

The International Dysphagia Diet Standardisation Initiative



www.iddsi.org

IDDSI Disclosure

- The International Dysphagia Diet Standardisation Initiative receives funding from a variety of industry sources.

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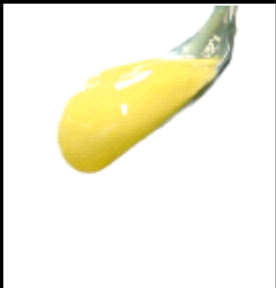
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International Societies:

- Dysphagia Research Society
- National Foundation of Swallowing Disorders

Professional Associations:

- Academy of Nutrition and Dietetics
- Africa Alzheimer's Congress
- American Speech-Language-Hearing Association
- British Dietetic Association
- Canadian Association of Occupational Therapists
- Canadian Association of Speech-Language Pathologists and Audiologists
- Dietitians Association of Australia
- Dietitians of Canada
- Lung Association Australia
- Speech-Language and Hearing Association Singapore
- Speech Pathology Australia
- World Congress on Healthy Ageing



“Thickening liquids has been and continues to be one of the most frequently used compensatory interventions [for dysphagia] in hospitals and long-term care facilities.”

Robbins, Nicosia, Hind, Gill, Blanco & Logemann,

2002

Development and Dissemination of an Aspiration Risk Reduction Diet

Jean Curran, MS, RD and Michael E. Groher, PhD
Department of Veterans Affairs Medical Center New York, New

Abstract. Patients with oropharyngeal swallowing disorders secondary to neurologic impairments benefit from diets that minimize the risk of aspiration. An aspiration risk reduction diet was developed from our hospital's regular menu cycle. Examples of the diet's preparation, dissemination, and use in a 600-bed acute medical/surgical teaching hospital are discussed.

Key words: Swallowing, rehabilitation – Diet, therapeutic – Aspiration, risk reduction – Deglutition – Deglutition disorders

Which One of These Is Not Like the Others? An Inter-Hospital Study of the Viscosity of Thickened Fluids

JSLHR (2000), 43, 537-547.

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This investigation examined the rheological (viscosity and yield stress) and material property (density) characteristics of the thickened meal-time and videofluoroscopy fluids provided by 10 major metropolitan hospitals. Differences in the thickness of thickened fluids were considered as a source of variability and potential hazard for inter-hospital transfers of dysphagic patients. The results indicated considerable differences in the viscosity, density, and yield stress of both meal-time and videofluoroscopy fluids. In theory, the results suggest that dysphagic patients transferred between hospitals could be placed on inappropriate levels of fluid thickness because of inherent differences in the rheology and material property characteristics of the fluids provided by different hospitals. Slowed improvement or medical complications are potential worst-case scenarios for dysphagic patients if the difference between the thick fluids offered by 2 hospitals are extreme. The investigation outlines the most appropriate way to assess the rheological and material property characteristics of thickened fluids. In addition, it suggests a plan of quality improvement to reduce the variability of the thickness of fluids offered at different hospitals.

KEY WORDS: dysphagia, rheology, viscosity, quality improvement, thickened fluids

What's in a name?



In Australia...

39 different names for 4 levels of liquid thickness
95 different labels for 4 different levels
of texture modified food

Atherton et al. (2007) Nutrition & Dietetics, 64 Suppl 2: S53-S76

Describe this food texture...



CORONERS ACT, 1975 AS AMENDED

SOUTH AUSTRALIA



FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 7th day of April, and 8th day of May, 1997, before W C Chivell, a Coroner for the said State, concerning the death of G M.

Vitamized (Pureed)



Soft



**Soft (minced meats)
and Normal
(soft vegetables)**

Clinical Questions (examples)

- How thick is nectar?
- Are nutritional supplements (already) nectar-thick?
- Is barium (already) a nectar-thick liquid?
- How much thickener do I need to add to make a nectar-thick liquid?
- Is ice-cream a thin liquid when it melts?
- How do I know if a liquid is TOO thick for my patient?

Why do we need a standardised system?

- **Safety**
 - Multiple labels and definitions cause confusion
 - Staff within and between institutions
 - Dietitians
 - Speech pathologists
 - Food services
 - Nurses
 - Family/Care providers
 - Individuals with swallowing difficulties

Why do we need a standardised system?

- **Clinical efficiency**
 - Avoids re-assessment to determine safe fluid and diet levels
- **Development of clinical evidence and conducting research**
 - Lack of consistency
- **Commercial implications**
 - ‘ready to use/off-the-shelf’ items that are consistent from manufacturer/supplier to manufacturer/supplier and similar to those produced in hospitals/care facilities/at home



Jan Duivestijn
Canada



Roberto Dantas
Brazil



Ben Hanson
UK



Jun Kayashita
Japan



Caroline Lecko
UK



Mershen Pillay
S. Africa



Joe Murray
US



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Soenke Stanchus
Germany

International Co-Chairs

What did IDDSI set out to do?

- Number of food texture and fluid thickness levels for international standardized use (**adult + paediatric**)
- Standard names/identifiers for each food and fluid level **AND measurement guidelines**
- Examples of foods appropriate for each level, including **culturally specific foods**
- Input + consensus from international key stakeholders
- Publish + communicate the international standards

Four stage plan...

2013-2015

Stage 1	Collaboration + consolidation of existing data (Completed August 2013)
Stage 2	Gather the evidence Stakeholder Surveys (completed, 2013) Systematic Review (completed Nov., 2014)
Stage 3	Interlace technical + research evidence with clinical and cultural needs Task force meeting to develop framework (Jan, 2015) Feedback survey on draft framework (May, 2015)
Stage 4	Consolidation + dissemination (July-December, 2015) Publication planned for 2016

What Do We Know So Far?

Curr Phys Med Rehabil Rep
DOI 10.1007/s40141-013-0024-z

SWALLOWING DISORDERS (RE MARTIN, SECTION EDITOR)

The Need for International Terminology and Definitions for Texture-Modified Foods and Thickened Liquids Used in Dysphagia Management: Foundations of a Global Initiative

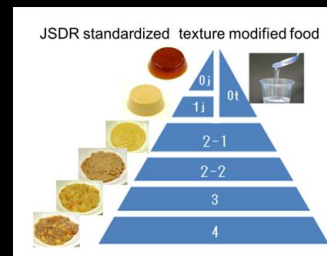
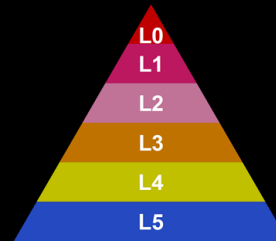
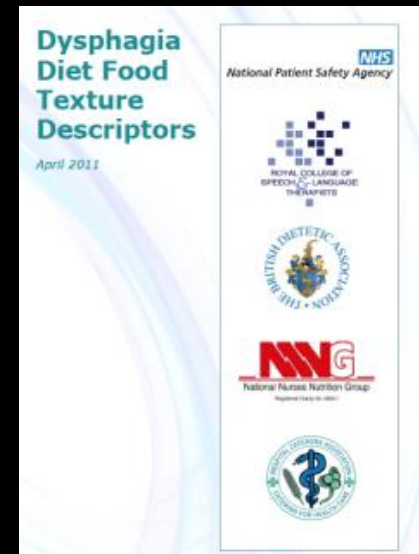
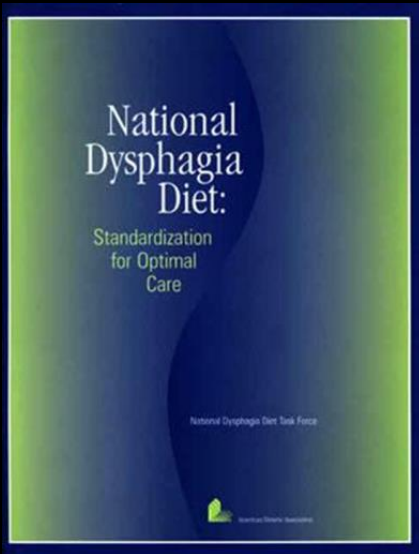
Julie A. Y. Cichero • Catriona Steele • Janice Duivesteyn • Pere Clavé •
Jianshe Chen • Jun Kayashita • Roberto Dantas • Caroline Lecko •
Renee Speyer • Peter Lam • Joseph Murray

