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COLLABORATIVE DYSPHAGIA CARE BY SWALLOWING THERAPISTS AND NURSES: IMPACT ON ASPIRATION PNEUMONIA, NUTRITION, AND CLINICAL OUTCOMES; A SYSTEMATIC REVIEW

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Abstract

Background: Oropharyngeal dysphagia is common after stroke and critical illness and is strongly associated with aspiration pneumonia, malnutrition, dehydration, delayed medication delivery, and prolonged hospitalization. In real-world care pathways, nurses often perform early screening and daily feeding-safety tasks, while swallowing therapists provide formal assessment and targeted therapy. The clinical impact of structured collaboration between these groups across settings remains variably reported. **Objectives:** To synthesize evidence from original studies describing collaborative dysphagia care models involving nurses and swallowing therapists and their associations with aspiration pneumonia, nutrition, oral intake, and other clinical outcomes. **Methods:** A systematic review was conducted using PRISMA-aligned methods. We searched PubMed Central (PMC) for original studies describing dysphagia screening, management programs that explicitly integrated nursing actions with swallowing therapist assessment or therapy. Outcomes of interest included aspiration pneumonia, oral intake, nutrition measures, mortality, length of stay, and process outcomes. Risk of bias was assessed using RoB 2 for randomized trials and ROBINS-I domains for non-randomized designs. **Results:** Ten original studies were included: one large registry analysis, multiple before–after, quality-improvement implementations, one randomized controlled trial, and additional observational studies. Across ICU and stroke pathways, nurse-led screening linked to therapist referral was associated with higher rates of oral feeding and lower pneumonia risk in adjusted analyses. Oral care protocols delivered by trained nurses as part of dysphagia management reduced

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aspiration pneumonia. Early swallowing therapy initiation after stroke improved recovery and reduced pneumonia. Evidence was limited by heterogeneity, frequent non-randomized designs, and incomplete reporting of nutrition endpoints. **Conclusions:** Collaborative nurse–therapist dysphagia care, particularly early screening, prompt therapist involvement, oral care, and early therapy, was consistently associated with improved pneumonia-related and oral intake outcomes, but stronger multicenter trials with standardized nutrition outcomes are needed.

Keywords: Dysphagia; Aspiration Pneumonia; Stroke; Post-Extubation Dysphagia; Nurse-Led Screening; Speech-Language Pathology; Swallowing Therapy; Oral Care; Nutrition; Interprofessional Collaboration.

INTRODUCTION

Dysphagia is prevalent after acute ischemic stroke and critical illness, and it is a major contributor to aspiration pneumonia, dehydration, malnutrition, delayed rehabilitation, and increased healthcare utilization. Stroke and dysphagia guidelines emphasize early identification and standardized screening before oral intake, with prompt referral for specialist swallowing assessment and therapy when screening is failed (1,2).

In intensive care, post-extubation dysphagia is increasingly recognized as an important complication after mechanical ventilation, with downstream impacts on pneumonia and recovery trajectories (3,4).

In practice, nurses are the clinicians most consistently positioned to perform early dysphagia screening, enforce “nil-by-mouth” precautions when indicated, deliver oral hygiene, implement texture modifications, monitor coughing, voice changes, and document feeding tolerance.

Swallowing therapists provide structured assessment, prescribe swallowing rehabilitation and compensatory strategies, and guide risk-feeding decisions. This interdependence creates a strong theoretical basis for collaborative dysphagia models: nurses enable early detection and consistent implementation; therapists provide diagnostic precision and individualized intervention; and together they may reduce aspiration pneumonia and improve nutrition and clinical outcomes.

However, dysphagia care remains inconsistent across institutions. Reviews and implementation literature highlight persistent gaps between evidence and practice (5–8). Synthesizing original evidence focused on nurse-therapist collaborative dysphagia care is relevant for stroke units, emergency departments, ICUs, and long-term care facilities. This systematic review examined original PMC-indexed studies describing collaborative dysphagia care involving nurses and swallowing therapists and assessed associations with aspiration pneumonia, oral intake, nutrition, and other clinical outcomes.

METHODS

Design and reporting framework

We conducted a systematic review following PRISMA 2020 principles for transparent reporting of eligibility, search strategy, study selection, and synthesis.

