



EP 04.08: Current Status and Future Directions of Early Lung Cancer Screening Research: A Bibliometric Analysis Based on the Web of Science Database

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INTRODUCTION

This study maps the research landscape and emerging frontiers in early lung cancer screening to inform clinical practice and scientific inquiry.

METHODS

A Web of Science Core Collection search used: TI=("screening" OR "screenings" OR "early detection" OR "early diagnosis") AND TS=("lung cancer" OR "lung neoplasm" OR "pulmonary cancer" OR "lung carcinoma"). Bibliometric analysis employed CiteSpace 7.0.R0.

RESULTS

A total of 9,609 publications were included, spanning 1,370 journals, 39,396 authors, 27,748 institutions, and 833 countries/regions. Annual publications increased steadily from 2000 to 2025, reaching 1,059 in 2025 and 169 in 2026. The most prolific author, institution, and country were Oudkerk, Matthijs (85 papers), Harvard University (927 papers), and the USA (43,060 papers). The highest centrality values were observed for Baldwin, David R (0.13), University of Liverpool (0.12), and the USA (0.16). Highly cited author and journal included ABERLE DR and NEW ENGL J MED. Keyword clustering using LSI and LLR algorithms identified major clusters: #0 tumor-associated antigens / non-small cell lung cancer; #1 company size / attitudes; #2 tobacco use cessation / screening; #3 pulmonary artery / deep learning; #4 fast-track recovery / autofluorescence bronchoscopy; #5 tumor suppressor / breast cancer; #6 risk assessment / validation. Keywords with the strongest citation bursts since 2022 include health equity; artificial intelligence; machine learning; deep learning; molecular docking; docking; knowledge; cancer prevention; systematic review; disparity; primary care; barriers; trends; cell free dna; lung cancer screening; virtual screening; shared decision making.

