The
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of
HEALTH REFORMS

Edited by
Dr. John N. Yfantopoulos

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An Efficient Alternative Care Scenario for Long Term Care Based on the Principles of Social Sustainability and Quality of Life in Spain

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J. Garcés, F. Ródenas, V. Sanjosé and S. Carretero

Introduction

The substantial growth in expenditure earmarked for the health sector in European countries over recent decades (Saltman and Figueras, 1997) has brought with it the appearance of serious problems in both management (Dixon and Mossialos, 2002) and finance (Mossialos, Dixon, Figueras and Kutzin, 2002; Directorate-General for Economic and Financial Affairs, 2002a,b) among the health care systems of these countries, and especially among the Mediterranean nations. It is forecast that in a very short space of time the sustained increase in per capita health care spending will return a cost which the universal and free of charge system cannot support, producing a crisis related to a violation of the principles of universality and/or quality of life. This situation can be explained due to the concurrence of demographic, social and cultural changes which are occurring in Europe (Jackson and Howe, 2003), as well as a change in the axiological base guiding health care policy over the last 40 years.

Focusing now on the field of efficiency (Fenn, McGuire, Phillips, Jones and Backhouse, 1996; Drummond, O'Brien, Stoddart and Torrance, 2001; Kuntz and Weinstein, 2001), we must stress that applying economic methodology to welfare states implies considering the limits associated with its principles. Hence, two opposed principles exist regarding what should be the scope of the change and whom it should or must affect: At one extreme, the principle of non-existence of badly affected patients. At the other extreme, the principle of simple maximisation (it is enough to attend to optimisation of the change). A solution midway bet-

ween both extremes is the principle of "*No-loser constraint with hypothetical compensation*", or what is the same, that it is legitimate to carry through changes in health policy if the benefits outweigh the harmful effects –cost/benefits ratio-, as long as there is an offsetting subsequent redistribution of benefits among the population – an increase in equity.

The rise in costs is a continual menace to the principle of social sustainability (Garcés, 2000), a principle together with those of Social Co-responsibility and Quality of Life and Dignified Death must, according to our studies, conform the axiological basis of the new welfare systems in the Europe of the XXI century.

In this work we study the applicability of some care strategies on dependent people, that is to say, those who present reduced autonomy to develop daily life activities, due to the present relevance of problems of health management deriving from the growth of this collective among the developed countries. The objectives focus on defining what are the possible benefits for dependent persons, how to measure them and how to generate an increase in benefits without raising costs. Specifically, one way of approaching quantitatively the magnitude of the benefit when the opportunity to access care services is improved is the following: a) Awareness of the needs of dependent persons using health resources. This information has been recently obtained by means of an empirical study into the social and health care needs carried out in the Valencian Autonomous Region (Garcés, Ródenas, Sanjosé, Megía et al, 2003). These needs are grouped up into three basic factors: state of health, level of dependency on others, and social familial support available to the patient; b) Calculating the present cost of this care; c) Proposing changes in the ways care is performed; d) Recalculating the costs of the new proposal and the financial savings derived.

Finally, we should evaluate the global benefits of the proposal, and calculate the number of dependent persons that could benefit from it without incurring in an increase of the global expenditure.

The Care Factors of Dependent Persons

The study of the care profile of those who are dependent and the suitability of resources, have been objectives of other studies. For this study we select some hospital facilities such as the

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Hospitals for chronically ill and long stay patient care (HCLS); the Short term stay medical units (STS), located in hospitals for the acutely ill, used to identify, evaluate and stabilise patients with a social and health care profile through the appropriate diagnostic and therapeutic instruments (frail elderly persons, the chronically ill, terminal patients, etc.), managing their assignment to the best therapy location; and the Units for psychiatric hospitalisation (UPH), directed to provide intensive treatment under a continuous care regime in hospitals for the acutely ill.

For dependent patients using these hospitals we evaluated the state of health, the functional dependence on other persons to carry out activities of daily life, and the existence or absence of a sufficient carer in the family sphere. These three aspects will be used afterwards to evaluate the possibility of assigning alternative care resources to patients currently being attended in hospital.

