Thickened Liquids: One Tool in Our Dysphagia Toolbox

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Course Objectives

1. Understand instrumental evaluations are necessary to accurately determine the need for a thickened liquid.
2. Explain the rationale for thickening liquids and what a thickener is.
3. Identify the levels of thickness (apparent viscosities).
4. Discuss patient safety benefits and risks.
5. Present effective collaboration with the RD and SLP and the interdisciplinary team with holistic approach for "person-centered care"

Dysphagia = difficulty swallowing

Dysphagia is not a disease in-and-of-itself.

Dysphagia is a **symptom** of many different diseases, disorders, and structural/functional abnormalities.

Oral, pharyngeal and/or esophageal.

Across **many systems**.

Requires a **multidisciplinary** or transdisciplinary approach to every patient.

What can cause dysphagia?

- **Neurologic**
  ALS, Parkinsons, MS, Dementia, Stroke
- **Respiratory**
  Patient with COPD having difficulty coordinating breathing and swallowing
- **Gastrointestinal**
  GERD, achalasia, esophageal dysmotility, stricture, delayed gastric emptying
- **Renal**
  Patients with end-stage renal disease requiring hemodialysis often miss meals, have poor appetite/intake, leading to generalized weakness & dysphagia
- **Head and Neck issues**
  Cancer, early & late effects of radiation/chemotherapy
- **Cardiovascular surgeries**
  May affect the recurrent laryngeal nerve
- **General Surgeries**
  Thyroid surgeries, ACDF - Anterior Cervical Discectomy and Fusion
- **Critical illness & intensive care treatments**
  Sepsis or iatrogenic cause, like intubation or tracheostomy
- **Sarcopenia** (muscle wasting and atrophy)
  Disuse can lead to dysphagia. Use it or lose it!

Instrumental Evaluations are Critical

The Speech-Language Pathologist (SLP) evaluates with:
Clinical Bedside Swallow Evaluation

- Determine level of risk for dysphagia & aspiration.
- Determine if an instrumental exam is needed to better answer our questions (i.e., MBS, FEES, Esophagram, etc).

This bedside evaluation is thorough, BUT it has many **limitations**, as we have not developed our x-ray vision!

1. We cannot rule-out aspiration (due to silent aspiration).
2. We cannot evaluate bolus flow characteristics OR pharyngeal/laryngeal anatomy & physiology.
3. We should definitely **not make long-term recommendations for thickened liquids based only on bedside assessments**.

Leder, Stephen, 2015, March; Sasaki & Leder, 2015, June, page 377

Aspiration on Modified Barium Swallow (aka, Videoflouroscopy)

On the Instrumental Exam:

We analyze the patient's abnormal swallowing anatomy and physiology.

- We do not treat the bolus. Ask, what did the patient do or not do to make the liquid go down the wrong way? (Coyle, 2014, April)
- What caused the residue?
- What caused the backflow?

What can we do about it?

These exams are NOT pass/fail!

Goal: Safe & Adequate Nutrition & Hydration, while preserving Quality of Life! Least Restrictive Diet.

We Pull Out Tools from the Toolbox

SLP matches tools with the specific problems.
Not random! Not one size fits all!

Each tool has risks & benefits to consider.

Thickening the liquid is one of these tools, which we will thoroughly analyze today.

Sneak peak at some take-home messages:

- Thicker is not always better!
- "Some patients get sicker when it is thicker"

In Presentation by Dr Joanne Robbins on March 14, 2015. Dysphagia Research Society Annual Meeting, Chicago, IL.
Logemann et al., 2008; Robbins et al., 2008, Protocol 201.

Examples of some other tools:

Behavioral & Positioning Modifications

Increasing Sensory Input

- Examples:
- Cold, sour, larger bolus volume

Postural Variations:

- Examples:
- Chin down or Chin tuck (These also require instrumental exam. Not for everyone, as they could increase aspiration.)
- Turning head to close off the weaker side of the pharynx.

