

MEASURES AIMED AT IMPROVING MEDICAL SERVICES

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INTRODUCTION

Over the last decades the industry has developed very sophisticated programs for improvement of its performance and of the quality of its products. Most of these programs are characterised by a loop structure:

In a first step the process that one intends to improve is identified, and an analysis of the actual approach with registration at the workplace is made.

The next step is to plan possible interventions that could improve the outcome of the process.

Then a decision is made on which measures are the most appropriate (and feasible?), and those are implemented.

In a further step, and after the changes have been introduced for some time, a new evaluation is made to record the impact on the system. This evaluation will yield some new ideas for further improvement, and the cycle can start again.

This theoretical exercise must take place at the different levels in the management hierarchy, and each level has to contribute in a specific way:

The upper level (the board of directors, level 1) will propose a project and a planning in more general terms. It will ask for regular feed back reports on the progress of the project.

The department that is responsible for the field of activities (production, sales, housekeeping) where an intervention is planned (level 2), has to come to specific goals and describe the logistics (budget, personnel, equipment) necessary to realize these goals.

At the local level (level 3) the operational steps and the technical execution are planned.

In our hospitals these fundamental rules of business administration have been introduced under different names that cover each a specific aspect of our medical practice:

-Risk management in anesthesia with a special interest in critical incident analysis

-Utilisation management with, where necessary, a reallocation of resources (budget, personnel, equipment)

-Quality assurance (QA), aiming for an optimisation of the structure of the organisation (hospital, department) and of the production process (patient care, anesthetic services), which should result in a better outcome for the patient.

-Quality improvement (QI) measures introduced at the level of planning (for instance the surgical program in OR) or acting (for instance by teaching the difficult intubation guidelines).

-The last fashionable trend in this field is the development of “clinical pathways” in medical practice: this new approach aims at an integrated Quality Management, taking into account the complexity of the process, the interdisciplinary interaction and team-input, while keeping the focus on the patient.

It would bring us too far to discuss in detail each of the above mentioned techniques used to improve patient care. The aim of this lecture is simple: we report on some of the measures that we have introduced in our department in the course of the years, and that may be seen as an attempt to join the general tendency to document, improve and maintain quality standards. In this respect the following topics will be covered:

-Introduction of a protocolbook in the anesthetic department

-Starting critical event reporting and the organisation of a morbidity conference

-Improving the organisation of OR activities

-Participating in an audit program with benchmarking between several University and Community Hospitals.

THE PROTOCOL BOOK

In 2000 we started the redaction of a book designed to inform the doctors that stayed in our hospital and were selected for a training in anesthesia. This "protocolbook" had its second edition in 2003. The table of content has two main parts:

One part is dedicated to describe the organisation of the department and the internal rules everyone has to comply with (application for holiday's; reporting mishaps; organisation of night and weekend duties; what in case of pregnancy; attendance at teaching conferences; scheduling a rotation through the operating theatres dedicated to different surgical disciplines; working in the intensive care and emergency department; involvement in clinical research).

The other part is clinical and covers the anesthetic procedures that are in use for the different surgical disciplines (abdominal surgery, neurosurgery, ENT, cardiac surgery, gynecology, ophthalmology a.s.o.). There are also some protocols for pediatric patients, outpatient surgery, the recovery, the hyperbaric oxygen unit, postoperative pain treatment and epidurals in the maternity.

The first part has been written mainly by the head of the department and some senior staff members, who share some responsibilities in the organisation of the system. For the second part, each clinical chapter has been written by that staff member who is supervisor and responsible for anesthetic services in that specific field of surgery.

When new doctors start their training, they have to pick up their protocol book at the secretariat, where they have to sign for receipt in a register. Every one who is employed in the department has received the same protocol book and is supposed to study its content.

To enforce this goal, the different chapters are scheduled in our teaching program, and each staff member will give a teaching lecture on the subject he treated in his chapter. From a medicolegal point of view, this "protocolbook" can be considered as a channel for transfer of information in the department.

CRITICAL EVENT REPORTS AND MORBIDITY CONFERENCES

Critical events, mishaps or near-accidents: everybody gives a sigh of relief if those happen and

there are no serious consequences for the patient. However, they are symptoms and may be a warning that something may go wrong again, and that the drama that was avoided in this case may happen next time.

We wanted to register those critical events and made a report sheet that was available at the secretariat and could be filled in by our doctors. It was based on "voluntary" reporting, and asked for some basic information on: what was the nature of the event; were there consequences for the patient; was the patient informed, was the surgeon informed; should it be reported to the insurance company; were their technical examinations or treatments ordered; was there a follow-up foreseen. Although we received occasional reports it was clear that we missed part of what went wrong in the department. When consulting the literature on this issue, we found some interesting information:

In Germany a standard minimal data set on incidents, events and complications (IEC) was designed for prospective use. IEC's are registered in several categories (airway and respiratory system, cardiovascular and circulation, systemic reactions, laboratory findings, central nervous system, medical equipment, and lesions). A severity grading is made: I: IEC with no impact on postoperative care; II: IEC with impact during stay in the PACU; III: IEC with prolonged stay in the PACU and observation on the ward; IV: IEC needing transfer to the intensive care; V: IEC causing death or presumably permanent harm. The registration must be systematic and prospective in all anesthetic cases. Junger in 1998 and Bothner in 2000 have shown that about 80 to 90 % of the registered IEC's are of grade I or II, and it seems unlikely that they would have been detected with a voluntary reporting questionnaire.