Health was evaluated through the medical diagnosis and the clinical complexity. Concretely, *clinical complexity*, defined here by the treatment procedures being used by individual patients can be a) high: the patient needs enteral or parenteral feeding, assisted breathing or respiratory therapy, thoracic –parecenthesis or transfusion; b) Medium: the patient needs fluidotherapy, respiratory or functional physiotherapy, chemotherapy, radiotherapy, biopsy, complex cures, otomy or tracheotomy care, blood analysis, dialysis; or c) low when the patient does not need none of the previous treatment, but needs psychotherapy, oxygen treatment or medication.

HCLS and STS patient's dependency for daily life activities was measured using the Barthel test (Mahoney and Barthel, 1965). The Frenchay test (Bond, Harris, Smith and Clark, 1992) was used for UPH psychiatric patients, since mental patients present a dependency of a different nature, which is associated to instrumental activities of daily life (IADL) rather than basic activities.

Due to its usefulness for this study, we shall concentrate our attention on the existence or otherwise of a sufficient carer who attends the daily life needs of dependent persons. We call *sufficient caregiver* a person aged less than 75, present during the interview or mentioned by the dependent person, either belonging to the immediate family of the patient or someone independent and employed who can look after the patient all the time they need, or at least for 6 months at the patient's or their own home.

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Now we can study the suitability of each of the different resources to their current users, and hence propose other care scenarios which improve the efficiency of the whole system by reducing unnecessary hospital stays and referring patients to other less costly resources which cover their needs offering equal or better quality of life.

Methods

The best option to improve the benefits among the dependent population in an immediate manner consists of looking at how to optimise the suitability of present resources in such a way that two objectives are achieved: a) Dependent persons must receive the necessary help with the maximum possible quality of life; b) More persons must be attended when they need to be, which implies a redistribution of care resources among potential users.

The first objective, referring to necessary, sufficient and high quality services, usually implies studying the way in which certain services can be supplied at home when this is possible. The second objective implies management of the time that care must last in each case, in such a way that resources which are not used when needed, are made available to persons who are in greater need. This is consistent with the *"No-loser constraint with hypothetical compensation"* principle.

With the aim of maximising the different results of proposing alternative care scenarios we shall **concentrate our analysis on hospital facilities – the most expensive ones**. Specifically, the hospital units involved in this empirical study are the STS, the HCLS and the UPH.

Our working hypothesis is that a careful study of the needs and possibilities of each patient can free up many hospital resources, through patient referral to other quality services which provide fair and necessary care to dependent persons in their own home and social and family environment. Concretely: *Among the patients admitted to specific hospital units -STS, HCLS, UPH- we will find persons with a suitable profile for referral, given their clinical condition, and who would have a sufficient carer if the burden associated with care was lightened to a great extent.*

The **data sources** available are: a) the Data Bases and official records of the different Hospitals, and b) the data that arose

from the field research were obtained through direct interviews from a sample of 1,265 dependent persons in the Valencian Autonomous Region (Garcés, Sanjosé, Ródenas, Megía et al., 2003). The first sources provide annual economic, medical and statistical data on every patient: gender, age, clinical diagnosis, number of stays (nights spent in hospital) for every patient and clinical circumstance entered; and also the total annual cost for each service, as well as the total annual number of stays. However, information is normally not available concerning the level of functional dependence of each patient. As such, we shall make use of the results of the empirical study mentioned earlier in order to quantify the distribution of patients per type of hospital according to their dependence level. The second source enables us to assign alternative care resources for each patient with respect to their social-health profile.

From the principle of Quality of Life, the care scenario we propose is more efficient than the current one as it is based on the assumption that people in general, and dependent people in particular, enjoy the greatest quality of life possible when they can remain in their own social and family environment, with the guarantee that their health and social needs are being met.

