



Growth potential of ambulatory surgery in The Netherlands

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Abstract

Objective: to determine the growth potential of ambulatory surgery in the Netherlands. **Setting:** St. Antonius Hospital, Nieuwegein and SIG Health Care Information, Utrecht. **Design:** descriptive. **Methods:** numbers of admissions in the period 1984–1995 were obtained from Dutch bases of the National Hospital Institution (NZi). From SIG Health Care Information numbers were obtained with regard to seven specified interventions in the years 1991–1995, i.e. breast tumour excision, inguinal hernia repair, varicose vein operation, laparoscopic sterilisation, knee arthroscopy, cataract operation and tonsillectomy. The potential increase if any of the number of interventions in day care was determined by placing the hospitals in order of decreasing proportions of day care, and subsequently applying the proportions of the 5th and 10th hospitals, respectively, to the whole group. **Results:** the number of day care admissions rose from 172 000 (9.9% of all admissions) to 649 000 (29.1%). Of all interventions studied, the percentage carried out in day care increased; the percentages varied greatly within hospitals as well as from one hospital to another. In 1995, the mean number of the seven interventions in day surgery was 115 000 (57% of all 201 000 interventions). The shift from interventions during hospitalisation to day care would be 42 000 and 51 000 (21 and 25%, respectively, of 201 000), respectively; operations performed in day care would then amount to 166 000 (83% of the total number of interventions) and 157 000 (78%). **Conclusion:** of the interventions studied, the proportion carried out in day care increased to 57%. In view of the interhospital differences, a considerable increase of day care is possible in the near future. © 2000 Published by Elsevier Science B.V. All rights reserved.

Keywords: Ambulatory surgery; Growth potential; The Netherlands

1. Introduction

Various interpretations of day-care exist: it may be defined as an office procedure, e.g. the removal of a sebaceous cyst, or a hospital stay of less than 24 h for any given intervention. In The Netherlands the National Advisory Board on Intramural Health Care Planning and Building formulated the following definition: day-care is hospital care during several hours, which is generally available and necessary, for a diagnostic procedure or treatment by a medical specialist [1]. Ambulatory surgery is the hospital care which a patient receives, who undergoes a surgical procedure and is admitted to and discharged from the hospital on the same day. It is not just the procedure itself.

The history of ambulatory surgery in The Netherlands started in 1973 with the introduction of children's

tonsillectomies at the Maria Hospital in Haarlem. The first daycenter was established at 'De Weezenlanden' Hospital in Zwolle in 1975. Since then the majority of Dutch hospitals have followed.

The objective of this study is to assess the quantitative development of ambulatory surgery in The Netherlands using national databases. In addition, further growth potential is calculated in two scenarios based on seven commonly performed operations in Dutch hospitals.

2. Methods

The number of all clinical and day-care admissions in the period 1984–1995 in The Netherlands were obtained from the database of the National Institute for Health Care Management (NZi). The average hospital stay per year was calculated for both day-care and clinical admissions and for clinical admissions only.

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After 1990 data became available for specific procedures performed either as ambulatory surgery or as an inpatient surgical procedure. These data were obtained from SIG Health Care Information in Utrecht for the period 1991–1995. Seven specific operations were selected including breast tumour excision, inguinal hernia repair, varicose vein surgery, laparoscopic sterilisation, knee arthroscopy, cataract surgery and tonsillectomy. In the case of inguinal hernia repair and tonsillectomy, patients aged ≤ 15 years were classified in a distinct group from those > 15 years old. Subsequently, the fraction of these seven interventions which were performed as ambulatory surgery procedures were calculated for each year for all 130 Dutch hospitals.

Only for the year 1995 were similar fractions calculated for each hospital separately. For privacy reasons these individualised data were not attributable to the hospitals. In this way it was possible to study the differences between the proportions of ambulatory surgery for each of the seven procedures within one hospital and to compare it with other hospitals.

