

## ORIGINAL ARTICLE

# SAFE anaesthesia for patients at risk of pulmonary aspiration

## A nationwide survey

Sascha Jan Baettig<sup>\*ID</sup>, Mark Georg Filipovic<sup>\*</sup>, Michele Giroud, Hagen Bomberg, Christoph Karl Hofer, Urs Eichenberger and Michael Thomas Ganter<sup>ID</sup>

**BACKGROUND** Clinical practice in patients at risk of pulmonary aspiration varies widely. However, data on actual management, decision-driving factors and controversial issues remain elusive.

**OBJECTIVE** We aimed to comprehensively review the management of patients at risk of pulmonary aspiration and identify controversies among anaesthesia professionals.

**DESIGN** National interprofessional survey.

**SETTING** All anaesthesia departments in Switzerland.

**PARTICIPANTS** The survey was distributed electronically to all members of the Swiss Society of Anaesthesiology and Perioperative Medicine, members of the Swiss Interest Group for Anaesthesia Nursing and all department heads in Switzerland.

**INTERVENTION** None.

**MAIN OUTCOME MEASURES** Consensus and controversies in clinical practice and management of patients at risk of pulmonary aspiration.

**RESULTS** A total of 684 respondents were included in the final analysis (59 department heads, 366 consultants, 99 registrars, 160 nurse anaesthetists). The response rate from physicians was 47%. Consensus (>80% agreement or disagreement) was reached on 9/12 (75%) questions regarding preparation for rapid sequence induction (RSI), 6/13 (46%) regarding RSI practice and 3/8 (38%) regarding management of aspiration incidents. Major controversies included high-flow pre-oxygenation (55% agreement), the validity of modified RSI in adults (52% agreement), the primary use of video-laryngoscope (76% agreement) and management of apparent regurgitation. Subjective factors such as clinical presentation were considered more important than objective factors such as medical history, comorbidities or gastric ultrasound.

**CONCLUSION** Across a wide range of experience and professional groups, we found a strong consensus on the indication and performance of 'traditional' RSI. However, clinical decision-making still relies heavily on subjective impressions, while newer risk stratification and management techniques remain controversial.

\* SJB and MGF contributed equally to this work and share first authorship.

From the Institute of Anaesthesiology and perioperative Medicine, University Hospital Zurich, Zurich (SJB), Department of Anaesthesiology and Pain Medicine, Inselspital, Bern University Hospital, University of Bern (MGF), Swiss Interest Group for Anaesthesia Nursing (SIGA-FISA), Bern (MG), Institute of Anaesthesiology and Intensive Care Medicine, University Hospital Balgrist, Zurich (HB), Swiss Patient Safety Foundation in Anaesthesia, Institute of Anaesthesiology, Schulthess Clinic Zurich (CKH), Swiss Society for Anaesthesiology and Perioperative Medicine, Institute of Anaesthesiology and Intensive Care Medicine, University Hospital Balgrist (UE), Swiss Society for Anaesthesiology and Perioperative Medicine, Institute of Anaesthesiology and Intensive Care Medicine, Clinic Hirslanden Zurich, Zurich, Switzerland (MTG)

Correspondence to Sascha Jan Baettig MD, Institute of Anaesthesiology and perioperative Medicine, University Hospital Zurich, Zurich, Switzerland. Address: Rämistrasse 100. Postal code: 8091 Zurich, Switzerland. E-mail: sascha.baettig@usz.ch

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## KEY POINTS

- There is a strong consensus on the need to standardise preparation and practice of rapid sequence induction, including equipment, training, team factors and standard operating procedures.
- For airway management in patients at risk of pulmonary aspiration, clinical presentation and overall subjective impression were considered more important than objective factors such as patient history, comorbidities or gastric ultrasound.
- Modern tools such as high-flow or CPAP/PEEP pre-oxygenation, gastric ultrasound and video-laryngoscopy remain controversial in clinical practice.
- In cases of apparent pulmonary aspiration, there is a lack of consensus on subsequent management, including the intensity of monitoring, while protocols and training for aspiration incidents remain rare in hospitals.
- The risk of regurgitation in patients treated with GLP-1 agonists is underestimated by some anaesthetists and nurses.

## Background/introduction

Regurgitation and pulmonary aspiration were first described in 1946 by Mendelson in a cohort of 66 women undergoing obstetric anaesthesia.<sup>1</sup> In 1970, Stept and Safar<sup>2</sup> summarised the available literature and described a 15-step technique called “rapid induction/intubation”, which is comparable to the modern understanding of rapid sequence induction (RSI). In summary, it consisted of an equipment check, an awake nasogastric tube, head-up positioning, pre-oxygenation, injection of rapid-acting induction and neuromuscular blocking agents (thiopental/suxamethonium), avoidance of intermittent positive pressure bag ventilation, and cricoid-pressure followed by rapid intubation. In the following decades, many variations, different agents and numerous technical aids were introduced and evaluated in scientific literature. Although there is still no definitive evidence that RSI is effective in preventing pulmonary aspiration, it is now an established standard of care for at-risk patients in many countries.<sup>3</sup>

Recent large international surveys by Klucka *et al.*<sup>4</sup> and Zdravkovic *et al.*<sup>5</sup> found a surprising diversity and variety on how RSI is performed in daily clinical practice. Unfortunately, the results of these international surveys are limited to a few technical aspects of RSI, whereas we believe that aspiration prevention includes the indication and decision making, preparation, performance and the management of potential pulmonary aspiration. Likewise, modern technical aids such as high-flow pre-oxygenation or the use of video-laryngoscopy were not

neither adequately represented in these analyses nor discussed.