The care scenario we are proposing as an alternative means using home and community resources when the patient profile makes this possible, and also assisted nursing homes (with medical and more or less intense clinical care) when necessary. Concretely, the resources that we shall consider are: Home Help Service (HHS), Nursing Homes, Day Hospital (DH), Unit of Home Hospitalization (UHH) –which from hospitals provide specialised health care in the home of the patient, after the period of stabilisation in hospital- and Primary Care (PC), (doctors, nurses and social workers) at the surgery and at the home.

Criteria for Home and/or Community Patient Care

Four factors are taken into consideration to determine if dependent persons can or may not be attended in resources outside hospitals (or for referral of already admitted social and health care patients): a) clinical complexity; b) the degree of dependence in carrying out activities of daily life; c) availability of a sufficient home carer to attend their needs; d) age older or youn-

ger than 60 years (the legal age limit to gain access to certain resources such as nursing homes).

Clinical complexity has been defined earlier in a simple but objective way. The possibility or not of having these procedures available as well as the level of vigilance they imply determine the alternative health care resource that can cover the needs of the patient, as long as the latter is not currently suffering an acute stage of illness. So the *alternative health care resources* to hospitals in case of high, medium and low clinical complexity are UHH, DH and PC -with Day Centre (DC) or Units of Mental Health (UMH) when necessary-, respectively. The level of dependence for the activities of daily life determines the degree of daily social care required from others by the patient. Finally, the law currently in force in Spain places limits on the age of those who can benefit from certain resources such as elderly homes (60 years and over).

Taking this into consideration, we assume the derivation criteria listed in Chart 1 for non-psychiatric and psychiatric patients respectively. In some cases we will demand that the domestic carer is not in a job outside the patient's home owing to the permanent care the dependent person requires, whether it be due to their illness (psychiatric patients), their clinical complexity (patients attended by UHH), or their high dependence. Three standard levels of intensity are considered in HHS, whether domestic or personal: Low intensity (6hr/week); Medium intensity (10hr/week); High intensity (15hr/week).

Chart 1 *Derivation criteria*

1. Non-psychiatric patients (from STS and HCLS)			
Sufficient Carer			
Dependence for BADL	**Clinical Complexity: Low**	**Clinical Complexity: Medium**	**Clinical Complexity: High**
Independence	Not needed/D-LI [1] + PC	D-LI/MI [1]+ DH	P-HI + UHH
Low Dependence	D-LI/MI [1]+ PC	D-MI/HI [1]+ DH	P-HI + UHH
High Dependence	P-LI (+DC) + PC	P-MI + DH	P-HI + UHH

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No Carer			
Dependence for BADL	**Clinical Complexity: Low**	**Clinical Complexity: Medium**	**Clinical Complexity: High**
Independence	D-LI/HI [1]+ PC	D-MI/HI [1]+ DH	Hospital (to 60y) /NH (over 60y)-HI
Low Dependence	P-LI/HI [1]+ PC	P-MI/HI [1]+ DH	Hospital (to 60y) /NH (over 60y)-HI
High Dependence	Hospital (to 60y) /NH (over 60y)-LI	Hospital (to 60y)/ NH (over 60y)-MI	Hospital (to 60y) /NH (over 60y)-HI

2. Psychiatric patients (from UPH)

Sufficient Carer [2]			
Dependence for IADL	**Clinical Complexity: Low**	**Clinical Complexity: Medium**	**Clinical Complexity: High**
Independence	P-LI + MHU	P-MI + DH	UPH
Low Dependence	P-MI + MHU	P-MI + DH	UPH
High Dependence	P-HI + MHU	P-HI + DH	UPH

No Carer			
Dependence for IADL	**Clinical Complexity: Low**	**Clinical Complexity: Medium**	**Clinical Complexity: High**
Independence	P-LI + MHU	UPH	UPH
Low/High Dependence	UPH	UPH	UPH