Finally, the growth potential of ambulatory surgery of the seven interventions was calculated using two scenarios. The proportions of day surgery exhibited by the hospitals ranked fifth (scenario 1) and tenth (scenario 2) in decreasing order of proportion of ambulatory surgery, were assumed to be attainable for all of the hospitals in The Netherlands. The growth potential for every intervention was determined by calculating how many interventions would be performed in ambu-

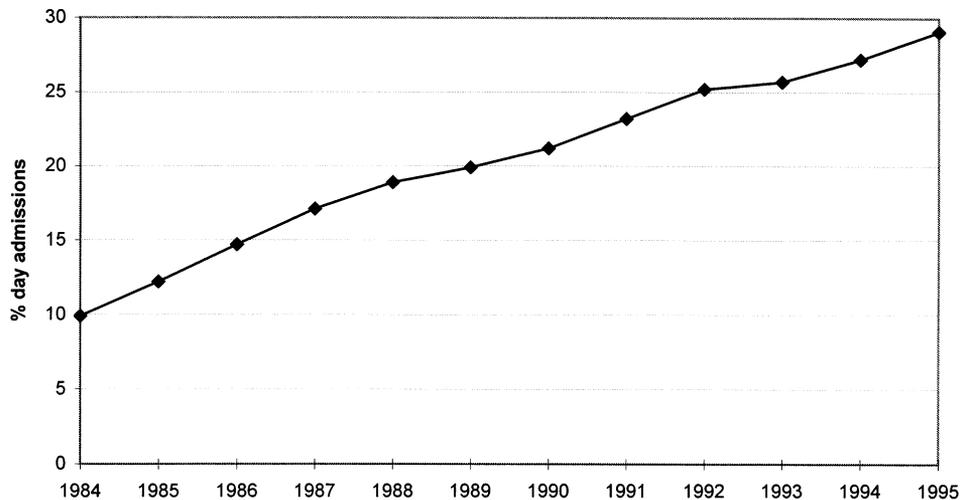


Fig. 1. Percentage day care of all admissions in the years 1984–1995 (source: National Institute for Health Care Management).

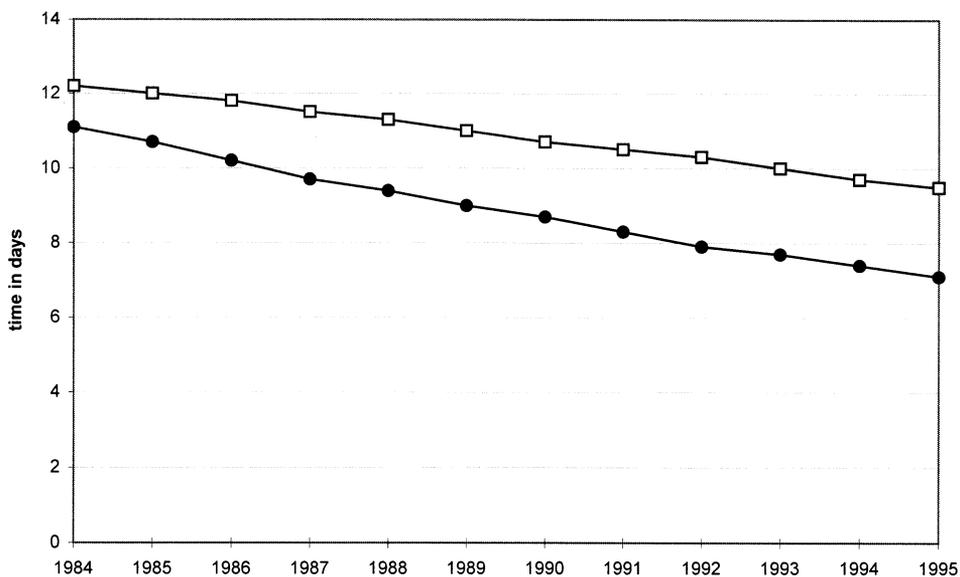


Fig. 2. Average hospital stay in days in the period 1984–1995: inpatient admissions (□); inpatient admissions and day care (●) (source: SIG Health Care Information).

