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outcomes**

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Creating bridges between health care professionals: Interprofessional collaboration between respiratory therapy and speech-language pathology and its importance for patient outcomes

Abstract

In a changing health care industry, it is imperative that different healthcare professionals collaborate to address the state of the patient. Respiratory therapists (RTs) and speech-language pathologists (SLPs) frequently work with the same general patient population in the healthcare setting; however, while RTs typically provide emergency interventions, SLPs work with the patient in the rehabilitative domain. Each profession has a unique understanding of the patient and may encounter an overlap in responsibilities for performing a particular task, including management of tracheostomy tubes and prevention of aspiration pneumonias. This study investigated SLPs' and RTs' perspectives on their interprofessional collaboration. The findings revealed that both professions have common concerns related to the care of their patients and identify a need for more knowledge about the other profession. The study suggests ways how professional collaboration between SLPs and RTs can be strengthened to improve treatment outcomes and overall patients' quality of life.

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INTERPROFESSIONAL COLLABORATION BETWEEN RESPIRATORY THERAPY AND
SPEECH-LANGUAGE PATHOLOGY AND ITS IMPORTANCE FOR PATIENT
OUTCOMES

By

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Creating Bridges Between Health Care Professionals: Interprofessional Collaboration between Respiratory Therapy and Speech-Language Pathology and its Importance for Patient Outcomes

Nafiah Khan

Abstract

In a changing health care industry, it is imperative that different healthcare professionals collaborate to address the state of the patient. Respiratory therapists (RTs) and speech-language pathologists (SLPs) frequently work with the same general patient population in the healthcare setting; however, while RTs typically provide emergency interventions, SLPs work with the patient in the rehabilitative domain. Each profession has a unique understanding of the patient and may encounter an overlap in responsibilities for performing a particular task, including management of tracheostomy tubes and prevention of aspiration pneumonias. This study investigated SLPs' and RTs' perspectives on their interprofessional collaboration. The findings revealed that both professions have common concerns related to the care of their patients and identify a need for more knowledge about the other profession. The study suggests ways how professional collaboration between SLPs and RTs can be strengthened to improve treatment outcomes and overall patients' quality of life.

Introduction

Background, Problem Statement, Justification and Significance

In a changing health care industry, it is imperative that different healthcare professionals collaborate and engage in Interprofessional Collaborative Practice (IPP) to improve treatment outcomes and overall patients' quality of life (Chatfield, Christos, & McGregor, 2012). IPP has

been defined as "... multiple health workers from different professional backgrounds work[ing] together with patients, families, carers, and communities to deliver the highest quality of care" (World Health Organization [WHO], 2010). Studies indicate that IPP improves, among other things, health care outcomes and patient/provider satisfaction, as well as promotes more effective use of resources (Reeves, et al., 2010; WHO, 2010). Studies also show that IPP decreases length of hospital stay, hospital admissions, and clinical error rates (Holland et al., 2005; Mickan, 2005; Lemieux-Charles & McGuire, 2006), ensuring that the patient is receiving the best available healthcare through each profession's individual participation (Grace et al., 2017).

A climate of teamwork and interprofessional practice can help reduce the risk of adverse effects (Zadvinskis et al., 2017). Hospitals are exerting an effort to improve patient quality of care while lowering their costs by targeting strategies to reduce readmission rates within thirty days of being discharged from the hospital. Current studies point to data indicating the value of IPP in a variety of settings, including the post-acute care setting to reduce the readmission of patients (Patel, Wright, & Hay, 2017).

Despite the growing emphasis on interprofessional collaboration to improve patient outcomes, many educational and clinical programs struggle to promote the practice within their curriculum and facilities (Schwytyzer, 2016). Current health care data points to considerable patient-related incidents due to inadequate coordination of care, especially in emergency situations. There is evidence suggesting that one out of three patients are harmed by an adverse event during their hospital stay. In hospitals, safety cultures propose that promoting team work and safety cultures can help reduce the risk of adverse effects (Tarrant et al., 2014).

Healthcare systems are composed of numerous professional groups, departments, and specialties with intricate interactions between them. An understanding of the unique collaboration among different professionals is important to foster IPP and address break downs in continuity of care in healthcare settings. Among the many careers found within a healthcare system, two occupations which focus heavily on the mechanics of breathing and swallowing are respiratory therapy and speech language pathology. Each profession has a unique understanding of the patient, and may encounter an overlap in responsibilities for performing a particular task (Swigert, 2016).