Voluntary Maneuvers to Protect the Airway & Improve Clearance

- Examples:
- Super Supraglottic Swallow (tight breath hold at level of vocal cords)
- Effortful Swallow (swallow "hard" to increase tongue-base stripping of the bolus)
- Mendelsohn Maneuver (increases the duration of laryngeal elevation to assist in yanking open the cricopharyngeal muscle – top of the esophagus)

Logemann, 1993

Pillars of Dysphagia Management

Compensatory Strategies e.g. Mendelsohn Maneuver + **Rehabilitation** e.g. Strengthening + **Diet Modifications** e.g. Thickened Liquids

(Logemann, 1993, 1998)

Ultimately, we need to consider:

- The big picture
- Patient's Goals Of Care (GOC) & patient's prognosis
- Patient's/caregiver's cognition, motivation, and ability to follow a plan

Provide Options

Thickened liquids may be the best option (e.g., acutely ill, patient cannot follow directions, recall strategies, or follow a strengthening program).

We cannot prevent aspiration 100% of the time.

Sometimes need to recommend a least restrictive diet and strategies to optimize quality of life over preventing aspiration at all costs. Incorporate other ways to reduce pneumonia risks (i.e., oral hygiene).

Historical Perspective on Thickening

Logemann's (1993) manual for videoflouroscopy mentioned modifying the consistency of foods and liquids under the "Variations in Food Presentation" section, saying:

"The clinician can mix the liquid and thick paste until the desired consistency is achieved."

We have come a long way in
testing standardized liquid consistencies, BUT

Have we gone overboard in using thickening as our
first line of defense,
rather than exhausting all other measures first
(as taught by Logemann, 1993, 1998).

Garcia, et al. (2005b) found wide use of thickening among SLPs.

Are we now sacrificing hydration and quality of life?

Expert Opinion on Thickening:

"The generally accepted clinical notion that manipulation of thicker (more viscous) substances reduces occurrence of aspiration, or modifies other bolus flow characteristics in dysphagic persons that produce an "improved swallow," has little support, other than anecdotal, in the literature. **Despite the paucity of data, the manipulation of thickness in the diet has become a cornerstone of dysphagia management practice**."

Robbins, et al., (2002), SIG 13 Perspectives, page 16.

"Despite widespread use of thickened liquids in clinical practice, the field still **lacks clear evidence regarding the degree of thickening** required for optimal patient benefit."

Steele, et al., (2014), Dysphagia, pages 355-356.

Why Thicken Liquids?

- **Thin liquids move fast**. They can fall out of the mouth and spill into the throat.
  - Thin liquids are **unpredictable**, difficult to control, and may spill to the airway before the swallow reflex in initiated (Logemann, 1983).
  - Thickened liquids are a **cohesive bolus** that may be **easier to control** (Hamlet, et al., 1996).
- **Thickened liquids slow down the bolus flow** to compensate for a delayed swallow and reduced airway closure (Clave, et al., 2006; Logemann, et al., 2008).
  - Thicker bolus delays transit through mouth and pharyngeal cavities (Dantas, et al., 1989, 1990).
  - Thin liquids reached pharynx earlier than thick liquids, requiring faster closure of the vocal cords (Inamoto, et al., 2013).

Why Thicken Liquids?

- **Decrease aspiration.** (Kuhlemeier,et al., 2001)
- **Thick liquids may give the patient more time** to perform additional swallows or other swallowing strategies.
- Curran & Groher (1990) provided one of the 1st descriptions of an *Aspiration Risk Reduction Diet*, which included the options for nectar, honey, pudding-thick liquids, as:

"...the **disordered mechanism cannot respond in time with sufficient control to protect the airway** (pg 6)."

What is a Thickener?

Let's talk about Polymers!

Thickeners are Polymers: extended structure formed by bonds

Thickeners on the market:

- Modified food-starch or Corn-starch based
- Gum-based thickeners (i.e., Xanthan gum)

Both are: **Complex long-chain polysaccharides.** Long chains stick out all over and form chemical bonds. Effective to bind to liquid & thicken, but what does it also bind with?

Crushed medications! (See references & my blog **http://www.swallowstudy.com/?p=850**)

Xanthan-gum based thickeners

- This Polysaccharide is secreted by a bacterium (xanthomonas campestris). Derived by inoculating a substrate. Produced by the fermentation of: Glucose or sucrose. (https://en.wikipedia.org/wiki/Xanthan_gum)
- Bacteria forms a slippery substance that thickens. Pleasant texture (i.e., ice cream).