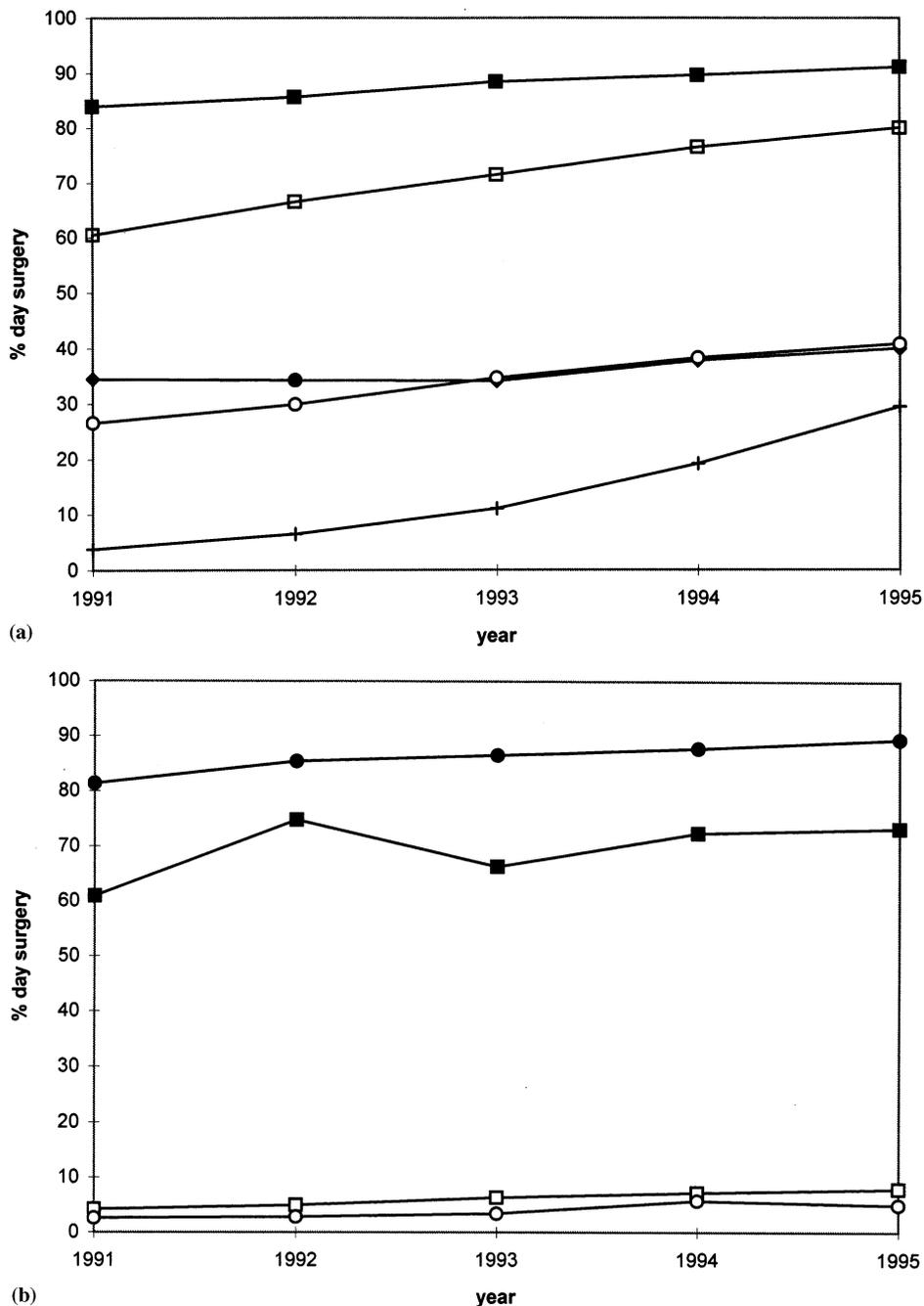


Fig. 3. Percentage day surgery of all interventions regarding seven interventions in the period 1991–1995: (a) breast tumour excision (●), varicose vein surgery (○), laparoscopic sterilisation (■), knee arthroscopy (□) and cataract surgery (+); (b) inguinal hernia repair upon patients ≤15 (■) and >15 years old (□), tonsillectomy upon patients ≤15 (●) and >15 years old (○) (source: SIG Health Care Information).

latory surgery if all hospitals achieved the percentage found in scenarios 1 or 2.