Notes. BADL: Basic activities of daily life. IADL: Instrumental activities of daily life. D: Domestic services; P: Personal and domestic services; LI=Low intensity (6h/week); MI=Medium intensity (10h/week); HI=High intensity (15h/week). PC: Primary Care; DH: Day Hospital; UHH: Unit for Home Hospitalization; MHU.= Mental Health Unit; NH: Nursing Homes. In Nursing Homes: LI/MI/HI= Degrees of medical care. [1]The intensity depends on whether the caregiver works out of the home or not, and whether the level of the patient's autonomy is high or low for instrumental activities of daily life'.Being a 'sufficient caregiver' for dependent mental patients implies that the caregiver does not work out of the patient's home. Independent patients presenting low clinical complexity do not need a family caregiver. Source: Own elaboration, "Poliwelfare" Research Unit, Universitat de València, 2003.

The referral itineraries proposed are those shown in diagram 1. Patients should be moved from hospital after they are duly stabilised unless they are in an acute phase of illness. In particular, our criterion contemplates that patients attended at an STS should be referred to a HCLS after being stabilised. In other cases, patients may be assigned directly to alternative resources, by a Primary Care team. The proposal modifies the average length of stay at hospitals, since a significant number of patients could be referred to other resources after their diagnosis, treatment and stabilisation (see Table 1).

Method for cost calculations of care services

The way of estimating the actual cost of dependence for each hospital is based on finding the relation between duration of stay and the degree of dependence of the individual patient. For that goal we have assumed the following methodological hypothesis: *Persons with strong dependence statistically will generate a greater number of stays than persons with low dependence.*

The hypothesis assumes that in each hospital unit, independent persons or those with slight dependence will produce a low number of stays, while people with strong dependence will, on average, produce a large number of stays (not necessarily in a direct proportional relationship).

The procedure to follow is the one below: 1) Find the number of stays N_k over the year of each person k; 2) Order from lesser to greater the total accumulated stays for each person to obtain an ordered series of pairs (k, N_k), from greater to lesser N_k; 3) From all the persons with the greatest number of stays select the number corresponding to the percentage of severe dependants, d_k, given by the distribution of dependence, $P(d_k)$, from the previous field study; 4) Add up all the stays N_k corresponding to these persons. Now we have the total stays corresponding to high dependence patients; 5) Repeat the exercise with the other dependence levels until the total of persons and stays is complete. Now we know $N(d_j)$ for each level of dependence, d_j; 6) Multiply by the cost per stay, Ce -from hospital memories- to obtain $C(d_j)$. The cash unit used is the **cost per stay.** Generally, the cost per stay includes the night stay per patient in a hospital, catering costs, personal care and medication staff. The cost of the proposed alternative care resources will be calculated from quantities that have been officially agreed upon between the public administration and the entities that fulfil each of the services.

Table 1 Number of dependent social and health care patients in hospitals and proposed referral to other care resources

Dependent social and health care patients in hospitals			Present hospital unit		
			STS³	Hospital for CI⁶ &LTS⁴	Units for PH⁵
% non referable (require hospitalisation full time, currently admitted)			0%	8%	13%
% referable to alternative resources			100%	92%	87%
Total patients			5820	4357	956
Alternative resource assigned or referred			% Referable patients admitted in each hospital unit		
			STS	Hospital for CI & LTS	Units for PH
UHH¹	HHS²	Personal and domestic 15hr/week	0	9	0
		Domestic 10hr/ week	0	4	0
		Domestic 15hr/ week	0	15	0
Day hospital	HHS	Personal and domestic 10hr/week	0	6	17
		Personal and domestic 15hr/ week	0	6	0
		Not needed	0	1	0
		Domestic 6hr/ week	0	3	0
		Domestic 10hr/ week	0	3	0
Primary care or outpatients	HHS	Personal and domestic 6hr/ week	0	3	66
		Personal and domestic 10hr/week	0	6	0
		Personal and domestic 15hr/ week	0	6	4
Day centre	HHS	Personal and domestic 6hr/week	0	2	0
Low care nursing home			0	7	0
Medium care nursing home			0	8	0
Intensive care nursing home			0	13	0
HCLS			100	0	0

¹ Units for Home Hospitalisation. ² Home Help Service. ³ Short Term Stay. ⁴ Long Term Stay. ⁵ Psychiatric Hospitalization. ⁶ Chronically Ill.
Source: Own elaboration, "Poliwelfare" Research Unit, Universitat de València.

