member states. With the objective of responding to this question, a description of what health is and also what health care is, which its components of costs in health are, what is understood by Health Technology Assessment and which are their applications and the utility of that this tool represents to control the costs in health.

In the year 1946 the World Health Organization – WHO defined health as a "complete state of physical, mental and social well-being and not merely the absence of illness". This concept attracts attention since it involves the concept of Well-being and not only the absence of illness (1).

For many years, the governments of each country have worried about granting certain level of well-being to citizens; and obviously we found out that people who are not citizens indirectly benefit when receiving such well-being. Amongst the essential duties of governments we find that the benefit of health services is one of the most crucial responsibilities in order to collaborate with that level of Well-being for the population.

In the year 1993, the World Bank published its annual World Development Report titled Investing in health, where it appeals to governments to change their appreciation in which the money destined for health is not an expense but an investment for the citizens. It is of interest, the

description given in this report about measuring the gain in health, and that therefore it produces well-being. Furthermore, it describes and evaluates the most frequent interventions of the governments in health, and for which they apply a measure unit of this Well-being called Discapacity Adjusted Life Years –DALY.

Throughout this report we can see that the World Bank encourages the governments to invest money in health, but clarifying that when this economic investment is done, it actually turns into gain for patients. Therefore, it includes the concept of Cost-Effective Interventions, where the investment in health is measured in monetary units (costs) and its effectiveness is measured in DALY.

Among the interventions in health with a very good cost-effectiveness ratio, we can find the following ones detailed in the report: Infectious diseases management, nutrition disorders treatment, handling of the causes of mother-child morbidity and mortality, chemotherapy for tuberculosis, integral attention to the mother-child couple, massive programs for treatment of intestinal deparasitization, condom distribution, education campaigns on AIDS, campaigns against the smoking habit, etc.

The different governments can take this report as an important input to produce well-being in patients, but they must consider there are certain factors that affect the cost and the effectiveness of an intervention. Such factors are described as: incidence and prevalence of a disease, lethality rate, interventions prioritizing, justification to pay high marginal costs, existence of another intervention and positive effects in other different fields. In addition, we found out that although the interventions are described as their factors, governments in many occasions have reasons not to assign enough economic resources to do this kind of interventions. Such

reasons are described as: lack of incentives to professionals, lack of demand of certain services due to poor information and the distribution of the political power.

At the end of this report, which I invite to read and to analyze, the World Bank Group suggests that the different health systems of the world must be reformed, and these changes must be based on the consideration of the following items: Rationalization of expenses, costs restraint, outsourcing, reinforcement of the pyramid of attention towards the first level, training of human resources proficient in health, information systems creation, research encouraging for assertive decision making, preventive hospital maintenance, creation of integral handling guides based on scientific evidence, use of good quality essential drugs and hospital supplies, health promotion, ethical behavior and implementation of audit systems.

Such gain in health that is acquired by any patient when entering to the services of health or when receiving an attention is called Output, and is the result of an investment done in the patient in monetary terms called Input. This means that the Input is considered as the set of all the production factors expressed in monetary terms through which we would accomplish to produce the well-being to the patients. Based on this definition, the human beings would not attend the hospitals or would not receive any medical attention if we did not have a net gain or a measurable Output. It would be frustrating to get medical care and not gain that wished level of Well-being (2,3).

In fact, this frustration occurs in the health services market due to the health-disease process we have, in which there are patients to whom we invest great sums in monetary terms hoping to produce a Well-being, but actually they run into death. In other words, their gain in health is nil (4).

# MEASURING THE QUALITY OF HEALTH CARE OUTPUTS

The quantification of the costs is an important input for the decision making in the health field. Nowadays, the majority of governments are worried about the high cost in health or their high money destination as percentage of the Gross Domestic Product - GDP. It is a reality that all countries invest a percentage of the GDP in health. There are some countries more efficient than others, in other words, countries that show better indicators on health when compared to others, compared to the percentage that they invest in health.

The expenses in health assistance are increasing in all countries and one of the causes is the expansion of new medical care technologies, which is considered more and more as one of the causes that contributes to this intention. The governments nowadays, face the limitation in economic resources and the necessity to evaluate and establish priorities in research and health care, and they are also interested in the evaluation and anticipation of the socio-economic consequences of the technological change (5).

