

**Assessments of Swallowing and Feeding Disorders in Neonates: A Scoping
Review Protocol**
Isabella Arese, Éadaoin Flynn
June 2025

Abstract

Background: Advances in healthcare have improved the survival rates of critically ill newborns, leading to an increased prevalence of swallowing and feeding disorders. Early identification of swallowing and feeding disorders is essential for timely intervention and optimal outcomes. To date, there is a lack of standardized assessment tools in this area. A comprehensive review of available diagnostic tools is warranted.

Objective: This scoping review aims to identify and describe the key methods used to diagnose swallowing and feeding disorders in neonates. The review will identify existing assessment tools, their clinical applications, assessment timepoints and gaps in research to inform best practices for healthcare professionals.

Methods: The review will follow the PRISMA-ScR framework and JBI methodology for scoping reviews. This will include primary research (e.g., RCTs, cohort studies, case-control studies, cross-sectional studies, case series, and case reports) from databases like PUBMED, CINAHL, EMBASE, MEDLINE, as well as systematic and scoping reviews, meta-analyses, guidelines, and ClinicalTrials.gov records. Exclusion and inclusion criteria are in accordance with the patient, concept and context framework, defining and ensuring a systematic and transparent review, that will include studies on diagnostic assessments of swallowing/feeding disorders in neonates in clinical settings. Non-diagnostic, non-neonatal or non-clinical sources that won't meet the criteria will be excluded, with reasons documented and reported in the scoping review. Data will be extracted and analyzed to identify trends, key assessment areas, and the use of standardized protocols. Findings will be integrated into a written document with charts and tables, identifying gaps in the literature and emerging trends in diagnostic practices.

Conclusions: This scoping review will provide a comprehensive overview of available neonatal feeding and swallowing assessment tools. By identifying gaps in the literature and highlighting effective diagnostic approaches, the findings will support the development of standardized assessment protocols and improve clinical practice for neonatal swallowing and feeding disorders management.

Keywords: Swallowing Disorders, Feeding Disorders, Neonates, Evaluation, Scoping Review

INTRODUCTION

As advances in healthcare have improved survival rates for critically ill newborns, the number of infants experiencing oral feeding difficulties has also increased (7). Two complications that are prolonging hospitalization in the neonatal population are swallowing and feeding disorders (SFD) (6). Pediatric feeding disorders are defined as impaired oral intake that is not age appropriate, and are associated with medical, nutritional, feeding skill, and psychosocial dysfunction (5). Due to the dynamic interaction between these domains, impairment in one area can disrupt other areas (5). Swallowing disorders within neonates can be defined as an impairment in the act of swallowing and often involve poor coordination between sucking, swallowing and breathing (9). These can be particularly prevalent in preterm infants with underdeveloped neurological and gastrointestinal systems and affect the efficiency, safety or adequacy of nutritional or fluid intake (9). Swallowing and breathing are inextricably linked therefore, any disturbance in one, or a failure to properly coordinate both, can compromise the neonate's ability to protect their airway during swallowing (4).

The consequences of SFD in neonates can be short term or long-lasting. Physiologically, impaired swallowing can compromise airway protection, increase the risk of aspiration, and result in pulmonary complications, malnutrition or dehydration (9). These complications may prolong hospitalization stays and contribute to delayed growth and development (10). Feeding issues can severely impact family routines and parent-child bonding, leading to heightened stress, anxiety and in some cases, feeding aversion or caregiver burnout. Furthermore, prolonged dependence on enteral feeding methods, such as nasogastric or gastrostomy tubes, may negatively affect oral motor development and sensory experiences critical for feeding progression (10).

Early identification of SFD in neonates is essential to ensure timely intervention, support optimal nutrition, and promote the development of oral feeding skills (2). However, due to the limited ability of neonates to express distress, feeding difficulties may be subtle, difficult to identify and present in diverse ways (2). Clinicians rely on a range of clinical and instrumental methods to evaluate these disorders, yet current approaches vary between settings and have limitations. Many of the assessment tools available are specialized and often tailored to a specific medical condition, which can hinder their generalizability across neonatal populations (4). There is no universally accepted standardized tool, leading to variability in practice and outcomes. Instrumental methods such as videofluoroscopic swallow studies (VFSS) and fiberoptic endoscopic evaluation of swallowing (FEES), are used, but these procedures can be invasive, expensive, resource-intensive, and not always feasible in this population (1). Given the increasing prevalence of SFD in neonates, there is a need for reliable, comprehensive diagnostic assessment of swallowing and feeding. Speech and Language Therapists (SLTs) play a critical role in evaluating and managing these conditions by assessing the anatomy, physiology and pathophysiology of swallowing. Accurate and early SLT assessment of neonatal feeding and swallowing function is essential for guiding intervention and preventing secondary complications. Despite this need, to date, research in the area is scant and it is unclear what methods of assessment are being used in different settings (1).

This scoping review aims to identify and describe the key methods used to diagnose SFD in neonates in any setting. A secondary aim is to determine what time points swallowing and feeding assessments are being completed and who are completing these assessments.