Reasons for this wide variation in clinical practice may be found in individual preferences, experience, availability of resources, departmental standards, clinical factors and ultimately in insufficient scientific evidence for many aspects of RSI practice. The 2011 UK National Audit Project (NAP4) identified pulmonary aspiration as the most common cause of death among reported major airway complications.<sup>6</sup> Recent data show a frequency of pulmonary aspiration of around 1:8325 reaching 1:820 in the emergency setting.<sup>7</sup> Although much effort has been invested in the prevention of various airway complications in the last decades, the incidence of pulmonary aspiration seems to remain at a relatively high level.<sup>7</sup>

The national and international diversity in clinical practice can lead to uncertainty, as evidenced by the desire for clear RSI guidelines expressed by 93% of respondents in a recent UK survey.<sup>8</sup> Therefore, wide variations and discrepancies in clinical practice, preparation as well as training, may place a vulnerable patient group at additional risk. To overcome discrepancies and work towards unified standards, it is important to understand where potential controversies lie in daily clinical practice. However, data on how these patients are managed, what factors are driving decisions and what are the most controversial issues among anaesthesia professionals remain elusive.

Our comprehensive national survey aimed to better understand how patients at risk of pulmonary aspiration are currently managed in our country. As with previous international surveys, we expected many controversies with less than 80% agreement. Identifying controversial practices might serve to focus national airway education, identify areas for further research, and ultimately contribute to standardise care for patients at risk of pulmonary aspiration.

## Materials and methods

The Swiss Society of Anaesthesiology and Perioperative Medicine and the Foundation for Patient Safety in Anaesthesia launched this national, anonymous survey in collaboration with the Swiss Interest Group for Anaesthesia Nursing. The survey was developed by the authors in collaboration with society representatives using the forms office platform (Google Inc, Mountain View, California, USA) and is based on the Consensus-Based Checklist for Reporting of Survey Studies (CROSS). The survey was sent electronically to all members of the Swiss Society of Anaesthesiology and Perioperative Medicine and the Swiss Interest Group for Anaesthesia Nursing in mid-November 2023. Further, chief physicians were encouraged to distribute the invitation to their anaesthesia teams, so that participation was also possible

without membership of the aforementioned societies. The survey was closed on 31 January 2024 after 75 days.

### Ethical approval

All data were collected anonymously. In accordance with Swiss and international standards, the local ethics committee granted a waiver for the study. Therefore, consent for data analysis and publication was not mandated.

### Data collection

The complete questionnaire and definitions are shown in Appendix 1, <http://links.lww.com/EJAIC/A108>. The questionnaire was only available in English. The questionnaire consisted of 66 compulsory questions. Eight questions addressed basic information, 12 RSI preparation, 13 RSI practice and 8 questions were included on aspiration incident management. Finally, six questions dealt with risk stratification and 19 questions assessed risk factors.

### Validation of data

The data set was checked for completeness and plausibility. Data were defined as implausible if the years of professional experience in anaesthesia was less than 10 years and the clinical position was that of a chief physician in the anaesthesia department. Data were further defined as implausible if the years of professional experience in anaesthesiology were less than 5 years and the experience level in rapid sequence induction was rated as 10/10.

### Handling of missing data

Two questionnaires (0.3%) were incomplete, as the years of experience were not specified. These two questionnaires were otherwise complete and the available data were used for the analysis.

### Data analysis

Continuous variables are expressed as mean  $\pm$  SD. Categorical variables are presented as absolute and relative frequencies.

The main data presentation includes descriptive statistics. Descriptive statistics were used to describe participants' baseline characteristics and responses to each question. We defined consensus as more than 80% agreement or disagreement. Consequently, we specified an intermediate consensus as 60–80% agreement or disagreement. Agreement/disagreement between 40 and 60% was determined to be controversial. Relevant differences between groups were defined as more than 20% (absolute) in binary (yes/no) questions or as at least 1 point (mean) in questions concerning the importance of risk factors (0 to 10; 0=lowest agreement with the statement, 10=highest agreement with the statement).

Continuous variables were compared using Student's *t*-test. Categorical variables were compared with  $\chi$ -square

tests. Two-sided *P* values less than 0.05 were considered statistically significant. Data analysis was performed using SPSS Statistics 19 (IBM, Ehningen, Germany).

