

# How excellent anaesthetists perform in the operating theatre: a qualitative study on non-technical skills†

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## Editor's key points

- Excellent performance requires a mix of technical and non-technical skills (NTS).
- Specialist training programmes pay inadequate attention to NTS.
- In Sweden, highly trained anaesthetic nurses work closely with physician anaesthetists.
- The investigators have identified groups of NTS associated with excellent performance by anaesthetists, based on structured interviews to elicit the views of experienced anaesthetic nurses.

**Background.** Teaching trainees to become competent professionals who can keep the complex system of anaesthesia safe is important. From a safety point of view, non-technical skills such as smooth cooperation and good communication deserve as much attention as theoretical knowledge and practical skills, which by tradition have dominated training programmes in anaesthesiology. This study aimed to describe the way excellent anaesthetists act in the operating theatre, as seen by experienced anaesthesia nurses.

**Methods.** The study had a descriptive and qualitative design. Five focus group interviews with three or four experienced Swedish anaesthesia nurses in each group were conducted. Interviews were analysed by using a qualitative method, looking for common themes.

**Results.** Six themes were found: (A) structured, responsible, and focused way of approaching work tasks; (B) clear and informative, briefing the team about the action plan before induction; (C) humble to the complexity of anaesthesia, admitting own fallibility; (D) patient-centred, having a personal contact with the patient before induction; (E) fluent in practical work without losing overview; and (F) calm and clear in critical situations, being able to change to a strong leading style.

**Conclusions.** Experienced anaesthesia nurses gave nuanced descriptions of how excellent anaesthetists behave and perform. These aspects of the anaesthetist's work often attract too little attention in specialist training, notwithstanding their importance for safety and fluency at work. Creating role models based on studies like the present one could be one way of increasing safety in anaesthesia.

**Keywords:** anaesthesiology; education, professional; focus groups; professional competence; qualitative research

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Safety in anaesthesia has improved much during the last decades,<sup>1</sup> partly due to the introduction of technical innovations such as pulse oximetry and capnography. Still, new challenges appear as we operate on older and sicker patients and introduce more complicated techniques in surgery. Therefore, improving patient safety must continue to be a high priority task for anaesthetists. As competent professionals are necessary to keep a complex system like anaesthesia care safe,<sup>2</sup> teaching trainees is an important element of safety work.

By tradition, the main focus of anaesthesia training has been on theoretical knowledge and technical skills. In contrast, in the aviation industry—which is highly successful in safety work—non-technical skills (NTS) such as smooth cooperation and good communication have for decades been

recognized as equally important. Acknowledging the similarities between aviation and anaesthesiology in safety issues,<sup>3</sup> researchers in anaesthesia training have stressed the need to describe the NTS used by proficient anaesthetists. The ANTS scale created by Glavin and colleagues<sup>4,5</sup> is a valuable tool here. The scale is based on interviews with consultant anaesthetists. However, as NTS can be assumed to have a tacit dimension,<sup>6</sup> the explicit descriptions given by senior doctors may not give us the full picture. According to Polanyi,<sup>7</sup> tacit knowledge is expressed in action and therefore, observing how proficient anaesthetists perform in the operating theatre could be a way to get a fuller description of the NTS that constitute part of their expertise.

Observing doctors at work is a resource-demanding procedure and few studies using this technique have been

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published.<sup>4</sup> The Swedish system, with anaesthesia nurses doing much of the anaesthesia work, offers a possible solution. Anaesthesia nurses in Sweden are well trained: after becoming licensed registered nurses, they all have completed a 1 yr specialist training programme in anaesthesia. They take part in the continuing medical education at departments of anaesthesia and sometimes they give anaesthetics independently. Most often, they assist anaesthetists during induction and emergence and care for the patient during the operation with an anaesthetist close at hand, the latter being responsible for two or three operating theatres simultaneously. Thus, anaesthesia nurses in Sweden often work in parallel with anaesthetists and can observe how they work. Doctors as a contrast seldom see other doctors at work.

