

## Final report

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# Evaluation of the uptake of the Australian Standardised Terminology and Definitions for Texture Modified Foods and Fluids

Prepared for: Dietitians Association of Australia (DAA)  
Speech Pathology Australia

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## Executive summary

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This report describes a 6 month project that investigated the uptake and implementation of the Australian Standardised Terminology and Definitions for Texture Modified Foods and Fluids, otherwise known as 'the Standards'. This project was conducted in conjunction with the Dietitians Association of Australia (DAA) and Speech Pathology Australia by a project officer and project manager with input from a multidisciplinary reference group.

The Standards were endorsed by DAA and Speech Pathology Australia and launched in May 2007. The Standards provide guidance on the definitions and terminology for texture modified foods and fluids in the Australian context.

The aims of this project were to evaluate the uptake and implementation of the Standards in a variety of settings across Australia, to determine the barriers and enablers to successful implementation, to provide recommendations for extending the penetration of the Standards and to provide guidance on future resource development.

A literature review was conducted, following on from the literature review conducted as part of the original development of the Standards. The literature review focused on the evidence base for dysphagia diets and fluids from 2006 to 2010 and the establishment and uptake of standardised guidelines for terminology for texture modification from 1990 onwards.

Three separate online surveys were distributed to stakeholders who had an interest in using and accessing the Standards from across Australia. Each survey targeted a different group of stakeholders. Survey 1 was for completion by speech pathologists and dietitians. Survey 2 targeted nurses, nutrition assistants and personal service attendants (PSAs) and Survey 3 was developed for food services managers and cooks.

A total of 574 survey responses were received. The results of the surveys showed a high level of use of the Standards across all stakeholder groups, with 65% of all respondents indicating they use the Standards in their workplace. The majority of speech pathologists and dietitians surveyed indicated a preference for partially using the terminology from the Standards when describing texture modification. Over 70% of surveyed stakeholders indicated they do not use additional levels of texture modification in their workplaces.

Commonly reported strategies for implementation of the Standards included providing or receiving education about the Standards and encouragement to begin using the Standards. Lack of time and knowledge about the Standards were frequently reported as barriers to implementation. Enablers to implementation included support or direction from management and joint cooperation between stakeholders involved in the implementation of the Standards into a workplace.

Based on the survey results, a series of recommendations for extending the depth and breadth of penetration of the Standards and recommendations for future resource development are provided to DAA and Speech Pathology Australia. This report concludes with a brief summary of the recommendations and possible extensions of this project.

## Project background

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In May 2007 the Dietitians Association of Australia (DAA) and Speech Pathology Australia successfully launched the 'Australian Standardised Terminology and Definitions for Texture Modified Foods and Fluids', otherwise known as 'the Standards'. The Standards provide guidance on the definitions and terminology for texture modified foods and fluids in the Australian context.

The development of the Standards arose from a 6 month project lead by Project Officer Dr Julie Cichero, Speech Pathologist and was a collaborative project between DAA and Speech Pathology Australia. At the time of their release, the Standards were endorsed for use in Australia by DAA and Speech Pathology Australia. The original project to develop the Standards was made possible through the financial support of Novartis Medical Nutrition.

The Standards were due to be reviewed approximately 12 to 18 months after their release however funding to support such a review was not available at this time. DAA and Speech Pathology Australia approached Nestlé Australia to fund this evaluation project in late 2009 and financial support was secured in early 2010.

A project officer (supported by a project manager) and reference group were appointed by competitive process. The reference group provided support and guidance to the project team. The project was given a 5 month timeframe for completion. The project commenced on 28 May 2010.

## Aims of the project

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The aims of this quality initiative project are:

1. To evaluate the uptake and implementation of the 'Australian Standardised Terminology and Definitions for Texture Modified Foods and Fluids' in a variety of settings in Australia and internationally.
2. To determine compliance enablers and barriers to successful implementation of the Standards.
3. To identify appropriate means for extending the depth and breadth of penetration of the Standards across settings and among stakeholders.
4. To develop recommendations for future resource development to support successful implementation across settings.

Changes to the definitions and terminology used within the Standards were not within the scope of the evaluation of this project.

## Literature review

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### *Introduction*

The provision of texture modified foods and fluids are routine practice in the assessment and management of individuals with dysphagia. Previous research has shown an inconsistency in the terminology and definitions used when describing texture modified foods and fluids both in Australia and internationally (Cichero, Jackson, Halley, & Murdoch, 2000a; Cichero, Jackson, Halley & Murdoch, 2000b; National Dysphagia Diet Taskforce, 2002; Atherton, Bellis-Smith, Cichero & Suter, 2007).

The main consequence of inconsistent terminology is the potential impact on patient safety whereby the provision of an incorrect diet or fluid to an individual with dysphagia could present a choking hazard and impact on the person's nutrition and hydration levels.

A national standard provides a common set of definitions and terminology that can be used to describe and define texture modified foods and fluids for use between different professional groups and key stakeholders in various clinical settings in dysphagia assessment and management.

### *Background*

As part of the original project, the project officer Dr Cichero completed an extensive review of the literature relating to the evidence base for dysphagia diets and fluids. This project offered an extension of the original literature review relating to the evidence base for dysphagia diets and fluids from 2006 to 2010. In addition, literature was sought on the establishment and uptake of standardised guidelines and terminology for texture modification from 1990 onwards.

Similar to the original literature review, this review used Medline, Cinahl, Web of Science and the Cochrane Library databases using the following search terms: 'deglutition disorders and food', 'dysphagia diet and deglutition', 'dysphagia diet', 'dysphagia and foods', 'texture modification', 'viscosity and deglutition disorders', 'viscosity and thick fluids', 'dysphagia and fluids', 'thick fluids' and 'dysphagia and viscosity'. Database searches reviewed the available literature from 2006 onwards. Grey literature including conference abstracts were searched manually.

In addition, search terms were used to locate literature regarding the establishment and uptake of standardised guidelines and terminology for texture modification. These included 'standardisation and dysphagia' (alternatively spelled 'standardization') and 'uptake and texture modification'. This search was conducted from 1990 onwards.