Public and private programs are being developed in many countries at the moment, all aimed towards the early identification of the impact of the acquisition or use of technologies, based especially on the diverse models of economic analysis applied to the assessment of health services.

The suppliers and funders of health services, looking for greater effectiveness and efficiency of these services, are more and more interested in having explicit evidences on the effectiveness and cost-effectiveness of the technologies and procedures that they provide or finance. On the

other hand, the citizens of the developed countries currently find themselves under two elements in conflict: the supply of an increasing number of new medical procedures, more sophisticated and promising each time, and the continuous warning of the economic authorities about the growth in the health expenses and the difficulties to confront it (6).

This situation has been analyzed by professionals of the health field and politicians, proving three phenomena that form a scenery of uncertainties, which as a last resort can be considered as generators of Health Technology Assessment of Medical Care Technologies or of the movement called Evidence Based Medicine -EBM- (7).

The first one is the absence of a good correlation between a country's expenditure level or its investment in health, and the collective health of its citizens. The second is the observed variability in the clinical practice, described in diverse studies that prove how the rate of interventions to patients according to their place residence. The third and last phenomenon is the uncertainty about the impact that the use of many medical practices actually has on the health of citizens.

The Assessment of Medical Care Technologies concept was initially defined by the Office of Technology Assessment (OTA) in the United States, as a "form of research that examines the clinical, economic and social consequences derived from the use of technology, including the short and medium term, as well as the direct and indirect influences, desired and undesired".

This definition uses the term *research* as a quasi-synonymous with *assessment*, which has been reviewed by some authors who consider more advisable to use ample terms such as "strategy or process of analysis". On the other hand, according to the Spanish Royal Academy, to evaluate is "to consider, appreciate, or calculate the value of a thing". Thus, the following definition

is proposed for Assessment of Medical Care Technologies: *"analysis and research process, directed to consider the relative value and contribution of each medical care technology to the improvement of the individual and collective health, considering in addition its economic and social impact"*.

Assessing technologies, broadly speaking, can include the evaluation of the technical properties, clinical effectiveness, organizational impact, social consequences, and even ethical implications. Finally, the assessment of technologies could aim itself towards knowing if a new technology is a sustainable solution or the best of all the options in a specific welfare and social context. Thus, the assessment of technologies is not contemplated as a unique discipline but as a process that integrates disciplines that cross, and communicates science, economics and politics (7,8).

In this integrating role, the technology assessment is used to value and incorporate the clinical effectiveness data, and the scientific and economics tests into the decision making and the establishment of practical guides on the adoption and use of the new technologies (9). The majority of the times, such decisions required information on whether a new technology, indeed did what it had been designed for, and if its use produced unexpected effects.

Until late twentieth century, that information was obtained, to a great extent, by means of empirical observation. In the last decades, clinical studies and rigorous costs analyses began to be designed to establish the effectiveness of certain treatments. The Assessment of Medical Care Technologies is the "integral form of researching the economics, social and technical consequences -almost always clinical, of the Medical Care Technologies used in the assistance to people -protection against risks, damage prevention, diagnosis, treatment and rehabilitation; and, within these, preferably those that are used in the medical systems and services (8,10).

This is, more and more, conceived as the "process of analysis oriented towards estimating the value and the relative contribution of each medical care technology to the improvement of individual and collective health, considering its economic and social impact" (7).

Evaluating a medical care technology or a health intervention provides elements that guide the strategic decision making related to securing the health coverage or the resource allocation, including the equipment acquisition. In general terms, we could state that the primary target of the Assessment of Medical Care Technologies consists of providing elements that guide the strategic decision making related to securing the health coverage or the resource allocation, including the acquisition of equipment (9). This requires a systematic interdisciplinary process where multiple health science disciplines concur through the scientific evidence in the search of the necessary elements to reach such purpose. The object of assessment of the different technologies is generally circumscribed to one or several of the following terms: (7,11,12)

- Security: When it is intended to evaluate if the effect of the use surpasses the probable risks for the health. Risk-Benefit Balance.
- Effectiveness: When it is intended to establish if the effects are obtained in the expected way, according to the ideal conditions of use of the technology.
- Effectiveness: Measure or assessment of the achievement level in relation to the expected objective under habitual conditions of use of this technology.
- Utility: Measurement or assessment of the degree in which a technology contributes to improve the quality of life.