<http://tinyurl.com/q54terf>



National Standards

USA, UK, Australia, New Zealand, Ireland, Sweden, Denmark, Japan



Foods

Published International terminology for Texture Modified Food

Country	< Regular food	Extensively texture modified food >				
USA (NDD)	Regular	Dysphagia Advanced (bite sized, < 2.5cm)	Dysphagia mechanically altered (0.6cm)	Dysphagia pureed		
United Kingdom		Texture E – Fork mashable dysphagia diet (1.5cm)	Texture D – Pre-mashed dysphagia diet (0.2cm)	Texture C – Thick Puree Dysphagia Diet	Texture B – Thin Puree dysphagia diet	
Australia	Regular	Texture A – Soft (1.5cm)	Texture B – Minced + Moist (0.5cm)	Texture C – Smooth pureed		
Ireland		Texture A – Soft	Texture B – Minced and Moist	Texture C – Smooth Pureed	Texture D – Liquidised	
Japan (hardness, cohesiveness and adhesiveness ranges available)	Level 5 Normal diet	Level 4 Soft food	Level 3 (Dysphagia Diet) Paste containing meat/fish	Level 2 (Dysphagia Diet) Jelly food with protein [Rough jelly surface]	Level 1 (Dysphagia Diet) Smooth jelly food with protein, except for meat and fish	Level 0 (Test Food) Smooth jelly food without protein
Canada	Easy to chew or Regular / General / Dysphagia General	Chopped or diced / Dysphagia Soft / Dysphagia soft + minced / stage 3 / Level 3 / Dental soft / Easy to chew with minced meat / cut up	Advanced Minced / Minced with finger foods / Diced / Chopped / Soft minced	Minced / Mashed / Modified minced / Dysphagia Fully totally minced / Level 2 mechanical / minced moist / minced meat modified vegetables	Pureed / Thin Pureed / Dysphagia Pureed / Stage 1 / Level 1 / Semi-pureed	Blenderized / liquidized
Denmark	Normal	Soft			Puree	
Spain	Normal	Easy mastication			Puree	
Netherlands	Normal	Normal with soft meat/fish/chicken – no particulates (e.g. peas, rice)	Mashed	Puree		
Brazil	Solid	Soft Solid or Puree				
Sweden	Regular or Cut	Coarse Paté	Timbales	Jellied products	High viscosity fluids	Low viscosity fluids

Liquids

Published International terminology for Thickened liquids

Country	< "Water-like"		"Pudding-like" >		
USA (NDD)	Thin (1-50 cP ^a)		Nectar-Like (51-350 cP ^a)	Honey-like (351-1750 cP ^a)	Spoon-thick (>1750cP ^a)
United Kingdom	Thin	Naturally thick fluid	Thickened fluid – stage 1	Thickened fluid - stage 2	Thickened fluid – Stage 3
Australia	Regular		Level 150 – Mildly thick	Level 400 – moderately thick	Level 900 – Extremely thick
Ireland	Regular	Grade 1 – Very mildly thick	Grade 2 – Mildly thick	Grade 3 – Moderately thick	Grade 4 – Extremely thick
Japan (JSDR scheme)	Less mildly thick (< 50 mPa.s ^a)	Mildly thick (50-150 mPa.s ^a)	Moderately thick (150-300 mPa.s ^a)	Extremely thick (300-500 mPa.s ^a)	Over Extremely thick (> 500 mPa.s ^a)
Canada	Regular/ Thin/ Clear		Nectar / Stage 1 / Level 1/ >250cP / 51-350 cP	Honey / Stage 2 / Level 2/ > 800 cP / 351-1750cP / Default Thick	Pudding / Spoon thick / Stage 3 / level 3 / > 2000 cP / > 1750 cP
Denmark	Normal	Chocolate milk	Syrup		Jelly
Spain	Thin			Medium	Full protection/thick/pudding
Netherlands	Thin		'Thickened'		Pudding-like
Brazil	Normal or thin	Thicker liquid		Nectar or Honey	Paste or Creamy (Homogeneous or Heterogeneous)
Sweden	Liquids		Thickened liquids		

^a Shear rate 50 sec⁻¹. Both cP and mPa.s are used in literature as the unit of viscosity; 1 cP = 1 mPa.s.

Global implications

- Robbins et al. (2008) Protocol 201
 - Conclusion: “individuals on honey-thick liquids had poorer outcomes than individuals on nectar-thick liquids”.
 - Quoted viscosity of their ‘nectar-thick’ was 300cP and ‘honey-thick’ was **3,000cP**
 - Current recommended terminology in USA for ‘honey-thick’ liquids is between 351 and 1750 cP
- Potential for research findings to be misinterpreted due to terminology confusion



‘honey’?

Are we all talking the same language?





Current Practice Survey

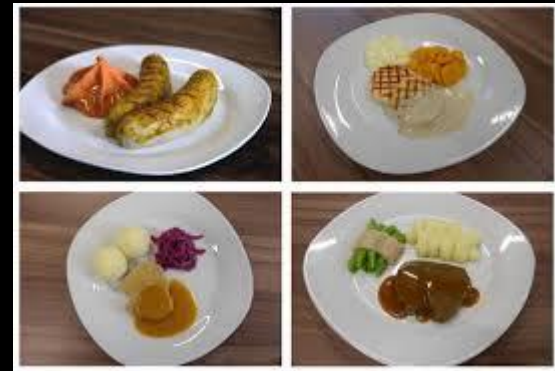
August 2013 – January 2014

- *Health Professionals & Food Services*
- *Persons with Dysphagia, Carer & Care Organisations*
- *Researchers*
- *Industry Partners – Texture Modified Foods & Thickened Liquids*



Health Professionals & Food Service Survey

Most commonly
4-5 levels food textures
reported



16%

use a **colour**, number [1,II] or scheme ● to identify TM foods

Names of Texture Modified Foods

54 different terms for regular
+ 5 levels of texture modified foods

Regular/Normal/Full/standard/solid

Soft (dental soft/mechanical soft/chopped/diced/cut up)

