

Review

Ambulatory surgery in Germany 2004 and historical aspects

Jost Brökelmann*

Gynecology Day Clinic, Friedensplatz 9, D-53111 Bonn, Germany

Received 1 July 2005; accepted 25 November 2005

Available online 23 January 2006

Abstract

Ambulatory surgery in Germany is mostly performed in private units like day clinics, specialized doctor's offices and ambulatory surgery centres. In contrast, hospitals prefer inpatient treatment. Their hierarchical system often inhibited introduction of new techniques like endo-microsurgery. Total costs of tracer procedures are half in private units as compared to hospitals, and this at the same quality level. This points to an inherent inefficiency of the hospital system for most procedures that can be handled on an ambulatory base.

© 2005 Elsevier B.V. All rights reserved.

Keywords: Hospital system; Staff organisation; Day clinics; Quality assessment system; Patient questionnaires; Total costs per case; Costs per operating hour; DRG-based fees

Contents

1. History of progress in surgical techniques	173
2. History of outpatient/ambulatory versus inpatient surgical treatment	174
3. History of hospital staff organisation	174
4. Hospital owners/hospital finance	174
5. Primary reason for ambulatory surgery	174
6. Ambulatory surgery	174
7. History of day clinics	175
8. Size of day clinics	175
9. Major ambulatory procedures	175
10. Quality management	175
11. Complication rates (Bonn)	175
12. Total costs per case of tracer procedures	175
13. Actual costs in a day clinic (gynecology, Bonn)	176
14. DRG-based fees for ambulatory surgery	176
15. Summary	176
Reference	176

1. History of progress in surgical techniques

Surgery throughout the centuries mainly depended upon the progress in surgical techniques.

The beginning of advanced surgery may well be put to a date around 300 B.C. when vascular ligation was practiced in Alexandria. Throughout the Roman Empire and the Middle Ages there was little progress in surgical treatment. Paré (1510–1590), “Father of the French Surgery”, and Vesalius (1514–1564) stand for the beginning of a new era in surgery and surgical anatomy. Between 1850 and 1900 great progress

* Tel.: +49 228694979; fax: +49 228650299.
E-mail address: jost.broekelmann@web.de.

was made in the fields of hygiene, anaesthesia and hemostasis (electrocautery, suture material). After 1947 antibiotics (penicillium), microsurgery (using the microscope or magnifying glass) and endoscopy (laparoscopy) allowed advances in surgery so that after approximately 1992 major surgical procedures like hysterectomy, cholecystectomy and sigma resection could be performed by endo-microsurgery.

2. History of outpatient/ambulatory versus inpatient surgical treatment

Throughout the ages up to the middle of the 19th century surgery was mostly performed at home or on the battle field, that means in an ambulatory situation. However we know that the Romans already used some kind of hospital (valetudinarium) in their camps. It was only around 1800 under the influence of rationalism that hospitals for the sick changed into hospitals where diseases were treated. Around 1880—after progress in anaesthesia, hygiene and hemostasis—a wave of new hospital construction took place leading to a centralisation of surgery inside hospitals. Hospitals became larger and larger (Vienna “Allgemeines Krankenhaus”, Klinikum Aachen) almost up to the end of the 20th century.

But in 1971 the first day surgery center was built in Phoenix, Arizona (USA). This was the start into a new era where surgery—mainly because of financial reasons—was performed more and more on an ambulatory basis. By around 1995 already 75% of all surgery in the United States took place as outpatient or ambulatory procedures! Other countries like Germany did not take part in this process because the German health care system is favouring inpatient treatment, which is remunerated 3–10 times better than ambulatory treatment. Thus looking at ambulatory surgery in Germany only 3% is performed in hospitals, 97% in freestanding units.

3. History of hospital staff organisation

In order to understand the “German way” in hospital organisation especially in surgery we should look at hospital staff organisation in Germany. Since the 18th century the Prussian Military Academy in Berlin steadily expanded. After the defeat of the Prussians by Napoleon in 1806 the Prussian king enlarged the Military Academy and founded several universities with surgery departments, e.g. the “Charité” in Berlin and the University in Bonn. In the 19th century the Prussian Military Academy was the best-known surgical department in Germany, its head surgeons were at the same time professors for surgery at the Charité. Thus the military staff organisation of the Prussian Academy with its hierarchy (Ober- und Unterarzt, superior and inferior physician) was taken over by the Charité-University and afterwards by the rest of the German universities.

