



Institute for Avian Health and Diseases Research

PRINCIPLE AND METHODS FOR WRITING SYSTEMATIC REVIEW AND META-ANALYSIS.

1

Presenter: Majid janani

MSc of Epidemiology

SANA Institute for avian health and disease research

majid.jananiiii@gmail.com



LEARNING OUTCOMES / OBJECTIVES



Institute for Avian Health and Diseases Research

- **At the end of this session, you will be able to:**
- Understand the **purpose and methodology of systematic reviews**, including the PRISMA guidelines, and apply them to design a systematic review.
- Develop clear search strategy and eligibility criteria,
- Extract and **synthesize data from included studies (Meta-analysis)**, including conducting meta-analysis and assessing statistical heterogeneity.
- Assess **risk of bias in studies** using appropriate tools, and evaluate the certainty of evidence for each outcome.
- **Interpret and discuss findings** in the context of existing literature, addressing study limitations and implications for practice, policy, and future research.



1. INTRODUCTION

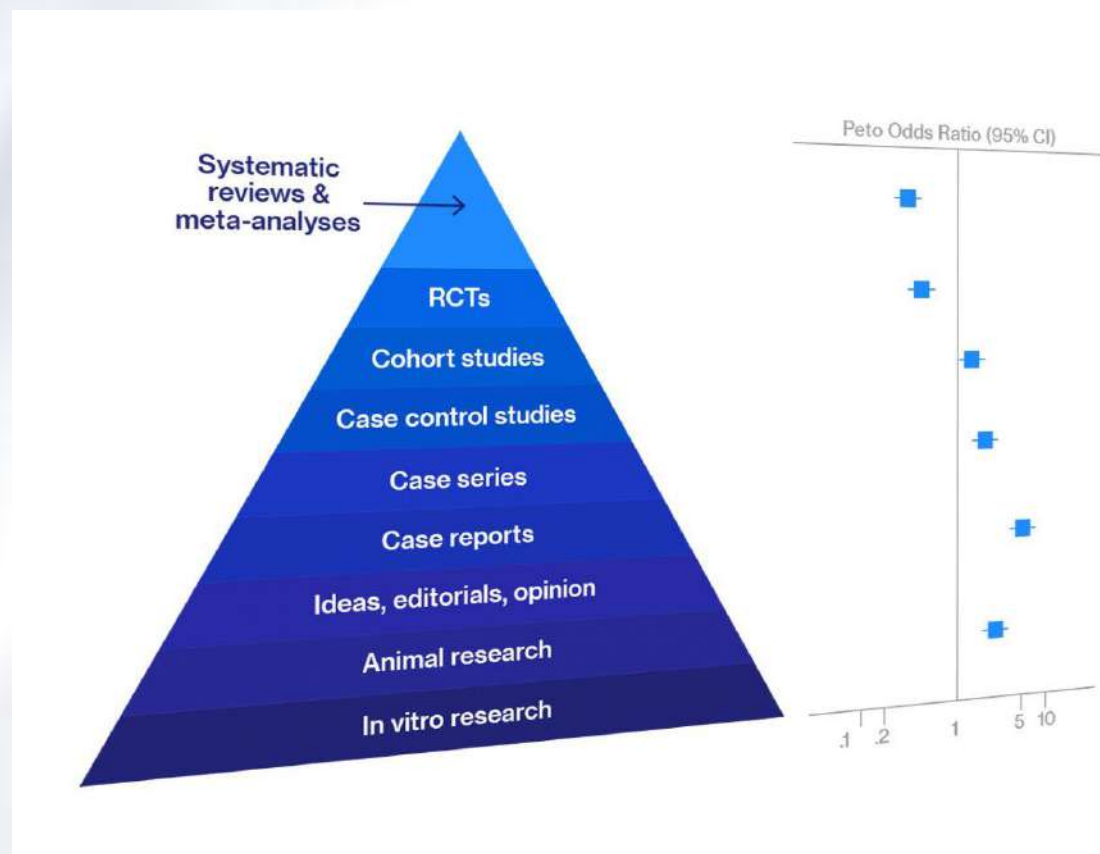
- **Definition of Systematic Review**
- *Cochrane Collaboration definition:*
- A systematic review uses **systematic** methods to **identify, select, critically appraise,** and **extract and analyze data from relevant research** [Higgins & Green 2011].
- **Institute of Medicine (US)**
- Meta-analysis is a scientific research methodology **consisting of the analysis and synthesis (combination) of data obtained from previously conducted independently from each other studies on the same problem.**



WHY WE NEED SYSTEMATIC REVIEWS

- **Minimize the impact** of bias/errors
- Can help to **end confusion**
- Highlight where **there is not sufficient evidence**
- **Combining findings from different studies** can highlight new findings
- Can mitigate the **need for further trials**

STUDIES PYRAMID





BEFORE STARTING REVIEW: CHECK IF SIMILAR STUDIES HAVE BEEN CONDUCTED

- **Avoid Redundancy**

- **Before starting a new review**, check if similar systematic reviews or studies have already been conducted on the same topic.

- **Why Check?**

- **Save time:** Prevent repeating work that has already been done.
- **Identify gaps:** Find areas where research is lacking or where new questions can be explored.
- **Improve efficiency:** Build on existing knowledge rather than duplicating efforts.

- **How to Check for Previous Studies:**

- **Literature Databases:** Search major databases like **PubMed**, **Cochrane**, **Google Scholar**, and **Scopus**.
- **Systematic Review Registries:** Check platforms like **PROSPERO** for already registered reviews.
- **Review Past Studies' Protocols:** Check if protocols exist that match your research question.

- **When You Find Similar Studies:**

- **Evaluate the scope:** Are your review objectives different? Can you provide a more detailed synthesis?
- **Refine your focus:** Identify areas that were **under-explored or overlooked**.



REVIEW OF COCHRANE LIBRARY



Review language : English Website language : English Signed In: Majid Janani

- Cochrane reviews
- Searching for trials
- Clinical Answers
- About
- Help
- About Cochrane

Advanced Search

- Search
- Search manager
- Medical terms (MeSH)
- PICO search

- Save search
- View saved searches
- Search help

Did you know you can now select fields from Search manager using the **S** button (next to the search box)?
Search manager lets you add unlimited search lines, view results per line and access the MeSH browser using the new **MeSH** button.

-

Title Abstract Keyword

smoking

-

OR

Title Abstract Keyword

tobacco abuse

(Word variations have been searched)

+

Search limits

Send to search manager

Run search

Clear all



REVIEW OF COCHRANE LIBRARY



Trusted evidence.
Informed decisions.
Better health.

Review language : English Website language : English Signed In: Majid Janani

Cochrane reviews

Searching for trials

Clinical Answers

About

Help

About Cochrane

Advanced Search

Search

Search manager

Medical terms (MeSH)

PICO search

Save this search

View/Share saved searches

Search help

+

Print search history

-

+

#1

(smoking):ti,ab,kw OR (tobacco abuse):ti,ab,kw

S

Limits

43876

(Word variations have been searched)

#2

lung cancer



Cancel

Continue

-

+

#3

Type a search term or use the S or MeSH buttons to compose

S

MeSH

Limits

N/A

Clear all

Highlight orphan lines

Save this search

View/Share saved searches

Search help

Print search history



REVIEW OF COCHRANE LIBRARY



Trusted evidence.
Informed decisions.
Better health.

Review language : English Website language : English Signed In: Majid Janani

Cochrane reviews

Searching for trials

Clinical Answers

About

Help

About Cochrane

Advanced Search

Search

Search manager

Medical terms (MeSH)

PICO search

Save this search

View/Share saved searches

Search help

Print search history

+

-

+

#1

{smoking}:ti,ab,kw OR (tobacco abuse):ti,ab,kw

(Word variations have been searched)

S

Limits

43876

-

+

#2

lung cancer

S

Limits

36072

-

+

#3

Type a search term or use the S or MeSH buttons to compose

S

MeSH

Limits

N/A

Clear all

Highlight orphan lines

Save this search

View/Share saved searches

Search help

Print search history



SEARCHING IN COCHRANE LIBRARY

Search limits

Content type

☐ Cochrane Reviews

☐ Cochrane Protocols

☐ Trials

☐ Clinical Answers

☐ Editorials

☐ Special Collections

CENTRAL Trials only

Original publication year

☐ All years

☐ Between

YYYY

 and

YYYY

☐ Search word variations

(e.g. "paid" will find pay, pays, paying, payed)

-

+

#1

(smoking):ti,ab,kw OR (tobacco abuse):ti,ab,kw

S

Limits

(Word variations have been searched)

Choose Cochrane Group

☐ The last month

☐ The last 3 months

☐ The last 6 months

☐ The last 9 months

☐ The last year

☐ The last 2 years

☐ Between

Jan

YYYY

 and

Jan

YYYY



SEARCHING METHOD



Trusted evidence.
Informed decisions.
Better health.

Review language : English Website language : English Signed In: Majid Janani

Cochrane reviews

Searching for trials

Clinical Answers

About

Help

About Cochrane

Advanced Search

Search

Search manager

Medical terms (MeSH)

PICO search

Save this search

View/Share saved searches

Search help

Print search history

+			
-	+	#1	(smoking):ti,ab,kw OR (tobacco abuse):ti,ab,kw
(Word variations have been searched)			
-	+	#2	lung cancer
-	+	#3	incidence
-	+	#4	#1 and #2
-	+	#5	#3 and #4
-	+	#6	Type a search term or use the S or MeSH buttons to compose
Clear all			

☐ Highlight orphan lines

Save this search

View/Share saved searches

Search help

Print search history



WHY WE SHOULD TO SEARCH BLOCK BY BLOCK



Advanced Search

Search Search manager Medical terms (MeSH) PICO search

Save this search View/Share saved searches Search help

View fewer lines

Print search history

		#1	(smoking):ti,ab,kw OR (tobacco abuse):ti,ab,kw (Word variations have been searched)	S	Limits	44033	
		#2	lung cancer		Limits	36201	
		#3	incidence		Limits	174546	
		#4	#1 and #2		Limits	2312	
		#5	#3 and #4		Limits	449	
		#6	electronic cigarette		Limits	1222	
		#7	#1 OR #6		Limits	44403	
		#8	#7 AND #2		Limits	2350	
		#9	#8 AND #3		Limits	474	
		#10	#1 OR #6 AND #2 AND #3		Limits	44058	
		#11	Type a search term or use the S or MeSH buttons to compose	S MeSH	Limits	N/A	

Clear all

☐ Highlight orphan lines

Save this search View/Share saved searches Search help

View fewer lines Print search history



REVIEW OF COCHRANE LIBRARY

[Search](#)[Search manager](#)[Medical terms \(MeSH\)](#)[PICO search](#)[View saved searches](#)[Search help](#)

Did you know the MeSH browser features are also available on the Search manager tab by selecting the **MeSH** button?

Search manager lets you add unlimited search lines, view results per line, and select fields using the **S** button (next to the search box).

[Look up](#)[Clear](#)

Definition

Cigarette Smoking - The SMOKING of CIGARETTES.

Thesaurus Matches

Exact Term Match

Cigarette Smoking

Synonyms: Smoking, Cigarette

Phrase Matches

Cigarette Smoking

Synonyms:

Any Word Match

Cigarette Smoking

Synonyms: Smoking, Cigarette

Smoke

Synonyms:

MeSH Trees

MeSH term - **Cigarette Smoking**

☒ Explode all trees

☐ Single MeSH term (unexploded)

☐ Explode selected trees

[Select](#)

☒ Tree number 1

Behavior and Behavior Mechanisms [+16]

Behavior [+43]

Smoking [+5]

Tobacco Smoking [+2]

Cigar Smoking

Cigarette Smoking

☒ Tree number 2

Behavior and Behavior Mechanisms [+16]

Behavior [+43]

Tobacco Use [+1]

Search Results

There are **321** results for your search on

- MeSH descriptor: Cigarette Smoking

- Explode all trees

[Add to search manager](#)

Trials	321
--------	-----

Cochrane Reviews	0
------------------	---

[Save search](#)[View results](#)



SEARCH BY PICO

Advanced Search

[Search](#)[Search manager](#)[Medical terms \(MeSH\)](#)[PICO search](#)[About](#)[? Search help](#)

Enter a search term and select a PICO vocabulary term from the dropdown

-

Pregnancy

Lookup ▼

-

AND ▼

Calcium

Lookup ▼

+

Clear All

Run search

☒ Population

☐ Intervention

☐ Comparison

☐ Outcome

☒ Intervention

☐ Comparison

☐ Outcome

Filter your results

Population

Condition

Pregnancy	5
Pregnant.....	1
Normal Blood Pressure.....	1
Leg Cramps.....	1

Intervention / Comparison

Intervention Name

Calcium.....	6
Linoleic Acid Supplementation.....	1
Soy Proteins.....	1
Saline.....	1
Multivitamins With Minerals.....	1
Magnesium.....	1
Vitamin D and analogues.....	1
Vitamins, Other Combinations.....	1
Recommendation To Stop Activity Of Da.....	1

Cochrane Reviews
6

6 results matching **'Population "Pregnancy " AND Intervention "Calcium"'**
27, September 2025

☐ Select all (6) Export selected citation(s) Show all PICOs

Order By Relevancy ▼

Results per page 25 ▼

- ☐ Vitamin D supplementation for women during pregnancy
ShowPICOs ▼ 30 July 2024
- ☐ Rest during pregnancy for preventing pre-eclampsia and its complications in women with normal blood pressure
ShowPICOs ▼ 01 February 2006
- ☐ Calcium supplementation (other than for preventing or treating hypertension) for improving pregnancy and infant outcomes
ShowPICOs ▼ 25 February 2015
- ☐ Calcium supplementation commencing before or early in pregnancy, for preventing hypertensive disorders of pregnancy
ShowPICOs ▼ 16 September 2019
- ☐ Interventions for leg cramps in pregnancy
ShowPICOs ▼ 01 January 2002
- ☐ Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems



CARE ABOUT YOUR KEYWORDS



Trusted evidence.
Informed decisions.
Better health.

Review language : English Website language : English Signed In: Majid Janani

Cochrane reviews

Searching for trials

Clinical Answers

About

Help

About Cochrane

Advanced Search

Search

Search manager

Medical terms (MeSH)

PICO search

About

? Search help

Enter a search term and select a PICO vocabulary term from the dropdown

-

Normal Pregnancy

Lookup

☒ Population

-

AND

Calcium

Lookup

☒ Intervention

☐ Comparison

☐ Outcome

+

Clear All

Run search

No filters available

Cochrane Reviews
0

0 results matching '**Population** "Normal Pregnancy" AND **Intervention** "Calcium"

27, September 2025

☒ Select all (0) Export selected citation(s) Show all PICOs

Order By Relevancy

Results per page 25



EXAMPLE OF PICO IN ONE STUDY

PICOs¹

Population (5)	Intervention (1)	Comparison (1)	Outcome (11)
Adult 19-44 years Middle Aged 45-64 years Young Adult 19-24 years Pregnancy Adolescent 13-18 years	Calcium	Placebo	Cesarean Section Birth Weight Morbidity Index Apgar Score Stillbirth Perinatal Death Neonatal Death Pre-eclampsia Pregnancy Loss Intensive Care Maternal Death

¹ The PICO model is widely used and taught in evidence-based health care as a strategy for formulating questions and search strategies and for characterizing clinical studies or meta-analyses. PICO stands for four different potential components of a



REVIEW OF COCHRANE LIBRARY

Search Search manager Medical terms (MeSH) **PICO search**

About ? Search help

Enter a search term and select a PICO vocabulary term from the dropdown

-	Smokeless tobacco user	Lookup	☒ Population
-	AND	Lung cancer	☐ Population
		Lookup	☒ Outcome
+		Clear All	Run search