### *Summary of the literature: Evidence base for dysphagia diets and fluids, 2006 to 2010*

In total, 13 articles were located including one summary of the literature and one systematic review (see Appendix One). The experimental studies showed two attempts to produce high quality evidence using randomised control trials. Robbins et al. (2008) compared the effectiveness of a swallowing manoeuvre (the chin-down posture) and different thickened fluid consistencies on the incidence of pneumonia in patients with Parkinson's disease or dementia. The Robbins et al. (2008) North American research purported to examine differences in aspiration rates between nectar-thick and honey-thick liquids. The objective measurements given for these liquids, placed the honey-thick liquids in the pudding-thick range of liquids as confirmed by the National Dysphagia Diet, the reference used in North America. This serves to highlight the inherent difficulties in using descriptive names to describe thickened liquids. The second randomised control trial evaluated two modified fluid consistencies for risk of aspiration (Diniz, Vanin, Xavier & Parente, 2009).

Non-randomised experimental trials have been conducted investigating several different areas. For example, Clave et al. (2006) found that increased bolus viscosity improved the swallowing function of patients with neurogenic dysphagia. While Ozaki et al. (2010) conducted videofluoroscopy studies on 229 people with dysphagia and found the risk of aspiration was highest with multi-textured foods.

Several articles have attempted to compare the viscosity of materials used during videofluoroscopic assessment of dysphagia that contain barium with those used in the treatment of dysphagia that do not contain barium (Stuart & Motz, 2009; Strowd, Kyzima, Pillsbury, Valley & Rubin, 2008; Kyzima, Strowd, Pillsbury & Rubin, 2008). Stuart and Motz (2009) investigated the comparability of the viscosity of liquids used in the assessment and treatment of infants with dysphagia. The results showed a significant difference between barium mixtures used in assessment and material used in the treatment of infants with dysphagia, including infant formula.

A systematic review of the literature relating to dysphagia treatment in stroke patients was conducted during this period. Foley, Teasell, Salter, Kruger and Martino (2008) found 15 randomised control trials relating to dysphagia treatment post stroke. However because of the different treatments and outcomes used by the studies, it was difficult for the authors to draw supportive conclusions for dysphagia treatment post stroke.

### *Summary of the literature: Use of standardised definitions and guidelines for texture modified foods and fluids*

In 2002 the American Dietetic Association established the National Dysphagia Diet (NDD) to provide national guidelines and standardised terminology for texture modification for dysphagia management. The NDD contains suggested viscosity ranges for different types of modified fluids (McCollough, Pelletier & Steele, 2003).

Of relevance to this project, McCallum (2003) describes the process of implementing the NDD within a large healthcare organisation in the United States. The author describes the importance of identifying changes to existing processes, communication with key stakeholders and providing intensive education as important factors in the implementation of the NDD into a large healthcare setting.

## Findings from international and university stakeholders

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### *Background*

The project team wanted to know about the knowledge and awareness of the Standards from international associations and whether international associations had developed and implemented national standards on texture modification. Additionally, the project team wanted to know whether accredited Australian universities providers of speech pathology and dietetics courses were providing students with information about the Standards. The project team sent emails to international associations and all of the accredited university providers of speech pathology and dietetics courses in Australia.

### *Summary of findings from international stakeholders*

An email containing several questions relating to the existence and evaluation of standardised definitions and terminology for texture modified foods and fluids was sent to international speech pathology and dietetic associations. The countries targeted were Canada, USA, Denmark, Finland, France, Hong Kong, Ireland, Japan, Malaysia, New Zealand, Philippines, Singapore, UK, India and Indonesia.

Eleven responses were received in total from representatives of the following associations:

- American Dietetic Association (ADA)
- American Speech & Hearing Association (ASHA)
- British Dietetics Association (BDA)
- Canadian Association of Speech Language Pathologists & Audiologists (CASLPA)
- Dietitians of Canada
- Dietitians NZ
- Hong Kong Association of Speech Therapists (HKAST)
- Irish Association of Speech Language Therapists (IASLT)
- Irish Nutrition and Dietetic Institute (INDI)
- Japanese Society of Logopaedics and Phoniatics (JSLP)
- Royal College of Speech Language Therapists (RCSLT).

Representatives from six international organisations indicated that they did not know about the Australian Standards prior to receiving the email. Links were provided in the original email to direct readers back to information about the Standards on the DAA and Speech Pathology Australia websites.

The Australian Standards are endorsed for use by the NZSTA (New Zealand Speech Therapy Association) and Dietitians NZ. The terminology and definitions used in the New Zealand context is the same as the Australian Standards. The implementation of the Standards in the New Zealand context has not been formally evaluated.

The Australian Standards have been adapted and endorsed for use in Ireland by INDI and IASLT who jointly developed the 'Irish Consistency Descriptors for Modified Fluids and Food' released in November 2009. The Irish descriptors are almost identical to the Australian standards with three exceptions. The Irish descriptors include an additional level of texture modified food called Texture D – liquidised, and an additional level of thickened liquids called Grade 1 - very mildly thick. The thickened liquids are denoted by Grades 1 to 4 and associated descriptors of liquid thickness (for example: Grade 2 Mildly thick and Grade 4 Extremely thick). The correspondence received from INDI and IASLT indicated they are interested in the results of the Australian review of the Standards because they wish to complete a similar evaluation project in Ireland in the future. A copy of the Irish descriptors is available from this link: <http://www.iaslt.ie/docs/public/information/Irish%20consistency%20descriptors%20for%20modified%20fluids%20and%20food.pdf>.

The British Dietetics Association (BDA) introduced a document titled 'National Descriptors for Texture Modification in Adults' in April 2009. It is not clear whether this documentation is provided as guidance or is a mandated standard within the BDA. It would appear from correspondence received from RCSLT that these descriptors are not endorsed for use with their members. A copy of the BDA descriptors is available from the following link: <http://www.bda.uk.com/publications/statements/NationalDescriptorsTextureModificationAdults.pdf>.

The National Dysphagia Diet (NDD) was developed by the American Dietetic Association in 2003 but it is not mandated or used as standardised terminology. The NDD is not endorsed by ASHA and ASHA was not involved in its development. The authors were unable to determine if the uptake and effectiveness of the NDD has been formally evaluated.

Responses from Japan and Hong Kong described the use of the food consistency 'congee' and both associations expressed concerns about how the Australian Standards could be applied in their countries based on cultural food differences. Interestingly, in Hong Kong the terminology used for modified foods and fluids is standardised across all public hospitals.

