

# The Art Is to Extubate, Not to Intubate— Swedish Registered Nurse Anesthetists’ Experiences of the Process of Extubation After General Anesthesia

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**Purpose:** To describe Registered Nurse Anesthetists’ (RNAs) experiences of the process of extubation of the endotracheal tube in patients undergoing general anesthesia.

**Design:** A descriptive qualitative design.

**Methods:** This study was conducted in two hospitals with 20 RNAs in total. Data were generated from focus group interviews. Content analysis was used to analyze data.

**Findings:** The RNAs’ experiences were described within four categories and eight subcategories. The category To be a step ahead includes assessment and preparation, and To be on my toes, their ability to recognize patterns and build a connection. To use situation awareness relates to their use of experience and feelings, and To be alone in a critical moment, to feeling alone in the team and protecting the patient.

**Conclusions:** The RNAs make decisions when to extubate by combining theoretical knowledge, clinical experience, and intuition with the uniqueness of each patient.

**Keywords:** critical moment, endotracheal tube, experience, extubation, Registered Nurse Anesthetist, teamwork.

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## THE EXTUBATION PROCESS AND PATIENTS’

emergence from anesthesia are related to more complications than the intubation (insertion) of the endotracheal tube itself,<sup>1</sup> because of the physiological changes and time pressures that contribute to creating a complex situation that differs from the one when intubating.<sup>2</sup> Heavy demands are placed on the clinical professionals who provide and support anesthesia care during extubation,<sup>3</sup> and those who manage the process should have specialist training and must understand the complications that may accompany the extubation process, for example, laryngospasm and hypoxia.<sup>4,5</sup> Registered Nurse Anesthetists (RNAs) working in operating theaters in Sweden will have completed a 1-year postgraduate specialized training program. The RNA responsible for the patients will often meet them in the

preoperative units and accompany them to the operating room before anesthesia is induced. An RNA is allowed to independently induce, carry out, and complete general anesthesia (GA) for patients with physical status I and II (American Society of Anesthesiologist), according to specified protocols and agreements, but with indirect supervision from an anesthesiologist.<sup>6,7</sup> The anesthetic procedure comprises interdisciplinary teamwork between the RNA and the anesthesiologist.<sup>8</sup>

## Background

Qualified RNAs begin to engage with the patient at the preoperative stage by building up a relationship with them. They provide support by conducting an assessment of the patient's vulnerability and by informing the patient about the anesthesia and surgery procedures.<sup>6,9</sup> They must also ensure that safety equipment is on hand and ready, and that it has been tested to ensure that it is fully functioning in case adverse events arise.<sup>7,10</sup> By monitoring and assessing anesthesia depth with electroencephalography-based monitors and hemodynamic variables,<sup>11</sup> combined with vital signs, such as ventilation and circulation, the RNAs "watch over" the patients<sup>6</sup> and care for them during the anesthesia process, continuously monitoring for potential problems.<sup>10</sup>

The decision about when to extubate should include an evaluation of risk factors because of the surgical procedure, the method of anesthesia (ie, GA, inhaled, or intravenous), and the patient's condition.<sup>12</sup> An assessment is made by the RNA or the anesthesiologist to determine whether the patient has adequate airway reflexes to protect the airway, and whether there have been any complications during induction and intubation. In addition, the patient's current status relating to their level of consciousness, and their respiratory and neuromuscular function is included in this risk assessment before it is deemed safe to perform the extubation.<sup>2,13</sup> Extubation is a critical step that takes place when the patient's level of consciousness is in a period of transition from a controlled anesthetic situation to a less controlled situation,<sup>2</sup> passing through the excitation stage. This is a stage when the patient is in a particularly vulnerable

condition<sup>14</sup> and therefore exposed to more risks when undergoing extubation compared with intubation.<sup>2</sup> The risk of complications related to airway issues, such as difficulties with ventilation, or hypoxia, is almost three times more common during extubation than during intubation and induction of anesthesia, 4.6% versus 12.5%, respectively.<sup>15</sup>

Currently, research relating to the process of the extubation of patients undergoing GA is lacking, such as how RNAs deal with the extubation, not technically, but how they plan and perform them. Therefore, this qualitative study is important, as it will be the first to illustrate RNAs' experiences of extubation, a task that they frequently perform in clinical practice.