No filters available

Cochrane Reviews
0

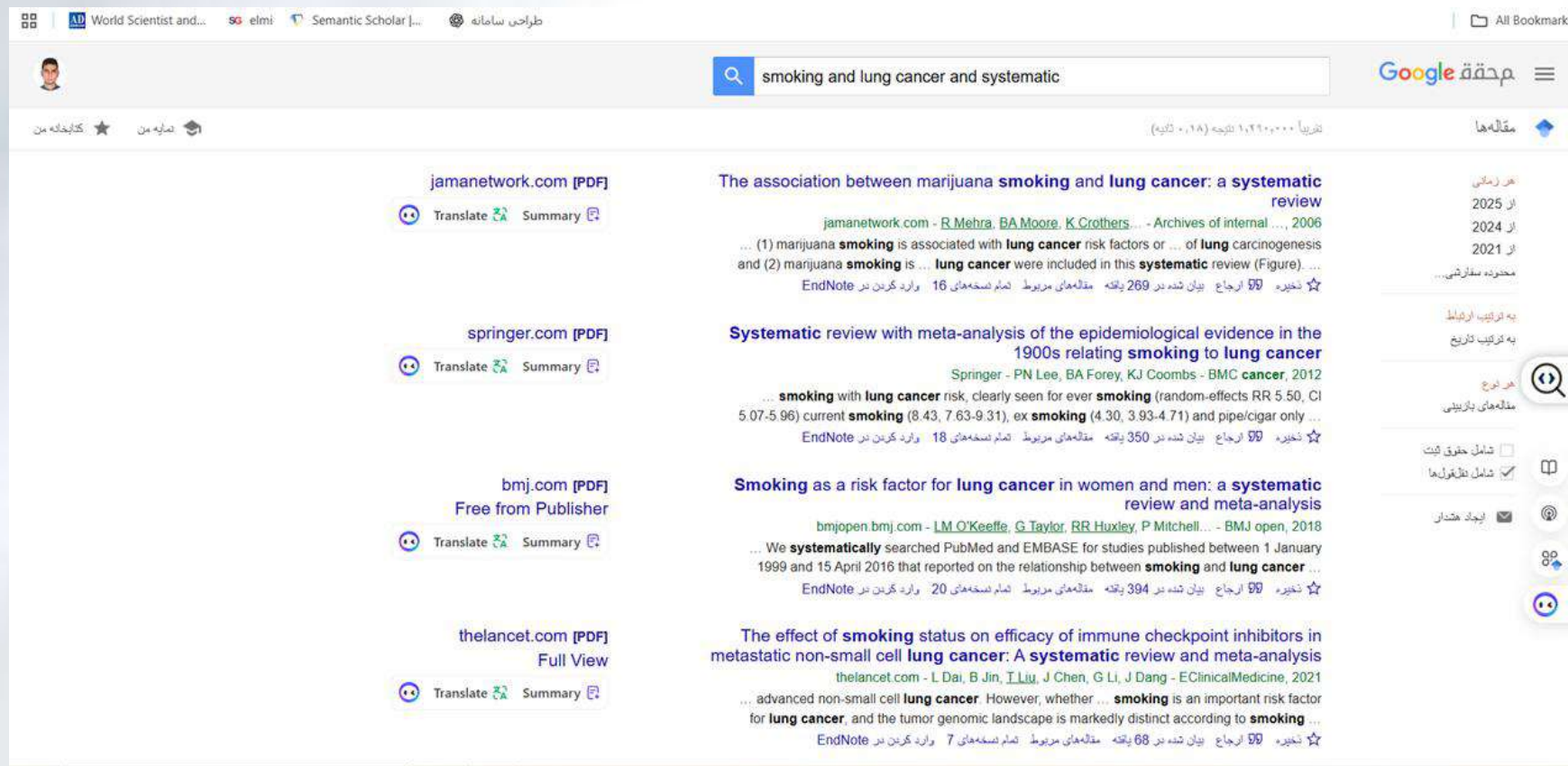
0 results matching '**Population** "Smokeless tobacco user" AND **Outcome** "Lung cancer"'
27, September 2025

☒ Select all (0) Export selected citation(s) Show all PICOs

Order By Relevancy

Results per page 25

REVIEW OF GOOGLE SCHOLAR



The screenshot shows the Google Scholar interface with the search query "smoking and lung cancer and systematic". The results list several systematic reviews and meta-analyses. On the left, there are links to full-text PDFs from jamanetwork.com, springer.com, bmj.com, and thelancet.com, each with options to translate, summarize, or download. On the right, there are filters for article type, date, and language, along with a sidebar for bookmarks and a search bar.

Search Results:

- The association between marijuana smoking and lung cancer: a systematic review**
jamanetwork.com - R Mehra, BA Moore, K Crothers ... - Archives of internal ..., 2006
... (1) marijuana **smoking** is associated with **lung cancer** risk factors or ... of **lung** carcinogenesis and (2) marijuana **smoking** is ... **lung cancer** were included in this **systematic review** (Figure). ...
☆ ذخیره 99 ارجاع بیان شده در 269 یافته مقاله‌های مربوط تمام نسخه‌های 16 وارد کردن در EndNote
- Systematic review with meta-analysis of the epidemiological evidence in the 1900s relating smoking to lung cancer**
Springer - PN Lee, BA Forey, KJ Coombs - BMC cancer, 2012
... **smoking** with **lung cancer** risk, clearly seen for ever **smoking** (random-effects RR 5.50, CI 5.07-5.96) current **smoking** (8.43, 7.63-9.31), ex **smoking** (4.30, 3.93-4.71) and pipe/cigar only ...
☆ ذخیره 99 ارجاع بیان شده در 350 یافته مقاله‌های مربوط تمام نسخه‌های 18 وارد کردن در EndNote
- Smoking as a risk factor for lung cancer in women and men: a systematic review and meta-analysis**
bmjopen bmj.com - LM O'Keefe, G Taylor, RR Huxley, P Mitchell ... - BMJ open, 2018
... We **systematically** searched PubMed and EMBASE for studies published between 1 January 1999 and 15 April 2016 that reported on the relationship between **smoking** and **lung cancer** ...
☆ ذخیره 99 ارجاع بیان شده در 394 یافته مقاله‌های مربوط تمام نسخه‌های 20 وارد کردن در EndNote
- The effect of smoking status on efficacy of immune checkpoint inhibitors in metastatic non-small cell lung cancer: A systematic review and meta-analysis**
thelancet.com - L Dai, B Jin, T Li, J Chen, G Li, J Dang - EClinicalMedicine, 2021
... advanced non-small cell **lung cancer**. However, whether ... **smoking** is an important risk factor for **lung cancer**, and the tumor genomic landscape is markedly distinct according to **smoking** ...
☆ ذخیره 99 ارجاع بیان شده در 68 یافته مقاله‌های مربوط تمام نسخه‌های 7 وارد کردن در EndNote



WHEN TO CONDUCT A NEW META-ANALYSIS (AFTER PREVIOUS META-ANALYSES)

■ When New Evidence Emerges

- **New studies** published since the last meta-analysis that may change the overall conclusions.
- A **significant increase in the sample size** or the inclusion of **more diverse populations** might lead to more accurate and generalizable results.

■ Advancements in Methodology

- New statistical methods or improvements in meta-analysis techniques (e.g., **network meta-analysis**, **Bayesian methods**) may allow for a more robust or refined analysis.
- **More appropriate data handling** (e.g., different effect size metrics) or **adjustment for confounders** that were not previously considered.

■ Inconsistent or Conflicting Results from Previous Meta-Analyses

- If different meta-analyses have conflicting conclusions on the same topic.
- A new meta-analysis might reconcile the differences, especially if new studies with higher quality or better data are available.



WHEN TO CONDUCT A NEW META-ANALYSIS (AFTER PREVIOUS META-ANALYSES)

■ Revised Research Questions or Scope

- If the **research question** or focus of the review has shifted (e.g., you want to focus on a specific subgroup or outcome that wasn't analyzed previously).
- If **new subgroups** or **differing intervention effects** need to be considered.

■ Changes in Study Design or Population Characteristics

- If there's a **shift in study design** (e.g., new trials using more rigorous methods or larger sample sizes).
- When the **population of interest** has changed or studies now focus on a **different demographic** or **geographic region**.

■ When the Previous Meta-Analysis Is Outdated

- If the prior meta-analysis is **several years old**, it may no longer reflect the current evidence. A new meta-analysis can provide a more up-to-date and relevant synthesis.

STEP BY STEP TO WRITING THE REPORTS

- PRISMA is a checklist designed to help authors report systematic reviews and meta-analyses transparently and comprehensively.
- **Section 1: Title (PRISMA Item 1)**
- The title should clearly identify the report as a title might say "Systematic Review of..." or "..."
- This helps readers immediately understand the t

Welcome to the PRISMA website

PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) is a guideline designed to improve the reporting of systematic reviews. PRISMA provides authors with guidance and examples of how to completely report why a systematic review was done, what methods were used, and what results were found. The main PRISMA reporting guideline ([PRISMA 2020](#)) primarily provides guidance for the reporting of systematic reviews evaluating the effects of interventions. PRISMA 2020 is complemented by various [PRISMA extensions](#), which provide guidance for the reporting of different types or aspects of systematic reviews and other types of evidence synthesis (e.g. scoping reviews).

Key PRISMA 2020 documents

- [Checklist](#)
- [Expanded checklist](#)
- [Flow diagram](#)
- [Statement paper](#)
- [Explanation and elaboration paper](#)





ABSTRACT (PRISMA ITEM 2)

- **This should be written at the end of the article. So, it will be described at the end or the presentation.**



IMPORTANCE AND RATIONALE (PRISMA ITEM 3)

- **Checklist Item:**
- "Describe the rationale for the review in the context of existing knowledge."
- **Purpose of the Rationale:** This section explains **why the systematic review is necessary**. It provides the **context** for the review by identifying gaps or inconsistencies in the existing literature.
- **What to Include:**
 - **Context:** Briefly describe the existing body of research on the topic.
 - **Gap in Knowledge:** Highlight any unresolved issues, contradictory findings, or areas where more evidence is needed.
 - **Importance:** Explain the significance of conducting the review and how it will contribute to the field.



OBJECTIVES (PRISMA ITEM 4)

- **Checklist Item:**
- "Provide an explicit statement of the objective(s) or question(s) the review addresses."
- **Purpose of the Objectives:** This section clearly defines the **primary research question(s)** the review aims to answer.
- **What to Include:**
 - **Research Question:** Clearly state the main question the review seeks to answer (e.g., "What is the effect of intervention X on outcome Y in population Z?").
 - **Scope:** Define the specific areas or populations the review will cover.
 - **Hypotheses** (if applicable): If there is a hypothesis being tested, clearly state it.



METHODS: ELIGIBILITY CRITERIA (PRISMA ITEM 5)

- **Checklist Item:**
- "Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses."
- **Purpose of Eligibility Criteria:** The eligibility criteria define **which studies will be included in the review**. This ensures that the studies selected meet **certain standards** and **are relevant** to the review question.
- It also ensures **transparency** in the review process, so readers understand how studies were selected.



WHAT TO INCLUDE?

- **Inclusion Criteria:**
- Describe the characteristics of studies that **will be included**.
- This may include aspects like:
 - **Study design** (e.g., randomized controlled trials, observational studies).
 - **Population characteristics** (e.g., age, gender, health condition).
 - **Interventions** (e.g., types of treatments, drugs, or behavioral interventions).
 - **Outcomes** (e.g., reduction in blood pressure, improvement in quality of life).



EXCLUSION CRITERIA

- Specify the characteristics of studies that **will be excluded**.
- This could be based on factors such as:
 - **Study design** (e.g., case reports, conference abstracts).
 - **Population** (e.g., studies focusing on children if your review is about adults).
 - **Intervention or outcome** (e.g., different treatment modalities not relevant to the review).
 - **Time frame or language restrictions** (e.g., studies published only in English, studies from the past 10 years).



EXAMPLE

- **1. Inclusion Criteria:**
- **Study Design:**
 - **Randomized controlled trials (RCTs)** that assess the effectiveness of vaccines in preventing CPV in dogs.
- **Population:**
 - **Dogs of all ages**, including puppies and adult dogs, that are at risk of or exposed to CPV infection.
- **Intervention:**
 - Vaccination strategies for preventing CPV, including both **single-agent CPV vaccines** and **combination vaccines** (e.g., DHPP, which includes distemper, hepatitis, parvovirus, and parainfluenza).
 - Vaccines administered via **SC or IM injection**.
- **Outcomes:**
 - Primary outcome: **Incidence of CPV infection** (diagnosed through PCR, ELISA, or clinical symptoms).
 - Secondary outcomes: **Survival rate** following infection, **duration of immunity**, or **seroconversion rates** (percentage of dogs that develop antibodies after vaccination).
- **Language:**
 - Studies published in **English, Spanish, or French**.
- **Time Frame:** until 2025



EXAMPLE

2. Exclusion Criteria:

Study Design:

- **Non-randomized studies** (e.g., retrospective studies or expert opinions).
- Studies without a **control group** (e.g., studies that only include dogs that were vaccinated, with no comparison group of unvaccinated dogs).

Population:

- Studies focused on **non-canine species** (e.g., feline, equine, or other livestock).
- Dogs with pre-existing **immune disorders**, as vaccination effectiveness may vary in immunocompromised dogs.

Intervention:

- Studies evaluating **non-vaccine-based prevention methods** (e.g., antiviral drugs or other treatments).
- Studies using **homemade vaccines** or vaccines **not approved** by regulatory agencies (e.g., USDA or European Medicines Agency).

Outcomes:

- Studies that do not measure **CPV infection** or do not report **clinical or laboratory evidence** of infection.
- Studies where **vaccine efficacy** is not the primary outcome or does not report any measurable results.

Other Exclusions:

- Studies that are **not peer-reviewed**, **conference abstracts**, or **case reports** without sufficient data.



METHODS: INFORMATION SOURCES (PRISMA ITEM 6)

- **Checklist Item:**
- "Specify **all databases, registers, websites, organisations**, reference lists, and other sources searched or consulted **to identify studies**. Specify the date when each source was last searched or consulted."
- **Purpose of Information Sources:** The goal of this section is to provide transparency about **where and how** you searched for studies.
- Report all the sources you used, you enable others to replicate your search process if necessary.



WHAT TO INCLUDE:

- **Databases:** List all the electronic databases searched (e.g., PubMed, Scopus, Cochrane Library), specifying the date of the last search.
- **Registers:** Specify any trial registries (e.g., ClinicalTrials.gov) used to find ongoing or unpublished studies, along with their last searched date.
- **Websites:** Mention any websites consulted for additional sources, including gray literature or guidelines from veterinary organizations, with the date of the last consultation.



WHAT TO INCLUDE:

- **Organizations:** Include any organizations whose publications, guidelines, or recommendations were consulted, including the date of consultation.
- **Reference Lists:** State whether you reviewed the reference lists of the included studies to identify additional relevant studies.
- **Other Sources:** Include any gray literature, unpublished studies, and conference proceedings reviewed for relevant data.



EXAMPLES

Databases:

- PubMed (Last searched: January 2024)
- Cochrane Library (Last searched: January 2024)
- Scopus (Last searched: January 2024)
- Web of Science (Last searched: January 2024)

Trial Registers:

- ClinicalTrials.gov (Last searched: December 2023)
- PROSPERO (Last searched: December 2023)

Websites:

- World Health Organization (WHO) website (Last checked: January 2024)
- International Companion Animal Network (ICAN) website (Last checked: January 2024)



EXAMPLE

Organizations:

- Veterinary Information Network (VIN) (Last consulted: December 2023)

Reference Lists:

- **Reference lists of included studies were manually reviewed to identify additional studies.**

Other Sources:

- **Google Scholar search for unpublished studies or theses (Last searched: December 2023)**
- **Conference proceedings from the American Veterinary Medical Association (AVMA) (Last checked: January 2024)**
-

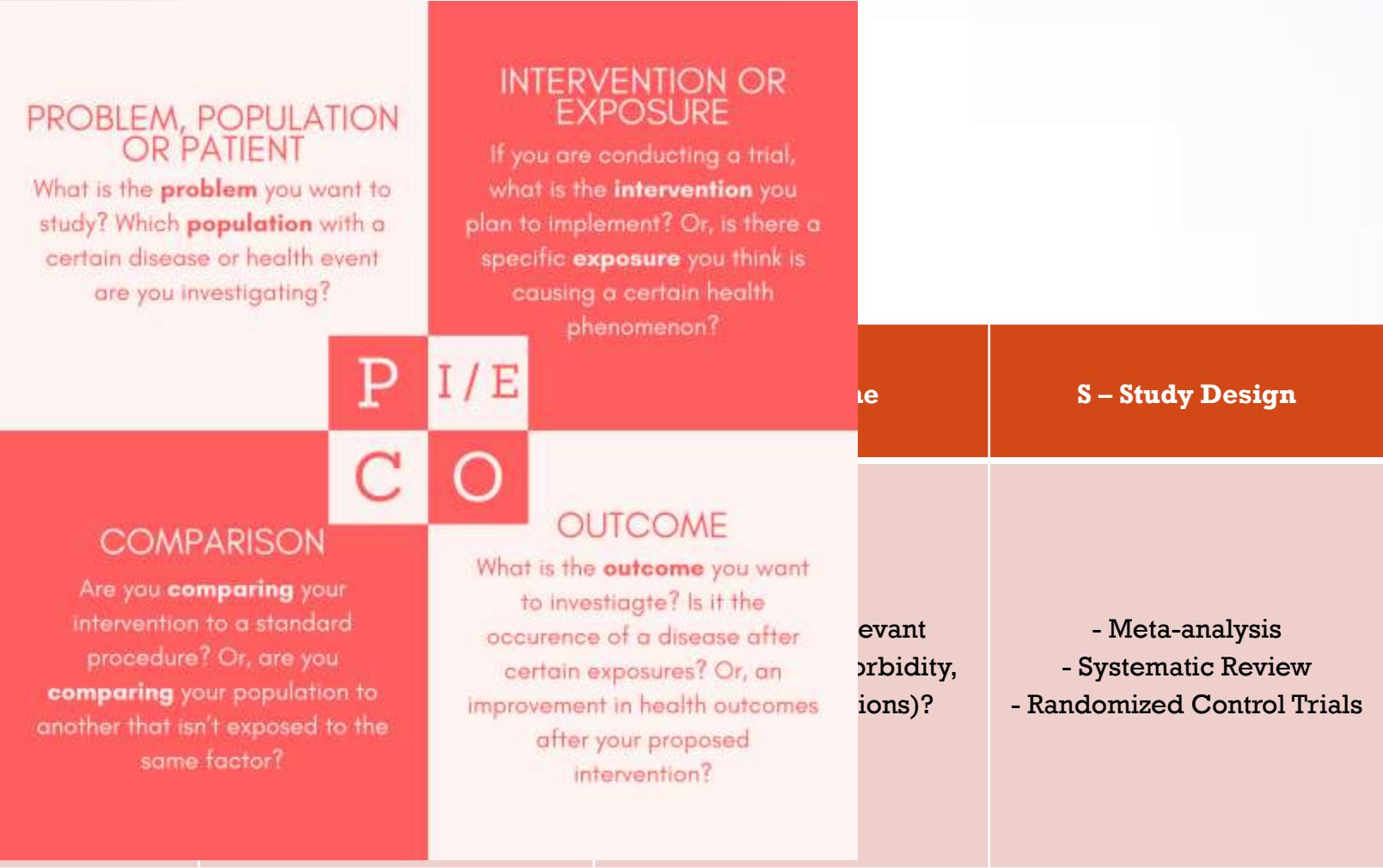


METHODS: SEARCH STRATEGY (PRISMA ITEM 7)

- **Checklist Item:**
- "Present the full search strategies for all databases, registers, and websites, including any filters and limits used."
- **Purpose of the Search Strategy:** This section provides a detailed description of **how the search for relevant studies was conducted**.
- It ensures **transparency**, enabling others to **replicate** your search process. A clearly documented search strategy helps establish that the review's study selection is comprehensive and unbiased.