Economics is first of all, the science of election and there is an election process when different options exist that cannot be obtained simultaneously with the given resources. The

health sector, with a considerable but limited budget, is characterized by the multiple decisions that their actors must make at every moment. In these decisions they influence not only clinical, epidemiologist, politicians, administrative aspects, but also the economics ones.

The health sector is not a free trade in the traditional sense, where the consumer or the supplier faces the cost of the used service. For that reason, that set of authorized decisions that individuals adopt in other sectors, does not exist. But there is a third element, that is neither offering nor demanding, is the one in charge of paying. Therefore, it is in charge of measuring the money value to make better purchasing decisions.

Generally, those agents are part of the Public Administration and, besides considering the effectiveness and security of the medical care technologies, for a long time they have been considering its costs.

Technology development has played and plays an essential role in the health promotion and in the development of the health systems and services. Their suitable assessment causes greater efficiency in the use of economics resources.

Economics assessment is a key component in the assessment process of medical care technologies. It is not surprising that over the last 30 years, a significant increase in the number of publications on economic studies of health programs and interventions has taken place (9).

With the boost in the political and social demand for assessing efficiency and cost-effectiveness of the facilities and the use of resources to provide health services, this growth is surely going to expand. The nature of the information required to develop an assessment process of the medical care technologies has been extended. Thus besides requiring information on security, risk and effectiveness of health technologies, information is also needed on effectiveness, economics

implications, quality of life associated to its use and the cultural, social and ethical implications of its diffusion.

This means that it is going from an assessment mainly based on the necessities of technology producers to another that focuses basically on the users' individual and collective needs. In another level there are management policies which guide the private and public institutions. The discipline that does the socio-economic assessment of health interventions is the Health Economics. It is a relatively new discipline (30 years old) in which the Health Economists are in charge of organizing the health services market, as well as caring for the net benefit of the investment in the population's health (9,16).

Nowadays, there is a great interest in this discipline because the new treatments have altered the standards in the organization of health services. Therefore, the costs of the medical attention have been intensified and have stimulated pre-payment mechanisms.

On the other hand, there is an increase in life expectancy in densely populated developing and/or underdeveloped countries where we found balance problems between population and resources, and between workforce and product. The socio-economic evaluation arises from the 70s decade on, because it is not possible to finance everything that medical technology has to offer in order to improve people's health, reason why it is necessary to prioritize and rationalize. The socio-economic evaluation is classified in: Cost studies and costs-results studies. The costs in the health sector are defined as the resources consumed during providing health services. Such costs are divided in three categories:

- Direct costs: The direct costs are defined as the consumed resources attributable to the direct assistance to patients, meaning that from the medical point of view it would include

medicines, time spent by personnel on assistance to patients, and the equipment used. From the patient's point of view it would be included the transportation cost and out-of-pocket expenses.

- Indirect costs: It refers to the patient's loss of productivity due to morbidity or mortality.
- Intangible costs: It refers to the pain and suffering, which are of difficult quantification in monetary terms.

Costs-Results studies are obtained once the costs are measured. They include the following: (11,12).

- Cost-Effectiveness analysis: It is used when wanting to relate the costs of application or use to the results measured in terms of medical, clinical or administrative units. It is the most used because it allows us to express the effects in the same units used in clinical tests or clinical daily practice. Its major disadvantage is that it only allows the comparison between similar options and those that have effects measured in the same units.
- Cost-Benefit analysis: It is used when wanting to relate the costs of application or use to the results measured in terms of monetary units. From the economic point of view it is the most orthodox way to do the studies, but every time it is less used due to the difficulty in transforming health units into monetary terms.
- Minimization of costs analysis: It is used when it is required to compare investments in terms of economic costs of interventions whose results or consequences are considered similar. Plus it is the most simple to apply. It is used when it is proved that the differences between the effects of the compared options do not exist, in whose case it is enough to compare its costs in order to select the cheapest.
- Cost-Utility analysis: It is the most innovative. It is used when wanting to relate the costs of application or use to the results measured in terms of quality of life. It intends to measure

the effects of certain intervention through a unit that integrates quality and amount of life. It is measured through Quality Adjusted Life Years - QALY that is obtained by calculating the years of life gained thanks to technology, weighing them according to the quality of life obtained (13).