## Aim

The aim was to describe RNAs' experiences of the process of the extubation of the endotracheal tube in patients undergoing GA.

## Methods

### Design

In this study, a qualitative design was used to describe RNAs' experiences of extubation.

### Participants

RNAs in two geographically separate hospitals in Sweden were invited to participate. A consecutive sampling strategy was chosen to promote the possibility of recruiting as many RNAs as possible. A total of 20 RNAs (5 male and 15 female), participated from one university hospital ( $n = 11$ ) and one county hospital ( $n = 9$ ). The RNAs rotated within different surgical settings and carried out anesthesia for patients of all ages. A consecutive sampling strategy was chosen to promote the possibility of recruiting as many RNAs as possible. Any RNA who worked at either of the two hospitals was eligible to participate. To achieve homogeneity across groups, it was important to the purpose of this study to ensure that the participants in each group were drawn from a wide variety of experiences of different surgical settings and of performing extubations, and with different patients and age groups.<sup>16</sup> The included RNAs had

experience of working as an RNA from between one-and-a-half to 24 years (mean 8 years), and all had experience of performing extubations. They were aged between 30 and 63 years (mean 43 years), [Table 1](#).

### Procedure

Before the start of data collection, the directors of each anesthesia department gave their permission to invite the RNAs to participate in focus group interviews during working hours. Approximately 2 weeks before the focus group interviews took place, verbal (face-to-face) and written (by e-mail) information about the purpose of the study and their rights as participants was given by the author (L.R.) to a total of 86 RNAs. Those who were at work and available on the days that the focus group interviews took place and who had expressed an interest in participating were asked to complete a written consent form and were included in the study.

### Data Collection

Before the focus group interviews took place, the participants were encouraged to reflect on three situations where they had experienced what they considered a routine extubation, a particularly well-managed extubation, and a difficult extubation. On the day of each focus group interview, the participants were divided into groups by the person in charge of planning the work at the anesthesia units. Because of the difficulty in releasing several RNAs from daily practice at once, each group consisted of three to four RNAs. The focus groups took place in a quiet and private space, away from the other staff members.

Three focus group interviews were conducted by the authors L.R. and C.M.-J. at one hospital and three by the authors L.R. and U.N. at the other. L.R. acted as the moderator and led the discussion by asking the RNAs to share their experiences, drawing on the three situations they had been asked to reflect on. Follow-up questions, such as *How did you feel?* and *What did you think at the time?* were asked to guide the discussion further. The observer focused on the interaction in the groups and ensured that everyone in the focus groups had an opportunity to talk. The interviews took place between February and April in

**Table 1. Demographic Data**

Gender	Age (y) Mean/Range	Working as RNA (y) Mean/Range
Male ( <i>n</i> = 5)	42/30-63	10/2-24
Female ( <i>n</i> = 15)	43/31-57	8/2-24

RNA, Registered Nurse Anesthetist.

2014. They were conducted in Swedish, were digitally recorded, and lasted for 50 to 80 minutes.

### Data Analysis

Data were analyzed using qualitative content analysis, focusing on the manifest content of the text.<sup>17</sup> The interviews were transcribed in Swedish by L.R., verbatim. To obtain a sense of the whole, the interviews were listened to (L.R.), read, and reread several times by all the authors to gain an overview of the content and an overall impression of the RNAs' experiences.<sup>17</sup> Keeping the aim and the context in focus, the text was divided into meaning units, which consisted of excerpts from the text. The meaning units were condensed into words or phrases, describing the content of the text, and were abstracted and labeled with codes. The codes were compared and sorted by similarity, and thus, four categories and eight subcategories were created. L.R. and C.M.-J. were mainly responsible for the analysis, but discussions between all authors took place during the entire process, until consensus about the final subcategories and categories, and about their English translations, was reached. An example of the analysis process is presented in [Table 2](#).

### Ethical Consideration

This study was approved by the Regional Ethical Review Board in Umeå (Dnr 2014-19-31M). Ethical considerations were guided by and adhered to the World Medical Association's Declaration of Helsinki.<sup>18</sup> All participants were informed that their participation in the study was voluntary, data would be treated with confidentiality, they could withdraw at any time, and all data with sensitive personal information would be anonymized.