At about 1850 the clinical professors in Bonn usually had one assistant only. They had to do clinical and research work

mostly by their own. At about 1900 they had up to four assistants and one superior (head) assistant (Oberarzt). Thereafter the staff increased steadily. At about 1980 one “Chief” (head of the clinic = medical superintendent) in larger universities often directed 4–8 head assistants and 20–50 assistants. Thus the influence and the income of the head of such hierarchical structure—called “Chefarztsystem”—became great. This “Chefarztsystem” only flourished with hospitalized patients, not with outpatients. Therefore ambulatory surgery was not supported by the “Chiefs” although every university department had a polyclinic and thus could have performed surgical procedures on an ambulatory base.

4. Hospital owners/hospital finance

About 80% of all German hospitals now are public or non-profit, only about 20% are private. There used to be less private hospitals.

In 2003 94% of the public hospitals run a deficit and had to be supported by public resources. On the other hand private hospitals mostly managed a profit.

5. Primary reason for ambulatory surgery

Originally the primary reason for performing surgery on an ambulatory base was an ethical one. For instance, children are known to recover faster in the arms of her mother at home than in a hospital. That was the reason why Nicoll [4] started ambulatory surgery in children and Bourmer [1] did alike in Germany.

In the last 30 years other reasons for ambulatory surgery appeared, namely financial reasons (USA) and in Germany freedom to conduct surgery in his own unit without the hierarchy of a German “Chefarztsystem”. This could be achieved in Germany as a freelancer, either as surgeon with an adequate private clientele or as a panel doctor (a social health insurance [SHI] accredited doctor = Kassenarzt). The doctor’s fees of the SHI are very low, so these ambulatory surgeons will run an occupational risk as price for their freedom of profession.

6. Ambulatory surgery

Ambulatory surgery in Germany can be performed as panel doctors of the SHI or as a freelancer treating private patients. Since 1993 all hospitals are opened to ambulatory surgery at the same fees as panel doctors get. Because of the low prices only 3% of all ambulatory surgery in Germany is being done in hospitals on an outpatient basis.

Since January 1, 2004, all sickness funds of the SHI are allowed to contract directly with panel doctors without interference of the National Association of SHI-Accredited Physicians (Kassenärztliche Vereinigung), which hitherto acted as

a monopoly. This new law opened part of the SHI to the free market. The first dozen contracts of this so-called “integrated service” were DRG-based payments at the height of 50–90% of the DRG for inpatient procedures.

This new free market for ambulatory procedures does mean for freelancers:

- competition amongst doctors in day clinics and hospitals;
- full occupational risk;
- the quality in day clinics should be better than in hospitals;
- there is a strong need for quality management with feedback by patients.

7. History of day clinics

Germany has a long tradition of day clinics. The legal insurance against working accidents (Berufsgenossenschaft BG) holds a nationwide net of surgical offices with operating room facilities for working accidents. These offices called “D-Arztpraxen” are run by specialised surgeons with specific operating room facilities.

In 2003 altogether 29,599 of the 124,203 panel doctors of the SHI, i.e. 24%, were holding the license to perform ambulatory surgery. This surgery takes place in doctor’s offices (minor surgery), in day clinics and in the outpatient departments of hospitals.

Since 1993 all offices for ambulatory surgery (day clinics) have to be equipped in a similar way as for working accident surgery. Recently the requirements for day clinics increasingly are enforced. Therefore and because of deteriorating fees the number of panel doctors and also day clinics participating in ambulatory surgery is diminishing.

Today 1350 ambulatory surgeons—representing approximately as many offices or day clinics—are now members of the Federal Association for Ambulatory Surgery (BAO), which was founded in 1992. Most of these day clinics have small teams with one or two surgeons and 500–2000 surgical procedures per year.

The limit for the number of procedures per surgeon per year is much higher than in hospitals. In the field of gynecology it is approximately:

- 1400 procedures/a/surgeon if abortions are included;
- 1100 procedures/a/surgeon without abortions.

8. Size of day clinics

The largest day clinic is a gynecological day clinic in Hamburg where on the average 8500 procedures are performed per year in five operating rooms.

There is a large Eye Clinic in Bremen where even vitreoretinal eye surgery is done on an ambulatory basis. Other surgeons routinely perform cholecystectomies (Cologne) and advanced vascular surgery (Essen).

9. Major ambulatory procedures

Supracervical hysterectomy, breast cancer treatment, cholecystectomy, vascular shunts and vitreoretinal eye surgery, discectomy and partial thyroidectomy are all procedures which many clinicians cannot think of as being done on an ambulatory basis. Yet they are established in German day clinics since years.