2. CONSTRUCTING THE SEARCH STRATEGIES

■ Structure of the Search





STRUCTURE OF THE SEARCH STRATEGY

- To find 2 or 3 most important concepts
- Focus on those most likely to be found in title and abstract
- **Example of a clinical question that outlines the PICOS components:**

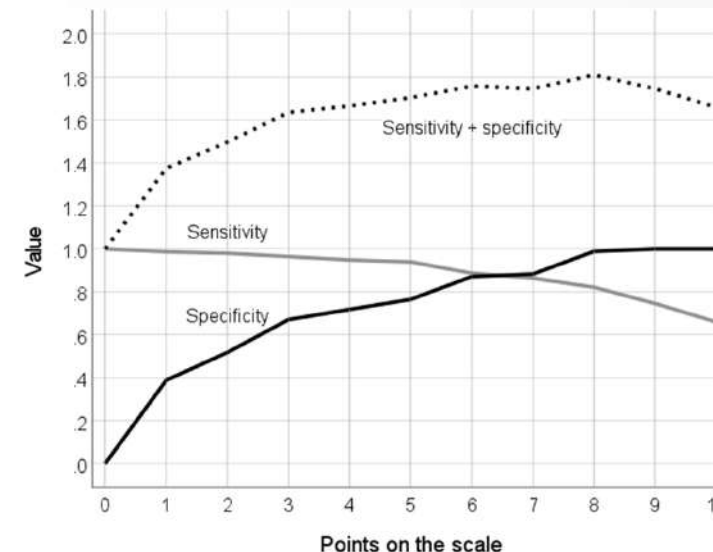
Helmets for preventing head and facial injuries in cyclists

P – Patient, Population or Problem	I – Intervention or Exposure	C – Comparison	O – Outcome	S – Study Design
?	?	?	?	?

P – Patient, Population or Problem	I – Intervention or Exposure	C – Comparison	O – Outcome	S – Study Design
Cyclists	Helmets	(Not specified)	Head trauma, facial injuries	Systematic Review

BROADENING SEARCH TERM/KEYWORD

- **Aim for high sensitivity**
 - Express each concept in as many ways as possible
 - Minimize the risk of missing a relevant study
 - Will lead to lower precision – find a balance
- Preliminary searching may help your test strategy
- Strategies must be translated or adjusted for every database or interface





TEXT WORDS

- Words appearing in title and/or abstract of the record
- Include synonyms, related terms, international terms, alternative spellings, plurals
- e.g., brain injury, head injury, skull fracture
- Truncation and wildcards: “*, ?”
- protect* = protects, protective, protection, ...
- but beware: car* = cars (but also carcinoma)
- wom?n= women, woman,
- Proximity operators – NEAR, NEXT, ADJ
- e.g., liver ADJ cancer = liver cancer, liver and bowel cancer



CONTROLLED VOCABULARY, SYNONYMS

- Standardized subject terms assigned by indexes
- e.g., Medline = MeSH, Embase = EMTREE
- Identifies relevant articles even if different terms are used for the same concept



FINDING SYNONYMS, MESH TERMS (MEDICAL SUBJECT HEADING)

An official website of the United States government [Here's how you know](#) ▼

National Library of Medicine
National Center for Biotechnology Information

Log in

MeSH

MeSH

Search

[Limits](#) [Advanced](#)

[Help](#)

MeSH

MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus used for indexing articles for PubMed.

Using MeSH

[Help](#)

[Tutorials](#)

More Resources

[E-Utilities](#)

[NLM MeSH Homepage](#)

FOLLOW NCBI

Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research

Connect with NLM

National Library of Medicine

Web Policies

Help

10/1/2025



MESH

Full ▾

Send to: ▾

Bicycling

The use of a bicycle for transportation or recreation. It does not include the use of a bicycle in studying the body's response to physical exertion (BICYCLE ERGOMETRY TEST see EXERCISE TEST).

Year introduced: 1990(1983)

Date introduced: April 28, 1982

PubMed search builder options

[Subheadings:](#)

- | | | |
|---|--|--|
| ☐ classification | ☐ history | ☐ psychology |
| ☐ economics | ☐ injuries | ☐ standards |
| ☐ education | ☐ legislation and jurisprudence | ☐ statistics and numerical data |
| ☐ ethics | ☐ physiology | ☐ trends |

☐ Restrict to MeSH Major Topic.

☐ Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): I03.450.642.845.140

MeSH Unique ID: D001642

Previous Indexing:

- [Exercise Test \(1966-1982\)](#)
- [Exertion \(1966-1982\)](#)

[All MeSH Categories](#)

[Anthropology, Education, Sociology and Social Phenomena Category](#)

[Human Activities](#)

[Leisure Activities](#)

[Recreation](#)

[Sports](#)

Bicycling

PubMed Search Builder

Add to search builder

AND ▾

Search PubMed

[YouTube Tutorial](#)

Related information

[PubMed](#)

[PubMed - Major Topic](#)

[Clinical Queries](#)

[NLM MeSH Browser](#)

Recent Activity

[Turn Off](#) [Clear](#)

Bicycling

MeSH

Sports

MeSH

bicycle (4)

MeSH

[See more...](#)



MESH TERMS

MeSH

MeSH

helmet

Search

Create alert Limits Advanced

Help

Full

Send to:

Head Protective Devices

Personal devices for protection of heads from impact, penetration from falling and flying objects, and from limited electric shock and burn.
Year introduced: 1991(1975)
Date introduced: December 12, 1974

PubMed search builder options

[Subheadings:](#)

☐ adverse effects

☐ classification

☐ economics

☐ ethics

☐ history

☐ microbiology

☐ parasitology

☐ standards

☐ statistics and numerical data

☐ supply and distribution

☐ trends

☐ veterinary

☐ virology

☐ Restrict to MeSH Major Topic.

☐ Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): E07.700.560.750, J01.637.708.560.750

MeSH Unique ID: D006260

Entry Terms:

• Device, Head Protective

• Devices, Head Protective

• Head Protective Device

• Protective Device, Head

• Protective Devices, Head

• Helmets

• Helmet

[All MeSH Categories](#)

[Analytical, Diagnostic and Therapeutic Techniques and Equipment Category](#)

[Equipment and Supplies](#)

[Protective Devices](#)

[Personal Protective Equipment](#)

Head Protective Devices

PubMed Search Builder

Add to search builder

AND

Search PubMed

[YouTube Tutorial](#)

Related information

PubMed

PubMed - Major Topic

Clinical Queries

NLM MeSH Browser

Recent Activity

Turn Off

Clear

Head Protective Devices

MeSH

helmet (1)

MeSH

Bicycling

MeSH

Sports

MeSH

bicycle (4)

MeSH

10/1/2025

See more...



MESH TERMS

☐ Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): E07.700.560.750, J01.637.708.560.750

MeSH Unique ID: D006260

Entry Terms:

- Device, Head Protective
- Devices, Head Protective
- Head Protective Device
- Protective Device, Head
- Protective Devices, Head
- Helmets
- Helmet

[All MeSH Categories](#)

[Analytical, Diagnostic and Therapeutic Techniques and Equipment Category](#)
[Equipment and Supplies](#)
[Protective Devices](#)
[Personal Protective Equipment](#)
Head Protective Devices

[All MeSH Categories](#)

[Technology and Food and Beverages Category](#)
[Technology, Industry, and Agriculture](#)
[Manufactured Materials](#)
[Protective Devices](#)
[Personal Protective Equipment](#)
Head Protective Devices

NLM MeSH Browser

Recent Activity

[Turn Off](#) [Clear](#)

- Head Protective Devices MeSH
- helmet (1) MeSH
- Insulin MeSH
- insulin (772) MeSH
- fibroblast activating factor, human (3) MeSH

[See more...](#)

"head protective devices"[MeSH Terms]
OR helmet[Text Word]

Search

[See more...](#)

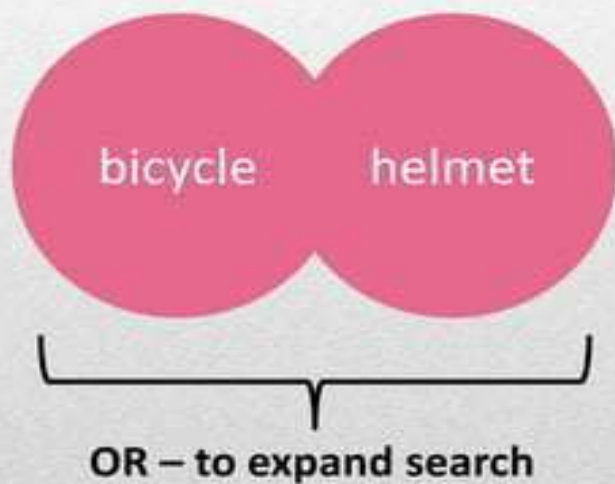


HOW TO SEARCH

- **Search Terms:** List all the **keywords** used in the search.
- **Boolean Operators:** **Boolean operators** (AND, OR, NOT) used to combine search terms. These operators help refine the search to capture the most relevant studies.
 - **AND:** Narrows the search (e.g., "canine parvovirus AND vaccine").
 - **OR:** Expands the search (e.g., "canine parvovirus OR CPV").
 - **NOT:** Excludes unwanted terms (e.g., "vaccine NOT flu").
- **Filters:** Specify any **filters** used, such as:
 - **Date range** (e.g., studies published from 2010 to present).
 - **Language restrictions** (e.g., studies in English, Spanish).
 - **Study type** (e.g., RCTs, observational studies).
- **Limits:** List any **limits** applied to the search, such as:
 - **Age group** (e.g., studies involving adult dogs, not puppies).
 - **Study design** (e.g., limiting to randomized controlled trials or cohort studies).
 - **Species** (e.g., only studies on dogs, excluding other animals).

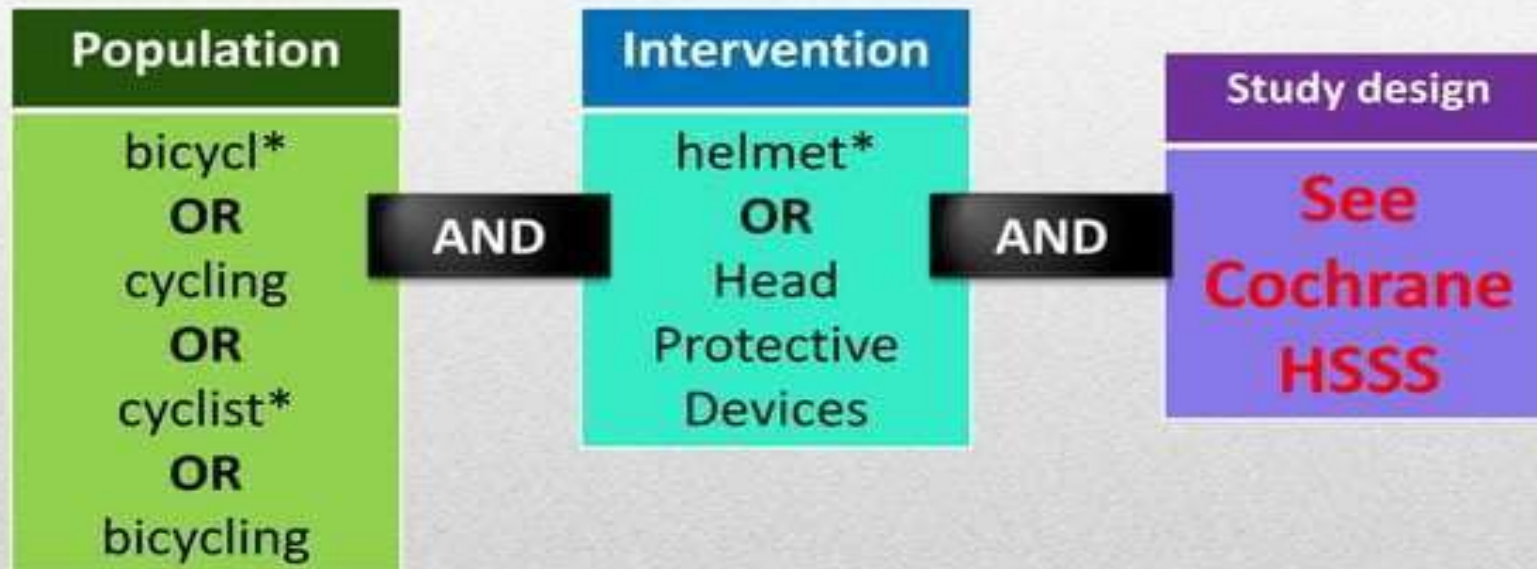
BOOLEAN OPERATORS

Boolean Operators



COMBINING OF TERMS

Combining terms





HOW TO COMBINE AND SEARCH IN DIFFERENT DATABASES



SEARCH IN PUBMED



Log in



Search

Advanced

PubMed® comprises more than 39 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full text content from PubMed Central and publisher web sites.



Learn

- About PubMed
- FAQs & User Guide
- Finding Full Text



Find

- Advanced Search
- Clinical Queries
- Single Citation Matcher



Download

- E-utilities API
- FTP
- Batch Citation Matcher



Explore

- MeSH Database
- Journals



SEARCH IN PUBMED

pubmed.ncbi.nlm.nih.gov/advanced/

PubMed Advanced Search Builder

PubMed®
User Guide

Add terms to the query box

All Fields AND [Show Index](#)

Query box

(lung cancer) OR (cancer) [Add to History](#)

History and Search Details

Your history is currently empty! As you use PubMed your recent searches will appear here.

NCBI Literature Resources [MeSH](#) [PMC](#) [Bookshelf](#) [Disclaimer](#)



SEARCH IN PUBMED

An official website of the United States government [Here's how you know](#)

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed Advanced Search Builder

[User Guide](#)

Add terms to the query box

All Fields

bicycling

×

ADD

Add with AND

Add with OR

Add with NOT

Query box

Enter / edit your search query here

History and Search Details

Your history is currently empty! As you use PubMed your recent searches will appear here.

NCBI Literature Resources

MeSH

PMC

Bookshelf

Disclaimer

The PubMed wordmark and PubMed logo are registered trademarks of the U.S. Department of Health and Human Services (HHS). Unauthorized use of these marks is strictly prohibited.