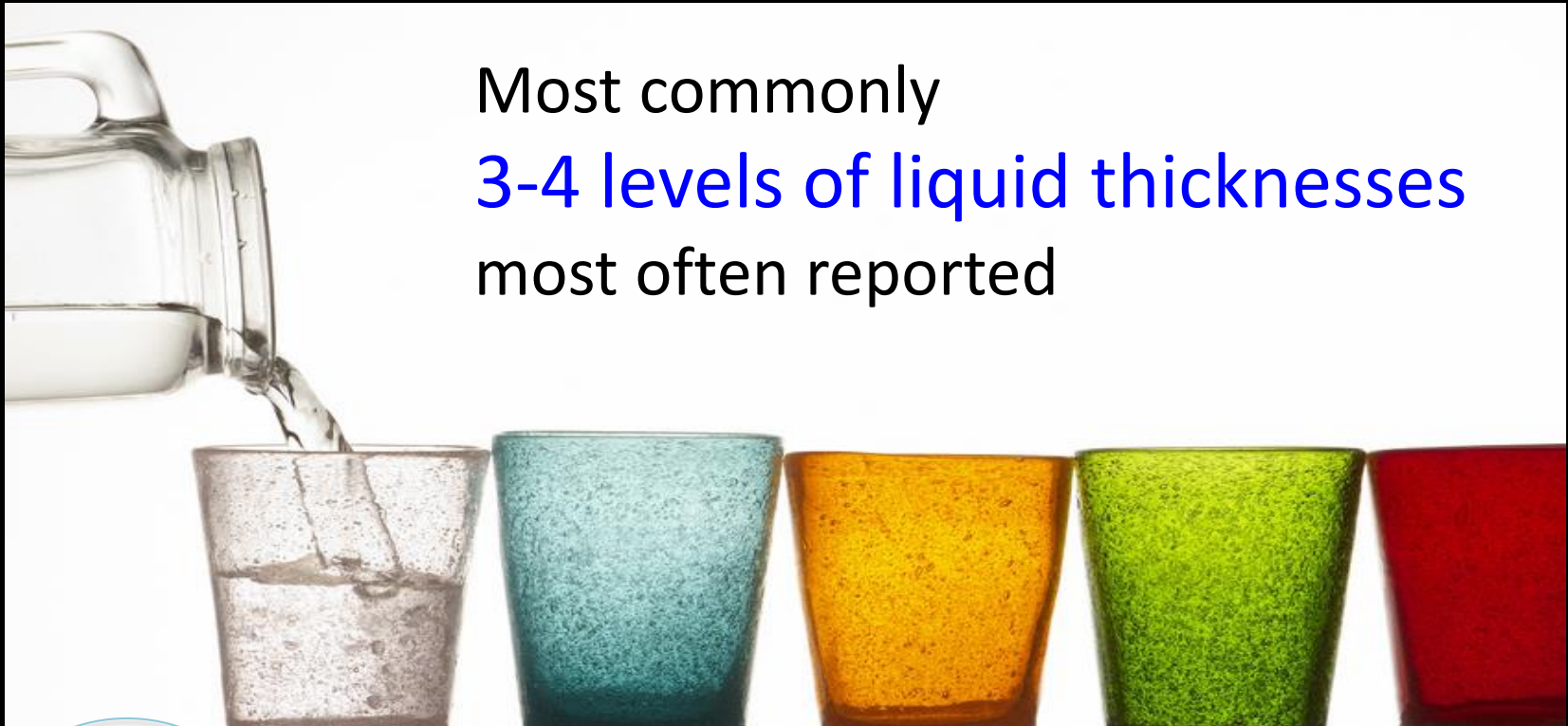
Mashed (fork mashed, pre-mashed)

Minced/mechanically altered/ Ground/shredded

Puree

Liquidised

Health Professionals & Food Service Survey



25%

use a **colour**, number [1,II] or scheme to identify Thickened liquids

Names of thickened liquids

27 different terms for regular +
4 levels of thickened liquids

Thin/Normal/Regular

Syrup/Slightly thick/Naturally thick

Nectar/Mildly thick/Grade 1/stage 1/Level 150

Honey/moderately thick/custard/Grade 2/Stage 3/Level 400

Pudding/ Level 3/Level 4/ Extremely thick/ Level 900/Spoon
thick

Are we all talking the same language?



Systematic Review

Dysphagia

DOI 10.1007/s00455-014-9578-x

ORIGINAL ARTICLE

The Influence of Food Texture and Liquid Consistency Modification on Swallowing Physiology and Function: A Systematic Review

Catriona M. Steele · Woroud Abdulrahman Alsanei · Sona Ayanikalath · Carly E. A. Barbon · Jianshe Chen · Julie A. Y. Cichero · Kim Coutts · Roberto O. Dantas · Janice Duivesteyn · Lidia Giosa · Ben Hanson · Peter Lam · Caroline Lecko · Chelsea Leigh · Ahmed Nagy · Ashwini M. Namasivayam · Weslania V. Nascimento · Inge Odendaal · Christina H. Smith · Helen Wang

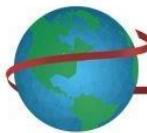
Received: 24 July 2014 / Accepted: 10 September 2014

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<http://bit.ly/1wvZydp>

Systematic Review

- There **IS evidence** that thickening helps those who aspirate thin liquids
- There **is ALSO evidence** that there is such a thing as “too thick”, where residue begins to accumulate
- There is **NO specific evidence** to point to particular rheological values that define the boundaries of effective thickening (either just thick enough or too thick)



IDDSI

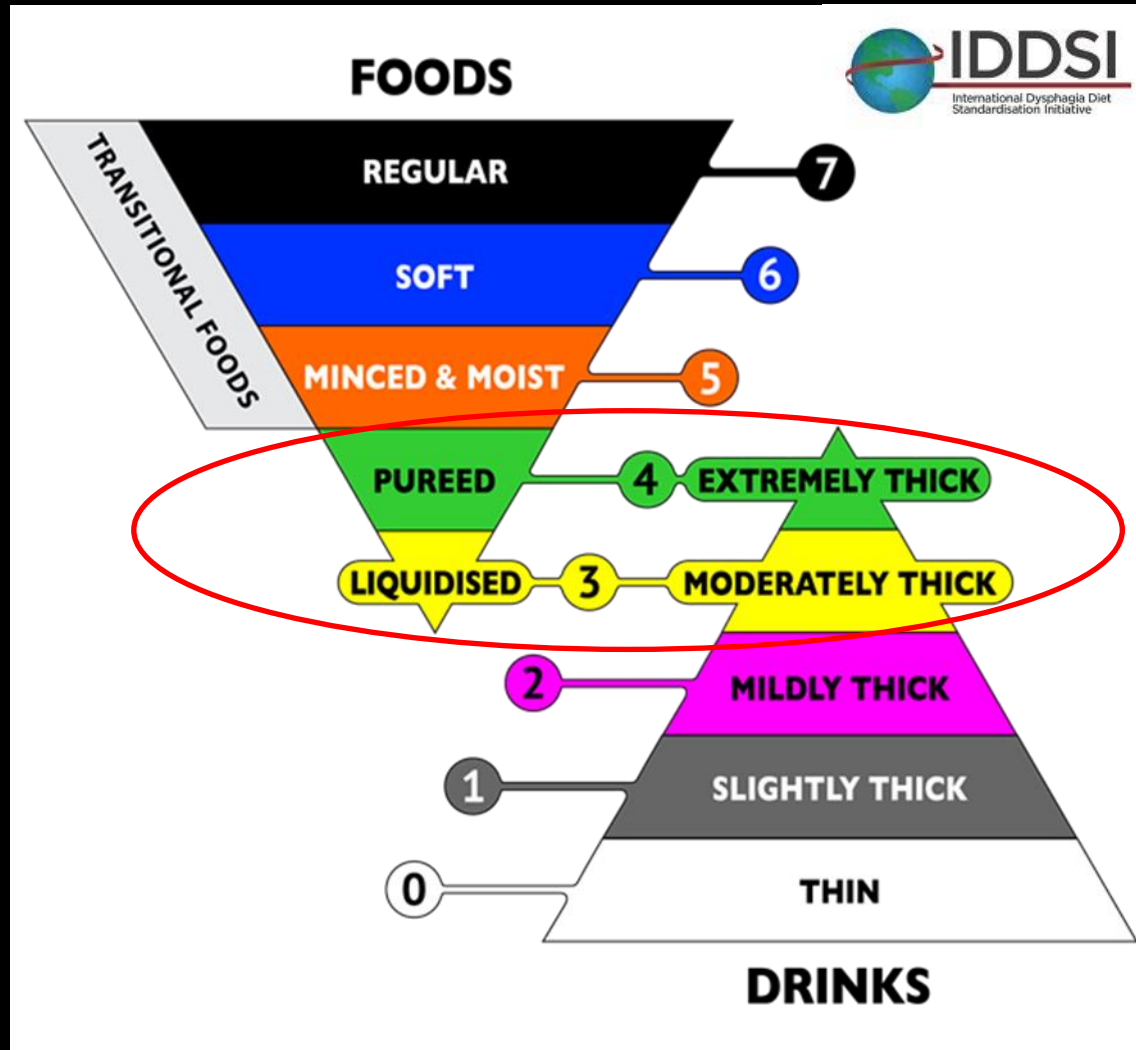
International Dysphagia Diet
Standardisation Initiative

