

## Supplementary material 2: example data processing for one topic of uncertainty (uncertainty 4)

Uncertainty (PICO)	Plain English uncertainty	Theme	Original uncertainty	Source of Uncertainty
There is uncertainty about the risks and effectiveness of thickened liquids in improving swallowing function, preventing aspiration and/or malnutrition for the treatment of swallowing difficulties in children and adults with dysphagia	Adding a thickener to drinks is a common technique used to help children and adults with swallowing problems (dysphagia) swallow safely. It is unclear whether drinking thicker fluids helps prevent liquid going into the lungs (aspiration), helps improve the swallow function and/or helps with preventing malnutrition. There is not enough evidence about the risks of thickening liquids, for example dehydration.	Effective use of thickeners to manage dysphagia	Effective use of thickeners to manage dysphagia	Scoping survey
			In risk feeding scenarios, how do we determine 'least risk' consistencies? Eg is greater aspiration of thin fluids less risky than less aspiration of thicker fluids?	Scoping survey
			Evidence for thickening fluids to reduce aspiration risk	Scoping survey
			Effects of thickener on the lungs and gastrointestinal tract	Scoping survey
			Use of thickeners in paediatric dysphagia	Scoping survey
			Comparing thickener versus no thickener in food/drinks	Scoping survey
			Use of thickener with people with learning disabilities and dysphagia, including a comparison with oral healthcare and postural strategies	Scoping survey
			Systematic review of the evidence base supporting thickened liquids in the treatment of dysphagia	Scoping survey
			Reasons for using thickener at bedside in the NHS	Scoping survey
			Increasing knowledge of natural thickeners	Scoping survey
			Use of thickened fluids and airway protection strategies in preventing aspiration in respiratory dysphagia	Scoping survey
			Impact of caregiver non compliance with recommendations for thickened fluids in care homes and nursing homes (e.g. on hydration levels, prevention of chest infections etc)	Scoping survey
			Evidence for thickening fluids in reducing aspiration and rates of pneumonia	Scoping survey
			Health impact of thickened fluids (cost saving/preventing hospital admissions)	Scoping survey
			The link between different types of thickener, fluid intake and risk of dehydration	Scoping survey
Use of thickeners in paediatric dysphagia	Scoping survey			
There is a significant gap in the literature with regard to describing the effectiveness of thickened liquids for reducing aspiration in the HNC population as a whole	Barbon & Steele (2015)			

		A complete understanding of the impact of thickened liquids as a compensatory technique for addressing swallowing dysfunction in the HNC population is currently lacking. There is clearly a need for rigorous and controlled research to address this gap in our understanding.	Barbon & Steele (2015)
		It is still unclear whether texture modified food and thickened fluid in the right patients can provide sufficient energy and protein and thereby prevent malnutrition, and further investigations are needed.	Andersen et al. (2013)
		It is important to investigate the risk of dehydration when using thickened fluids and how to prevent it.	Andersen et al. (2013)
		Future research should target medically fragile infants and children with multiple complex medical diagnoses and examine additional outcomes and adverse effects (eg, NEC) using randomized controlled trials with sufficient power to identify possible harms associated with thickened liquids	Gosa et al. (2011)
		Other research should examine the effects of thickeners on the developing gut as well as the impact of physiological maturation on dysphagia-related aspiration	Gosa et al. (2011)
		Given that there is no consensus on the temporal or physiological effects of thickened liquids on swallowing, these parameters should be a first line of research	Gosa et al. (2011)
		An additional gap to highlight with respect to the lack of identified studies in either the healthy or dysphagic infant population is the challenge of matching assessment stimuli to the rheological properties of breast milk or infant formula. This is a question of emerging interest in the dysphagia literature and definitely an area where additional research is needed.	Steele et al. (2015)
		Certainly, the results of our qualitative synthesis point to a significant gap both in literature and knowledge regarding the impact of small increments of viscosity on swallowing, and illustrate the need for new studies, which explore both the physiological and functional consequences of thickening in both narrow and larger increments.	Steele et al. (2015)

## References

Barbon CE, Steele CM. Efficacy of thickened liquids for eliminating aspiration in head and neck cancer: a systematic review. *Otolaryngol Head Neck Surg.* 2015 Feb;152(2):211-8.

Anderson UT, Beck AM, Kjaersgaard A, et al. Systematic review and evidence based recommendations on texture modified foods and thickened fluids for adults (>18 years) with oropharyngeal dysphagia. *e-SPEN Journal.* 2013;e127-134.

Gosa M, Schooling T, Coleman J. Thickened Liquids as a Treatment for Children With Dysphagia and Associated Adverse Effects: A Systematic Review. *ICAN: Infant, Child, & Adolescent Nutrition.* 2011;3(6):344-350.

Steele CM, Alsanei WA, Ayanikalath S, et al. The influence of food texture and liquid consistency modification on swallowing physiology and function: a systematic review. *Dysphagia.* 2015 Feb;30(1):2-26.