CONCLUSION

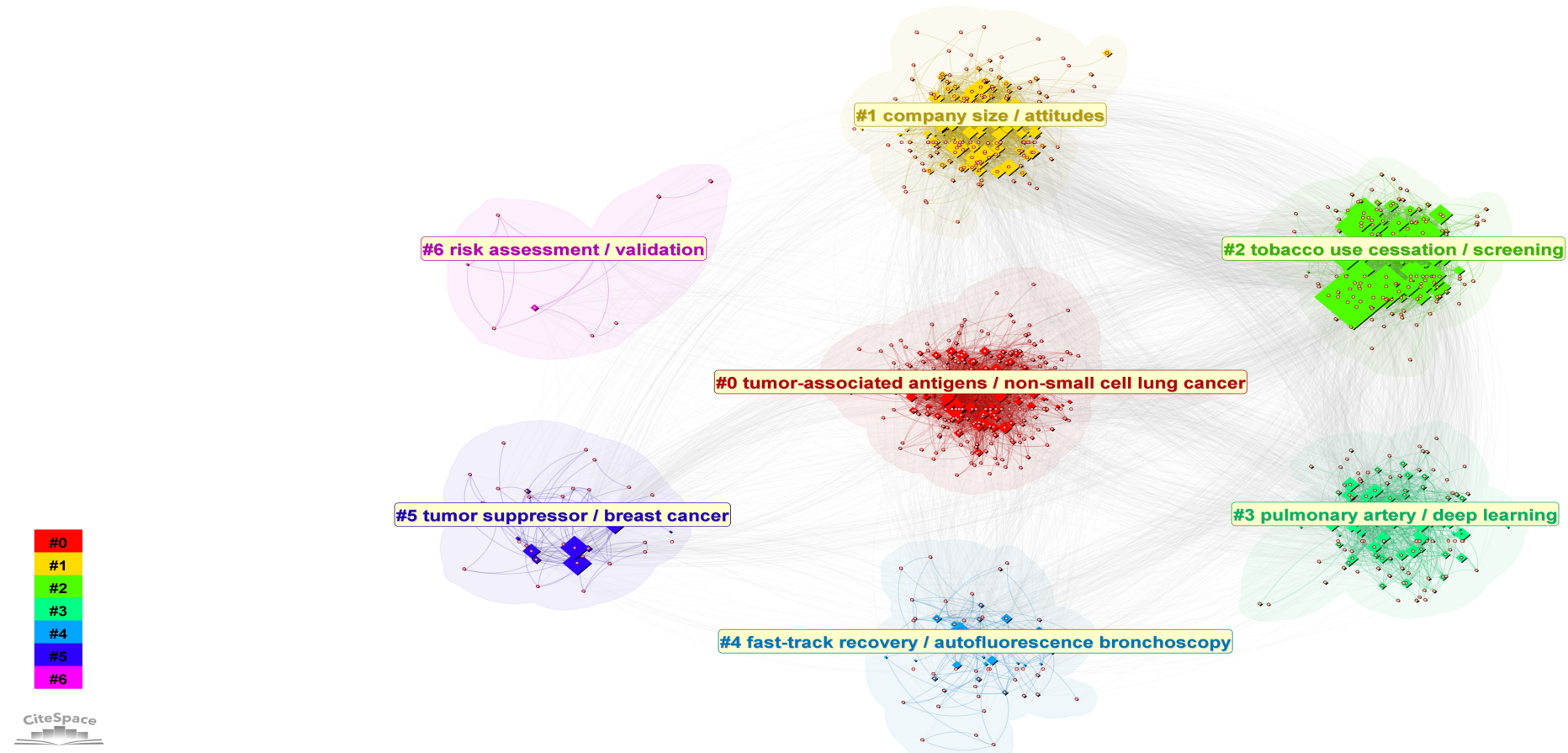
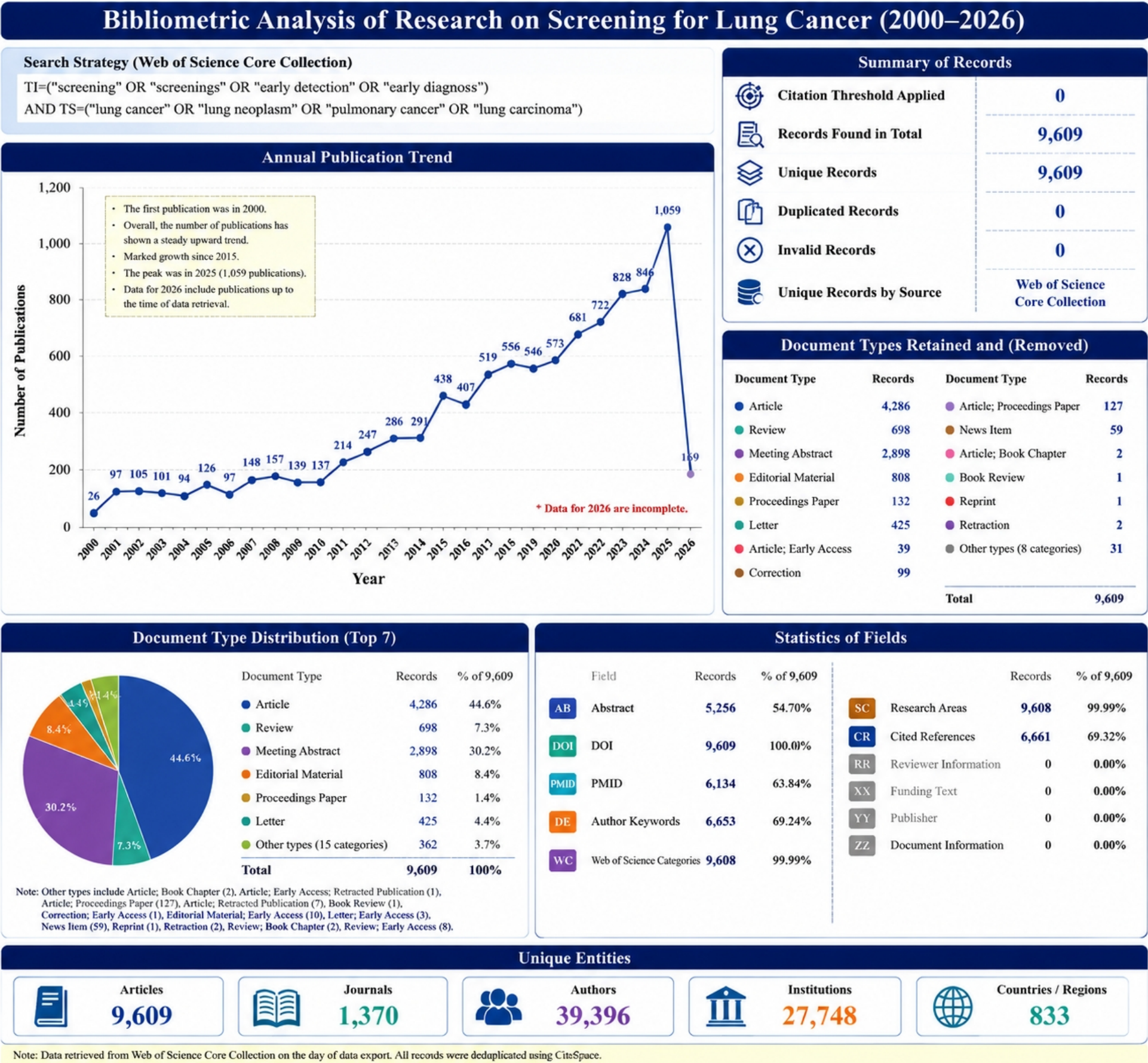
Actionable Take Away Message

- This study identifies key research hotspots in early lung cancer screening, including artificial intelligence, machine learning, deep learning, risk assessment, and health equity, while highlighting the major contributions of Oudkerk, Matthijs, Harvard University, the USA, and New England Journal of Medicine.

Future Direction for Research

- This study indicates that future lung cancer screening research will focus on implementation science, including AI-assisted screening, primary care integration, shared decision-making, reducing screening disparities, and developing more equitable patient-centered strategies.

FIGURES



Top 100 Keywords with the Strongest Citation Bursts