Table 2. Example of the Analysis Process

Interview Text	Meaning Unit	Condensed Meaning Unit	Code	Subcategory	Category
P211: You have a plan in your head P214: Then perhaps you don't think about it all the time P211: No, but I believe it's a ground to be prepared P214: Yes you have that P213: You gather information as a ground to be prepared and ready to act later on	You plan in your head, you do not think about it all the time but it is a ground for being prepared to act, gather information	A plan to be prepared and ready to act	Readiness	Prepare and reconsider	To be a step ahead
P132 This feeling you get for the patient a connection of a kind. It's about small signs, you learn to know them you know. P131: Yes, I'm being like on my toes and see how they react P132 I agree P131 You learn to understand this feeling and be a little more careful	Getting a feeling for the patient, a connection of a kind, being on my toes, and see how they react and be a little more careful	Being on my toes and gaining a kind of connection with the patient	Understand signs	Establish a connection	To be on my toes

<p>P223: I believe that all of these extubations have made me develop as a nurse anesthetist, I gained more working experience after all of them P221 All of the patients you meet, yes P223 this experience I have with me and use when I am in a situation similar to something I experienced P222 Then I use my experience to, um (sic) to know what to do or expect</p>	<p>All extubations develop me as a Registered Nurse Anesthetist, gaining working experience and using them in similar extubation situations to know what to do</p>	<p>Develop as a nurse, gaining and using experience in similar situations</p>	<p>Growing experience</p>	<p>Lean on experience</p>	<p>To use situation awareness</p>
<p>P223: It isn't easy, the responsibility is high, we have their lives in our hands P221: But we are not respected for that P222 no, really not when it is time to remove the you know the tube P223 No then they start talking and making noises, nobody thinks about the patient safety then P221 Then they are done and we are left alone with the responsibility</p>	<p>Responsibility is high, we have their lives in our hands, nobody thinks about the patient's safety and others in the team leave us with the responsibility alone</p>	<p>Left alone with the responsibility holding the patient's life in our hands</p>	<p>Holding life</p>	<p>On their own in a team</p>	<p>To be alone in a critical moment</p>

## Results

Through the manifest content analysis of the data, four categories and a total of eight subcategories were created describing the process of the extubation (Table 3). Quotations from the participants are presented under each subcategory and identified by their relevant participant numbers.

### *To be a Step ahead*

**ASSESS AND PREVENT.** Even before the induction of anesthesia, the RNAs described how they start to build up a plan for the extubation by observing and talking to the patient. The continuous collection of information proceeds by assessing and predicting possible risks that might influence the extubation. The dialogue between some of the RNAs demonstrate their reasoning about this:

(P213) I believe that this thought is brought up already at the intubation, how easy it was to ventilate, if the patient suffered from gastroesophageal reflux, had fasted, or a patient with ileus, then we all have a thought already of how we are going to act when we extubate, you have a picture of how you want to do it. But you don't think about it the whole time. (P211) I think it underlies, you gather information already then that underlies how to do the extubation ...

To prevent complications when performing extubations, certain risk assessments are used, for example, determining whether there are any physical or anatomic limitations that might contribute to problems when extubating. The RNAs also review the patient's history, to determine, for

**Table 3. Presentation of Subcategories and Categories**

Subcategory	Category
Assess and prevent	To be a step ahead
Prepare and reconsider	
Recognize patterns	To be on my toes
Establish a connection	
Rely on a feeling	To use situation awareness
Lean on experience	
On their own in a team	To be alone in a critical
Protect and advocate	moment

example, whether they have any risk of pulmonary aspiration, are overweight or obese, or smoke. To confirm their assessments, they use different rating scales, measurements, and parameters. It was important to be a step ahead to continuously assess and to prevent adverse events from happening because of the extubation. This included making a comprehensive evaluation of the risk factors associated with the extubation, because of the patient's status influenced by both the anesthetic and surgical procedures.

**PREPARE AND RECONSIDER.** To prevent complications was described by the RNAs as being one of the most important issues to consider when preparing the patient for the extubation and of being in control of the situation. Precautions such as having safety equipment and specific drugs available in case of unexpected acute events, such as laryngospasm and hypoxia, after the extubation, were described as important. They also expressed the importance of being prepared to call for assistance and the need to be open to reconsidering the decisions they had made. This was described by some RNAs:

(P221) You start planning early but it is equally important to have a plan B and to know who you can call for assistance. (P222) I find it more difficult to extubate than to intubate even if it could be very difficult to intubate. Because you never know how a patient will react on the extubation.