Results

Costs of the hospital stays of dependent persons

Now we can use the hospital records of each unit to find out the number of persons attended in a year, the total number of stays over that year and the average cost per stay.

Subsequently, the data of the statistics study described above allow us a clearer picture of the number of dependent persons attended in a year (2001) at each hospital resource. Finally, the methodological procedure described above and the costs per stay at each one of the hospital units enable us to determine the cost per stay of a dependent person and compare this with the cost per stay of an independent person (see table 2).

The high cost of dependence –between 72% and 96% of the total- makes it worthwhile examining other possible care alternatives. This would be a matter of optimising care at these costly resources and making possible referral to other resources of patients where possible, depending on their clinical state, social support, age and other circumstances. Finally, the objective is to estimate the benefits of the alternative in monetary terms (euros) and in terms of the opportunity of benefiting a greater number of people.

Costs and benefits of the proposed alternative care scenario

Employment of our alternative care scenario involves a **cost** resulting from adding: a) Costs of home health care (PC or UHH) or in DH or in hospital units (STS, HCLS, UPH); b) Costs of other resources such as HHS and DC if needed.

When calculating the **benefits** relative to the actual situation we must consider the qualitative dimension, defined by freeing up hospital beds for patients who need them, and the quantitative dimension, given by the monetary difference in euros between the two scenarios, or alternatively by the extra number of persons who can be cared for with the same budget. In this respect, we must say that the monetary costs of the alternative proposal must be calculated equalling the time presently consumed in care. This means that for comparison purposes, only the days in which the patients would have remained in hospital using other resources are computed, though these resources may have been used for a lot longer.

Table 2 Costs of the hospital stays of dependent persons (Year 2001) and saving in euros per patient referred and day, accor-ding to the care destination planned, in the alternative scenario to hospitalisation

Hospital stays	Hospital Unit		
	STS	HCLS	UPH
Total patients attended	9,739	6,428	2,814
Total stays	33,009	120,501	56,453
Total cost (euros)	7,314,598.95	16,904,444.62	10,073,852.28
Cost per stay (euros)	221.59	140.29	178.45
Dependent persons attended	5,820	4,357	956
Dependent persons as % of total persons	59.8	67.8	34.0
Total annual stays of dependent persons	27,394	116,288	40,428
Annual dependent persons stays as % of total stays	83.1	96.5	71.7
Average annual dependent persons stays	4.7	26.7	42.3
Average annual stays independent persons	1.4	2.0	8.6
Annual cost per dependent person (euros)	1,043.00	3,746.00	7,546.60
Annual cost per independent person (euros)	316.90	408.85	1,540.00
Ratio: annual cost per dependent person versus independent person	3.3	9.2	4.9
Annual cost of dependent persons (euros)	6,078,967.45	16,313,361.23	7,219,248.85
Percentage of total annual cost of dependent persons	83.1%	96.5%	71.6%

Alternative resource assigned or referred

Home hospitalisation (UHH)	HHS	P and D 15hr/week		34.82€	73.11€
Day hospital	HHS	D 10hr/week		41.82€	80.11€
		D 15hr/week		36.15€	74.44€
		P and D 10hr/week		36.15€	74.44€
		P and D 15hr/week		27.64€	65.93€
Primary care	HHS	Not needed		118.60€	156.89€
		D 6hr/week		111.80€	150.09€
		D 10hr/week		107.27€	145.56€
		P and D 6hr/week		108.40€	146.69€
		P and D 10hr/week		101.60€	139.89€
		P and D 15hr/week		93.10€	131.39€
Day centre	HHS	P and D 6hr/week		106.81€	145.10€
Low care nursing home				112.59€	150.88€
Medium care nursing home				106.66€	144.95€
Intensive care nursing home				99.77€	138.06€
HCLS			81.62€		

Notes. STS: Short Term Stay; HCLS: Hospital for the Chronically ill and Long term Stay. UPH: Units for Psychiatric Hospitalisation; HHS: Home Help Service; UHH: Units for Home Hospitalisation. P: Personal. D: Domestic. Sources: Records of the hospitals in the Valencian Autonomous Region, economic data base of the Health Department and own elaboration, "Poliwelfare" Research Unit, Universitat de València, 2003.

