

Review article

The preoperative assessment clinic: organization and goals

Angela M. Bader *

Department of Anesthesia, Harvard Medical School, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115, USA

Received 15 October 1998; received in revised form 28 October 1998; accepted 28 October 1998

Abstract

The current challenge of preoperative evaluation is to perform value based, efficient and effective preoperative assessments which result in maximum operating room efficiency. In an era of diminishing health care resources, efficient organization and utilization of those resources available in the preoperative clinic will result in cost savings via reductions in operating room delays and cancellations. Effective organization can also reduce laboratory testing and the use of outside consultation. Fostering a patient-centered focus in the preoperative clinic can reap the additional benefits of increased patient satisfaction and confidence in the hospital and health care providers. © 1999 Elsevier Science B.V. All rights reserved.

Keywords: Anesthesiologists; Formal system; Preoperative evaluation

1. Introduction

With diminishing economic resources, hospitals are currently challenged to provide efficient, value based preoperative assessment resulting in maximum operating room efficiency. In most cases, managed care and other insurance payers will no longer cover hospital days prior to the day of surgery. As the focus changes from inpatient to outpatient care, preoperative clinics have had to develop schemes of organization capable of providing assessments of large numbers of ill patients for all types of surgery. Efficient preoperative evaluation performed at least several days prior to the planned surgical procedure can have patient benefits as well. If a patient has a complicated medical history and extensive information needs to be collected and assessed prior to surgery, waiting until the night before surgery to perform these assessments may result in delays and cancellations if reports cannot be quickly obtained.

Hospitals that had no formal systems for outpatient preoperative assessment have been forced to develop such systems. Ever increasing financial constraints require that this be accomplished with no resultant oper-

ating room cancellations or delays due to inadequate assessments. Cost containment requires maximization of manpower resources while minimizing consultations, testing requirements, and redundant provider interviews. Efficient methods of collecting and recording data are likewise required.

The preoperative evaluation center therefore needs to operate in a manner that is efficient and favorable for patients, surgeons, health insurance organizations, and referring physicians. The preoperative center is basically a clinical unit charged with making the assessment that patients' medical conditions are optimized for upcoming surgical procedures. Because the major role of this center involves clinical decision making, the anesthesiologist should play a key role in the organization and direction of these centers. Specific expertise regarding clinical assessment, appropriateness of preoperative testing, and effective preoperative management should allow the development of integrated and efficient patient evaluations.

Unfortunately, the literature available regarding appropriate evaluation, risk assessment, and outcome does not provide clear guidance. Uniform clinical goals can be established via communication and conferences. Policies and guidelines should be clear, available in written form, and distributed throughout the depart-

* Tel.: +1-617-7328219; fax: +1-617-7326798.

E-mail address: ambader@bics.bwh.harvard.edu (A.M. Bader)

ment. Alignment of policies and goals is essential so that patients assessed in the preoperative clinic are not delayed or cancelled by another anesthesiologist on the day of operation.

A generational change in mindset of the anesthesiologist is required and is only very slowly occurring. Anesthesiologists are often reluctant to take on clinical roles outside the operating room and may feel uncomfortable in situations involving extensive patient interaction. Until recently, residency programs have been severely lacking in emphasis on the importance of patient assessment skills as well as the importance of administrative and organizational skills, leaving few anesthesiologists with the competence and commitment to take on major roles in this area. Surgeons may not perceive the implications of concurrent medical issues or the importance of obtaining appropriate information and test results from primary care physicians.

The misused and unfortunately perpetuated concept of 'clearance' prior to a surgical procedure needs to be rethought. Many surgeons and anesthesiologists incorrectly feel that 'clearance' of complicated patients who have been followed extensively by primary care physicians or cardiologists outside the hospital can be provided instantly by referring a patient for consultation with an internist or cardiologist at the hospital who knows nothing about the patient and is evaluating them for the first time. This is a misguided concept, as all available appropriate information on the patient needs to be available at the time of the preoperative evaluation. Asking for 'clearance' does not obviate the need to include this information and the input of the patient's primary health care providers in the preoperative assessment. In fact, failure to do so would constitute substandard patient care. Appropriate patient assessment utilizing an organization that provides mechanisms for including all relevant patient data will significantly reduce the need for formal consultation, as described below.