Questions/Risks:

- Allergies? What if it is derived from wheat, lactose, or soy?
- Where is the xanthan gum digested? Colon? Does the patient need healthy bacteria in colon to break it down? (Cichero, 2013)
- See FDA warning (2011) & Woods, et al (2012) regarding necrotizing enterocolitis when a fully-hydrated gel version was given to premature infants. Product contamination.

Consistencies or Viscosities

Liquids per National Dysphagia Diet (NDD)

Thin Liquid	• 1-50 mPa.s*
Nectar Thick	• 51-350 mPa.s
Honey Thick	• 351-1750 mPa.s
Pudding Thick	• (>1,750 mPa.s

(Felt, 1999; Clayton, 2002, National Dysphagia Diet Task Force)

***1 milipascal (mPa.s) = 1000 Poise or 1 Centipoise (cP)**

Note: when discussing viscosity, we also need to know the ***Shear Rate*** to compare viscosities properly (i.e., 50/s - reciprocal seconds).

Per Dr Catriona Steele, PhD, CCC-SLP, BCS-S, CASLPO, ASHA Fellow. Steele, 2014, November; Steele, et al., 2015; personal communication, June 2, 2015.

Rheology

Definition: the **study of flow** and deformation of matter.

Think about the applied forces on the liquid bolus & the bolus in motion.

When a shear force is applied to a liquid (like in the mouth & throat), it deforms continuously.

Steele, et al., 2003; Mills, 1999; Nicosia, M.A., 2015, March

Shear Rate

Definition: "quantified measure of the speed of flow" (Steele, et al., 2015)

- Reported in reciprocal seconds (typical: 50/s)
- Causes a change viscosity due to force or yield stress
- Concern is **Shear-thinning:** typically a reduction in viscosity with increasing shear rate.

- There is a lot of variability in viscosity at **low shear rates**. (Imagine a patient with oral dysphagia). Steele, et al. 2003 found honey-thick chocolate milk shear-thinned to viscosities lower than that of nectar-thick apple juice at low shear rates <15/s.
- **Pharyngeal & esophageal phases may be 400/s** (Meng et al., 2005 as cited by Steele et al., 2015; Steele, 2014, November)

Viscosity

Definition: "measure of the intrinsic ability of a fluid to **resist shear force** and is quantified as the ratio of shear stress to shear rate." (Steele, et al., 2003, page 183)

- **Resistance to flow** under an applied force.
- Measured in centipoise (cP) or millipascal seconds (mPa.s). These are equal.
- Thickened liquids are **Non-Newtonian**, meaning it is a **non-linear** relationship between shear stress and shear rate.
- **Viscosity cannot be reported as a single measurement**. It is **dependent on a specific shear rate.** (Cichero, et al., 1997; Steele, et al., 2003)

Summary: What affects viscosity?

- Temperature
- Time
- pH and chemical composition
- Solids within the liquid
- Amount of force applied (shear stress)
- Rate at which the shear force is applied
- Saliva and mucosal conditions ("wall-slip")
- Layers within the liquid that flow faster (faster through the center of a tube)

Steele, et al., 2008, November; Steele, 2014, November

More rheology of different liquids

See Reference section:

- Cho & Byoungseung, 2015: re high shear-thinning with yield stress for all cold liquids with xanthan-gum.
- Seo & Yoo, 2013: re rheological properties are different based on the type of gum and gum concentration.
- Sung-Gun et al., 2014: re hot soups and various gum composites. Note: composite of xanthan gum, guar gum and dextrin was the "least slimy."
- Sopade et al., 2007, 2008: three part study.

We have discussed:
Testing & Why we thicken liquids,
What a thickener is, &
Rheology concepts

Next...

What are the potential risks?

What are the problems with current products?

Potential Risks of Thickening

- Need increased **intra-bolus pressure** orally and at the upper esophageal sphincter (UES). (Dantas, et al., 1989)
- Very thick liquids require increased UES opening for a longer period of time. (Dantas, et al., 1989; Dantas, 1990; Bisch, et al., 1994)
- **More tongue pressure** needed to initiate the swallow. (See Steele, et al., 2015, page 13, for a review of the oral processing literature.)

