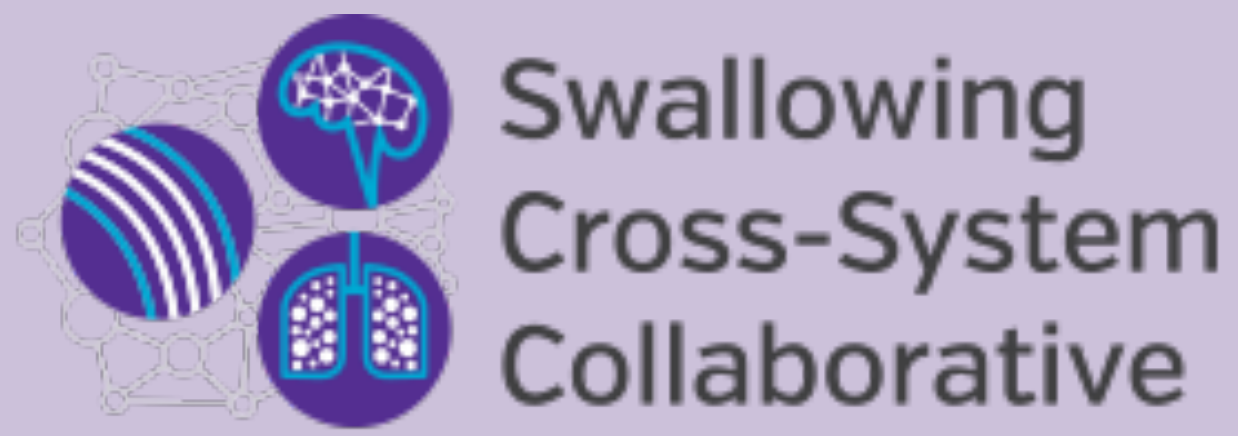


# Swallowing Disorders in Patients with Chronic Obstructive Pulmonary Disease: A Systematic Review and Meta-Analysis



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## Introduction

- Dysphagia has been reported in up to 85% of individuals with Chronic Obstructive Pulmonary Disease (COPD). Despite the high prevalence, little attention has been given to examining dysphagia in patients with COPD.
- Aim:** To summarize the current evidence and critically appraise studies that examined swallowing outcomes in patients with COPD.

## Methods

- A comprehensive search was conducted across PubMed, MEDLINE, Embase, CINAHL, Web of Science, Scopus, ProQuest, and clinicaltrials.gov with no date limits.
- Inclusion criteria:** a) adult subjects with COPD and b) instrumental assessment to examine swallowing.
- A modified version of the NIH Quality Assessment Tool was used to assess risk of bias.
- Statistical Analysis:** A mixed-effects meta-analysis of proportions of penetration/aspiration scores was conducted to compute an overall proportion of airway invasion.

## Results

- 18 studies met all inclusion criteria.
- Poor bolus preparation/mastication, delayed swallow initiation, decreased laryngeal elevation and tongue base retraction, and increased oral/pharyngeal residue were consistently reported in patients with COPD.
- Longer oral/pharyngeal transit times were also reported compared to healthy controls.
- Of the 15 studies that examined airway invasion, penetration/aspiration was observed in 10, with high occurrence of silent aspiration.
- Meta-analysis results showed a pooled aspiration rate of 34% (95% CI: 21-47%) across 560 subjects.
- All studies demonstrated risk of bias, with a noted lack of blinding and reliability testing in ~75% of studies.

A lack of rigorous research persists in examining swallowing impairments and airway invasion in patients with COPD. Future research using validated and reproducible methods in homogenous groups of patients with COPD is recommended to characterize swallowing impairments in patients with COPD.

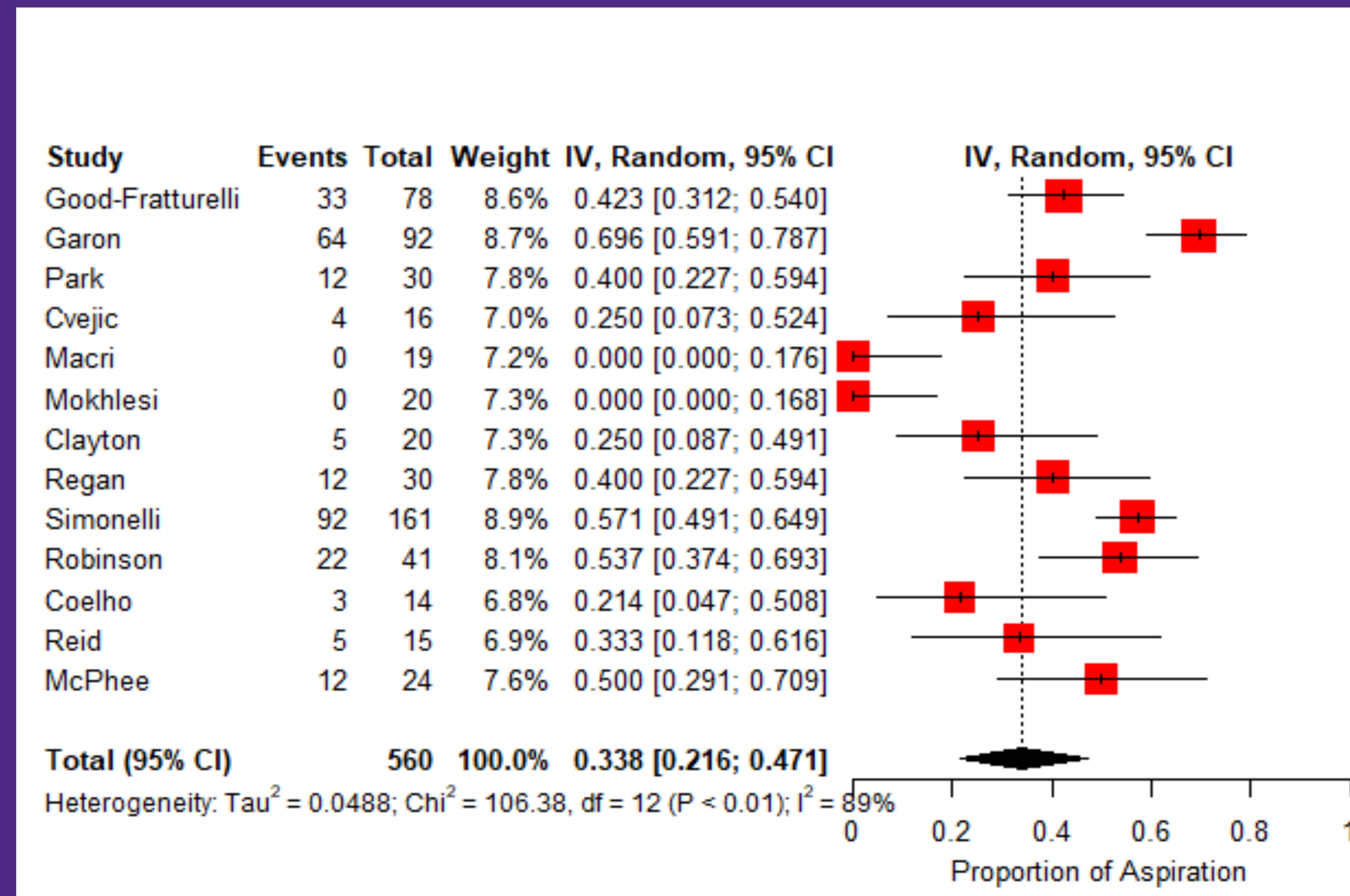


Figure 1. Forest Plot of Penetration/Aspiration Results

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