It would appear that there is international interest in the Australian Standards, including the process of their development and the project investigating their implementation. For example, Dietitians of Canada have invited Dr Julie Cichero to present at a professional development event in Canada in March 2011 to discuss the development of Standards. As a result of receiving this email, CASLPA have considered putting a link to the Australian Standards in an upcoming member newsletter. The Japan Society of Logopaedics and Phoniatrics described wanting to discuss the Australian Standards in an upcoming meeting of Japanese dysphagia specialists.

### *Summary of findings from Australian Universities*

An email was sent to all Australian universities that are accredited by DAA or Speech Pathology Australia to provide undergraduate and/or postgraduate training for dietitians or speech pathologists respectively. The universities were asked to comment on whether the Standards are routinely introduced to students as part of their course.

The response received from the universities was limited however those that did respond indicated that the Standards are routinely used when teaching dietetics and speech pathology students about dysphagia. One university provider of a speech pathology course indicated that the Standards are used during the adult dysphagia lectures but not the paediatric dysphagia lectures.

## **Methods**

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### *Survey development and distribution*

In August and September 2010, a series of online surveys were distributed to various stakeholders who have an interest in using and accessing the Standards from across Australia. Three separate online surveys were developed. Each survey targeted a different group of stakeholders. Stakeholders were grouped together by background for ease of survey development and data collection. As outlined in Diagram 1, Survey 1 was for completion by speech pathologists and dietitians. Survey 2 targeted nurses, nutrition assistants and personal service attendants (PSAs) and Survey 3 was developed for food services managers and cooks. Surveys were distributed to key stakeholders using a variety of methods. These are summarised in Table 1.

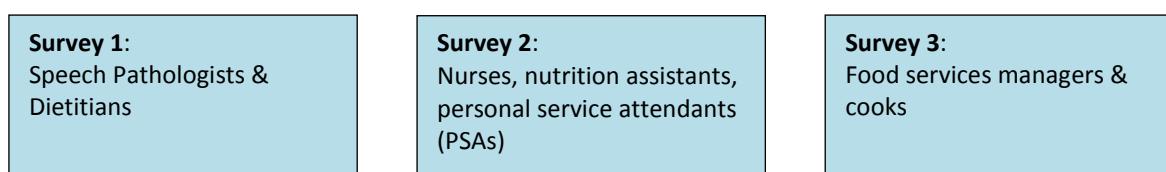


Diagram 1. Target responders for each of the surveys.

Key stakeholder	Methods for distributing access to the online survey
Speech pathologists	<ul style="list-style-type: none"> <li>• Link to the online survey provided via email newsletter to Speech Pathology Australia members.</li> <li>• Members of the reference group were encouraged to distribute the surveys among their professional networks.</li> <li>• Phone calls and/or emails from the project officer or project manager to randomly selected metropolitan, regional and remote healthcare networks encouraging participation from speech pathologists.</li> </ul>
Dietitians	<ul style="list-style-type: none"> <li>• Link to the online survey provided via email newsletter to DAA members.</li> <li>• Members of the reference group were encouraged to distribute the surveys among their professional networks.</li> <li>• Phone calls and/or emails from the project officer or project manager to randomly selected metropolitan, regional and remote healthcare networks encouraging participation from dietitians.</li> </ul>
Nurses	<ul style="list-style-type: none"> <li>• Link to the online survey was sent to all state nursing federations and key nursing groups including aged care and rehabilitation nursing services.</li> <li>• Members of the reference group were encouraged to distribute the surveys among their professional networks.</li> <li>• Phone calls and/or emails from the project officer or project manager to randomly selected metropolitan, regional and remote healthcare networks and aged care facilities encouraging participation from nursing staff. Option provided to complete the survey in paper form and post back to the project team.</li> </ul>
Food services staff (including food services managers, nutrition assistants and cooks)	<ul style="list-style-type: none"> <li>• Members of the reference group were encouraged to distribute the surveys among their professional networks.</li> <li>• Phone calls and/or emails from the project officer or project manager to randomly selected metropolitan, regional and remote healthcare networks and aged care facilities encouraging participation from food services staff. Option provided to complete the survey in paper form and post back to the project team.</li> </ul>
Personal service attendants (PSAs)	<ul style="list-style-type: none"> <li>• Members of the reference group were encouraged to distribute the surveys among their professional networks.</li> <li>• Phone calls and/or emails from the project officer or project manager to randomly selected metropolitan, regional and remote healthcare networks and aged care facilities encouraging participation from PSAs. Option provided to complete the survey in paper form and post back to the project team.</li> </ul>

Table 1. Description of how the surveys were distributed to the key stakeholders.

As described in Table 1, to control for responder bias and to increase the number of survey responses received, a random selection of stakeholders were prompted via phone call and/or email to complete the survey. The project team randomly phoned approximately 250 hospitals and aged care providers from capital city, regional city, rural and remote settings from all states and territories in Australia. All stakeholders were targeted and encouraged to complete the survey over the phone or to have the survey emailed to them for completion.

### *Contents of the online surveys*

Each of the surveys collected the same demographic information and questions regarding support for the Standards. Survey questions regarding current use of the Standards, barriers and resources were tailored to suit the target survey audience and their professional background. The survey provided to speech pathologists and dietitians contained more questions than the other surveys, in consideration of these two professional groups being the key stakeholders in the uptake of the Standards.

Questions in each of the surveys collected information using targeted multiple choice responses that included space for responders to type free text as required.

The surveys requested the following information from participants:

- Professional background
- State or territory location
- Regional setting (capital city, regional city, rural or remote)
- Type of workplace facility (for example, acute hospital, rehabilitation hospital, aged care, community services)
- Years working in current profession
- Predominant caseload (adult, paediatric, mixed, other; speech pathology and dietitians only)
- Knowledge of the existence of the Standards
- Terminology used when referring to the Standards (speech pathology and dietitians only)
- Whether additional levels of texture modified foods and fluids were used in the workplace
- Impact on food services workload when using the Standards (food services staff only)
- Strategies used to implement the Standards
- Barriers encountered for those who indicated they had implemented the Standards
- Barriers to implementation for those who indicated they had not implemented the Standards

- Usefulness of resources provided by the professional associations when implementing the Standards (speech pathology and dietetics only)
- Benefits to the workplace since implementing the Standards
- An indication of continued support for current definitions and terminology contained within the Standards.

## Results

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### *Survey responses received*

A total of 574 survey responses were received. Figures 1 and 2 describe the percentage of total responses received by professional background and the predominant caseload for surveyed speech pathologists and dietitians. Figure 3 describes the state or territory of all respondents and Figure 4 describes the locality of all respondents.

