

Original article

Study of accessibility costs and satisfaction comparing a MAS unit incorporated in a Hospital versus a theoretical model in a peripheral centre

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A B S T R A C T

Introduction: Geographical barriers are a determining factor in the accessibility of Hospital health care, and structural changes to improve geographic accessibility must be introduced. The purpose of this study is to compare accessibility costs and the level of satisfaction obtained in an adapted Specialist Centre with a peripheral MAS (Major Ambulatory Surgery) Unit, with an already existing one incorporated into the Virgen de la Luz Hospital (Cuenca, Spain) to obtain quality health care in the sub-population nearest the peripheral Centre.

Material and methods: A study was made on a comparison of the costs attributable to accessibility of 133 patients operated on due to hernia disorders in 2008 in the Cuenca Hospital of Castilla-La Mancha Health Service (SESCAM), and who lived in its health area. These were compared using a simulation study for an ambulatory surgical Centre, functionally operational, but with no Major Ambulatory Surgery activity nearest to this patient population. The opinions of the patients and the increased cost-effectiveness for each alternative proposal were studied.

Results: The accessibility cost, taking into account the theoretical use of the Ambulatory Centre would be 208,028.09 € and the real costs of the Hospital were 209,088.94 €, with a minimum difference between the two of 1,060.85 €, assuming similar clinical results.

Conclusions: Although there are no significant differences in accessibility costs by using an ambulatory surgery Centre compared to the Hospital, a special assessment of the use of the former is important, expressed in the satisfaction of the patients.

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Estudio del coste de la accesibilidad y de la satisfacción comparando una unidad de CMA integrada en un hospital frente a un modelo teórico en un centro periférico

R E S U M E N

Palabras clave:

Accesibilidad
Satisfacción
Coste-efectividad
Hernia
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Anestesia raquídea
Anestesia general

Introducción: La existencia de barreras geográficas condiciona la accesibilidad a la asistencia hospitalaria. La Atención Sanitaria debe introducir modificaciones estructurales que mejoren la accesibilidad geográfica. El objetivo del trabajo es comparar los costes de accesibilidad y el nivel de satisfacción obtenidos en un Centro de Especialidades adaptado con una unidad de CMA periférica frente a la ya existente integrada en el Hospital Virgen de la Luz para lograr una atención de calidad en la subpoblación más cercana al centro periférico.

Material y métodos: Se realiza un estudio de comparación de costes atribuibles a la accesibilidad con un grupo de 133 pacientes operados por patología herniaria abdominal en el año 2008 en el Hospital de Cuenca (SESCAM), pertenecientes a su área de salud, comparándolo mediante un estudio de simulación por un Centro Quirúrgico Ambulatorio más cercano a la población atendida, funcionalmente operativo pero sin actividad quirúrgica de Cirugía Mayor Ambulatoria (CMA), estudiando las opiniones de los pacientes y el coste efectividad incremental para cada alternativa propuesta.

Resultados: El coste de accesibilidad, considerando la utilización teórica del Centro Ambulatorio, sería de 208.028,09 € y la real del hospital fue de 209.088,94 €, con una mínima diferencia entre ambas de 1.060,85 €, asumiendo resultados clínicos equiparables.

Conclusiones: Aunque no hay diferencias importantes de costes de accesibilidad en la utilización de un Centro Quirúrgico Ambulatorio frente al hospital, sí es importante la valoración preferente sobre la utilización del primero de ellos expresadas en la encuesta de satisfacción de los pacientes.

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Introduction

The concept of accessibility is related with the ease with which health services can be obtained depending on certain barriers. These may be organisational (distance, timetable), economic, cultural or emotional, this last dimension including the concept of fairness.¹ Accessibility is related to the characteristics of a resource that facilitate or hinder its use by possible users and can be divided into geographical accessibility (resource is too far or some element hinders travel to it) and socio-organizational accessibility (socio-economic barriers, cultural aspects, organisations, etc).^{2,3}

Until now, the term 'geographical accessibility' has been referred to in a generic sense. However, with a view to analysis it is appropriate to point out that this concept encompasses two different yet complementary dimensions:

'Physical accessibility' (alluding to the existence of the service and the means to reach it) and 'socio-economic accessibility' (referring to the population's capacity to use the service; whether it is considered appropriate; and the conditions and rules regulating its functioning, etc.). It is understood that to refer to the first dimension the concept of 'potential accessibility' is used synonymously, and to refer to the second there are authors who prefer 'use', or in other words 'proven accessibility', as the use of healthcare facilities is the best confirmation of its accessibility potential.