Potential Risks of Thickening

More Residue = Potential aspiration after swallow

- Hind, et al (2012) found that Honey Thick Varibar Barium had less penetration/aspiration, BUT honey thick had **increased residue** versus the Nectar thick Varibar
- New research did not find a significant increase in residue with increased viscosity. This may be a characteristic of gum thickeners.
  (Steele, et al., 2015, March; Personal communication May 25, 2015)
- Protocol 201: **Worse outcomes** for patients randomized to **Honey thick liquid** versus Nectar or Thin/Chin tuck. Out of patients who aspirated all 3: Increased risk for developing pneumonia if honey thick is aspirated (19% Honey vs 11.5% Nectar). Increased dehydration &UTI. Longer hospital stays: Mean of 18 days for Honey vs 4 for Nectar.
  (Part 1: Logemann, et al., 2008; Part 2: Robbins, et al., 2008)

Potential Risks of Thickening

75% of patients on thickened liquids in nursing facilities are **dehydrated.**

Leibovitz, et al., 2007, as cited in Cichero, 2013

Dehydration Increases Risks

- Falls
- Renal failure
- Constipation
- UTI
- Fatigue → Impaired mental status
- Respiratory infection
- Poor muscle strength
- Pressure sores and Ulcers

Wooton, et al., 2008, as cited in Cichero, 2013

Dislike = Not drinking?

Is is just a simple issue of not liking it?

Adherence? Compliance?

Rather, We Need to Ask:

- Was the patient/proxy part of the decision-making?
- Did I provide education and options for the patient/proxy to make an informed decision with the medical team?

Dehydration & Bioavailability

- Lack of access?
- Poor appearance/taste?
- Not served cold?
- Served too thick?

What about *bioavailability*?? (Cichero, 2013)

- Supposedly, thickeners do not affect availability of the fluid. Enzymes in mouth and stomach work on the polymers. (Hill, 2010, was a single case design with a mature healthy gut; Sharpe, et al., 2007: showed >95% of water absorbed in rats and humans.)
- Do gum thickeners pass through the upper stages of digestion, requiring healthy microflora of the large intestine to break them down? (Cicero, 2013)
- Is there similar bioavailability when the gut and colon are not healthy and intact?

We need to find the balance

Aspiration Prevention
Increased Effort
Residue Risk
Quality of Life

- Steele, et al. (2014): oral perception of thickness in xanthan gum thickened liquids. People can detect **narrower ranges** than the current levels. **NDD too broad**. May need 5 liquid categories, like Japan.
- Can we provide a liquid that is thinner than a nectar thick, but potentially still safe based on an instrumental exam?
- Remember, too thick could be worse than too thin.

More on Perceptions

- **Taste**: affected more so by starch thickeners, but both types suppressed taste, especially at honey-thick. (Matta, et al., 2006)
- **Texture**: Slippery/slickness of gum thickeners versus gritty/grainy texture of starch thickeners. (Matta, et al., 2006)
- **Thirst**: Moderate to extremely thick liquids increased perception of thirst. (Zijlstra, 2008; Brunstrom 2000)
- **Satiety**: May feel full quickly with thick liquids. Terminate intake. (Zijlstra, 2008)

Too Many Labels; No Standard

Nectar thick
Honey thick
Syrup
Custard
Slightly thick
Moderately-thick
Mildly thick
Pudding thick
Extremely thick
Spoon thick

Dietitians & Speech Pathologists in Australia (2007) found 39 labels for liquids & 95 labels for food consistencies.

Created a consensus for the country!

1996 survey of dietitians in the USA found 18 labels for liquids and 40 labels for food consistencies!

(cited by Steele, 2014, November)

Need a Global Standard

NDD was a good start, but...

Official project of the ADA, but not of the American Speech-Hearing Association (ASHA).
Without official "blessing" by ASHA, many SLPs have not adopted this standard.

Labels need to be:

- Easily translatable
- Culturally sensitive (i.e., *pudding, custard*?)

*"No clear agreed upon taxonomy causes a **clear risk to our patients**."* (Steele, 2014, November)

See Blog for further information and resources:
http://www.swallowstudy.com/?p=593

"Consistently Inconsistent"

- "**Consistently Inconsistent**," per Payne, et al., 2011.
  - Inconsistencies seen between different batches of the same product from the same company
  - Too much variation, even with pre-thickened liquid products.
- Poor reliability among SLPs preparing the liquids. SLPs were inconsistent in **replicating same** level of thickness. (Glassburn & Deem, 1998)
- Need to stir the fluid and feel it in the mouth for best intra-subject reliability. (Steele, et al., 2003)
- So much training needed due to variability. (Parent perceptions - Smith, et al., 2014)