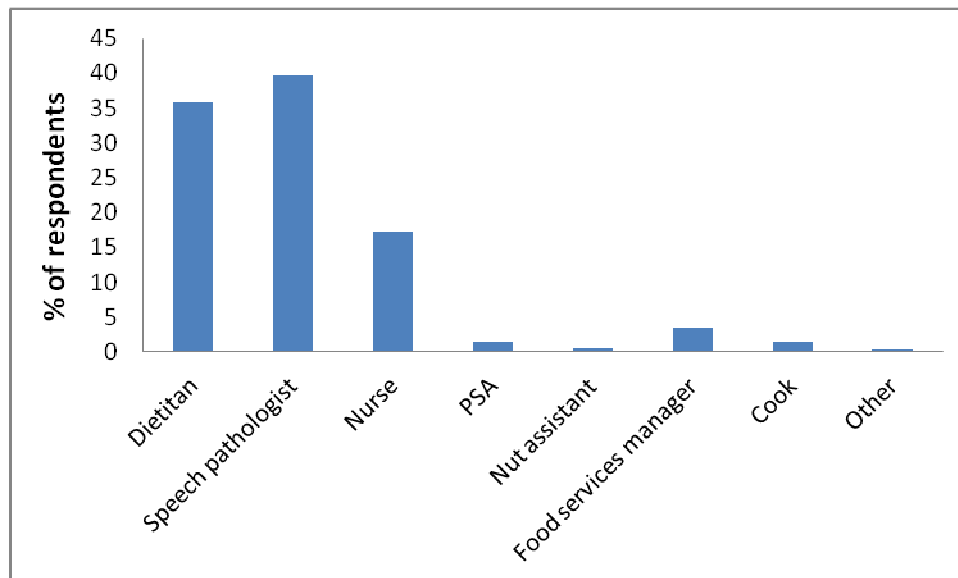


Figure 1. Survey respondents by profession.

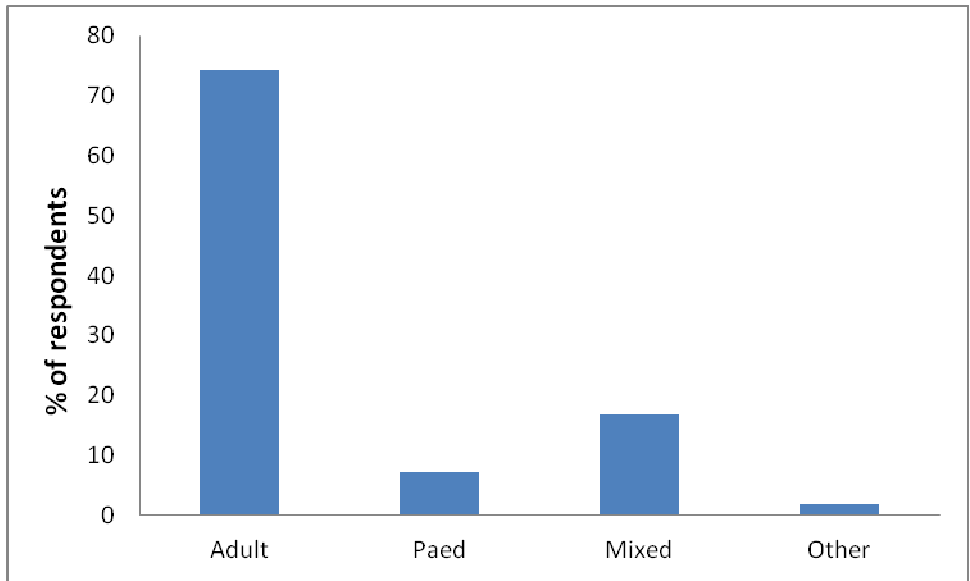


Figure 2. Survey respondents by predominant caseload (speech pathology & dietitians only)

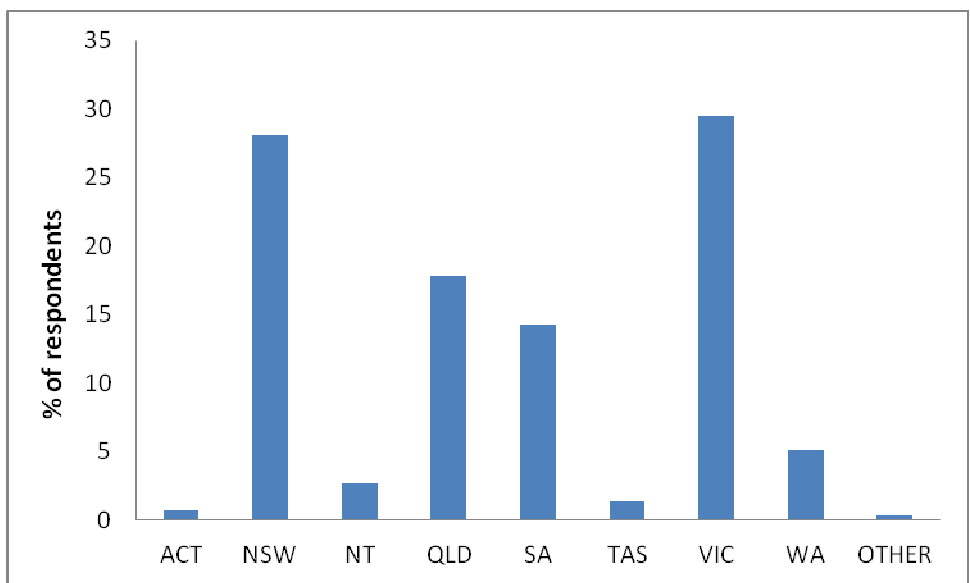


Figure 3. Survey respondents by State or Territory.