Putting all together...



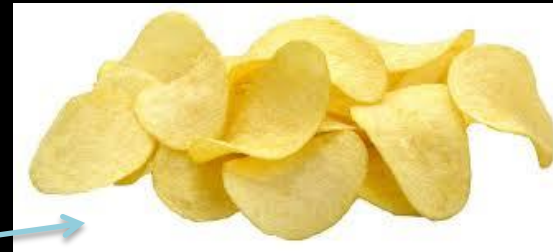
Developing a
culturally-sensitive,
age-span relevant
framework for
classifying food and
liquid consistency

IDDSI Framework (September, 2015)



What are Transitional Foods?

- Foods that start as one texture and change into another with moisture or temperature
- Minimal chewing required
- Tongue pressure may be sufficient to break food down after alteration in moisture or temperature



Comments on visual appraisal

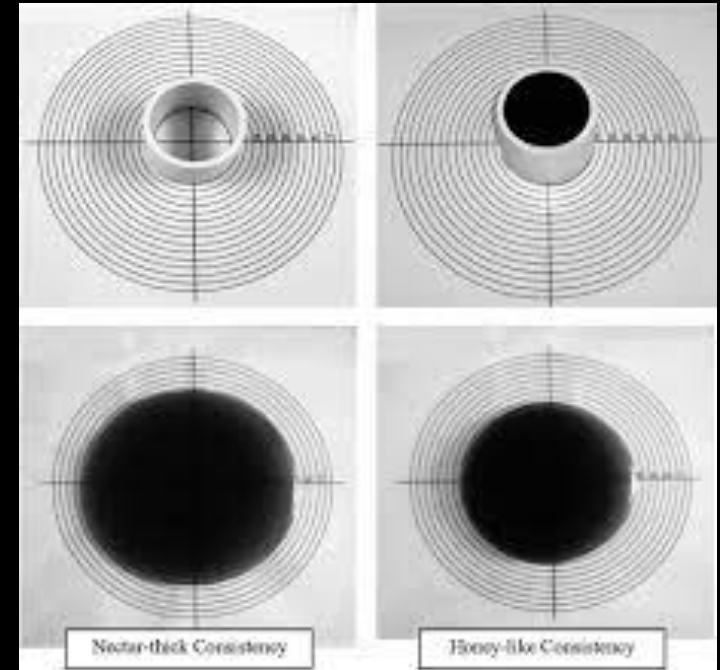
Study by Mills et al. cited in NDD, 2002

- 20 dietary technicians prepared barium materials (barium plus a base liquid) until stimuli “looked and poured like the dietary liquid it was supposed to mimic”
- “Using this method, the resultant viscosities of the thin and thick liquid test materials were vastly more viscous than real dietary liquids, and varied widely across the DMTs”
- Conclusion: “there is significant opportunity for false negative errors when test stimuli are prepared in this manner”

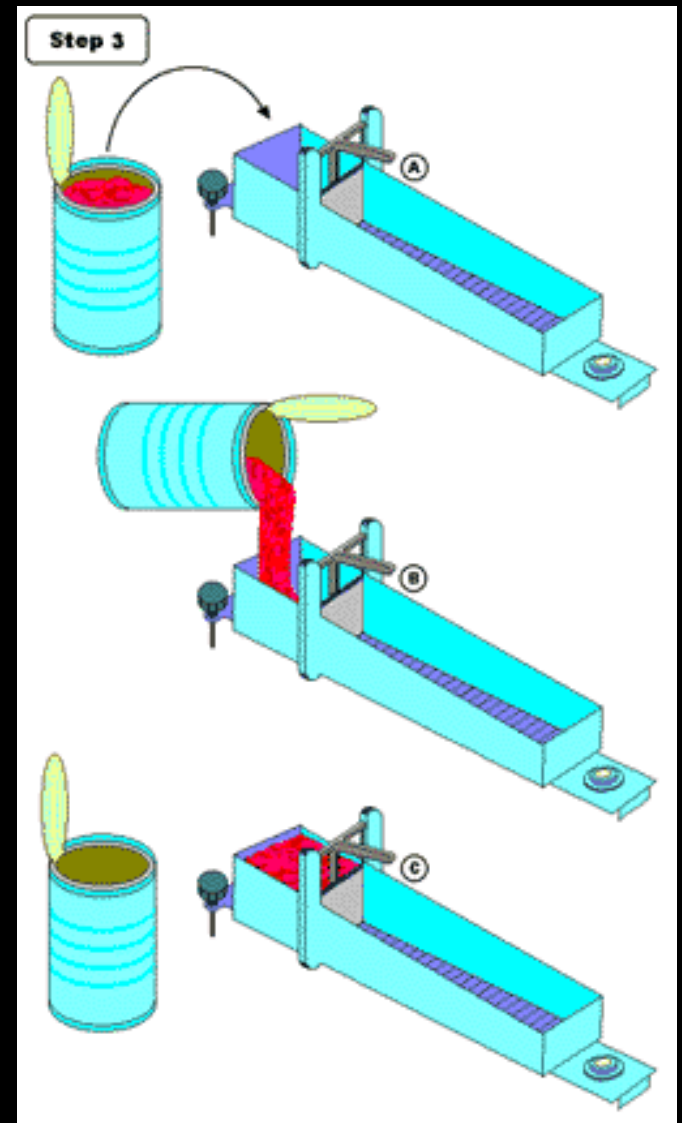


Line-Spread Procedure:

1. Place glass plate or clear plastic over concentric circles. The surface must be level and even.
2. Place cylinder over center circle and fill with liquid to be used in test. Level off and ensure the temperature is recorded.
3. Lift the cylinder and allow liquid to spread for 1 minute. (Note: Paste-consistency liquids will appear to stop spreading by ~ 15 seconds)
4. Take readings on limits of flow at four points at each time interval.
5. Obtain the final average reading by calculating the average of the four point readings. Temperature, time of spread and average should all be recorded.