3. Results

The total number of admissions in The Netherlands increased by 27.4% from 1.75 million in 1984 to 2.23 million in 1995. The number of day-care admissions increased from 172 000 (9.9% of all admissions = clinical + day care) to 649 000 (29.1%) (Fig. 1).

In the same period the hospital stay of inpatient hospital admissions decreased from 12.2 to 9.5 days. The decrease is even more if the hospital stay of all cases is considered (Fig. 2).

All seven investigated interventions showed an increase in the proportion of day cases from 1991 to 1995 (Fig. 3). There is a large variation in the proportions of ambulatory surgery for each of the seven selected operations among the hospitals (Table 1). Even within one hospital the percentage of each procedure in ambula-

Table 1
Median and range of percentages day surgery (per hospital) of all hospitals in The Netherlands in 1995 (classified for the seven interventions)^a

Intervention	Median (range)
Breast tumour excision	38 (2–88)
<i>Inguinal hernia repair:</i>	
Patients ≤15 years old	77 (20–100)
Patients >15 years old	4 (0–100) ^b
Varicose vein surgery	29 (1–93)
Laparoscopic sterilisation	94 (11–100)
Knee arthroscopy	89 (12–100)
Cataract surgery	27 (0–86)
<i>Tonsillectomy:</i>	
Patients ≤15 years old	91 (11–98)
Patients >15 years old	2 (1–88)

^a Source: SIG Health Care Information.

^b In one hospital only two patients >15 years old underwent inguinal hernia repair in 1995 (both in day surgery). Without this hospital the range would be 0–59%.

Table 2
Number of interventions performed in day surgery (% day surgery of all interventions)

Intervention	Absolute number (%)		
	In 1995 ^a	Scenario 1 ^b	Scenario 2 ^c
Breast tumour excision	4695 (40)	9362 (80)	8425 (72)
<i>Inguinal hernia repair:</i>			
Patients ≤15 years old	4200 (73)	5341 (93)	5169 (90)
Patients >15 years old	1612 (9)	8151 (46)	5848 (33)
Varicose vein surgery	3594 (43)	7453 (89)	7285 (87)
Laparoscopic sterilisation	13 597 (91)	14 783 (99)	14 633 (98)
Knee arthroscopy	11 883 (83)	14 356 (100)	14 069 (98)
Cataract surgery	16 865 (32)	40 951 (77)	36 164 (68)
<i>Tonsillectomy:</i>			
Patients ≤15 years old	58 215 (89)	63 800 (97)	63 800 (97)
Patients >15 years old	510 (6)	2017 (22)	1467 (16)
Total	115 171 (57)	166 214 (83)	156 860 (78)

^a Source: SIG Health Care Information.

^b In scenario 1 the percentage day surgery in all hospitals is equal to the percentage which the hospital ranked fifth, when arranging all hospitals in decreasing order of proportion of day surgery, exhibited in 1995.

^c In scenario 2 the percentage day surgery in all hospitals is equal to the percentage which the hospital ranked tenth, when arranging all hospitals in decreasing order of proportion of day surgery, exhibited in 1995.

tory surgery may vary more than expected. A particular hospital can score a high percentage of ambulatory surgery in one procedure, but low in another. None of the hospitals had highly ranking day care proportions for all seven interventions.

In 1995, 115 000 (57%) of the seven investigated interventions were performed in ambulatory surgery. Scenario 1 suggests a potential increase to 166 000 interventions (83%) and scenario 2 to 157 000 (78%) (Table 2).