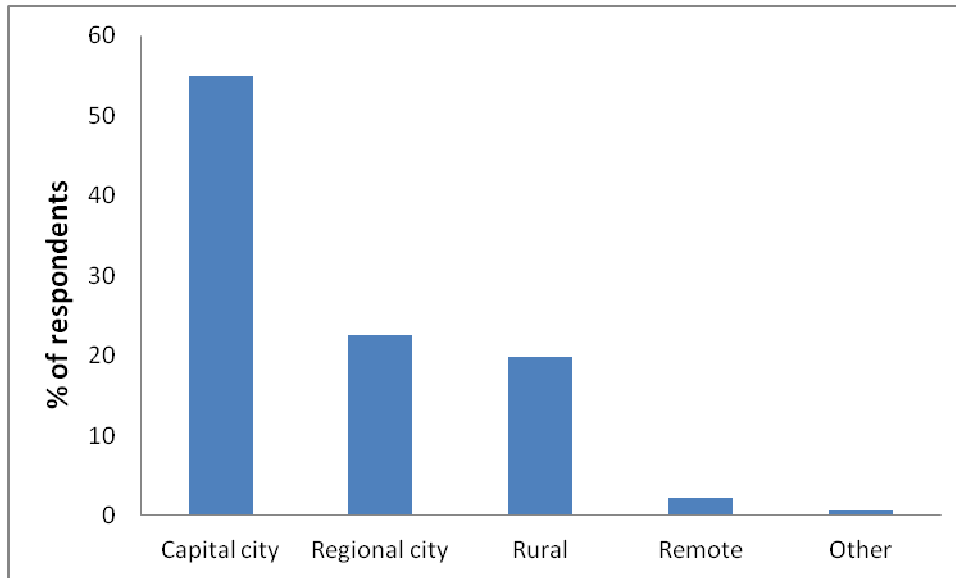


Figure 4. Survey respondents by locality.

### *Limitations of the surveys*

There were several limitations of the surveys including:

- The surveys did not control for specific workplace or department meaning that multiple surveys could have been submitted from the same department or organisation.
- The surveys were most easily completed by participants who described discrete barriers and strategies from one particular site or location. The survey in its design did not cater as well for those participants who work across various locations and sites where different implementation barriers and strategies may have been noted at different sites.
- The surveys assumed participants could recall or were involved in the implementation process in their department or organisation. Multiple choice answer provisions were included in the surveys to ensure those that were not involved in the implementation were able to indicate this as easily as possible.

### *Data analysis*

Data analysis was divided into two areas. An ordinal logistic regression analysis was conducted on variables associated with the uptake of the Standards using the statistical software program 'Stata'. The remaining qualitative data was analysed based on frequency of responses from the multiple choice responses and free text responses contained within all of the surveys.

The dependent variable for regression analysis was support for the Standards (yes, no, partial). The independent variables for the regression analysis were:

- Profession (dietitian, speech pathologist, nurse, food services, other)
- Location by state (ACT, NSW, NT, QLD, SA, TAS, VIC, WA)

- Regional location (capital city, regional city, rural, remote)
- Facility type (acute, rehab, aged care, community, disability, other)
- Predominant caseload (adult, paediatric, mixed)
- Years practising (0 – 2 years, 3 – 5 years, 6 – 10 years, 11 – 20 years and 20+ years).

### *Uptake of the Standards*

The overall results from the surveys indicate a high level of use of the Standards across all stakeholders, with 65% of all respondents indicating they use the Standards in their workplace, 23% had partially implemented the Standards and 10% had not implemented the Standards. Further data analysis revealed a statistically significant finding that speech pathologists and dietitians were more likely to report having implemented the Standards compared to other professional groups ( $p < 0.05$ ).

When examining which states of Australia were more likely to have implemented the Standards, a statistically significant finding was determined for Victoria and Queensland as being the most likely to have implemented the Standards ( $p < 0.05$ ). Capital city locations were more likely to have implemented the Standards as compared to regional cities, rural or remote locations ( $p < 0.05$ ).

Those stakeholders practising for 0 to 2 years or those with more than 20 years experience were found to be more likely to have implemented the Standards compared to other lengths of professional experience. A number of variables may help to explain this result. For example, clinicians with more than 20 years experience are more likely to hold management positions and may have been involved in the implementation process within their workplaces. Clinicians with 0 to 2 years may have been exposed to the Standards as part of their university education. Speech pathologists and dietitians with 0 to 2 years experience may be more likely to be involved in larger discipline-based departments that had already implemented the Standards.

Speech pathologists and dietitians working with paediatric caseloads were less likely to have implemented the Standards compared to clinicians working with adult or mixed caseloads. Clinicians with a paediatric caseload showed a higher percentage of partial implementation, as compared to adult based clinicians. It was found that 53% of speech pathologists and dietitians working with paediatric caseloads partially use the terminology and definitions from the Standards as compared to 22% of adult based clinicians.

### *Terminology use and adaptation*

The survey results showed that 68% of speech pathologists and dietitians use the terminology from the Standards excluding the corresponding texture level when describing texture modified foods. For example, removing the Texture A, B or C reference and using 'soft', 'minced and moist' or 'smooth puree' terminology when describing texture modified foods.

A similar finding and comments were received in regard to the descriptions used for texture modified fluids. For texture modified fluids, 59% of surveyed speech pathologists and dietitians use the terminology from the Standards excluding the corresponding level descriptor. That is,

not including the Level 150, 400 or 900 and using 'mildly thick', 'moderately thick' or 'extremely thick' when describing texture modified fluids.

Various trends emerged from the qualitative analysis that described how facilities are adapting the terminology from the Standards. These included the following:

- Workplaces adopting the definitions for texture modification from the Standards but assigning their own terminology to the corresponding definitions, particularly for fluids. For example, implementing a mildly thick fluid as per the definitions in the Standards but labelling it as 'nectar thick'.
- Varying the amount of terminology used depending on the audience or context (speech pathologists and dietitians only). For example, using the term 'mildly thick' without 'level 150' when providing education to patients, clients and caregivers.
- Having awareness of the Standards but choosing not to implement the terminology contained in them, preferring to continue using more familiar terminology (particularly among aged care facilities).

The most commonly described reasons for adapting the terminology from the Standards included the following:

- Dislike of the terminology used to describe texture modification within the Standards.
- Wanting to simplify the terminology and information provided to patients, clients, families, other healthcare professionals and food services staff (speech pathologists and dietitians only).
- Difficulties in applying the terminology in the Standards to electronic menu and food provision systems commonly used in inpatient settings and aged care facilities.
- Difficulty getting a computer to print an appropriate individualised label for texture modified foods and fluids that included the full terminology from the Standards.

In the development of the Standards the original authors encouraged stakeholders to use the levels of texture modified foods and fluids from the Standards that best suit their needs and if facilities wanted to add new levels of texture modification, these should be referenced against the scales contained within the Standards (Atherton et al., 2007).

Comments from the qualitative analysis revealed that some aged care facilities are appropriately choosing to select some and not all of the texture modified foods and fluids from the Standards but are choosing to use familiar terminology that is not necessarily taken from the Standards. Hospital settings were more likely to report offering all of the texture modified foods and fluids from the Standards while also applying the terminology from the Standards.