Another way to gather more information is by electronic scanning of a database. Most anesthetic departments have an automated anesthesia-charting system that registers the drugs and fluids administered, the vital signs generated by the monitors, and events during surgery or anesthesia as far as these are fed into the system by the anesthetist. All this information is stored in a database. Using the query function of the system it is possible to find out how many patients suffered of tachycardia, hypo- or hypertension, low oxygen saturation.

In a paper in anaesthesiology of 1996 Sanborn et al have shown that only about 5 to 10 % of the total number of IEC's that they could find with electronic scanning were registered by voluntary reporting.

Registering the same IEC's repeatedly can point to some failure of the equipment, or to a systematic fault in the procedures used in the operating room.

Discussing IEC's at a morbidity conference can help avoid future risks by adapting working habits or repairing broken equipment. In the long run it may improve patient outcome and reduce insurance premiums.

IMPROVING THE ORGANISATION OF OPERATING ROOM (OR) ACTIVITIES

One of the first measures that was introduced in OR and that positively influenced the organisation of surgical activities (about 14.000 interventions/year in 14 OR's), consisted of creating several surgical clusters:

- head and neck (neurosurgery, ENT and stomatology, oftalmology)
- Orthopedic surgery
- Cardiothoracic, vascular and transplantation surgery
- Gynecology and urology
- General surgery (mainly abdominal surgery)

Each cluster has its own operating rooms, its own nursing team, and its own anesthetic staff. Many tasks that were centralised before are now delegated to the cluster. By creating those clusters, communication between the group becomes easier and more efficient. It has also a positive impact on maintenance of OR equipment, surgical instruments and stock management of medical supplies and disposables.

About seven years ago, the hospital management asked us to take a more pro-active role in the organisation of the OR and the one day clinic. Two of the senior staff members were invited to take new responsibilities: one was promoted as coordinator of OR, the second became coordinator of the one day unit. The decision to respond to this challenge, has had far reaching consequences. At the one day clinic, the ideal context was created for starting up a preoperative out-patient consultation. At this stage we are able to screen about 50 % of all ambulatory surgery patients before they are admitted in the one day clinic. Probably next year we will be able to split the surgical program for patients hospitalised in one day clinic from that of the patients on the wards.

The second staff member became OR manager. One of the first measures to work on was a better scheduling of OR activities. Since nursing is even more involved because of the high cost for working beyond normal working hours, the scheduling was planned in function of the available number of OR's, the number of nurses in each shift, and the dispatch of the available anesthetic staff. The aim was to come to an optimal load for each OR during working hours. Therefore

surgeons had to announce their regular program 48 hrs in advance so that a better spreading of activities over the different days of the week became possible. A bypass for emergency surgery was incorporated in the planning. By registering the time the team is waiting for the anesthetist and later for the surgeon before they start their activities (anesthetic delay and surgical delay), the time necessary to induce and reverse anesthesia properly spoken (anesthetic time), the time necessary to perform surgery properly spoken (surgical time) and the time necessary to change patients in between operations (between case time), one can identify on which step in the process one might plan an intervention that should improve turn-over. It also helps to learn how much time a given surgeon will need to perform a specific operation, what makes the planning more realistic.

The registration of those data shows that of the total time necessary to perform a given procedure, surgery represents a much larger part than anesthesia, and this means that changes in the surgeon's behaviour will have a much larger impact on the turn-over of the program. This has been nicely illustrated in a paper of Dexter in *Anesth & Analg* in 1995.

Another interesting point in the context of OR scheduling is the manipulation of holiday planning. Surgeons and anesthetists have to announce their absence centrally to the scheduling desk well in advance so that other surgeons can fill up the gap and eventually OR's can be closed in summertime, and the holiday planning for the nurses can become adapted in concertation. This may save money and avoid a loss of time.

BENCHMARKING

Benchmarking is defined as the constant process of identifying, measuring and comparing "results" of key processes with those of the "best practice" performers.

Our hospital was taking part in an audit that was organised by Boston Consulting at the national level. Data from 3 University Hospitals and one County Hospital were analysed, and the 4 anesthetic departments were compared for performance at the level of workload (number of interventions), staffing (number of board certified doctors and number of doctors in training), and income (financial income raised by the department). With those data the number of interventions and the income per doctor was calculated. Our department was not the best, neither the worst: it showed an average performance. The data were discussed in the staff and with the hospital direction, and used later when the budget for 2004 had to be

established. From the report two conclusions were drawn: the next expansion of the personnel will be with junior staff (cheaper), and we will try to develop more (remunerated) activities in the recovery.

CONCLUSIONS

This paper has not the pretention to enter the slippy

field of theoretical principles of quality management. It reports on a few measures that were introduced and are perceived as having contributed to an up-grading of the overall performance of our department. By being interested in the field of quality improvement and quality management and by starting up a few initiatives, we learned a lot and improved the “professionalism” of our approach.