Regarding the qualitative benefit, our scenario contemplates cancellation or reduction of the **average length of stay** of patients in hospitals.

Optimisation of these costly hospital resources, which are highly necessary but saturated —in Spain there are long waiting lists— requires precise control of bed occupancy times. This control could be exercised by **case management teams** in Primary Care which have access to the clinical and social data of the patients in order to be able to take consensus and expert decisions on the appropriateness and timely nature of admission and/or referral to other resources (Walsh and Clark, 2002).

From the quantitative point of view, attention or referral home assigning resources such as HHS, DC, PC, DH and UHH, or referral to nursing homes with intensive, medium or low care represents a reduction of the cost per day versus hospital stays in HCLS, STS, and UPH. The costs per day are obtained totalling the services supplied during one year and dividing this by 365 days.

Our proposal implies that the primary care attention team can directly assign the home or community resources, as well as deciding the intensity of care. They can also decide on admission of patients to hospital. Inside the hospitals, other teams must perform monitoring of the status of patients admitted, to decide whether it is appropriate and opportune to refer patients to other resources. Thus we propose that from STS, stabilised patients can be referred to other convalescence, rehabilitation or long term stay HCLS units, without a loss in the quality of care. From HCLS and also from UPH some patients can also be referred, after a period of treatment at these centres either to their home or to residences, with adequate medical and social services.

The **monetary benefits** measured in euros savings per day and person for each alternative care to hospitalisation, or for each possible referral from STS, HCLS or UPH to other care destinations are shown in table 2.

For the dependent patients needing transport to DH or DC we must add a daily, adapted transport service at an approximate cost of 12 euros/day in Spain in year 2002.

An alternative care scenario must consider both the patients whose social and health care profile allows attention in other resources and the number of stays during which the alternative service could replace the hospital for each patient.

Table 1 shows the amount of dependent social and health care patients that could be attended by other resources or re-

ferred from hospital to other centres or services because they have the adequate profile of stability and clinical complexity and an available caregiver that meets their needs and age.

Costs of a Generic Alternative Scenario

The total cost of hospital attention at STS, HCLS and UPH is calculated in the following manner: $C = \Sigma_j (e_j * p_j)$. Where j represents each resource computed, e_j is the number of stays at the resource j of all the patients attended, and p_j is the cost of each of the stays at this resource. Statistically, ej could be expressed as: $e_j = n_j * a_j$, n_j being the number of persons attended over a certain period of time (i.e. one year), and a_j the average number of stays per person and year at the resource j.

Hence: $C = \Sigma_j (n_j * a_j * p_j)$.

As such, the difference between two care scenarios will be:

$\Delta C = \Sigma_{j \neq k} \Sigma_k e_{j \to k} * (p_j - p_k)$. Where j represents the present resource, k the alternative resource, $e_{j \to k}$ represents the number of stays currently consumed at resource j which would be consumed in resource k in the alternative care scenario, depending on the number of persons who could be referred and the number of stays that could be transferred to the other resource on average.

From this departure point and in table 3 the expressions for the different monetary savings depending on the present hospital resource are the following:

- From **STS**: $\Delta C_{sts} = a * 5800 * 4.71 * 81.62$. Where "a" is a coefficient of values between 0 and 1 representing the proportion of annual stays which would be attended at HCLS; 5800 is the total number of patients who could be referred; 4.71 is the average days stay per year per patient attended and 81.62 is the difference in cost/person/stay between the two resources.
- From **HCLS**: $\Delta C_{HCLS} = (a * 396 * 34.82 + b * 183 * 41.82 + c * 670 * 36.15 + ... + z * 548 * 99.77) * 26.69$. Where "a, b, c,..., z" are the coefficients of values between 0 and 1 representing the proportion of patients in HCLS who could be referred to other resources, the other numbers representing the result of the number of patients and the average saving between the

two resources, and 26.69 is the annual average number of stays per dependent person at HCLS.