Even though the collaboration is essential among these professionals, as both work with similar patient populations within healthcare settings, there is a lack of research addressing IPP among respiratory therapists' (RTs) and speech-language pathologists' (SLPs). This study aimed to investigate SLPs' and RTs' perspectives on their level of interprofessional collaboration and its impact on patient health outcomes. An examination of their level of collaboration is relevant to address service provision, treatment outcomes and overall patients' quality of life.

Review of the Literature

Roles and Responsibilities

A respiratory therapist is a professional who provides therapeutic treatments for various respiratory diseases and conditions. Respiratory therapists work in settings including hospitals, neonatal intensive care units, intensive care units, emergency departments, surgical and cardiac units, long-term care facilities, and other facilities. Treating different kinds of patients who are experiencing respiratory ailments, different therapies which respiratory therapists also participate in include administering oxygen therapy through various devices such as heated high flow nasal cannulas, non-invasive ventilation/BiPAP machines, initiating mechanical ventilation through a

ventilator, administering medications to help alleviate respiratory symptoms and to prevent infections, and maintaining a patient's airway through different means including tracheostomy tubes (Jackson, 2013).

A speech-language pathologist is a professional who helps in the diagnosis and treating of communication and swallowing disorders in patients. Speech, language, and swallowing disorders can be caused through a variety of factors including stroke, brain injury, developmental delays, trauma, and other various disorders. Working within educational systems, health care facilities, home care, and long-term care facilities, speech-language pathologists also help patients improve their communication skills, teach alternative communication methods, work with patients to strengthen their muscles for swallowing, evaluate aspiration risks during swallow studies, among many other tasks (American Speech-Language-Hearing Association [ASHA], 2016). Being able to communicate and relate to others is often essential to determining quality of life in healthcare settings, as patients need to be able to communicate to discuss clinical decisions (Walter, 2014).

Different Conditions and Professional Practice

Respiratory failure occurs when the body is unable to sufficiently maintain oxygen within the bloodstream, or when the body cannot adequately exhale carbon dioxide properly. A variety of different conditions can cause respiratory failure, including airway obstructions from heavy secretions, decreased respirations from drug abuse, muscle weakness from myasthenia gravis, severe pneumonia, trauma, and other various conditions (Wexler, Strumolo, & Davidson, 2013). Respiratory failure can cause a patient to be placed on oxygen devices including heated high flow nasal cannulas (HHFNC), non-invasive ventilation such as BiPAP machines, or mechanical

ventilation through ventilators, all of which can potentially compromise swallowing. Prolonged ventilatory support can cause the surgical procedure of a tracheostomy tube to be emplaced, where an SLP would help with communication for this patient following the procedure.

Because of respiratory failure, a patient can be placed on a heated high flow nasal cannula, which is a relatively new oxygen device providing a high oxygen flow to help treat respiratory distress. Placing a patient on a HHFNC may help the patient's condition improve, and can deter the placement of the patient on mechanical ventilation. HHFNCs improve patient comfort through nasal prongs which create a continuous positive airway pressure (CPAP) effect and improve secretion clearance. Secretion clearance is important for both coughing and swallowing to maintain the general hygiene of the lungs. The mobilization of secretions is sometimes difficult for patients with high inspiratory demands and impaired swallow functions (Coghlan & Skoretz, 2017). There is much debate about the swallowing mechanisms when a patient is on a HHFNC, but little studies have been conducted to yield definitive solutions (Leder, Siner, Bizzarro, McGinley, & Lefton-Greif, 2016).

Another major portion of the speech-language pathology and respiratory therapy professions is the integrity of swallowing. Speech-language pathologists aim to reduce the risk of aspiration and the improvement of swallowing functions by the assessment and management of dysphagia, associated with different conditions that can impair swallowing (Archer, Wellwood, Smith, & Newham, 2013). Dysphagia is when there is a compromised ability to move food or liquids from the mouth to the pharynx and esophagus into the stomach; dysphagia can cause dehydration, weight loss, and aspiration pneumonias if left untreated (Boyle, 2013). Hospitals have adopted

various instrumental tests including videofluoroscopic swallow studies (VFSS) and fiberoptic endoscopic evaluation of swallowing (FEES), both of which are typically conducted by SLPs (Rassameehiran, Klomjit, Mankongpaisarnrung, & Rakvit, 2015). Dysphagia is a prevalent consequence after an individual endures a trauma. Even the most miniscule alteration to the coordination of the swallowing movement can lead to a solid or a liquid entering the airway. This can lead to serious consequences, with one of the most notable being aspiration pneumonia, along with a prolonged hospitalization, malnutrition, and increased mortality (Dietsch, Rowley, Solomon, & Pearson, 2017). Pneumonias, which are a lower respiratory tract infection, contributes to the fourth most common cause of death worldwide for the past ten years (Kera et al., 2016). There has also been a higher incidence of silent aspiration after a patient has been extubated or has had a tracheostomy tube in place, which could indicate that there is a sensory integration aspect included in the condition as well.

In terms of the speech-language pathology profession, manipulations of swallowing tactics can be performed, such as modified properties of the food bolus. Liquids can be thickened, and solids can be pureed for the comfort and safety of the patient. Laryngeal positioning also plays a role in the swallowing integrity of the patient. Modifying the bolus can offer compensatory and rehabilitative potential for some patients with dysphagia. This modifying can alter the flow and cohesion of the bolus, also changing the sensorimotor response.

For patients who have endured a trauma, there are a variety of primary reasons as to why there is a difficulty in swallowing being experienced, including sensorineural deficits, tissue damage, and higher-order neuronal dysfunction. Along with this, there are secondary factors contributing to the swallowing dysfunction, including being endotracheally intubated, having a tracheostomy

tube emplaced, and the deterioration of condition following a prolonged hospital visit. There are many studies which indicate that being intubated positively correlates to swallowing dysfunction (Barker, Martino, Reichardt, Hickey, & Ralph-Edwards, 2009). Following critical care treatments for patients, postextubation dysphagia is frequently reported following an emergent intubation (Malandraki et al., 2016).

Tracheostomy is the term for a surgically created opening within the trachea. The surgical procedure to create this opening is referred to as a tracheotomy. After the opening is created, a tracheostomy tube is inserted into the incision to keep the airway patent and to avert it from closing. Tracheostomies may be indicated in situations where there is prolonged endotracheal or nasotracheal intubation, or if there are serious obstructions within the oral or nasal passages. Tracheostomies are essential for removing secretions from the lungs and the bronchial tree, and for oxygenating the lungs adequately (Fryer, 2006).

Tracheostomy tubes are necessary for patients who have prolonged ventilator dependence, being that an endotracheal tube is not recommended to be left in the airway for more than fourteen days. Studies have shown that tracheostomy procedures are increasing disproportionately from the need for mechanical ventilation. Tracheostomy tubes can lead to swallowing difficulties, with quality of life only improving after patients are educated about their dysphagia (Mah, Staff, Fisher, & Butler, 2016). Often times, patient improvement after a tracheostomy is fragmented because various professionals are included, but are working entirely independently.

There are various different types of tracheostomy tubes which are used to meet the medical requirements of the patient. Some different types of tracheostomy tubes include those with single cannulas, fenestrated cannulas used to allow for speech and swallowing function, tracheostomy

buttons to wean individuals off tracheostomy tubes, cuffed tubes which are typically used during mechanical ventilation, and cuffless tubes which are used in long-term management (Fryer, 2006). Tracheostomy tubes are inserted below the vocal folds, and breathing can therefore bypass the upper airway. With the air flow being directed out of the tracheostomy tube instead of being pushed up through the vocal folds, the patient's ability to produce speech is compromised. For some patients, occluding the tracheostomy tube with their finger or capping the tracheostomy tube with a deflated cuff can allow for communication.

One alternative for communication among those with a tracheostomy tube is the use of one-way speaking valves. These valves have been shown to be reliable devices to help patients with their verbal communication. One-way valves allow for inspiration to occur through the tracheostomy tube, but exhaled air is directed through the larynx and upper airway for speech production. The Passy-Muir Valve (PMV) is a one-way valve which has a 15 mm hub that can be attached to any tracheostomy tube for a universal fit. PMVs are predominantly used with non-fenestrated tracheostomy tubes that require a cuffless tube or a fully deflated cuff. The Blom low profile also has a one-way valve, but can only be used with the Blom fenestrated tracheostomy tube, and constitutes as the inner cannula with a flap-valve (Adam et al., 2015).

Weaning an individual off of mechanical ventilation can be a long process, as any respiratory therapist has become accustomed to. PMVs have been shown to facilitate this process of weaning a patient off mechanical ventilation. The benefits of the PMV range from quicker decannulation and weaning, and even the improvement of olfactory senses. Leak speech is when phonation occurs through cuff deflation, and the PMV is seen as more reliable method for speech production, which can also decrease aspiration risk. Along with benefits, there are also

limitations with the PMV, including excessive coughing and airflow being limited through the tracheostomy site, which can lead to a deterioration of the respiratory system for those with significant respiratory issues (Usher, 2006).

Purpose of the Study

RTs and SLPs have a unique understanding of the patient and often encounter an overlap in responsibilities for performing a particular task, including management of tracheostomy tubes and prevention of aspiration pneumonias. The purpose of this study was to investigate RTs' and SLP's perspectives on their level of interprofessional collaboration. Understanding their perspectives may provide insight on how their collaboration can be enhanced to foster continuity of care, improve treatment, and patients' quality of life.

Methodology

Study Design

A survey study approach was used to investigate RTs' and SLPs' perspectives on interprofessional collaboration. Approval to conduct the online survey was obtained from the Eastern Michigan University Human Subjects Review Board. Participants were recruited via email across Michigan, and contact information was derived from the Michigan Society for Respiratory Care (MSRC), Michigan Speech-Language-Hearing Association (MSHA), healthcare websites, and word of mouth. The survey was comprised of twenty-one multiple

choice/short answer questions addressing SLP and RT practices and interprofessional collaboration.

Participants

A total of 6 RTs and 6 SLPs completed the survey. The participants worked in acute care settings, outpatient clinics, or were in the educational realm of their careers. The number of years which each professional served in their field varied, with the minimum being two years of professionalism within their respective careers. The participants worked with either the adult, pediatric, or geriatric populations. A summary of the participants' professional backgrounds are included in Table 1.

Table 1: Participants' Demographic Characteristics

Profession	Years of Experience	Work Setting	Client Population
SLP ₁	2	Acute Care, Outpatient Clinic	Adult
SLP ₂	2	Acute Care	Geriatric
SLP ₃	9	Outpatient Clinic	Adult
SLP ₄	13	Outpatient Clinic	Pediatric
SLP ₅	3	Acute Care	Adult
SLP ₆	23	N/A	Adult, Geriatric
RT ₁	35	Education	N/A
RT ₂	10	Acute Care	Adult
RT ₃	26	N/A	Adult
RT ₄	35	Acute Care	Adult
RT ₅	23	Acute Care	Adult, Geriatric
RT ₆	4	Acute Care	Adult

Results and Discussion

Among the RTs, 40% reported seeing 10-20 patients a day, 40% saw 5-10 patients a day; and 20% , 20-30 patients a day. Of these patients, 40% of respiratory therapists said that 5-10 of these patients had an endotracheal tube or a tracheostomy tube in place, 40% said 1-5 patients,

and 20% said 10-15 patients. In comparison, 83% of the SLPs reported seeing 5-10 patient a day, and 17% saw 10-15 patients a day. When asked how many of these patients were previously endotracheally intubated, 50% said 1-3 patients, 17% said 0-1 patients, 17% said 3-6 patients, and 17% stated that a very small amount of this population of patients were seen at his/her clinic. When asked how many of the patients had a tracheostomy tube emplaced or previously had a tracheostomy procedure, 17% said 0-1 patients, 17% said 1-3 patients, and 50% reported very infrequently seeing tracheostomy tube patients.

When asked how interested the professionals were in the life of their patients following intubation or the insertion of a tracheostomy tube, 50% of the RTs said that they were very interested, 25% said somewhat interested, and 25% said not interested. Furthermore, 60% of the RTs reported interacting with an SLP regarding a patient's current or previous situation, while 40% reported no interaction with an SLP. When asked how many times a week they interact with an SLP directly related to patient care, one participant said 2-3 times a week, while two participants stated 1-2 times a year. 67% of the SLPs reported interacting with RTs, and 33% reported no interactions with RTs. When asked how many times a week the SLP interacted with an RT, two participants stated 1-2 times a week, two participants stated 0-1 times a week, and one participant stated 1-2 times a month. The data shows that the SLPs and RTs do not seem to cross paths frequently in the workplace, even though half of the RTs surveyed were interested in the life quality of their patients following the intubation or the tracheostomy tube insertion.

The questions in the survey were analyzed using data-driven thematic analysis (Thomas, 2006). Thematic analysis was selected to provide overall themes from the surveys with regard to current practice among the professionals and best and/or preferred practices for fostering

interprofessional practice. The themes will also be used by the researcher to develop an educational guide to provide key information to RTs and SLPs to foster interprofessional practice.

Themes

Data analysis revealed three major themes: communication, swallowing, and interprofessional collaboration.

Communication

Being able to communicate and relate to others is often essential to determining quality of life in healthcare settings . 100% of the participants reported being concerned about their patients' ability to communicate following the insertion of a tracheostomy tube or after endotracheal intubation. However, 40% of the RTs reported not being familiar with methods for improving communication after such procedures, while 40% stated that they were familiar with some communication methods, with one participant stating that Passy-Muir Valves can be used to assist with communication. RTs were also asked if they were aware of alternative communication methods to improve communication, with 67% of the participants stating yes and 37% of the participants stating no. Health care professionals find communication extremely important, and methods of improving communication through a Passy-Muir Valve or through Augmentative and Alternative Communication Devices are areas where the SLP and RT can collaborate.

Swallowing

Another commonality between respiratory therapy and speech-language pathology is the patient population of those who are at risk for aspiration. When RTs were asked about aspiration in terms of techniques that can be used to help patients who have failed their swallow studies, 50% of the participants were aware of techniques, while 50% were not aware of any technique. Of the participants able to name techniques, thickening the viscosity of the food, pulling the chin into the chest, and regulating the amount of liquid used were all stated. On the other hand, 100% of the SLP stated that they were aware of interventions provided to patients if an aspiration pneumonia has occurred. Some interventions stated included antibiotics, supplemental oxygen through various devices, aspiration precautions, and diet modifications. Engaging in interprofessional practice while working with patients who are at risk for aspiration would help create a continuity of care, with SLPs diagnosing and treating a patient with dysphagia, and the RT assisting the patient with his/her respiratory needs.

Because being intubated can have an impact on swallowing, SLPs were asked about circumstances requiring endotracheal intubation or the fitting of a tracheostomy tube, with a 100% response rate of the SLPs being aware of these conditions. The participants all indicated that respiratory failure is a condition which requires these procedures, along with some participants stating pneumonia, post-op complications, sepsis, long-term ventilator dependency, neurologic disorders, and stroke or intra-cranial hemorrhages.

In terms of oxygen devices, which can also potentially lead to swallowing changes, SLPs were asked on a scale of one through five about how familiar they are with BiPAP machines, with one being not very familiar and five being extremely familiar. 50% of the participants said one, 33%

said 2, and 17% of the participants gave a 3 in terms of familiarity. SLPs were asked about their familiarity with ventilators and ventilator management to maintain vocal fold integrity. 67% of the participants gave a one, 17% of the participants gave a 2, and 17% of the participants gave a 4.

Interprofessional Collaboration

The final major theme of this research study addressed interprofessional relationships between RTs and SLPs. When asked what RTs wish to know about the role of SLPs, the participants reported that it would be helpful to know about the roles and responsibilities of the profession to further work with them to achieve the best result for the patient. Furthermore, when asked what RTs would like SLPs to know about their roles and responsibilities, the RTs pointed to their role in maintaining the integrity of the airway by minimizing exerted pressures. They also highlighted that SLPs should be aware of RTs' role as first responders to emergency situations, as well as their role in attending to patients' oxygen and suctioning needs. One important role of RTs that they wanted SLPs to understand is that efforts are provided to maintain the airway to prevent further complications. A safe pressure for the cuff of an endotracheal tube or tracheotomy tube are maintained to ensure that detrimental changes to the trachea are not occurring. The cuff needs to stay placed within the trachea to keep it from moving against the vocal folds, which may cause friction and damage to them. Minimizing damage to the vocal folds and concurrently fostering open communication between SLPs and RTS can help improve patient quality of care, and ultimately reduce readmission rate of patients (Patel, Wright, & Hay, 2017).

Conclusion

The RTs and SLPs surveyed in this study are interested in fostering an interprofessional collaboration and learning more about the roles and responsibilities of the other profession. Current data points to improving patient outcomes by creating interprofessional relationships, and one such relationship should be between SLPs and RTs as both work with patients who are on ventilators and/or have undergone tracheostomy procedures. Both RT and SLP professionals are concerned with communication abilities of their patients, along with their swallowing integrity to avoid aspirations. All of the participants suggested interventions and strategies in regard to different patient populations, with a clear overlap in responsibilities while performing particular tasks, including management of tracheostomy tubes and prevention of aspiration pneumonias. While professionals are educated about different conditions and disease processes within their scope of practice, it is crucial that they also gain insight toward other scopes of practice so a continuity of care can be established for the patient. Creating opportunities for interprofessional education for professionals would be beneficial, both during their professional education, as well as through their work setting. One important aspect of interprofessional collaboration is promoting teamwork by beginning conversations; therefore, SLPs and RTs can enhance their knowledge about the patient by engaging in appropriate conversations to address patient's healthcare needs.

Limitations and Suggestions for Further Research

The online format of the survey limited the depth of information that the researcher was able to obtain from the participants. In future studies, a face-to-face interview instead of or in addition to the online survey should be considered to allow for follow-up questions and expand upon participants' answers beyond what an online survey alone allows. In addition, a larger number of

participants, as well as participants from other states, should be included for a more representative set of data that reflects the interprofessional collaboration between RTs and SLPs. Future studies should also consider including healthcare administrative professionals in the data collection, since interprofessional practice can potentially occur more frequently if hospital policies and department managers encourage such practice.

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**Interprofessional Collaboration between Respiratory Therapy
and Speech-Language Pathology: An Educational Guide**

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Purpose

The purpose of the educational guide is to serve as a tool for respiratory therapy and speech-language pathology professionals. The content in this guide is based off a research study conducted by the author about creating bridges between respiratory therapists and speech-language pathologists, to help improve patient outcomes. In this guide, important aspects about each profession can be found.

Role description

A respiratory therapist (RT) is a professional who provides therapeutic treatments for various respiratory diseases and conditions. RTs treat many different kinds of patients who are experiencing respiratory ailments, including therapies that regulate oxygen therapy through heated high flow nasal cannula and non-invasive ventilation/BiPAP machines, beginning mechanical ventilation through a ventilator, administering medications to help alleviate respiratory symptoms and to prevent infections, and to maintain a patient's airway through different means including tracheostomy tubes (Jackson, 2013).

A speech-language pathologist (SLP) is a professional who helps in the diagnosis and treating of communication and swallowing disorders in patients. Speech, language, and swallowing disorders can be caused through a variety of factors including stroke, brain injury, developmental delays, external trauma, and other various disorders. Speech-language pathologists help patients improve their communication skills, teach alternative communication methods, work with patients to strengthen their muscles for swallowing, evaluate aspiration risks during swallowing for a patient, among other tasks (American Speech-Language-Hearing Association [ASHA], n.d.).

Work Settings

RTs and SLPs often work together in many work settings, including:

- Short-Term Acute-Care facilities (STAC)
- Long-Term Acute-Care facilities (LTAC)
- Home Care
- General Care Floors
- Post-Surgical Floors
- Rehabilitation Units
- Intensive Care Units

In these settings, RTs and SLPs work together with the same general patient population, and their paths may cross in situations including:

- Patients who are having difficulty maintaining their oxygenation and are on oxygen devices.
- Any difficulties with swallowing where the patient is at risk or has developed a pneumonia.
- Patients who have tracheostomy tubes, where RTs are present at the bedside during the tracheostomy tube insertion and helping maintain the surgical site. SLPs may work with the patient after they have stabilized to assist with appropriate communication and address swallowing needs.
- RTs also maintain patients on mechanical ventilation, while SLPs may assist with communication.

Importance of Interprofessional Collaboration

RTs and SLPs working together is a collaborative effort where interprofessional practice can be established. Effectively working together as a team includes having a shared set of responsibilities and having a shared team identity; therefore, interprofessional collaboration is important in the development of collaborative competence. There is a shared accountability of SLPs and RTs to interact with one another about a patient's status to help increase knowledge base which can ultimately help improve patient outcomes. There is also a clarity of roles and goals in interprofessional collaboration; RTs and SLPs have different job descriptions, and they both have different individual goals in mind. Collectively, all healthcare professionals have the common goal of helping the patient recover and be provided the resources and help to not be readmitted in the hospital. (Reeves, Xyrichis, Zwarenstein, 2017).

Hospitals are exerting an effort to improve patient quality of care while lowering their costs by targeting strategies to reduce readmission rates within thirty days of being discharged from the hospital. Current studies point to data indicating the value of interprofessional teamwork in a variety of settings, including the post-acute care setting to reduce the readmission of patients (Patel, Wright, & Hay, 2017).