The value of the QALY can vary between a negative value going through number zero and reaching a maximum value of 1. The interpretations of its values are the following ones: (11,12)

- Value of 1: A year of perfect health is worth.
- Value between 1 and zero: A year of less than perfect health-life expectancy is worth less than 1.
- Value of Zero: It is considered as death, since it does not gain quality.
- Negative values: It is considered worse than death. In certain situations, we can find people who are unconscious in an Intensive Care Unit and bedridden, this situation is considered to be a state where it is preferred to be dead since their quality of life is negative.

These values are the resultant of the multiplication between the health state, based on an arithmetical scale, and the life expectancy, to obtain these values and thus evaluating the health gain after an intervention. Patients evaluate themselves through two spheres: the physical sphere and the mental sphere.

Each of these spheres represents in its interior a health state condition and based on the combination of these two spheres, an arithmetical measurement is obtained regarding the quality of life, which is necessary to multiply by the life expectancy to obtain quality-adjusted life years -QALY as a result.

Cost-Utility analysis is considered as the "gold standard" methodology for evaluating the cost-effectiveness of health care choices. This is

interpreted in terms of a ratio of the incremental cost of two alternatives over the incremental quality-adjusted life years of the two alternatives. The results show the cost of saving one quality-adjusted life year (cost/QALY) for that choice.

At present other methods exist to measure people's quality of life, but none of the following are going to provide us with Quality Adjusted Life Years fit to quality as the final product. I will discuss two frequently used methods:

The first one is called EuroQol which is also known as EQ-5D. It is publicly known since 1990 and has been developed with the aim as complementary method to other quality of life measurements. This instrument is composed of a questionnaire which is self filled out and consists of four components: (3,14).

Description of the respondent's health by means of the classification, rating of his/her health by a "thermometer", valuation of Set of Health states, DNA background information about the respondent. This instrument has been widely used to complement of economic evaluations of the health state and in the population's health surveys.

Another instrument widely used in the United States of America and Spain is the SF - 36 and consist of a questionnaire used to measure population's well-being, also called Short Form - SF-. The number next to the word SF means the number of questions included in the survey (15). This instrument was developed from an extensive questionnaire battery used in the Medical Outcomes Study – MOS. Of all the items the fewer possible number of concepts was selected maintaining the validity of the initial instrument, detecting positive states of health as negative and exploring two spheres: the physical health and the mental health.

One is a self administered questionnaire, although it has also been given by an interviewer, over the telephone or by informatics support. It consists

of 36 items which explore 8 dimensions of the health state: physical function, social function, physical problems, emotional problems, mental health, vitality, pain and perception of general health. There is a question that is not included in these eight categories, which explores the changes undergone in the state of health during the last year.

The following are the assessed dimensions:

**Physical function:** It refers to the degree in which health limits physical activities such as the personal care, walking, using stairs, bending, picking up or carrying weights and the moderate or heavy efforts (10 questions).

**Physical role:** It deals with the degree in which the physical health interferes with work and other daily activities, such as a level of performance lower than desired, as well as the limitation or difficulty in the type of carried out activities. (4 questions)

**Corporal pain:** It refers to pain Intensity and its effect on daily work, either at home or out. (2 questions)

**General health:** Assessment of personal health including current health, future health expectations, and resistance to become ill. (5 questions)

**Vitality:** It compares feelings of energy and vitality, to the feelings of fatigue and exhaustion. (4 questions)

**Social function:** It refers to the degree in which physical or emotional health problems interferes with social habits. (2 questions)

**Emotional role:** It assesses the degree in which emotional problems interfere with work or other daily activities. (3 questions)

**Mental health:** General mental health, including depression, anxiety, behavior or general well-being. (5 questions)



The items and dimensions of the questionnaire provide scores which are directly proportional to the health state; the higher score, the better the health state. The range of the scores for each dimension varies from 0 to 100.