- From **UPH**: ΔC_{UPH} = (a * 159 * 74.44 + b * 637 * 146.69 + c * 40 * 131.39)*42.29. Where, once again "a, b, and c" represent the proportion of persons who could be attended at DH and personal and domestic medium intensity HHS, PC with personal and domestic low intensity HHS, and PC with high intensity HHS respectively. The remaining figures are the number of patients and the saving per person and day and the average number of stays per person at UPH.

The maximum cash savings possible, under the –rather unrealistic –hypothesis that all the coefficients were 1 (i.e. all the patients who could have been attended at other resources had been attended there without being admitted to the hospital where they currently are found), are:

$\Delta C_{STS, MAX}$ = 2,229,695.16 Euros/year
$\Delta C_{HCLS, MAX}$ = 4,495,476.50 Euros/year
$\Delta C_{UPH, MAX}$ = 4,674,444.30 Euros/year

And hence the maximum theoretic cash saving in our study would be: $\Delta C_{hospitals, MAX}$ = 11,399,615.96 Euros/year. This represents 33.24% of the entire budget for the three hospital types considered in the Valencian Autonomous Region in year 2001. As we have said, this limit is merely theoretic, and unattainable in practice. These euro amounts can be converted in amounts of patients attended, simply considering the typical annual cost of a dependent person in each hospital.

A pedagogical example of an alternative care scenario

With the aim of estimating the largest possible benefit attainable as a maximum in an ideal scenario in which all the patients with suitable profiles were referred, our proposal contemplates the following average lengths of stay: a) At STS: average 3 days and referral to HCLS; b) At HCLS and in the case of referable patients: average 7 days and referrals home or to nursing home; c) In UPH and in the case of referable patients: average 15 days and referral home or to nursing home.

These averages are well in excess of independent patients (light, non-grave or more stable cases) so that the new referral

scenario would not affect them. As such, only the patients we have categorised as **dependent** in Basic Activities of Daily Life (BADL) are affected by this proposal in statistical terms.

Table 3 shows the cost of this scenario, as well as the cash saving it would represent compared with the present situation. The total saving of the proposal with respect to the current situation comes out as 9.18 million euros, which represents 31% of the annual budget dedicated to patients admitted to STS, HCLS and UPH. With this amount of money a certain number of patients could be attended with the correct profile at each of the hospital units, shown in table 3.

That is, almost 25% more dependent persons than the total present number could be attended in the specific hospital resources, remaining in them the average current period, without increasing the budget, just as we have proposed as one of the areas to study from the Principle of Social Sustainability (Garcés, Ródenas and Sanjosé, 2003). This, without doubt, represents a redistribution of benefits among the population.

Discussion

The benefits obtained by dependent persons from the care systems in European welfare states can be increased if the following parameters are optimised: a) Adapting resources and services to the specific needs of each dependent person. It is possible to define the care profile for each service and establish which of them should attend each particular case in order to maximise patients' quality of life; b) Increasing the opportunity to use resources for the population overall through adequate management of services in patient referral itineraries. This has important monetary implications when referrals are from hospital to outpatient and home services.

The study of the suitability of resources to social and health care patients' needs has already been carried out in an earlier paper, and in this work we have focused on the way of generating more opportunities of use at the same time as restraining costs, implying a redistribution of benefits among dependent people.

