

BECAUSE YOU NEED TO...

# TALK MUIR

Passy-Muir® News, Events and Education

Passy-Muir, Inc. | Summer 2010

## Swallow Issue

A Meeting of Great Minds

Thank You for Your Support

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*Passy-Muir Inc.*  
Tracheostomy & Ventilator  
Swallowing and Speaking Valves

# Swallowing Issue

It was not long after David Muir invented the Passy-Muir® Tracheostomy & Ventilator Swallowing and Speaking Valve (Passy-Muir Valve) that researchers began studying the positive effects the valve has on swallow function. Today the Passy-Muir Valve is an essential component to dysphagia treatment with the tracheostomized and ventilator dependent population. Because the field of dysphagia research is ever evolving, the Clinical Team at Passy-Muir, Inc. makes every effort to stay current with research, especially as it pertains to the tracheostomized and ventilator dependent population. In this issue of our newsletter we have highlighted hot topics in dysphagia research and addressed many of the common questions related to swallow function and the Passy-Muir Valve. In addition, you will find information about our upcoming Special Event Webinars in which we brought together some of the top clinicians in the country to share case presentations in a series of swallowing webinars. We hope you enjoy our focus on swallowing!

## Did you know?



There is a **50%-87%** rate of aspiration for tracheostomized and ventilator patients.

The Passy-Muir® Valve can be used as soon as **48 hours** post tracheotomy.

Source: Elpern et al., 1987, 1994, 2000;  
Tolep et al., 1996

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[www.passy-muir.com](http://www.passy-muir.com)

## A Meeting of Great Minds

By Julie Kobak, MA, CCC-SLP, Vice President of Clinical Education, Passy-Muir, Inc.



Conference Co-Chair and Key Note Speaker Christine Ludlow, Ph.D., Professor, James Madison University, (center) with Julie Kobak, MA, CCC-SLP (left) and Mary Spremulli, MA, CCC-SLP, Consultant to Passy-Muir, Inc. (right).



Conference Chair and Key Note Speaker JoAnne Robbins, Ph. D., Professor of Medicine and Radiology, University of Wisconsin (left) with Jerilyn A. Logemann, Ph.D., Professor of Communication Sciences and Disorders, Northwestern University (right).

One of the major thrusts today in research of the upper aerodigestive tract is studying the relationship among its multiple functions, i.e. swallowing, vocalization, motor speech and breathing. There is no doubt these complex relationships are of critical importance to understand relative to the tracheostomized patient because significant alterations occur to the functions of voice, respiration, and swallow when the tube is placed. Therefore, how these functions integrate will have an impact on the interventions clinicians choose.

In June 2010, Passy-Muir, Inc. was invited to support an inaugural conference, entitled *Integrative Neural Systems Underlying Vital Aerodigestive Tract Functions*. This conference, held on the beautiful campus of the University of Wisconsin in Madison, brought together leading clinical and academic researchers from the fields of swallowing, voice, speech, respiration and sleep. The goals of the conference included:

Promoting high quality research by providing an interactive multidisciplinary forum for scientific and clinical exchange

Determining areas of commonality among clinicians and researchers in distinct, but related disciplines in order to facilitate cross-system discussion and to influence them to think “outside their own system box”

After attending two and a half days of stimulating research presentations and work group discussions, several common themes and questions emerged: How is the laryngeal system modulated for these shared functions? What treatment methods are effective in enhancing neural plasticity and rehabilitation for respiration and swallowing? How can clinicians and researchers increase awareness of legislators and the public about the prevalence of upper aerodigestive tract dysfunction and the morbidity associated with undetected and unmanaged impairment? And finally, how can additional funding be secured for the continuation of research on these important topics.

As a medical device manufacturer and leader in the field of tracheostomy, Passy-Muir, Inc. derived great benefit from attending and supporting this conference. The company remains committed to furthering the treatment of dysphagia and voice, and looks forward to continued collaboration with researchers and clinicians.

## Thank You to Our Supporters

*On May 27, I traveled to Baltimore, MD to the Centers for Medicare and Medicaid Services (CMS) with our Clinical Specialists to present a request to obtain a new and separate HCPCS billing code for the Passy-Muir® Valve. Passy-Muir, Inc. initiated this request after it had come to our attention that our valve is being generically substituted with other valves that do not provide the same benefits of the Passy-Muir Valve.*

*The Passy-Muir Valve has a unique and patented closed position design that has many clinical benefits beyond communication, including improving swallow, secretion control and oxygenation, and expediting weaning and decannulation. Currently there is only one HCPCS code (L8501) that covers all speaking valves. There is a very significant medical risk to tracheostomized patients who rely on the Passy-Muir Valve to provide them with the aforementioned therapeutic benefits when they are given an open position valve as a generic substitute.*



*At this meeting, an explanation of the valve design differences and a review of the independent research on swallowing and other benefits were provided to the CMS panel to support the request for a new billing code. In addition, we presented the CMS panel with 211 letters of petition for a code change from clinicians, patients, and family members. One patient, George Geissert (see below), wrote Passy-Muir, Inc. over a year ago to describe the negative experience he had when his medical provider gave him an open position valve instead of a Passy-Muir Valve. His powerful and emotional letter was read aloud to the CMS panel. We thank all of you who took the time to send letters and offer your support.*

*The final decision for granting of a new code is expected in November. We will keep you posted.*

*Ryan Williams  
COO, Passy-Muir, Inc.*

## Passy-Muir® Valve User Spotlight

By Gail Sudderth, RRT, Clinical Specialist at Passy-Muir, Inc.

George Geissert is a nurse and a decorated veteran. He is active in his church and enjoys singing in the choir. In 2009, he was given one of the highest awards a citizen can receive from his home state of Missouri for his exemplary service and distinguished contribution to healthcare during his 36 year career of practicing and teaching.



George Geissert



We met George when he called to ask how to order a new Passy-Muir Valve after he lost his valve while riding his motorcycle to work. George was tracheostomized three years ago for tracheal narrowing just below the vocal folds and numerous surgeries for polyps. He has tried other speaking valves, but none could compare to the benefits he received while wearing the Passy-Muir Valve. The fact that he can speak without difficulty, eat regular food and doesn't require suctioning means that he can live his normal life and continue working at what he loves-nursing!

George hopes to be an advocate for others with tracheotomies. We think George is truly an inspiration and is an excellent advocate for all patients!

Do you have something to contribute to the next issue of Talk Muir?  
Contact us at 1.800.634.5397 or [info@passy-muir.com](mailto:info@passy-muir.com)

## Featured Clinical Expert and Researcher

By Julie Kobak, MA, CCC-SLP, Vice President of Clinical Education, Passy-Muir, Inc.



Roxann Diez Gross, Ph.D.

Roxann Diez Gross, Ph.D. is the Director of the UPMC Swallowing Disorders Center and Assistant Professor of Otolaryngology in the School of Medicine at the University of Pittsburgh. She also holds a secondary appointment as an Assistant Professor in the Communication Science and Disorders Department of the School of Health and Rehabilitation Sciences. Dr. Gross has authored and co-authored several peer-reviewed research papers and text book chapters on tracheostomy and swallowing function. Her primary area of research examines the interaction between breathing and swallowing in individuals with indwelling tracheostomy tubes, Parkinson's disease, and Chronic Obstructive Pulmonary Disease. She has over 24 years of clinical experience, lectures internationally and extensively in the U.S., and gives workshops on tracheostomy, ventilators and swallowing rehabilitation.

You can hear Dr. Gross present her research in person at our upcoming full day seminar in Cleveland, Ohio September 18, 2010. Visit [www.passy-muir.com/seminars](http://www.passy-muir.com/seminars) to register.

You have published studies on the effects of open and closed tracheostomy tubes on the pharyngeal swallow. What is the "subglottic pressure theory" and how does the Passy-Muir® Valve improve swallow?

In a normal swallow, the laryngeal vestibule closes, the vocal folds adduct, and there is pressure generated below the vocal folds. There are receptors below the vocal folds in the subglottic mucosa that are sensitive to pressure. Many studies have examined the role of these receptors for the functions of voice and breathing and have found that they do not modulate these functions. However, the swallowing studies in which subglottic pressures were varied have shown physiologic alterations in swallow function. For example, in Dr. Logemann's early research with supraglottic swallow, patients who were cued to take a deep breath and hold it, in an effort to protect the airway, increase lung volumes and subglottic air pressure. Additionally, in studies which compared conditions of the open versus closed tracheostomy tube or Passy-Muir® Valve "on" versus "off" conditions, aspiration decreased or was eliminated with closure of the system and restoration of the ability to generate positive subglottic pressures. The Passy-Muir Valve is the only valve that has been used in these studies because it is the only valve that does not leak and restores the closed system.

What is the focus of your current research?