## Results

### Baseline characteristics

No questionnaires failed the plausibility check. Of the 684 respondents, 59 were department heads, 366 consultants, 99 residents, 107 nurse anaesthetists, 31 nurse anaesthetist educators, 13 nurse anaesthetists in management function and nine nurse anaesthetists in training. During the study period, 524 of 1113 anaesthesia physicians completed the questionnaire (response rate 47.1%). Distribution to anaesthesia nurses was by advertisement. The response rate is unclear, as there is no information on the total number of clinically active nurses. Average time to complete the survey was 19 min. Anaesthesia nurses ( $n=160$ ) had a mean experience of 13 years and rated their skills in performing RSI with a mean of 7.4. Anaesthesia physicians ( $n=524$ ) had a mean experience of 17 years and rated their skills in performing RSI with a mean of 8.3. Anaesthesia physicians and nurses in regional hospitals, private hospitals, and outpatient anaesthesia had more years of professional experience than those in university and cantonal hospitals (mean 20.4 vs. 13.7 years). Experience, workplace situation and subjective rating of skills practicing rapid sequence induction are illustrated in Table 1.

### Patient position

For rapid sequence induction, 70% place the patient in head-up, 28% in supine and 2% in head-down position. In direct comparison between anaesthesia nurses and physicians, there was no significant difference.

### Standard operating procedure/training

Four hundred and ninety out of 684 respondents (72%) reported having a standardised protocol for the indication and procedure of RSI. Only 304/684 (44%) had a standardised protocol for the management of regurgitation and aspiration events. In addition, only 187/684 (27%) reported that they provide regular training in the management of regurgitation and pulmonary aspiration. There was a difference between large (university and cantonal hospitals) and small institutions (regional and private hospitals as well as outpatient anaesthesia; 80 vs. 56%,  $P<0.001$ ) regarding the existence of protocols for RSI indication and procedure. Smaller institutions were less likely to have protocols for the management of aspiration events (50 vs. 35%,  $P<0.001$ ) and less likely to have training in the management of regurgitation and aspiration events (32 vs. 18%,  $P<0.001$ ).

### Rapid sequence induction preparation, practice and aspiration incident management

We assessed the steps that respondents considered to be essential for high-quality RSI (Fig. 1). Consensus was

**Table 1** Baseline characteristics (*n* = 684)

	Number (%)	Years of practice Mean $\pm$ SD	Subjective rating of skills practising RSI (1 to 10), (Mean $\pm$ SD)
Anaesthesia nurses, overall	160 (100)	13 $\pm$ 10	7.4 $\pm$ 1.4
Nurse anaesthetist in training	9 (6)	2 $\pm$ 2	4.9 $\pm$ 1.7
Nurse anaesthetist	107 (67)	12 $\pm$ 9	7.6 $\pm$ 1.3
Nurse anaesthetist educator	31 (19)	16 $\pm$ 10	7.6 $\pm$ 0.8
Nurse anaesthetist management	13 (8)	15 $\pm$ 9	7.9 $\pm$ 1.0
Anaesthesia physicians, overall	524 (100)	17 $\pm$ 10	8.3 $\pm$ 1.5
Residents	99 (19)	3 $\pm$ 2	6.8 $\pm$ 1.5
Consultant	366 (70)	19 $\pm$ 9	8.6 $\pm$ 1.1
Department head	59 (11)	27 $\pm$ 9	8.5 $\pm$ 1.9
Working place			
University hospital	204 (30)	13 $\pm$ 9	7.9 $\pm$ 1.4
Cantonal hospital	246 (36)	14 $\pm$ 10	8.0 $\pm$ 1.6
Regional hospital	115 (17)	19 $\pm$ 11	8.2 $\pm$ 1.6
Private hospital	100 (14)	21 $\pm$ 9	8.4 $\pm$ 1.1
Ambulant anaesthesia	19 (3)	25 $\pm$ 10	8.4 $\pm$ 1.3