2. Financial issues in the preoperative clinic

In a time of diminishing revenues, hospitals may be reluctant to commit resources to the preoperative clinic. However, maximum operating room utilization and efficient turnover times can only occur if proper patient preparation has been done. In a time when even the most complicated patients coming for major surgical procedures are not admitted prior to the day of surgery, appropriate patient evaluation is essential for the operating room to function smoothly. Any delay, whether due to missing test results, absent surgical consents, or abnormal electrocardiograms that have not been addressed can lead to costly unused operating room time while the issue is resolved or another patient is moved into the now vacant operating room time slot.

The willingness of the hospital and anesthesia departments to commit resources to the pre admitting test center (PATC) has had an extremely positive impact in decreasing the number of consultations and laboratory tests. These decreases in consultation and testing are particularly significant in an era when the percentage of patients in capitated health insurance systems continues to increase. At our institution, appropriate training of the anesthesiologist in preoperative assessment has resulted in a significant decrease in the use of consultation services (Fig. 1). Costly unused operating room time is minimized when effective preoperative evaluation reduces operating room delays and cancellations due to inadequate assessment. The cancellation rate at the Brigham and Women's Hospital due to PATC-related issues is significantly less than 1%. These advantages have also been documented by other institutions. Similarly run interdisciplinary preoperative clinics have reported lower surgical cancellation rates [1–3] and decreased laboratory procedures [1].

The preoperative clinic does provide some opportunity for income generation. Insurance practices particular to area should be investigated, and in many cases billing for preoperative services provided at least 72 h prior to the surgical procedure can generate revenue and offset some of the costs of the clinic. Preoperative services that can be appropriately billed for and corresponding procedure codes can be evaluated through the hospital's finance department.

3. Structural organization of the PATC at Brigham and women's hospital

Currently, about 90% of all patients who undergo surgery in our main operating rooms are first seen in

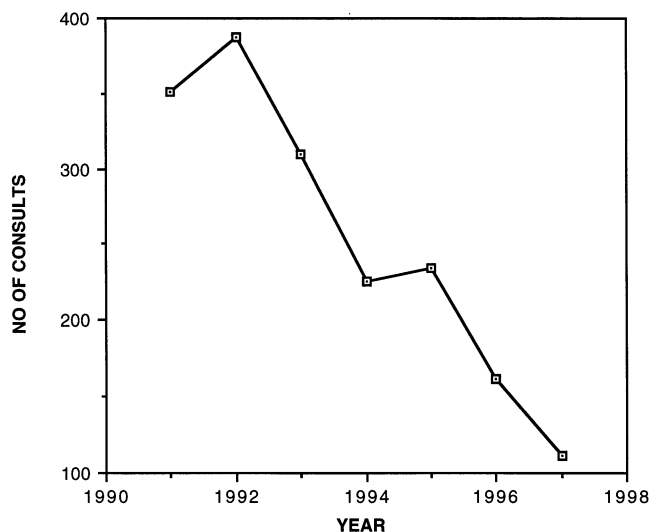


Fig. 1. Total number of requested cardiology consultations by year.

the PATC. Usually 75–80 patients per day are evaluated, for a total of about 18 500 assessments per year. The vast majority of these patients are ASA class II and III. An additional group of patients is evaluated via phone screen as described below.

The PATC is a self-contained area staffed with surgical, anesthesia, nursing, support staff, and laboratory personnel so that the patient can usually receive all preoperative evaluations required in a single location. The average patient visit length including all evaluations lasts about 2 h. A collaborative effort among the departments of anesthesia, nursing, and hospital administration is required. An anesthesiologist serves as Director of the clinic; this Director reports to both the hospital Vice President for Surgical Services and the Chairman of the Department of Anesthesia. A non clinical administrative manager and support staff report to the anesthesiologist serving as Director. Although nursing reporting lines lie with the operating room Nurse Manager, the day to day clinical roles of the nurses in the PATC are defined by the Director in conjunction with the operating room Nurse Manager. Staffing and budget issues for the PATC, including the majority of the PATC nursing budget, are made by the Director and approved by the Vice President for Surgical Services.

Current anesthesia staffing includes one attending physician, one nurse anesthetist, and two residents, with a 'late' resident staying to see late appointments and unscheduled late patients. Expectations and guidelines for performance in the PATC are clear and are distributed throughout the anesthesia department. Residents and staff are expected to evaluate a minimum of 15 patients per day.

Patient appointments are generally booked by a surgeon's secretary through a central system after registration and insurance precertification have been performed. The surgeons office then sends a packet to the PATC which contains the surgeon's office notes, the history, physical and surgical consent (if performed in the surgeon's office), lab orders, and any information obtained from primary care providers. It is critical that all pertinent information be in the PATC at the time of the patient's visit. Patient visit length is unnecessarily prolonged when time must be wasted tracking down information from primary care providers, cardiologists, or outside test results while the patient is waiting in the PATC. Confidence in the system quickly evaporates when the patient presents to the PATC, the packet is empty, and the patient feels that important medical information has not been communicated.

To prevent these problems, a series of meetings between the PATC operations team and the various surgeons' office staff was completed. These meetings provided the surgeons' office staff with instructions so that a sheet with the following information is placed in

each packet sent to the PATC: name and phone numbers of primary care provider and/or cardiologist, date of last office visits, dates of last cardiac testing if any has been performed. The surgeons' office staff have been informed that this information should then be obtained from the appropriate outside offices and included in the packet. Packets are requested in the PATC several days prior to the patient's visit so that a chart can be compiled. The surgeons' offices are aware that prolonged patient PATC visit times, patient dissatisfaction, poor patient care and potential cancellation of the procedure may result if this information is not available.

Patient appointments in the PATC are scheduled via a computer program which has been developed so that patients are evenly distributed throughout the day. Communication via this program with the medical records department allows the patient's old chart to be available at the time of the appointment. Although 'walk-in' patients are accommodated, this number is quite low. Unscheduled patients are discouraged, as scheduled appointments are usually completely filled and unscheduled patients will increase overall patient waiting time for the scheduled patients. Also, a hospital chart and collection of outside information will not be available on unscheduled patients, making the overall appointment much less efficient. The computer program is written such that total number of appointments per day per type of provider should not be exceeded.

When the patient registers at the information desk, the receptionist provides information regarding the providers that will be seen and testing that will be done, with an estimate of visit length. A computerized log records the time of registration. The patient sits in a central waiting area and is seen by the next available nursing, anesthesia or lab provider. Currently the patient returns to the waiting room between interviews. Ideally, the nurse practitioner and lab provider should see the patient before the anesthesiologist, however to expedite patient flow this is not always possible. Times spent with each provider are written on a front sheet so that interview times and patient waiting times can be recorded. A computerized log records the discharge time when the patient leaves the PATC.

Surgical histories and physical examinations are performed in the PATC by service-specific nurse practitioners or physician's assistants on about 50% of patients; the remainder have had this done by the surgeon at the time of the office visit. Whether or not the surgical history and physical is performed in the PATC depends upon which surgical service is involved and whether the total number of nurse practitioner appointments for that day has been filled. If the nurse practitioner sees the patient, this nurse also performs the preoperative nursing assessment. Patients who do not see the nurse practitioner have their preoperative

nursing assessment performed by a registered nurse in the PATC. All patients who come to the PATC are seen by an anesthesiologist.