"Consistently Inconsistent"

- Garcia, et al (2005a): 80% of liquids made with **starch**-based thickeners were **too thick** when tested at 10 & 30 minutes.
- **Orange juice & 2% Milk: thicker** & more variable than water, apple juice & coffee.
- Honey-thick preparations were really off target:
  - Less than 40% were within the NDD range.
  - Initial measurements: *Thik & Clear* (gum) apple juice was too thin at **105 cP** vs *Thick It* (starch) at **603 cP**.
  - Retested at 10 & 30 minutes: OJ & 2% milk prepared with starch-based thickeners reached viscosities **far above the NDD** range of 351-1750 cP. (E.g., OJ: 4012 at 10 min, 4463 cP at 30 min. Milk: 3375 to 4614 cP).
- Too thin & too thick are both problems!

"Consistently Inconsistent"

Instrumental Exam vs. Reality

- Viscosity of Varibar Thin Liquid Barium at 40% weight/volume is **10** mPa.s, whereas water is **1** mPa.s. **Patient may not aspirate on the MBS, but does aspirate water**.
- Varibar reports shear rates of 30/s, rather than 50/s. Cannot compare well.
- Clinicians can work with industry to get the products we need (i.e., 20% Varibar Thin Liquid Barium).

Steele, 2014, November; Personal communications, 2015

IDDSI

International Dysphagia Diet Standardisation Initiative (**www.IDDSI.org**)

Check Out IDDSI's Open Access pdf's:

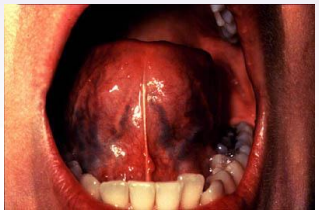
1. The Need for International Terminology & Definitions for Texture-Modified Foods & Thickened Liquids Used in Dysphagia Management: Foundations of a Global Initiative. (**http://tinyurl.com/q54terf**)

2. The Influence of Food Texture and Liquid Consistency Modification on Swallowing Physiology and Function: A Systematic Review (**http://bit.ly/1wvZydp**)

Global Consensus is Coming Soon!

Saliva

Mouth Dryness
Amylase action on thickeners
Amylase-resistant thickeners



Let's Talk About Spit!

- 1000-1500 ml of saliva is produced daily in healthy adults (Hall, JE, 2010, as cited in Hanson, 2014, March)
- **Unstimulated saliva** (moisture at baseline): from submandibular glands & sublingual glands → higher protein content/mucin.
- **Stimulated saliva** (while eating/drinking): from parotid glands → higher water content.
- Question: As this watery saliva mixes with a corn-starch based thickener, does the thickener actually bind to/strip away your saliva? More dryness?

  (Thickeners are *Mucoadhesive* & *Hydrophylic*: pull in water)

Cichero, 2013; Personal communication with Nicole Rogus-Pulia, May, 27,2015

Mouth Dryness = Increased Effort

"Tongue strength and mouth dryness are both associated with perceived sense of swallowing effort. **Adequate oral lubrication** is important for efficient swallowing, contributing to reduced perceived swallowing effort and improved bolus clearance."

Patients with **higher mouth dryness** ratings also had **more pharyngeal residue**, per videoflouroscopy.

Rogus-Pulia, et al., 2015, March b.

Amylase & Starch Thickeners

- Amylase: Digestive enzyme found in saliva.
- Initiates **breakdown of starches** (Hydrolysis) (Hanson, 2012, March)

This amylase action on starch is:

- **Time** dependent (thinning liquid over time)
- **Temperature** dependent (thinning slowly at chilled liquids & quickly with hot liquids) (Hanson, 2012, March)
- **pH** dependent (less effect on low pH/acidic liquids like OJ) (Hanson, 2012, March; Hanson, 2012, September)

Ferry, et al., 2006

- Starch-based thickeners:
  Higher amylase enzyme activity was linked to lower thickness scores (thinning the liquid).
- **Microscopic evidence that the enzyme can disrupt the granular structures in starches** (like modified food-starch and corn-starch).

Hanson, et al., 2012 (first study)

- Analyzed (A) **Corn-starch** based thickener vs (B) **Gum**-composite (corn-starch, tara gum, xanthan gum & guar gum).
- Liquids: **water** (neutral pH) vs orange juice.
- Two comparisons:
  1. Simulation of bolus in mouth: immediate effect of saliva.
  2. Simulation of saliva contamination in cup.