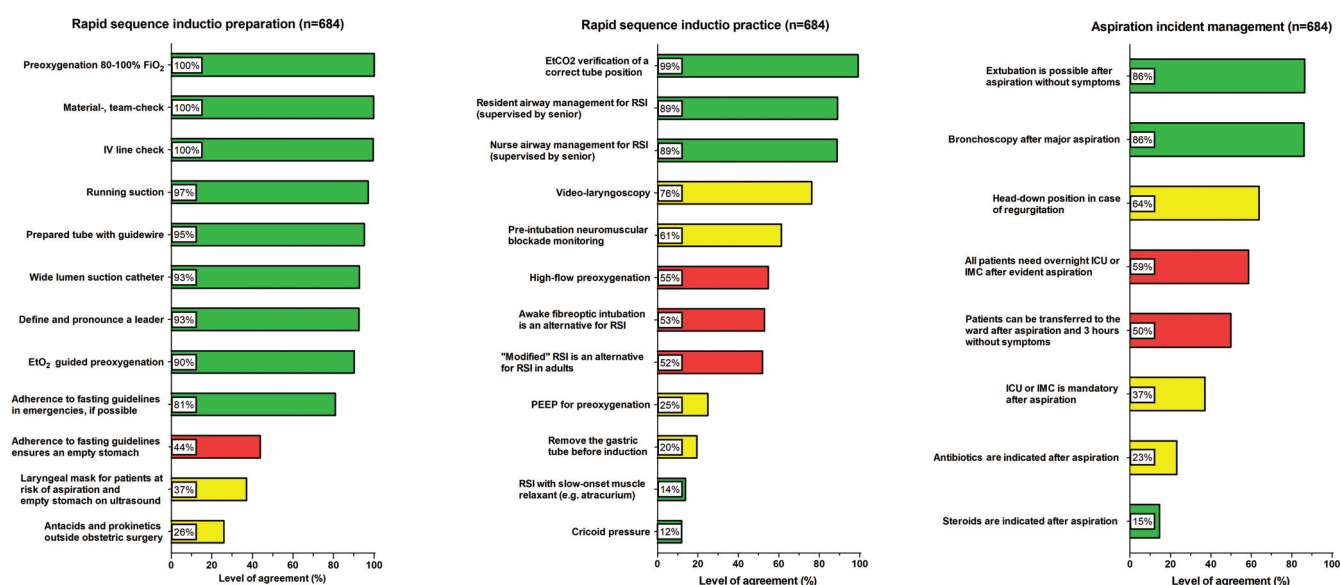
Data are presented as mean  $\pm$  SD and *n* (%). The subjective assessment of skills in the rapid sequence induction (RSI) is defined from 1 (lowest level) to 10 (best level).

reached in 75% of the questions regarding RSI preparation, 46% regarding RSI practice and 38% regarding management of aspiration events. Relevant controversies arose in the questions of whether adherence to fasting guidelines ensures an empty stomach in most patients (44% agreement) and whether modified RSI (52%) or awake fiberoptic intubation without expected difficult airway (53%) are valid alternatives to 'traditional' RSI. There was also controversy over whether high-flow pre-oxygenation was a valid alternative (55% agreement). Regarding the management of aspiration events, the question of whether patients after regurgitation require overnight monitoring (postanaesthesia care unit,

intermediate care unit or ICU; 49% agreement) or whether they can be transferred to the ward after 3 h of uneventful monitoring (50% agreement).

### Risk stratification/decisive factors in evaluation individual aspiration risk

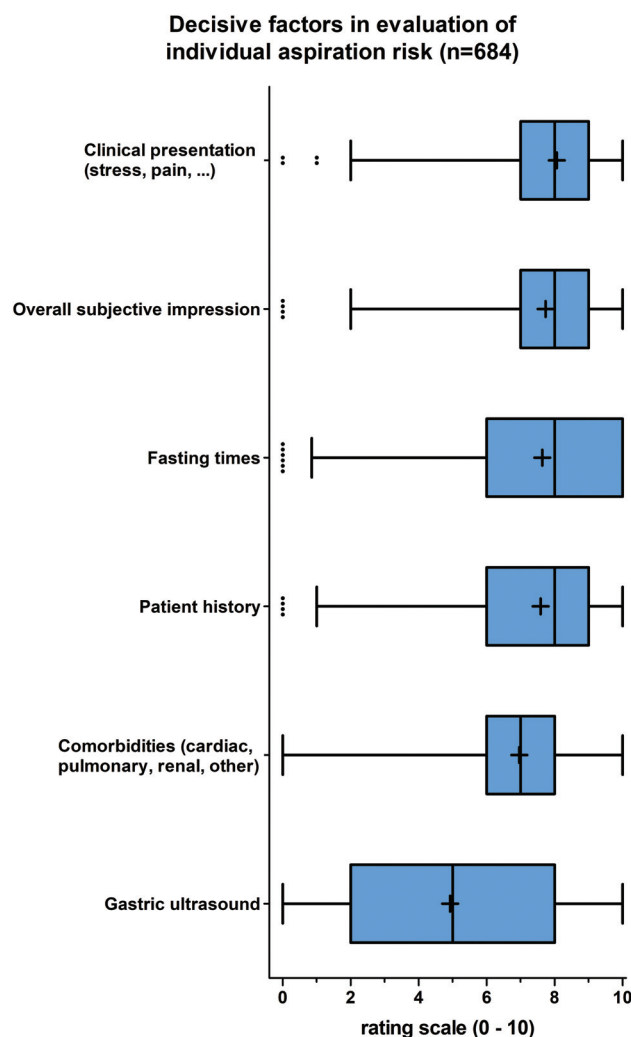
In evaluating a patient's individual aspiration risk, the following factors (rated from 0 to 10) ranked as decisive in a descending order: clinical presentation (stress, pain), overall subjective impression, fasting times, patient history, comorbidities (cardiac, pulmonary, renal) and gastric ultrasound (Fig. 2). When the data was combined for both anaesthesia physicians and nurses, compared with those

**FIGURE 1** Rapid sequence induction preparation, practice and aspiration incident management.

Green: > 80% agreement or disagreement. Yellow: 60 to 80% agreement or disagreement. Red: 40 to 60% agreement or disagreement. EtO<sub>2</sub>, end-tidal oxygen concentration; FiO<sub>2</sub>, inspiratory oxygen fraction; IMC, intermediate care; IV, intravenous; ICU, intensive care unit; PEEP, positive end-expiratory pressure; RSI, rapid sequence induction.