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Eligibility criteria

Inclusion criteria:

Original research (randomized trials, cohort studies, before–after studies, implementation, quality improvement studies, and registry analyses). Full text available in PubMed Central (PMC). Adult populations (≥18 years) in acute stroke, emergency, ICU, post-extubation, or long-term care settings with dysphagia risk or confirmed dysphagia. Described a collaborative dysphagia pathway that included both: Nursing component, and swallowing therapist component. Reported at least one outcome of interest: aspiration pneumonia, post-extubation pneumonia, oral intake, nutrition measures, mortality, and length of stay, or time-to-therapy, medication outcomes.

Exclusion criteria: pediatric-only studies; case reports, series without structured pathway; non-PMC full text; studies without a nursing–therapist linkage; studies focused only on tool psychometrics without clinical, process outcomes.

Information sources and search strategy

We searched PMC via PubMed Central full-text records and PubMed, PMC indexing using combinations of terms related to dysphagia, aspiration pneumonia, screening, nursing, and swallowing therapy (dysphagia, swallow, aspiration pneumonia, stroke, extubation, nurse, screening, speech-language pathologist, speech therapist, swallowing therapy, oral care, and implementation). We restricted inclusion to studies with full text in PMC.

Study selection

Two-stage selection was applied: title, abstract screening for relevance to dysphagia pathways involving nursing and swallowing therapy; full-text assessment against eligibility criteria. Because access, export tools for bulk de-duplication and automated record counting were not used in this PMC-restricted workflow, the selection process is reported descriptively, and all included studies are explicitly listed.

Data extraction

From each study we extracted: setting, population, design, core components of the nursing–therapist collaborative intervention, comparator, and outcomes. When numerical outcomes were reported in the abstract or accessible results text, they were extracted; otherwise outcomes were summarized qualitatively.

Risk of bias assessment

Randomized trials were appraised using RoB 2 domains (randomization, deviations from intended interventions, missing data, outcome measurement, selective reporting). Non-randomized studies were assessed using ROBINS-I–aligned domains (confounding, selection bias, classification of interventions, deviations, missing data, measurement, reporting). Risk-of-bias judgments were narratively summarized due to design heterogeneity.

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Synthesis approach

A narrative synthesis was performed. Meta-analysis was not conducted because interventions, populations, and outcome definitions were heterogeneous across settings and designs.

RESULTS

Included studies overview

Ten original studies met criteria, spanning stroke (ED and stroke units), ICU post-extubation pathways, oral care protocols embedded in dysphagia care, and large registry evidence linking dysphagia management with outcomes. Designs included one randomized controlled trial, multiple before–after, implementation studies, observational cohorts, and one nationwide registry analysis.

Table 1: Characteristics and main findings of included original studies (PMC)

Study (Year)	Setting, Population	Design	Collaborative components (nursing + therapist)	Outcomes reported	Main findings
See et al. (2016) (9)	Medical ICU; extubated ventilated adults	Retrospective cohort (phase I vs II)	Nurse-performed dysphagia screening post-extubation; failures referred to SLP	Oral feeding at ICU discharge; post-extubation pneumonia; LOS	468 patients (281 vs 187). Phase II associated with increased odds of oral feeding and reduced post-extubation pneumonia after adjustment (process-linked outcome improvements).
Daniels et al. (2013) (10)	ED stroke-suspected patients	Before–after implementation + qualitative barriers	Multidisciplinary development (SLP+nursing); ED nurse-administered swallow screening with water swallow; SLP consult pathways	Screening adherence over time	278 screened; nurse screening adherence improved substantially over implementation period; demonstrated feasibility of nurse-administered screening built with SLP collaboration.
Sivertsen et al. (2017) (11)	Stroke unit (Norway)	Criteria-based clinical audit (baseline vs re-audit)	Workshops, opinion leaders, reminders targeting nursing practice;	Adherence to screening recommendation	Baseline 88 records vs re-audit 51; improved adherence to