Potential situations where interprofessional collaboration is important include:

- Patients who are on ventilators, which are managed by RTs, can be shown how to communicate their needs through Augmentative and Alternative Communication (AAC) tools by an SLP.
- Ventilator dependent patients who have tracheostomy tubes can have a Passy-Muir Valve placed to help facilitate communication.
- Patients with progressive neurological conditions, such as Amyotrophic Lateral Sclerosis (ALS), often lose their swallowing and breathing functions, and may require home ventilators. Recording the patient's voice to create a digital communication board for effective communication is an initiative SLPs may take.
- Patients who are at risk for aspiration can be evaluated by an SLP for dysphagia. The RT can suction and provide therapies to the patient if any aspiration does occur.
- Being placed on a heated high flow nasal cannula by the RT can cause swallowing changes, which can be evaluated by the SLP.
- Fostering open communication between speech-language pathologists and respiratory therapists can help improve patient outcomes
- Studies show that being intubated positively correlates with swallowing dysfunctions, which requires SLP interventions (Barker, Martino, Reichardt, Hickey, & Ralph-Edwards, 2009; ASHA, n.d.).

10 Most Common Words SLPs Should Know in the RT World

1. **BiPAP:** A BiPAP machine is a form of non-invasive ventilation where an airtight mask is sealed around the nose and lips of the patient. There are two levels of pressure called inspiratory positive airway pressure and expiratory positive airway pressure. BiPAP machines may be used during the night or intermittently throughout the day for patients who need it, but communication may be impaired while the patient is wearing the mask. Sometimes, patients who have indications of wearing the BiPAP machine during the day. SLPs may need to conduct a swallow study during that time, so this would be a good situation for the SLP and RT to communicate.
2. **CPAP:** There are two major modes at which mechanical ventilation is administered to a patient, and that is through having a set volume to administer with each cycle, or a set pressure. Continuous positive airway pressure (CPAP) is when there is a constant positive pressure being administered to the patient to help keep their alveoli and their upper airways open. CPAP can be administered through noninvasive ventilation methods for individuals who have sleep apnea. They are also commonly used as the ventilator modality before a patient is taken off the ventilator to see how they are breathing on their own.
3. **HHFNC:** Heated high flow nasal cannulas (HHFNC) are relatively new oxygen devices which provide a high oxygen flow to help treat respiratory distress or respiratory failure. Placing a patient on HHFNC may help the patient improve to avoid being placed on

mechanical ventilation. HHFNC improve patient comfort through nasal prongs as opposed to full face masks, creating a CPAP effect, and improving secretion clearance. Secretion clearance is important for coughing and swallowing. The mobilization of secretions is sometimes difficult for patients with high inspiratory demands and impaired swallow functions (Coghlan & Skoretz, 2017). There is much debate about the swallowing mechanisms when a patient is on a HHFNC, but little studies have been conducted to yield definitive solutions (Leder, Siner, Bizzarro, McGinley, & Lefton-Greif, 2016).

4. **COPD-** Chronic Obstructive Pulmonary Disease (COPD) is a chronic condition which is characterized with an airflow limitation leading to alterations within the lungs. It is characterized with chronic bronchitis and emphysema, where the airways lose their elasticity, walls between the alveoli are destroyed or thick and swollen, and more sputum than usual is produced. Individuals with COPD experience frequent coughing and dyspnea, which can decrease the quality of life as the disease progresses. Changes in the ventilator pattern can result in dysphagia, where there is an alteration in the pharyngeal phase of swallowing. Proper coordination between breathing and swallowing is essential to ensure effective hydration and to prevent aspiration. Respiratory therapists can contact speech-language pathologists if they suspect that any of their COPD patients are silently aspirating. The SLP can conduct a swallowing test to confirm or deny this suspicion (Ribeiro, et al., 2014).
5. **Pneumonia:** Pneumonia is defined as an inflammatory lung disorder where the alveoli become filled with fluid

or pus (Suiter, 2012). Aspiration pneumonias can occur, where patients get saliva or other food particles in their airway and into their lungs. Risk of pneumonia is eleven times higher for patients with severe dysphagia and aspiration. It has also been shown that hospitals that have a formal dysphagia screening emplaced have lower pneumonia rates. Pneumonias are a widespread problem for those in long-term care facilities and in nursing homes. SLPs can provide treatment for those with swallowing difficulties and implement swallowing strategies to prevent aspiration pneumonia. If a pneumonia does occur in the patient, communications between the respiratory therapist and the speech-language pathologist can help clarify different difficulties the patient may be having, and different aggressive bronchial hygiene therapies to help recover (Wells & Frey, 2013).

