Improving the preoperative assessment clinic
Edward, G.M.

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Chapter 1

General Introduction
Anaesthesia traditionally refers to the intentionally induced state of having no conscious sensations during medical interventions. This enables patients to undergo surgical and medical procedures without having to suffer pain and distress. The term comes from the Greek word ἄναισθησία, which means “without sensation”. Nowadays, anaesthesia care encompasses the relief of pain and total care of the surgical patient before, during and after surgery: the pre-, per-, and postoperative period.

### Preoperative assessment

The aim of the preoperative assessment is to ensure optimal anaesthesia, reduce the morbidity associated with surgery, to increase the quality and decrease the cost of perioperative care, and to rapidly restore the patient to the desired level of functioning.¹ In addition, the preoperative meeting is an appropriate time to educate the patient on anaesthesia, perioperative care, and pain treatments, to reduce anxiety, to develop care plans, and to obtain informed consent.²

In order to reduce the risks of surgery, to restore the functioning to the desired level, and to develop a care plan, the patient’s health status has to be assessed. This encompasses a medical history, physical examination, and sometimes additional diagnostic testing or consulting another medical specialist. The preoperative physical status of patients is classified using the American Society of Anesthesiologists’ (ASA) physical status classification system (Table 1).³

<table>
<thead>
<tr>
<th>ASA</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASA 1</td>
<td>Normal healthy patient</td>
</tr>
<tr>
<td>ASA 2</td>
<td>Patient with mild systemic disease</td>
</tr>
<tr>
<td>ASA 3</td>
<td>Patient with severe systemic disease</td>
</tr>
<tr>
<td>ASA 4</td>
<td>Patient with severe systemic disease that is a constant threat to life</td>
</tr>
<tr>
<td>ASA 5</td>
<td>Moribund patient not expected to survive without the operation</td>
</tr>
</tbody>
</table>
The preoperative assessment clinic

Traditionally, the anaesthesiologist who would give the anaesthesia would visit the patient for preoperative assessment the evening before or on the day of surgery. In 1949, Lee proposed to perform preoperative assessment on an outpatient basis. However, it was the introduction of day-case surgery and same-day admissions that catalyzed the implementation of anaesthesia outpatient clinics for preoperative assessment. Many different names are used for outpatient clinics for preoperative assessment, e.g. Preoperative Assessment Clinic (PAC), Preoperative Assessment Testing Clinics (PATC), Preoperative Anaesthesia Consultation and Evaluation (PACE) Clinic, Preadmission Evaluation Centre (PEC), and Anaesthesia Preoperative Evaluation Clinic (APEC). In this thesis the term PAC is used. In contrast to the traditional preoperative assessment the evening before or on the day of surgery, the person performing the preoperative assessment at the PAC is usually not the same person as the one giving the anaesthesia. However, the anaesthesiologist giving the anaesthetic has complete responsibility for proceeding with the anaesthesia.

Nowadays, many hospitals utilize PACs. This is not surprising, as research has clearly shown that performing the preoperative assessment on an outpatient basis, several weeks or days before surgery, increases cost-efficiency. When an operation is cancelled close to the time of surgery, the chances are great that the operating room slot that becomes available cannot be utilised by another patient. By optimizing the medical condition of the patient prior to surgery, operating room cancellations and delays for medical reasons are reduced significantly. Identifying special prerequisites for the perioperative period in an early stage can improve operating room scheduling and reduce operating room cancellations. For example, a patient who does not fulfil the requirements for day-case surgery will need a hospital admission, and a patient requiring intensive care after surgery will need an intensive care bed. Performing preoperative assessment on an outpatient basis reduces the preoperative admission time and enables day-case surgery, thus reducing the length, and therefore the costs, of the hospital stay.
anaesthesiologist orders the preoperative tests, less preoperative diagnostic tests are performed, which also reduces costs."}

**The PAC in the Netherlands**

In 1997 the Dutch Health Council recommended hospitals to implement a PAC. Now the majority (90%) of the Dutch hospitals has a PAC. However, the patient groups who are assessed at the PAC differ between hospitals. Not all surgical patients necessarily visit the PAC, this is only common practice in 64% of the Dutch hospitals.

The Dutch Health Council and the Netherlands Society of Anaesthesiology hold the surgical specialist as well as the anaesthesiologist responsible for the preoperative evaluation. The anaesthesiologist is generally responsible for the preoperative assessment at the PAC. The Netherlands Society of Anaesthesiology states that the one performing the preoperative assessment does not necessarily have to be the same person giving the anaesthesia, but the patient should be informed about this.

There is no uniformity in the way PACs are organized in the Netherlands. The Dutch Health Council recommended performing preoperative assessment in an outpatient setting. However, no recommendations were made on how to organize preoperative assessment at a PAC.