One of the most important aims of health policies is to provide medical services to citizens who need assistance.⁴ In primary care settings, fundamental importance is given to

providing services which meet the needs of users from the point of view of geographical accessibility.⁵⁻⁸ In this respect, applying the same principle to specialist care, the aims we want to fulfil in this study are to increase and improve the quality of accessibility in hospital healthcare settings.⁹⁻¹³

Access to preventive health care is a right laid out in the European Union's Charter of Fundamental Rights. However, this is often conditioned by people's social status and their place of residence. Therefore, it is especially important to ensure that disadvantaged groups and people most in need have access to medical care. In Spain, which has a public and universal hospital healthcare system, no differences have been observed between different socio-economic groups of the population with regard to the frequency of hospital admissions.

However, looking beyond healthcare policy decisions, in the actual care given to the population patients are not always considered to be a central element, and at times healthcare means and resources do not meet patients' expectations. Centralization criteria are given preference, above all in hospital care settings, to the detriment of bringing health care nearer to the population in need of it.

One of the things most highly valued by patients with regard to the care they receive is the proximity to the hospital and the ease or delays when obtaining surgical or post-operative care, both regarding time and distance,^{14,15} and the information received during the process.¹⁴ Day surgery is used to treat different processes, including biliary,^{16,17} anorectal,^{18,19} and blood vessel pathologies, and hernias.²⁰

In all of these cases, surgery programmes without admission are possible in centres with patient admission and surgical outpatient departments.

The use of surgical outpatient centres, which are nearer and more accessible for patients, may be the model to follow for basic surgical treatment in places far from a hospital.²¹ One of its main advantages is that it reduces the need for post-operative admissions and cuts the costs of hospitalisation.²²⁻²⁶

In the Cuenca Health Area, which reports to the Castilla-La Mancha Regional Health Service (Spain), all surgical health care is provided by health care workers in reference hospitals. The area of influence is very wide, with an elderly population and means of transport which are not very efficient at times. A Specialist Centre of Diagnosis and Treatment (SCDT), reporting to the reference hospital (catchment population of 165,000), was established in 2006. The SCDT is in the town of Tarancon, in a highly populated area (35,000 inhabitants), 80 km from the hospital. It is equipped for outpatient consultations and emergencies and has sufficient physical infrastructure and human resources to perform outpatient surgery (Figure 1). However, the lack of an analysis of its capability for dealing with the demand for surgery in the area has meant that up till now it has not been possible to use all the available resources.

This study performs a decision analysis based on the comparison of results in both centres, from both a clinical viewpoint and one of health care costs.¹² The aim of this is to determine the costs of accessibility to surgical treatment for the sub-population of patients living in the Tarancon basic health zone. These costs are both real and theoretical,

calculated as if they were treated in the speciality centre, maintaining the same conditions of quality and safety, avoiding above all unexpected admissions,^{27,28} and improving the fundamental aspect of geographical accessibility.

The main aim of the study is to analyse the costs of accessibility of the population from the Tarancon basic health zone and its adjoining areas who are treated with a system of day surgery in the hospital, and to compare these with the costs if patients were to attend the SCDT.

The secondary aims of the study include:

- To know the difference between the two medical centres in terms of the overall cost of accessibility (real and calculated) of the programme and incremental costs by means of an economic assessment.
- To know the opinion of the patients by filling a questionnaire of satisfaction when the health care process has finished.

Material and method

The sample for the analysis consisted of 133 cases in the population treated during 2008 at the general surgery department of the Virgen de la Luz hospital in Cuenca. This group corresponded to patients living in the area of Tarancon and the adjoining areas who are assigned primary and specialist care at consultations in the Specialist Centre in Tarancon. Both the total population attended (400 patients) and the selected sample from the Tarancon basic health zone belong to the group of surgical patients treated



Figure 1 – Geographical areas of influence of the hospital and SCDT, Cuenca (Castilla-La Mancha).

under a system of major outpatient surgery (MOS) or short hospital stays (post-operative admission less than 72 h) for the surgical treatment of abdominal wall hernias during a natural year.

The following were used as data sources:

- The catalogue of hospitals and maps of the health areas in the Castilla-La Mancha.
- The health mapping of the province of Cuenca.
- The medical history files of the general surgery department of the Virgen de la Luz hospital.
- The population data for the basic health zones in the province of Cuenca for 2003 included in the Castilla-La Mancha hospitals catalogue.