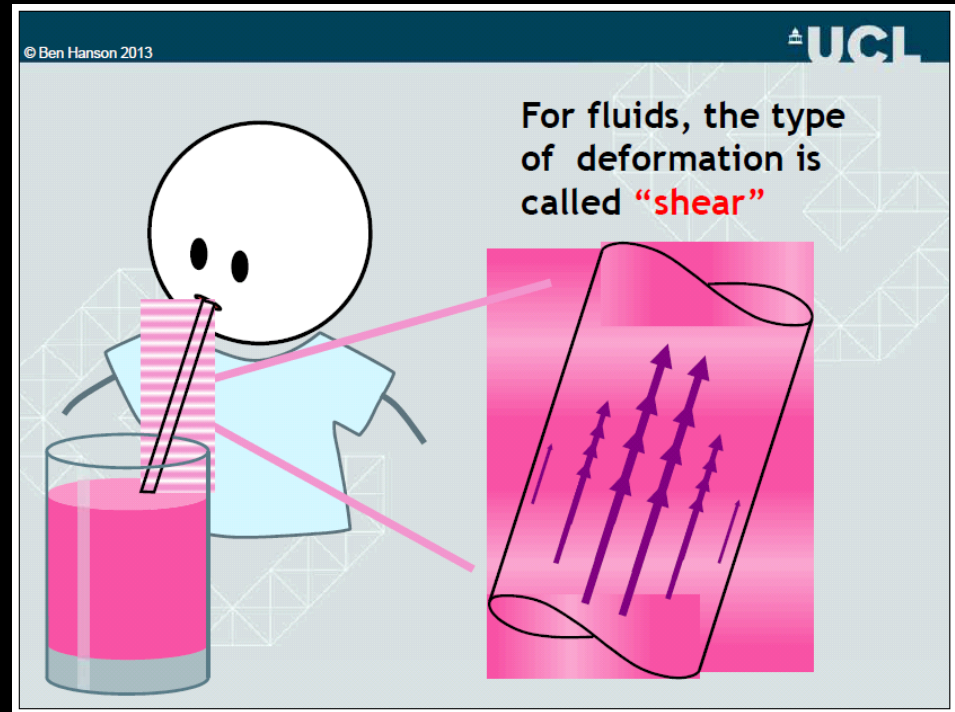


Bostwick Consistometry



Viscosity Measurement Challenges

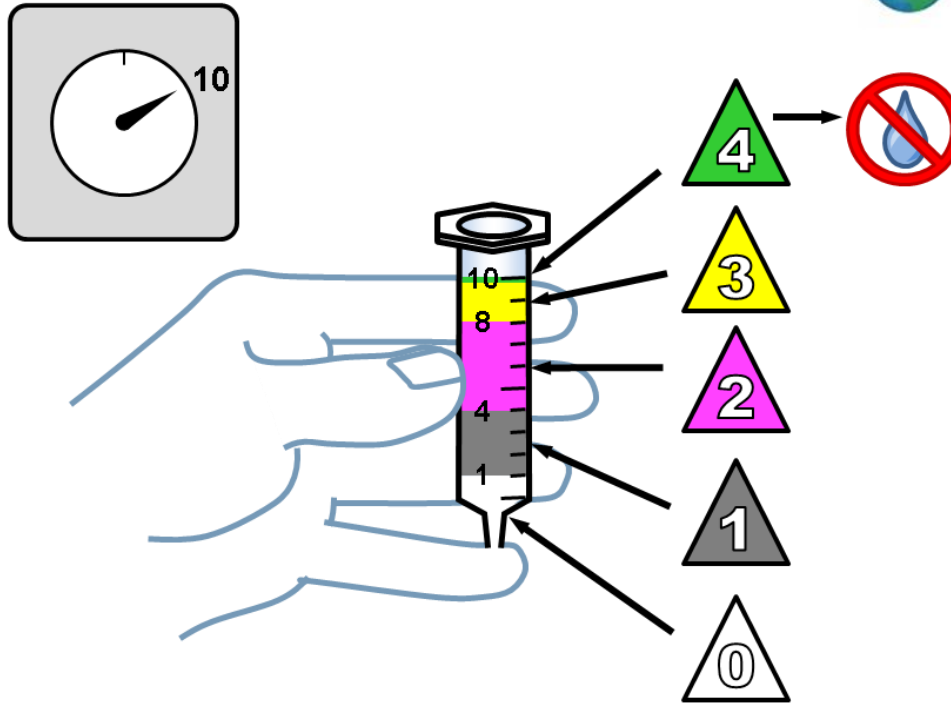
- All of these low-tech measures are considered “crude”
- None of them controls for variations in viscosity according to shear rate
- We have no evidence to really tell us what shear rates are operational in the mouth



The Measurement Dilemma

- Shear-rate dependent viscosity is TOO complicated to use in kitchens as the basis for classifying consistency
- We need a simpler, but valid and reliable method for measuring consistency at the point-of-use

IDDSI Flow Test



Example videos of the IDDSI flow test can be found on Youtube and accessed through the resources page on the IDDSI website:

www.iddsi.org

IDDSI Level classifications based on liquid remaining after 10 seconds:

Level 0: All liquid has flowed through syringe.

Level 1: There is between 1 and 4ml remaining.

Level 2: There is between 4 and 8ml remaining.

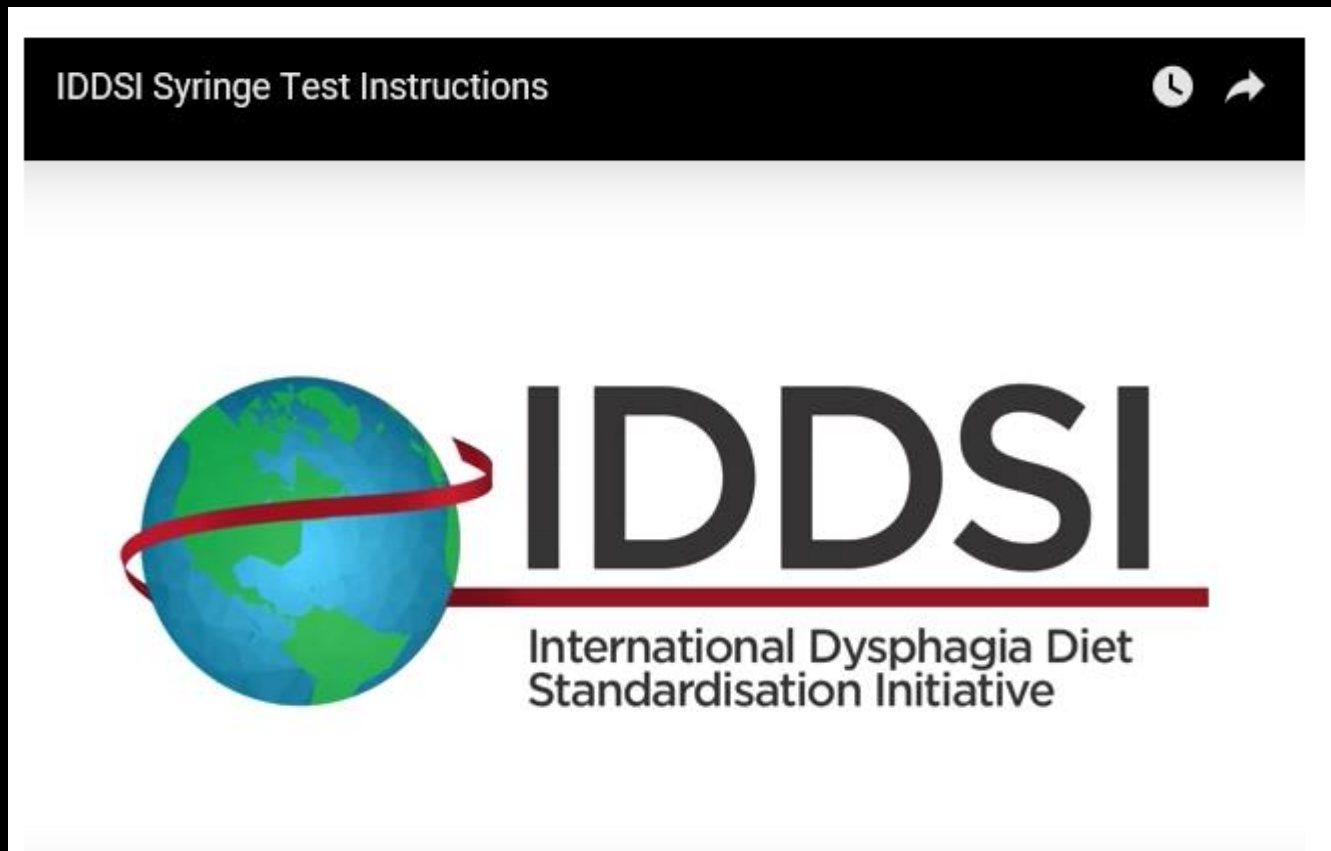
Level 3: There is more than 8ml remaining, but some liquid still flows through.