Table 3 Cost of the alternative care proposal and saving. Number of extra dependent persons who could be attended in hospitals at the present cost and with the current length of stay

Cost of the alternative care proposal and saving		Short Term Stay	Hospital for the Chronically ill and Long term Stay	Units for Psychiatric Hospitalisation	Total
Cost Of Non Referrals	Average stay	4.71	26.69	42.29	-
	Euros/year	0€	1,368,907.69€	902,403.49€	2,271,311.18€
Cost Of Referrals Pre Referral	Days stay	3.00	7.00	15.00	-
	Euros/year	3,874,548.60€	3,919,373.17€	2,240,607.08€	10,034,528.85€
Cost Of Referral	Days referred	1.71	19.69	27.29	-
	Euros/year	1,396,094.62€	5,617,442.99€	1,110,739.30€	8,124,276.91€
Total Cost Of Proposal	Euros/year	5,270,643.22€	10,905,723.85€	4,253,749.87€	20,430,116.94€
Saving	Euros/year	808,324.23 €	5,407,637.38 €	2,965,498.98€	9,181,460.60 €

Number of extra dependent persons	Short Term Stay	Hospital for the Chronically ill and Long term Stay	Units for Psychiatric Hospitalisation	Total
Number of extra dependent persons who could be attended	774	1,444	393	2,611
% extra versus total dependent persons attended	13.30	33.15	41.08	23.45

In order to carry out this study we have analysed the care profiles of dependent persons in a typically Mediterranean area, the Valencian Autonomous Region in Spain, and the specific link between the profiles with the care costs of one part of state resources, the hospitals, which turn out to be the most costly.

In order to be able to offer an alternative care scenario, it was necessary to construct criteria to determine in which social and health circumstances a person could be attended by other resources, without loss or with a gain in quality of life. Application of these principles to the Valencian Community shows that it is possible to amplify state care without raising overall costs by an average amount of around 25% extra dependent persons, attended per year at hospital. We believe that this significant figure requires attention from the state officials in charge of management.
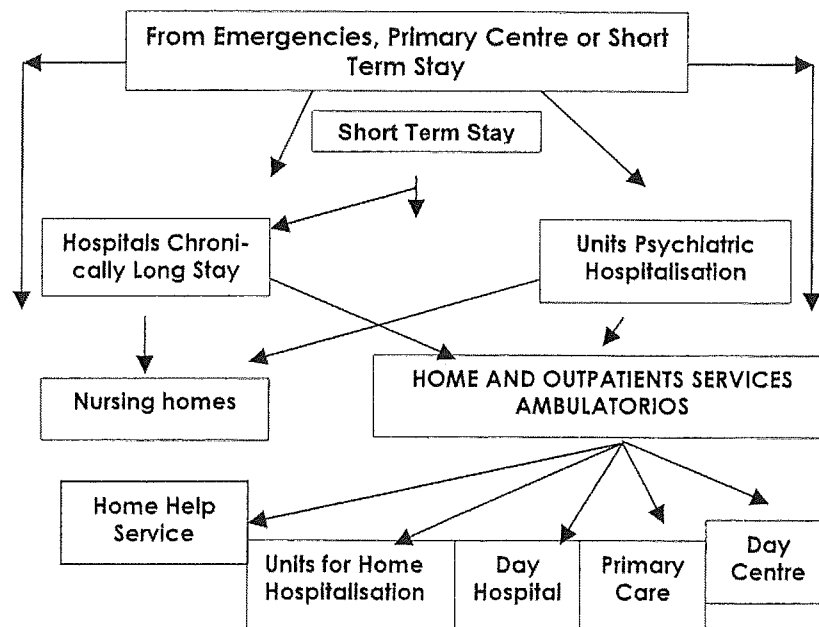
It is clear that implementation of this scenario implies efforts in organising care, control and monitoring of social and health care patients (case management), as well as the availability of sufficient at-home and community resources to attend patients needs. On another plane, it is no less important to attend the need for a Dependence Act which regulates the rights and obligations of dependent persons and their caregivers and legal heirs, to protect both fragile citizens and also the financial sustainability of Mediterranean welfare systems. Welfare, in the short term future, depends on this.

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Diagram 1 *Proposed care itineraries for patient referrals from hospitals*

Source: Own elaboration, "Poliwelfare" Research Unit, Universitat de València.