Deciding when the extubation should be performed often shifts, for example, because of the patient's state of awareness and condition, or because the duration of the surgery has been altered. This means that RNAs must always be ready with an alternative plan to perform an extubation so as to avoid putting the patient at risk of any complications.

### *To be on my Toes*

**RECOGNIZE PATTERNS.** At the precise moment of the extubation, the RNAs viewed themselves as being on their toes, fully focused, and performing their actions extra carefully. They described knowing the importance of keeping their attention on the patient to determine how they react and to stay alert to any alterations in their

condition at the time of extubation. The RNAs use pattern recognition from earlier clinical practice to predict how the extubation will progress. This gives them a premonition of how to perform the extubation. They perceive an openness in their senses to be able to recognize, remember, relate, and apply knowledge from earlier situations and patients similar to the present one. This clinical competence was reported as being an opportunity to predict eventual problems with the extubation. Some of them called it clinical intuition:

(P121) During all these years of working, the back-pack will be filled. So to speak, being an experience richer for each time. (P122) That's right, it's a lot of signals you pick up during the anesthesia with the patient, all the way, that you compare against your experiences. (P121) Yes, it's the clinical intuition. (P122) That you can use with the next patient and pick up something more that you can use on the next and so on ...

The RNAs stated that they performed their work extra carefully when the intubation had been difficult, because they have knowledge that when there are problems at the start of the anesthesia, this implies that there is a risk of the same problems occurring when extubating. They also expressed feelings of being extra careful if they had recently been in a situation where the extubation did not proceed well.

**ESTABLISH A CONNECTION.** Often in the very short meeting before the anesthesia, the RNAs described how they establish a relationship with the patient; they exchange information and gain trust. After the anesthesia begins, this relationship evolves into what the RNAs described as being connected to the patient, via nonspoken communication. During the anesthesia, the RNAs gather information that could be important for the extubation, for example, the patient's reactions to anesthetic medications, the drugs, their physical status, and their vital parameters. The more time they spend with a patient, the easier it is to establish a connection. Their own receptivity was also crucial in establishing a connection:

(P234) You learn to know the patient during the operation; you gather small signs all the

time when planning for the extubation. If you are not there the whole time, then you don't have any opportunity to plan, then you do it routinely. (P231) You gather carbon dioxide and start to get the patient to breathe by themselves, but this particular finesse you don't have if you haven't been there. (P234) No you haven't, this is what's hard. It's not an art to intubate, the art is to extubate ...

This connection was explained by the RNAs as being a feeling that they got for the patient after a while; they expressed how they, by being on their toes, using their senses, and being observant of the information that the patient provided them with, helped them to establish this connection.

### *To use Situation Awareness*

**RELY ON A FEELING.** When the RNAs stand beside the patient, they described how they mostly base the decision on the precise moment to extubate on a feeling that they rely on, because of the lack of guidance on when to extubate. Some of them expressed a desire to have a checklist. However, to be able to rely on a feeling, the RNAs reported the need of experience, and those who described themselves as being less experienced spoke of the frustration they felt when they asked other RNAs about the extubation process and the answer was to rely on a feeling. They perceived that this feeling was hard to describe:

(P232) It's what we say when we are with anesthesia-students, it's kind of a feeling, almost like intuition, it's clinical intuition. (P231) It's the feeling that comes to you when being with the patient for a while, you get a feeling, you learn how they react to different drugs and how they react during induction. But exactly what determines when you extubate is hard, I would say the gut-feeling ...

To be able to rely and confirm this feeling, the RNAs described the importance of ensuring that the patient maintained certain parameters to ensure a good respiratory and circulatory condition was established. The RNAs described how this feeling is part of the clinical intuition that they combine with their theoretical knowledge and experience to determine when to extubate. To be aware of

the present situation and have experience of similar situations they had encountered before allowed them to trust their gut feeling.

**LEAN ON EXPERIENCE.** The RNAs described how experience made them feel more calm and confident when performing an extubation. Every extubation made the experience richer; situations they recognized from earlier come to the surface when they experience something familiar. The decision on when to extubate differed between the RNAs, depending on their length of experience. Although the less experienced RNAs described a predetermined process, the more experienced ones adapted the decision to the present situation. The less experienced RNAs most commonly described a need for confirmation from others, whereas the more experienced ones had difficulty describing their actions, they acted more on intuition, often unaware of why they acted as they did. They described how they had the sum of their experience to lean on when putting the pieces together for the extubation.