The inclusion criteria were:

- Patients between 16 and 90 years given surgical treatment during 2008 in the general surgery department of the Virgen de la Luz hospital under a system of major outpatient surgery or post-operative stays of less than 72 h.
- Scheduled operations.
- Surgery of abdominal wall hernias.
- Usual place of residence at a shorter or equal travelling time by usual means of transport from the Specialist Centre in Tarancon than from the hospital where they were treated (Tarancon basic health zone and adjoining areas).

The following were excluded from the study:

- Patients under 16 years.
- Emergency patients.
- Patients living in areas further from the Specialist Centre of Diagnosis and Treatment in Tarancon (dependent variable to be studied) than from the reference hospital where they were attended.
- Patients diagnosed with secondary hernias (post-surgical eventrations).

The following steps were followed in the methodology:

1. An assessment of how the outpatient unit of MAS of the peripheral centre is equipped: made up of the same structural units and team of health care staff as the hospital unit:
 - Pre-surgery preparation and recovery unit with outpatient service and treatment room attached.
 - An operating theatre fully-equipped for multi-purpose MAS functioning during the day.
 - Staffed by medical and nursing staff for surgery and consultations.
 - Equipped with a duty emergency department with specialized staff, an observation room, and resuscitation room functioning continuously between 15 h and 8 h.
 - Equipped with basic and medical patient transportation for cases requiring admission to hospital.
2. Drawing of isochrone curves in each basic health zone.
 - The healthcare zoning of Castilla-La Mancha is superimposed with the location maps of the medical

centres in the province of Cuenca, the Virgen de la Luz hospital in the city of Cuenca, and the Specialist Centre of Diagnosis and Treatment in Tarancon.

- The residential centres of origin and the destination health centres are determined, drawing the shortest routes between them. These routes are connected using isochrone curves of distance in time divided by segments of time as well as the respective geographical areas of influence of both health care establishments (Figures 1 and 2).
3. Calculation of the comparative distance in time of each urban nucleus in relation to each medical centre.
 4. An analysis was performed of the cost of journeys by road from the different urban nuclei, using as a reference the amount paid per km travelled in the travelling expenses agreement for public staff from the Castilla-La Mancha Regional Government.
 5. The accessibility costs were calculated for each isochrone to the two health centres studied, including the travel costs for patients and relatives accompanying them, the cost of work days lost by relatives and patients (adjusted in percentages for the sub-group of patients of working age), the cost of work substitutions, the cost of unofficial care at home, and the cost of transport between hospitals calculated for cases requiring hospitalisation.
 6. A stratified assessment of the incremental cost-effectiveness of accessibility grouped by likeness in isochrones and by risks prior to surgery.

The economic study of the costs of accessibility employed to achieve the same effect (cure and discharge), comparing the use of the reference hospital where treatment took place with the outpatient surgery unit for which it is hoped to establish the expected cost, establishes, apart from the comparable direct and indirect costs in both centre, differences between them which are fundamentally based on the difference of travelling costs (patient and relatives) to the treatment centre, and transfer costs to the hospital with patient transportation from the outpatient centre when hospital admission is required.

Study design and patients

A cross-sectional, observational, historical design was used based on a sample of the population given surgical treatment in 2008 in the reference hospital in the Cuenca Health Area. The study compared the actual health care given with the theoretical treatment of the same group of patients in a peripheral surgical unit 80 km from the reference hospital. The peripheral unit differed in the fact that it has no hospital beds, and was assigned for the primary care and specialist outpatient treatment of the population from which the sample was taken. The main variable was the distance in time to access both medical centres.

An assessment was made of the treatment alternatives in both centres, comparing health care staff, surgical facilities and infrastructure, as well as the difference in costs to achieve the same effect (treatment without complications or with similar complications). The assessment depended

