Comparison of Hospital- and Office-Based Ambulatory Surgery in Germany: Surgery in small free standing units offers many advantages

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Abstract

Aim: To compare ambulatory surgery (AS) in hospitals and free standing units with regard to efficiency, quality and other indicators.

Results: Two-thirds of ambulatory procedures in Germany are performed in day clinics, one third in hospitals. There are equal competitive conditions for AS concerning structural quality, hygiene and payment. Diverging conditions exist in the fields of ownership structure, capital investment and training of workforce. A number of studies shows that ambulatory surgery in small free standing units is the most efficient way to perform surgery with high patient satisfaction.

Conclusion: Political and economic interests are the main obstacles on the way to a more efficient health care system.

Keywords: Ambulatory surgery, office based surgery, health care system, payment system.

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Introduction

Germany has a long history of both hospital surgery and surgery in specialized doctors' offices called day clinics. Thus ambulatory surgery (AS) was performed in policlinics of university hospitals since the 19th century. Also workers' accidents have been treated in small surgical units since 1884 when a compulsory accident insurance for workers was introduced by parliament. AS was practiced in pediatrics since 1968 and the first congress on AS took place in Mainz, Germany in 1979[1]. Additional fees for AS ("OP-Zuschläge") existed since 1981[2]. Thus Germany has lots of experiences in the performance of AS in various institutions. This situation offers itself to compare the efficiency of AS under various conditions.

Results

Framework of ambulatory surgery (AS) in Germany

Where is AS performed?

1. Specialized doctors' offices The majority of AS, namely 69 %, is performed in specialized doctors' offices called day clinics, praxis clinics, surgical centers, medical service centers ("MVZ"), and offices for workers' accidents called "D-Arzt-Praxen" (Table 1).

2. Hospitals They contribute 31 % of AS. Hospitals always had in-patient services, that is what they are built for. Since 1993 the majority of them also offers AS as out-patient service. Some hospitals are licensed to treat workers' accidents (in "D-Arzt-Praxen"). University hospitals usually have policlinics where they can perform ambulatory surgery.

3. General doctors' offices Ambulatory surgical procedures are not allowed any more to be performed in ordinary doctors' offices; only minor wound treatment is permitted there.

Table 1 Ambulatory Surgery in Germany.

Specialized Doctors' Offices	69 %
Hospitals	31 %
General Doctors' Offices	0 %

Type of health insurances in Germany

1. General insurance 89% of the German population is insured by the Social Health Insurance (SHI) which is mainly paid for by fees (at present 15,5 % of wages) of the working population. In addition tax money supports SHI.

2. Workers' Accident Insurance This insurance was installed in 1884 by legislation. It is also called Accident Insurance or Industrial Industries Insurance, in German "Berufsgenossenschaft", shortened BG. This insurance is paid for 100 percent by employers. It comprises a network of 3.458 specialized offices ("D-Arzt-Praxen") in 2.261 licensed day clinics and 1.197 licensed "D-Arzt-Praxen" in hospitals. The number of treatments in 2009 was 2.467.965 [3].

The regulations and fees for the accident insurance are similar to the private medical fee schedule (GOÄ), yet payment will be only 55 to 80% of the full private fees. These fees are still much higher than the fees of SHI. Probably because of this relatively fair payment there have been no noticeable political debates on the payment regulations of the Workers' Accident Insurance in the last decades.

3. Private insurances 11 % of the population is privately insured by a number of companies. There usually is no limitation in using medical services in hospitals, day clinics or doctors' offices. Payment is according to the private medical fee schedule (GOÄ).

The SHI system: Competition between hospitals and day clinics

For decades there has been a permanent competition between hospitals and day clinics. One reason is that hospitals were not allowed to perform ambulatory (AS) surgery until 1993. Then hospitals were opened to AS and real competition started.

Political struggles in the SHI-system are prevailing because of constant underpayment. This is not the case in the Workers' Accident Insurance system or in the private insurance system. Therefore only the SHI-system is analyzed in the following.

Equal conditions for competition

Structural quality The same qualifications are required for surgery in hospitals and in day clinics (see minimal standards[4]).

Hygiene The same rules apply for hygiene in hospitals and in day clinics. Both are controlled by government agencies.

Reimbursement For ambulatory surgery there is equal pay according to the Equal Fee Schedule [EBM]) both for hospitals and day clinics.

Diverging conditions for competition

Ownership structure

The majority of hospitals are public or non-profit organizations. On the other hand most day clinics are privately owned.

Capital investment

Hospitals are reimbursed about 10 % of capital investments by the local state. Day clinics are not supported.

Size of operating room (OR)

In hospitals operating rooms generally are large. In day clinics small ORs prevail in order to reduce costs. The lower limit of OR size is approximately 20 m²[5].

Workforce

Hospitals Their doctors mostly are residents during their postgraduate training. Residents are under supervision of at least one specialist. Hospitals traditionally are engaging nurses instead of medical assistants.

Day clinics They are run by certified specialists. Doctors usually work with special medical assistants who amongst others have received training in OR management. Their wages often are lower than those for nurses.