(P113) I'm quite new at this and I really would like a parameter to go on, but they [the patients] aren't all the same. (P113) You know there are parameters that should be met before extubation, like appropriate spontaneous breathing and regained reflexes, but it's hard, it's so much about experience that others have but I haven't. (P111) It's hard to describe, it's much about a feeling, you look at the patient and how they act. It comes with experience; you learn to see how they behave in different situations ...

As an RNA, to have experience to lean on in a situation that demands wakefulness and full focus was expressed as an advantage when it comes to performing the extubation. Some of the less experienced RNAs expressed having limitations in their ability to adjust to the decision immediately, instead, they described how, afterward, they used the knowledge they gained to build up their experience.

#### *To be Alone in a Critical Moment*

**ON THEIR OWN IN A TEAM.** During the extubation, the RNAs experienced feelings of loneliness in the operating team. Although they were concentrating on the patient, the rest of the team mem-

bers who were responsible for the surgical procedure were about to end their work with the patient and started making phone calls and tending to the surgical instruments and paperwork. At the time of extubation, the RNAs reported the importance of creating a quiet environment and a need to fully focus on the patient, but they often experienced disturbances from the other team members. At the time of intubation, the whole team respected the importance of being quiet and not touching the patient. This was not the case when it came to the extubation; the noise volume increased in the operating room and other team members began to manipulate the patient's limbs and move the patient. The RNAs did not feel that the others in the team respected their work or the patient's safety at the time of extubation.

(P122) I get disturbed by it, because we are in a critical moment, the most vulnerable state for us except the intubation. When intubating then everyone is on it, they all know "Now we start the anesthesia and now everyone should be quiet". But when it comes to the extubation, then it's very hard to get everyone's attention. (P121) But they do remember us after a while, then they want to lift over the patient and clean the floor, but wait a moment let him breathe first. (P122) Exactly, let me extubate first.

Although there could be another RNA or an anesthesiologist in the room with them, the RNAs shared their experiences of not routinely talking about or planning the extubation together with someone else. Also, the other RNA had usually left the room to prepare for the next operation just at the point of extubation, in contrast to the induction of anesthesia, when there often was another RNA or an anesthesiologist assisting with intubation.

**PROTECT AND ADVOCATE.** The RNAs repeatedly discussed the importance of keeping the patient safe and speaking for them during anesthesia. The RNAs described the amount of responsibility they felt for the patient, and perceived themselves as acting as the patient's advocate. They all agreed that patient safety needed to be considered first, but this was not perceived as an easy task to fulfill. It could include challenging

other professionals in the hierarchy structure, sometimes an unexperienced anesthesiologist who had a different opinion on when to extubate. The RNAs experienced being in an exposed position when it came to the extubation; they felt alone with their decision and described having a feeling of being questioned by others in the team. Being able to stand up and defend their decision was perceived as being troublesome; they described how they preferred to argue for waiting to extubate if there had been problems with the ventilation or intubation instead of arguing for a feeling they had that they needed to wait a little bit longer to avoid complications.

(P221) I want it to be peaceful, safe and quiet, because I think it's so difficult if they are going on about, to hurry up and so. I don't like it when they start cleaning up and removing the ECG, I want to keep it on until the extubation. (P223) For me it's important to have a safety approach, I don't care if others are stressed or tell me how to do it, we have it in our hands we know what to do to protect the patient ...

The RNAs also described the time pressures imposed by their surroundings, both in the operating room and from the outside, in that they felt pressured to hurry but were aware of their responsibility to the patient; even if the timetable was full, they argued that safety must come first.

## Discussion

This study provides a description of the included RNAs' perceptions of the process of extubation of patients undergoing GA. The results showed that extubation appeared to be more difficult and complex to perform than intubation. In the present study, the complexity of the process involved the less favorable surroundings, the patient's condition, and the lack of guidance related to extubation. This study highlights the importance for RNAs who are responsible for the care of an anesthetized patient, to be a step ahead, to be on their toes, and to use situation awareness. In addition, it highlights the RNAs' experiences of being alone in the team at the critical moment of extubation.

