

Original Article

# Preparedness and practice competency in Tracheostomy management by Speech language Pathologists in Saudi Arabia

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## Abstract:

**AIM:** This study aimed to identify the preparations, clinical consistencies, management consensus and current practice patterns among the Speech language pathologists while treating tracheostomy patients with and without mechanical ventilator within the kingdom of Saudi Arabia.

**METHODS:** The questionnaire used by Ward et al., [2007, 2008 and 2012] and McGowan et al, [2014] in their respective studies was adapted for this study with approval from the authors. Thirty-eight Speech language pathologists working in Saudi Arabia responded to this survey and their responses were recorded.

**RESULTS:** Response analysis revealed low consensus in clinical practice patterns of the speaking valve fitting in ventilated patients, decision making of the type of tracheostomy tube and decannulation recommendations, whereas moderate consensus expressed in using speaking valve in tracheostomy patients without mechanical ventilator and dysphagia management in such patients.

**CONCLUSION:** The findings of this study warrant the need to establish an academic based training program, formal multidisciplinary team and clinical care pathway in respective institutions and hospitals for timely referral and managements of tracheostomy patients with and without mechanical ventilation. This study advocates the respective professional governing body to announce a position statement for managing tracheostomized patients and need for periodic training or continuing professional educations to enhance the preparedness of the Speech language pathologists in Saudi Arabia.

## Keywords:

Tracheostomy, Mechanical ventilation, Speech language pathology, Management consensus, Survey.

## Introduction

Tracheostomy is performed for airway maintenance, ventilation, in severe dysphagia patients for removal of secretions, or as an alternate airway. The presence of the tracheostomy tube in patients may be permanent or temporary. The presence of tracheostomy tube could lead itself to voice

and swallowing problems. There is reportedly high incidence [50% to 87%] of aspiration in tracheostomized patients who pose potential risk of developing aspiration pneumonia [1]. Successful Tracheostomy weaning could be achieved by well-established stable respiratory status, achieving good oral secretion management and safe oral nutritional intake; Optimized verbal communication, educating the patient and the family members on the safe and hygienic

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trach care in case patient required permanent tracheostomy tube. Optimized verbal communication, educating the patient and the family members on the safe and hygienic trach care in case patient required permanent tracheostomy tube. To summarize, successful tracheostomy weaning / management could be a result of well-defined efficient multidisciplinary team, well tested and established policies and procedure and it reflects on the training and the competencies of the team members. The scope of practice by Speech language pathologists (SLPs) in tracheostomy management in-patient with or without mechanical ventilation is not only restricted to optimizing and managing communication and dysphagia. SLPs also participate in the decision-making and selection of tracheostomy tubes and course of achieving the milestones in weaning process [2, 3]. In the current context of medical rehabilitation, the tracheostomy patient loads dealt by the SLPs are becoming more complex and diverse [4] and their involvement on the tracheostomy weaning is considered as a key contribution in the critical care [5] and multidisciplinary tracheostomy team [6, 7].

Despite this expanding scope of practice and the role played by the SLPs in the tracheostomy management, less is known on what is being done throughout the SLPs academic and professional training in order to achieve quality practice standard and their competency. In addition, very less literature had been done focusing on the clinical consistency of the skills performed by the SLP on tracheostomized population. No validated information available on how they are practicing being a vital member of the tracheostomy weaning team. From this survey, we reached out to the practicing SLPs working with the patients with tracheostomy tube in the Kingdom of Saudi Arabia and attempted to establish the clinical consensus towards their understanding of the scope of practice, practice patterns, their competency and method of training obtained.

Few such studies were done in the past aiming to investigate the clinical consistency and the service consensus by the SLPs working with tracheostomized patients in countries like Australia and United Kingdom (UK) [8, 9]. Study conducted among Australian SLPs, revealed that most of their clinical practice was in line with the published research evidenced and the practice guidelines prescribed by their national body governing the SLPs. However, there were also some aspects that showed practice inconsistencies among the SLPs, which was due to the limited evidences and/ or conflicting expert opinion. Another similar study was conducted examining the clinical patterns of the practicing SLPs in the UK [9]. They found that there was a moderate to high

consistencies in various areas of practices among SLPs in UK in line with the literature evidence and national guidelines. The high consistencies were observed in the practice of assessment and management, Subjecting patients to instrumental assessment of swallowing, use of cuff deflation and reflation protocols and in the use of speaking valve.

The field of speech language pathology is relatively new to Saudi Arabia. The first Audiology and SLP program was established at King Saud University about 30 years ago. The Saudi Society of Speech-Language Pathology and Audiology [SSSPA] was officially established in 2003. As of 2018, in the Kingdom of Saudi Arabia, only 29 hospitals out of 196 hospitals that was surveyed render SLP services employing a total of 183 SLPs. Only, 20 hospitals provide voice and swallowing related services [10]. However, the number of SLPs practicing in the area of tracheostomy management was not ascertained.

This questionnaire-based survey was electronically distributed to the working SLPs in the hospitals in Saudi Arabia. The Questionnaire consists of different sections like participant demographics, their training and confidence levels in handling patients with tracheostomy, their clinical roles and responsibilities in their setting while handling tracheostomized patients, their skills and decision making in using speaking valve and dysphagia management. The questionnaire predominantly consists of closed choice rating like responses that could be used in analyzing the responding SLPs clinical consensus on the specific questions and this shall be represented in percentage.

This study aims to explore and identify the areas that required immediate attention in helping the speech language pathologists at various level of experiences to achieve the required competencies for treating patients with tracheostomy with or without ventilators. Hence, this study aims to identify the current pattern of practice by SLPs in treating adult patients with tracheostomy in the kingdom of Saudi Arabia.