Research questions

- What are the key methods used to identify and diagnose swallowing and feeding disorders in neonates in any setting?

- At what time points are swallowing and feeding assessments being conducted in neonates in any setting?
- Who is conducting swallowing and feeding evaluations in neonates in any setting?

We hypothesize that:

- Tools and methods being used to identify and diagnose swallowing and feeding disorders in neonates vary.
- Assessments are conducted at various time points for neonates with suspected swallowing or feeding disorders.
- Healthcare practices regarding the assessment and diagnosis of swallowing and feeding disorders in neonates vary across different healthcare settings.

METHODS

The proposed scoping review will be conducted in accordance with the Preferred Reporting Items for Systematic Review and Meta-analysis extension for Scoping Reviews (PRISMA-ScR) checklist (11). The JBI methodology for scoping reviews will also be followed (8).

Search strategy

This study will employ a comprehensive search strategy to identify relevant literature. An expert subject librarian will help identify keywords and index terms and to develop a tailored search approach for each database and trial registry. The search strategy (Appendix I) will be customized for each database and will include relevant terms and indexing. The databases to be searched include PUBMED, CINAHL, EMBASE, MEDLINE. ClinicalTrials.gov will also be searched to identify unpublished studies. Additionally, reference lists of selected studies will be screened for further sources, and study authors may be contacted for additional information if needed. Studies published in any language from inception will be considered to ensure a comprehensive range of data.

Study selection

Following the search, all identified studies will be uploaded to www.covidence.org, where duplicates will be removed. Two independent reviewers will screen titles and abstracts. Following this, full texts will be independently reviewed by two authors. Any disagreements and title/abstract and full text screening stage will be resolved through discussion with a third reviewer (EF). Studies that do not meet the criteria will be excluded, with reasons documented and reported in the scoping review. Table 1 provides an overview of the exclusion and inclusion criteria in accordance with the patient, concept and context framework, defining and ensuring a systematic and transparent review. The search results and study selection process will be fully detailed in the final scoping review and illustrated using a PRISMA-ScR flow diagram (11).

Table 1- Exclusion and Inclusion criteria

Criteria	Inclusion	Exclusion
Population	Neonates (≤ 28 days old) including preterm and up to 44 weeks Postmenstrual Age	Infants >44 weeks PMA or >28 days without neonatal relevance; children/adults

Concept	Diagnostic tools, assessment methods, or evaluation protocols for swallowing/feeding disorders	Intervention-only studies; non-diagnostic focus (e.g., nutrition, growth)
Context	Clinical settings (e.g., NICU, hospital, outpatient)	Non-clinical/home settings without professional assessment
Types of Sources	Primary research (e.g., RCTs, cohort studies, case-control studies, cross-sectional studies, case series, and case reports) from databases like PUBMED, CINAHL, EMBASE, MEDLINE, as well as systematic and scoping reviews, meta-analyses, guidelines, and ClinicalTrials.gov records	Editorials, commentaries, letters, abstracts without sufficient detail
Language	No language restriction	N/A
Time Frame	No date restriction	N/A
Study Focus	Clinical or instrumental assessment of swallowing/feeding in neonates	Studies unrelated to swallowing/feeding evaluation

Data extraction

The scoping review will be conducted using a structured data extraction tool (Appendix 2), used by two independent reviewers, designed to systematically track relevant information from included studies. The tool will capture key details in several areas, including general study information, eligibility criteria, study characteristics, participants demographics, outcome measures and authors' conclusions.

Data Analysis and Presentation

Findings will be integrated into a written document with charts and tables, identifying gaps in the literature and emerging trends in diagnostic practices. Assessment tools, protocols, definitions of key terms, outcome measures, assessment timepoints, assessors and assessment frequency will be presented. A narrative summary will accompany the tabulated and charted results, explaining how the findings align with the objectives and research questions of this scoping review.

DISCUSSION

This scoping review aims to identify relevant studies, including clinical trials, observational studies, and reviews, that describe tools and methods used for evaluating SFD in neonates. It will provide a comprehensive overview of the use of diagnostic tools and healthcare practices for assessing SFD in neonates. Currently, there is no standardized for assessment method in the neonatal population (4). It is important to identify what assessments are being used, what time points assessments are being completed and who are completing these assessments to guide clinical practice and future research in the area.

Acknowledgements

We acknowledge the work of Ms Isolde Harpur, Subject Librarian of Clinical Speech and Language Studies, Trinity College Dublin.