FOLLOW NCBI

f

in

COMBINING THE SEARCH


National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed Advanced Search Builder


[User Guide](#)

Add terms to the query box

All Fields

Enter a search term

X

ADD

Show Index

Query box

Enter / edit your search query here

Add to History

History and Search Details

Download
Delete

Search	Actions	Details	Query	Results	Time
#2	...	>	Search: (helmet) OR (ppt)	17,406	04:28:00
#1	...	Add query Create alert	(bicycling) OR (cycling)	996,160	04:27:41

Showing 1 to 2 of 2

NCBI Literature Resources
MeSH
PMC
Bookshelf
Disclaimer

The PubMed wordmark and PubMed logo are registered trademarks of the U.S. Department of Health and Human Services (HHS). Unauthorized use of



COMBINING THE SEARCH

Enter / edit your search query here

Add to History

History and Search Details

Download

Delete

Search	Actions	Details	Query	Results	Time
#10	...	>	Search: (children) AND (((bicycling) OR (cycling)) AND ((helmet) OR (ppt))) AND (((head trauma) OR (face injury)) OR (hand injury)) OR (injur*))	761	04:33:16
#9	...	>	Search: children	3,467,447	04:33:07
#8	...	>	Search: (((bicycling) OR (cycling)) AND ((helmet) OR (ppt))) AND (((head trauma) OR (face injury)) OR (hand injury)) OR (injur*))	1,368	04:32:24
#7	...	>	Search: #6 and #3	1,368	04:32:15
#6	...	>	Search: #1 and #2	2,004	04:32:03
#5	...	>	Search: #1 AND #2	2,004	04:31:54
#4	...	>	Search: ((bicycling) OR (cycling)) AND ((helmet) OR (ppt))	2,004	04:31:34
#3	...	>	Search: (((head trauma) OR (face injury)) OR (hand injury)) OR (injur*)	1,643,813	04:30:43
#2	...	>	Search: (helmet) OR (ppt)	17,406	04:28:00
#1	...	>	Search: (bicycling) OR (cycling)	996,160	04:27:41

Showing 1 to 10 of 10 entries



HISTORY OF SEARCH IN PUBMED

PubMed Advanced Search Builder



Add terms to the query box

All Fields Enter a search term

ADD

Show Index

Query box

Enter / edit your search query here

Add to History

History and Search Details

Download Delete

Search	Actions	Details	Query	Results	Time
#6	...	>	Search: (((smoking) OR (tobacco abuse)) AND ((lung cancer) OR (cancer))) AND ((survival rate) OR (surviv*))	13,391	08:04:46
#5	...	>	Search: (survival rate) OR (surviv*)	1,955,642	08:04:36
#4	...	>	Search: (((smoking) OR (tobacco abuse)) AND ((lung cancer) OR (cancer)))	88,105	08:04:04
#3	...	>	Search: (((lung cancer) OR (cancer)) OR ((smoking) OR (tobacco abuse)))	5,762,206	08:03:54
#2	...	>	Search: (smoking) OR (tobacco abuse)	406,483	08:03:13
#1	...	>	Search: (lung cancer) OR (cancer)	5,443,828	08:02:51



DETAIL OF SEARCH

#8	...	Search: (((bicycling) OR (cycling)) AND ((helmet) OR (ppt))) AND (((head trauma) OR (face injury)) OR (hand injury)) OR (injur*)) ("bicycle"[All Fields] OR "bicycled"[All Fields] OR "bicycles"[All Fields] OR "bicycling"[MeSH Terms] OR "bicycling"[All Fields] OR ("bicycling"[MeSH Terms] OR "bicycling"[All Fields] OR "cycling"[All Fields] OR "cycle"[All Fields] OR "cycle s"[All Fields] OR "cycled"[All Fields] OR "cycles"[All Fields] OR "cyclings"[All Fields])) AND ("head protective devices"[MeSH Terms] OR ("head"[All Fields] AND "protective"[All Fields] AND "devices"[All Fields]) OR "head protective devices"[All Fields] OR "helmet"[All Fields] OR "helmets"[All Fields] OR "helmet s"[All Fields] OR "helmeted"[All Fields] OR "ppt"[All Fields]) AND ("craniocerebral trauma"[MeSH Terms] OR ("craniocerebral"[All Fields] AND "trauma"[All Fields]) OR "craniocerebral trauma"[All Fields] OR ("head"[All Fields] AND "trauma"[All Fields]) OR "head trauma"[All Fields] OR ("facial injuries"[MeSH Terms] OR "facial"[All Fields] AND "injuries"[All Fields]) OR "facial injuries"[All Fields] OR ("face"[All Fields] AND "injury"[All Fields]) OR "face injury"[All Fields] OR ("hand injuries"[MeSH Terms] OR ("hand"[All Fields] AND "injuries"[All Fields]) OR "hand injuries"[All Fields] OR ("hand"[All Fields] AND "injury"[All Fields]) OR "hand injury"[All Fields] OR "injur*"[All Fields]) Translations bicycling: "bicycle"[All Fields] OR "bicycled"[All Fields] OR "bicycles"[All Fields] OR "bicycling"[MeSH Terms] OR "bicycling"[All Fields] cycling: "bicycling"[MeSH Terms] OR "bicycling"[All Fields] OR "cycling"[All Fields] OR "cycle"[All Fields] OR "cycle's"[All Fields] OR "cycled"[All Fields] OR "cycles"[All Fields] OR "cyclings"[All Fields] helmet: "head protective devices"[MeSH Terms] OR ("head"[All Fields] AND "protective"[All Fields] AND "devices"[All Fields]) OR "head protective devices"[All Fields] OR "helmet"[All Fields] OR "helmets"[All Fields] OR "helmet's"[All Fields] OR "helmeted"[All Fields] head trauma: "craniocerebral trauma"[MeSH Terms] OR ("craniocerebral"[All Fields] AND "trauma"[All Fields]) OR "craniocerebral trauma"[All Fields] OR ("head"[All Fields] AND "trauma"[All Fields]) OR "head trauma"[All Fields] face injury: "facial injuries"[MeSH Terms] OR ("facial"[All Fields] AND "injuries"[All Fields]) OR "facial injuries"[All Fields] OR ("face"[All Fields] AND "injury"[All Fields]) OR "face injury"[All Fields]	1,368	04:32:24
----	-----	--	-------	----------



(((smoking) OR (tobacco abuse)) AND ((lung cancer) OR (cancer))) AND ((sun

Search

Advanced Create alert Create RSS

User Guide

Save Email Send to

Sort by: Best match

Display options

MY CUSTOM FILTERS

RESULTS BY YEAR



PUBLICATION DATE

- ☐ 1 year
☐ 5 years
☐ 10 years
☐ Custom Range

TEXT AVAILABILITY

- ☐ Abstract
☐ Free full text
☐ Full text

ARTICLE ATTRIBUTE

13,391 results

Page 1 of 1,340

☐ 1 **Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.**

Cite Molina JR, Yang P, Cassivi SD, Schild SE, Adjei AA.

Mayo Clin Proc. 2008 May;83(5):584-94. doi: 10.4065/83.5.584.

PMID: 18452692 [Free PMC article](#). [Review](#).

Lung cancer is the leading cause of **cancer**-related mortality not only in the United States but also around the world. In North America, **lung cancer** has become more predominant among former than current smokers. Yet in some countries, such as Chi ...

☐ 2 **Tobacco smoking and cancer: a meta-analysis.**

Cite Gandini S, Botteri E, Iodice S, Boniol M, Lowenfels AB, Maisonneuve P, Boyle P.

Int J Cancer. 2008 Jan 1;122(1):155-64. doi: 10.1002/ijc.23033.

PMID: 17893872

We conducted a systematic meta-analysis of observational studies on cigarette **smoking** and **cancer** from 1961 to 2003. The aim was to quantify the risk for 13 **cancer** sites, recognized to be related to **tobacco smoking** by the International Agency for ...

☐ 3 **Tobacco and lung cancer: risks, trends, and outcomes in patients with cancer.**

Cite Warren GW, Cummings KM.

Am Soc Clin Oncol Educ Book. 2013;359-64. doi: 10.14694/EdBook_AM.2013.33.359.

PMID: 23714547 [Free article](#). [Review](#).

The risk of **lung cancer** is dose dependent, but can be dramatically reduced with **tobacco** cessation, especially if the person discontinues **smoking** early in life. **Lung cancer** screening and coordinated



EXAMPLE OF SEARCH STRATEGY HGF AND CANCER AND SURVIVAL

- Pubmed
- (((((((((((cancer) OR (neoplasm)) OR (Tumors)) OR (Neoplasm)) OR (Neoplasia)) OR (Neoplasias)) OR (Malignancy)) OR (Malignancies)) OR (Malignant)) AND (((((((Hepatocyte growth factor) OR (HGF)) OR (HGF cytokine, human)) OR (Hepatocyte growth factor, human)) OR (Hepatocyte growth factor, human)) OR (HGF))))) AND (((((((((((Survival Analysis) OR (Survival Rate)) OR (Disease-Free Survival)) OR (Progression-Free Survival)) OR (Overall Survival)) OR (Survival Analysis)) OR (Kaplan-Meier)) OR (cox regression)) OR (Recurrence-Free Survival)) OR (Survival Time)) OR (Survival Factors)) OR (Survival Curves)) OR (surviv)) AND (((((((Hepatocyte growth factor) OR (HGF)) OR (HGF cytokine, human)) OR (Hepatocyte growth factor, human)) OR (Hepatocyte growth factor, human)) OR (cytokine)) OR (HGF)))
- 2295 12/1/2025
-
- 9/9/2025:
- 53 added



SEARCH IN SCOPUS



Scopus

Start exploring

Documents Authors Researcher Discovery Organizations Scopus AI New Search tips ?

Search within

Article title, Abstract, Keywords

▼

Search documents *

smoking

×

🗑

OR ▼

Search within

Article title, Abstract, Keywords

▼

Search documents

smok*

×

🗑

OR ▼

Search within

Article title, Abstract, Keywords

▼

Search documents

tobacco

×

🗑



HOW TO SEARCH IN SCOPUS



Advanced query ☐

Search within
Article title, Abstract, Keywords

Search documents *
smoking

×

🗑

OR

Search within
Article title, Abstract, Keywords

Search documents
smok*

×

🗑

OR

Search within
Article title, Abstract, Keywords

Search documents
tobacco

×

🗑

Save search
 Set search alert

+ Add search field

Reset

Beta

Documents Preprints Secondary documents

822,970 documents found

Analyze results

Refine search

☐ All Export Download Citation overview ... More

Show all abstracts Sort by Date (newest)

Search within results	Document title	Authors	Source	Year	Citations
-----------------------	----------------	---------	--------	------	-----------



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Start exploring

[Documents](#) [Authors](#) [Researcher Discovery](#) [Organizations](#) [Scopus AI](#) [Search tips](#)

Search within
Article title, Abstract, Keywords

Search documents *
smoking

OR

Search within
Article title, Abstract, Keywords

Search documents
smok*

OR

Search within
Article title, Abstract, Keywords

Search documents
tobacco

[+ Add search field](#) [+ Add date range](#) [Advanced document search](#) [Reset](#) [Search](#)

[Search History](#) [Saved Searches](#)

1 (TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco))

822,970 results [Set alert](#) [More](#)

Your search history is deleted when you sign out of Scopus or when you manually delete your history. [Delete search history](#)



SEARCH IN SCOPUS

Documents

Authors

Researcher Discovery

Organizations

Scopus AI New

Search tips ?

Search within

Article title, Abstract, Keywords

▼

Search documents *

lung cancer

×

🗑

OR ▼

Search within

Article title, Abstract, Keywords

▼

Search documents

cancer

×

🗑

+ Add search field

+ Add date range

Advanced document search >

Reset

Search 🔍

Search History

Saved Searches

Combine queries ➡

3

(TITLE-ABS-KEY (lung cancer) OR TITLE-ABS-KEY (cancer))

4,431,919 results

🔔 Set alert

⋮ More

1

(TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco))

822,970 results

🔔 Set alert

⋮ More

🕒

Your search history is deleted when you sign out of Scopus or when you manually delete your history. [Delete search history](#)

About Scopus

- [What is Scopus](#)
- [Content coverage](#)
- [Scopus blog](#)
- [Scopus API](#)

Language

- [日本語版を表示する](#)
- [查看简体中文版本](#)
- [查看繁體中文版本](#)
- [Просмотр версии на русском языке](#)

Customer Service

- [Help](#)
- [Tutorials](#)
- [Contact us](#)



SEARCH IN SCOPUS

Back

Combine queries

Search tips

1 X AND 3 X

Change all operators

Clear Show results

Search History Saved Searches

- 3 (TITLE-ABS-KEY (lung cancer) OR TITLE-ABS-KEY (cancer)) 4,431,919 results Set alert More
- 1 (TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco)) 822,970 results Set alert More

Your search history is deleted when you sign out of Scopus or when you manually delete your history. Delete search history

About Scopus

What is Scopus
Content coverage
Scopus blog
Scopus API
Privacy matters

Language

日本語版を表示する
查看简体中文版本
查看繁體中文版本
Просмотр версии на русском языке

Customer Service

Help
Tutorials
Contact us



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Scopus

[Search](#) [Sources](#) [SciVal](#) [?](#) [🔔](#) [🏛️](#) [🔍](#)

Advanced query ☒

```
(( TITLE-ABS-KEY ( smoking ) OR TITLE-ABS-KEY ( smok* ) OR TITLE-ABS-KEY ( tobacco ) ) ) AND ( ( TITLE-ABS-KEY ( lung cancer ) OR TITLE-ABS-KEY ( cancer ) ) )
```

[Show less](#) [📄](#)

[Save search](#)
[Set search alert](#)

[Edit in advanced search](#)

[Documents](#) [Preprints](#) [Secondary documents](#)

28,455 documents found

☐ All [Export](#) [Download](#) [Citation overview](#) [More](#)

Article
1 RECIST I.1 and cytokine levels IL-12 and IL-23: A dual approach to understanding lung cancer progression
[Setyawan, U.A., Endharti, A.T., Djajalaksana, S., Susianti, H.](#)
Journal of Medicinal and Pharmaceutical Chemistry Research, 2026, 8(4), pp. 967–986
[Show abstract](#) [View at Publisher](#) [Related documents](#)

0
Citations

Conference Paper
2 Transparency in Lung Cancer Prediction: Integrating Explainable AI Techniques with Machine Learning Models
[Harshitha, J., Kodipalli, A., Rao, T., Suman, J.V.](#)
Lecture Notes of the Institute for Computer Sciences Social Informatics and Telecommunications Engineering Lnicst, 2026, 620 LNICST, pp. 299–310
[Show abstract](#) [View at Publisher](#) [Related documents](#)

0
Citations

Conference Paper
3 MelanomaNet: Deep Learning for Skin Cancer Diagnosis Through Inception
[Gandhi, V.C., Subraja, T., Marikkannan, M., ... Sarmukaddam, R., Trivedi, D.](#)
Lecture Notes of the Institute for Computer Sciences Social Informatics and Telecommunications Engineering Lnicst

0
Citations

Refine search

Search within results

Filters

Year

☒ Range ☐ Individual



from to

[Analyze results](#)

[Show all abstracts](#) Sort by [Date \(newest\)](#) [📄](#) [📋](#)

Subject area



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Scopus

[Search](#) [Sources](#) [SciVal](#) [?](#) [🔔](#) [🏛️](#) [🔍](#)

[← Back](#)

Combine queries

[Search tips](#) [?](#)

4 X AND 5 X

[Change all operators](#) [▼](#)

[Clear](#)

[Show results](#) [>](#)

[Search History](#)

[Saved Searches](#)

- ☒ 5 (TITLE-ABS-KEY (survival rate) OR TITLE-ABS-KEY (surviv*)) 2,807,499 results [🔔 Set alert](#) [⋮ More](#)
- ☒ 4 ((TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco))) AND ((TITLE-ABS-KEY (lung cancer) OR TITLE-ABS-KEY (cancer))) 128,455 results [🔔 Set alert](#) [⋮ More](#)
[Show less](#) [^](#)
- ☐ 3 (TITLE-ABS-KEY (lung cancer) OR TITLE-ABS-KEY (cancer)) 4,431,919 results [🔔 Set alert](#) [⋮ More](#)
- ☐ 1 (TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco)) 822,970 results [🔔 Set alert](#) [⋮ More](#)

[🕒](#) Your search history is deleted when you sign out of Scopus or when you manually delete your history. [Delete search history](#)



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Advanced query ☒

```
(( (TITLE-ABS-KEY ( smoking ) OR TITLE-ABS-KEY ( smok* ) OR TITLE-ABS-KEY ( tobacco ) ) ) AND ( ( TITLE-ABS-KEY ( lung cancer ) OR TITLE-ABS-KEY ( cancer ) ) ) ) AND ( ( TITLE-ABS-KEY ( survival rate ) OR TITLE-ABS-KEY ( surviv* ) ) ) )
```

Show less

- Save search
- Set search alert

Edit in advanced search

[Documents](#) [Preprints](#) [Secondary documents](#)

28,160 documents found

[Analyze results](#)

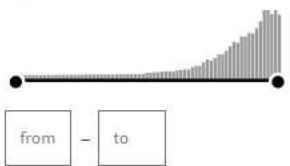
Refine search

Search within results

Filters

Year

☒ Range ☐ Individual



from — to

☐ All [Export](#) [Download](#) [Citation overview](#) [More](#)

[Show all abstracts](#) Sort by [Date \(newest\)](#) [Grid](#) [List](#)

- ☐ 1 Article
Consolidative thoracic radiotherapy improves the prognosis of extensive stage small-cell lung cancer patients in the chemoimmunotherapy era: a multicenter retrospective analysis
[Yao, N., Li, S., Hu, L., ... Zhang, N., Yao, Y.](#)
Annals of Medicine, 2025, 57(1), 2542434
[Show abstract](#) [View at Publisher](#) [Related documents](#)
- ☐ 2 Article • Open access
Multidimensional bioinformatics perspective on smoking-linked driver genes and immune regulatory mechanisms in non-small cell lung cancer
[Ouyang, C., Yu, X., Wang, H., Zeng, P.](#)
Journal of Translational Medicine, 2025, 23(1), 330
[Show abstract](#) [View at Publisher](#) [Related documents](#)
- ☐ 3 Article • Open access
Assessing lung cancer progression and survival with infrared spectroscopy of blood serum
[Repecki, J., Stokich, M., G., ... Repecki, J., Stokich, M.](#)
BMC Medicine, 2025, 23(1), 101
[Show abstract](#) [View at Publisher](#) [Related documents](#)

0 Citations

3 Citations

5 Citations



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Scopus

[Search](#) [Sources](#) [SciVal](#) [?](#) [🔔](#) [🏛️](#) [🔍](#)

Advanced search

[Compare sources](#) >

< [Basic Search](#) [Advanced](#)

[Search tips](#) ?

