

Why not adapt hospital emergency departments to social demands instead of health needs?

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During recent years developed countries have witnessed a stepwise increase in the use of the hospital emergency departments (HED) even in low complexity situations that could have been managed in other healthcare levels. Apart from being a consequence of demographic changes (migration and ageing population) other factors may be associated with this situation such as the perceived need for immediate care, the difficulty of access to other resources of the system, the lack of public coverage and the socio-economic and cultural level. This phenomenon contributes to HED overcrowding, loss of care continuity and quality, professionals dissatisfaction, delays in the attention of true emergency situations, higher health costs and has very important consequences on the management of the rest of the hospital. The interventions made to date to dissuade or to avoid the increase on the frequentation in HED (education improvements, reducing administrative barriers, copayment, implementation of primary care centres) have shown poor effectiveness or even uselessness. Considering the knowledge of the differences between the need, demand and supply of health care, from an anthropological and social point of view – and the attempts for justify citizen perceptions in an emergency – a new functional design should be implemented to manage these processes in a new scenario, in which the hospital should be adapted to the model of management of the HED and not vice versa. [Emergencias 2008;20:276-284]

Key words: Emergency department. Financial management, hospital. Health services needs and demand. Needs assessment.

Introduction

There has been an important growth in the use of hospital emergency departments (HED) throughout the developed countries in the last 20 years with the direct consequence of overcrowding by patients who could have been attended in other healthcare levels, basically primary healthcare (PC)¹⁻³. In Spain, the use of HED has risen 80.7% from 1994 (13.5 million visits)⁴ to 2005 (24.4 million visits)⁵, that is approximately 6.7% annually, which is in disproportion with the increase in the population (5.8 million during the same period)^{4,5}. Nonetheless, the percentage of admissions has been reduced (Figure 1), although the rate of emergency pressure remains over 65%⁵.

In 1988 the Ombudsman published a report⁶ in which it was stated that 74% of the frequentation to the HED was on the initiative of the user, one third of the visits corresponded to processes which could be managed in PC, this via was used to facilitate access to the system, the presence of serious

structural deficiencies and of personnel and material and that dissatisfaction was the norm among the citizens and the professionals. Implicit inadequateness of the HED was insinuated with not even a consensus in the definition of “emergency” which was brought to the attention of the “Commission of Analysis and Evaluation of the National Healthcare System” (April report)⁷ 3 years later. The implementation of physical reforms and the provision of specific and sophisticated technology only facilitated the increase in the demand with the subsequent improvement in the services. Almost two decades after this report the situation has not only perpetuated but now seems much more complex.

The subject is especially worrisome because of the substitutive use of PC³, excessive medicalisation, the deterioration in healthcare continuity and quality^{8,9}, the delays in care to truly severe, complex cases^{10,11} even with an increase in mortality¹² and the negative effects for the hospital as a whole (overcrowding of central services and professionals, reduction in productivity and a deficit in organisa-

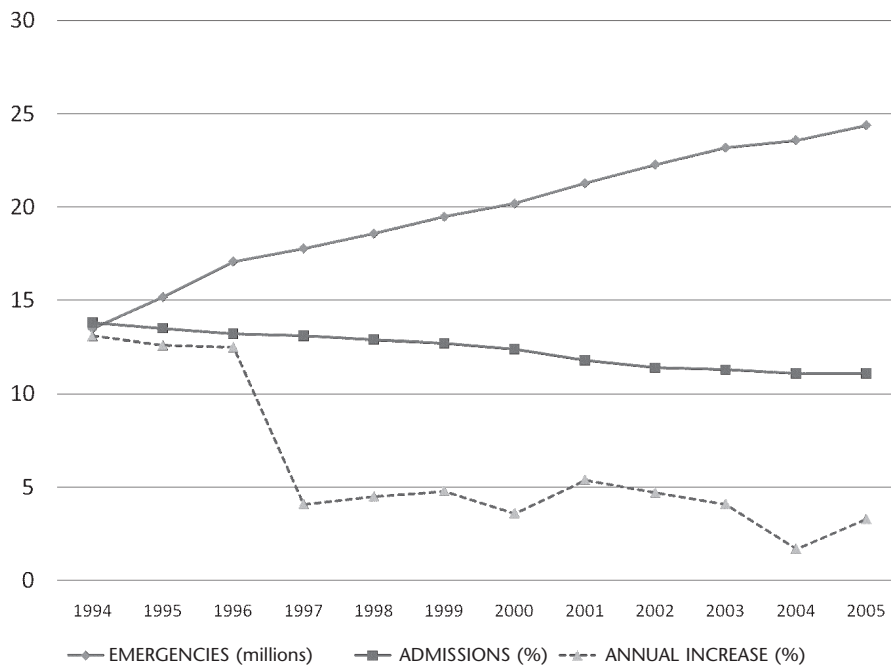


Figure 1. Evolution of the number of hospital emergencies and the percentages in annual increase and admissions during the period 1994-2005. Source: Instituto Nacional de Estadística y Ministerio de Sanidad y Consumo.

tion and planning) as well as an increase in health-care expenses, with costs of opportunity and losses in wellbeing of society which thereby clearly compromise the functionality and efficiency of the system^{13,14}.

Determinants of care in the HED

Most of the studies published have analysed the determinants of demand and those of supply¹⁵⁻²⁰. Thus, among the first, the following are of special influence: a) lengthening in the life expectancy of the citizens and the consequent ageing, with an increase in the populational sectors from 65 to 85 years of age in which the prevalence of generally chronic diseases producing acute decompensation and requiring emergency care are highest; b) the changes in the morbimortality patterns with new processes in which immediate care is of growing importance and overall, the increase in traffic accidents, work activity and all types of violence; c) the lack of healthcare education and hospital centred culture which was founded in the 1960s and 70s with the development of the public social security healthcare network, without awareness as to the cost and with a high degree of demand; d) the socioeconomic level, with the maintenance of inequalities ("paradox of progress")²¹⁻²³ being close to

the most disadvantaged in this type of service, in which the asymmetry of information is equilibrated and reduces the decision of the professional; and e) the increase in the population and the social changes originated by migratory movements in the last decade.

Among the factors of supply, those of note include greater accessibility to hospital centres (inverse relationship between geographical distance and the use of resources), the lack of insurance (provoking its use), irregular development of PC in general and especially, of its emergency services and the perverse use of HED to avoid waiting lists or to carry out postponed programmed activities of the so-called "day hospitals"¹⁵⁻¹⁷.

Tudela and Midol¹⁸ differentiated between intrinsic, non modifiable but essential aspects of the HED and extrinsic and potentially modifiable circumstances. Thus, among the first there is the progressively higher demand, discontinuity in affluence but with maintained activity, the need for healthcare homogeneity and prioritisation, almost constant imbalance between severity and urgency, complex diagnostic approach, the importance of the time factor, minimum mortality, different functional coordination and organisation and, particularly, the repercussion which HED care has on the remainder of the hospital, especially in the overcrowding of the central services and in the posterior manage-

ment of the patients as well as in aspects related to economy and quality. Among the non intrinsic conditioners they mention there are the still precarious structural aid, the overcrowding and delays which lead to a diminishment in quality and dissatisfaction, the almost systematic violation of privacy and confidentiality, inadequate discrimination of an emergency, simultaneous presence of processes requiring urgent care among patients already admitted and the heterogeneity of organisation and formation. Variability in the clinical practice of the HED is nothing more than the most immediate consequence of some of these determinants²⁴.

However, also from the aspect of supply, one of the most important factors is the maintenance of PC which is not adequate for the current needs. On the implementation of the network in 1978 there were important socioeconomic and health inequalities, large inequities in access, lower incomes, high rural population, low educational and cultural levels and a morbimortality based particularly on acute infections. However, almost 30 years later, no important changes have been observed (progressive ageing, disease chronification which decompensate or develop complications and require technologies and rapid management, an increase in income and education, although notable degrees of inequality have repercussion on health) and our society has developed expectations which have led to new perceptions and perspectives of the citizens.

Inadequate use of the HED and associated factors

The rise in the urgent and non urgent visits to the HED has led to many studies on the factors related to this care, and numerous interventions carried out with the aim of reducing inappropriate visits have been analysed²⁵. Since "inadequateness" is generally mentioned when a higher level is used for the management of processes which could be solved at lower levels, an improvement in accessibility and the introduction of tools to directly carry out the action of the PC either in its programmed visits or in the extrahospital emergency services would be justified a priori.

Some of the factors implicated include: a) some demographic elements (age, sex, marital status, work situation, socioeconomic and educational level) which elderly, male, widowers, separated persons, actively working and those with a lower educational level and income reportedly present greater adaptation in their visits to the HED; b) the previous state of health since pathologic antecedents, associ-

ated processes, disability and poor subjective perception lead to lower failure to adapt; c) healthcare organisation, fundamentally the scenario (urban or rural) of the PC and the extrahospital emergency services; d) the setting (time, day of the week, meteorological conditions, distance from the HED, method of access, type of demand), in which greater adaptation has been found during Saturday nights and Sundays, in distant locations and with a referral or evacuation request from a professional²⁶⁻³⁴.

Health needs, demands and supply

Health depends on the interaction of several multidisciplinary components (income, education, housing, leisure activity and lifestyles, biological inheritance, environmental setting, work situation and the type of work) and not only on healthcare³⁵. Lalonde³⁶ defined some determinants of health (human biology, the environment, habits and healthcare) emphasising the importance of those most distant from healthcare resources for their consecution and improvement. Dever³⁸ specified that the greater degree of cooperation to the production of health is made up of the first three elements, evaluating their economic participation as less than 10% of the expenses when healthcare activity surpasses 90%.

The supply of health services in any country should be the product of an analysis involving the confluence of the knowledge and the opinion of the technicians, the demographic and epidemiologic characteristics of the population and the needs expressed by these. From the point of view of the citizens, the perception of health needs is a dimension which is not always considered and their incorporation in the process of elaborating health policies would imply the search for adequate strategies to know them and study their impact on costs and on the reduction of the inequalities between communities.

With an economic perspective starting from the concepts of need and demand, Becker³⁸ proposed the "theory of human capital stating that people demanded inputs to create outputs to produce wellbeing and which explicitly assumed a maximizing conduct with the aim of achieving more utility of greater function of wellbeing. Grossman³⁹ considered health as a fundamental asset in the demand of the consumer given that it granted the value of inputs to healthcare resources to produce more health, allowing the people to increase their utility and availability for the work which increased their income. Grossman³⁹ also studied the effects of

two variables (age and education) on demand and stated that young individuals with a high educational level increased the marginal products of the different inputs used, reducing their quantity for obtaining the same degree of health.

Le Grand⁴⁰ analysed to what measure the determinant structures of the public policies, particularly market criteria, influenced the assignment and planning of objectives and reflected upon the challenges which the European systems of social protection should face with the ageing of the population, unequal growth of income and unemployment. According to the Phelps and Newhouse⁴¹ model of demand, the individual would be a maximiser of its utility in a setting of uncertainty and, thus, would tend to avoid the risk and insure him/herself and this demand would be more related to need itself than to the cost.

Concerning these approaches, the need felt and that expressed has an important correlation with demand. This is demonstrated when an individual perceives that his/her state of health is deteriorating and requires care and he/she decides to enter the healthcare system and three elements are then introduced: severity, socioeconomic and cultural conditioners. Although these factors have scarce value at the time of decision making, when the severity perceived is high, almost all investigations are usually based on the theory of microeconomy of demand, in an attempt to estimate the elasticity of demand-price and demand-income, from functions of utility and budget restrictions. The demand for healthcare thereby converts into use when the professional justifies this need and the individual really receives it, independently of sociodemographic and socioeconomic factors.

Need, demand and supply of emergency care

It is evident that the subjective conceptualisation of a determined process such as "emergency" is an inherent characteristic of the individual who has assimilated and assumed this concept over the last years as a consequence of psychoanthropologic, economic and social development. Andersen⁴² classified the determinant elements of the use of healthcare services as predisposers (age, sex, race, education, work activity, family size), facilitators (individual income and availability and accessibility of resources) and need (perception of the state of health and degree of limitation of activities due to specific problems). Padgett and Brodsky⁴³ added that this required initial recognition of the situation, and applied this model to emergency care which

would follow the decision to seek care and, finally, that this care was considered as immediate. This would therefore be an expression of a healthcare demand to a correctly developed supply which would translate into a subjective but not always objective need in a scenario where the relation of agency is balanced and where the capacity of the professional to provide this clearly diminishes. This would not happen if, for example, a neurosurgical intervention or parenteral nutrition was required.

In the analysis between demand and supply of healthcare services (Figure 2), emergency care occupies very different positions depending on its capacity and on the other two determinants. Thus, situations which are requested by an individual, although they do not obey "true" health needs, always receive response (position 4) in the HED, while complex processes which are required and are considered "real" necessities may or may not have their corresponding level of supply in the system (positions 1 and 2, respectively). This latter would, for example, be the true reflection of the minimum or null response to traffic accidents over time and with adequate resources on our roads.

The individual elaborates a self diagnosis after the loss of level of health which is the determinant of demand (perceived plus expressed) in relation to the personal knowledge of the supply of healthcare resources and decides, in an overall context with his/her work, family and economic needs, to go to a point where he/she believes that care will be more effective, in the absence of criteria of ethics or expenses^{44,45}.

Present scenario and new approaches

On performing a study of the situation and on specifying the aspects on which the supply/demand imbalance lies in the prevailing model, the efficacy of the interventions developed on their determinants should be analysed. Some actions have been carried out with the background of PC resources to the citizens, the implication of society through new health formation strategies and the introduction of barriers in an attempt to reduce the demand or reform the functional organisation of the HED. The effects of these actions are described below (Table1).

A. Results of the interventions

A.1. Improvement in the access to PC. Recent publications have confirmed that bringing consulting centres and extrahospital emergency services closer to the citizens does not diminish frequentation to

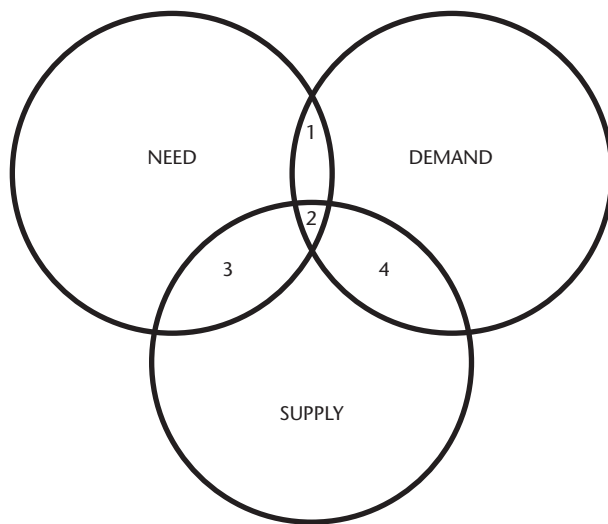


Figure 2. Interrelations of need, demand and supply.

the HED. Thus, Weinberger⁴⁶ has demonstrated that the rate of hospital readmissions does not descend but rather increases, although with a greater level of patient satisfaction. Sanchez⁴⁷ found that this was hardly observed in the urban setting and Peiró²⁸, Oterino^{29,31,32} and Sempere^{30,33,34} reported that, although the use of PC centres increased, it did not decrease in the HED, and could not suggest an effective alternative. Of the articles analysed it can be deduced that minimum effectiveness has been observed, not only in not reducing the visits to the PC centres but rather increasing those to the HED. In addition, co-integration studies, which involve an econometric model to identify stable or long term relationships between two or more variables in temporal series, did not demonstrate substitutability between the two types of emergency care^{29,32}.

A.2. The level of healthcare education. For Peiró²⁹ the effects are also doubtful or, even, null. Nonetheless, education for health is a slow, complex procedure which requires important investments and is not recommended for this goal.

A.3. The implementation of barriers. The different interventions studied (administrative, territorial, economic, classificatory) have demonstrated slight reductions in frequentation to the HED but have not been able to minimise the inadequate cases²⁸. Specifically, co-payment or the ticket moderator alone has achieved a decline of 15% in the number of visits, with more among the non urgent patients but defects found in safety and dissuasive effect to the lowest income and the truly ill patients must be added to those of equity⁴⁹.

A.4. Organisational actions. The reforms introduced in the management of the HED have achieved

a reduction in some inadequate visits but have not modified the behaviour of the hyperfrequent users^{50,51}. Good results have been obtained (decreases of 45% in admissions, 50% in consultations in the HED and 26% in the stay) with certain models based on organisational changes for chronic patients and hyperfrequent users of the HED mainly through telephone lines^{52,53}. Other actions such as the installation of fast tracks⁵⁴⁻⁵⁶ recently reevaluated^{57,58}, implantation of walk-in centers in the British model⁵⁹ or the introduction of trained nursing personnel for minor processes^{60,61} and triage^{14,62} have shown different, mostly positive, effects, achieving reductions in the frequentation to the HED but, particularly, raising the level of quality and citizen satisfaction.

B. Economic analyses

Although Williams⁶³ stated that the marginal cost of non urgent care in the HED was lower than a real emergency, later studies and publications by Bamezai⁶⁴, Kellermann⁶⁵ and Pines⁶⁶ reported that this does not represent a scale economy but rather that not only the fixed and variable costs but also the semivariables (nursing) influence in this expense. Therefore, the increase in healthcare expense is evident and, at present, the HED are submitted to enormous pressure and forces (financial, social, organisational and marketing) which have even led to the closure of some of these in the United States because of their low cost-effectiveness⁶⁷.

C. Social demand

Social demand has increasingly been maintained over the last years particularly due to the population growth originated by ageing and very notable immigration in Spain and other developed countries (New Zealand, Australia, Germany, Canada, Italy, United Kingdom) and even in the United States as a consequence of the lack of insurance in a wide sector (50 million inhabitants) and the inequities and inequality of health provoked by the differences in income of many social groups. However, social demand which expected to justify the socioeconomic evolution of the second half of the 20th century is another consequence with the new, high expectations of the citizens, with demand for immediate care from a service considered free on administration.

Reform of the design, implementation of strategies and conclusions

Echoing some of the conclusions of the report of the Ombudsman⁶ and the alarm produced by

Table 1. Background, interventions and results

| Background | Intervention | Result | Investigator |
|------------------------|--|---|--|
| Improve access | Increase PC resources | Raises the rate of readmissions despite producing greater satisfaction. | Weinberger ⁴⁶ |
| | Approach non hospital consultation centres and services. | Little effectiveness in the urban setting. | Sánchez ⁴⁷ |
| | Idem. | Increases PC but does not reduce hospital frequentation. | Peiró ²⁸ |
| | Idem. | Does not produce substitutability between the two models. | Oterino ^{29,31,32} |
| Health strategies | Idem. | Does not reduce frequentation in PC but increases in the hospitals. | Sempere ^{30,33,34} |
| Barrier installation | Rise in educational level. Administrative. | Doubtful or null effect. Very slow and costly. Slight reduction in frequentation but does not reduce inadequate visits. | Peiró ²⁹ Peiró ²⁸ |
| | Territorial (sectorialisation). | Scarce real fulfilment, real impact has not been evaluated, organises demand. | Peiró ²⁸ |
| Organisational reforms | Economical (co-payment). | Reduction of 15% but with defects in safety and equity. | Selby ⁴⁶ , Moreno ⁴⁷ |
| | Triage. | Increases quality, reduces times, differences between children and adults, no safety. | Gómez ⁶² , Peiró ²⁸ |
| | Management reforms. Telephone models. | Do not modify hyperfrequent users. Reduce admissions 45%, visits 50% and stay 26% but are only useful for hyperfrequent users and chronic patients. | Pope ⁵⁰ , Afilalo ⁵¹ Gamboa ^{52,53} |
| | Fast-tracks. | Increases frequentation but also quality and satisfaction, with cost reductions. | Nollman ⁵⁴ , Camp ⁵⁵ , Moreno ⁵⁶ , Rodi ⁵⁷ , Nash ⁵⁸ |
| | Walk-in centres. Triage nurses. Nurses in minor processes. | Reduces hospital frequentation. Reduces waiting times. Good clinical effectiveness, reduces waiting time, increases satisfaction. | Chalder ⁵⁹ Berthier ¹⁴ , Gómez ⁶² Thrasher ⁶⁰ , Carter ⁶¹ |
| | Gatekeeping. | Reduces the use but not the inadequate cases. | Peiró ²⁸ |

PC: primary care.

the news media, more than a decade ago we defended the thesis that social progress, and the perverse residual inequalities originated by the same, was the fundamental cause of the increase in the frequentation and use of the HED^{21,22}. Urbanos²³ referred to the inequity in access, especially sensitive to the less socioeconomically favoured but also to the asymmetry of information between the agents of the consultation (professional and patient) and the lesser capacity of the first before a situation presented as urgent by the second. Now we coincide with Peiró²⁸ and Oterino^{29,31,32} in that in view of the inefficacy of the interventions carried out, solutions which incorporate the reality of the health-care system are required since it does not seem to be the citizens (demand) who are causing the disequilibrium but rather the scarce adaptability and accommodation of the HED themselves (supply) to a social model which has evolved too rapidly.

It can therefore be stated that the physical and functional structures of the HED should be improved and reformed, and the quality of the activity and the satisfaction of both agents should be augmented, and of course, original alternatives to

conventional hospitalisation should be potentiated ensuring minimum involvement of the hospital as a whole^{21,22,28,32,34}. We agree with Miró⁶⁸ and Sánchez⁶⁹ when they remark that not only factors of external pressure intervene in the overcrowding of the HED but there are also internal factors, with the functional organisation and the relationships and coordination of the HED with the remainder of the hospital being of note.

There is, therefore, a social demand which could currently be described as "justified", based on the psychoanthropological, socioeconomical and health-care development which claims for and demands effectiveness, speed and quality. Behind this there is a need for health understood as the result of a retrospective, epidemiologic evaluation of the society to which adequate resources are assigned and redistributed for its undertaking, maintenance and improvement. On which of these approaches should emergency care in the HED be planned?

If social demand is accredited, three strategies should be followed: starting with different levels of need, extending the capacity of the supply and adapting the hospital to the HED. In the first point,

the presence of different degrees of severity, complexity and support should be taken into account ensuring responses oriented towards the expected benefit. In second place, the system should develop global services but with differentiated steps, thereby providing absolute availability for all the types of need identified with redistribution of resources depending on the geo-demographic, epidemiologic and socio-healthcare settings. Lastly, hospital management tools should be more agile, avoiding inappropriate and unnecessary hospital stays for relative unspecific weights, complications and comorbidities so that the healthcare centre adapts to the HED and not the reverse. To do this it will be essential to analyse and know the case-mix of the hospital perfectly, the concentrations of each GRD block of each department, human and technological resources, economic budget and the indicators of quality. In short, this would mean maximisation of the effectiveness and efficiency of the HED and the remainder of the hospital with a functional organisation and a management model which would allow shorter intervention times, the best lines of production and greater professional and user satisfaction with neither interference, nor in detriment to either of the two parties.

It is clear that to achieve this, reforms, perhaps radical, would have to be made in the hospital structures and resources as a whole, always keeping their organisational symbiosis in mind: screening areas, emergency units, vital support and intensive care, observation areas, intermediate centres, consulting offices, fast tracks, healthcare telecommunication departments, information and computer system, etc. The HED would therefore transform into the most important department of the hospital from a strategic and global function point of view on a horizontal plane and with a close management relationship with the remainder of the hospital.

We are sure that if the HED are adapted to social demand (real) and not to the health needs (unreal) within a scenario of general hospital redesign, we would be able to achieve an enormous advance for our healthcare model, our public health model and, in short, their two main agents: the professionals and the citizens.

(In memory of the recently deceased Prof. David Oterino de la Fuente for his positive investigative work on the adaptation of emergency hospital care).

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¿Y si adaptáramos los servicios hospitalarios de urgencias a la demanda social y no a las necesidades de salud?

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El incremento producido en la utilización de los servicios de urgencias hospitalarios (SUH), en estos últimos años y en todos los países desarrollados –incluso para situaciones de baja complejidad que podrían ser atendidas en niveles inferiores– no obedece simplemente a los cambios demográficos (aumento de la población por envejecimiento y movimientos migratorios) ni epidemiológicos, sino que parecen existir otros factores que intentan explicar y se asocian a esta conducta, como la necesidad percibida de atención inmediata, la dificultad de acceso a otros recursos del sistema, la falta de aseguramiento público y el nivel socioeconómico y cultural. España no ha sido ajena a ese fenómeno que, sin duda, contribuye a la masificación de estos departamentos, pérdida de continuidad asistencial y de calidad, insatisfacción de profesionales, inadecuación y demora en la atención a las urgencias verdaderas, mayor gasto sanitario y repercusiones muy importantes sobre la gestión del resto del hospital. Investigadas las causas de ese incremento, tanto desde el punto de vista de la oferta como de la demanda, y analizadas las intervenciones realizadas hasta la actualidad para disuadir o evitar el aumento de la frecuentación a los SUH (facilitar la accesibilidad a la atención primaria, mejoras educativas, instauración de barreras, reformas organizativas) derivando buena parte de la misma a los centros extra-hospitalarios, se ha comprobado su escasa efectividad cuando no su inutilidad. Dados estos resultados, y entendiendo las diferencias entre necesidad, demanda y oferta de salud, desde un punto de vista antropológico y social –y, por tanto, los intentos de justificación de las percepciones de los ciudadanos ante una urgencia– cabría plantearse el rediseño funcional de la asistencia a estos procesos en un nuevo escenario, donde el hospital fuera adaptado al modelo de gestión del SUH y no a la inversa. [*Emergencias* 2008; 20: 276-284]

Palabras clave: Urgencias hospitalarias. Gestión. Demanda y oferta de salud. Inadecuación.