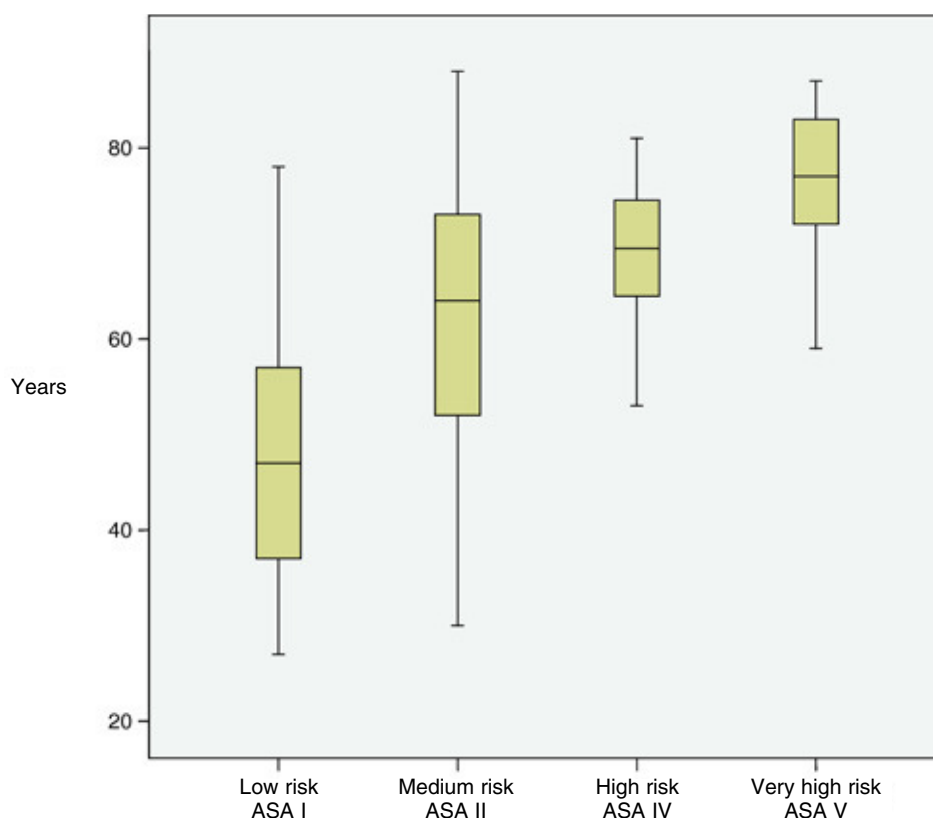


Figure 2 – Previous ASA risk factors and age in cases attended.

on the distance in time for accessibility to the treatment centre, taking into account that all the parameters were the same in both cases as the main difference was the absence of hospital beds in the outpatient surgery centre (SCDT of Tarancon).

Calculation of costs

We have used the original tables from a previous study of costs involved in patient health care excluding direct and allocated structural costs, but including journeys, indirect costs due to loss of work, unofficial care at home, and work substitutions.²⁹

We have considered direct costs of health care and allocated costs to be comparable in both centres as they are identical outpatient units in terms of staffing, structure, materials (both are dependent on the hospital) and support units (duty emergency department with recovery/observation room and resuscitation room). To calculate the cost of travelling, we assigned the values for expenses for mileage derived from the travelling expenses agreement for public staff, undersigned by the *Junta de Comunidades* (Association of Communities), Castilla-La Mancha. In this point we have considered all the journeys made by the patient to complete their treatment and post-surgical follow-up. The value of the cost of unofficial home care, loss of work and substituting an employee on sick leave were calculated in accordance

with the values for the minimum inter-professional salary for 2008 published by the National Institute of Statistics (INE). In this section, costs were attributed using the value mentioned above as a base, calculating the arithmetic mean of hours and days of unofficial care at home and considering as the mean a month of sick leave and substitution of the patient at work (publication of the National Institute of Social Security [INSS] about standard times of temporary inability to work). This baseline data was used as the occupation of each patient was not known, and the high percentage of patients (44%) over retirement age was taken into consideration. Likewise, for unofficial care at home, costs were attributed based on data from the National Institute of Statistics (INE) as in nearly all cases home care was given by direct relatives (spouse, siblings, children). To calculate the cost of inter-hospital patient transportation (for cases requiring admission from the outpatient unit), values were attributed obtained from the patient transport tender in Castilla-La Mancha in 2008.

Assessment by the patients of the quality of health care

During the postsurgical check-up each patient was asked to fill in a survey regarding their satisfaction with the process. This included questions with closed answers related to overall satisfaction, the need for unofficial care at home, level of education, waiting time prior to surgery, and preferences

with regard to health care with improved geographical accessibility (Attachment 1).