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Study (Year)	Setting, Population	Design	Collaborative components (nursing + therapist)	Outcomes reported	Main findings
			standardized screening and documentation with pathway to swallow assessment		evidence-based swallow assessment processes after implementation actions.
Zhang et al. (2022) (12)	Stroke service	Before–after implementation study	Implementation strategies to improve evidence-based dysphagia identification, management; nursing workflow + therapist involvement	Process, implementation outcomes; dysphagia management metrics	Reported improved evidence-based practice for dysphagia identification, management after implementation.
Bakhtiyari et al. (2015) (13)	Post-stroke dysphagia	Randomized clinical trial (early vs medium vs late start)	Swallowing therapy delivered by speech therapist; nursing-supported precautions, oral care implied in protocolized rehab	Swallow recovery; FOIS; VFSS; pneumonia frequency	60 patients; earlier initiation improved swallowing recovery; no pneumonia in early group and lower pneumonia frequency vs later start groups.
Seedat et al. (2021) (14)	Acute hospital (South Africa); stroke, TBI with dysphagia	Quasi-experimental parallel group	139 nurses trained on oral care protocol; oral care + free water combined with dysphagia intervention	Aspiration pneumonia	Study group n=23 vs comparison n=23; protocolized oral care, free water with dysphagia intervention prevented aspiration pneumonia in study group.
Matos et al. (2022) (15)	Acute stroke unit dysphagia	Randomized controlled trial	Conventional speech therapy for both groups; intervention group additionally received functional electrical stimulation	FOIS; FEES; DREP	33 patients (16 vs 17). FOIS improved; electrical stimulation did not add benefit beyond conventional therapy; supports effectiveness of structured therapy

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Study (Year)	Setting, Population	Design	Collaborative components (nursing + therapist)	Outcomes reported	Main findings
					within acute stroke care.
Resident-driven protocol (2022) (16)	Comprehensive stroke center; AIS patients	Observational, process improvement	Nursing screen first; SLP evaluation after failure; trained physicians as additional screen to expedite oral meds	Time to screen; time to antithrombotic; aspiration pneumonia	789 included; physician screening faster than RN, SLP pathways; 0% aspiration pneumonia among physician-passed group (small n=12).
Hotz et al. (2025) (17)	Austrian Stroke Unit Registry	Nationwide registry analysis	Standardized dysphagia management at stroke units (screening, management)	Pneumonia prevalence; functional outcome; mortality	181,704 AIS; pneumonia 4.2% overall; analyses (2018–2024 subset) linked dysphagia management with outcome and mortality modeling.
Formisano et al. (2025) (18)	Long-term care elderly	Observational cohort	Dysphagia screening + interdisciplinary management (nursing monitoring and swallowing-related pathway; therapist, dietitian involvement)	Dysphagia prevalence; health implications	Dysphagia common with measurable health implications; supports need for structured interprofessional models in LTC.

Narrative outcome synthesis

Aspiration pneumonia, post-extubation pneumonia: ICU nurse-performed screening linked to SLP referral was associated with markedly lower post-extubation pneumonia in adjusted models (9). In acute-care dysphagia management, structured oral care delivered by trained nurses as part of dysphagia intervention prevented aspiration pneumonia in the intervention group compared with historical comparison (14). Earlier initiation of swallowing therapy after stroke reduced pneumonia frequency, with no pneumonia in the earliest-start group in one randomized trial (13). Large registry evidence documented pneumonia prevalence and modeled outcome associations in relation to dysphagia management (17).

Nutrition and oral intake: ICU screening was associated with higher risk of oral feeding at ICU discharge (9). In acute stroke, conventional speech therapy improved oral ingestion

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measured by FOIS (15). Earlier swallowing therapy initiation improved swallowing recovery and functional intake outcomes (13).

Process and system outcomes: ED nurse-administered swallow screening protocols developed with SLP input were feasible and improved adherence over time (10). Stroke-unit audit and implementation studies demonstrated improved adherence to screening, assessment processes after targeted implementation strategies (11,12). A multidisciplinary pathway that incorporated additional trained clinician screening improved time to oral antithrombotics without observed aspiration pneumonia signal in a small subgroup (16).

Risk of bias: Overall certainty was limited by heterogeneity and common non-randomized designs. The ICU and implementation studies are vulnerable to confounding (case-mix differences, secular trends) and measurement bias (pneumonia definitions) (9–12). The randomized trials supported benefit of structured swallowing therapy timing and conventional therapy effects, though blinding was limited and sample sizes were modest (13,15). Registry analyses provide large-scale associations but remain observational and subject to residual confounding (17).

DISCUSSION

This systematic review of PMC-accessible original studies suggests that collaborative dysphagia care operationalized through nurse-led screening linked to swallowing therapist assessment, therapy, standardized oral care, and earlier rehabilitation—was consistently associated with improved pneumonia-related outcomes and better feeding, oral intake trajectories in several clinical contexts (9,13–15).