Experienced Swedish anaesthesia nurses constitute a potential rich source of information about anaesthetists at work and could be used as vicarious participant observers. By listening to a selected group of discerning nurses, we can learn about how anaesthetists act, thereby circumventing some of the limitations of operating theatre observation, such as the observer affecting normal behaviour, issues of consent and confidentiality, and last but not least the high cost of using participant observers. The aim of this study was to investigate how excellent anaesthetists act and

behave in the operating theatre as seen through the eyes of experienced anaesthesia nurses.

## Methods

### Ethical considerations

The participating nurses were informed of the study and gave their consent. They were guaranteed confidentiality, with quotes presented in a way not allowing their source to be identified. The Regional Ethical Review Board was asked for an advisory opinion and according to the reply from the Board, a formal ethical approval was not needed for the study.

### Data collection

The study had a descriptive and qualitative design. We chose focus group interviews as data collection method, because it is a useful and economical method to get opinions and ideas from a group of people about a well-defined subject.<sup>8</sup> In focus group sessions, the memories of the interviewees can be stimulated by listening to other group members. This 'group effect' can create a chain of thought between the participants, evoking memories of earlier experiences.<sup>9</sup> A potential problem with a focus group setting is that it might obstruct the mediation of sensitive experiences.<sup>10</sup> However, the experiences focused on in this study were not judged to be of that kind, and we therefore did not consider it a problem.

A preliminary interview manual was constructed and a pilot focus group interview with three experienced anaesthesia nurses was performed at the first author's (J.L.) own workplace. The interview manual was adjusted accordingly to make the nurses to focus more on the ways of acting that they had observed than on the personality of the anaesthetists.

Thereafter, the heads of five departments of anaesthesiology in as many Swedish hospitals were contacted by e-mail and asked to select, together with the head anaesthesia nurse, a group of three to four of the most experienced, competent, and discerning anaesthesia nurses at the clinic. Two of the departments declined participation because of lack of time, and a sixth hospital with two departments of anaesthesiology (thoracic and general) was contacted and both accepted to participate.

The nurses were informed that they would participate in a group interview with the aim to discuss how proficient anaesthetists act and perform. The concept of NTS, little if at all known among Swedish nurses, was not mentioned. At interview start, the interviewer reminded the participants of the focus of the interview. The interview questions (Table 1) aimed at making the nurses concentrate on what they had observed, giving examples of what the most proficient (in their opinion) anaesthetists do. The interviews started with focus on anaesthesia induction to make it easier for the nurses to recall and report concrete experiences. Thereafter, the discussion was expanded to include anaesthesia work more generally. The last question (about

**Table 1** Interview guide. 'How excellent anaesthetists act in theatre', focus group interviews with anaesthesia nurses

#### (A) Focus on anaesthesia induction

1. Please tell me about an occasion when according to you the anaesthetist did a really good job during induction. What was good about it?
2. Have you worked with an anaesthetist with whom you felt especially safe and calm at induction? What did he or she do? What was he or she capable of doing, which were his or her special capacities?
3. What are the most important things about how the anaesthetist performs during induction?
  - (a) What is it that an excellent anaesthetist does that a less competent one does not do?
  - (b) What is it that an excellent anaesthetist is capable of that a less competent one is not capable of?

#### (B) Anaesthesia work in general

1. Please tell me about an occasion when according to you the anaesthetist did a really good job. What was good about it?
2. Have you worked with an anaesthetist with whom you felt especially safe and calm? What did he or she do? What was he or she capable of doing, which were his or her special capacities?
3. What is most important in how an anaesthetist performs?
  - (a) What is it that an excellent anaesthetist does that a less competent one does not do?
  - (b) What is it that an excellent anaesthetist is capable of that a less competent one is not capable of?
4. Tell me about an occasion when you were discontent with the anaesthetist's work. What happened?

#### (C) An excellent anaesthetist—what kind of a person is he or she? What is he or she like?

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