Results

A study was performed of 133 cases fulfilling the inclusion criteria with a mean age of 59.9 years (Table 1). All the cases were operated on for a primary abdominal wall hernia. The operations were performed in Cuenca hospital (reference hospital in the Health Area). The patients included 106 men (79%) and 27 women (21%), aged between 27 and 88 years. With regard to post-operative risk factors, in accordance with the American Society of Anaesthesiologists (ASA) criteria, 48 were ASA I (36%), 54 ASA II (41%), 18 ASA III (13.5%), and 13 ASA IV (9.5%). A study was made of the association between the age groups and the different levels of post-operative risk using the ASA classification (Figure 2). Regarding their place of residence in relation to the reference hospital, most patients lived between 31 and 60 minutes from the hospital, while 80 patients lived within 30 min of the peripheral centre (Table 2). All the patients were operated on using a tension-free technique with a mean hospital stay of 1.74 days. Of these, 81 were admitted for 1 day or less, 15 were treated with general anaesthesia, 90 with regional anaesthesia and 28 received local anaesthesia with sedation.

The analytical study between the variables by distance to both centres (Table 2) shows an association between variables with regard to the number of post-operative admission days segmented by the number of admission days with Chi square test $P>.005$, directional measure $P>.005$, and symmetrical measures $P>.005$ in all the segments analysed. This highlights the dependent relationship of hospital admission with regard to the isochrones to the hospital in Cuenca (IsoC) and to the Specialist Centre in Tarancon (IsoT), with no differences established between them.

The total cost of accessibility for each treatment process was calculated taking into consideration the partial costs attributable to each case treated, considering the variables distance to the hospital or to the outpatient unit (isochrone) and the type of anaesthesia, applied to the total number of cases treated in each group. The results were 209,088.94€ in the hospital treatment group (Table 3), and 208,028.09€ was the theoretical cost if they had been treated in the

Table 1 – Central and dispersion statistics

Sample size, No.	133
Mean	59.99
Median	63.00
Mode	64
Standard deviation	15.343
Variance	235.401
Asymmetry	-.282
Kurtosis	-.837
Source: Authors' own.	

outpatient unit (Table 4). The difference between the two was 1,060.85€.

Once the different cases were separated and grouped by distance to the treatment centre and the necessity or not of post-surgical admission, the following data of costs were obtained for unhospitalised patients for both centres: 1,447.58€ for isochrone 1; 1,537.586€ for isochrone 2; and 1,627.586€ for isochrone 3. Differences were found in the cost when patients were hospitalised (Table 5).

The results in the costs of accessibility per patient and incremental cost-effectiveness showed no differences in the unhospitalised cases, and minimal differences in the cases requiring post-operative admission (Table 6).

The data from the satisfaction survey carried out on treated patients in the check-up a month after discharge showed a level of satisfaction equal or over 8 out of 10 in 83.8% of cases (mean 8.89), with a total of 93.8% of patients who would recommend being included in the outpatient surgery scheme. These figures remain the same if the hospital were replaced by an outpatient unit nearer to their home, provided that the conditions of health care were remained the same. Unofficial care at home was needed by 53.1% of the patients. Of these 23.5% needed care between 1 and 4 days after the operation, and 46.9% did not require help to perform everyday activities after discharge. Regarding the patients' educational level, 67.5% had no formal education or had completed primary education, 26.6% had completed upper secondary education or professional training, and 6.3% had completed university education. The mean time on the waiting list for surgery was 64.34 days, and patients required a mean of 4.7 days of post-operative analgesia at home. No association was shown

Table 2 – Length of the journey from home to the health centre

	Virgen de la Luz Hospital (Isochrones to Cuenca)		Centre for Specialities, Tarancon (Isochrones to Tarancon)	
	Frequency	Percentage, %	Frequency	Percentage, %
Under 30 minutes	2	1.5	83	62.4
Between 31 and 60 minutes	80	60.2	49	36.8
Between 31 and 60 minutes	51	38.3	1	0.8
Total	133	100.0	133	100.0

Source: Authors' own.

^aPopulation attended from the Tarancon basic health zone.

Table 3 – Total costs per patient and hospital in accordance with isochrones and type of anaesthesia

Cost/ patient		Local and sedation			Regional			General		
		Hospital	No.	Total	Hospital	No.	Total	Hospital	No.	Total
Isochrone 1	Not hospitalised	1,447.586	0	0	1,447.586	0	0	1,447.586	0	0
	Admitted for 1 day	1,447.586	0	0	1,447.586	3	4,342.758	1,447.586	0	0
	Hospitalised	1,447.586	0	0	1,447.586	0	0	1,447.586	0	0
Isochrone 2	Not hospitalised	1,537.586	15	23,063.79	1,537.586	0	0	1,537.586	0	0
	Admitted for 1 day	1,537.586	1	1,537.586	1,537.586	32	49,202.752	1,537.586	1	1.537.586
	Hospitalised	1,537.586	0	0	1,537.586	22	33,826.892	1,537.586	5	7.687.93
Isochrone 3	Not hospitalised	1,627.586	9	14,648.274	1,627.586	1	1,627.586	1,627.586	0	0
	Admitted for 1 day	1,627.586	3	4,882.758	1,627.586	14	22,786.204	1,627.586	3	4.882.758
	Hospitalised	1,627.586	0	0	1,627.586	18	29,296.548	1,627.586	6	9.765.516
Total			28	44,132.408		90	141,082.74		15	23.873.79
										€782,412.20

Source: Authors' own.