The test detects the positive states of health, as well as the negatives. The questions' content focuses on the functional state and the emotional well-being. The survey's scope covers the general population and patients; and it is used in descriptive and evaluative studies.

### **Cost containment**

European countries spend less money in absolute and relative terms than the United States of America; this is due to the fact that for several European countries the actions on costs containment are a priority. Health systems in European countries have several financing sources, coverage and multiple means of distributing their benefits. In the Scandinavian countries, the United Kingdom and Ireland, medical care financing comes from the tax payment done by citizens. Other countries predominantly have insurance-based systems or a combination of this one with the tax payment (16).

Countries like Belgium, France, the Netherlands, Germany and Luxembourg, have an insurance-based system, which causes high quality health systems and expense control, as well as cost-containment. Throughout these years lots of measures to contain the costs have been implemented and discussed, and they go from cost-based reimbursement to capitation, the introduction of managed competition, the explicit introduction of quotas and the increased participation of well-to-do patients.

It is known that the measures that go towards capitation are under way in a number of countries the cost-based reimbursement does not encourage an economy on medical care. What is

clear is that capitation and based reimbursement create incentives to diminish quality in medical care (17).

Another measure for cost control is the co-insurance, which has prevailed in several countries in order to grant additional economic resources to the Health System and to restrain the moral risk, which is defined as the overuse of the health insurance by the insured people. In addition, some insured people tend to hide their diseases when they acquire a health insurance, in order to reduce the monthly payment of their insurance, since they would enter a group of people with a lower risk of suffering diseases, as they would be considered as healthy.

There are several classifications to approach the cost containment. Some authors classify them from the offer and demand point of view, but others have adopted the following classification, which describes in a practical and clear way, all the concepts related to the measures taken to contain the costs (18).

### ***Budget Shifting***

It is the most commonly used method to reduce the public expenditure in health. Its objective is to try to move the expenditure in health towards another portion of the budget, either in actions non-related to health, or towards other components of the governmental budget. Such expenditure can directly be moved towards patients through the co-payments introduction, which are paid by the use of medical care. They can also be transferred in an indirect way, reducing the range of services granted by the health system.

Within the Budget Shifting category we find the co-payment, also called co-insurance, which is going to reduce the "moral hazard" also called the moral risk. The effect of such co-payment is to directly reduce the pressure that exists in the public budget and it induces the search of other

forms of attention or the use of much cheaper medical care.

It is known that there are two ways of reducing the demand of medical care: either via line/queue or the so called 'waiting lists', and via economics asking people for an amount of money when using the services. Obviously when establishing the co-payment, it will not be of insured people's interest how the measure is called in a technical way, nor the impact that this could have on the national budget.

What interests them is to know how much money they must add when they are going to receive the medical care. This is a reason why if the insured person does not have money available in his pocket, he/she will limit the demand of the medical care and it will not use this service as he/she did before when there was not an additional fee.

Within the Budget Shifting category, we also find the restriction to certain treatments that are publicly financed and which can lead to a direct reduction in the health costs. This reduction in treatments is based on a scientific evidence search (Evidence-based Medicine) and carrying out studies on effectiveness and cost-effectiveness, it will show results as an important input for making this type of decisions.

The Technology Evaluation agencies are of great help, and are the ones in charge of doing these reports or studies and thus providing valuable information to the governments on whether the different actions in health that they carry out are adapted, and if they are being as efficient as possible regarding the resource assignment.

In several European countries these restrictions to treatments are written in lists, known as positive and negative lists. The positive lists show details on which treatments will be financed by public funds while the negative list displays the treatments that will not be financed by these

funds. It is worth mentioning that this type of lists has been widely used in the pharmaceutical field.

In national medical care systems with purchaser/provider splits, the purchasers may be instructed not to purchase treatments on a negative list or to buy only the treatments that are in the positive list. In the reimbursement health systems, the insurers refuse to reimburse to the insured users, the expenses incurred due to negative list treatments.