**Quality of healthcare services**

Traditionally, healthcare services were largely paternalistic and the focus of healthcare services was on diagnosing and treating the patient. The quality of healthcare was mainly assessed by medical outcomes: a concrete indicator of quality. Though medical outcomes are a good measure for the effectiveness and quality of medical care, they do not include all relevant aspects of healthcare services. Therefore, quality assessment studies now generally use three categories of quality measures, based on Donabedian’s structure-process-outcome model. Structural measures of quality refer to professional and organizational characteristics, e.g. the capacity of the PAC and the qualifications and competence
of medical staff. Process measures investigate the process of care itself instead of its outcomes, e.g. respectful treatment of patients. Outcome measures refer to the outcome as a result of the care processes, e.g. trust and reduced morbidity and mortality.\textsuperscript{19} Structure, process and outcome are interrelated. Good structure increases the chance of good process, and good process increases the chance of good outcome.\textsuperscript{21} Thus, structure is related to outcome. Outcome is related to both the technical performance of the practitioner and the interpersonal processes between patient and practitioner. The first is dependent on the practitioner’s knowledge, judgement and skill. The latter is the agent to implement technical care.\textsuperscript{21}

**Patient flow logistics**

In the Western world a substantial part of the Gross Domestic Product (GDP) is spent on healthcare; in the Netherlands this is approximately 13%.\textsuperscript{22} Controlling healthcare costs is high on the political agenda. Ideally this is achieved without negatively impacting patient care; one way to do this is by improving the process or operational efficiencies.

Performing preoperative assessment on an outpatient basis rather than clinically was shown to be cost-efficient,\textsuperscript{8-13} but the most cost-efficient way to perform preoperative assessment at a PAC has not yet been studied. There is no unity in the way PACs are organized and no recommendations on the best way to organize a PAC have been done. Improving the structural and process measures of the PAC might further reduce the costs of preoperative assessment.

Patient flow logistics are an important component of logistic processes. A strong correlation exists between the time spent at the PAC and patient satisfaction.\textsuperscript{6,23} Waiting times are dependent on both the structure and the processes of the PAC,\textsuperscript{23} illustrating the relationship between structure, process and outcome.\textsuperscript{19} Improving the patient flow logistics of a PAC could improve cost efficiency and increase patient satisfaction. Patient satisfaction can be used not only as an outcome measure, but also as a process measure, to evaluate the way care was delivered.\textsuperscript{24}
Patients’ experiences

In recent years, it has been acknowledged that non-medical issues are of great importance to patients and patient satisfaction can be used as an indicator for the quality of healthcare.\textsuperscript{21,25} Healthcare services are progressively shifting from paternalism to patient-centred care; patients’ views and perceived priorities are being used to help improve the quality of healthcare services.\textsuperscript{26-30} Often a patient survey is used to assess these views and perceived priorities.

There are three styles of survey questions: attitudinal ratings, reports, and open-ended questions. Open ended questions are more difficult to analyze and summarize than closed questions.\textsuperscript{31} Patient satisfaction questionnaires, which ask patients to rate their satisfaction with the care received, tend to have mainly positive evaluations.\textsuperscript{32,33} They do not give a clear indication on how to improve service areas that are rated poorly. Therefore, it has been recommended to ask patients to report their experiences in detail on specific aspects of the care received.\textsuperscript{34} Instead of being evaluative, the responses are more factual and help identify the existing problems specifically; these problems can then be tackled. Report style questions can be used to assess the patient-centeredness of care, report and compare performance, and to improve the quality of care.\textsuperscript{35} The Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys,\textsuperscript{35} the World Health Organization (WHO) responsiveness surveys,\textsuperscript{36} and the national (NHS) surveys\textsuperscript{37} all measure patient experiences instead of patient satisfaction.

In anaesthesia care, there are validated questionnaires to measure the quality of perioperative anaesthetic care.\textsuperscript{38-40} Some items on preoperative care are incorporated in these questionnaires, but they do not focus specifically on the preoperative care delivered at the PAC. Patients’ experiences with the PAC have hardly been studied.
Aims of the thesis

This thesis concerns the anaesthetic PAC with the focus on non-medical issues. The aim was to explore the organization and logistic processes and to obtain feedback from patients and professionals on the quality of the PAC, in order to determine how improvement of the PAC can be attained.

In chapter 2, the differences in organisational structure of the PAC at the eight Dutch university hospitals are explored. In chapter 3 the logistic processes of the PAC in two university hospitals are compared. Chapter 4 describes the analysis of two organizational planning difficulties, i.e. long access times and long waiting times. The development and validation of the Patient Experiences with the Preoperative Assessment Clinic (PEPAC) questionnaire is described in chapter 5. Chapter 6 shows how the PEPAC questionnaire can be used to set priorities for improvement of the PAC, taking both the patient’s and the professional’s perspective into account. Chapter 7 describes the effects of implementing a new appointment system on waiting times and patient experiences with the PAC. In chapter 8 the results and conclusions of this thesis are discussed and summarized.
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Chapter 1