A commonly reported issue by all stakeholders was dislike of the terminology used to describe texture modified foods and fluids from the Standards. The common reasons cited for the dislike of the terminology included:

- That the terminology in the Standards was too long.

- That the terminology in the Standards lacked a descriptive reference to the thickness of texture modified fluids, such as ‘honey thick’ or ‘nectar thick’. Responders described having a descriptor as being useful and more meaningful for other stakeholders and for educating patients and clients requiring texture modified fluids.
- The negative connotation implied to a patient’s cognition or intelligence when describing a modified fluids as ‘extremely thick’. Colloquially this term might imply that someone is of reduced intelligence.
- Confusion over the term ‘unmodified regular’, citing the term as being too complex for some stakeholders. Preference for using the term ‘unmodified’ or ‘regular unmodified’ was described.

It is the opinion of these authors that many stakeholders, including dietitians and speech pathologists, are not aware of the association between the level descriptors for modified fluids (level 150, 400 and 900) and how they broadly correspond to viscosity measures. This information is made clear in the original article released regarding the Standards (Atherton et al., 2007). Instead these labels are widely viewed as being arbitrary and provided without meaning or reference.

#### *Additional levels of texture modification*

When considering all of the respondents, 71% reported they do not use additional texture modified food or fluid levels outside of what is contained in the Standards. The majority of responders who indicated they do use additional levels of texture modification went on to describe terminology differences rather than actual additional levels of modification. The additional levels of texture modified foods and fluids that were described included:

- Runny puree diet
- Anti-reflux (AR) thickness for infants
- Texture modified fluids suitable for infants using teats
- Combinations of texture modified foods for example, soft diet with minced meats.

#### *Strategies used to implement the Standards*

The most commonly reported strategies used to implement the Standards across all surveyed stakeholders included:

- Provision of information or encouragement to begin using the Standards
- Providing or receiving education relating to the Standards
- Changes to existing and development of new pre-printed materials such as handover and educational material (speech pathologist and dietitians only)
- New policy and procedure documentation and changes to existing systems for delivery of foods and fluids in an inpatient or aged care setting (speech pathologists and dietitians only)

- Reviewing of informational posters about the Standards on display in the workplace (nursing and food services staff only).

#### *Barriers to implementation of the Standards*

The most commonly reported barriers to implementing the Standards for all stakeholders included the following:

- The amount of time required to implement the Standards into a workplace
- Lack of knowledge about the Standards by stakeholders
- The availability of suitable recipes or products that meet the Standards
- Difficulties in making necessary changes to existing computerised menu delivery systems
- Dislike of the terminology used in the Standards was the most commonly reported barrier by those who indicated they had not implemented the Standards in their workplace
- Difficulty in accessing or developing educational resources to support implementation of the Standards such as generic presentations or handouts
- Lack of mandating of the Standards from senior managers or health department services.

#### *Difficulties with implementation of the Standards*

While not strictly considered barriers to implementation of the Standards, many responders commented on the difficulties they had encountered when implementing the Standards. These included:

- Different colour coding on some brands of pre-packaged thickened fluids, as compared to the colour coding contained within the Standards.
- Different stakeholders continuing to use different terminology after implementation of the Standards into a workplace. Speech pathologists and dietitians reported that stakeholders such as nursing and food services staff had a tendency to revert back to using old terminology not contained within the Standards.
- Difficulty in adapting the Standards to suit a particular caseload, for example, in paediatric or autistic populations.

### *Enablers of implementation of the Standards*

Based on the survey results, the following were identified as enablers to the implementation of the Standards:

- Support from management or directives from senior management to implement the Standards.
- Buy-in and agreement from all stakeholders to introduce the Standards into a facility or organisation.
- The provision of comprehensive and continuous education to key stakeholders to build awareness of the Standards and to facilitate the change management process for stakeholders to revise their use of terminology and definitions to fit in line with the Standards.
- Having joint cooperation between speech pathologists and dietitians or cooperation between all stakeholders in an organisation to act as the key drivers to the implementation of the Standards in the workplace.

### *Benefits of implementing the Standards*

The most commonly reported benefits of implementing the Standards in a workplace included the following:

- Consistency of the terminology used to describe and prescribe texture modified foods and fluids.
- Improved safety and risk management when transferring patients or clients requiring modified foods and/or fluids between facilities.
- Using the same terminology and definitions across different sites or facilities.
- Opportunities for joint cooperation, improved communication and collaboration between speech pathology and dietetics colleagues or other combinations of key stakeholders as a result of implementing the Standards.

## Recommendations for extending the depth and breadth of the penetration of the Standards

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The following recommendations are made to DAA and Speech Pathology Australia to extend the depth and breadth of the penetration of the Standards.

1. Organising and delivering workshops at the DAA and Speech Pathology Australia national conferences in 2011.

These workshops could provide information to delegates about the results of the evaluation project, describe the collaborative nature of the project between the two professional disciplines, highlight success stories from institutions that have already successfully implemented the Standards and offer advice for those that have not yet implemented the Standards at their workplace.

An edited version of the PowerPoint slides combined with the audio from the workshops could be posted on both association websites for viewing by those who are unable to attend the conference.

Consider hosting a separate and modified conference workshop at both national conferences for other stakeholders to attend such as nurses, staff from residential and aged care facilities and food services staff.

2. Consider providing access to an electronic copy of the journal article or a summary of the results from this project to:
  - a. Australian speech pathologists and dietitians via the association websites where access is available regardless of membership status
  - b. International speech pathology and dietetics associations
  - c. Australian universities with accredited speech pathology and dietetics courses.
3. Engaging aged care providers, aged care associations and nursing associations to improve education and awareness of the Standards within these key stakeholders. Working with these providers and associations may assist in determining the best ways to disseminate information about the Standards to their staff and members.
4. Consider providing further education via webinars and/or workshops about the Standards and the evaluation project to speech pathologists and dietitians. Further education could target those states and territories in Australia where the uptake of the Standards has been weaker, including South Australia, Northern Territory and the ACT.
5. Consideration of ways DAA and Speech Pathology Australia can promote the Standards, their development and the evaluation project to a larger international audience. This could be achieved via international conference posters or presentations.