### **Budget setting**

The majority of medical care, either private or public, works through national budgets. The national level when transferring the money towards the local centers does it depending on the effectiveness as well as on an assessment system after having done reimbursement. In many systems we find hospitals and doctors who operate on a fee-for-service basis, and which provide the treatment to patients and afterwards, they send the bill concerning his/her treatment to an agency that will do the reimbursement to them, either to a social insurance fund or to a private insurance company.

This type of mechanism has a great problem and is that no one has any incentive to save, and can even exceed the national budget when spending more money than the budgeted at national level. Obviously, this kind of problem has a great solution, and is the introduction of fixed amounts or rigid budgets. This causes the different agents that do the reimbursement to have the incentive to spend according to their budget. They can decide on fines due to overspending and on some occasions to the inferior expenditure, and that way the costs are contained.

It is possible to adapt the budgets to the productivity through the incorporation of the Diagnosis Related Group -DRG- which are going to determine how the activity at the hospitals is,

and their cost-effectiveness. The DRG starts from the use of the International Disease Classification -ICD 10-, in which a diagnosis is assigned to each patient treated in a hospital atmosphere and when providing him/her this assignment, an arithmetic number can be entered in the software (9,19).

This number is the resultant of resource iso-consumption for each pathology at hospitals. Based on this iso-consumption of resources, we can obtain an Index Case Mix -ICM-, which will show the level of difficulty in providing well-being to patients treated in hospitalization, which means that if the difficulty is higher, more inputs have to be destined to provide an output, proper for treating that disease.

An ICM over the unit indicates that the hospital assists cases with a greater level of complexity than the average or standard; reason why it will require a higher financing degree than the average. And an ICM inferior to the unit indicates that the casuistry taken care of by the hospital has a lower technical complexity, therefore the financing level will have to be inferior to the standard, since the consumption of resources will be smaller.

This way, hospitals will receive their services financing depending on the complexity of the treated disease and not on the number of patients treated, since a patient with a complex disease, for example lymphoma or leukemia, can require more economic resources than a patient who presents a less complex disease such as an ankle sprain, a radius fracture, etc.

The prospective payment by DRG can require administrative extra costs, but it is easy to calculate due to the fact that the data can be obtained from the hospital. Amongst the countries that have adopted the DRG and are in the OECD -Organisation of Economic Co-operation and Development, we find the following: Austria, Finland, Belgium, United

Kingdom, France, Ireland, Norway, Portugal, Spain, and Sweden (20, 21).

### **Direct and indirect controls**

Governments can apply direct and indirect controls to the costs. Among these controls we find the following actions: control over fees or payments made to providers, control over medicines' prices and regulation on benefits for pharmaceutical companies and for other companies that offer medical supplements.

The introduction of new technologies can be controlled through the analyses of health technologies assessment -HTA-, and by implementing Well-being measures, as QALY. In which the United Kingdom, from 1999 with the creation of National Institute for Clinical Excellence -NICE-, has adopted the following methodology to evaluate if any intervention on health is effective for its system and if it is possible to be included in its package of health care. (17). A value inferior to ICER (Incremental Cost-effectiveness Ratio) of 20,000 Sterling pounds/QALY, indicates that this technology is effective for its use in the National Health System. NICE has adopted as threshold of QALY around 30,000 Sterling pounds by patient, as the limit guide for the approval in its service package. A value superior to ICER, about 30,000 Sterling pounds/QALY indicates that in the case of granting this technology, its decision must be very well supported for its use within the National Health System.

In the middle 70s until the middle 80s, the cost containment focused towards direct and indirect controls, where we find among others, the following actions (18,22):

- Voluntary Health insurance negligible, except in the Netherlands, Germany, Austria and France.
- Exclusion of some services by reimbursement, as the spa treatment in Italy.

- Budget ceilings for hospitals implemented in countries such as France with prospective global budgets and in Denmark with historical budgets.
- Target budget for each contracted sector, implemented in Germany and the Netherlands
- Relative value scales for payment to doctors in Germany
- Controls of hospital staff number implemented in Ireland and Spain
- Incentives to develop alternatives to hospital care, implemented in Northern European countries.
- Controls on hospital beds implemented in the majority of the countries.