Declaration of Interest

The authors declare that they have no conflict of interests

REFERENCES

1. Bell, H. R., & Alper, B. S. (2007). Assessment and intervention for dysphagia in infants and children: Beyond the neonatal intensive care unit. *Seminars in Speech and Language*, 28(3), 213–222. <https://doi.org/10.1055/s-2007-984727>
2. Berlin, K. S., Lobato, D. J., Pinkos, B., Cerezo, C. S., & LeLeiko, N. S. (2011). Patterns of medical and developmental comorbidities among children presenting with feeding problems: A latent class analysis. *Journal of Developmental & Behavioral Pediatrics*, 32(1), 41–47. <https://doi.org/10.1097/DBP.0b013e3182043dd7>
3. Cugy, E. (2013). *Paediatric dysphagia – Position statements: European Society for Swallowing Disorders (traduction libre)*. <https://doi.org/10.13140/RG.2.1.2010.9041>
4. Destriatania, S., Februhartanty, J., Nurwidya, F., & Sekartini, R. (2024). Feeding problems assessment tools in children: A scoping review. *Children*, 12(1), 37. <https://doi.org/10.3390/children12010037>
5. Goday, P. S., Huh, S. Y., Silverman, A., Lukens, C. T., Dodrill, P., Cohen, S. S., Delaney, A. L., Feuling, M. B., Noel, R. J., Gisell, E., Kenzer, A., Kessler, D. B., Kraus de Camargo, O., Browne, J., & Phalen, J. A. (2019). Pediatric Feeding Disorder: Consensus Definition and Conceptual Framework. *Journal of Pediatric Gastroenterology and Nutrition*, 68(1), 124–129. <https://doi.org/10.1097/MPG.0000000000002188>
6. Jadcherla, S. R., Stoner, E., Gupta, A., Bates, D. G., Fernandez, S., Di Lorenzo, C., & Linscheid, T. R. (2009). Evaluation and management of neonatal dysphagia: Impact of pharyngoesophageal motility studies and multidisciplinary feeding strategy. *Journal of Pediatric Gastroenterology and Nutrition*, 48(2), 186–192. <https://doi.org/10.1097/MPG.0b013e3181752ce7>
7. Perrin, J. M., Anderson, L. E., & Van Cleave, J. (2014). The rise in chronic conditions among infants, children, and youth can be met with continued health system innovations. *Health Affairs*, 33(12), 2099–2105. <https://doi.org/10.1377/hlthaff.2014.0832>
8. Peters, M. D. J., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBIM Evidence Synthesis*, 18(10), 2119–2126. <https://doi.org/10.11124/JBIES 20-00167>
9. Printza, A., Sdravou, K., & Triaridis, S. (2022). Dysphagia Management in Children: Implementation and Perspectives of Flexible Endoscopic Evaluation of Swallowing (FEES). *Children (Basel, Switzerland)*, 9(12), 1857. <https://doi.org/10.3390/children9121857>
10. Silverman A. H. (2015). Behavioral Management of Feeding Disorders of Childhood. *Annals of Nutrition & Metabolism*, 66 Suppl 5, 33–42. <https://doi.org/10.1159/000381375>
11. Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., ... Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, 169(7), 467–473. <https://doi.org/10.7326/M18-0850>

APPENDICES

Appendix 1: Exemplary Search Strategy for Pubmed

1. "newborn*" [Title/Abstract]
2. "neonate*" [Title/Abstract]
3. "new born*" [Title/Abstract]
4. "infant, newborn" [MeSH Terms]
5. OR/1-4
6. "evaluation*" [Title/Abstract]
7. "assessment*" [Title/Abstract]
8. "screening*" [Title/Abstract]
9. "Neonatal Screening" [MeSH Terms]
10. OR/6-9
11. "dysphagi*" [Title/Abstract]
12. "feeding disorder*" [Title/Abstract]
13. "eating disorder*" [Title/Abstract]
14. "deglutition*" [Title/Abstract]
15. "Feeding and Eating Disorders" [MeSH Terms]
16. "Deglutition Disorders" [MeSH Terms])
17. OR/11-16
18. 5 AND 10 AND 17

Appendix 2: Data extraction form

Data extraction form

General Information

Date form completed	
Name/ID of person extracting data	
Reference citation	
Study author contact details	
Publication type	
Notes:	

Study eligibility

Study Characteristics	Eligibility criteria	Location in text or source
Type of study		
Participants		
Types of intervention		
Types of comparison		
Types of outcome measures		

INCLUDE ☐ EXCLUDE ☐
Reason for exclusion

Characteristics of included studies

Methods

	Descriptions as stated in report/paper	Location in text or source
Aim of study		
Design)		
Unit of allocation		
Start date		
End date		
Duration of participation		
Ethical approval needed/ obtained for study	☐ Yes ☐ No ☐ Unclear	
Notes:		

Participants

	Description	Location in text or source
Population description		
Setting		
Inclusion criteria		
Exclusion criteria		
Method of recruitment of participants		
Informed consent obtained	☐ Yes ☐ No ☐ Unclear	
Total no. randomised		
Clusters		
Baseline imbalances		

Withdrawals and exclusions		
Age		
Sex		
Race/Ethnicity		
Severity of illness		
Co-morbidities		
Other relevant sociodemographics		
Subgroups measured		
Subgroups reported		
Notes:		

	Description as stated in report/paper	Location in text or source
Group name		
Theoretical basis		
Description		
Timing		
Delivery		
Providers		
Co-interventions		
Economic information		
Resource requirements		
Integrity of delivery		
Compliance		
Notes:		

Other information

	Description as stated in report/paper	Location in text or source
Key conclusions of study authors		
References to other relevant studies		
Correspondence required for further study information		

Notes: