



DMS NEWS AND REVIEWS

A DYSPHAGIA MANAGEMENT SYSTEMS PUBLICATION

Spring 2016

► IN THE NEWS

“Further Improvements to the Nursing Home Compare Five-Star Quality Rating System”

<https://www.cms.gov/medicare/provider-enrollment-and-certification/certificationandcompliance/fsqrss.html>

In April 2016, CMS will begin posting data for six new quality measures (QMs) on Nursing Home Compare:

1. Percentage of short-stay residents who were successfully discharged to the community (Claims-based)
2. Percentage of short-stay residents who have had an outpatient emergency department visit (Claims-based)
3. Percentage of short-stay residents who were re-hospitalized after a nursing home admission (Claims-based)
4. Percentage of short-stay residents who made improvements in function (MDS-based)
5. Percentage of long-stay residents whose ability to move independently worsened (MDS-based)
6. Percentage of long-stay residents who received an anti-anxiety or hypnotic medication (MDS-based)

CMS created the Five-Star Quality Rating System to help consumers, their families, and caregivers compare nursing homes more easily and to help identify areas about which you may want to ask questions.

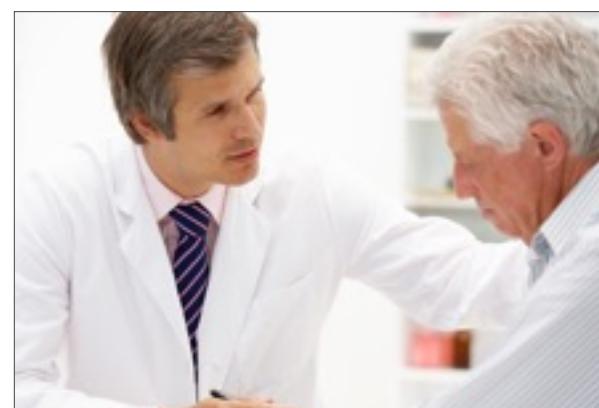
► ON PAGE 3:

Dr Jeanna Winchester, PhD provides a literature review and pilot data in **The Five Systems of Dysphagia & Parkinson’s Disease**.

► DID YOU KNOW?

According to a recent publication in the **Journal of Clinical Oncology, 2016 Gastrointestinal Cancers Symposium (Vol 34, No 4 Supplemental: 100)**:

- 1) Among 509,593 hospitalized patients with esophageal cancer, more than 12,000 were related to dysphagia
- 2) The percentage of all hospitalizations for esophageal cancer and esophageal cancer with dysphagia doubled over the study period
- 3) Dysphagia is associated with significant morbidity in patients with esophageal cancer
- 4) Hospitalization for esophageal cancer and dysphagia are increasing
- 5) Mortality for patients with esophageal cancer is high and multifactorial
- 6) Peripheral nutrition is used in 11% of patients with esophageal cancer



DYSPHAGIA MANAGEMENT IS A GOOD FACILITY CLINICAL DECISION:

- Individualized Objective Evaluation with Instrumentation **eliminates costly guess-work** in establishing a Care Plan that considers all Dysphagia Risk Factors when the Five Systems of Dysphagia are considered (Winchester & Winchester, 2015).
- Stabilizing patient within first two weeks of admission **can reduce repeat hospitalizations up to 62%** with a specific patient risk profile (DMS,Literature Review, Newsletter, April 2015, http://dysphagiamanagement.com/wp-content/uploads/2015/04/DMS_Newsletter_415b.pdf).
- Effectively managing dysphagia can **reduce 1/3 of infections** commonly found in residents (Langmore et al., 1998), which in a 200 bed SNF could potentially prevent up to **66 patients** from unnecessary complications from infection.
- Approximately 14% of older patients experience **dysphagia during oral medication administration**, (Gillicuddy et al., 2016) which in a 200 bed SNF, accurate identification of risk and proper management could prevent up to **28 patients from experiencing dysphagia complications**.



DMS is Celebrating Better Speech & Hearing Month, May 2016

DMS is offering a free ASHA approved 0.1 CEU event to ALL Members of the Care Team:

"The Business of Dysphagia: Importance of the SLP In Managing Risk"

May 12 @4pm EST May 14 @10am EST
 May 19 @11am EST May 21 @6pm EST
 May 24 @6pm & 9pm EST

**FREE 1 hour LIVE
 Research-based Web Course!**

Check With Your Employer For Your Approved Dates/Times To Attend!

For More Information: 855-693-7822

INTRODUCING: **Tammi Nokes MS SLP CCC**



Tammi Nokes, M.S. CCC-SLP, is a Dysphagia Management Systems' Instrumentation Specialist and serves as the Sarasota, Florida DMS Trainer. Mrs. Nokes received a BA in Special Education from Hastings College, and a MS in Speech Language Pathology from the University of Nebraska at Kearney. With 10+ years experience in Medical Speech Pathology, Tammi has specialized with an emphasis on dysphagia in the adult population across the hospital, rehabilitation, home health and private clinic settings. Previously, she served as Director of Rehab in Alvarado, Texas and was the recipient of the 2014 Director of the Year Award. Mrs. Nokes currently resides in Bradenton, Florida, and utilizes her expertise in the Central & South Florida areas. We are so pleased to have Mrs. Nokes as a vital member of the DMS team!

The Five Systems of Dysphagia & Parkinson's Disease

A chronic, progressively neurodegenerative disorder, Parkinson's disease (PD) is characterized by nigrostriatal dopaminergic and locus coeruleus noradrenergic neuronal degeneration with a reduction of dopamine and noradrenaline levels in certain brain regions (Natale et al., 2008). A disease of this nature has widespread deleterious effects on the Five Systems of Dysphagia.

As many as 15% of PD patients exhibit both silent aspiration and dysphagia (Baijens & Speyer, 2009), possibly related to orofacial-laryngeal bradykinesia and rigidity, the inability to initiate the swallow reflex, or by a prolongation of laryngeal or esophageal movement (Jankovic, 2011). Nearly 75-88% of PD patients experience hypersalivation, however PD patients have reduced salivary production. Instead, the relationship of increased hypersalivation may be more related to the co-morbid breakdown of the functional swallow in this patient population (Jankovic, 2011; Natale et al., 2008).

PD patients often have food residues in the oral sulci for long periods of time after completing a meal, along with delayed oral transit, repeated tongue pumping for retropulsion of the bolus, delayed triggering of the pharyngeal swallow reflex, reduced diameter but prolonged opening of the Upper Esophageal Sphincter (USE), vallecular stasis, residue in the pyriform sinuses, and an increased risk of aspiration (Miller et al., 2006). Dangerously, though, research consistently shows that PD patients have silent aspiration prior to subject complaints of dysphagia (Miller et al., 2006).

Flexed posture, freezing (also known as motor blocks, a form of akinesia), a tremor at rest, rigidity, akinesia or bradykinesia and postural instability are among the hallmark symptoms of PD (Jankovic, 2011). Additional motor symptoms include hyponymia, dysarthria, dysphagia, sialorrhoea, decreased arm swing, shuffling gait, festination difficulty arising from a chair, turning in bed, micrographia, blepharospasm, dystonia, striatal deformity, scoliosis, camptocormia, glabellar reflex, and difficulties with cutting food, feeding and hygiene.

Non-motor symptoms include cognitive impairment, bradyphrenia, word finding difficulties, depression, apathy, anhedonia, fatigue, anosmia, ageusia, pain, parasthesias, dysautonomia, weight loss, and sleep disorders (Jankovic, 2011). Further, dysphagia in PD is associated with increased morbidity and mortality (Miller et al., 2006). It is no surprise that all of the Five Systems of Dysphagia are affected in PD.

To that end, we will discuss how each of the Five Systems of Dysphagia is affected in PD. First, we will focus on the Respiratory System of Dysphagia. PD patients experience respiratory disturbances that can be restrictive or obstructive (Jankovic, 2011).

These are associated with morbidity and mortality, with pneumonia significantly predicting mortality in PD patients who are living in an institutionalized setting. Rigidity, cervical arthrosis and restricted range of motion in the neck may contribute to the obstructive pattern of PD-related respiratory disturbances, while the restrictive pattern may correlate with chest wall rigidity. Some PD patients could experience compromised respiration due to dyskinesia associated with the common medication for PD, called Levodopa (Jankovic, 2011).

Both voluntary cough and the cough reflex can be impaired in PD, due to the interaction of the Respiratory and Muscular Systems of Dysphagia. Three phases are found in voluntary cough: (1) an inspiratory phase that involves compliance of the chest wall and laryngeal inspiratory muscles; (2) a compression phase, which involves laryngeal closer and the use of the abdominal expiratory musculature; (3) an expiratory phase, which involves the chest wall and the abdominal expiratory muscles (Pitts et al., 2008). Diaphragmatic muscular activity, and activation of the posterior cricoarytenoid and cricothyroid muscles are needed during the inspiratory phase to expand the thoracic cavity and take in air.

In PD patients, chest wall rigidity can decrease their ability to inflate their lungs and affect their ability to expel that air to effectively cough. Patients also suffer from decreased cough reflex sensitivity that can contribute to increased aspiration risks (Pitts et al., 2008). While distinct, voluntary cough and reflexive cough includes both sensation and motor action, both of which can be decreased in PD.

Recent research demonstrates that measures of voluntary cough are indicative of increased respiratory complications in this population known to have swallow dysfunction defined by the degree of penetration and aspiration during sequential swallows. Results indicated modest correlations between penetration and aspiration and voluntary cough airflow parameters that could be related to the degree of airway protection in PD (Pitts et al., 2008).

In terms of the GI System of Dysphagia, Parkinson's disease is associated with marked effects on quality of life and gastrointestinal distress (Natale et al., 2008). GI dysfunction is a common autonomic disorder in PD, with a variety of symptomatology depending on which section of the alimentary canal is affected. Further, the severity of GI dysfunction increases proportionally to the progressively degenerating course of PD. With 75-88% of PD patients exhibiting hypersalivation, there is a co-morbid breakdown of the functional swallow in this patient population (Natale et al., 2008).

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The Five Systems of Dysphagia & Parkinson's Disease, Continued

PD patients also experience delayed gastric emptying, dyspepsia and heartburn attributed to reduced peristalsis and/or GERD (Natale et al., 2008). GI motility is controlled by extrinsic and intrinsic innervation arising from the vagal and spinal nerves, as well as the myenteric and submucosal plexuses. Although the enteric nervous system (ENS) of the gut can act independently of the central nervous system (CNS), the CNS and ENS communicate extensively through the sympathetic and parasympathetic pathways. Further, PD-related neurodegeneration of the ENS may contribute to GI dysfunction in patients that could mirror the CNS degeneration they are also experiencing, because the CNS and ENS share a common origin and functional/chemical similarities (Natale et al., 2008).

When considering Cognitive Dysphagia, indicators of quality of life (QoL) can be significantly decreased in PD, with the degree of autonomic dysfunction and fatigue being most highly correlated with poor overall QoL (Gallagher et al., 2010). PD is associated with a myriad of effects on mood, motivation and cognitive functioning (Poewe, 2008), further affecting the Neurological and Cognitive Systems of Dysphagia. Patients often complain of a loss of assertiveness, as well as anhedonia and anxiety. An average of nearly 40% of PD patients report prevalence of major depression that could be coupled with panic attacks and anxiety, a loss of interest and initiative, fatigue and indecisiveness that may precede the onset of motor symptoms.

Early in the disease's progression, deficits in cognitive functioning can severely impact the patient's QoL and ability to perform activities of daily living. Deterioration of the frontal executive functioning pathways can affect the patient's problem solving, planning, goal-directed behavior and is associated with deficits in set shifting, visuospatial deficits and even learning/memory. Nearly 1 in 3 PD patients will be diagnosed with dementia at some point throughout the disease's progression (Poewe, 2008).

The development of dementia in PD has been associated with an increased rate of progressive deterioration that may be linked to aspects of psychomotor slowing, apathy, bradyphrenia, deficits in memory retrieval and attention that is associated with neuropsychiatric disturbances such as hallucinations, delusions and psychosis. Further, the treatment of PD may contribute to psychotic behavior in this population, across all major classes of anti-parkinsonian agents (Poewe, 2008).

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DYSPHAGIA MANAGEMENT IS A GOOD REHABILITATION CLINICAL DECISION

Up to 60% of nursing home residents have feeding difficulties. Dysphagia accounts for **13-48% of all infections in a SNF** (Langmore et al., 1998). COPD, pneumonia and complications from MRSA infections have an undiagnosed or under treated **secondary risk factor of dysphagia** (Winchester & Winchester, 2015).

Dysphagia Management System's DST is designed for an **ongoing professional collaboration with the Rehabilitation Staff**, to better identify/reduce dysphagia risks and increase positive clinical outcomes. To better facilitate the understanding of dysphagia risks and the opportunity for functional dysphagia management, DMS offers in-person and online education as a part of the standard contract.

Accurate identification of dysphagia and aspiration risks, understanding the functional components affected, and an interdisciplinary approach to managing the patient's safety within the facility can improve outcomes significantly. Documentation of medical necessity and a change of condition clearly establishes the rehab intervention a patient needs.

The cost of treating Aspiration Pneumonia is \$15-20,000. A comprehensive Dysphagia Management evaluation utilizing the DST costs <2% of this Dysphagia complication (Cichero & Altman, 2012)

The risk of aspiration is directly correlated to the presence of Dysphagia, Gastro-esophageal Reflux, Stroke and Poor Oral Care (Marik, 2001)

**The Five Systems of Dysphagia & Parkinson's Disease,
Continued**

Previously, Winchester & Winchester (2015 & 2016) demonstrated the bi-directional nature of the breakdown associated with the Five Systems of Dysphagia. Here, we have presented literature-based evidence to indicate how this applies to the case of PD. In the subsequent section, we will provide pilot-evidence further showing how the Five Systems of Dysphagia in PD are observable utilizing the Dysphagia Systems Test (DST) with instrumentation.

DST data from 52 PD patients was obtained, and patients were grouped into the following diagnostic groups: (1) PD; (2) PD & Dementia; (3) PD & GERD; (4) PD, Dementia & GERD. Dementia, here, is defined as a dementia diagnosis that was not accompanied by any diagnosis of heart disease, diabetes, seizures, congestive heart failure or myocardial infarction. DSTs were performed on all patients, and data was analyzed with Fisher Transformation and Chi Square tests. Results indicated that there were no significant overall effects of disease group, although many interesting effects were shown. It is important to note that this is pilot data, and effects that are disease group specific may be found in investigations with larger sample sizes.

PD Only

The average age of patients in this group was 81.69yrs. No patients were on alternative means of nutrition, and nearly one third of patients were on a Puree, Mechanical Soft or Regular diet. No patients had Pudding thick liquids, but 8% were on a Honey thick, 46% were on a Nectar and 46% were on Thin liquids. Most patients were recommended for a Thin liquid, with 15% on either a Honey or Nectar thick consistency. Nearly 8% of this population was recommended for alternative means of nutrition for food and liquids. Nearly one third of the population was recommended for either a Puree or Mechanical Soft food consistency, with only 8% of the population remaining on a Regular food diet consistency.

PD & Dementia

The average age of patients was 83.58yrs. More than 42% of patients were on a Puree diet, Pre-DST, with 25% on a Mechanical Soft, 25% on a Regular food consistency and no patients receiving alternate means of nutrition. No patients were on a Pudding thick liquid consistency, Pre-DST, 8% were on a Honey, 46% on a Nectar and 46% on a Nectar. Post-DST, nearly half the population had their food diet consistency changed to a Mechanical Soft diet, with 33% Puree, 17% Regular and 17% of the population being recommended for alternate means of nutrition. Nearly 42% of patients were recommended for a Nectar liquid consistency, with 8% Pudding, and 8% Honey.

PD & GERD

The average age was 83.58yrs. 42% of the patients in this group were on a Puree diet, pre-DST. A Mechanical Soft or Regular food diet was observed in nearly one third of patients, pre-DST, and no patients were on an alternate means of nutrition. No patients had a Pudding thick consistency for liquids, pre-DST, with 58% on a Nectar, 25% on a Honey and 17% on a Thin. Post-DST, nearly one third of patients remained on a Puree or Regular food diet, with 17% on Mechanical Soft and 17% being recommended for alternate means of food intake.

PD, GERD & Dementia

The average age of the population was 86.20yrs. Nearly 42% of patients were on a Puree diet, Pre-DST, with 33% on Mechanical Soft, 8% Regular and no patients on alternate means of nutrition. No patients were on a Pudding thick liquid consistency, pre-DST, with 8% on Honey, 42% on Nectar, 33% on Thin. Following the DST, 58% of patients were recommended for a Puree food dietary consistency, 17% Mechanical Soft, 8% Regular and none were recommended for alternate means of nutrition. The most common recommend liquid consistency was Nectar for 58% of the group, with 8% Pudding, 25% Thin and no patients receiving either a honey or alternate means for liquid nutrition.

Overall, patients who were in their 80's & 90's were more likely to have their food consistency downgraded (Fisher Transformation test; $z = 2.293$, $C = 1.96$, $p = 0.022$). Patients who were on a thin liquid consistency were not likely to have a choking or coughing incident during the DST ($X^2 = 2.568$, $C = 1.96$, $p = 0.01$), however, those patients on a honey thick liquid were more likely to have an incident during the DST ($X^2 = 2.525$, $C = 1.96$, $p = 0.012$).

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Undiagnosed or under-diagnosed dysphagia is a major, preventable contributor to repeat hospital admissions. Unfortunately, the treatment for dysphagia varies greatly from facility to facility.

(Cook & Kahrilas, 1999, Kind et al, 2011, Loeb et al, 2003)

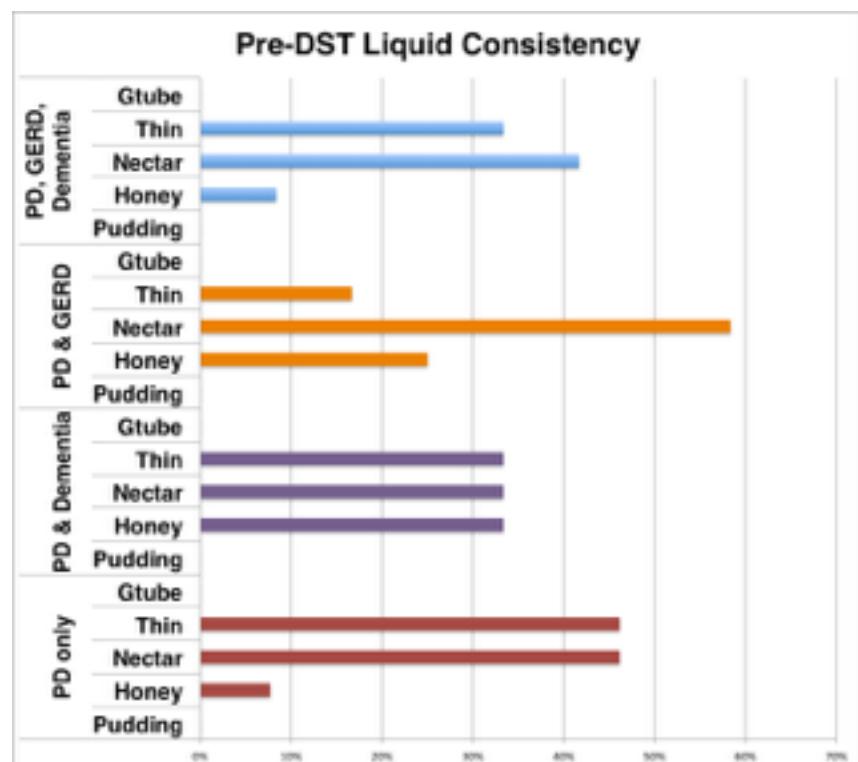
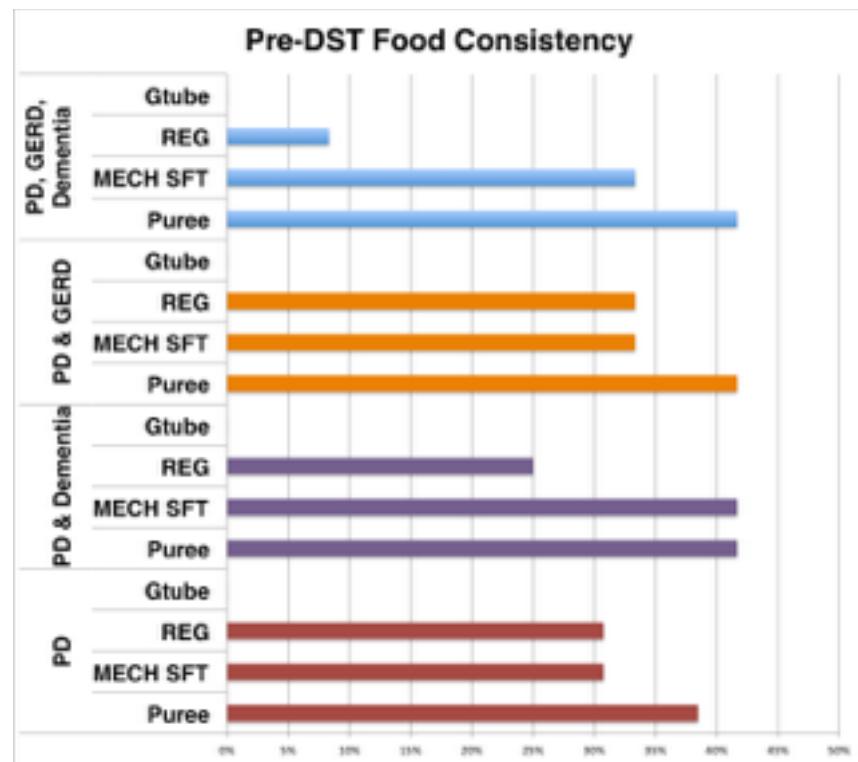
The Five Systems of Dysphagia & Parkinson's Disease, Continued

Those patients on a honey thick liquid were more likely to have history of silent aspiration ($z = 3.678$, $C = 1.96$, $p < 0.001$). Patients who demonstrated penetration were likely to have their food consistency downgraded while those who did not demonstrate penetration were likely to not have their diet changed, and possibly was upgraded ($X^2 = 6.572$, $C = 5.991$, $p = 0.037$).

A **trend** indicated that patients who had penetration likely had aspiration as well ($z = 1.824$, $C = 1.96$, $p = 0.068$) and had an increased likelihood that it would be silent aspiration (Fisher Transformation Test; $z = 4.683$, $C = 1.96$, $p < 0.001$). Patients who had penetration likely were currently aspirating ($z = 2.293$, $C = 1.96$, $p = 0.022$) and those who did not have penetration were likely to not have a history of choking ($z = 2.955$, $C = 1.96$, $p = 0.003$). A **trend** indicated that patients who had choking or coughing incidents during the DST also likely had a history of breathing changes ($z = 1.819$, $C = 1.96$, $p = 0.069$) and patients who had a choking incident were likely to have their liquid consistency changed to a nectar liquid ($X^2 = 6.333$, $C = 1.96$, $p < 0.001$) or a honey ($z = 2.151$, $C = 1.96$, $p = 0.031$). Finally, a **trend** indicated that patients who were younger than 85yrs had a history of breathing changes ($X^2 = 6.831$, $C = 7.815$, $p = 0.077$).

In summary, the data presented here supports the benefits of identifying those patients at highest risk, and when necessary, utilizing an instrumentation for detection of the penetration, aspiration and pneumonia risk in PD, across all Five Systems of Dysphagia. While no significant statistics demonstrate the change in diet by disease group, when reviewing the distribution of the data, one can see that patients with a diagnosis of dementia in any combination had a greater percentage of recommendations that downgraded food and liquid diet consistencies. This is in accordance with the literature that has concluded that a dementia diagnosis is significantly correlated with the presence of dysphagia, and deterioration of the Five Systems of Dysphagia (Winchester & Winchester, 2015).

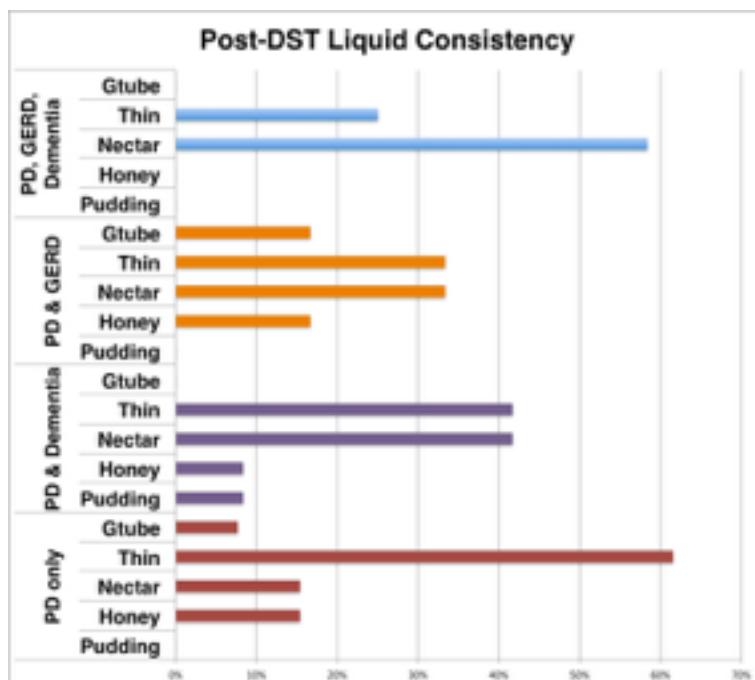
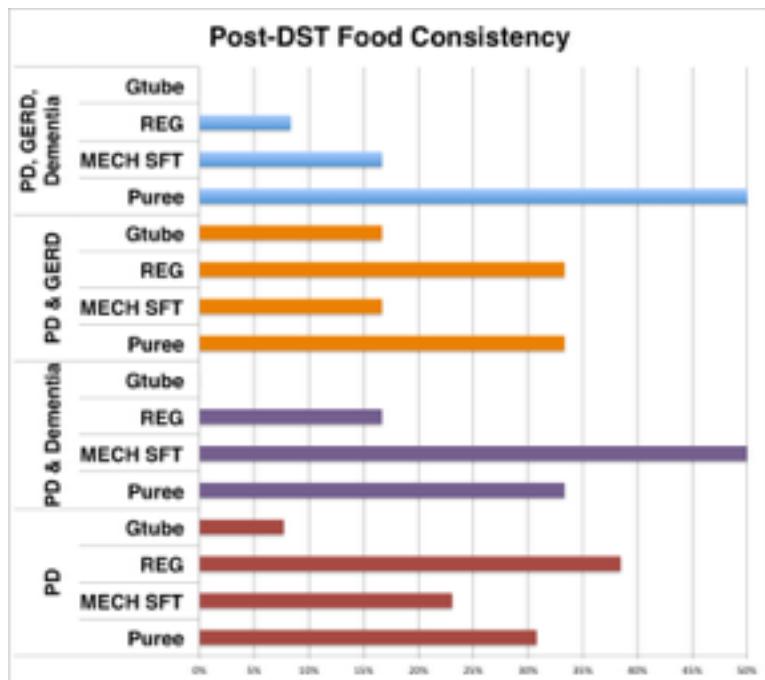
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Instrumentation predicts hospital readmissions. An effective plan should include instrumentation and coordination of the Care Team to reduce the Patient's future risk. (Winchester & Winchester, 2015)

The Five Systems of Dysphagia & Parkinson's Disease, Continued

The smallest percentage of patients with PD were recommended for an upgraded diet and this is consistent with the literature relating dysphagia to PD. Overall, our data is consistent with previous reports (e.g. Baijens & Speyer, 2009) demonstrating a likelihood for silent aspiration in PD patients. Previous literature indicates the propensity for PD patients to have prolonged opening of the UES due to the progression of PD. It is no surprise, then, that in the PD & GERD group, patients were more likely to be on a puree diet and more than 75% of patients were utilizing thickening agents for their liquids. The present data has demonstrated the increased risk of penetration and aspiration, particularly silent aspiration, for PD patients, and further effective dysphagia management protocols in this population should include instrumentation for these at-risk patients, and coordination with the interdisciplinary care team to improve future patient safety.



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Diagnoses that contribute to increased cost of care and readmission penalties: COPD, Pneumonia, Hip FX and Total Knee, with Dysphagia, can be costly to the Facility if not identified and managed (Medicare, CMS/Gov, May 2015.)

A JOB WELL DONE!

Nicholas Ramano SLP CCC - Lady Lake, FL

Nick Ramano is an SLP in the Lady Lake, Florida area. Nick's dedication to his patients, and his commitment to deliver quality therapeutic intervention and care prompts him to refer patients to DMS for the DST when a high risk is identified. Recently, one of Nick's patients was living at home and consuming a regular textured diet and thin liquids. The patient's spouse reported ongoing vocal changes over the previous few months. In Jan '16, the patient was admitted to Freedom Pointe in the Villages, FL, with a diagnosis of Parkinson's Disease and UTI/sepsis. Upon completing a bedside evaluation, Nick observed signs and symptoms of aspiration and made a DST referral. During the DST, the patient had consistent penetration of thin liquids along with apparent backflow and residue resting on the esophageal inlet. Tammi Nokes, the DMS SLP recommended a change to a mechanical soft diet and nectar liquid. Tammi and Nick worked closely together over the course of the next few months to increase the patient's safety. Nick utilized a variety of treatment modalities to increase pharyngeal and laryngeal strength, and referred to DMS for two more follow-up DSTs which eventually resulted in a recommendation of a regular textured diet with nectar liquid. The patient's GI issues were addressed and eventually he had no backflow evident, with minimal residue resting on the esophageal inlet. Thanks to Nick's dedication to his patient's safety, his expertise as an excellent SLP, and his collaboration with DMS to reduce risk, the patient was able to return home on a safe and least restrictive diet. A Job Well Done, Nick!!!

COMING SUMMER 2016!

DMS is committed to providing Continuing Education Events to the SLPs and the entire Care Team! The Summer 2016 issue will have more information on these FREE educational experiences and the potential to earn ASHA CEU's at minimal fees! DMS is shining a light on what good dysphagia management looks like in coordination with the CMS initiatives!

Did you know that dysphagia is a common co-morbidity with ischemia? Dysphagia is a co-morbidity in nearly half of all ischemic cases. Further, a comprehensive dysphagia evaluation can effectively predict pneumonia in ischemic patients. Additionally, an atrioesophageal fistula can be a complication of atrial fibrillation. To that end, we will review the evidence demonstrating how the Five Systems of Dysphagia are affected with these conditions.

In the Summer 2016 issue, we will be exploring the effects of Atrial Fibrillation & Ischemia on the Five Systems of Dysphagia. Check us out!



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