Enter query string

(((TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco))) AND ((TITLE-ABS-KEY (lung cancer) OR TITLE-ABS-KEY (cancer)))) AND ((TITLE-ABS-KEY (survival rate) OR TITLE-ABS-KEY (surviv*)))

[Outline query](#) [Add Author name / Affiliation](#) [Clear form](#)

[Search](#) 🔍

ALL("Cognitive architectures") AND AUTHOR-NAME(smith)
TITLE-ABS-KEY(*somatic complaint wom?n) AND PUBYEAR AFT 1993
SRCTITLE(*field ornith*) AND VOLUME(75) AND ISSUE(1) AND PAGES(53-66)

Operators

AND +
OR +
AND NOT +
PRE/ +
W/ +

Field codes ?

Textual Content ▾
Affiliations ▾
Authors ▾
Biological Entities ▾
Chemical Entities ▾
Conferences ▾
Document ▾
Editors ▾
Funding ▾
Keywords ▾
Publication ▾
References ▾
Subject Areas ▾



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Scopus

Researcher Discovery can help you find and connect with researchers from around the globe. [Share feedback](#)

Matching researchers for: [About Researcher Discovery](#)

Enter keywords
lung cancer

Results based on matching documents since 2021

Refine by

Matching documents from

- ☐ This year
- ☐ Last 2 years
- ☐ Last 3 years

Country

Type country name

- ☐ China
- ☐ United States
- ☐ Germany
- ☐ South Korea
- ☐ Spain

[Show all](#)

Type organization name

[Export all results](#)

[About the metrics](#) Sort by [Matching documents \(Highest\)](#)

Author information	Number of matching documents	Total citations	Total documents	h-index
Wu, Y. L. Preview profile	221	82175	733	113
Cheng, Ying Jilin Cancer Hospital, China Preview profile	190	37073	403	79
Heymach, John Victor The University of Texas MD Anderson Cancer Center, United States Preview profile	178	60411	572	115
Lu, Shun Shanghai Chest Hospital, China Preview profile	178	30089	431	63
Reck, Martin German Center for Lung Research, Germany Preview profile	175	89307	559	116



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



527 Affiliation results - cancer

[About Scopus Affiliation Identifier](#)

Affiliation (cancer)

[Edit](#)

Scopus Affiliation Identifier

The Affiliation Identifier distinguishes between affiliations by assigning each affiliation in Scopus a unique number and grouping together all of the documents affiliated with an organization.

Refine results

[Limit to](#) [Exclude](#)

City

- ☐ London (15) >
- ☐ New York (9) >
- ☐ Tokyo (9) >
- ☐ Paris (8) >
- ☐ Sydney (8) >

[View more](#)

Country/Territory

- ☐ Canada (38) >
- ☐ United Kingdom (37) >

Sort on: [Document count \(high-low\)](#)

☐ All [Show all documents](#) [Give feedback](#)

Documents					
	Affiliation name	Affiliation	Institution	City	Country/Territory
☐ 1	The University of Texas MD Anderson Cancer Center University of Texas MD Anderson Cancer Center MD Anderson Cancer Center	120239	122920	Houston	United States
☐ 2	National Cancer Institute NCI National Cancer Institute NCI National Cancer Institute	100770	119883	Rockville	United States
☐ 3	Memorial Sloan-Kettering Cancer Center Memorial Sloan-Kettering Cancer Center	88740	88745	New York	United States
☐ 4	Dana-Farber Cancer Institute Dana-Farber Cancer Institute	60638	60638	Boston	United States



SEARCH IN SCOPUS AI

Brought to you by [Airlangga University](#)



Scopus



Lung cancer and smoking relationship *******

Today

Lung cancer and smokin...

lung cancer and smoking

[Show Copilot steps](#) **▼**

Summary

Lung Cancer and Smoking

The relationship between smoking and lung cancer is well-established, with smoking being the leading cause of lung cancer, responsible for approximately 90% of cases [1](#) [2](#) [3](#) [4](#) [5](#). This strong correlation is supported by numerous epidemiological studies and experimental findings [4](#) [6](#).

Key Points:

- **Causal Relationship:** Smoking is the primary risk factor for lung cancer, with tobacco smoke containing carcinogens that lead to genetic mutations and molecular changes in lung cells [7](#) [8](#) [9](#) [10](#). These changes include alterations in tumor suppressor genes, proto-oncogenes, and growth factors [7](#).
- **Genetic Susceptibility:** Despite the high risk associated with smoking, only a minority of smokers develop lung cancer, suggesting that genetic factors play a role in individual susceptibility [7](#) [11](#). Gene-environment interactions are thought to explain some of the variability in lung cancer risk among smokers [11](#).
- **Impact of Smoking Cessation:** Quitting smoking significantly reduces the risk of developing lung cancer and improves outcomes for those already diagnosed with the disease [1](#) [8](#) [10](#) [12](#) [13](#). Smoking cessation interventions, including behavioral counseling and pharmacotherapy, are effective in helping individuals quit smoking and should be integrated into lung cancer treatment and prevention strategies [12](#) [13](#) [14](#).

Additional Risk Factors: Besides smoking, other risk factors for lung cancer ******* include environmental

References

Reference 1
Tratamiento de la Dependencia del Tabaco en un Fumador Que ha Tenido un Cáncer de Pulmón
[Neiro B.P.](#), [Becoña E.](#)
Psicooncologia [↗](#) 2012

Reference 2
Smoking cessation and the success of lung cancer surgery
[Erhunmwunsee L.](#), [Onaitis M.W.](#)
Current Oncology Reports [↗](#) 2009

Reference 3
Online public interest in smoking and lung cancer: A comparative study in Google Trends
[Tas F.](#), [Erturk K.](#)
Journal of Cancer Research and Therapeutics [↗](#) 2023

[Show all 16 references](#)

Ask a follow-up question

Scopus AI's quality of results may vary. [How it works](#)

[Share feedback](#)

Foundational documents

606 citations
The accumulated evidence on lung cancer and environmental tobacco



SEARCH IN SCOPUS

Brought to you by [Airlangga University](#)



Start exploring

Documents Authors Researcher Discovery Organizations **Scopus AI** New

Temporary conversation ☐

Explore topics and discover relevant references since 2003

systematic review and smoking and lung cancer

☐ Deep research

[Show conversation history](#)

Deep research examples

- How can multi-agent systems be optimized to reduce latency and improve reliability in large-scale real-time collaborative platforms?
- What are the long-term cognitive and behavioral effects of AI-generated educational feedback on middle-school students' learning outcomes?
- To what extent can voice-based emotion recognition systems improve patient trust and diagnostic accuracy in remote mental health care?

Scopus AI's quality of results may vary. [How it works](#) [Share feedback](#)



SEARCH IN SCOPUS



Systematic review of smoking and lung cancer ***

- Today
- Systematic review of sm...
- Lung cancer and smokin...

systematic review and smoking and lung cancer

Deep research - Thought for 1min 42sec

Systematic review of smoking and lung cancer

[View as PDF](#)

Systematic Review of Smoking and Lung Cancer: Epidemiological Evidence, Biological Mechanisms, and Intervention Outcomes

Quick Reference Key Findings Table

Theme	Summary	Confidence	Supporting Citations
Smoking as Dominant Risk Factor	Smoking is the leading cause of lung cancer globally, with strong dose-response and histological links.	High	1 2 3 4
Gene-Environment Interactions	Genetic polymorphisms (CYP1A1, GSTM1, GSTT1) and SNPs interact with smoking to modulate risk.	High	5 6 7 8
Integrated Cessation & Screening	Combining smoking cessation with low-dose CT screening is effective and cost-efficient.	High	9 10 11 12
Digital/Telehealth Interventions	Digital health tools show promise for scalable cessation, but require further optimization.	Medium	12 13

Ask a follow-up question

Scopus AI's quality of results may vary. [How it works](#)

[Share feedback](#)



EXAMPLE OF SEARCH STRATEGY HGF AND CANCER AND SURVIVAL

- Scopus
- (((TITLE-ABS-KEY (survival AND analysis) OR TITLE-ABS-KEY (survival AND rate) OR TITLE-ABS-KEY (progression AND free AND survival) OR TITLE-ABS-KEY (disease AND free AND survival) OR TITLE-ABS-KEY (overall AND survival) OR TITLE-ABS-KEY (survival AND analysis) OR TITLE-ABS-KEY (kaplan AND meier) OR TITLE-ABS-KEY (cox AND regression) OR TITLE-ABS-KEY (recurrence AND free AND survival) OR TITLE-ABS-KEY (survival AND time) OR TITLE-ABS-KEY (survival AND factors) OR TITLE-ABS-KEY (survival AND curves) OR TITLE-ABS-KEY (survival))) AND ((TITLE-ABS-KEY (cancer) OR TITLE-ABS-KEY (neoplasm) OR TITLE-ABS-KEY (tumors) OR TITLE-ABS-KEY (neoplasms) OR TITLE-ABS-KEY (neoplasia) OR TITLE-ABS-KEY (neoplasias) OR TITLE-ABS-KEY (malignancy) OR TITLE-ABS-KEY (malignancies) OR TITLE-ABS-KEY (malignant)))) AND ((TITLE-ABS-KEY (hepatocyte AND growth AND factor) OR TITLE-ABS-KEY (hgf) OR TITLE-ABS-KEY (human AND hgf AND cytokine) OR TITLE-ABS-KEY (human AND hepatocyte AND growth AND factor) OR TITLE-ABS-KEY (human AND hgf) OR TITLE-ABS-KEY (hgf AND cytokine))))
- 3555 12/1/2025
-
- In 9/9/2025, 111 added



EXAMPLE OF SEARCH STRATEGY HGF AND CANCER AND SURVIVAL

- **Web of sciences:**
- **survival analysis** (All Fields) or **survival rate** (All Fields) or **progression free survival** (All Fields) or **disease free survival** (All Fields) or **overall survival** (All Fields) or **survival analysis** (All Fields) or **kaplan meier** (All Fields) or **cox regression** (All Fields) or **recurrence free survival** (All Fields) or **survival time** (All Fields) or **survival factors** (All Fields) or **survival curves** (All Fields) or **survival** (All Fields)
- AND
- **cancer** (All Fields) or **neoplasm** (All Fields) or **tumor** (All Fields) or **neoplasm** (All Fields) or **neoplasia** (All Fields) or **malignancy** (All Fields) or **malignancies** (All Fields) or **malignant** (All Fields)
- AND
- <https://www.webofscience.com/wos/woscc/summary/9d2ad057-b1c4-4a7c-94ad-8e84d9807a35-0178bd1f54/relevance/1>
- **hepatocyte AND growth AND factor** (All Fields) or **hgf** (All Fields) or **human AND hgf AND cytokine** (All Fields) or **human AND hepatocyte AND growth AND factor** (All Fields) or **human AND hgf** (All Fields) or **hgf AND cytokine** (All Fields)
- 2506 12/1/2025
-
- IN 9/9/2025, 46 ADDED
- <https://www.webofscience.com/wos/woscc/summary/65467de6-3ca3-4095-ac28-f9ead4b88a2f-0178bdc23d/relevance/1>



LIMIT & RESTRICTIONS

- 👉 To avoid bias, do **not** limit by:
- **Language** – ask your research group about translation
- **Year** – unless there is a clear point of change or availability
- **Format** – there may be additional information about a study in letters



EXTRACTING REFERENCES FROM PUBMED

pubmed.ncbi.nlm.nih.gov/?term=%28%28%28smoking%29+OR+%28tobacco+abuse%29%29+AND+%28%28lung+cancer%29+OR+%28cancer%29%29%29+AND+%28%28s...

World Scientist and... elmi Semantic Scholar |... طراحی سامانه

An official website of the United States government

NIH National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed

((((smoking) OR (tobacco abuse)) AND ((lung cancer) OR (cancer))) AND ((sun

Search

Advanced Create alert Create RSS

User Guide

Save

Email

Send to

Sort by:

Best match

Display options

Create a file for external citation management software

Selection:

All results

Only the first

All results on this page

All results

Selection

MY CUSTOM FILTERS

13,391 results

Page 1 of 1,340

RESULTS BY YEAR



1

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.

Cite

Molina JR, Yang P, Cassivi SD, Schild SE, Adjei AA.

Mayo Clin Proc. 2008 May;83(5):584-94. doi: 10.4065/83.5.584.

PMID: 18452692 Free PMC article. Review.

Lung cancer is the leading cause of cancer-related mortality not only in the United States but also around the world. In North America, **lung cancer** has become more predominant among former than current smokers. Yet in some countries, such as Chi ...

Principle and methods for writing systematic review and meta-analysis, SANA Institute for avian health and disease research

10/1/2025

75



EXTRACTING REFERENCES FROM PUBMED

An official website of the United States government [Here's how you know](#)

NIH National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed

(((smoking) OR (tobacco abuse)) AND ((lung cancer) OR (cancer))) AND ((sun

Search

[Advanced](#) [Create alert](#) [Create RSS](#)

[User Guide](#)

Save

Email

Send to

Sort by:

Best match

Display options

Create a file for external citation management software

Selection:

All results

Only the first 10,000 citations will be saved in your file.

Create file

Cancel

MY CUSTOM FILTERS

13,391 results

Page 1 of 1,340

RESULTS BY YEAR



PUBLICATION DATE

1 year

☐ **Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.**

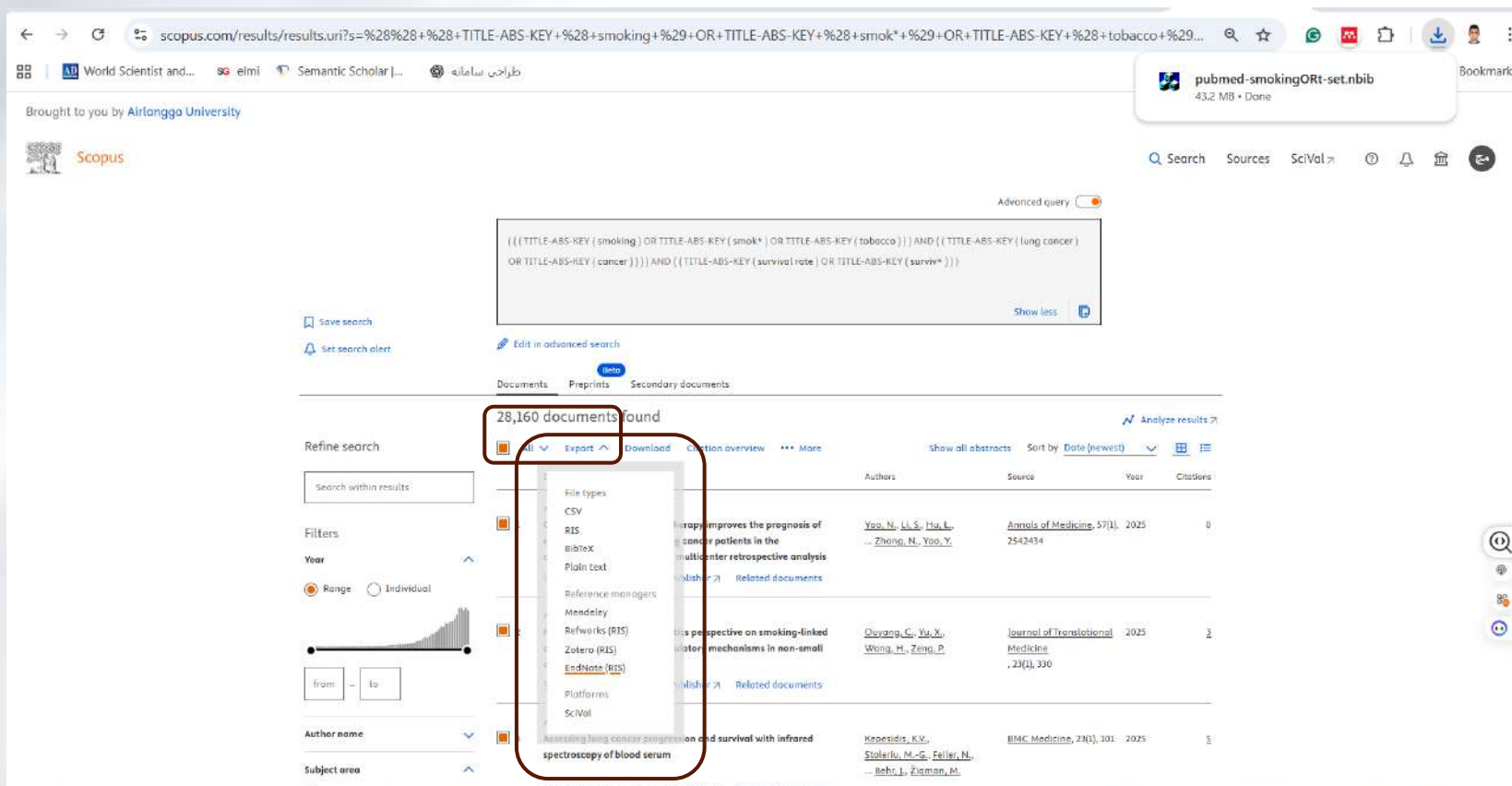
Cite 1
Molina JR, Yang P, Cassivi SD, Schild SE, Adjei AA.
Mayo Clin Proc. 2008 May;83(5):584-94. doi: 10.4065/83.5.584.
PMID: 18452692 [Free PMC article.](#) [Review.](#)

Lung cancer is the leading cause of **cancer**-related mortality not only in the United States but also around the world. In North America, **lung cancer** has become more predominant among former than current smokers. Yet in some countries, such as Chi ...