Table 4 – Accessibility costs per patient and CSDT in accordance with isochrones and type of anaesthesia

Cost/patient		Local and sedation			Regional			General		
		SCDT	No.	Total	SCDT	No.	Total	SCDT	No.	Total
Isochrone 1	Not hospitalised	1,447.5860	18	26,056.548	1,447.5860	0	0	1,447.5860	0	0
	Admitted for 1 day	1,549.43	3	4,648.29	1,549.43	35	54,230.05	1,549.43	2	3,098.86
	Hospitalised	1,549.43	0	0	1,549.43	20	30,988.60	1,549.43	6	9,296.58
Isochrone 2	Not hospitalised	1,537.5860	5	7,687.93	1,537.5860	1	1,537.586	1,537.5860	0	0
	Admitted for 1 day	1,639.43	1	1,639.43	1,639.43	14	22,952.02	1,639.43	2	3,278.86
	Hospitalised	1,639.43	0	0	1,639.43	20	32,788.60	1,639.43	5	8,197.15
Isochrone 3	Not hospitalised	1,627.5860	1	1,627.586	1,627.5860	0	0	1,627.5860	0	0
	Admitted for 1 day	1,729.43	0	0	1,729.43	0	0	1,729.43	0	0
	Hospitalised	1,729.43	0	0	1,729.43	0	0	1,729.43	0	0
Total			28	41,659.78		90	142,496.856		15	23,871.45
										208,028.09

Source: Authors' own.

between the degree of satisfaction and the level of education (Phi, contingency coefficient and Cramer's V 0.072) but there was a correlation between the number of days of post-operative pain requiring analgesia and the overall degree of satisfaction ($P=0.000$) (Table 7).

Similarly, in general there is a high degree of satisfaction in the different age groups.

Discussion

In our study, the difference in the overall cost between both was 1,060.85€, showing that there are no significant differences between the health care in the two centres. The study comparing the geographical distance from patients' usual place of residence to the treatment centre reflects a difference clearly favouring the outpatient unit in most cases: 58.9% between 30 and 60 min and 38.5% between 60 and 90 min for the reference hospital in Cuenca, and 62% under 30

min and 37.2% between 30 and 60 min for the outpatient unit (Table 2). This means that geographical accessibility is better if treatment is given in the outpatient unit. Performing a stratified analysis using the criteria of previous risk and geographical distance, significant differences are not found with regard to the results for the cost of accessibility and incremental cost-effectiveness by patient.

The differences found are in the travelling costs for patients and their relatives and patient transportation costs for those needing to be hospitalised after the operation (necessary in patients treated in the peripheral unit, but not if the operation is carried out in the unit incorporated into the hospital).

From the point of view of economics, no clear improvement seems to be obtained for the health system by equipping a peripheral unit to carry out treatment that can be given in the unit incorporated into the hospital with only a slight increase in the budget. The savings from reduced travelling costs is offset by the costs of hospital transfers for those patients

Table 5 – Total accessibility costs per patient and healthcare centre depending on isochrones and type of anaesthesia

	Cost/patient	Local and sedation						Regional						General					
		Hospital			SCDT			Hospital			SCDT			Hospital			SCDT		
		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Isochrone 1	Not hospitalised	1,447.5860	0	1,447.5860	18			1,447.5860	0	1,447.5860	0	1,447.5860	0	1,447.5860	0	1,447.5860	0	1,447.5860	0
	Admitted for 1 day	1,447.5860	0	1,549.43	3			1,447.5860	3	1,549.43	35			1,447.5860	0	1,549.43	2	1,549.43	2
	Hospitalised	1,447.5860	0	1,549.43	0			1,447.5860	0	1,549.43	20			1,447.5860	0	1,549.43	6	1,549.43	6
Isochrone 2	Not hospitalised	1,537.5860	15	1,537.5860	5			1,537.5860	0	1,537.5860	1			1,537.5860	0	1,537.5860	0	1,537.5860	0
	Admitted for 1 day	1,537.5860	1	1,639.43	1			1,537.5860	32	1,639.43	14			1,537.5860	1	1,639.43	2	1,639.43	2
	Hospitalised	1,537.5860	0	1,639.43	0			1,537.5860	22	1,639.43	20			1,537.5860	5	1,639.43	5	1,639.43	5
Isochrone 3	Not hospitalised	1,627.5860	9	1,627.5860	1			1,627.5860	1	1,627.5860	0			1,627.5860	0	1,627.5860	0	1,627.5860	0
	Admitted for 1 day	1,627.5860	3	1,729.43	0			1,627.5860	14	1,729.43	0			1,627.5860	3	1,729.43	0	1,729.43	0
	Hospitalised	1,627.5860	0	1,729.43	0			1,627.5860	18	1,729.43	0			1,627.5860	6	1,729.43	0	1,729.43	0
Total			28		28				90		90				15		15		15