When the patient leaves the PATC, all data and assessments are collected and a chart assembled for the operating room. The anesthesia attending physician is required to review every abnormal ECG before the patient leaves; this ensures that no unresolved issues remain and also provides an opportunity for resident education when the ECG'S are discussed with the attending physician. Other laboratory data are printed out and filed in the chart by the next morning. The next morning, all charts of patients seen the day before are reviewed by the anesthesia staff so that any abnormal laboratory results can be addressed and other remaining issues can be resolved. The charts are then filed in a chart room in the PATC according to date of procedure and are sent down to the operating room the day before surgery. The anesthesia team assigned to provide anesthesia for the case therefore can review the chart the day before to ensure sure they are aware of all issues and can prepare appropriately. This also helps to avoid delays on the day of surgery.

The surgeons' offices have received general guidelines as to which patients may be evaluated via phone screen and do not need a PATC appointment. ASA Class I and II patients without known cardiac problems who do not require laboratory testing and who have had a surgical history and physical performed in the surgeon's office are not required to come to the PATC. The paperwork from the surgeon's office is sent to the PATC as usual in the patient's packet. The surgeons' office staff schedules the patient through the same central computer program system but schedules the patient as a 'Phone Screen' instead of a PATC appointment. A computer printout of these 'Phone Screen' patients is then sent to the PATC. When this printout and the surgeon's packet containing the history and physical are received in the PATC, the patient receives a telephone screen by a PATC nurse which is placed in the patient's chart, assembled and filed as usual. Any patient in whom the telephone interview reveals an area of concern is discussed with the attending anesthesiologist and may be scheduled to appear for an appointment. Since institution of this program fewer than 1% of phone screen patients have needed PATC appointments and there have been no operating room cancellations as a result of inadequate phone screen interviews. The preoperative nursing assessment is done during this phone call with the nurse, eliminating the need to perform this assessment on the day of surgery. This decreases the operating room turnover time for these cases, which are usually short day surgical procedures. Patients also receive preoperative instructions, fasting (n.p.o.) orders, and instructions regarding which medications should be taken on the morning of surgery.

This eliminates problems with phone screen patients arriving on the day of surgery without having followed appropriate n.p.o. and medication guidelines.

All PATC anesthesia personnel are instructed to notify the anesthesia scheduling office via e-mail with particular patient issues of which the assigned anesthesia team should be aware. These issues may include potential difficult intubation, severe cardiac compromise, Jehovah's witness, pregnant patients coming for non-obstetric surgery, latex allergy, etc. Identifying these issues aids with operating room scheduling, ensures appropriate equipment is available, and aids in departmental uniformity regarding anesthesia care.

4. Increased patient satisfaction via patient focused preoperative assessment

The preoperative clinic provides a vehicle through which the hospital can promote its mission of patient focused care. A successful preoperative clinic visit will foster in the patient a sense of confidence in the hospital and health care providers and put the surgical experience in a positive light. A disorganized, inefficient, incomplete visit during which a sense of concern for the patient is not expressed will result in low patient satisfaction and loss of confidence in the hospital and the surgical process. It is essential to stress the importance of patient centered interaction and an attitude of competence, compassion and caring with all members of the PATC team. Front-line service has a strong influence on the patient's perception of a hospital's performance.

The team concept is fostered by uniting all PATC personnel, including all types of clinical providers as well as support staff, under a single administrative team. It is difficult to foster the team concept of a patient oriented service line in a preoperative evaluation clinic in which multiple lateral providers work via different reporting lines and consider their roles in a unifunctional manner. Our preoperative clinic holds regular staff meetings attended by all members who work in the unit. These meetings foster a team approach to problem solving and generate a positive feeling regarding the unit's mission which can be transmitted to the patients. All personnel roles in the PATC are essential to the success of the overall mission.

The patient's family members are encouraged to be present during all interviews and their concerns are addressed as well. Courteous behavior, a professional appearance, and expressions of genuine concern are fostered. All personnel are instructed to address the patient by name, to introduce themselves professionally, and to conduct the interview with the patient in a respectful and empathetic manner. Although our providers must see large numbers of patients with sig-

nificant time constraints, the concern and caring perceived by the patients is reflected in the high ratings our unit receives in patient satisfaction surveys even during these short visits

5. Residency training in preoperative evaluation

It is essential that anesthesia training programs include opportunities for residents to learn the skills required not only to perform effective preoperative evaluations but to potentially take a leadership role in the organization and operation of the preoperative clinic in the particular practice the resident joins upon the completion of training. Development of patient interviewing skills and an understanding of the value of good patient communication is essential. Anesthesiologists who are accustomed to the limited patient interaction in the operating room may perform very poorly in the preoperative clinic environment if these skills have not been emphasized during residency.