Level 4: If no liquid flows at all, the category is Level 4 or above.

Level 4 can also be easily identified without a syringe test: Material holds its own shape; small peaks remain on the surface. Too thick to be drunk from a cup or a straw, should be taken with a spoon. A full spoonful must drop off a spoon if turned sideways; a very gentle flick may be necessary but the material should not be firm, nor sticky.

IDDSI Flow Test Videos

<http://iddsi.org/resources/framework/>





MILDLY THICK



Description/ Characteristics	<ul style="list-style-type: none">• Flows off a spoon• Sippable, pours quickly from a spoon, but slower than thin drinks• Effort is required to drink this thickness through standard bore straw (standard bore straw = 0.209 inch or 5.3 mm diameter)
Physiological rationale for this level of thickness	<ul style="list-style-type: none">• If thin drinks flow too fast to be controlled safely, these Mildly Thick liquids will flow at a slightly slower rate• May be suitable if tongue control is slightly reduced.
Testing method IDDSI Flow Test*	<ul style="list-style-type: none">• Test liquid flows through a 10 mL slip tip syringe leaving 4 to 8 ml in the syringe after 10 seconds (see IDDSI Flow Test instructions*)

Measurement for Foods

Particle Size:

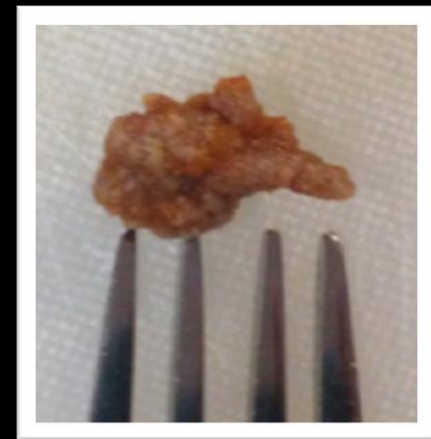
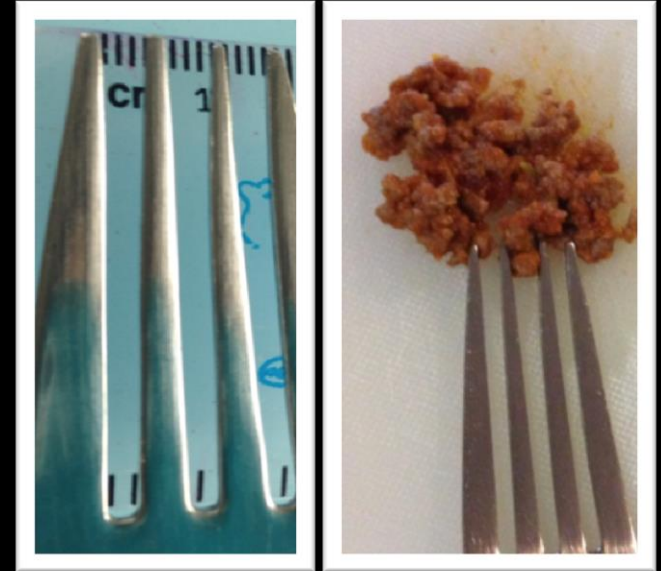
For hard and soft solid foods, a maximum food sample size of $\sim 1.5 \times 1.5$ cm is recommended, which is the approximate size of the adult human thumb nail (Murdan, 2011).

For minced and moist foods, a maximum particle size of 4 mm is recommended.

Measurement for Foods

IDDSI Fork Pressure Test:

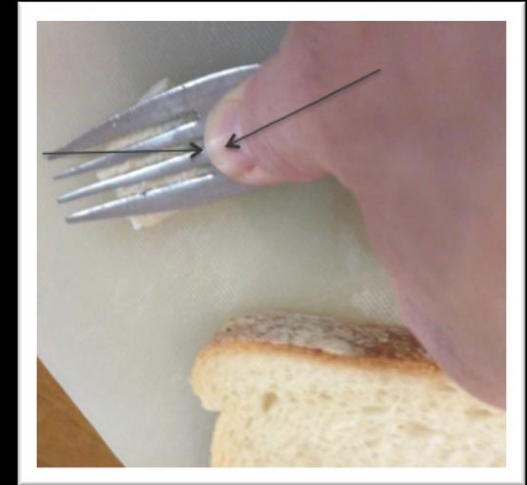
- The slots/gaps between the tines/prongs of a standard metal fork typically measure 4 mm.
- This provides a useful compliance measure for particle size of foods at Level 5 - Minced & Moist.