**FIGURE 2** Decisive factors in evaluation of individual aspiration risk: Whiskers 1<sup>st</sup> to 99<sup>th</sup> percentile.



The median is represented by the line across the middle of the box, the mean is the + sign, the ends of the box represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the dots are outliers.

who had less than 6 years-experience those who had 6 or more years-experience rated fasting times, patient history, and comorbidities less important: 8.1 vs 7.5,  $P=0.007$ ; and 7.5 vs 6.8  $P=0.001$  respectively. This same combined data indicated that fasting times were considered less important with increasing experience (mean 8.0, 7.6, 7.3;  $P=0.003$ ) when the cohort was divided into 3 equal tertiles based on years of experience (0 - <10, 10 - <20, 20 - 43).

### Assessment of risk factors

We evaluated 19 risk factors that contributed to a higher individual risk of pulmonary aspiration (Fig. 3). Gastro-intestinal obstruction ( $9.9 \pm 2.5$ ), severe gastrointestinal bleeding ( $9.3 \pm 1.1$ ) and nonadherence to fasting times

for solid meals ( $8.8 \pm 1.4$ ) were rated as the most important risk factors.

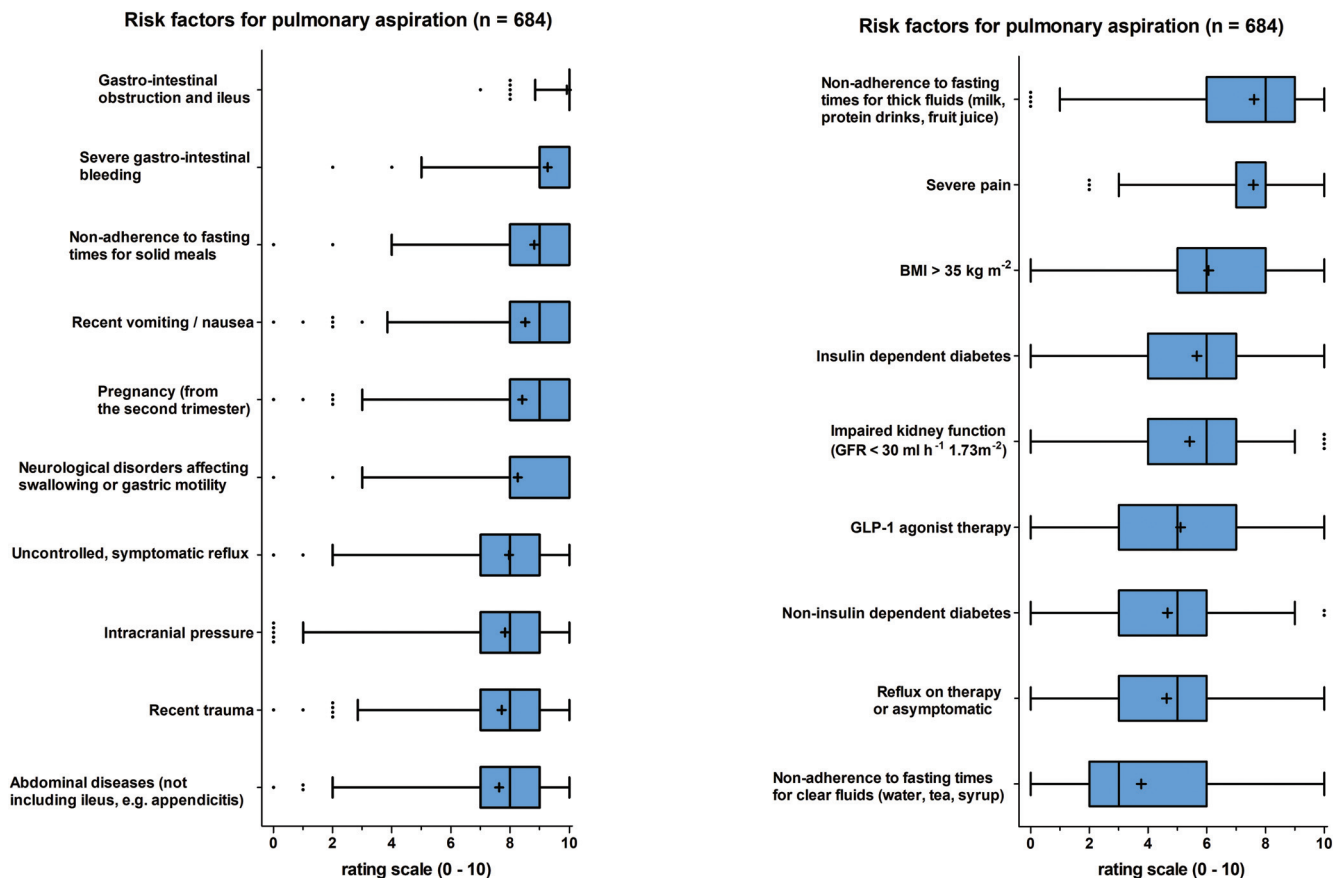
### Differences between anaesthesia physicians vs. anaesthesia nurses

In Switzerland, anaesthesia nurses often work independently under indirect supervision. In general, between anaesthesia physicians and nurses, a high degree of agreement was observed. Difference between the groups of at least 20% and at least 1.0 point are presented in Fig. 4. High-flow pre-oxygenation was more accepted by anaesthesia physicians than nurses (61 vs. 36%,  $P < 0.01$ ). However, the use of video-laryngoscopy was considered more important by nurses (74 vs. 83%,  $P=0.02$ ).