New Zealand and Ireland have implemented the Australian Standards or have modified the Standards to suit their needs. DAA and Speech Pathology Australia should consider ways it could formalise a supportive relationship with the international associations from

these countries in order to foster further resource sharing, guidance and future work development.

6. One of the barriers identified in this project is the lack of mandating the Standards from health department services. It is therefore recommended that DAA and Speech Pathology Australia consider ways that state and/or federal governments could be lobbied to support the implementation of the Standards into healthcare and aged care facilities at a state or national level.
7. Although not formally assessed as a key stakeholder in the review of the implementation of the Standards, there is scope for developing professional links with commercial companies that make texture modified foods and fluids. Joint product development and education about the Standards to commercial companies is considered a way to increase the depth and breadth of penetration of the Standards.

## **Recommendations for future resource development to support successful implementation of the Standards**

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The following recommendations are made to DAA and Speech Pathology Australia for future resource development to support successful implementation across settings.

1. That DAA and Speech Pathology Australia consider revising and releasing an updated version of the widely used educational poster that describes the Standards. It is recommended that professional photography be used to style and photograph pictures of texture modified foods and fluids.
2. Consider developing downloadable colour photograph images of texture modified foods and fluids and providing easy access to these images via the association websites.
3. Develop an online educational toolkit to support workplaces that have not yet implemented or have partially implemented the Standards. Additionally the toolkit could also be used by workplaces that have already implemented the Standards as a resource for providing ongoing education to stakeholders.

The toolkit could include generic educational information such as PowerPoint presentations, online videos, educational handouts, suggestions on how to audit texture modification for compliance with the Standards, example menus of each texture level and general advice on successful implementation of the Standards. Developing and providing these resources will also ensure consistency of the information provided to key stakeholders about the Standards.

## Summary of the recommendations

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While all of the suggested recommendations provided in this report are considered important and valuable for extending the depth and breadth of the penetration of the Standards, they are provided without consideration of their order of importance or priority. As guidance, the authors provide the following commentary on the possible priority areas for each of the major stakeholders involved in the uptake and implementation of the Standards.

Speech pathologists and dietitians are considered the key stakeholders in the uptake and implementation of the Standards. Speech pathologists and dietitians are more likely to have knowledge about the Standards, recognise their importance and value and are more likely to be educating other stakeholders about the Standards in their workplaces. Further development of the education, awareness and support of speech pathologists and dietitians is considered crucial for the continued uptake and implementation of the Standards. This could be achieved by:

- Offering the proposed workshop presentations at the national conferences in 2011
- Offering further education via workshops or webinars
- Having prominent updates and access via the association websites
- Supporting the ongoing education provided by speech pathologists and dietitians to other stakeholders via the provision of an educational toolkit and revision of the educational poster.

The recommendations targeting the remaining stakeholders are broader and involve developing relationships with key groups including nursing organisations, aged care and commercial companies supplying texture modified foods and fluids. Targeting nursing and aged care organisations is considered especially important because of the lower uptake of the Standards in the aged care sector as identified in this report.

## Possible extensions of this project

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There are several possible extensions of this project. These include:

1. Development and implementation of the recommendations for resource development from this report, in particular the development of a revised educational poster and an online educational toolkit.
2. Further monitoring of the uptake of the Standards in the future. It is recommended that DAA and Speech Pathology Australia consider reviewing the uptake of the Standards again in the next 3 to 5 years to determine if there have been improvements in the uptake of the Standards.
3. Consultation with consumers regarding their understanding of the terminology contained within the Standards (Atherton et al., 2007).
4. Determining the nutritional adequacy and palatability/acceptability of texture modified food and fluids (Atherton et al., 2007).
5. The development of objective measures of viscosity and standardised recipes for texture modified foods and fluids (Atherton et al., 2007).
6. The development of evidence based guidelines to inform clinical practice (Atherton et al., 2007).

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Rothenberg, E., Ekman, S., Bulow, M., Moller, K., Svantesson, J., & Wendin, K. (2007). Texture-modified meat and carrot products for elderly people with dysphagia: Preference in relation to health and oral status. *Scandinavian Journal of Food and Nutrition*, 52(4), 141-147.

Strowd, L., Kyzima, J., Pillsbury, D., Valley, T., & Rubin, B. (2008). Dysphagia dietary guidelines and the rheology of nutritional feeds and barium test feeds. *Chest*, 133(6), 1397-1401.

Stuart, S., & Motz, J. M. (2009). Viscosity in infant dysphagia management: Comparison of viscosity of thickened liquids used in assessment and thickened liquids used in treatment. *Dysphagia*, 24(4), 412-422.

## Appendices

### Appendix One: Literature review

#### References: Evidence for dysphagia diet and fluids, 2006 – 2010

Reference	Design	Sample	Objectives	Conclusions	Evidence level
Clave, P., De Kraa, M., Arreola, V., Girvent, M., Farre, R., Palomera, E., & Serra-Prat, M. (2006). The effect of bolus viscosity on swallowing function in neurogenic dysphagia. <i>Alimentary Pharmacology &amp; Therapeutics</i> , 24(9), 1385-1394.	Non-randomised, experimental	N = 92 (neurological), N = 8 (normal)	To assess pathophysiology & treatment of neurogenic dysphagia using VFSS.	Increased bolus viscosity improves swallow function in neurological patients.	V
Diniz, P. B., Vanin, G., Xavier, R., & Parente, M. A. (2009). Reduced incidence of aspiration with spoon-thick consistency in stroke patients. <i>Nutrition in Clinical Practice</i> , 24(3), 414-418.	Randomised, crossover	N = 61	Evaluate 2 consistencies for risk of aspiration. Determine usefulness of bedside dysphagia assessment.	Spoon-thick reduced risk of aspiration. Bedside assessment useful.	III-3
Foley, N., Teasell, R., Salter, K., Kruger, E., & Martino, R. (2008). Dysphagia treatment post stroke: A systematic review of randomised controlled trials. <i>Age &amp; Ageing</i> , 37(3), 258-264.	Systematic review of all RCTs	15 articles	Systematic review of all RCTs for adults with stroke & dysphagia.	Recent RCTs don't use the same treatment & outcomes, limiting supportive evidence for common dysphagia treatments post stroke	I
Garcia, J., Chambers, E., Clark, M., Helverson, J., & Matta, Z. (2010). Quality of care issues for dysphagia: Modifications involving oral fluids. <i>Journal of Clinical Nursing</i> , 19(11-12), 1618-1624.	Descriptive analysis	42 healthcare providers	To examine the practices of healthcare providers who thicken oral fluids for patients with dysphagia. To contrast viscosity of nectar & honey thick fluids measured in a laboratory to actual practices in healthcare setting and to guidelines in the NDD.	Viscosity measurements did not compare favourably between those prepared by healthcare providers & published finding of laboratory measurements or ranges included in the NDD. Many patients are served too thick or too thin fluids.	III-3
Garcia, J., Chambers, E., Matta, Z., & Clark, M. (2008). Serving temperature viscosity measurements of nectar- and honey-thick liquids. <i>Dysphagia</i> , 23, 65 - 75.	Bench test		Investigation of hot and cold beverages thickened with starch and gum based thickeners, and changes with standing time (10 and 30 mins).	Serving temperature is an important variable, and shows different patterns to assessment at room temperature. Gum based thickener produced products less viscous than the starch based thickened liquid, but the gum based liquids were more stable in thickness over time. Beverage type (e.g. containing acid, protein, fat) significantly interacted with serving temperature, standing time and thickening agent	III-3
Kyzima, J. B., Strowd, L., Pillsbury, D., & Rubin, B. (2008). Managing dysphagia: Lack of standardisation of food viscosities may compromise patient care, 34(8), 1-5.	Non-randomised, experimental		To examine the viscosity of modified foods and barium test feeds in comparison to the NDD viscosity	The viscosity of some commercial texture modified fluids does not conform to the NDD guidelines.	III-3