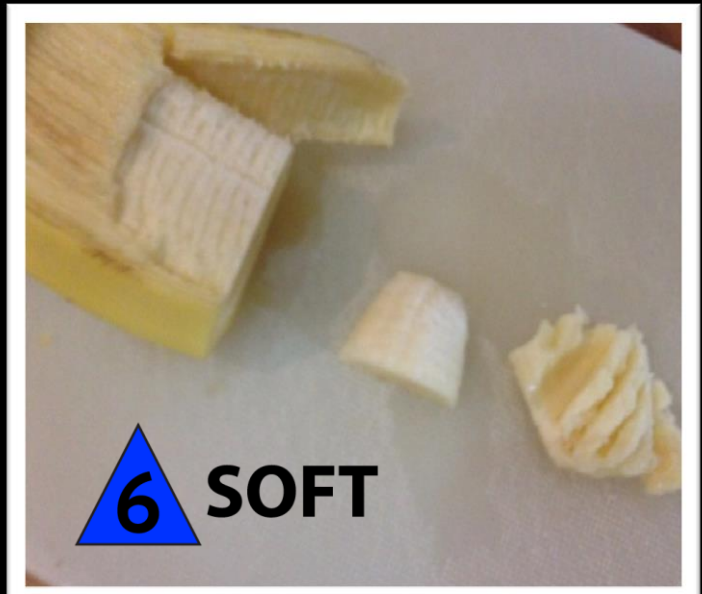
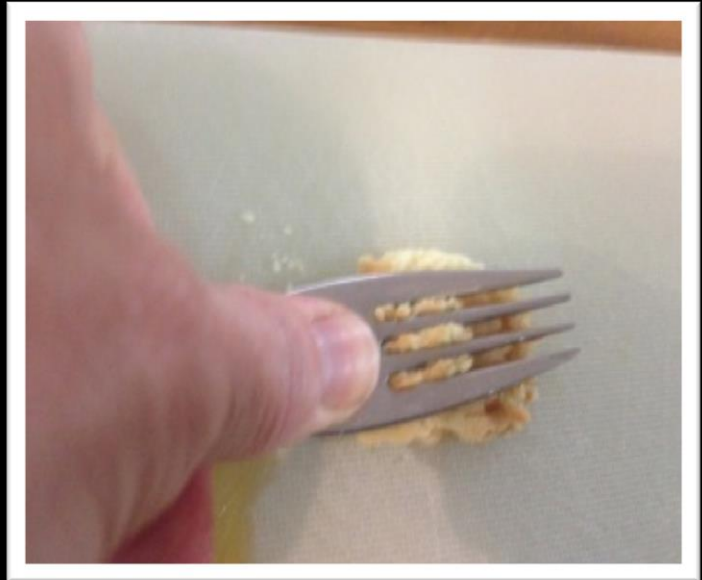
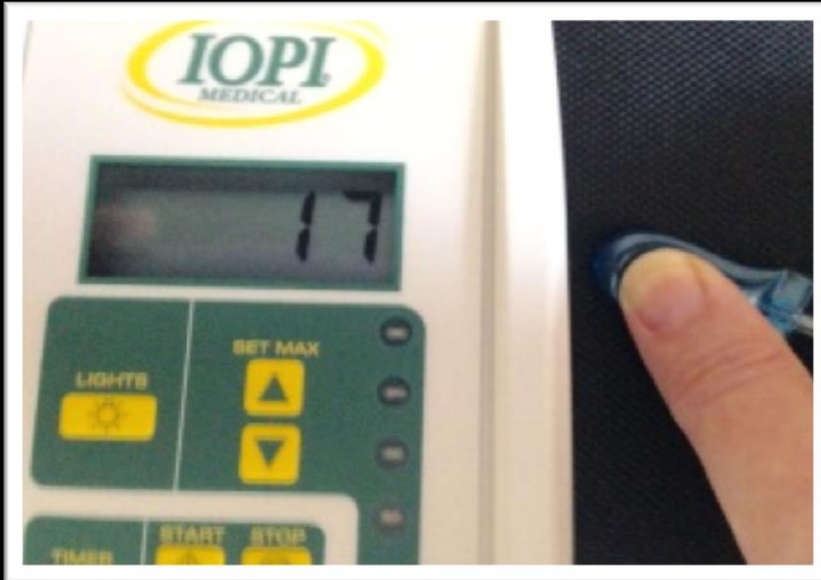


Measurement for Foods

IDDSI Fork Pressure Test:

- A fork can be applied to the food sample to observe its behavior when pressure is applied.
- Pressure applied to the food sample has been quantified by assessment of the pressure needed to make the thumb nail blanch noticeably to white.





FAQs: Drinks



Q: My facility only uses two levels of drink thickness; do we have to use all of the IDDSI drink thickness levels?

A: No, although the IDDSI framework includes five different levels of increasing drink thickness, there is no expectation that every facility will use all five levels. For example, some aged care facilities may only use Level 0 - Thin, Level 3 - Moderately Thick/Liquidised and Level 4 - Extremely Thick/Pureed. By labeling the drinks in this way, when a patient/client moves from a facility with fewer drink levels to a hospital with more drink levels, it will be faster, safer and more accurate for health professionals and care staff to provide the appropriate drink thickness level.

Q: I've not heard of Level 1 – Slightly Thick before, what is this level?

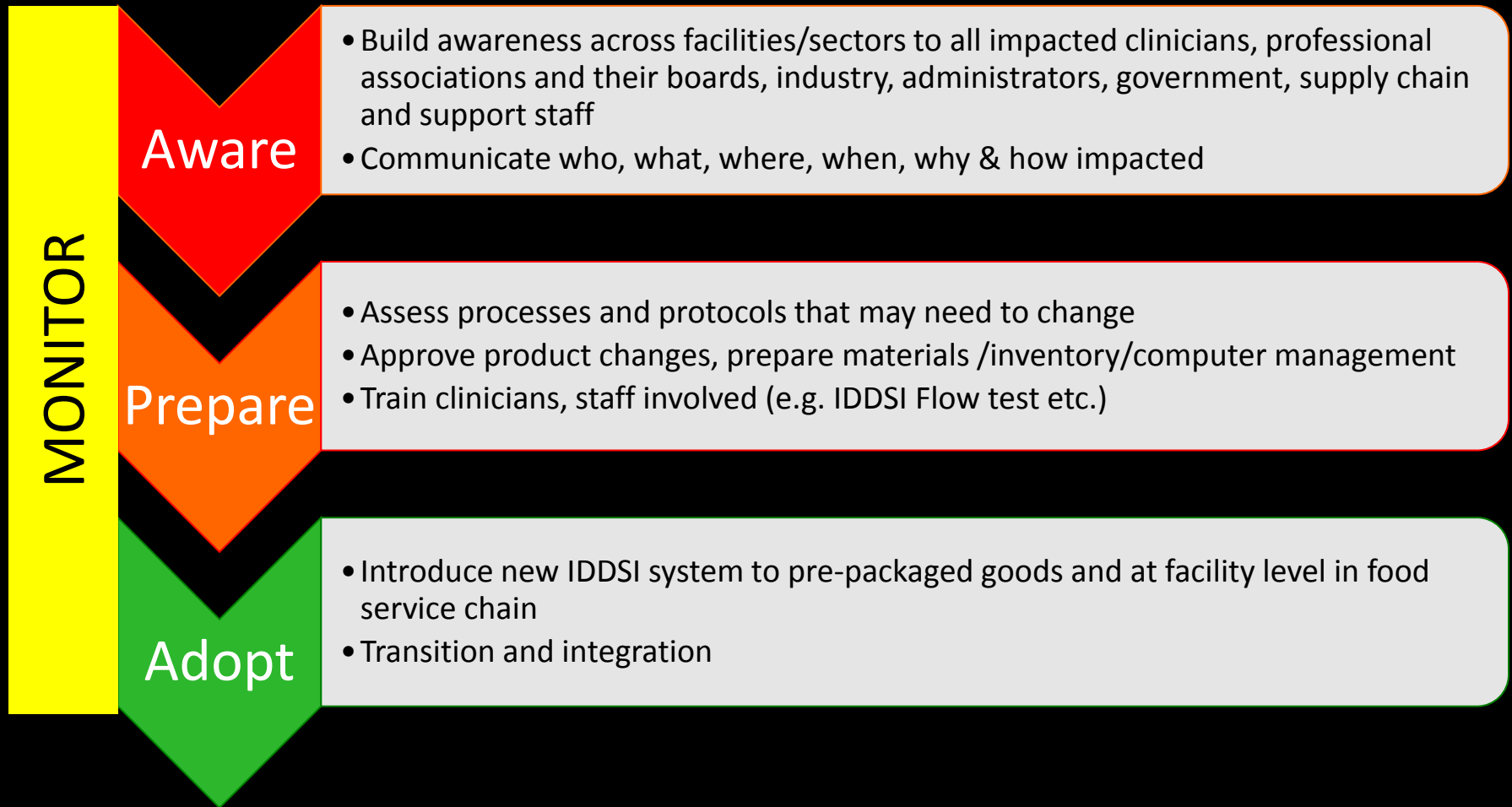
A: Level 1 – Slightly Thick is predominantly used by paediatric clinicians and refers to the thickness level similar to commercially prepared anti-regurgitation infant formula. It is noticeably thicker than regular Level 0 – thin drinks, but thinner than Level 2 – Mildly Thick drinks. It is thick enough to slow the flow rate through a teat/nipple, whereas Level 2 – Mildly thick fluids are too thick to flow through a teat/nipple. Clinicians working with adult caseloads may find that some products that they have previously described as “naturally thick” fall in this Level 1 – Slightly Thick category.