### Discussion

International<sup>4,5</sup> and national<sup>8</sup> surveys on the peri-operative management of patients at risk of aspiration, as well as many authors<sup>9</sup> describe a concerning diversity, especially in key aspects of clinical RSI practice. Despite four national languages and cultures in Switzerland, we recorded a high level of overall agreement. When consensus and intermediate consensus were combined, 92, 75 and 75% were achieved for RSI preparation, RSI practice and aspiration incidence management, respectively. Not only overall consensus, but also interprofessional consensus was high. These findings are in contrast to previous studies. Despite consensus on the importance of standardising preparation and practice for RSI – including equipment, training and team protocols – newer technical tools such as high-flow pre-oxygenation, gastric ultrasound or the use of video-laryngoscopy still face resistance and variable acceptance among practitioners. Similarly, the use of modified RSI in adults or the appropriate management in cases of apparent regurgitation remains controversial. Some of the main points of controversy are discussed in more detail in the following sections.

Gastric ultrasound has proved to be a validated, reliable, noninvasive and easy-to-use tool in patients at risk of pulmonary aspiration.<sup>10–12</sup> It also has an impact on clinical decision making and airway management, as latest investigations showed.<sup>13,14</sup> In our survey, subjective factors such as clinical presentation and overall impression were rated as more decisive than patient history, comorbidities or gastric ultrasound. However, with the emergence of new risk factors, such as patients treated with GLP-1 agonists, clinical judgement alone may not be accurate and reliable enough. Patients taking GLP-1 agonists have significantly increased gastric residuals and delayed gastric emptying.<sup>15</sup> Case reports of patients who suffered severe pulmonary aspiration despite fasting for up to 18 h<sup>16,17</sup> have been published. The peri-operative management of patients on GLP-1 agonists remains controversial as it is unknown to what extent the peri-operative risk of aspiration is increased, or if there is tachyphylaxis to the gastric effect of these drugs.<sup>18–20</sup>

**FIGURE 3** Risk factors for aspiration events: Whiskers 1 to 99 percentile.

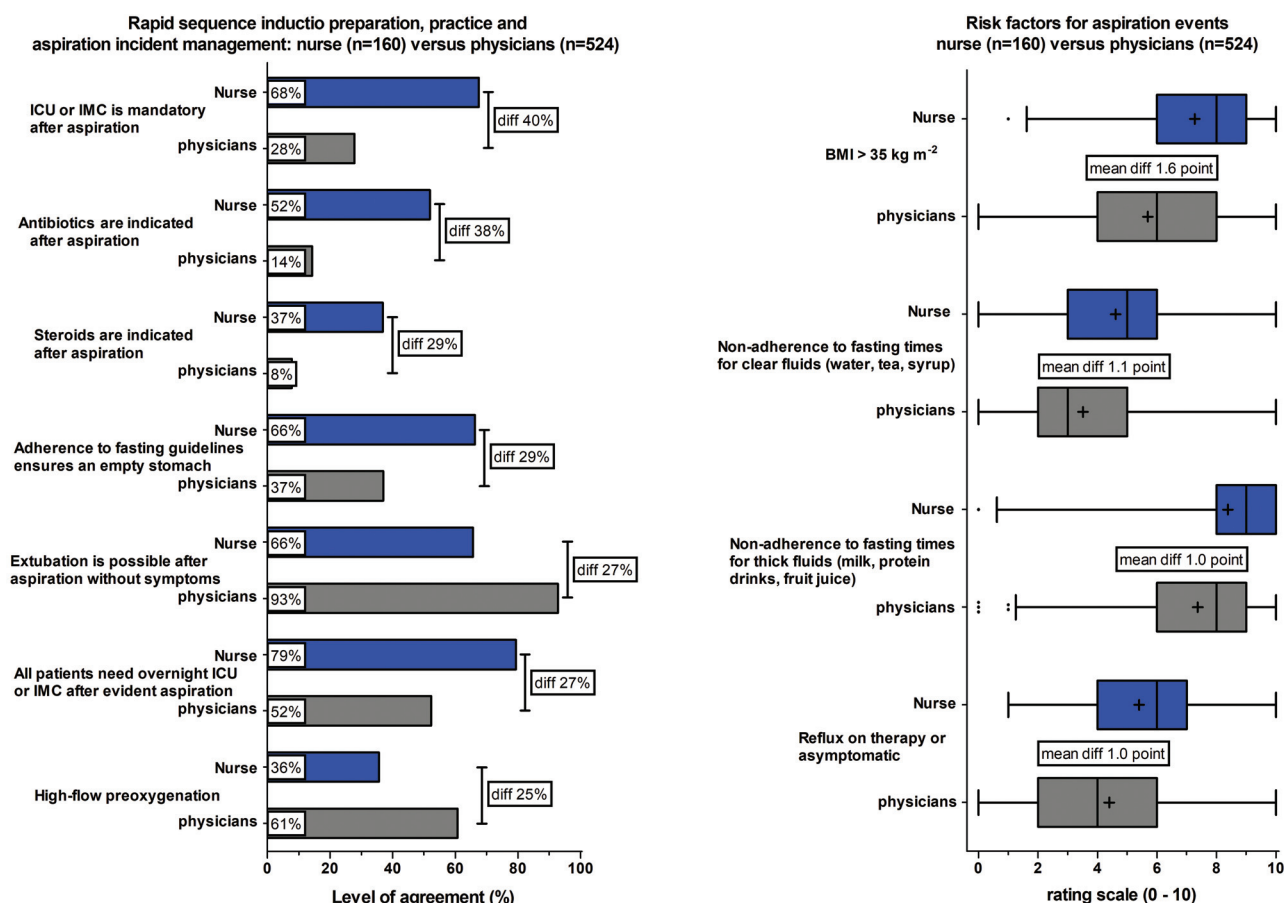
The median is represented by the line across the middle of the box, the mean is the + sign, the ends of the box represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the dots are outliers. eGFR, estimated glomerular filtration rate; GLP-1 agonist, glucagon-like peptide-1 agonist.

