

Original papers

Ambulatory surgery: the need for indexes of substitution

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The percentage figures for procedures which can be performed on an ambulatory basis vary in different studies from different institutions. This diversity seems to depend on individual clinicians' preferences for this type of surgery. Management policies for Day Surgery Units require follow-up and evaluation using accurate indexes of substitution. These make it easier to establish tangible objectives, give support to a system of incentives and enable comparisons to be made with other centres. The results of this study show how such an index can be used to monitor the shift in emphasis from inpatient to outpatient care for different surgical procedures and Day Surgery Units.

Key words: Ambulatory surgery, day-care surgery, management

In recent years, the demand for surgical treatment has increased considerably in Western countries. The increase in life-expectancy and in the quality of life, together with technological innovations in the fields of anaesthesia and surgery, are responsible for this increase. Budget limitations have given rise to the appearance of various alternatives to the conventional system of hospitalization: day hospital, home care, ambulatory surgery.

Ambulatory surgery has developed considerably in the last 15 years in the USA and Canada. More recently it has been introduced to Europe and is taking root progressively in different countries. This alternative system of treatment implies a considerable change in medical practice, which is not always accepted by the majority of professionals. The possibility of developing ambulatory surgery depends on several factors, but a modification in the attitude of surgeons is essential. The performance of a Day Surgery Unit (DSU) is closely related to a favourable attitude towards the practice of operations on an ambulatory basis.

The management of any DSU integrated in a medical care centre requires a mechanism for evaluating results and knowing the degree of acceptance of this type of surgery by the professionals involved.

The objective of this paper is to explore the possibilities

of obtaining an index by which the operation of a DSU can be optimized.

Materials

During the period October 1990 to November 1992, an account has been kept of the procedures carried out in the Hospital de Viladecans. More than 150 different ICD-9-CM (International Classification of Diseases (review) 9 Clinical Modification) procedure codes were gathered into 32 groups for easier analysis (Table 1). The number of operations performed involving hospitalization was 4874, and the number carried out in the DSU was 5595. This DSU (the Unitat de Cirurgia Sense Ingrés - UCSI) uses an area independent of the rest of the surgical block, and is comprised of two operating theatres, an immediate post-surgical reanimation room, a recovery room and the essential elements for administration, dressing rooms, waiting room, etc. . .¹.

In an operating theatre, 1812 operations of average complexity are carried out under various types of anaesthesia (general, locoregional, or local with sedation). This surgery is called Major Ambulatory Surgery (MAS)².

To establish the index, comparison is made between the numbers of ICD-9-CM category procedures performed on an ambulatory basis within a given period of time and the number of similar procedures carried out on the basis of conventional hospitalization. This is expressed as a ratio. In this way, the index reflects the degree to which emphasis has shifted from conventional to ambulatory treatment on a broad basis and also for a given procedure. Preselection of patients for ambulatory surgery enabled comparisons to be made between homo-

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Table 1. Grouped procedures (the different ICD-9-CM codes for the procedures performed in the UCSI have been classified in homogeneous groups)

G 1A	Inguinal hernia repair
G 1B	Crural hernia repair
G 2	Excision of breast lump
G 3A	Anal fistula incision
G 3B	Anal sphincter incision
G 5	Cytoscopy
G 6	Circumcision
G 7	Excision of Dupuytren's contracture
G 8	Carpal tunnel decompression
G 9	Arthroscopy, diagnostic and operative
G 10	Excision of ganglion
G 12	Cataract extraction
G 13	Correction of squint
G 14	Myringotomy
G 15	Sub-mucous resection
G 16	Reduction of nasal fracture
G 17	Operation for bat ears
G 18	Dilatation and curettage
G 19	Laparoscopy with/without sterilization
G 21	Other procedures of cranial or peripheral nerves
G 22	Lacrimal duct procedures
G 23	Conjunctiva, other eye procedures
G 24	Other nasal and tongue procedures
G 25	Procedures on lymphatic structures
C 26	Ventral hernia repair
C 27	Vasectomy
G 28	Gynaecological procedures
G 29	Hallux valgus
G 30	Surgical material extraction
G 31	Other hand or foot procedures
G 32	Skin/subcutaneous procedures
G 33	Pilonidal cyst excision
G 34	Haemorrhoidectomy
G 35	Other procedures

Table 2. MAS substitution index. Net values exclude patients undergoing emergency procedures and those who do not fulfil selection criteria for ambulatory surgery

	<i>Outpatient surgery</i>	<i>Inpatient surgery</i>	<i>Substitution index (%)</i>
Net	1528	1672	47.8
Gross	1812	4874	27.1

genized groups. Procedures performed on an urgent basis have been excluded.

Results

The net MAS substitution index (Table 2) reflects the tendency to perform surgery on an ambulatory basis. This index for our hospital is 47%. However, a lower value must be expected if the cases for ambulatory surgery are not preselected (including emergency procedures or patients who do not fulfil selection criteria). The gross MAS substitution index is 27% for our hospital (Table 2).