In the decade between the middle 80s and the middle 90s the emphasis on cost containment was the Budget setting, in which we can see a significant increase of co-payments, and more services are excluded from reimbursement, such as mainly dental care, cosmetic surgery and ophthalmic care.

In the United Kingdom the individual fixed or target budgets of doctors are implemented, and more countries are included in the capitation; the DRGs and the use of guides for clinical practice with monetary penalties in the case breach in France and Austria. In addition, several institutions of Technology Assessment are established in many countries.

In the late 90s and in the beginning of the 2000 decade, the emphasis on the cost containment was the Budget Shifting, rationing and evidence-based purchasing decisions.

A reduction of the number of diseases is exempt from co-payments, the economic charges to patients are increased, the Health Technologies Assessment –HTA plays a predominant role in the coverage and the decision making, major controls on capitals' investment and on the acquisition

of new technologies, and there was a greater investment in developing management competence (18).

## **CONCLUSION**

It is possible to conclude that the use of the different measures from Cost Containment has been beneficial and has had positive effects in the different countries of the European Union in which it has been implemented. Separately assessing the effect of each measurement is complex. Consequently its effects must be evaluated in an integral way. Due to that, we can conclude that budget setting is one of the most effective measures to control the public costs regarding health care.

In countries like the United Kingdom, Spain, Finland, and Italy they spend much less percentage of the GDP than the Member States of the OECD. It is well-known that the Total health expenditure as a share of GDP 2005, in the United States of America ascends to 15,3%, while the average of the countries of the OECD goes up to a 9,0%.

It is worth mentioning that the majority of countries that implement Cost-Containment measures find themselves around this value, being Switzerland and France those that show around 11%; Austria, Portugal, Belgium and Germany around 10%, and the Scandinavian countries as Sweden, Finland and Denmark around 9%, closely to the average of all the countries of the OECD. In the case of France where its Total health expenditure as a share of GDP 2005 presents a value of 11.1%, this is due to the fact that prospective budgets for public hospitals in this country have been introduced. That is the reason why it can be concluded that it seems to have been successful in the cost control.

We already saw before that the waiting lists have been used for demand controlling in the medical

care. As well as the Co-payment, the waiting lists have shown that they are not a problem in countries such as Belgium, Germany, France and Holland, but seem to be a great problem in the United Kingdom. Due to this, countries have put a great emphasis on the management improvement for the handling of health systems and going ahead of future changes that the health systems might suffer. These facts cause that considerable efforts are being held in improving efficiency.

Decision making based on Scientific Evidence and studies of Cost-effectiveness can get to be the most effective technique for controlling expenditures on health. This process requires a great investment on the documentation process of the direct costs in health care, and on the effectiveness of the different treatments and interventions. For this process an excellent information system is required as well as the unconditional support referring to human resources and financial, of the Health Technology Assessment Agencies -HTA Agencies, which are fundamental for the decision making process in the health systems.

These agencies help us be more efficient in the resource allocation, to improve the attention to patients through the implementation of guides on practices based on scientific evidence - MBE, to improve the gain in Health, either expressed in QALY or DALY and to improve the patients' quality of life.

In conclusion the Health Technology Assessment plays an important and fundamental role in Medicine, in decision making to know what kind of services we are going to include in the health package, what amount of interventions, consumptions and devices we are going to grant within the services package, what amount of services we are going to provide and what quality level we are going to grant.

The Cost-Containment has been an important subject in the last two decades in the

development of the public health policies in most countries of the European Union the contract model for the purchase and provision of services is dominant and the one with more success in the cost control.

Private financing's role can increase, but with the implementation of specific measures as the replacement of target budgets with fixed budgets, combination of budgets with activity-related payments and the replacement of sectoral budgets by budgets for individual providers can help contain the participation of private sector in the field of the health.

It is necessary to look for cost-effective alternatives in the long term attention or long duration in the hospital. This will help us to develop new schemes of attention, which can get to be financed with private resources.

For all the above, the role that Health Technology Assessment Agencies -HTA Agencies carry out in Spain, Denmark, Sweden, Germany, the United Kingdom, Holland, Belgium, Austria and France, among others, has been of high-priority in the Cost-containment, and in my opinion, the most important when supplying tools to obtain the efficiency in the medical care provision.

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