☐ **Tobacco smoking and cancer: a meta-analysis.**

Cite 2
Gandini S, Botteri E, Iodice S, Boniol M, Lowenfels AB, Maisonneuve P, Boyle P.

EXTRACTING REFERENCES FROM SCOPUS



scopus.com/results/results.uri?s=%28%28+TITLE-ABS-KEY+%28+smoking+%29+OR+TITLE-ABS-KEY+%28+smok*+%29+OR+TITLE-ABS-KEY+%28+tobacco+%29...

Advanced query

(((TITLE-ABS-KEY (smoking) OR TITLE-ABS-KEY (smok*) OR TITLE-ABS-KEY (tobacco))) AND ((TITLE-ABS-KEY (lung cancer) OR TITLE-ABS-KEY (cancer)))) AND ((TITLE-ABS-KEY (survival rate) OR TITLE-ABS-KEY (surviv*))))

Save search
Set search alert

Documents Preprints Secondary documents

28,160 documents found

Refine search

Search within results

Filters

Year

Range Individual

from to

Author name

Subject area

Export

- File types
- CSV
- RIS
- BibTeX
- Plain text
- Reference managers
- Mendeley
- Refworks (RIS)
- Zotero (RIS)
- EndNote (RIS)
- Platforms
- SciVal

Authors	Source	Year	Citations
Yao, N., Li, S., Hu, L., ... Zhong, N., Yao, Y.	Annals of Medicine	2025	0
Chen, C., Yu, X., Wang, H., Zeng, P.	Journal of Translational Medicine	2025	2
Konopidis, K.V., Stoleru, M.-G., Feiler, N., ... Behr, J., Zisman, M.	BMC Medicine	2025	5

EXTRACTING REFERENCES FROM SCOPUS

Export 11,144 documents to RIS ?

The RIS format is used for exporting references from Scopus to a reference management tool (e.g., Zotero, EndNote, RefWorks).

You can export up to 20,000 documents in RIS format. Some fields might not be available for export at the moment, please check back again later.

? Export Processing Time

☐ All documents on this page

☒ Documents 1 – 11144

What information do you want to export?

☒ Citation information

☒ Author(s)

☒ Document title

☒ Year

☒ EID

☒ Source title

☒ Citation count

☒ Source & document type

☒ DOI

☐ Bibliographical information

☐ Affiliations

☐ Serial identifiers (e.g. ISSN)

☐ PubMed ID

☐ Publisher

☐ Editor(s)

☐ Language of original document

☒ Abstract & keywords

☒ Abstract

☒ Author keywords

☒ Indexed keywords

☐ Funding details

☐ Funding text

☐ Other information

☐ Conference information

[Select all information](#)

☐ Save as preference

Export



3. DEDUPLICATION

- Automatic removal of duplicate records (common when searching multiple databases)
- Example: PubMed + Embase often retrieve the same studies
- Critical before moving to screening



4. MANAGING YOUR SEARCH RESULTS

- Store results from each source
- Download all available fields for each record
- Use bibliographic/reference management software:
 - e.g., EndNote, Mendeley, ProCite, Reference Manager, RefWorks, Zotero
- Sort and de-duplicate
- Move to **screening stage** (title/abstract, then full-text review)



1. EXPORTING SEARCH RESULTS

- From each database (PubMed, Embase, Cochrane, etc.),
- export results in compatible formats:
- RIS (.ris) BibTeX (.bib) EndNote XML (.xml)



IMPORTING INTO REFERENCE MANAGEMENT SOFTWARE

- **Common tools (reference managers):**

- EndNote
- Zotero
- Mendeley

- **Functions:**

- Organize references
- Attach PDFs
- Annotate notes
- Sync across devices



4. PREPARING FOR SCREENING

- Export cleaned reference list to systematic review software if available:
 - **Rayyan** (free web-based tool)
 - **Covidence** (subscription)
 - **RevMan** (Cochrane)
- These tools help to conduct:
 - Title/abstract screening
 - Full-text review
 - Conflict resolution



5. DOCUMENTING THE SEARCH

- Report full search strategy for transparency
- Note:
 - Database name
 - Date searched
 - Search terms used
 - Number of results retrieved



METHODS: SELECTION PROCESS (PRISMA ITEM 8)

- **Checklist Item:**
- Specify the methods used to decide whether a study met the inclusion criteria of the review
- including how many reviewers screened each record and each report retrieved,
- whether they worked independently,
- and if applicable, details of automation tools used in the process.



KEY ELEMENTS TO REPORT OF SELECTION PROCESS

- **Screening Process:** Explain how records were screened (e.g., first by title/abstract, then by full text).
- **Reviewers:** State how many reviewers were involved (usually at least two), and whether they worked independently.
- **Disagreements:** Describe how disagreements between reviewers were resolved (e.g., through discussion or a third reviewer).
- **Automation Tools (if used):** Mention any software (e.g., Rayyan, Covidence) or machine learning tools that assisted in the screening process.
- **Documentation:** Highlight that reasons for exclusion were recorded, and a PRISMA flow diagram was used to illustrate the process



EXAMPLE (VETERINARY MEDICINE – CANINE PARVOVIRUS REVIEW):

- **Screening Process:**
- All studies identified through database **searches (n = 2,345)** were imported into **Rayyan software** for initial screening. First, **duplicates were removed automatically**. Then, titles and abstracts were screened to exclude clearly irrelevant studies. Full **texts of the remaining 183 studies were assessed for eligibility** based on predefined inclusion/exclusion criteria.
- **Reviewers:** *Two independent reviewers* screened each record and full-text report.
- **Disagreements:** Any disagreements regarding eligibility were **resolved through discussion**. If consensus could not be reached, a **third reviewer** made the final decision.
- **Automation Tools:** Rayyan's **artificial intelligence-assisted** screening function was used to prioritize potentially relevant studies, but final decisions were made manually by the reviewers.
- **Documentation:** **Reasons for excluding studies** at the full-text stage (e.g., wrong population, irrelevant intervention) were recorded in a separate table. The entire process was summarized in a PRISMA flow diagram showing the number of records identified, screened, included, and excluded.



INTRODUCTION TO RAYYAN

rayyan

- Home
- Resources
- Pricing

Login

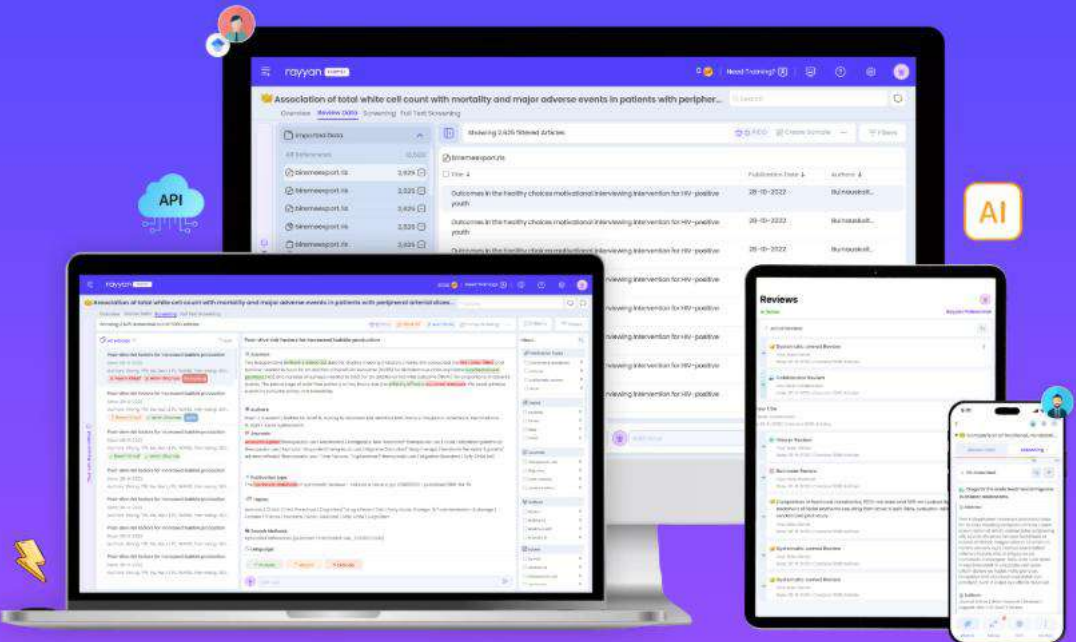
Contact Sales

Start For Free

Faster Systematic Literature Reviews

Rayyan is trusted by over 800k researchers to organize, manage, and accelerate their reviews.

Get Started



Hey Researcher, Got a Moment for Cookies?

We use cookies to ensure that we give you the best experience on our website. If you continue to use this site we will assume that you are happy with it.

Accept all

Reject all

Manage preferences



MAIN MENUE

Welcome back Sana Institute of Health sahdri sana!

Create Review

Active Reviews Show More

Title	Date Created	Owner	N. of Articles	
 test for webinar	27 Sep 2025	Sana Institute of Health sahdri sana	21,144	
 ILT	06 Aug 2025	Sana Institute of Health sahdri sana	615	
 Marek	06 Aug 2025	Sana Institute of Health sahdri sana	2,008	
 TRT	06 Aug 2025	Sana Institute of Health sahdri sana	13,577	
 HHS2	14 Jul 2025	Sana Institute of Health sahdri sana	1,575	
	17 Feb 2025	influenza and outbreak detection	8 816	

Archived Reviews Show More

Title	Date Archived	Owner	N. of Articles	
 Dr Danaie 2	14 Sep 2025	Sana Institute of Health sahdri sana	1,278	
 Dr barari 2	23 Aug 2025	Sana Institute of Health sahdri sana	1,313	
 Dr nikzad	10 Aug 2025	Sana Institute of Health sahdri sana	8,938	
 Dr danaie	11 Aug 2025	Sana Institute of Health sahdri sana	128	



SIDE-BAR

rayyan Professional

Home

My Library

Archived Reviews

Active Reviews

View All Reviews

Create New Review

ILT

Marek

TRT

HHS2

Teams

Need Training? | ? | ⚙️ | 👑

of Health sahdri sana! Create Review

Show More →

	Date Created	Owner	N. of Articles	
	06 Aug 2025	Sana Institute of Health sahdri sana	615	⬇️
	06 Aug 2025	Sana Institute of Health sahdri sana	2,008	⬇️
	06 Aug 2025	Sana Institute of Health sahdri sana	13,577	⬇️
	14 Jul 2025	Sana Institute of Health sahdri sana	1,575	⬇️

Show More →

	Date Archived	Owner	N. of Articles	
	14 Sep 2025	Sana Institute of Health sahdri sana	1,278	🟢
	23 Aug 2025	Sana Institute of Health sahdri sana	1,313	🟢
	10 Aug 2025	Sana Institute of Health sahdri sana	8,938	🟢

10/1/2025 90



STEP BY STEP FOR NEW REVIEW DEFINITION

rayan Professional

Need Training?

Home

My Library

Archived Reviews

Active Reviews

View All Reviews

Create New Review

SLT

Marok

TBT

14452

Birds Neoplasm

Dr. Isarari

Dr. Majidi

Teams

of Health sahdri sana!

Create Review

Show More

Show More

Show More

10 Aug 2025

Sana Institute of Health

8,538

10/1/2025

91

Create New Review

1 Add review info

2 Upload Articles

3 Invite Members

Review Title*

Review title has to be unique

Review Type*

Choose review type

Review Domain*

Choose review domain

Description

Describe your review!

Cancel

Create New Review



STEP BY STEP FOR NEW REVIEW DEFINITION

rayan Professional

Need Training?

Home

My Library

Archived Reviews

Active Reviews

View All Reviews

Create New Review

ILT

Mark

TBT

18452

Birds Neoplasm

Dr. Ismail

Dr. Majid

Teams

of Health sahdri sana!

Create Review

Show More

Create New Review

1 Add review info

2 Upload Articles

3 Invite Members

Review Title*

test for webinar

Review Type*

Systematic Review

Review Domain*

Biomedical

Description

Describe your review!

Cancel

Create New Review

10 Aug 2025

Sana Institute of Health

10/1/2025

92



STEP BY STEP FOR NEW REVIEW DEFINITION

Get started with rayyan

- ☒ Create your first review
- ☒ Add References
- ☐ Invite members Skip

Accelerate your work and invite members to your review.

Invite members

I work alone

- ☐ Resolve Duplicates
- ☐ Define screening criteria

Deleted

2/5

Home

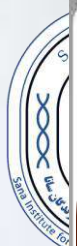
Need Training?

Welcome back Sana Institute of Health sahdri sana!

Create Review

Active Reviews Show More →

Title	Date Created	Owner	N. of Articles
test for webinar	27 Sep 2025	Sana Institute of Health sahdri sana	Upload
ILT	06 Aug 2025	Sana Institute of Health sahdri sana	615
Marek	06 Aug 2025	Sana Institute of Health sahdri sana	2,008
TRT	06 Aug 2025	Sana Institute of Health sahdri sana	13,577



Uploading 1 references



Uploading 1 references

 pubmed-smokingORt-set.nbib

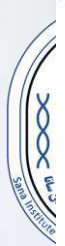


Uploading in progress...

Cancel

Finish

10/1/2025



1 Reference file uploaded!



1 Reference file uploaded!

pubmed-smokingORt-set.nbib



Upload successful!

Cancel

Finish

10/1/2025



INFORMATION OF NEW REVIEW

AI and Industry

Need Training?

Upgrade

Overview

Review Data

Screening

Full Text Screening

Data Extraction

Stay caught up with review updates

Edit Info

Invite Members

Stand Out

PRISMA

Review Info

Review Title: AI and Industry

Review Type: Systematic Review

Review Domain: Biomedical

Description: Add Description to your Review!

Data Summary

Imported References

8,817

Add References

Total Duplicates

787

Detect Duplicates

Unresolved

785

Continue Resolving

Resolved

1

Not Duplicate

0

Deleted

1

Review Members

Name	Email	Role	Status
Dr Jamshid Razmyar	jrazmyar@ut.ac.ir	Reviewer	Active
Sana Institute of Health sahdri sana	sahdri.sana@gmail.com	Viewer	Active

Screening

Screening Criteria

Inclusion Criteria

Exclusion Criteria

Inclusion Criteria 4

artificial intelligence

Inclusion Criteria 5

broiler

Quick guide

5/5

10/1/2025

96



INFORMATION OF REVIEW

Screening (Blind Off)

Screening Criteria

Inclusion Criteria

Exclusion Criteria

broiler

Inclusion Criteria 6

farm

Inclusion Criteria 7

computer

Add Inclusion Criteria

Your Progress

100%

■ Excluded: 8513 ■ Maybe: 55 ■ Included: 248

92hrs | 25mins | 255 Sessions

You Screened all articles! 🎉

0

Articles left to screen

Go to Screening

Screening Summary

59 Conflicts

99% Aligned

Team Progress

Good job! You're done! 🎉

Dr Jamshid Razmyar (Reviewer)

8,472 Decisions left

View Sessions Time

4% Done

Sana Institute of He... (Viewer)

8,816 Decisions left

View Sessions Time

0%

Quick guide 5/5

10/1/2025 97



HEADING BAR

 Edit Info

 Invite Members

 Blind On

 PRISMA



 Resolved

 Not Duplicate

 Deleted

0

0

0

 Quick guide

2/5



HEADING BAR-EDIT REVIEW

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Stay caught up with review updates

Edit Info | Invite Members | Blind On | PRIMA

Review Info

- Review Title: test for webinar
- Review Type: Systematic Review
- Review Domain: Biomedical
- Description: Add Description to your Review!

