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# TRACHEAL EXTUBATION OF PATIENTS IN THE ANESTHESIA SETTING

From the perspectives of registered nurse  
anesthetists and anesthesiologists

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## Akademisk avhandling

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**Title**

Tracheal extubation of patients in the anesthesia setting  
From the perspectives of registered nurse anesthetists and anesthesiologists

**Abstract**

**Background** Tracheal extubation is a critical risk phase for patients undergoing general anesthesia and is related to severe complications. In Sweden, extubations are performed by registered nurse anesthetists and anesthesiologists who share responsibility for the patient. While there is research regarding the medical and technical aspects of when to extubate, there is a lack of research regarding the experience of registered nurse anesthetists and anesthesiologists and their reasons for deciding when to perform extubation. Clinical judgment is applied in crucial decisions, and non-technical skills are essential in clinical practice.

**Aim** To describe and explore registered nurse anesthetists' and anesthesiologists' experiences of tracheal extubation in the anesthesia setting.

**Methods** This thesis was based on interviews with registered nurse anesthetists and anesthesiologists. In Study I, focus group interviews were performed with registered nurse anesthetists (n=20). Individual interviews were conducted with anesthesiologists (n=17) in Study II. Both studies employed qualitative content analysis to analyze data. In Study III, individual interviews were conducted with registered nurse anesthetists (n=20) to determine their main concerns during the extubation process. Observation and individual interviews were performed, and data were analyzed using grounded theory. In Study IV, the focus group interviews (Study I) with registered nurse anesthetists (n=20) and individual interviews (Study II) with anesthesiologists (n=17), were analyzed using reflexive thematic analysis, with Tanner's model of clinical judgment as a lens.

**Findings** The results showed that registered nurse anesthetists (Study I) and anesthesiologists (Study II) described extubation as a process that begins when preparing for the anesthesia procedure and meeting the patient. From then, they continuously assessed and prepared the patient for extubation and assembled a unique plan to prevent failure. They acted upon recognizable patterns at extubations and relied on their experience and intuition. The registered nurse anesthetists and anesthesiologists protected the patient by speaking for them and keeping them safe during the vulnerable situation of extubation. They shared the responsibility for the patient, to protect the patient, and to keep them safe during the vulnerable situation of extubation; however, their role differed. The registered nurse anesthetists felt lonely during extubations despite surrounded by other professionals in the operating room. Conversely, anesthesiologists felt like a member of the team when entering the operating room during extubations. In Study III, the primary concern of the registered nurse anesthetists was safeguarding the patient in a highly technological environment. They achieved this by maintaining adaptability while moving between challenges and facilitators. In Study IV, the extubation process conducted by registered nurse anesthetists and anesthesiologists extubation process comprised putting the pieces together when holding responsibility for the patient. They observed patient reactions and recognizable situations during extubations, which they interpreted through clinical reasoning. Their responses to these interpretations were based on clinical experience and intuition. Additionally, they reflected both during and after extubation, evaluating their actions and considering potential improvement.

**Conclusion** In the extubation process, registered nurse anesthetists and anesthesiologists integrate theoretical knowledge, clinical experience, and intuition with the unique characteristics of each patient to make decisions on extubations. However, decision-making in extubation is not solely dependent on what is displayed on the monitors or adherence to a prescribed technique. Instead, it involves professional skills, critical thinking, and clinical reasoning. At the critical moment of extubation, improvements are needed in the working environment for the professionals performing this task. Since the patient is in a vulnerable phase, these professionals need to be able to focus on safeguarding the patient.

**Keywords**

Anesthesiologist, Clinical judgment, Extubation, Content Analysis, General anesthesia, Grounded theory, Operating room, Registered nurse anesthetist, Reflexive Thematic Analysis, Safeguarding, Triangulation.

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