Source: Authors' own.

Table 6 – Total and incremental costs/patient in hospital and outpatient centre by distance from home (isochrones) and type of anaesthesia used

	Cost/patient	Local and sedation						Regional						General					
		Hospital			Incremental cost/patient			Hospital			Incremental cost/patient			Hospital			Incremental cost/patient		
		CSDT	Hospital	CSDT	Hospital	CSDT	Hospital	CSDT	Hospital	CSDT	Hospital	CSDT	Hospital	CSDT	Hospital	CSDT	Hospital	Incremental cost/patient	Incremental cost/patient
Isochrone 1	Not hospitalised	1,447.5860	1,447.5860		–			1,447.5860	1,447.5860		–			1,447.5860	1,447.5860		–		
	Hospitalised	1,549.43	1,447.5860		33.95			1,549.43	1,447.5860		1.96			1,549.43	1,447.5860		12.73		
Isochrone 2	Not hospitalised	1,537.5860	1,537.5860		–			1,537.5860	1,537.5860		–			1,537.5860	1,537.5860		–		
	Hospitalised	1,639.43	1,537.5860		–			1,639.43	1,537.5860		–3.18			1,639.43	1,537.5860		101.84		
Isochrone 3	Not hospitalised	1,627.5860	1,627.5860		–			1,627.5860	1,627.5860		–			1,627.5860	1,627.5860		–		
	Hospitalised	1,729.43	1,627.5860		–33.95			1,729.43	1,627.5860		–3.18			1,729.43	1,627.5860		–11.32		

Source: Authors' own.

Table 7 – Chi square test and bivariate correlation statistical analysis

		Chi square test			Correlation	
		Value	df	Asymp. sig. (bilateral)	Pearson correlation	Sig. (bilateral)
Satisfac.* studies	Pearson's Chi square test	35.964	25	0.072	−0.033	0.793
	Likelihood ratio	33.629	25	0.116		
	Phi, Cramer's V, Contingency coefficient			0.072		
Satisfac* days of pain	Pearson's Chi square test	91.103	60	0.006	−0.527	0
	Likelihood ratio	59.155	60	0.507		
	Phi, Cramer's V, Contingency coefficient			0.006		
[20]Satisfac* SWL	Pearson's Chi square test	205.545	220	0.749	−0.223	0.076
	Likelihood ratio	143.631	220	1.000		
	Phi, Cramer's V, Contingency coefficient			0.749		
Main variable: level of satisfaction.						
Dependent variables: educational level, days of pain and surgery waiting list.						

requiring hospitalisation. However, from the point of view of the persons receiving the treatment, it is much better to use the resources based on the criterion of proximity provided that the quality and safety of the treatment remains the same. This involves less trouble and a decreased waste of time and money, increasing the chances of receiving more accessible health care. The efficiency of the investment made is hardly affected by the use of one centre or another, and bringing these closer to the population receiving treatment must be, wherever possible, a main objective.

Patients value highly both geographical accessibility and medical support before and after surgical treatment. Among the most important elements highlighted by patients are the time on the surgery waiting list, the control of post-operative pain, the delay in returning to their everyday tasks after surgery, and the availability of direct access to health care and ongoing information until the treatment process is over.^{17,30-34} In our case, these were also the most requested points by the patients attended, and this was highlighted in the satisfaction survey a month after surgery. Among the results obtained in the survey, the most relevant data are the high degree of overall satisfaction with the treatment received despite the need for unofficial care at home, the waiting time for surgery and the time that they needed analgesia after discharge. No differences of opinion were observed between

the patients with regard to their educational level, but the results showed the need to take analgesic medication in the days after surgery affected the overall degree of satisfaction. Furthermore, the possibility of replacing the hospital where they were treated with an outpatient unit nearer to their home was welcomed by the majority, on the condition that the same pre-treatment services and above all the health care afterwards were maintained.