An issue with the swallowing studies comparing valve "on" versus valve "off" is that the positive effect on swallow was not observed on every patient. People wrongfully conclude that if it doesn't work on every swallow then it doesn't work at all. I do not think that this is a fair assumption. I feel that there are certainly other variables to consider, thus the focus of my current research. An important variable that was not controlled in those studies is lung volume at the time of the swallow. The amount of subglottic air pressure generated depends on how much air is in the lungs at the time of the swallow. I am currently measuring subglottic air pressure during swallow in healthy people while they swallow at various lung volumes in order to determine if there is a range of lung volumes which enable the most efficient and safest execution of the swallow. In 2006, I studied a single subject and found that there is a direct relationship between the amount of pressure generated and the lung volume during the swallow. It is theorized that elastic recoil of the thoracic unit is the most likely mechanism that generates subglottic air pressure during swallow. I have completed ten additional normal healthy subjects to support this hypothesis and am in the process of writing this paper.

The challenge for many clinicians is to translate this research into clinical practice. In light of your swallowing research, what advice can you give to the clinician?

When working with a tracheostomized patient it would be good practice to place the Passy-Muir Valve on a properly sized tracheostomy tube to enable the patient to generate subglottic air pressure during the swallow. However, I suggest you that you go beyond just placing the valve and make sure that the patient has sufficient lung volumes at the time of the swallow. This may mean that you have to provide feedback to the patient to achieve these lung volumes. In my one study, I was able to improve a patient's swallow function while obtaining direct fluoroscopic evidence of such by asking him to increase his lung volumes at the time of the swallow. It is important to also consider your patient's diagnosis and its impact on lung elastic recoil and the ability to generate adequate lung volumes. For example, COPD, Parkinson's disease, and cerebral palsy are all conditions which can diminish elastic recoil. Even postural changes can have an impact. So, in summary it is essential that we, as clinicians, apply what is known about the normal swallow physiology to the treatment of the disordered swallow.

### References:

- Gross R, Steinhauer K, Zajack D, Weissler M. Direct measurement of subglottic air pressure while swallowing. *Laryngoscope* 2006; 116: 753-761.
- Gross D, Atwood C, Graychack J, Shaiman S. Lung volume effects on pharyngeal swallowing physiology. *Journal of Applied Physiology* 2003; 95: 2211-2217.
- Wheeler K, Huber J, Pitts T, Sapienza C. Lung volume during swallowing: single bolus swallows in healthy young adults. *Journal of Speech Language Hearing Research* 2009; 52: 178-187.

## Ask our Clinical Specialist:

The following questions were answered by Mary Spremulli, MA, CCC-SLP, a speech-language pathologist in private practice, a seminar leader with Cross Country Education and a clinical consultant with Passy-Muir, Inc. since 1992.

### How soon after my patient has a tracheostomy can I complete a swallowing study?

The timing will likely depend on many factors. A thorough chart review needs to be conducted to determine the indication for tracheotomy and co-morbidities which may contribute to dysphagia. The Passy-Muir® Valve can be used within 48 hours of tracheotomy, and as a part of your clinical assessment will enable you to obtain information about laryngeal function, such as spontaneous cough, response to secretions, and vocal quality. When the patient is able to communicate verbally, you restore the most important diagnostic tool, and that is the patient's ability to report symptoms, describe sensations, and comment on work of breathing.

If your patient is still receiving mechanical ventilation, you will need to consult with other health care professionals caring for the patient. Timing will also be affected by sedating medications, anticipated surgical or medical procedures which may further compromise respiratory function, and any weaning trials being conducted.

### Our physician frequently requests that we feed our tracheostomized patients with the cuff inflated. What is the effect of the cuff on swallowing?

The role of a cuff is to create a "closed" respiratory system during mechanical ventilation so that airflow is delivered to the lungs and does not escape through the upper airway. Measuring cuff pressure with a manometer is extremely important. Cuff over inflation can cause tracheal mucosal injury, contribute to reflux from impingement on the esophagus, and reduce laryngeal excursion by creating a tethering effect. The cuff on a tracheostomy tube is not intended to prevent aspiration. In fact, the cuff sits well below the level of the glottis. Once material has been aspirated, the cuff creates a reservoir for stagnated material to colonize with bacteria which eventually make its way past the cuff and into the lower airways.

Several studies have looked at the role of cuff inflation on swallowing function. When MBS studies were conducted on patients requiring mechanical ventilation, > 50% of patients had evidence of aspiration with most being silent aspiration. Older patients appeared to be more at risk. This may be in part due to their overall level of de-conditioning, as well as normal age related changes in swallowing that become problematic when the system has been altered by placement of a tracheostomy tube.

### Will cuff deflation improve swallowing function?

Slow cuff deflation prior to beginning your swallowing assessment may provide some airflow to the upper airway and restoration of laryngeal and pharyngeal sensitivity. Cuff deflation alone, however, does not close the system. The majority of airflow will still occur through the tracheostomy tube, and the patient may still not be able to generate subglottic air pressures for a strong cough and swallow. With use of the valve, a "closed" respiratory system is restored on exhalation, resulting in restoration of sensation and subglottic pressure. Swallowing assessment can then be done using many of the same clinical measures as used with non-tracheostomized patients. Normalizing the physiology will allow participation in swallowing exercise and instruction in use of compensatory strategies.

### How do I incorporate the Passy-Muir® Valve into my instrumental exam?

Ideally, prior to conducting an instrumental exam, you will already have assessed the patient's tolerance for the valve. If the valve is tolerated well, your initial bolus trials can be conducted with the valve on. The patient may maintain better duration of glottic closure during the swallow, react to penetration or aspiration with a cough or expectoration maneuver, and engage in compensatory strategies, such as a breath holding. Because the valve remains closed throughout exhalation, the patient may also be coached to swallow at higher lung volumes, or



Mary Spremulli, MA, CCC-SLP

**Do you have a question you would like answered?**

**1.800.634.5397**

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if receiving mechanical ventilation, to swallow during the expiratory phase of respiration.

If the patient's tolerance for valve use is time limited, you may also consider additional bolus trials under varying conditions, such as valve off and cuff inflated. Since many patients are medically fragile, clinical findings may change from day to day, and sometimes even within a day. Therefore, frequent re-assessment and documentation is essential.

### I do not have access to MBS or FEES in my facility. Will blue dye testing provide me with information regarding swallowing safety?

The use of blue dye testing for detecting aspiration has been discussed at some length in the dysphagia literature. Because of safety concerns with use in tube feedings, its use in oral feedings has been discontinued in many facilities. The clinical value of using blue dye for oral trials has also been questioned by a number of researchers, with a recommendation that, at best, it may be used as a screening tool. Commercially prepared products (e.g. blue jello, sports drinks) from a single serving container may minimize risk of cross contamination. It is also wise to consult with your nursing department or risk manager to identify any policies regarding blue dye use.

## Special Event Webinars Swallowing Series

Join us this fall to hear expert clinicians from around the country provide practical information on the effective management of dysphagia in tracheostomized patients. Using case study presentations, the speakers will provide insight into evaluation and treatment options, functional goal development, therapy techniques, and patient outcomes. Videos of MBS studies, stroboscopy and therapy sessions will enhance learning.



### Passy-Muir Valve Use with the Head and Neck Cancer Population

September 1st 6:00-7:00pm EST

**Linda Stachowiak, MS, CCC-SLP BRS-S**

MD Anderson Cancer Center, Orlando, FL

Multiple case studies will be used to demonstrate how the timing of the tracheostomy relative to the course of cancer treatment impacts swallow function, dysphagia treatment decisions, and the use of the Passy-Muir Valve. Patients receiving the tracheostomy prior to, during, and post treatment will be discussed.

### Swallowing Management of the Tracheostomized Adult Patient: Case Presentations

September 29th 6:00-7:00pm EST

**Cheryl Tansley, MS, CCC-SLP and Rachel Ieronimo, MS, CCC-SLP**

Gaylord Hospital, Wallingford, CT

Case: 41 year old male with anoxic brain injury with tetraplegia and chronic respiratory failure

**Carmin Bartow, MS, CCC-SLP**

Vanderbilt University Medical Center, Nashville, TN

Case: 62 year male with high grade invasive squamous cell carcinoma of the right false cord, left subglottic and glottic regions.



### Swallowing Management of the Tracheostomized Pediatric Patient: Case Presentations

October 6th 6:00-7:00pm EST

**Katy Peck, MA, CCC-SLP, CBIS**

Children's Hospital Los Angeles, CA

Case: 3 year 8 month old female with severe pulmonary hypoplasia, secondary to congenital diaphragmatic hernia (CDH), s/p repair, GERD with history of pyloric stenosis s/p pyloromyotomy.

**Christina Costa, MS, CCC-SLP**

All Children's Hospital, St. Petersburg, FL

Case: A previously healthy 6 year old male requiring a tracheostomy, ventilator, and G-tube after the diagnosis of Guillain-Barré.



To register visit: [passy-muir.com/eventwebinars](http://passy-muir.com/eventwebinars)

## Self-study Webinars



These self-study webinar courses can be taken at your convenience. They are designed to increase clinical knowledge of the Passy-Muir® Valve in the areas of assessment and placement, dysphagia and improving swallow, pediatric issues, ventilator application, and team building. To earn continuing education credit for each course offered, the participant will be required to view the one hour recorded webinar, pass a multiple-choice test, and complete an evaluation.

Webinar courses include:

- Application of Passy-Muir Swallowing and Speaking Valves
- Inter-disciplinary Trach Team: Where Do I Start?
- Ventilator Basics for the Non-Respiratory Therapist
- Ventilator Application of the Passy-Muir Valve
- Pediatric Tracheostomy and Use of the Passy-Muir Valve
- Pediatric Ventilator Application of the Passy-Muir Valve
- Swallow Function: Passy-Muir Valve Use for Evaluation & Rehabilitation

To register visit: [passy-muir.com/ceu](http://passy-muir.com/ceu)

## Full Day Seminars

### Comprehensive Overview of the Application of the Passy-Muir® Tracheostomy and Ventilator Swallowing and Speaking Valve

This one day seminar is designed for all health care professionals who are involved in the management of tracheostomized and mechanically ventilated adult and pediatric patients across the continuum of care.

Presentations will emphasize the clinical benefits of utilizing the Passy-Muir® Tracheostomy and Ventilator Swallowing and Speaking Valve, the importance of a multidisciplinary tracheostomy team, and development of policies and procedures. Lectures will provide in-depth, evidence based information in lecture format, including patient pictures and videos.

Hands-on learning activities with tracheostomy observation model and ventilation mannequins will give participants opportunity to apply important concepts that have been learned. Interactive panel discussion using case presentations and audience participation will provide additional integration of key learning objectives.

Cleveland Clinic  
Saturday, September 18

UC San Diego Health System  
Saturday, October 9

To register visit: [passy-muir.com/seminars](http://passy-muir.com/seminars)



## Calendar of Events



Passy-Muir, Inc. is sponsoring speakers or exhibit tables at the following conferences:

### September

- 14 Blue Ridge Symposium, Front Royal, VA
- 15 Sun Coast Pulmonary Symposium, Fort Myers, FL
- 18 Cleveland Clinic Seminar, Independence, OH
- 26-27 Society of Head and Neck Nurses Conference, Boston, MA

### October

- 1 New Hampshire Speech Language Hearing Conference, Concord, NH
- 8 Respiratory Nursing Society Conference, Richmond, VA
- 9 UCSD Medical Center Seminar, San Diego, CA
- 13 Breathing Easier IX Conference, Norwood, MA
- 14 Mississippi Respiratory Care Society Conference, Jackson, MS
- 22 Pediatric Tracheostomy Conference, Ottawa, Canada

### November

- 1-3 CHEST Conference, Vancouver, Canada
- 5 Society of Respiratory Care Symposium, Rockford, IL
- 9-10 Kindred Pulmonary Symposium, Louisville, KY
- 18-20 ASHA Convention, Philadelphia, PA

Talk-Muir is published by Passy-Muir, Inc. for tracheostomized and ventilator-dependent patients, their caregivers and medical professionals in order to provide:

- Interesting news and stories
- Resources and clinical tips
- Information about new educational opportunities
- Upcoming events and more

Story contributions and comments are welcome.

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This issue of Talk Muir contains the following articles and stories:

- Updates on dysphagia research
- Clinical Q & A regarding use of the Passy-Muir Valve for swallowing evaluation and treatment
- Interview with featured clinical expert Roxann Diez Gross, Ph.D., CCC-SLP
- Patient Spotlight

## **NEW** Continuing Education Opportunities!

Since our last newsletter we have once again expanded our line of CE activities. We have brought back our very popular full day live seminars. In addition we have developed Special Event Webinars with focused topics and guest presenters. Look inside for more details on the following:

- FULL DAY SEMINARS
- SPECIAL EVENT WEBINARS
- SELF STUDY WEBINARS
- CALENDAR OF EVENTS



Passy-Muir, Inc. is an approved provider of continuing education through ASHA, AARC and the California Board of Nursing. PRO 020.0 REV. 08/10

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