Why collaboration may work

The included ICU cohort illustrates a pragmatic model: nurses repeatedly screen swallowing after extubation, while SLPs assess those who fail screening, which likely reduces premature oral intake in unsafe patients and accelerates appropriate feeding strategies (9).

Implementation work in the ED and stroke units supports that early screening is feasible for nurses when protocols are co-designed with SLP teams and embedded into documentation, orders, improving reliability of “screen-before-oral-intake” behaviors (10,11). These mechanisms match broader dysphagia guideline recommendations emphasizing early standardized screening and rapid specialist involvement (1,2).

Aspiration pneumonia prevention: beyond screening

Screening alone may be insufficient if daily practices remain inconsistent. The oral care protocol study provides an important complementary pathway element: trained nursing delivery of regular oral hygiene (with free water allowed under protocol) combined with dysphagia intervention prevented aspiration pneumonia in the intervention group (14). This aligns with broader evidence linking oral bacterial load, swallowing impairment, and

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pneumonia risk, and supports adding oral care as a “high-reliability” nursing-delivered component of dysphagia bundles (5,8).

Timing and intensity of therapy

A key message from randomized evidence is that earlier swallowing therapy initiation after stroke improved recovery and reduced pneumonia frequency (13). The randomized trial of conventional therapy ± electrical stimulation showed improvement in oral ingestion with conventional therapy itself, while the add-on stimulation did not provide incremental benefit over a short period (15).

Taken together, the implication for nurse–therapist teams is to prioritize early access to therapist-led therapy and ensure nursing workflows support consistent execution (diet, medication precautions, positioning, and adherence monitoring).

System outcomes and medication delivery

Dysphagia pathways also interact with stroke time-critical medication delivery. The resident-driven screening protocol highlights a multidisciplinary attempt to reduce delays for oral antithrombotics by adding additional trained screening steps after failed nursing screens, with no aspiration pneumonia observed in a small physician-screened subgroup (16). While not a definitive safety study, it underscores the importance of designing dysphagia pathways that protect against aspiration while avoiding unnecessary delays in essential oral therapies.

Limitations of the evidence base

The main limitations were heterogeneity and study design. Many studies were before–after implementations without randomized comparators (10–12), and pneumonia definitions and ascertainment varied (9, 13, 14, 17).

Nutrition outcomes were inconsistently measured; while FOIS, feeding status appeared in several studies (9, 13, 15), broader nutrition endpoints (weight change, caloric adequacy, biochemical markers) were sparse. Finally, although collaboration was central to these interventions, reporting often emphasized processes rather than explicitly quantifying the nurse–therapist interaction dose.

Implications for practice and research

For hospitals aiming to reduce aspiration pneumonia and improve nutrition, the most evidence-aligned collaborative package emerging from this review includes: nurse-led standardized screening before oral intake with automatic SLP referral on failure, structured oral care protocols delivered by trained nurses for patients with dysphagia, and early therapist-led swallowing therapy initiation, with nursing support for therapy adherence and safety precautions (9–11,13–15). Future multicenter trials should standardize pneumonia definitions, incorporate robust nutrition outcomes, and report collaboration fidelity metrics.

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CONCLUSION

Across PMC-indexed original studies, collaborative dysphagia care models involving nurses and swallowing therapists were associated with lower pneumonia risk, better oral intake, and improved process reliability. Evidence is promising but limited by heterogeneity and frequent non-randomized designs. Well-designed multicenter trials with standardized pneumonia and nutrition endpoints are needed to confirm effectiveness and define best-practice collaborative bundles.

Abbreviations

AIS: Acute ischemic stroke

APACHE: Acute Physiology and Chronic Health Evaluation

CBCA: Criteria-based clinical audit

DREP: Dysphagia Risk Evaluation Protocol

ED: Emergency department

FEES: Fiberoptic endoscopic evaluation of swallowing

FOIS: Functional Oral Intake Scale

ICU: Intensive care unit

LOS: Length of stay

NIHSS: National Institutes of Health Stroke Scale

NPO: Nil per os (nothing by mouth)

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

RCT: Randomized controlled trial

SLP: Speech-language pathologist (swallowing therapist)

SST: Swallowing screening tool

TBI: Traumatic brain injury

VFSS: Videofluoroscopic swallowing study

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