Being a step ahead involved careful planning, continuous assessment and evaluation of the pa-

tient's condition, and the actions that the RNAs made during anesthetic care. The importance of having a pre-established plan for extubation has been affirmed.<sup>4,12</sup> To provide safe anesthetic care, the RNAs need to be a step ahead<sup>19</sup> in relation to the steps in the nursing process.<sup>20</sup> Being a step ahead is an attribute that characterizes anesthetic nursing.<sup>6</sup>

The process of extubation described here implies that the nursing care provided by RNAs is not only about caring for a body with a disease condition in a high-technological environment, it is also about meeting and creating a perioperative connection to make the patients feel secure. When we encounter another person, it is about holding a part of that person's life in our hands, the ethical demand encompassed within these encounters is a silent demand that comes with the natural trust we have in another person.<sup>21</sup> This obliges the RNAs, when a patient puts their life into their hands, to look after the person but to never remove their independence. The RNAs' ability to provide safe care for the unconscious patient is similar to the concept of advocacy.<sup>19</sup> An important aspect of caring for a patient under GA is that the patient is unconscious and not able to communicate verbally. The silent dialogue between a nurse and the unconscious patient that contributes to a firm and meaningful interaction has been described earlier.<sup>22</sup>

During the planning and assessment phase, the RNAs gathered information and clues about the patient, providing a premonition about the extubation. At the precise moment of performing the extubation, the RNAs trust a gut feeling that is difficult to describe. Clinical decision-making often relies on intuition.<sup>23</sup> To be able to trust this intuitive feeling, the RNAs confirmed and validated it based on their different impressions, such as those obtained from concrete objective data such as vital signs, and the assessable parameters of the patient's condition. To apply intuition in clinical practice, in-depth knowledge and critical thinking is essential,<sup>24</sup> and feelings are often used in clinical decision-making to validate assessments and actions in the nursing process.<sup>25</sup> The impressions the RNAs are exposed to take the form of physical signs and information from the patient, the team, and the surrounding environment. By making the

patient their focus, the RNAs use their intentionality and their experience to order these impressions. They use their preunderstanding from earlier situations to interpret the impressions, which guides the RNAs at the moment of extubation. Interpreting these impressions comes with experience and leads to a sense-based understanding, which may create an impulsive intuitive flash of insight suitable for the unique situation that must be responded to there and then.<sup>21</sup> To use situation awareness at the moment of the extubation, the RNAs trusted their gut feeling based on previous experiences of caring for patients in combination with gathering signs and impressions from the specific patient. A sixth sense in anesthesia, depending on prior experience, is described,<sup>26</sup> which may easily be disrupted by the emotional state of the anesthetist. In contrast to the moment of intubation when the whole team promotes a sense of calm and quiet, at the moment of extubation, each team member is busy tending to their individual tasks, causing disruption in the space and making the RNAs feel lonely in the team. At this moment the patient is especially dependent on the RNA, which makes the ethical demand paramount. This may affect the RNA's decision on when to extubate, preventing them from extubating at the precise optimum moment, thereby putting the patient at risk. Such disruptive behaviors in a team are part of the culture in the perioperative setting,<sup>27</sup> but they have been shown to have a detrimental effect, undermining the important elements of teamwork, communication, clinical decision-making, and technical performance.<sup>27</sup> Importantly, however, they may also have a negative impact on clinical outcomes and patient safety.<sup>27,28</sup> The RNAs in the present study did not routinely share their plan on when to extubate with the others in the team, not even with the other anesthesia professionals. At the moment of the intubation, the team focused on giving the patient quiet surroundings, but when it came to the extubation, the noise volume in the room was high and the RNAs did not experience that the patient's safety or their work was respected, or that they could act as the patient's advocate by speaking for them. The social structure in the operating room does not always work as a cohesive unit

at all times,<sup>29</sup> a finding similar to that of the present study.