The net MAS substitution index is an average value

Table 3. Substitution index for specialties

<i>Surgical specialties</i>	<i>Outpatient</i>	<i>Inpatient</i>	<i>Substitution index (%)</i>
General surgery	240	497	32.6
Traumatology	223	242	48.0
Gynaecology	217	86	71.6
Ophthalmology	451	389	53.7
ENT	170	403	29.7
Urology	227	55	80.5
Total	1528	1672	47.8

Table 4. Substitution index for different surgical procedures

<i>Procedures</i>	<i>UCSI</i>	<i>Hospital</i>	<i>S.I.*</i>
Cataract and lens	362	340	51.6
Laparoscopic sterilization	140	51	73.3
Removal of adenoids and tonsillectomy	139	245	36.2
Cytoscopy	138	7	95.2
Hernia (inguinal)	91	222	29.1
Pilonidal cystectomy	65	80	44.8
Carpal tunnel decompression	55	42	56.7
Ectropion and lacrimal duct	54	8	87.1
Circumcision <18 years old	51	47	52.1
Arthroscopy with/without procedure	50	8	86.2

*Substitution index (%).

combining the different values for the different specialties (Table 3). In our hospital, the net substitution index is maximal for urology 80.5%, and declines to 29.7% for ENT surgery. Between these values are the rest of the specialties: gynecology (71.6%), ophthalmology (53.7%) and general surgery (32.6%).

The MAS substitution index can also be applied to individual procedures (Table 4). Cystoscopy (95.2%), eyelid surgery (87.1%), arthroscopy (86.2%) and laparoscopic sterilization (73.3%) are procedures with a substitution index greater than 70%.

Discussion

In October 1990, the Hospital of Viladecans inaugurated an autonomous Ambulatory Surgical Unit integrated in the main building (the Unitat de Cirurgia Sense Ingrés)². The objective of this unit is to perform surgical procedures regardless of the type of anaesthesia (general, locoregional or local with sedation), where, after a period of time, the patient can be discharged on the day of operation.

Having this unit permits the development of a programme of major ambulatory surgery, i.e. the facility to perform a series of procedures which, until the opening of this unit required hospitalization. Since then the UCSI, as an alternative system to hospitalization, has allowed a 20% increase in surgical activity without the need to increase the number of inpatient beds.

Prior to opening the unit a working plan was developed

whereby patient selection was included in a protocol together with a listing of procedures.

The implementation of ambulatory surgery in different countries has not been easy. There are different reasons for this, the main ones being: lack of information on correct procedures; inadequate resources; lack of specialists; poor organization of units; inadequate financing systems³, etc. . . . The relative importance of these vary according to the characteristics of the country and the type of health service.

Nevertheless, a resistance to change among clinicians is a common factor in different countries. The practice of ambulatory surgery means a substantial change in normal working practices predisposing to insecurity. The support of different scientific societies and official organizations, which is fundamental in this alternative health system, can bring about a change in attitude of the professionals and minimize the legal problems attributable to ambulatory surgery.

The practice of a given procedure on an ambulatory basis depends on several factors: the complexity of the procedure; the associated pathology; the patient characteristics, such as age, education, etc. . . . and social conditions. Nevertheless all this does not explain the great regional variability^{4,6}.

Various studies provide approximate percentage figures for procedures which can be performed on an ambulatory basis; the opinions of experts through consensus studies present figures which are generally very optimistic but in certain cases variable^{7,8}.

Nevertheless, it is useful to assess the activity of clinicians in each of the hospitals with a DSU. The substitution index allows the measurement of trends in ambulatory surgery in a day unit and enables comparison with other centres.

This index is influenced substantially by the predisposition and experience of clinicians, and this should not be forgotten in our attempts to achieve a positive attitude towards ambulatory surgery.

In our centre, which is under public ownership, and in which the doctor receives a salary for his work, it is important to look for systems of incentives. The substitution index permits the establishment of tangible objectives, which then enables a policy of management by objectives to be implemented. In this way, this index

permits, within the service, the establishment of a measure of the degree of acceptance of this type of surgery among the different members of the team.

The growth of ambulatory surgery will necessitate the development of a great number of DSUs. Their evaluation by health administrations should be based, not only on their output, but upon a knowledge of their case-mix and obtaining optimization data. This information will then provide a measure of the value of the alternative system to hospitalization.

Possessing a tool of objective management in a health system is of prime importance. The substitution index permits a way of evaluating the activity of a unit by its progress as procedures change from inpatient to outpatient cases.

The optimization of ambulatory surgery will necessitate the taking of decisions with the aim of displacing a whole series of procedures which at present are performed on hospitalized patients into an ambulatory setting. The degree of change that can be achieved will be determined by technical and quality issues. Outpatient care must never be inferior to inpatient care or there will be medical ethical problems.

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