6. **Ventilators:** Maintaining a patent airway and providing oxygenation to the patient is extremely important. Sometimes, depending on the condition, patients can become ventilator dependent. Communication boards can be used for these patients to communicate. It is important that respiratory therapists are aware of oxygen levels in the patient, as hyperoxia may worsen anoxic brain injury in patients with cardiac arrest. Speech pathologists will then have to work with the patient in the rehabilitative to help them regain their language and social skills, if needed.

Speechie Words for RTs to Know

1. **Dysphagia:** Dysphagia is when there is a compromised ability to move food or liquids from the mouth to the pharynx and esophagus into the stomach. Dysphagia can cause dehydration, weight loss, and aspiration pneumonias if left untreated (Boyle, 2013). Hospitals have adopted various instrumental tests including videofluoroscopic swallow studies (VFSS) and fiberoptic endoscopic evaluation of swallowing (FEES), both of which are typically conducted by SLPs (Rassameehiran, Klomjit, Mankongpaisarnrung, & Rakvit, 2015).
2. **Videofluoroscopic Swallowing Study (VFSS)-** This is an instrumental evaluation which is most widely used for diagnosing dysphagia. The test is usually done by an SLP in coordination with the radiology department. During the test, different consistencies of food and liquid are mixed with barium and given to the patient. The x-ray machine is turned on when the patient swallows so that the SLP and radiologist can observe the swallowing function, and look for any signs of aspiration. Different names are given for this test, among which, Modified Barium Swallow Study (MBS) and Cookie Swallow, depending on the facility. Determining whether swallowing difficulties are occurring is extremely important for patient quality of life and to prevent aspiration pneumonias.
3. **Fiberoptic Endoscopic Evaluation of Swallowing (FEES):** To evaluate swallowing, an endoscope is introduced into the nares of the patient and down into the throat. Different foods, often with food coloring, are given to patient to eat/drink to evaluate swallowing functions. FEES can help determine which food

consistencies are safest for the patient consume to prevent aspiration, as well as provide different strategies to help the patient swallow more effectively (ASHA, n.d.).

4. **Bedside Swallow Clinical Evaluation-** At the bedside, the swallowing of the patient can be observed by the SLP. This can be done during their planned mealtime, or at another time. During the test, the SLP might give different consistencies of food/liquid to the patient and pay close attention to, among other things, episodes of coughing, choking, and wet vocal quality after the swallow.

Another method is the Modified Evans Blue Dye Test, also known as the blue dye test, is used to evaluate swallowing function among tracheotomy patients. As the name implies, the food/liquid given to the patient during this bedside test is mixed with a blue dye to help with visualization during suctioning of the patient in case of aspirated material. Patient secretions are usually monitored for blue dye for 24 hours, and SLPs review charts for any signs of blue dye reported by nurses and/or RTs. This test is very controversial, given that the blue dye may be missed when being suctioned. Usually this test is followed with additional testing, such as a VFSS to rule out aspiration risks.

5. **Communication board-** Communication boards are low technology assistive and augmentative communication tools which help patients indicate what they are trying to communicate. Many patients who are on mechanical ventilation, but are awake and alert, but are unable to effectively communicate their needs, which leads to a guessing game between the healthcare professionals and the patient. By having

communication boards accessible for patient use, the patient is able to communicate their needs. The speech-language pathologist can implement the use of a communication board, and respiratory therapists can use the device to effectively communicate when they go into the room.

6. **Passy-Muir Valve:** One-way tracheostomy tube speaking valves have been shown to be reliable devices to help patients with their verbal communication. One-way valves allow for inspiration to occur through the tracheostomy tube, but exhaled air is directed through the larynx and upper airway for speech production. The Passy-Muir valve (PMV) has a 15 mm hub that can be attached to any tracheostomy tube for a universal fit.

Ways to Foster Interprofessional Collaboration Between RTs and SLPs

There are several potential methods where interprofessional collaboration can be fostered between RTs and SLPs, some of which include:

- Promoting interprofessional education within the professional training.
- Incorporating interprofessional education and conversations during the initial training of employees in a facility.
- Department managers encouraging conversations and collaborations between RTs and SLPs.
- Departments implementing protocols for specific collaborations between professionals.
- Whenever possible, create opportunities to hold conversations together at the bedside of the patient in regards to his/her healthcare needs.

Resources

American Association for Respiratory Care
www.aarc.org

Michigan Society for Respiratory Care
www.michiganrc.org

American Speech-Language-Hearing Association
www.asha.org

Michigan Speech-Language-Hearing Association
www.michiganspeechhearing.org

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