By being a step ahead, staying on their toes, being aware of the severity of the extubation, and acting as the patient's advocate, based on clinical intuition and nonverbal communication, the RNAs in their care of the patient continuously facilitated a connection and, thereby, the ability to bring about a good outcome of the extubation. The RNAs described how they establish a relationship and a connection with the patient, enabling the RNAs to be a step ahead, to respond to, and to be receptive to signs and impressions during anesthesia. Communication is sometimes nonverbal, nor is it physical, but rather, it is an energy or a connection between a patient and a nurse.<sup>30</sup> To be able to form impressions, one needs to be open-minded and sensitive.<sup>21</sup> The RNAs use their knowledge of every unique patient, combined with their theoretical knowledge and clinical experience, to determine when to connect with and share the patient's existence. This connection is described as a receptive presence,<sup>31</sup> and enables a person (the RNA) to come into the presence of another (the patient) and to become aware of a mutual humanity. To have a receptive presence also embraces the idea that the RNAs recall the ethical demand in the unique situation, something that Løgstrup<sup>21</sup> also describes. Being receptive to different signs or impressions was perceived as being important in how the RNAs used intuition in the process of extubation. This suggests that not only gaining this connection and learning to know the patient but also understanding the importance of one's own receptivity (or intuition) is also important.<sup>31</sup>

### ***Methodological Considerations***

A qualitative method and content analysis was a suitable methodology for providing information regarding the RNAs' experiences. At the first hospital, none of the authors were known to the participants; at the other, U.N. had worked at the department as an RNA earlier, but her role during the interviews was as observer. Two of the authors had experience of working as RNAs for several years and both had experience of extubations, and the two other authors were senior researchers, without experience of anesthetic care. The multidisciplinary roles of the researchers

may be a strength of the study, increasing the trustworthiness of the results.<sup>32,33</sup> A consecutive sampling strategy was chosen, as it provides the opportunity to recruit from the population over a specific time interval.<sup>34</sup> When planning for the study we asked for so-called mini focus groups to provide a comfortable space in which the participants could share their experiences.<sup>16</sup> Because we wanted to reach an understanding of the participants' experiences, a small group was preferable,<sup>16</sup> but these should also be large enough to obtain variety and breadth of the participants' knowledge and experiences.<sup>16</sup> The small group size may have been a weakness of the study, but we chose to settle for having these smaller groups, and further we performed a total of six focus groups for additional scope. Because we focused on the discussions and not the interactions themselves, there is a risk that some participants may have dominated the discussion, but this risk was reduced by the smaller group sizes.<sup>16</sup> The focus groups included RNAs of a broad variety of ages and years of experience in each group, and four of the six groups consisted of both men and women, which provided ample time for each participant to contribute meaningfully. To find similarities and patterns, several focus groups were performed with similarity in the groups' composition. Because of the systematic steps followed in the content analysis,<sup>34</sup> the study is replicable. On the other hand, interpretations depend on the philosophical assumptions and preunderstanding of the researcher and a weakness in qualitative studies is that interpretations can differ between researchers.<sup>17</sup> Another potential weakness might be that the focus groups and the analysis were conducted in Swedish, and that the reporting of the results may have lost some significance in their translation. However, great efforts were made to achieve consensus among the researchers in this regard. Despite these weaknesses, because we performed a systematic analysis of the focus group interviews, driven by the purpose of our study, we obtained a trustworthy account of how the phe-

nomena of extubation was experienced by our participants.<sup>16</sup> We also performed a pilot test to decide adequacy in using focus groups.

## Conclusions

Extubation is a critical moment for the patient. The RNAs who plan and prepare the patient for extubation in a high-technological environment experience a lack of guidance and also disrespect from others in the team at the moment of extubation. They have feelings of being alone in a team when performing extubations. To decide on when to extubate, the RNAs combine their theoretical knowledge and clinical experience with intuition. The connection that they establish with each patient is unique and important when making the decision of when to perform the extubation. This study contributes new knowledge about RNAs' experiences of extubations. It provides valuable insight and understanding about the ways in which the RNAs experienced the practice of endotracheal extubation after GA.

## Clinical Implications

Because we described how the RNAs in this study experienced the complexity and sometimes lack of understanding from others in the team, this might imply that all members of the team should focus on the patient during extubation, just as during intubation. Also, it would be beneficial to routinely share their plans for the extubation with the other anesthesia providers and with the whole team. The findings of this study, combined with these recommendations, might reduce the risk of adverse events and improve patient safety and experience. For further research, it would be interesting to perform an observational study, placing focus on the endotracheal extubation in the operating theater to illuminate the actions of both the RNAs and the others in the team around the patient.

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