Data Summary

Imported References

21,144

Add References

7,188

Detect Duplicates

7,188

Start Resolving

Resolved 0

Not Duplicate 0

Deleted 0

Quick guide 3/5

Edit Review Info

Review Title

test for webinar

Review Type

Systematic Review

Review Domain

Biomedical

Description

Describe your review!

Cancel

Edit Review Info



HEADING BAR- INVITE MEMBER

AI and Industry

Need Training?

Upgrade

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Stay caught up with review updates

Review Info

Review Title: AI and Industry

Review Type: Systematic Review

Review Domain: Biomedical

Description: Add Description to your Review

Data Summary

Imported References

8,817

Add References

Resolved

1

Not Duplicate

0

Deleted

1

Review Members

Name	Email	Role	Status
influenza and outbreak detection majo panari	majid.panari@gmail.com	Owner	Active

Quick guide 5/5

Invite Members

Accelerate your work and Invite members to your review!

The * symbol represents required fields.

User Email*

User Role*

Select member role

Collaborator

Reviewer

Viewer

Close

Invite



DUPLICATION DETECTION

test for webinar

Need Training?

Overview

Review Data

Screening

Full Text Screening

Data Extraction

Stay caught up with review updates

Edit Info

Invite Members

Blind On

PRISMA

Review Info

Review Title: test for webinar

Review Type: Systematic Review

Review Domain: Biomedical

Description: Add Description to your Review!

Data Summary

Hooray! 🎉 you have successfully imported data to Rayyan! now it's time to detect duplicates.

Imported References

21,144

Add References

Total Duplicates

0

Detect Duplicates

Unresolved

0

Start Resolving

Resolved0

Not Duplicate0

Deleted0

Quick guide 3/5

Data Summary

Imported References

8,817

Add References

Total Duplicates

787

Detect Duplicates

Unresolved

785

Continue Resolving

Resolved1

Not Duplicate10/1/2025

Deleted1

← Comparing 1 and 2 out of 3 Articles

Run Auto Resolver

Keep Both Articles →

 An investigation of machine learning methods applied to genomic prediction in yellow-feathered broilers Authors:Liu, **B**, Liu, **H**, Tu, **J**, Xiao, J., Yang, J., He, X., Zhang, **H**. Date:

2025-01-01

 Journal:

Poultry Science - Volume 104, Issue 1, pp. - published 2025-01-01

 DOI:

10.1016/j.psj.2024.104489

 Publication Types:

Journal Article

 Search Methods:Uploaded References [**scopus.ris**] Abstract:

Machine learning (ML) methods have rapidly developed in various theoretical and practical research areas, including predicting genomic breeding values for large livestock animals. However, few studies have investigated the application of ML in broiler breeding. In this study, seven different ML methods—support vector regression (SVR), random forest (RF), gradient boosting decision tree (GBDT), extreme gradient boosting (XGBoost), light gradient boosting machine (LightGBM), kernel ridge regression (KRR) and multilayer perceptron (MLP) were employed to predict the genomic breeding values of laying traits, growth and carcass traits in a yellow-feathered broiler breeding population. The results

 Similarity: 94%

Keep Left Article

☒ Highlight difference

↑ 2 Done | 785 Articles Left to Resolve

 An investigation of machine learning methods applied to genomic prediction in yellow-feathered broilers Authors:Liu, **BG**, Liu, **HC**, Tu, **JH**, Xiao, J., Yang, J., He, X., Zhang, **HH**, Liu, **Bogong**, Liu, **Huichao**, Tu, **Junhao**, Xiao, **Jian**, Yang, **Jie**, He, **Xi**, Zhang, **Haihan** Date:

2025-01-01

 Journal:

POULTRY SCIENCE - Volume 104, Issue 1, pp. - published 2025-01-01

 DOI:10.1016/j.psj.2024.104489 **EA NOV 2024** Publication Types:

Journal Article

 Search Methods:Uploaded References [**savedrecs.ciw**] Abstract:

Machine learning (ML) methods have rapidly developed in various theoretical and practical research areas, including predicting genomic breeding values for large livestock animals. However, few studies have investigated the application of ML in broiler breeding. In this study, seven different ML methods—support vector regression (SVR), random forest (RF), gradient boosting decision tree (GBDT), extreme gradient boosting (XGBoost), light gradient boosting machine (LightGBM), kernel ridge regression (KRR) and multilayer perceptron (MLP) were employed to predict the genomic breeding values of laying traits, growth and carcass traits in a yellow-feathered broiler breeding population. The results

 Similarity: 94%

Keep Right Article

 Un-matched information  Extra information



AUTO DUPLICATION DETECTION

Systematic Auto Resolver

Hayyan will keep the best article based on your chosen criteria and remove the duplicates, you can learn more from [here](#)

Choose the duplicate best version to keep:
Imported References*

pubmed-smokingORt-set.nbib

Duplicates resolving criteria:

☒ Authors	Exact Match	☐ Journal	Exact Match	☐ Pages	Exact Match
☐ Title	Exact Match	☒ Year	Exact Match	☐ DOI	Exact Match
☐ Publication Type	Exact Match				

☒ Articles Similarity Percentage 97%

Close Resolve



REVIEW OF DATA

Overview | **Review Data** | Screening | Full Text Screening | Data Extraction

Showing 8,816 Articles

Auto Resolve PICO Samples Criteria Filters

AI and Industry

Need Training?

Upgrade

Search

All Data

Imported References

All References 8,817

Error: Unsupported_0

Error: Unsupported_0

scopus.ris 5,534

Add References

Possible Duplicates

Unresolved 785

Deleted 1

Not Duplicate 0

Resolved 1

Detect Duplicates

All References

Title

Date

Author

1 A metabolomic approach of AI-driven enzymatic digestion of pumpkin seed flour for producing umami metabolites

2025-01-01

de la Hoz, A.; -

2 Quality assessment of chicken using machine learning and electronic nose

2025-01-01

Anwar, H.; An...

3 Rapid detection of microplastics in chicken feed based on near infrared spectroscopy and machine learning algorithm

2025-01-01

Liu, Y.; Huo, Z...

4 Corrigendum to "Revealing in vivo broiler chicken growth state: Integrating CT imaging and deep learning for non-invasive reproductive phenotypic measurement" [Comput. Electron. Agric. 227 (2024) 109477](S0168169924008688)(10.1016/j.compag.2024.109477)

2025-01-01

Kou, X.; Yang...

5 An investigation of machine learning methods applied to genomic prediction in yellow-feathered broilers

2025-01-01

Liu, B.; Liu, H...

6 Optimization-Enabled Shepard Convolutional Quantum Neural Network for Brain Tumor Detection Using MRI Image

2025-01-01

Balasubrama...

7 Artificial Intelligence based Automated Sign Gesture Recognition Solutions for Visually Challenged People

2025-01-01

Allehaibi, K.H.

8 DETECTION OF WOODY BREAST CONDITION IN BROILER BREAST FILLETS USING LIGHT SCATTERING IMAGING

2025-01-01

Cai, J.; Lu, Y.

9 Advanced molecular system for accurate identification of chicken genetic resources

2025-01-01

Zhi, Y.; Geng, -

10 Computer Vision Systems in Livestock Farming, Poultry Farming, and Fish Farming: Applications, Use Cases, and Research Directions

2025-01-01

Balasubrama...

11 Quantitative prediction of minced chicken gel strength under ultrasonic treatment by NIR spectroscopy coupled with nonlinear chemometric tools evaluated using APaRPs

2025-01-01

Li, H.; Nune...

12 An Epidemiological Study on Salmonella in Tibetan Yaks from the Qinghai-Tibet Plateau Area in China

2024-01-01

Li, D.; Zhang, -

13 A Machine Vision System for Monitoring Wild Birds on Poultry Farms to Prevent Avian Influenza

2024-01-01

Yang, X.; Bist...

14 An adaptive expert-in-the-loop algorithm for flock-specific anomaly detection in laying hen production

2025-01-01

van Veen, L.A...

15 Automating egg damage detection for improved quality control in the food industry using deep learning

2025-01-01

Cengel, T.A.; -

16 Impact of tannic acid addition on the structural and functional properties of soy protein-based high-moisture extruded meat analogues optimized using artificial intelligence

2025-01-01

Gulzar, S...

Filters

Keywords for include

Select All

broiler 1725

broilers 884

AI 799

ai 799

machine learning 733

compared with 651

intelligence 625

automated 573

artificial intelligence 561

deep learning 353

Show more

Keywords for exclude

Select All

human 1188

animal 1065

cells 1037

broilers 884

in vivo 670

animals 558

in vitro 447

prevalence 331

mouse 237

patient 231

Show more

Labels

Select All

inc 236

extracted 95

novel 1

aaa 1

PICO Population

Upload PDF

Label

Add note

Chat with ResearchPilot

10/1/2025

104



REVIEW OF DATA- INFO ASSESSMENT

← → ↺

new.rayyan.ai/reviews/1328755/review_data

🔍 ☆ 🗄️ 👤 ⋮

🗄️

AD World Scientist and...

SG elmi

Semantic Scholar |...

طراحی سامانه

All Bookmarks

AI and Industry

Overview | Review Data | Screening | Full Text Screening | Data Extraction

All Data

Showing 8,816 Articles

Imported References

All References 1,237

Error: Unavailable...

Error: Unavailable...

Imported References 1,237

Add Reference

Possible Duplicates

Unreviewed 100

Deleted 1

Not Duplicate 1

Reviewed 1

Detect Duplicates

All References

Title 4

1 A metabolomic approach of *in vitro* enzymatic digestion of pumpkin seed flour for producing amino acids

2 Quality assessment of chicken using machine learning and electronic nose

3 Rapid detection of mycoplasmas in chicken feed based on near infrared spectroscopy and machine learning

4 Comparison to "Revealing *in vivo* broiler chicken growth state: Integrating CT imaging and deep learning for

5 An investigation of machine learning methods applied to genomic prediction in yellow-feathered broilers

6 Optimization-Enabled Shearlet Convolutional Quantum Neural Network for Brain Tumor Detection Using MRI

7 Artificial Intelligence based Automated Sign Gesture Recognition Solutions for Visually Challenged People

8 DETECTION OF WOODY BREAST CONDITION IN BROILER BREAST FILLETS USING LIGHT SCATTERING IMAGING

9 Advanced molecular system for accurate identification of chicken genetic resources

10 Computer Vision Systems in Livestock Farming, Poultry Farming, and Fish Farming: Applications, Use Cases, and

11 Quantitative prediction of mixed chicken gut strength under chronic treatment by MRI spectroscopy coupled

12 An Epidemiological Study on Salmonella in Tibetan Yaks from the Qinghai-Tibet Plateau Area in China

13 A Machine Vision System for Monitoring Wild Birds on Poultry Farms to Prevent Avian Influenza

14 An adaptive expert in-the-loop algorithm for flock-specific anomaly detection in laying hen production

15 Automating egg damage detection for improved quality control in the food industry using deep learning

16 Impact of lactic acid addition on the structural and functional properties of soy protein-based high-moisture

extracted inc

Abstract:
Machine learning (ML) methods have rapidly developed in various theoretical and practical research areas, including predicting genomic breeding values for large livestock animals. However, few studies have investigated the application of ML in broiler breeding. In this study, seven different ML methods—support vector regression (SVR), random forest (RF), gradient boosting decision tree (GBDT), extreme gradient boosting (XGBoost), light gradient boosting machine (LightGBM), kernel ridge regression (KRR), and multilayer perceptron (MLP)—were employed to predict the genomic breeding values of laying traits, growth and carcass traits in a yellow-feathered broiler breeding population. The results indicated that classic methods, such as GBLUP and Bayesian, achieved superior prediction accuracy compared to ML methods in five of the eight traits. For half-enscated weight (HEW), ML methods showed an average improvement of 54.4% over GBLUP and Bayesian methods. Among the ML methods, SVR, RF, GBDT, and XGBoost exhibited improvements exceeding 60%, with respective values of 61.3%, 61.0%, 60.4%, and 60.7%, while MLP improved by 54.4% and LightGBM by 53.7%. KRR had the lowest improvement at 29.4%. For eviscerated weight (EW), ML methods still outperformed GBLUP and Bayesian methods. MLP gained the largest improvement at 19.0%, while SVR, RF, GBDT, XGBoost, LightGBM, and KRR improved by 15.0%, 16.5%, 15.5%, 7.0%, 1.6%, and 15.9%, respectively. Compared to default hyperparameters, the average improvement of ML methods with tuned hyperparameters was 34.0%, 32.5%, 27.0%, 19.3%, 26.8%, 13.2%, 18.5%, and 46.3%, respectively. The prediction accuracy of above algorithms could be optimized using genome-wide association study (GWAS) to select subsets of significant SNPs. This work provides valuable insights into genomic prediction, aiding genetic breeding in broilers. © 2024

Publication Types:
Journal Article

Topics:
Broilers, Genomic prediction, Genomic selection, Machine learning, Animals, Breeding, Chickens, Female, Genomics, Machine Learning, Male, animal, breeding, female, Gallus gallus, genetics, genomics, machine learning, male, physiology, procedures

Authors:
Liu, D., Liu, H., Tu, J., Xiao, J., Yang, J., He, X., Zhang, H.

Journal:
Poultry Science - Volume 104, Issue 1, pp. - published 2025-01-01

Rayyan Reference ID:
162326353

URL:
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85209545003&doi=10.1016/j.psj.2024.104489&partnerID=40&md5=bffa3e5ce670178c1ee0f0659f093c20>

DOI:
10.1016/j.psj.2024.104489

Search Methods:
Uploaded References (scopus.iis)

Language:
English

Article Customizations:
Export Date: 11 February 2025; Cited By: 0; Correspondence Address: H. Zhang; College of Animal Science and Technology, Hunan Agricultural University, China; email: zhhous@163.com

🗄️ Label

🗄️ Add note



CRITERIA DEFINITION, PICO AND AUTO RESOLVE

Rayyan | Review Data

apps.rayyan.ai/prisma?duplicate

new.rayyan.ai/reviews/1643039/review_data

test for webinar

Need Training?

Overview | **Review Data** | Screening | Full Text Screening | Data Extraction

Showing 21,144 Articles

Auto Resolve | PICO | Samples | Criteria | Filters

All Data

Imported References

All References 21,144

pubmed-smoking... 10,000

export Ref6da1d 11,144

Add References

Possible Duplicates

Unresolved 7,188

Deleted 0

Not Duplicate 0

Resolved 0

Detect Duplicates

All References

Title ↓

Date ↓

Author ↓

1

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.

2008-05-01

Molina JR; Y...

2

Tobacco smoking and cancer: a meta-analysis.

2008-01-01

Gandini S; Bo...

3

Tobacco and lung cancer: risks, trends, and outcomes in patients with cancer.

2013-01-01

Warren GW; ...

4

Contribution of smoking, disease history, and survival to lung cancer disparities in Black individuals.

2023-11-08

Skolnick S; C...

5

Smoking status and the association between patient-level factors and survival among lung cancer patients.

2023-08-08

Carroll NM; B...

6

Smoking and lung cancer.

2005-01-01

Ozlü T; Bülbü...

7

Smoking Status and Survival Among a National Cohort of Lung and Colorectal Cancer Patients.

2019-03-30

Japuntich SJ...