This study presents real data from surgical treatment given to a segment of the population in the hospital, and a simulation of how the same surgery could alternatively be provided if the service was transferred to a specialist outpatient surgery unit which currently operates as a centre for outpatient consultations. What we have shown is that it is not economically more efficient to promote this change as the costs and results would be very similar. However, at a social level it would be profitable due to the patients' preference, provided the same levels of quality and safety are maintained, to be attended in a centre which is nearer to home and more accessible.

Conflict of interest

The authors affirm that they have no conflict of interest.

Appendix 1. Patient satisfaction survey at the 30-day check-up

Satisfaction survey of users of the Major Outpatient Surgery Unit,
Virgen de la Luz Hospital. Cuenca

My gender is (tick one answer)

- ☐ Male ☐ Female

Place of residence in relation to the hospital (tick one answer)

- ☐ Less than 30 min by road
☐ Between 30 and 60 min by road
☐ Between 60 and 90 min by road
☐ Over 90 min by road

Place of residence in relation to the SCDT in Tarancon (tick one answer)

- ☐ Less than 30 min by road
☐ Between 30 and 60 min by road
☐ Between 60 and 90 min by road
☐ Over 90 min by road

1. Did you have to go back to casualty or consult your doctor before removing the stitches? Tick one answer

- ☐ Yes, to casualty ☐ Yes, to my health centre
☐ No

2. Were there any complications when your stitches were removed? Tick one answer

- ☐ Yes ☐ No

3. Did you have to be re-admitted to hospital? Tick one answer

- ☐ Yes ☐ No

4. Why did you have to be re-admitted to hospital?

- ☐ Due to wound complications ☐ Due to decompensation of a previous disease
☐ Due to general complications caused by the operation ☐ Due to another reason

Appendix 1. Patient satisfaction survey at the 30-day check-up *(Continuation)*

5. How many days did you require help at home to carry out everyday activities? (Mark a response)

- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> None | <input type="checkbox"/> 1 to 3 |
| <input type="checkbox"/> From 3 to 7 | <input type="checkbox"/> More than 7 |

6. How many hours per day did you require help at home to carry out everyday activities? (Tick one answer)

- | | |
|--|--|
| <input type="checkbox"/> None of the above | <input type="checkbox"/> Between 10 and 30 minutes |
| <input type="checkbox"/> Between 30 and 60 minutes | <input type="checkbox"/> Over 60 minutes |

7. Who performed the care at home? (Tick one answer)

- | | |
|---|---|
| <input type="checkbox"/> None | <input type="checkbox"/> Spouse/partner |
| <input type="checkbox"/> Son/daughter | <input type="checkbox"/> Brother/sister |
| <input type="checkbox"/> Another person | |

8. What level of education did you complete? (Tick one answer)

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Primary |
| <input type="checkbox"/> Obligatory secondary | <input type="checkbox"/> Professional training |
| <input type="checkbox"/> University | |

9. How many days of oral analgesia did you need for the pain? (Tick one answer)

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Less than 3 days |
| <input type="checkbox"/> Between 3 and 7 days | <input type="checkbox"/> Between 7 and 14 days |
| <input type="checkbox"/> Over 14 days | |

10. How long were you on the surgery waiting list (SWL) before the operation? (Tick one answer)

- | | |
|---|---|
| <input type="checkbox"/> Less than a week | <input type="checkbox"/> Less than a month |
| <input type="checkbox"/> Between 1 and 3 months | <input type="checkbox"/> Between 3 and 6 months |
| <input type="checkbox"/> Over 6 months | |

Appendix 1. Patient satisfaction survey at the 30-day check-up (Continuation)

11. Would you recommend to a friend or relative needing this surgery to be included in the MAS or short-stay scheme? Tick one answer

☐ Yes

☐ No

12. In the same condition in which you were operated on, would you agree to continue your treatment and follow-up in the MAS unit in the Speciality Centre in Tarancon? Tick one answer

☐ Yes

☐ No

☐ Don't know

Below, score from 1 (very poor) to 10 (very satisfactory) the degree of satisfaction obtained for treatment in the MAS/short-stay scheme

1 2 3 4 5 6 7 8 9 10

Overall valuation

What do you rate most highly about the MAS/short-stay surgery scheme?

And the least?

How could it be improved?

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