4. Discussion

In 1984 the Health Insurance Funds Council advocated the substitution of inpatient care by day care, which would lead to a more efficient use of available resources [2]. The percentage of day care has risen from approximately 10–29% since that time. This increase can be considered as a consequence of surgical, anaesthetic and financial factors. Surgical factors included the recent introduction of minimally invasive techniques, such as endoscopic surgery and phaco-emulsification (technique for cataract treatment) [3,4]. New, short-acting anaesthetics, such as propofol, result in a swift recovery. One of the major stimulating financial factors was the increase in the hospital's re-imbursment for a day-care admission. This tariff grew from 57 euros in 1983 to 91 euros in 1987 and has stabilised at 170 euros since 1988. This is still low compared to the tariff for an inpatient admission. It is not clear how the savings made, e.g. by the reduction of evening, night and weekend shifts of nurses, counterbalance the investment and running costs. The eventual financial consequences of ambulatory surgery for hospitals remain controversial [5–12]. It is obvious that insurance companies consider ambulatory surgery to be more attractive, which they reflect by sponsoring initiatives to increase the proportion of ambulatory surgery in certain areas [5–8,10,12].

There are striking differences between the proportions of ambulatory surgery performed in different hospitals. In addition, within any given hospital, a great variation exists between the individual interventions. Acceptance and local habits may play a part in this situation. The application of day care is highly dependent on the attitude and interest of managers, doctors and nurses. The presence of an adequate infrastructure for ambulatory surgery is mandatory.

The percentage of day care cases rose approximately 2% per year during the last 12 years. This is equal to approximately 45 000 interventions a year. Based on the given scenarios of the seven investigated interventions, one can still calculate a substantial growth by substitution only.

Whether a further increase of ambulatory surgery is desirable should ultimately be determined by further studies concerning the quality of care and patients' satisfaction. Although the additional load on general practitioners and district-nurses appears small to us, this will also need further investigation. The quality of care remains the most important objective, whether it is given as an inpatient or a day case.

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References

- [1] College van Ziekenhuisvoorzieningen. Advies inzake dagverpleging in algemene ziekenhuizen 1987.
- [2] Ziekenfondsraad. Dagverpleging in ziekenhuizen en zwakzinnigeninrichtingen 1984:286.
- [3] Go PMNYH, Froeling FMJA, Cilissen LAM, Yzerman A. Inleiding. In: Go PMNYH, Froeling FMJA, Cilissen LAM, Yzerman A, editors. Endoscopische Chirurgie. Utrecht: Wetenschappelijke Uitgeverij Bunge, 1995.
- [4] van den Berkt AC, de Waard PWT, Pameijer JH. Comparisation between postoperative astigmatism after classic extracapsular lens extraction and after phacoemulsification with implantation of a Pearce tripod or Pearce vaulted Y-loop intraocular lens. *Doc Ophtalmol* 1992;82:1–7.
- [5] Algra W. Eerstelijng neemt nazorg voor rekening. *Ziekenhuis* 1991;21:830–2.
- [6] van den Hoeven HA, Kalsbeek GFA, Kessels-Buikhuisen M, Sjer MT, Wissink GJ. Grensverleggende dagverpleging. *Med Contact* 1994;49:1563–5.
- [7] van Duijn FW. Dagverpleging biedt voordeel voor alle partijen. *Ziekenhuis* 1994;2:80–2.
- [8] Sol JCA, van de Ven ACM, Pameijer JH, Hiddema UF. Voordeelen van dagbehandeling bij cataractoperaties. *Med Contact* 1994;24:807–9.
- [9] Informatiereeks Landelijke Specialisten Vereniging (LSV). Dagbehandeling. Utrecht: LSV, 1984.
- [10] Ankoné A. Effecten en mogelijkheden van dagverpleging. *Med Contact* 1994;23:757–8.
- [11] Grasveld-van Berckel MA. Kwaliteit van dagverpleging. *Med Contact* 1993;11:333–6.
- [12] van Kemenade YW, Schouten JW. Dagverpleging: financieel ondoorzichtig. *Med Contact* 1993;48:1525–8.