Hanson, et al., 2012 (first study)

1. In Mouth Simulation with thickened water

- Within 10 seconds:
  → Corn-starch (A) thickened water **reduced in viscosity by 90%**
  → Composite (B with gums + corn-starch) reduced viscosity by 69%.
- At 20 seconds, (A) lost 97% of it's viscosity.
- At 60 seconds, (A) reduced the thickened liquid **back to regular thin water**.
- (B) was stable by 60 seconds, but it had reduced viscosity by 89%

Hanson, et al., 2012 (first study)

2. Stimulation of saliva contaminating CUP

- Within 10 minutes:
  → Corn-starch (A) thickened water **reduced in viscosity by 99.5%**
  → Composite (B with gums + corn-starch) thickened liquid reduced viscosity by 91%.
- **OJ did not show significant changes**

Interestingly, the control fluids with both thickeners, but without saliva, had a steady **increase** in thickness over time to 130%

(Similar to Garcia, et al., 2005a)

Hanson, et al., 2012 (first study)

*"We would recommend investigation into the feasibility of **creating thickening agents that do not break down rapidly when in contact with salivary amylase** but also do not have adverse consequences for hydration and nutrition."*

Hanson, et al., 2012, March, page 18

Hanson, et al., 2012, Sept (second study)

More on pH & Amylase

- pH of 3.5 or lower (acidic): Saliva had **no** effect on viscosity
- **Lower pH slowed the digestive amylase effect on saliva**
- Should we add lemon?

Author's ratings:

Coca Cola = 2.6

Black Coffee = 6.2

pH	Examples of solutions
0	Battery acid, strong hydrofluoric acid
1	Hydrochloric acid secreted by stomach lining
2	Lemon juice, gastric acid, vinegar
3	Grapefruit juice, orange juice, soda
4	Tomato juice, acid rain
5	Soft drinking water, black coffee
6	Urine, saliva
7	"Pure" water
8	Sea water
9	Baking soda
10	Great Salt Lake, milk of magnesia
11	Ammonia solution
12	Soapy water
13	Bleach, oven cleaner
14	Liquid drain cleaner

Vallons, et al., 2015 (similar findings)

- Inoculated water, hot coffee, & full-fat milk with 1ml of human saliva (standardized amylase activity of 165 U/ml).
- Compared **1 Gum-composite** (Nutricia's Nutilis: corn starch, maltodextrin, tara gum, xanthan gum, guar gum) to **4 Starch-based** (i.e., Hormel, Novartis)

Amylase's Effect on Starch Thickeners:

- **How much decantable liquid could be poured off?**
- **Water**: 9.7 to 34.4g of liquid poured off the top. Worsened with time. Sampled at 10 & 50 min.
- **Milk**: 3 out of 4 samples lost most of their viscosity by 10 minutes. (*1 out of 4* still had 62.9g of liquid that could be poured off, when the initial sample weight was 92g!). All 4 samples returned to a thin liquid by 50 minutes.

→ No significant decantable liquid when fluids thickened with the gum-composite

Oudhuis, et al., 2007

- Compared Nutilis (amylase-resistant thickener, ART) to a typical starch-based thickener. Custard-thick water.
- 14 “young” (<45) and 21 “old” (>45). Not geriatrics!
- Bolus moved in mouth for 10 & 20 seconds. Exposed to stimulated saliva (watery). Measured relative viscosity.
- The relative viscosity of water thickened with a starch-based thickener was **27%** at **10 seconds**, compared with 61% for the amylase-resistant thickener.
- **20 seconds**: Starch=**14%**. ART=45%.
- Significant difference with “old” subjects having higher relative viscosity after 10 seconds (35%) vs 19% “young”

Findings from Oudhuis, A., Helmens, H.J. & Kistemaker, C. (2007). **Thickeners for dysphagia patients: Comparison of a new amylase resistant product with a standard starch-based product. In Vivo study with healthy volunteers**. Poster presented at TNO: Knowledge for Business.

Take-home messages

- Thicker is not always better.
- Provide the least amount of thickness needed to achieve “*safety*.”
- Can we find the *perfect* thickener & standardize our consistencies?
- Multidisciplinary & Person-centered care. Educate, counsel & provide options. Informed decision-making.

Dysphagia Management Team

Physician & Nursing:
- Overall Health and Risk Assessment

Speech Pathologist:
- Diet Texture and Swallow Evaluation

Occupational Therapist:
- Adaptive Equipment, Positioning

Physical Therapist:
- Positioning, Transfers

RDN/Dietary:
- Nutritional Care and Food/Dining

Social Services:
- Behavior Clinician: Behavioral Food Issues

Resident/Resident Family/POA

Nutritional Considerations

- ✓ The risk for malnutrition and dehydration increases when diet is altered.
- ✓ Impairments tend to interfere with food/fluid intake.
- ✓ Nutritional Assessment/Nutrition Care Plan should be completed by a Registered Dietitian Nutritionist.
- ✓ Nutrition care is based on SLP recommendations, physician orders, the RDN/DTR comprehensive nutrition assessment and resident informed choice.
- ✓ Goal is to keep individual at the highest level of consistency tolerated.

RDN & SLP: Partnership in Dysphagia Management

- ✓ SLP and RDNs work together on determining appropriate food/fluid consistencies to optimize food/fluid intake.
- ✓ RDNs and SLPs need to understand the education and expertise each offer.

  SLPs- food/fluid textures and consistency diet modification.

  RDNs: food science, food preparation, nutrition (macro- and micronutrients, absorption and metabolism), and hydration.
- ✓ Communication is KEY to success

Common Interventions:

Consistency Altered Diets:
National Dysphagia Diet - individual tolerance

Consistency Altered Liquids:
Thin, Nectar-like, Honey-like, Spoon Thick

Prevention of Malnutrition and Weight Loss:
Adequate intake of Calories, Protein and nutrients
Use of fortified foods, supplements, nutrient dense foods

Consideration of enteral feedings:
Informed choices
Advanced directives

CASE STUDY:

A 58-year-old retired English teacher with hypertension, and type II diabetes was admitted to local hospital with complaints of occipital head-ache, right hand tingling, hoarse voice, dysphagia, nausea, vomiting, and vertigo. After multiple tests he was diagnosed with having a brain stem stroke.

He was noted to have hypertension, poorly controlled diabetes that required use of insulin, severe dysphagia and bilateral aspiration pneumonia. He was stabilized was transferred to a long term care facility.

Initial- SLP assessments and was NPO. RDN completed comprehensive nutritional assessment, options were discussed with the resident and family and a temp enteral feeding was initiated to provide non-oral nutrition.

CASE STUDY-Continued

A GJ tube was then inserted due to severity of his swallowing problems, high risk of aspiration, and the anatomical location of the stroke

First month- improvement of pharyngeal swallow, better clearing of oral secretions, and mild improvement in clearing of thickened fluids.

Rehab continued- oral and pharyngeal exercises.

RDN continued to monitor overall nutritional status and the facility "Nutritional At Risk" (NAR) team reviewed status weekly. RDN and Dietary worked with SLP providing food and fluid at needed consistencies.

CASE STUDY-Continued

Six months later- Thin liquids (with double swallowing) and pureed consistencies (Still kept on GJ tube feedings at night to provide adequate Calories/Nutrients)

RDN continued to monitor and assessed adequacy of overall nutritional care and services. Dietary provided foods having the appropriate consistency. NAR team continued to monitor.

12 months later- was returned to regular consistency diet with thin liquids. GJ tube was removed. Provided additional fortified foods in-between meals to increase Calories and Protein.

CASE STUDY-Continued

Outcome: Resident's overall care was managed with no negative outcomes (i.e. pressure ulcer(s), dehydration, etc.)

Resident was discharged to home.

Example of effective collaboration with the RD and SLP and the interdisciplinary team with holistic approach for "person-centered care"

New Dining Practice Standards

Pioneer Network - Food and Dining Clinical Standards Task Force: A Rothschild Regulatory Task Force has finalized new Dining Practice Standards

- Individualized Nutrition Approaches/Diet Liberalization
- **Individualized Altered Consistency Diet**
- **Individualized Real Food First**
- **Individualized Honoring Choices**
- **Shifting Traditional Professional Control to Individualized Support of Self Directed Living**
- New Negative Outcome

Available at:
https://www.pioneernetwork.net/Providers/DiningPracticeStandards/

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