## Materials and Methods

This study involves online distribution (Google Forms) of the questionnaire to the SLPs working in the Kingdom of Saudi Arabia. The questionnaire was developed by Ward et al., [8, 11, 12 ] and used by McGowan et al, [9] for their study in UK SLTs from which this was adapted. Prior permission was sought through email from the authors. The survey questions would be adapted appropriately and distributed. The outcome of the survey response would be

analyzed for the presence of clinical skills consistency among the SLPs working with patients who are tracheostomized.

The questions in the survey were presented as closed choice questions either in either in a “Yes or No” or multi choice options or in a rating scales format. Some the questions, in addition to the above-mentioned form of responses, an option for open answer was given in case if the participant want to comment or describe their own answers or express their thoughts. In this investigation, the term ‘tracheostomy management’ [11] refers to the assessment and management of dysphagia [including decisions relating to decannulation], voice and communication.

The approval of this study was obtained from the department research approval committee and Ethical approval committee in Research affairs at King Faisal Specialist Hospital and Research Centre.

### Subjects

This questionnaire was filled by the SLPs working in the Kingdom of Saudi Arabia with at least one year of working experience. They were expected to read the introduction part of the questionnaire in order to understand the purpose and the confidentiality agreement. In addition, by filling in the questionnaire, they consent us to publish the collective result in whatsoever purpose it was intended to. A total of thirty-eight respondents participated in the survey and were analyzed.

### Results and Discussion

All the thirty – eight responses were analyzed. Table 1 lists the professional demographics of the respondents.

On an average, 15.8% respondents reported to have handled a caseload of more than 50 consisting of tracheostomy patients with and without mechanical ventilator, followed by 36.8% respondents had treated between 11-50 patients in a year.

#### Training, Preparedness and Confidence:

Based on the response provided, it seems that a significant proportion of the respondents had received some form of formal training or clinical supervision prior to managing patients with tracheostomy tubes. Around 21.1% and 31.6% had received formal training and clinical supervision of more than 20 hours. The courses that were listed by the respondents are mentioned in Table 2. However, it is

**Table 1: Demographic details of the participants**

Demographic	Category	Number of respondents	Respondents in percentage
Gender	Male	6	15.8%
	Female	32	84.2%
Qualification	Bachelor’s	18	47.4%
	Master’s	17	44.7%
	Ph.D.	3	7.9%
Work experience	1-3 years	11	28.9%
	4-8 years	10	26.3%
	9-10 years	6	15.8%
	>10 years	11	28.9%
Working population	Pediatrics	7	18.4%
	Adults	9	23.7%
	Both	22	57.9%
Job setting	Acute care	26	68.4%
	Rehab	9	23.7%
	Private rehab	1	2.6%
	Educational facility	1	2.6%
	Acute & Rehab	1	2.6%

**Table 2: Courses listed / attended by the responding SLPs**

- Workshops arranged by SSSPA
- Non-SSSPA organized workshops
- Conference presentations
- Visited specialist Centre[s] where patients who are tracheostomized and ventilator assisted are treated by expert speech language therapists
- Simulation workshops, online webinars and recorded workshops
  - Passy Muire and ASHA websites
  - SNAP, MedSLP and ASHA CEUS
- Paid training in hospitals
- Through self-reading
- Part of formal education in graduate and Post graduate curriculum

concerned that a notable percentage of respondents reported receiving no formal training 10.5% or supervision 13.2%, which could indicate limited availability or poor awareness of such training programs or courses. It is important to note that managing patients with tracheostomy tubes requires specialized knowledge and skills, which can only be acquired through appropriate training and supervision. Lack of proper training and supervision can lead to poor quality service provided by the health care provider concerned, SLPs. It may be beneficial for healthcare organizations and institutions to review their policies and practices regarding the training and supervision of the SLPs who manage

patients with tracheostomy tubes. From the response provided, it appears that a majority of the respondents [60.5%] reported that their department or workplace does not have a formal competency training program in their work setting, which is concerning given the specialized knowledge and skills required for tracheostomy management by SLPs.

It is positive to note that 26.3% of the respondents reported that their workplace is currently developing a competency training program, and 13.2% reported that their workplace already has a tracheostomy competency program for SLPs. However, it is important to consider the method and mode of the competency training, as it can greatly impact the effectiveness of the program.

The fact that a majority of respondents [52.6%] expressed uncertainty about whether they are up-to-date with current evidence-based practices in tracheostomy management highlights the need for continuing professional education and skilled training courses in the region. It is crucial for healthcare professionals to stay up-to-date with the latest research and best practices in their field to ensure the best possible outcomes for their patients.

Overall, the lack of formal competency training programs and continuing education opportunities for healthcare professionals in tracheostomy management in the region is a concerning issue that needs to be addressed. It is important for healthcare organizations and institutions to prioritize the development and implementation of such programs to ensure the highest quality of care for patients.

The respondents emphasized the specific areas of training and support they feel would benefit their management of tracheostomy patients. The fact that a large majority of respondents expressed the need for specialized training or expert support in dysphagia management (76.3%) and speaking valve fitting (76.3% and 44.7%) highlights the importance of these areas in tracheostomy management. Additionally, the need for a standardized weaning protocol (60.5%) is also an important consideration, as it facilitates to provide systemic weaning approach which can greatly impact the success of the weaning process and patient outcomes. It is encouraging to see that the respondents recognize the importance of this aspect of tracheostomy management and feel that it is within the scope of practice for SLPs. The small number of respondents (2.6% each) who expressed the need for specialized training on cuff inflation and deflation, changing of inner cannula, subspecialty training of voice especially in pediatrics, and management of oral secretions in both pediatric and adult populations.