Nevertheless, the emerging technique of gastric ultrasound might offer an objective assessment to facilitate risk stratification. To summarise, the risk of pulmonary aspiration in patients undergoing GLP-1 agonist therapy may be underestimated in Switzerland, highlighting the need for greater awareness and possibly more tailored management strategies to address this concern.

Apnoeic oxygenation in the sense of high-flow pre-oxygenation prior to RSI is controversial according to our results (55% agreement). The benefit of high flow pre-oxygenation is that oxygen delivery is maintained during laryngoscopy, thus increasing the time to desaturation.<sup>21</sup> Various authors describe beneficial effects in emergency airway management,<sup>22</sup> in obese patients<sup>23</sup> or in pregnant women.<sup>24</sup> The controversial views on this topic are probably related to the lack of awareness and consequently the lack of practice in many anaesthesia departments in Switzerland. Furthermore, only 25% consider CPAP/PEEP mandatory for pre-oxygenation. The use of PEEP can reduce the formation of atelectasis<sup>25</sup> and lead to

prolonged apnoea tolerance independent of the applied FiO<sub>2</sub>.<sup>26</sup> Modified or controlled RSI, widely used in paediatric anaesthesia and in low-income countries, is considered a feasible alternative for adults by 52% of respondents to our survey.<sup>27,28</sup> Emergency intubations during the COVID-19 pandemic may be used as an example for the importance of hypoxia prevention.<sup>29</sup> The central question remains whether intermediate ventilation increases the risk of aspiration: when performing modified RSI with positive pressure mask ventilation one must balance the risk of hypoxia/hypercapnia against the possible increased risk of gastric insufflation with pulmonary aspiration. A recent retrospective analysis, which is clearly underpowered, showed no pulmonary aspiration in 4469 modified RSI in adults.<sup>7</sup> When weighing up the two procedures, it should not be forgotten that pulmonary aspiration in children is associated with a significantly lower morbidity rate than in adults.<sup>30</sup>

According to our results, in Switzerland 70% of the respondents place the patient in a head-up, 28% supine

**FIGURE 4** Difference between the groups  $\geq 20\%$  and  $\geq 1.0$  points.

Nurse (blue) vs. doctor (grey). Rapid sequence induction preparation, practice and aspiration incident management (left figure). Risk factors for aspiration events (right figure): The median is represented by the line across the middle of the box, the mean is the + sign, the ends of the box represent the 25<sup>th</sup> and 75<sup>th</sup> percentiles, the dots are outliers. The whiskers represent the 1<sup>st</sup> to the 99<sup>th</sup> percentile. IMC, intensive care unit; ICU, intensive care unit.

and only 2% in a head-down position. Compared to the result of the survey by Zdrakovic *et al.*,<sup>5</sup> the results are consistent (70% head-up, 20% supine, 10% head-down) also to the result of Klucka *et al.*<sup>4</sup> (60% head-up, 35% supine and 5% in head-down position). Well studied advantages of the head-up position are the more effective pre-oxygenation and increased FRC with increased time to desaturation,<sup>31,32</sup> recently confirmed also in a meta-analysis for obese and nonobese patients.<sup>33</sup> These results are also reflected in recommendations for the head-up position in German-speaking countries.<sup>34</sup> If regurgitation, a pre-existing or immediate head-down position may be beneficial, a 15-degree head-down position may reduce the aspirated liquid volume drastically, at least in a manikin-based simulation study.<sup>35</sup> According to the results of our survey, only 64% seem to believe in the beneficial effect of minimising the aspirated volume in the event of regurgitation. A disadvantage is the possibility of more difficult intubation in the head-down position.<sup>36</sup>