At the Brigham and Women's Hospital, all 1st year anesthesia residents spend 1 or 2 days during their first 2 months in the preoperative clinic with the attending anesthesiologist as their tutor. During the next 2 years, each resident will spend a 2 week rotation in the preoperative clinic. A curriculum and expectations for competency in areas of preoperative assessment are provided. Residents are evaluated at the end of the two week rotation. They also receive feedback on a daily basis if there are particular issues with specific evaluations. Feedback is also provided to any anesthesia staff member when issues arise because of preoperative evaluation; this ensures alignment throughout the department. Continually reinforcing expectations and guidelines prevents issues with the anesthesiologist scheduled to provide anesthesia for the case disagreeing with the assessment performed in the preoperative clinic.

A number of major academic centers have in place similar programs for residency education in preoperative assessment; other centers are just beginning to investigate effective ways of incorporating this area into their training programs.

6. Laboratory testing

Most care providers are well aware that the previous practice of randomly ordering batteries of test prior to surgical procedures was costly and inefficient, with little impact on patient management [4,5]. A review of 15 studies researching the utility of routine chest X-rays concludes this to be a practice reserved only for patients with clinical evidence of pulmonary disease or those undergoing intrathoracic surgery [6]. Urinalysis in

asymptomatic patients rarely leads to beneficial changes in management [7,8].

We have significantly decreased the amount of preoperative testing by streamlining our laboratory order form based on the literature available. The order form includes indications for testing so that guidelines can be followed by anyone using the form. In general, no lab testing is required for otherwise healthy males or non-pregnant females less than age 40. ECG's are required for males over age 40 and females over age 50. Hematocrits are required for all patients over age 40. Chest X-rays are done only in the patient with significant pulmonary disease, heart disease, or malignancy. Urinalyses are performed only in cases of joint replacement or suspected urinary tract infection. All other laboratory testing should be based on concurrent medical conditions. These guidelines are fairly conservative; some other institutions have decreased requirements further depending on anticipated type of anesthetic and relative risk of surgical procedure.

7. Cardiology and internal medicine consultation

As Fig. 1 illustrates, we have significantly decreased the number of cardiology consultations requested despite an increase in both volume and acuity level of patients assessed. In 1997, approximately 18 500 patients were evaluated in the preoperative clinic; the number of requested cardiology consultations was 111. This is the result of several factors; firstly, a new emphasis on patient assessment in our training program. More importantly, the anesthesiologists who work in the PATC at our institution have developed expertise in functioning as consultants in the area of preoperative assessment; in communicating appropriately with the patient's existing primary care providers and outside cardiologists, and in obtaining and reviewing all appropriate information. We provide algorithms for cardiac evaluation and train our staff to be familiar with the literature available [9]. If the anesthesiologist does decide that a patient requires a consultation with a cardiologist, this is arranged by the PATC clerical staff. A hospital cardiologist is usually available within an hour of the request for consultation. Because of the emphasis placed on education of the anesthesia staff in the area of preoperative assessment and improved inter-departmental communication, consults obtained are phrased in a tone such that specific questions for the patient involved are answered. The cardiologist is not asked for 'clearance', but rather if further testing would be beneficial or if suggestions could be made regarding medical optimization prior to surgery. This greatly improves the usefulness of the consults obtained.

In summary, effective organization of the preoperative evaluation clinic can significantly improve operat-

ing room efficiency, decrease laboratory testing and consultation, and provide increased patient satisfaction with the surgical process. Unification of previously lateral clinic providers under a single administration has been an effective method of fostering a team concept and achieving the unit's mission of patient focused care.

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