			recommendations.		
Logemann, J. A. (2008). Treatment of oral and pharyngeal dysphagia. <i>Physical Medicine &amp; Rehabilitation Clinics of North America</i> , 19(4), 803-816.	Non experimental. Summary of literature.				
McMiken, B. L., & Muzzy, C. L. (2010). Functional outcomes of standard dysphagia treatment in first time documented stroke patients. <i>Disability &amp; Rehabilitation</i> , 31(10), 806-817.	Retrospective	N = 100 first time acute stroke	Determine changes in functional status between admission & discharge of food texture level.	Statistically significant changes in food texture levels between admission & discharge.	III-2
Ozaki, K., Kagaya, H., Yokoyama, M., Saitoh, E., Okada, S., Gonzalez-Fernandez, M., Palmer J. B., & Uematsu, A. H. (2010). The risk of penetration or aspiration during videofluoroscopic examination of swallowing varies depending on food types. <i>Tohoku Journal of Experimental Medicine</i> , 220(1), 41-46.	Experimental	N = 229 with dysphagia	Risk of laryngeal penetration/aspiration during VFSS with different liquid volumes & food consistencies.	Risk of aspiration is highest with two-phase food & multi-textured foods.	V
Robbins, J., Gensler, G., Hind, J., Logemann, J. A., Lindblad, A. S., Brandt, D., Baum, H., Lilienfeld, D., Kosek, S., Lundy, D., Dikeman, K., Kazandjian, M., Gramigna, G. D., McGarvey-Toler, S., & Miller Gardner, P. J. (2008). Comparison of 2 interventions for liquid aspiration on pneumonia incidence: a randomised trial. <i>Annals of Internal Medicine</i> , 148(9), 715.	Randomised, controlled, parallel-design	N = 504	To compare effectiveness of chin-down posture & 2 thickened fluid consistencies on 3-month cumulative incidence of pneumonia in patients with dementia or Parkinson's disease.	No definitive conclusions about superiority of any tested interventions can be made. The 3-month cumulative incidence of pneumonia was lower than expected.	II
Rothenberg, E., Ekman, S., Bulow, M., Moller, K., Svantesson, J., & Wendin, K. (2007). Texture-modified meat and carrot products for elderly people with dysphagia: Preference in relation to health and oral status. <i>Scandinavian Journal of Food and Nutrition</i> , 52(4), 141-147.	Retrospective, survey analysis	108 elderly people & 50 people in special housing	To investigate the preference of texture modified carrot & meat products in elderly people with dysphagia.	There is a need to develop nutritious texture modified foods for people with dysphagia. Food preference may be related to health status and swallowing functions.	III-3
Strowd, L., Kyzima, J., Pillsbury, D., Valley, T., & Rubin, B. (2008). Dysphagia dietary guidelines and the rheology of nutritional feeds and barium test feeds. <i>Chest</i> , 133(6), 1397-1401.	Non-randomised, experimental		To examine the viscosity of barium test feeds (BTFs) and commercially available texture modified foods as recommended by the NDD.	The viscosity of BTFs is greater than correspondingly named diet foods & NDD guidelines. This can place patients at significant risk of aspiration.	III-3
Stuart, S., & Motz, J. M. (2009). Viscosity in infant dysphagia management: Comparison of viscosity of thickened liquids used in assessment and thickened liquids used in treatment. <i>Dysphagia</i> , 24(4), 412-422.	Non-randomised, experimental		To investigate the comparability of the viscosity of liquids used in the assessment and treatment of infants with dysphagia.	Significant differences found between barium mixtures used in assessment & formula used for treatment of dysphagia in infants.	III-3
Garcia, J., Chambers, E., Clark, M., Helverson, J., & Matta, Z. (2010). Quality of care issues for dysphagia: Modifications involving oral fluids. <i>Journal of Clinical Nursing</i> , 19(11-12), 1618-1624.	Descriptive analysis	42 healthcare providers	To examine the practices of thickening oral fluids for patients with dysphagia. To contrast viscosity of nectar & honey thick fluids measured in a laboratory to actual practices in healthcare setting and to guidelines in the NDD.	Viscosity measurements did not compare favourably between those prepared by healthcare providers & published finding of laboratory measurements or ranges included in the NDD. Many patients are served too thick or too thin fluids.	III-3

## References: Establishment and uptake of standardised guidelines and terminology for texture modification in dysphagia management

Reference	Design	Sample	Objectives	Conclusions	Evidence level
McCallum, S. (2003). The National Dysphagia Diet: Implementation at a regional rehabilitation center and hospital system. <i>Journal of the American Dietetic Association</i> , 103(3), 381-384.	Not a research design		Describes implementation of the National Dysphagia Diet (NDD) at large healthcare provider in the US.		N/A
McCullough, G., Pelletier, C., & Steele, C. (2003). National Dysphagia Diet: What to swallow? <i>ASHA Leader</i> , Nov 4, 16.	Not a research design		Informative article, describes each level of the National Dysphagia Diet (NDD).		N/A