The use of the video-laryngoscopy can reduce the number of intubations attempts and the number of intubation failures. This applies to both Macintosh-shaped<sup>37</sup> and hyperangulated<sup>38</sup> blades. However, there was no significant increase in adverse events such as dental injuries in any group. In the emergency setting, the first-pass intubation rate seems to be particularly important for RSI to reduce the time of unprotected airway exposure and to reduce the time of apnoea. In our survey, only 76% of respondents considered the video-laryngoscope to be mandatory for high-quality RSI. In clinical practice, training effects and available resources certainly play a role. Only 12% of the surveyed clinicians in Switzerland use cricoid pressure. Compared to international RSI practice, where cricoid pressure is used by 39 to 50% or up to 70% of those surveyed,<sup>4,5</sup> our results are very consistent. Poor evidence, potential complications and conflicting recommendations are the reality with respect to RSI.<sup>39,40</sup> In the absence of regular practice, which is

mostly the case in Switzerland, the principle of ‘do no harm’ is and should be prioritised.<sup>41</sup>

Considering whether institutional RSI protocols exist, our results of 72% are in line with the results of the survey by Zdravkovic *et al.* (75%).<sup>5</sup> An exception to this, however, is the existence of protocols for the management of pulmonary aspiration and the provision of regular training in this area. A high degree of standardisation, checklists and practice guidelines can help to align performance and training, particularly in an area of indirect supervision and delegated medical competence. Indirect supervision of residents and nurse anaesthetists is common in Switzerland, as in many other countries around the world. In the area of indirect supervision, there may also be an increased need for safety, which is why the use of a video-laryngoscope may be more important for nurse anaesthetists than for physicians. For 89% of the respondents, resident airway management in RSI under close supervision is feasible. A very similar result (89%) was obtained for airway management by nurses. This result appears to be slightly higher than in the international survey by Zdravkovic *et al.*<sup>5</sup> According to their results only 77% of the consultants stated that close supervision during RSI is feasible.

We were aware of several limitations. First, by including all professional groups, our aim was to reflect as broadly as possible how patients with risk factors for pulmonary aspiration are managed in Switzerland. Despite the involvement of the Swiss Interest Group for Anaesthesia Nursing, we were not able to achieve a balanced field of participants, which may have influenced the results. Although the survey was conducted in English, there are four national languages in Switzerland, which may have biased regional and interprofessional participation. We also had an over-representation of chief physicians/heads of department compared to consultants and residents. Similarly, the questions on risk and decision factors asked for a rating of 1 to 10, but the answer sheet allowed a response of 0 to 10, which may have introduced a further bias. Furthermore, no plausibility check could be carried out for two questionnaires with incomplete years of experience. Finally, despite data validation, we cannot be certain that no respondent completed the survey more than once.

## Conclusion

In Switzerland, despite linguistic and cultural diversity, there is a remarkable degree of consensus on many aspects of clinical practice in airway management in patients at risk of pulmonary aspiration. However, significant controversies remain regarding the integration of newer technical tools, such as gastric ultrasound, the use of video-laryngoscopy and high-flow pre-oxygenation. These innovations, while promising, face resistance and inconsistent adoption, highlighting the challenge of adapting to new technologies in the quest for

patient-centred, individualised care. Addressing the gaps by updating protocols, enhancing training and fostering acceptance of evidence-based innovations could significantly improve the safety and effectiveness of managing patients at risk of pulmonary aspiration.

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Authors' contribution:

Baettig, Filipovic: Conceptualisation, investigation, methodology, formal analysis, validation, writing/reviewing and editing the manuscript.

Bomberg: Methodology, formal analysis, visualisation, reviewing the manuscript.

Hofer, Eichenberger: Conceptualisation, investigation, methodology, reviewing the manuscript.

Ganter: Conceptualisation, investigation, methodology, formal analysis, validation, reviewing and editing the manuscript.

All authors read and approved the final manuscript

Data acquisition was conducted in an anonymous form and the data set is available on the protected area on a server of the Swiss Society of Anaesthesiology and Perioperative Medicine (SSAPM) or by direct contact with the corresponding author

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**GRAPHICAL ABSTRACT****SAFE Anaesthesia for patients at risk of pulmonary aspiration – A nationwide survey****Broad Consensus with Persistent Gaps:**

High levels of agreement were observed for RSI preparation (75%) but variability exists in practice (46%) and the management of pulmonary aspiration (38%).

**Integration of Innovations:**

Modern tools such as high-flow or CPAP/PEEP pre-oxygenation, gastric ultrasound and the use of video-laryngoscopy remain controversial in clinical practice. The validity of modified RSI in adults is controversial.

**Room for Improvement:**

The risk of regurgitation in patients treated with GLP-1 agonists is underestimated by some anaesthetists and nurses. Protocols and training for aspiration incidents remain rare in hospitals.

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