Q: My facility has used the terms ‘nectar’ and ‘honey’ for decades; why weren’t these terms used in the IDDSI framework?

A: Two international stakeholder surveys were conducted encompassing more than 5000 responses. Although the terms ‘nectar’ and ‘honey’ were widely understood in some parts of the world, they had no meaning in other parts of the world, particularly Asia. Other considerations included the natural variability of ‘honey’ in its crystalline and liquid states, and that that the food honey is a botulism risk for infants under the age of 12 months. As an international framework suitable for use across the age spectrum, it was decided that terms that described variations of drink thickness would be most appropriate.

Monitor-Aware-Prepare-Adopt

Model for Implementation



Currency Converter - Drinks



Current US Standards



Thin



(Naturally thick liquids,
e.g. infant formula,
supplements)



Nectar-thick

51-350 mPa.s @50/s ✓



Honey-thick

351-1750 mPa.s @50/s ✓



Spoon-thick

>1750 mPa.s @50/s ✓



0 Thin



1 Slightly Thick



2 Mildly Thick



3 Moderately Thick



4 Extremely Thick

Currency Converter - Foods

National Dysphagia Diet (US)



Regular



Dysphagia advanced ✓



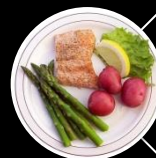
Mechanically altered ✓



Pureed ✓



? Pureed (or spoon-thick liquid)



7 Regular



6 Soft



5 Minced & Moist



4 Pureed



5 Liquidised

Transitional Foods



2014 - 2015



2012 - 2015



2013 - 2014

Helping Patients with Dysphagia Around the World

LATEST NEWS

September 2015

The detailed descriptors, testing methods and evidence for drink thickness levels is now published, and available [here](#). Find the descriptors, labels descriptions, and the final IDDSI framework on the [Framework page](#).

We're also happy to announce our new [Silver Sponsor](#), Food Care Co. Ltd (Japan). Thank you to [all of our sponsors](#) for their support and their assistance in the development of our Framework.

Find out about the framework, the staggered launch, and where around the world we'll be featuring the framework. Did you miss the latest edition of the E-Bite? Check it out [here](#), under E-Bites.

August 2015

At our last committee meeting, IDDSI discussed the feedback and responses collected in regards to our [draft framework](#); fervent discussion over levels, the colours, and texture assessment resulted in a number of conclusions that will be published soon. Until then, please view the draft framework, and [subscribe to us](#).

We wish to extend our sincere appreciation to all those who took the time to complete the survey, and to everyone who has supported IDDSI. [Follow us on Twitter](#) for updates on our work.

ABOUT IDDSI

The International Dysphagia Diet Standardisation Initiative, or IDDSI, aims to develop global standardised terminology and definitions for texture modified foods and thickened liquids for individuals with dysphagia of all ages, in all care settings, and all cultures. For more information about the organization and how you can help, [see here](#).



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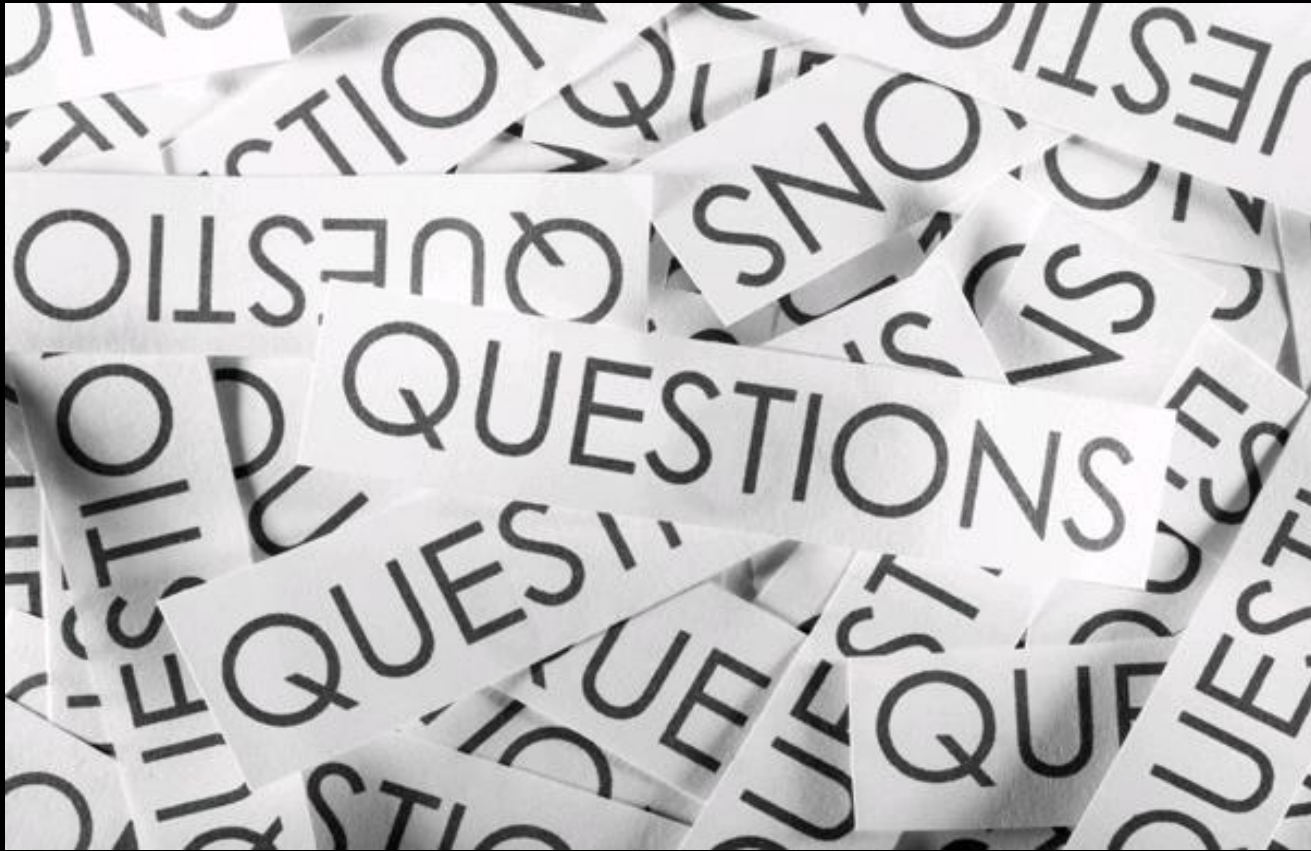
N&H Week
@NHWeek

27 Sep

Have you checked out our short video of the week?
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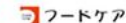
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