Overall, the specific areas of training and support identified by the respondents suggest that there is a need for specialized knowledge and skills in tracheostomy management beyond the basic competency level. It is important for healthcare organizations and institutions to prioritize the development and implementation of training programs and support systems that address these specific areas to ensure the highest quality of care for patients.

Literature also approves the requested service as most of the studies [11, 12] recommended that efforts need to be directed to providing more and varied types of advanced learning experiences for clinicians working in this field in order to ensure that there is an adequately trained clinical workforce. There are also strong recommendations stating that tracheostomy management should be well covered in the university programs as it is regarded as a practice that requires specialist skill level.

The collaborative team approach is crucial in the management of critical care patients [5], and SLPs are recognized as important team members in acute rehabilitation settings. However, the role of SLPs can vary between teams and wards, with critical care and ICUs supporting the role of SLPs more than other general wards. From the responses obtained, it is concerning to note that only 34.2% of the respondents reported having an optimal interdisciplinary team to work with tracheostomy patients, with 42.1% reporting that they are only sometimes a part of an optimal team. Additionally, a considerable 23.7% reported that there is no established team in their work setting.

The lack of an optimal interdisciplinary team can greatly impact patient outcomes. It is important for SLPs to be recognized as important team members in the management of tracheostomy patients and to be included in interdisciplinary teams to ensure the best possible outcomes for patients. Overall, the importance of interdisciplinary teams in the management of tracheostomy patients cannot be overstated, and healthcare organizations and institutions must work to establish and optimize these teams to ensure the highest quality of care for patients.

Various studies in the past discuss the challenges faced by speech and language pathologists (SLPs) in getting recognized as a team member in managing tracheostomy patients in critical care. This challenge seems to be a trend observed internationally and has been reported in various studies [11, 13]. There are studies that highlight the benefits of a hospital-wide coordinated multidisciplinary team approach to tracheostomy management. Such an approach

can lead to better support for team members, reduced complications, more efficient achievement of goals, improved quality of care, and decreased time to decannulation and length of stay [14, 15, 16].

In terms of the role and support of speech and language pathologists (SLPs) in managing tracheostomy patients within a multidisciplinary team, a majority of the respondents [55.3%] reported having a defined role in an established multidisciplinary team working in tracheostomy patient management. However, 34.2% of the respondents reported that their role is only sometimes clearly defined and supported by other health professionals. Furthermore, 10.5% reported having no clearly defined role and not being involved in tracheostomy weaning/management.

Regarding the level of support received from the multidisciplinary team, the survey results showed that a majority of the respondents (63.2%) reported receiving expert clinical support from their team for managing patients with tracheostomy only. Additionally, 34.2% of the respondents reported receiving support for managing both tracheostomy patients with and without mechanical ventilator. Only one respondent (2.6%) reported receiving no support within the team.

Regarding the level of confidence reported by speech and language pathologists (SLPs) in managing tracheostomized patients, both with and without mechanical ventilation, within a multidisciplinary team. 60.5% of respondents reported that they feel confident in managing tracheostomized patients without mechanical ventilation, while only 15.8% reported feeling confident in managing tracheostomy patients with mechanical ventilation.

Additionally, 34.2% and 44.7% of respondents reported only sometimes they feel confident in managing tracheostomized patients without mechanical ventilation and with mechanical ventilation, respectively. There was a significant difference in lack of confidence expressed in managing patients only on tracheostomy tube (5.3%) compared to patient with tracheostomy with Mechanical ventilation (39.5%). The reason for the lower confidence level in managing tracheostomized patients with mechanical ventilator was due to the limited opportunities and limited training/supervision available to manage tracheostomized patients requiring ventilator assistance [11]. With the increased awareness regarding the role of SLPs in tracheostomy management among the health care providers, the SLPs' caseload of tracheostomy patients on mechanical ventilators is growing, which underscores the importance of a multidisciplinary team approach in managing these patients

[15, 17]. From the responses, there is an explicit indication of the need for increased training and support for SLPs in managing tracheostomy patients, particularly those requiring mechanical ventilation, to ensure that they feel confident in their roles within a multidisciplinary team.

### **Clinical roles and responsibilities:**

Based on the responses recorded by the SLPs, the primary reason for referral to speech language pathology services of patients with tracheostomy tube is for swallowing assessment to commence oral feeding which is closely followed by speaking valve fitting. However, relatively a very small number of respondents reported that they are involved in determining the suitability of the decannulation. Table 3 lists down the primary reason for referral to speech language pathology services of patients with tracheostomy tube as reported by the participating SLPs.

**Table3: primary reason for referral to speech language pathology services of patients with tracheostomy tube**

	Never	Seldom	Half the time	Usually	Always
	n (%)	n (%)	n (%)	n (%)	n (%)
Swallowing assessment to commence oral intake	2 (5)	2 (5)	1 (3)	12 (32)	21 (55)
Communication and speaking valve fitting	2 (5)	3 (8)	11 (29)	13 (34)	9 (24)
Determining suitability for decannulation	5 (13)	14 (37)	11 (29)	3 (8)	5 (13)

Based on the respondent's responses regarding the timing and appropriateness of referrals for speech and language pathologists (SLPs) in managing tracheostomy patients, a majority of participating SLPs reported that the timing of the majority of referrals was mostly appropriate and consistent (13.2% always appropriate and 44.7% mostly appropriate), while around 39.5% reported appropriate but inconsistent timing of referral. Regarding the fit of referred patients for SLP intervention, a total of 65.8% of respondents (31.6% reporting 76%-100% of referred patients and 34.2% reporting 51%-75% of referred patients) reported that the referred patients fit the criteria for SLP intervention. However, a significant proportion of respondents, 34.2%, reported that referred patients were not fit for SLP interventions. Despite the reported lack of fit for SLP interventions in some cases, a majority of respondents

(44.7% and 50%) reported that the trend of referral is either increasing or being constant, which may suggest an increasing recognition of the role of SLPs in managing tracheostomy patients. Similar findings of majority of the respondents reported timing of the patient referral was mostly to always consistent and appropriate [9]. However, most SLPs felt a considerable proportion of the patients with tracheostomy who would benefit from speech language therapy services were not being referred in their settings.

Based on the responses provided, it appears that there is variability in the degree of involvement of SLPs in the decision-making process for tracheostomy tube management and decannulation. There was low consensus among the responded SLPs (5.3% and 26.3% of the respondents) reported that they are either always or usually involved respectively in the decision making of the type and size of the tracheostomy tube during the weaning management. 34.2% reported that only half of the time they are involved in the decision making for such those events for tracheostomy management. This is significantly less than that of the findings from the similar study done among Australian SLPs [8], where they reported that 83.3% of the Australian SLPs who responded to the study, participate in decannulation decision-making processes. There was a moderate to high clinical consistency among the UK SLPs as they reported that they involve in participating in team decision making for suitability of decannulation [9]. SLPs in the United States are often consulted to determine if a patient is suitable for speaking valve trialing [5].

It is important to note that the scope of practice for SLPs may vary depending on the country and healthcare system in which they work. Irrespectively, it was well known that Speech language pathologists usually do not perform tracheal or oral suctioning and for that, they usually rely on the nurses or the respiratory therapists for the same. In recent times, in some settings, SLPs are trained to perform tracheal suctioning as part of their role in managing patients with tracheostomies. However, in intensive care units and / or for patients who are fragile or high risk, it may be necessary to rely on critical care experts like nurses and respiratory therapists to perform suction. There are reports of SLPs trained and performing tracheal suctioning in Australia [11] and in UK by [9].

Within Saudi Arabia, only a mere 13.2% respondents reported that they practicing suctioning on the patients during their management as approved by their work place and the rest of the respondents [86.8%] reported that suctioning is still not included their scope of practice. Of the 13.2%

responding SLPs practicing suctioning; only a 7.9 % had formal training or underwent competency check for performing tracheal suctioning. A majority of 68.4% of the respondents in this current study expressed that they should be trained and allowed to perform tracheal and oral suctioning during their management in tracheostomy patients. This shows that there is a growing demand from SLPs to practice and perform oral and tracheal suctioning. Ultimately, the decision to include tracheal suctioning as part of the SLP scope of practice should be made based on careful consideration of the potential risks and benefits, as well as an assessment of the SLP's training and competency in this area.

### *Use of speaking valve:*

The findings suggest that a majority of responded SLPs (81.6%) are aware of commercially available speaking valves that can be used on tracheostomy patients; 55.3% of the respondents recommended there is a need for further education and training on the evidence-based practices for managing tracheostomy patients with mechanical ventilation as they feel that they are not aware/up to date on the current evidence-based practice on managing tracheostomy patients with mechanical ventilation; It is concerning that almost half of the respondents feel that they are not up to date on the current evidence-based practice for managing tracheostomy patients with mechanical ventilation. This highlights the need for ongoing education and training in this area to ensure that SLPs are equipped with the knowledge and skills necessary to provide effective care for these patients.

Given that a majority of the respondents (97.4%) are aware of the clinical benefits of using speaking valves in tracheostomy patients, it is important to continue to promote the use of these devices in appropriate patients as part of comprehensive tracheostomy management.

Based on the responses, it appears that there is a significant knowledge gap among SLPs in terms of assessing the candidacy of patients with mechanical ventilation for speaking valve fitting and training, as well as troubleshooting issues related to ventilator parameters. 65.8% respondents reported that they know how to assess the candidacy of the patient with mechanical ventilation for speaking valve fitting and training whereas a 34.2% of the respondents reported that they do not know how to assess.

It is crucial for SLPs to have a solid understanding of ventilator settings (52.6% respondent reported to be aware of different settings) and changes in mechanical ventilators' parameters, as well as the patient's respiratory physiology, in order to work effectively with tracheostomy patients who,

require mechanical ventilation. Moreover, collaboration with respiratory therapists is vital in trouble-shooting issues related to ventilator parameters and (A majority of 73.7% respondents do not know) recommending the necessary adjustments to ensure optimal patient outcomes.

It is important to note that the primary purpose of speaking valve fitting is to facilitate verbal communication for patients, regardless of whether they are on mechanical ventilation or not. The secondary benefits of speaking valve fitting for tracheostomy patients include improving swallowing abilities, enhancing oropharyngeal sensorium, and training patients to improve subglottal pressure essential for pharyngeal swallow and glottic closure. It is encouraging to see that a majority of the respondents (63.2%) reported that they know how to manage voice disorders in tracheostomized patients. However, it is crucial for SLPs to receive ongoing education and training to stay up-to-date with the latest research and best practices for working with this patient population.

Table 4 likely provides further details on the knowledge and preparedness of SLPs in dealing with tracheostomized patients with and without mechanical ventilators for speaking valve fitting and training.

There are different studies done in the past with results of some supporting and some refuting the benefits of

speaking valve fitting for dysphagia management in tracheostomized patients. One such study was done using scintigraphy technique done on head and neck cancer patients with tracheostomies that all of the patients aspirated under the open tracheostomy tube and on the other hand, half of the patients' whose tracheostomy tube was occluded experienced no aspiration. Among the half that did aspirate under occluded tracheostomy tube, it was observed that the frequency and severity of the aspiration were reduced in all patients except for one [18].

A similar study using same technique with and without Passy Muire valve in place was done on 11 patients with known or suspected aspiration. The findings revealed that eight of 11 patients aspirated significantly less while wearing the valve while three of eleven saw no improvement. These findings suggest that a speaking valve may offer swallowing benefits to a majority of patients, but not all [19].

Later, a video fluoroscopy study done on 14 tracheostomy patients across the three conditions of cuff inflated, cuff deflated with open tube, and cuff deflated with speaking valve placed. No significant differences were observed in the penetration-aspiration scale, irrespective the cuff was inflated or deflated. However, the ratings were significantly reduced with the speaking valve placement for thin liquid trials. Their findings indicate that a valve reduces

**Table 4: SLPs Knowledge and Preparedness in dealing with tracheostomized patients with and without Mechanical Ventilators for speaking valve fitting and training.**

Questions	Response categories	
	Yes	No
	n (%)	n (%)
Are you aware of the commercially available speaking valves to be used on patients with tracheostomy with and without ventilator assistance?	31 (81.6)	7 (18.4)
Are you aware of the current evidence-based procedures on speaking valve fitting on tracheostomy tubes without ventilator assistance?	32 (84.2)	6 (15.8)
Are you aware of the current evidence-based procedures on speaking valve fitting on tracheostomy tubes with ventilator assistance?	17 (44.7)	21 (55.3)
Are you aware of the clinical benefits of the use of speaking valve in tracheostomized patients with and without ventilator assistance?	37 (97.4)	1 (2.6)
Do you know how to assess the candidacy of the patients for speaking valve fitting and training in ventilated patients?	25 (65.8)	13 (34.2)
Are you aware of the ventilator modes that are favorable for the speaking valve fitting?	20 (52.6)	18 (47.4)
Do you know the various ventilator trouble shooting strategies that could help the patients to adapt speaking valves with ease?	10 (26.3)	28 (73.7)
Do you know how to manage voice disorders in tracheostomized patients?	24 (63.2)	14 (36.8)

but does not eliminate the frequency of aspiration and that the benefits of valve use vary among individual patients [20]. Some studies were unable to establish the benefits of speaking valve by investigating the effect of speaking valve on swallowing that is by reducing or eliminating aspiration and they found no differences in aspiration status across open and occluded conditions [21-24]. These findings do not indicate that the use of the one-way speaking valve improves swallowing function and may suggest that other biomechanics of swallowing should be considered.

### **Dysphagia Management:**

Despite the fact that the modified Evan's Blue dye test has poor sensitivity and good specificity [25], there is a moderate level of clinical consensus among the responding SLPs (44.7% always use and 39.5% sometimes) stating that they use modified Evan's Blue dye swallowing test/ screening.

Mostly, the dysphagia management by the SLPs in tracheostomized patients with and without mechanical ventilator starts with dysphagia screening using Modified Evan's Blue dye test/screening which involves the SLPs presenting PO trials of different blue colored consistencies [one at a time of assessment] to the patient and performing tracheal suctioning (by the nurses or the respiratory therapists) to observe for any blue discoloration as a sign of aspiration. However, this method was currently not widely used due to the advancement of the options of objective swallowing assessment using video fluoroscopy (VFS/MBSS) Modified Barium swallow study and Flexible Endoscopic Evaluation of Swallowing (FEES). The criteria for objective swallowing assessment post blue dye screening were not discussed in this study. A majority of 73.7% of responding SLPs reported that they accept the referrals to commence dysphagia management in patients with tracheotomy tube who are on mechanical ventilators. However, a significant 26.3% reported that they do not accept tracheostomy patients with mechanical ventilation. Post swallowing screening, the preferred method of objective assessment was reported to be VFS/MBSS where 68.4% favored MBSS and 31.6% reported they prefer FEES. The reasons were not ascertained.

One of the most important points of discussion was whether the swallowing trials of food and fluids to be done with fully inflated cuff or not. A vast majority of the respondents 76.3% reported that they never conduct PO trials in fully inflated cuff of the tracheostomy tube. However, 23.7% reported that sometimes they do conduct PO trials with fully inflated cuff. It is noteworthy to highlight the

findings of studies conducted on the impact of risk of aspiration during oral feeding with cuff inflated. There was a reporting of 2.7 times higher aspiration while feeding with inflated cuff (17.8% vs 6.5%) compared to deflated cuff. A retrospective analysis of 623 patients' video fluoroscopic study revealed that the frequency of reduced laryngeal elevation and silent aspiration were found to be significantly higher in the cuff-inflated condition as compared to the cuff-deflated condition [27].

Post Objective swallowing assessments, only less than half, 44.7% of the SLPs reported that their recommendations on food and fluid consistencies always strictly followed by the other medical staffs involved and a significant 44.7% of the SLPs reported that their recommendations are mostly followed. 10.5% reported that their recommendations are rarely followed by the other health care professionals in their settings. A survey in 2007, reported from their survey that RNs reported their compliance with SLPs' recommendations to be high. However, more than 80% of RNs requested for more education regarding dysphagia and reported that the time necessitated to feed individuals with dysphagia was the most common frustration [28]. Another survey focusing on nursing staff attitudes toward compliance with dysphagia management recommendations of the SLP revealed "hassle" (i.e., items related to the difficulty and extra work associated with SLP recommendations), the lack of knowledge of feeding techniques, and disagreement with SLP recommendations as the main factors of noncompliance with SLP recommendations [29]. On the contrary, study [28] revealed No association was found between the frustration and level of compliance.

### **Decannulation:**

In order to achieve a successful decannulation with restored quality of life essential functions like communication and swallowing, the patient has to achieve the following objectives:

- a. Cuff deflation tolerance
- b. Tolerance of fenestrated tracheostomy tubes with downsizing if required
- c. Speaking valve trials / training [restoring communication with near normal voice]
  - a. Dysphagia management
  - d. Tracheostomy capping / spigotting
- e. Maintaining good aerodynamic readings in Physiologic testing [arterial blood gas]

There is a low consensus among the respondents that they are not usually involved in the decision making of

decannulation [only a total of 23.7% reported to be usually involved]. This information revealed that there is either no multidisciplinary team for managing tracheostomy patients or clear clinical work pathway for such patient population.

Decannulation must be done as fast and safely as possible should be the main focus of the medical and therapeutical staff in neurologic rehabilitation to build the basis for functional rehabilitation and independence [30].

This study shows that this is possible with an adequate amount of therapeutic intervention time when a multidisciplinary approach is followed consequently. 78.9% of the respondents reported that it is usually the respiratory therapists who initiates the cuff deflation for the tracheostomy patients in their work setting; this was followed by a significant 42.1% of respondents reported that SLPs are the one who initiates the cuff deflation trials in their setting. Others reported Primary nurse [7.9% respondents] and it is usually the interdisciplinary team which approaches for cuff deflation trials. Also, only a little less than 50% of the respondents reported that they are involved in cuff re-inflation either always (18.4%) or only half of the time (28.9%).

The following table 5 represents the number of responding SLPs involved in every objectives during the tracheostomy weaning process.

**Table 5: SLPs involvement and / or participation in the process of systemic weaning of tracheostomy tube**

	Never n (%)	Seldom n (%)	Half the time n (%)	Usually n (%)	Always n (%)
Cuff deflation trials	3 (7.9)	3 (7.9)	5 (13.2)	10 (26.3)	17 (44.7)
Selection of type of tubes	2 (5.3)	4 (0.5)	3 (7.9)	14 (36.8)	15 (39.5)
Speaking valve trials	2 (5.3)	4 (10.5)	8 (21.1)	10 (26.3)	14 (36.8)
Tracheostomy capping	6 (15.8)	3 (7.9)	4 (10.5)	9 (23.7)	16 (42.1)
ABG	6 (15.8)	9 (23.7)	9 (23.7)	6 (15.8)	8 (21.1)

Apart from responding to these closed choice questions, the respondents also expressed some comments and suggestions, which are as follows in their own words:

- An interprofessional knowledge/ education on ventilator setting adjustments has to be established between respiratory therapist and speech language pathologists

- needs a lot of education to the SLPs on tracheostomy management for patients with and without mechanical ventilators
- More education at the university level and training programs during internship/Saudi career development program (SCDP) years is needed
- need more hands-on courses and training program frequently to keep update with the current practice methods
- Need to establish a unified policy and procedures for better consistent service providing among the SLPs
- Patient with tracheostomy does not referred by doctors because of lack of their updated knowledge. Hence, patients are being referred very late most of the times.

## Conclusion

Despite with the limited number of respondents, still it is concerning to hear about the lack of consensus among SLPs in clinical practice patterns for tracheostomy patients, particularly regarding speaking valve fitting and decision-making around tracheostomy tube type and decannulation. A multidisciplinary approach is important for the effective management of tracheostomy patients, and it is unfortunate that SLPs may not always be included in these teams due to unclear roles, perceived inexperience, and limited access to protocols and guidelines [31].

The observation of moderate consensus among SLPs regarding the use of speaking valves and dysphagia assessment and management in tracheostomy patients who were not on mechanical ventilation is encouraging. However, the lack of consensus on other aspects of care highlights the need for a formal multidisciplinary team and clinical care pathway to guide decision-making and ensure consistent, evidence-based care for tracheostomy patients. Developing an internal policy, training SLPs, and educating other healthcare providers can help ensure that all team members are on the same page and working towards a common goal. Ultimately, this can lead to safer weaning and shorter cannulation times [30, 32], which can improve patient outcomes and reduce healthcare costs. It is important for healthcare organizations to prioritize the development of such pathways and policies to ensure that tracheostomy patients receive the highest quality of care possible.

It is also important for the professional governing body to announce a position statement of SLPs managing tracheostomized patients with and without mechanical ventilators and ensure conducting periodic training or continuing professional educations to support the preparedness of the SLPs in the kingdom of Saudi Arabia to handle the discussed group of patients. There is a high

consensus from the responded SLPs emphasizing the need for the Hospital specific development and establishment of integrated clinical care pathway and disciplinary specific protocols for early successful weaning which could have an influence length of the hospital stay and quality of life.

The outcome of the survey emphasizes on the need for the professional governing body to provide guidance and support for SLPs managing tracheostomized patients with and without mechanical ventilators. A position statement and periodic training or continuing professional education can help ensure that SLPs in the kingdom of Saudi Arabia are prepared to handle these patients and provide high-quality care. It is also encouraging to hear that there is high consensus among the responded SLPs regarding the need for hospital-specific integrated clinical care pathways and disciplinary-specific protocols for early successful weaning.

Such pathways and protocols can have a positive impact on patient outcomes, including length of hospital stay and quality of life. By prioritizing the development and implementation of these pathways and protocols, healthcare organizations can improve the care of tracheostomy patients and ensure that SLPs and other healthcare professionals are working together to achieve the best possible outcomes.

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- McGowan SL, Ward EC, Wall LR, Shellshear LR, Spurgin A-L. UK survey of clinical consistency in tracheostomy management. *International Journal of Language & Communication Disorders*. 2014;49[1]:127–38.
- Ward E, Agius E, Solley M, Cornwell P, Jones C. Preparation, clinical support, and confidence of speech-language pathologists managing clients with a tracheostomy in Australia. *American Journal of Speech-Language Pathology*. 2008;17[3]:265–76

### Ethical approval statement

Not applicable

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### Conflicts of interest

The authors report there are no competing interests to declare.

## References

1. Pannunzio TG. Aspiration of oral feedings in patients with Tracheostomies. *AACN Clinical Issues: Advanced Practice in Acute and Critical Care*. 1996;7[4]:560–9. doi:10.1097/00044067-199611000-00010
2. *Tracheostomy competency framework - RCSLT* [2014]. Available at: <https://rcslt.org/wp-content/uploads/media/Project/RCSLT/tracheostomy-competency-framework.pdf> [Accessed: December 19, 2022].
3. Barnes G, Toms N. An overview of tracheostomy tubes and mechanical ventilation management for the speech-language pathologist. *Perspectives of the ASHA Special Interest Groups*. 2021;6[4]:885–96. doi:10.1044/2021\_persp-20-00105
4. McGrath BA, Wallace S. The UK National Tracheostomy Safety Project and the role of speech and Language Therapists. *Current Opinion in Otolaryngology & Head and Neck Surgery*. 2014;22[3]:181–7. doi:10.1097/moo.0000000000000046
5. Baumgartner CA, Bewyer E, Bruner D. Management of communication and swallowing in intensive care. *AACN Advanced Critical Care*. 2008;19[4]:433–43. doi:10.4037/15597768-2008-4009
6. Pandian V, Miller CR, Mirski MA, Schiavi AJ, Morad AH, Vaswani RS, et al. Multidisciplinary team approach in the management of tracheostomy patients. *Otolaryngology–Head and Neck Surgery*. 2012;147[4]:684–91.
7. Hunt K, McGowan S. Tracheostomy management. *British Journal of Anaesthesia: Education* 2014;15:149–53.
8. Ward E, Cornwell petrea lee, Solley M, Jones C. Clinical consistency in Australian tracheostomy management. *Journal of Medical Speech–Language Pathology*. 2007;15[1]:7–26.
9. McGowan SL, Ward EC, Wall LR, Shellshear LR, Spurgin A-L. UK survey of clinical consistency in tracheostomy management. *International Journal of Language & Communication Disorders*. 2014;49[1]:127–38. doi:10.1111/1460-6984.12052
10. Khoja MA, Sheeshah H. The human right to communicate: A survey of available services in Saudi Arabia. *International Journal of Speech-Language Pathology*. 2018;20[1]:102–7. doi:10.1080/17549507.2018.1428686
11. Ward E, Agius E, Solley M, Cornwell P, Jones C. Preparation, clinical support, and confidence of speech-language pathologists managing clients with a tracheostomy in Australia. *American Journal of Speech-Language Pathology*. 2008;17[3]:265–76. doi:10.1044/1058-0360[2008/024]
12. Ward E, Morgan T, McGowan S, Spurgin A-L, Solley M. Preparation, clinical support, and confidence of speech-language therapists managing clients with a tracheostomy in the UK. *International Journal of Language & Communication Disorders*. 2012;47[3]:322–32. doi:10.1111/j.1460-6984.2011.00103.x
13. Manley SB, Frank EM, Melvin CF. Preparation of speech-language pathologists to provide services to patients with a tracheostomy tube. *American Journal of Speech-Language Pathology*. 1999;8[2]:171–80. doi:10.1044/1058-0360.0802.171
14. Arora A, Hettige R, Ifeacho S, Narula A. Driving standards in tracheostomy care: A preliminary communication of the St Mary’s Ent-led Multi Disciplinary Team Approach. *Clinical Otolaryngology*. 2008;33[6]:596–9. doi:10.1111/j.1749-4486.2008.01814.x
15. Garrubba M, Turner T, Grieveson C. Multidisciplinary care for tracheostomy patients: A systematic review. *Critical Care*. 2009;13[6]. doi:10.1186/cc8159
16. Parker V, Giles M, Shylan G, Austin N, Smith K, Morison J, et al. Tracheostomy management in acute care facilities - a matter

- of teamwork. *Journal of Clinical Nursing*. 2010;19[9–10]:1275–83. doi:10.1111/j.1365-2702.2009.03155.x
17. Paul F. Tracheostomy Care and management in general wards and community settings: Literature review. *Nursing in Critical Care*. 2010;15[2]:76–85. doi:10.1111/j.1478-5153.2010.00386.x
  18. Muz J, Hamlet S, Mathog R, Farris R. SCINTIGRAPHIC assessment of aspiration in head and neck cancer patients with tracheostomy. *Head & Neck*. 1994;16[1]:17–20. doi:10.1002/hed.2880160105
  19. Stachler RJ, Hamlet SL, Choi J, Fleming S. Scintigraphic quantification of aspiration reduction with the Passy-muir valve. *The Laryngoscope*. 1996;106[2]:231–4. doi:10.1097/00005537-199602000-00024
  20. Suiter DM, McCullough GH, Powell PW. Effects of cuff deflation and one-way tracheostomy speaking valve placement on Swallow Physiology. *Dysphagia*. 2003;18[4]:284–92. doi:10.1007/s00455-003-0022-x
  21. Leder SB, Tarro JM, Burrell MI. Effect of occlusion of a tracheotomy tube on aspiration. *Dysphagia*. 1996;11[4]:254–8. doi:10.1007/bf00265211
  22. Leder SB, Ross DA, Burrell MI, Sasaki CT. Tracheotomy tube occlusion status and aspiration in early postsurgical head and neck cancer patients. *Dysphagia*. 1998;13[3]:167–71. doi:10.1007/pl00009568
  23. Leder SB. Effect of a one-way tracheotomy speaking valve on the incidence of aspiration in previously aspirating patients with tracheotomy. *Dysphagia*. 1999;14[2]:73–7. doi:10.1007/pl00009590
  24. Donzelli J, Brady S, Wesling M, Theisen M. Secretions, occlusion status, and swallowing in patients with a tracheotomy tube: A descriptive study. *Ear, Nose & Throat Journal*. 2006;85[12]:831–4. doi:10.1177/014556130608501216
  25. Linhares Filho TA, Arcanjo FP, Zanin LH, Portela HA, Braga JM, da Luz Pereira V. The accuracy of the modified Evan's blue dye test in detecting aspiration in tracheostomised patients. *The Journal of Laryngology & Otology*. 2019;133[4]:329–32. doi:10.1017/s0022215119000471
  26. Davis DG, Bears S, Barone JE, Corvo PR, Tucker JB. Swallowing with a tracheostomy tube in place: Does cuff inflation matter? *Journal of Intensive Care Medicine*. 2002;17[3]:132–5. doi:10.1177/088506660201700304
  27. Ding R, Logemann JA. Swallow physiology in patients with trach cuff inflated or deflated: A retrospective study. *Head & Neck*. 2005;27[9]:809–13. doi:10.1002/hed.20248
  28. McCullough KC, Estes JL, McCullough GH, Rainey J. RN compliance with SLP dysphagia recommendations in Acute Care. *Topics in Geriatric Rehabilitation*. 2007;23[4]:330–40. doi:10.1097/01.tgr.0000299161.44869.26
  29. Colodny N. Construction and validation of the mealtime and dysphagia questionnaire: An instrument designed to assess nursing staff reasons for noncompliance with SLP dysphagia and feeding recommendations. *Dysphagia*. 2001;16[4]:263–71. doi:10.1007/s00455-001-0085-5
  30. Frank U, Mäder M, Sticher H. DYSPHAGIC patients with tracheotomies: A multidisciplinary approach to treatment and Decannulation management. *Dysphagia*. 2006;22[1]:20–9. doi:10.1007/s00455-006-9036-5
  31. Wiberg S, Whitling S, Bergström L. Tracheostomy management by speech-language pathologists in Sweden. *Logopedics Phoniatrics Vocology*. 2020;47[3]:146–56. doi:10.1080/14015439.2020.1847320
  32. Leung R, Campbell D, MacGregor L, Berkowitz RG. Decannulation and survival following tracheostomy in an Intensive Care Unit. *Annals of Otology, Rhinology & Laryngology*. 2003;112[10]:853–8. doi:10.1177/000348940311201005

# الاستعداد والكفاءة العملية في إدارة القصبة الهوائية من قبل أخصائي أمراض النطق واللغة في المملكة العربية السعودية

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الرمز البريدي: 12721

## المستخلص:

نطاق ممارسة أخصائي التخاطب واللغة في إدارة الانابيب الرغامية مع المرضى الذين يحتاجون او لا يحتاجون الى اجهزة التنفس الصناعي في توسع مستمر. وعلى الرغم من هذا التوسع, فقليل ما تم معرفته على ما تم عمله خلال مجال تخصص التخاطب واللغة من الناحيتين الأكاديمية والأكلينيكية بغرض تحقيق ممارسة وكفاءة عالية.

الدراسة تهدف الى تحديد الاستعدادات, الإتساقات السريرية وأنماط الممارسة الحالية بين أخصائي التخاطب والنطق خلال معالجة مرضى الأنابيب الرغامية مع أو بدون التنفس الصناعي في المملكة العربية السعودية. الأستبيان تم تعديله ليتناسب مع البيئة المختاره مع موافقة المؤلفون, (2007, Ward et al., (2014) and McGowan et al, (2012) and 2008. ثلاثة وثمانون أخصائي تخاطب ولغة يعملون في المملكة العربية السعودية استجابوا لهذا الاستطلاع.

النتائج أظهرت إجماع منخفض في أنماط الممارسة السريرية من تركيب صمام الكلام مع المرضى الذين يحتاجون الى تنفس صناعي, صناعة القرار فيما يخص نوع الأنبوب الرغامى وتوصيات إزالة الأنبوب الرغامى؛ بينما هنالك إجماع متوسط/معتدل فيما يخص استخدام صمام الكلام مع مرضى الأنابيب الرغامية بدون التنفس الصناعي وإدارة عسر البلع مع هؤلاء المرضى.

إن نتائج هذه الدراسة تتطلب الحاجة الى انشاء برنامج تدريب أكاديمي, فريق رسمي متعدد التخصصات ومسار للرعاية السريرية في المؤسسات المتقبله والمستشفيات للإحالة والإدارة في الوقت المناسب لمرضى الأنابيب الرغامية مع أو بدون وجود التنفس الصناعي. هذه الدراسة تحض الهيئة المهنية المعنية بالأمر على إعلان بيان موقف لإدارة مرضى الأنابيب الرغامية والحاجة الى تدريب دوري أو تعليم محترف مستمر لتعزيز استعداد أخصائي النطق والتخاطب لإدارة مثل هذه الحالات.