Studies on the efficiency of ambulatory surgery in the SHI system

Total costs of procedures

In 1999 Eichhorn and Eversmeier published a book on total costs of surgical procedures in hospitals and day clinics including postoperative treatment [6]. Some of their results are summarized in Table 2. Their conclusions were:

- Endoscopic procedures using re-usable instruments are less costly than conservative open surgery.
- Ambulatory surgery is less expensive than in-patient treatment.
- Costs for AS in hospitals are higher than in free standing day clinics.

Inability to Work

Table 3 shows the time of disability after tubal sterilization a) as in-patient procedure in a hospital and b) as ambulatory procedure in a day clinic. The disability time is much shorter after ambulatory surgery.

Table 3 Days of disability after Endoscopic Tubal Sterilization (600 patients) [7].

Hospitals	7.23 days
Day clinics	2.63 days
General Doctors' Offices	0 %

Wound infections

Postoperative wound infections in hospitals occur in about 16 % of surgical cases (Table 4) and are said to be mostly caused by nosocomial infections[8]. After ambulatory surgery in day clinics the wound infection rate in about 500.000 procedures was 3,1 % [9]. In some day clinics wound infection rate can be even lower than 1 %[10].

Table 4 Postoperative wound infections. National Surveys [9].

Hospitals	16%
Day clinics	3,1%

Process quality

Schulze showed in 2008 that process quality is lowest in a large hospital and gets better in a smaller hospital and is best in a day clinic. This is reflected in the costs for this indicator procedure (Table 5). Thus extirpation of varicose veins is most efficiently performed in day clinics.

Table 5 Process Quality – Costs of Extirpation of Varicose Veins [11].

Hospitals	666€
Day clinic at hospital	507€
Day clinic	284€

Patient satisfaction

Patient questionnaires prove that patient satisfaction is about 98 % after ambulatory surgery in day clinics [16]. Results of similar studies in hospitals have not been published yet as the corresponding quality assurance system SQS1 has only recently been introduced and results are not available yet.

Number of operating rooms (OR)

Smaller units with only one OR can be more efficient than larger ones with several ORs (Table 6). What obviously counts is the efficiency of one OR-team. This could be called the Airbus phenomenon. Only the full Airbus and the OR used to capacity will be most profitable.

Table 6 Number of Operating Rooms (OR) and Costs per Hour per OR [12].

Day clinic III	1 OR	339,- €/OR/h
Day clinic I	4 OR	348,- €/OR/h
Day clinic II	2 OR	447,- €/OR/h

Table 2 Total Costs per Case (in €)[6].

Type of Unit	Hospital - open surgery	Hospital - endoscopic	Day Clinic - endoscopic
Cholecystectomy	5294,-	3869,-	1601,-
Adnexectomy	4753,-	2711,-	1415,-
Tubal sterilization		1832,-	998,-
Subacromial decompression	6101,-	4656,-	3059,-

Payment

Most hospitals can perform the same procedure either as ambulatory or as in-patient procedure. Actually they are urged by law to perform the procedure as ambulatory if indicated. However, the fee for in-patient treatment paid as DRG procedure is about 4 x as high as the fee for the same ambulatory procedure in the EBM-system. Thus ambulatory surgery in Germany is heavily underpaid, at about 25 % of the DRG fees (Table 7).

Table 7 International questionnaire on reimbursement of AS in percentage of DRG [13].

Country	Reimbursement of DRG
Australia	<100%
Hungary	100%
Denmark	100%
Italy	80–100%
Portugal	72–100%
Finland	50-67%
Germany [14]	**25%** (14–38%)

Discussion

The afore mentioned studies on the SHI-system allow the following conclusions:

From the medical point of view Wound infection rates after ambulatory surgery are lower in day clinics than in hospitals. This possibly is due to the fact that in day clinics all surgery is performed by specialists, not by residents.

From the economical point of view There is evidence for a higher process quality in day clinics because procedures are performed by trained specialists who at the same time bear the financial risks for their enterprise. The efficiency of a surgical unit probably depends a) upon the cooperation among one OR team and b) upon the occupancy rate of that OR.

From the political point of view A switch from in-patient to ambulatory surgery could save the SHI system up to 515 million Euro[15].

From the patient point of view The patient satisfaction rate after AS in day clinics is very high, about 98 %[16]. This is probably caused by a good process quality and a fast recovery.

Despite these medical and economic advantages of AS over in-patient treatment for the same procedure Germany does not reach high percentages of AS like 80 % or even higher, as e.g. in the USA, but only about 50 %. One of the reasons for this lies in the chronic underpayment of AS in hospitals and day clinics.

It is interesting to note that both AS for diseases and AS for workers' accidents show a similar distribution between day clinics and hospitals, namely 2:1. This occurs despite the fact that both are paid for by different fee schedules. The similar distribution of ambulatory surgery and accident treatment in the country may reflect a pragmatic distribution of health services in an industrialized country.

Conclusion

It is feasible and recommendable to require and to enforce the same qualifications for smaller surgical units (like day clinics) and for larger ones (like hospitals). Quality in day clinics and hospitals has to be controlled by health authorities to meet high international standards.

What is necessary for achieving higher efficiency is a change in the management system of hospitals, i.e. from a hierarchical staff organization to team management around one OR unit.

Many people in Germany do not want to accept that performing in-patient treatment is much more expensive that ambulatory treatment especially if it is the same surgical procedure. Perhaps the present political pressure to reduce national debts will bring about a re-thinking in the direction that efficiency and patient satisfaction should play the main role in a health system.

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