10. Quality management

Traditionally quality management is divided into three types: structural, procedural and outcome quality.

Structural quality is good to have but so far it has not been shown to have an influence on wound infection.

Procedural quality plays an important role in process management and therefore has mainly financial aspects.

Outcome quality is most important for patients. It is best measured by complication rates on the basis of patient questionnaires. This is now established in the quality assessment system AQS1, a nationwide private system using questionnaires for each – surgeon, anaesthetist and patient – and benchmarking for every procedure (<http://www.medicaltex.de>).

11. Complication rates (Bonn)

Since 1990 the gynecological day clinic Bonn routinely uses patient questionnaires. The complications rates and anonymous case reports are being published yearly and send to the referring doctors. The overall complication rate over the last 10 years including hospital referral was 0.7% and the wound infection rate was 0.1% [2].

Since 2002 the day clinic participates in the quality assessment system AQS1.

12. Total costs per case of tracer procedures

In 1999 a study was published under the auspices of the German Ministry of Education, Science, Research and Technology on the evaluation of endoscopic and open procedures in hospitals and day clinics. Data on total costs per case of specific procedures were gathered and calculated. This study was undertaken in 1994–1995 [3]. The total costs including direct and indirect costs (care at home, time off work) were investigated for the following procedures: cholecystectomy, appendectomy, exstirpation of adnexal masses, extrauterine pregnancy, tubal sterilisation, subacromial decompression and meniscectomy. Total costs were substantially less for laparoscopic procedures in comparison to open ones; endoscopic procedures in day clinics cost about half as much as inpatient treatment (Fig. 1).

	Hospital - endoscopic	Hospital - open (laparotomy)	Day clinic endoscopic
Cholecystectomy	3869,- €	5294,- €	1601,- €
Adnexal tumorectomy	2711,- €	4753,- €	1415,- €

Fig. 1. Total costs per case [3].

These figures never have been doubted, yet they were hidden from the public because they would implement a drastic reform of the Germany hospital system.

13. Actual costs in a day clinic (gynecology, Bonn)

Since 1990 all costs were related to one operating room hour (ORH) because during this ORH a fulltime ambulatory surgeon is earning most of his income. These costs include the profits for the surgeon, which corresponds to the salary of a head assistant in hospitals.

In 2004 the average costs per 1 ORH and 1 surgeon were 640 €/h or 10.67 €/min. With two surgeons costs were 769 €/h calculating 129 €/h as doctor's fee.

The price for individual procedures will have to be adjusted taking into account (1) the extent of technical equipment, (2) the surgeon's training and (3) the work stress using a relative value scale like RBRVS (USA) or tarmed (Switzerland).

14. DRG-based fees for ambulatory surgery

Since 1.1.2004 a new law allows so-called integrated health provision ("Integrierte Versorgung"). This means that the "wall" between hospitals and day clinics/doctor's offices shall be bridged by contracts which individual sickness funds can sign with panel doctors for single or multiple procedures. These contracts mainly are based upon the DRG system and amount to 50–90% of the DRG fees for inpatient treatment. All procedures are

characterized by OPS-301 codes, which are correlated to DRGs.

15. Summary

Surgical progress and quality of work seem to be independent of the building (hospital, day clinic) where procedures are performed. They mainly are dependent upon the competence of the individual surgeon.

Pronounced progress in surgery recently came through endoscopic microsurgery as well as quality assessment by questionnaires of patients. Bench marking of tracer procedures will further increase outcome quality.

Economy plays a major role in medicine. In surgery a team around one operating room with one or two surgeons seems to be most efficient performing procedures up to 1 h operating time.

The total costs of surgical procedures are substantially less when surgery is performed on an ambulatory basis in freestanding units.

References

- [1] Bourmer H. Begrüßung. In: *Ambulantes Operieren*. Symposium am 26./27. Januar 1979 in Mainz, Hrsg. Friedrich-Thieding-Stiftung, Hartmannbund-Verlag Bonn; 1979.
- [2] Brökelmann J, Bung P. Komplikationsraten in der ambulanten operativen Gynäkologie. *Frauenarzt* 2002;43:1046–51.
- [3] Eichhorn S, Eversmeyer FH. *Evaluierung endoskopischer Operationsverfahren im Krankenhaus und in der Praxis aus Sicht der Medizin, des Patienten und der Ökonomie*. Thieme: Stuttgart, New York; 1999.
- [4] Nicoll JH. The surgery of infancy. *Br J Med* 1909:753–75.