Filters

Keywords for include

Select All

compared with 3397

trial 1285

randomized 754

randomly 318

assigned to 169

placebo 149

randomly assigned 149

randomised 132

controlled trial 128

control groups 87

Show more >

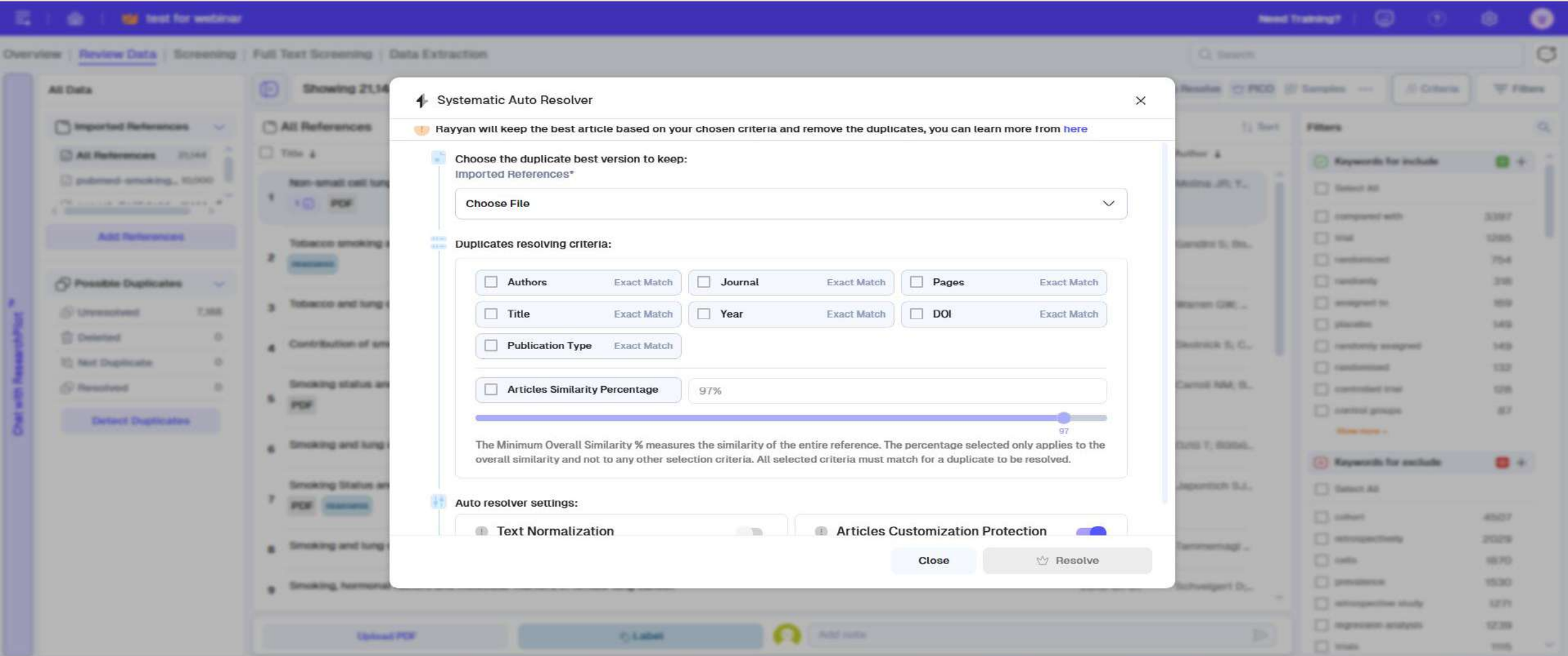
Keywords for exclude

Select All

10/1/2025 106

Chat with ResearchPilot™

AUTO RESOLVER



The screenshot shows the 'Systematic Auto Resolver' dialog box in the SIA HDR software. The dialog is titled 'Systematic Auto Resolver' and has a close button (X) in the top right corner. It contains the following sections:

- Header:** A message stating 'Hayyan will keep the best article based on your chosen criteria and remove the duplicates, you can learn more from [here](#)'.
- Choose the duplicate best version to keep:** A dropdown menu currently set to 'Imported References*'. Below it is a 'Choose File' button.
- Duplicates resolving criteria:** A section with checkboxes for various criteria, each with an 'Exact Match' label:
 - ☐ Authors
 - ☐ Journal
 - ☐ Pages
 - ☐ Title
 - ☐ Year
 - ☐ DOI
 - ☐ Publication Type
- Articles Similarity Percentage:** A slider control set to 97%. Below the slider is a text box with the value '97%'. A note below the slider states: 'The Minimum Overall Similarity % measures the similarity of the entire reference. The percentage selected only applies to the overall similarity and not to any other selection criteria. All selected criteria must match for a duplicate to be resolved.'
- Auto resolver settings:** Two toggle switches:
 - ☐ Text Normalization
 - ☒ Articles Customization Protection
- Buttons:** 'Close' and 'Resolve' buttons at the bottom right.

The background shows the main interface of the SIA HDR software, including a sidebar with 'All Data', 'Imported References', 'All References', 'Possible Duplicates', and 'Unresolved' sections. The main area displays a list of references with columns for 'Author &', 'Title &', 'Year', 'Journal', 'Pages', and 'DOI'. A 'Filters' panel on the right allows for filtering by 'Keywords for include' and 'Keywords for exclude'.



CRITERIA

Rayyan | Screening

apps.rayyan.ai/prisma/?duplicat

new.rayyan.ai/reviews/1643039/screening

test for webinar

Need Training?

Overview | Review Data | **Screening** | Full Text Screening | Data Extraction

Showing 21,144 Undecided Articles

Undecided

Sort

1

Non-small cell lung cancer: epidemiology, r...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; ...

2

Tobacco smoking and cancer: a meta-anal...
Date: 2008-01-01
Gandini S; Botteri E; Iodice S; Boniol M; Lo...

3

Tobacco and lung cancer: risks, trends, and...
Date: 2013-01-01
Warren GW; Cummings KM

4

Contribution of smoking, disease history, a...
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R

5

Smoking status and the association betwee...
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle K...

6

Smoking and lung cancer.
Date: 2005-01-01
Curtis RB; ...

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.

Abstract:

Lung cancer is the leading cause of cancer-related mortality not only in the United States but also around the world. In North America, lung cancer has become more predominant among former than current smokers. Yet in some countries, such as China, which has experienced a dramatic increase in the cigarette smoking rate during the past 2 decades, a peak in lung cancer incidence is still expected. Approximately two-thirds of adult Chinese men are smokers, representing one-third of all smokers worldwide. Non-small cell lung cancer accounts for 85% of all lung cancer cases in the United States. After the initial diagnosis, accurate staging of non-small cell lung cancer using computed tomography or positron emission tomography is crucial for determining appropriate therapy. When feasible, surgical resection remains the single most consistent and successful option for cure. However, close to 70% of patients with lung cancer present with locally advanced or metastatic disease at the time of diagnosis. Chemotherapy is beneficial for patients with metastatic disease, and the administration of concurrent chemotherapy and radiation is indicated for stage III lung cancer. The introduction of angiogenesis, epidermal growth factor receptor inhibitors, and other new anti-cancer agents is changing the present and future of this disease and will certainly increase the number of lung cancer survivors. We identified studies for **this review** by searching the MEDLINE and PubMed databases for English-language articles published from January 1, 1980, through January 31, 2008. Key terms used for this search included non-small cell lung cancer, adenocarcinoma, squamous cell carcinoma, bronchioalveolar cell carcinoma, large cell carcinoma, lung cancer epidemiology, genetics, survivorship, surgery, radiation therapy, chemotherapy, targeted therapy, bevacizumab, erlotinib, and epidermal growth factor receptor.

✓

?

✗

📝

🔖

Add note

Filters

Keywords for include

Select All

compared with3397

trial1285

randomized754

randomly318

assigned to169

placebo149

randomly assigned149

randomised132

controlled trial128

control groups87

Show more >

Keywords for exclude

Select All

cohort4507

10/1/2025

108

0% Done

0 Sessions

Chat with ResearchPilot™



CRITERIA

Rayyan | Screening

apps.rayyan.ai/prisma/?duplicat

new.rayyan.ai/reviews/1643039/screening

test for webinar

Need Training?

Overview | Review Data | **Screening** | Full Text Screening | Data Extraction

Showing 21,144 Undecided Articles

Undecided

Sort

1

Non-small cell lung cancer: epidemiology, r...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; ...

2

Tobacco smoking and cancer: a meta-anal...
Date: 2008-01-01
Gandini S; Botteri E; Iodice S; Boniol M; Lo...

3

Tobacco and lung cancer: risks, trends, and...
Date: 2013-01-01
Warren GW; Cummings KM

4

Contribution of smoking, disease history, a...
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R

5

Smoking status and the association betwe...
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle K...

6

Smoking and lung cancer.
Date: 2005-01-01
Curtis RB

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.

Abstract:

Lung cancer is the leading cause of cancer-related mortality not only in the United States but also around the world. In North America, lung cancer has become more predominant among former than current smokers. Yet in some countries, such as China, which has experienced a dramatic increase in the cigarette smoking rate during the past 2 decades, a peak in lung cancer incidence is still expected. Approximately two-thirds of adult Chinese men are smokers, representing one-third of all smokers worldwide. Non-small cell lung cancer accounts for 85% of all lung cancer cases in the United States. After the initial diagnosis, accurate staging of non-small cell lung cancer using computed tomography or positron emission tomography is crucial for determining appropriate therapy. When feasible, surgical resection remains the single most consistent and successful option for cure. However, close to 70% of patients with lung cancer present with locally advanced or metastatic disease at the time of diagnosis. Chemotherapy is beneficial for patients with metastatic disease, and the administration of concurrent chemotherapy and radiation is indicated for stage III lung cancer. The introduction of angiogenesis, epidermal growth factor receptor inhibitors, and other new anti-cancer agents is changing the present and future of this disease and will certainly increase the number of lung cancer survivors. We identified studies for **this review** by searching the MEDLINE and PubMed databases for English-language articles published from January 1, 1980, through January 31, 2008. Key terms used for this search included non-small cell lung cancer, adenocarcinoma, squamous cell carcinoma, bronchioalveolar cell carcinoma, large cell carcinoma, lung cancer epidemiology, genetics, survivorship, surgery, radiation therapy, chemotherapy, targeted therapy, bevacizumab, erlotinib, and epidermal growth factor receptor.

✓

?

✗

📝

🔖

Add note

Criteria

Filters

Keywords for include

Select All

compared with3397

trial1285

randomized754

randomly318

assigned to169

placebo149

randomly assigned149

randomised132

controlled trial128

control groups87

Show more >

Keywords for exclude

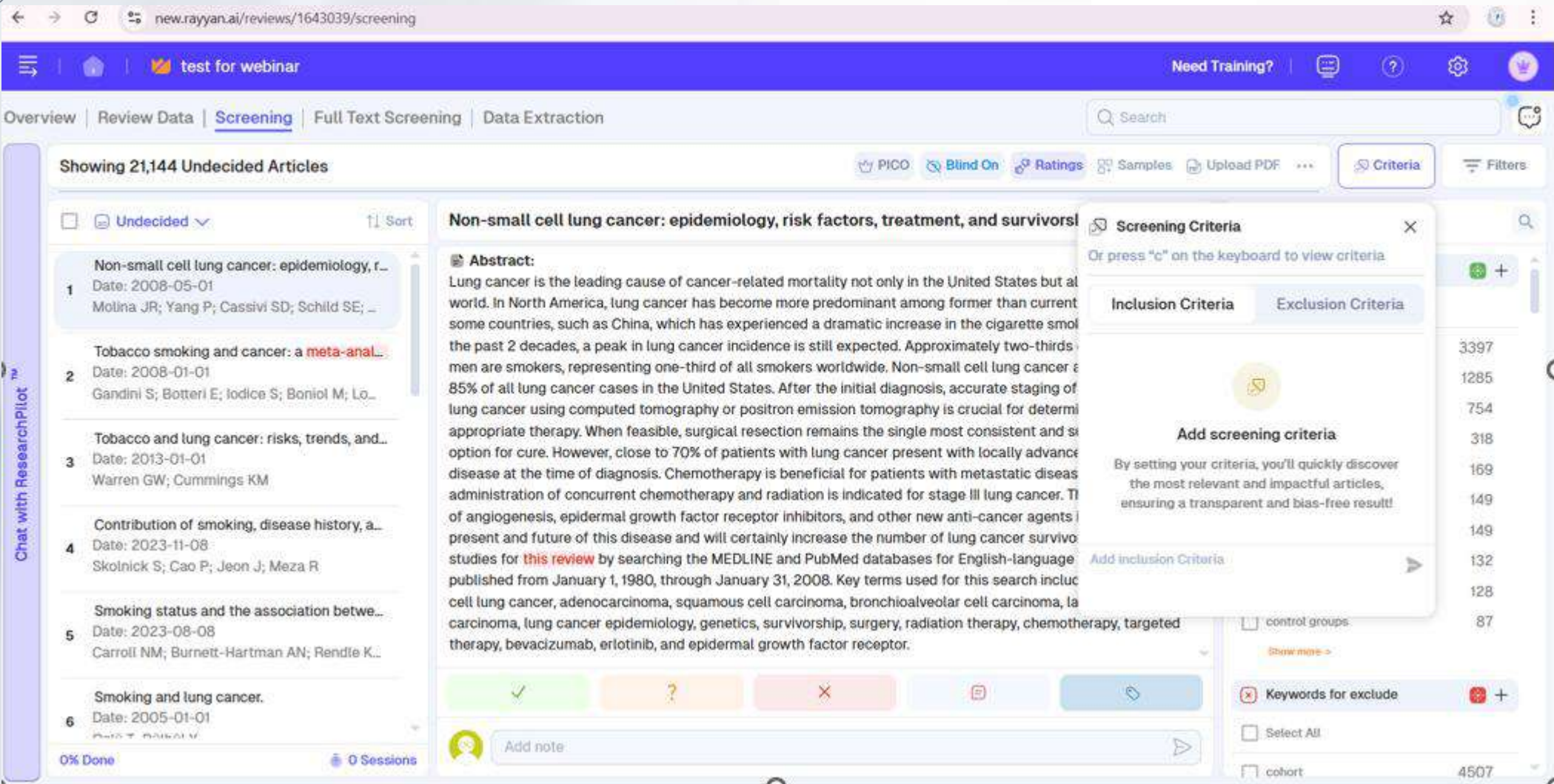
Select All

cohort4507

10/1/2025109

0% Done0 Sessions

CRITERIA DEFINITION



The screenshot displays the Rayyan.ai web application interface for screening articles. The top navigation bar includes tabs for Overview, Review Data, Screening (active), Full Text Screening, and Data Extraction. A search bar and various filters (PICO, Blind On, Ratings, Samples, Upload PDF) are visible. The main content area shows a list of 21,144 undecided articles. The first article, 'Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship', is selected, and its abstract is displayed. The abstract discusses the global burden of lung cancer and the need for accurate staging and appropriate therapy. A 'Screening Criteria' dialog box is open, allowing the user to define inclusion and exclusion criteria. The dialog box includes a search bar, a list of criteria (e.g., control groups, keywords for exclude, Select All, cohort), and a 'Show more' button. The criteria are organized into two columns: Inclusion Criteria and Exclusion Criteria. The 'Add screening criteria' section provides instructions on how to use the criteria to filter articles. The bottom of the screen shows a '0% Done' status and a '0 Sessions' indicator.



RATING OF THE STUDIES

Showing 1,574 / 1,575 Undecided Articles

PICO

Blind On

Ratings

Samples

Upload PDF

Criteria

Filters

Undecided

Sort

- 1

The hydropericardium syndrome and inclusi...
Date: 2000-04-01
Chandra R; Shukla SK; Kumar M
- 2

Complete Genome Analysis and Animal Mo...
Date: 2022-08-20
Liu A; Zhang Y; Wang J; Cui H; Qi X; Liu C; Z...
- 3

Emerging of a novel natural recombinant fo...
Date: 2021-03-01
Lv L; Lu H; Wang K; Shao H; Mei N; Ye JQ; ...
- 4

Hydropericardium syndrome: current state ...
Date: 2013-05-01
Asthana M; Chandra R; Kumar R
- 5

Hydropericardium syndrome caused by fow...
Date: 2019-02-19
Chen Z; Shi S; Qi B; Lin S; Chen C; Zhu C; H...

The hydropericardium syndrome and inclusion body hepatitis in domestic fowl.

inclusion bodies fill the entire enlarged nucleus of some of the hepatocytes. The disease can be diagnosed from its gross lesions, histopathological changes in the liver and by serological tests, such as agar gel diffusion, counter immunoelectrophoresis, indirect haemagglutination and ELISA. It has been brought under control by inactivated liver organ vaccines (0.25 ml/bird) or inactivated cell culture vaccines (10(3.5) LD50/bird) given by the subcutaneous route at 10-15 days of age. The vaccine is effective in the face of an outbreak and significantly reduces the mortality.

Publication Types:
Journal Article, Review

Topics:
Adenoviridae Infections/pathology/prevention & control/*veterinary, Animal Husbandry, Animals, Aviadenovirus/*isolation & purification/pathogenicity, *Chickens, Hepatitis, Viral, Animal/*pathology/prevention & control/virology, Inclusion Bodies, Viral/pathology, Liver/pathology/virology, Pericardial Effusion/pathology/*veterinary/virology, Pericardium/pathology, Poultry Diseases/pathology/prevention & control/*virology, Syndrome, Viral Vaccines

Authors:
Chandra R, Shukla SK, Kumar M

Filters

Tap to enable and extract PICO filters.

Ratings

Select All

Most Likely to Include40

Likely to Include12

No recommendation124

Likely to Exclude148

Most Likely to Exclude126

Sampled Data

Chat with ResearchPilot™

PICO Filters

In Progress

The action is currently in progress. Please wait.

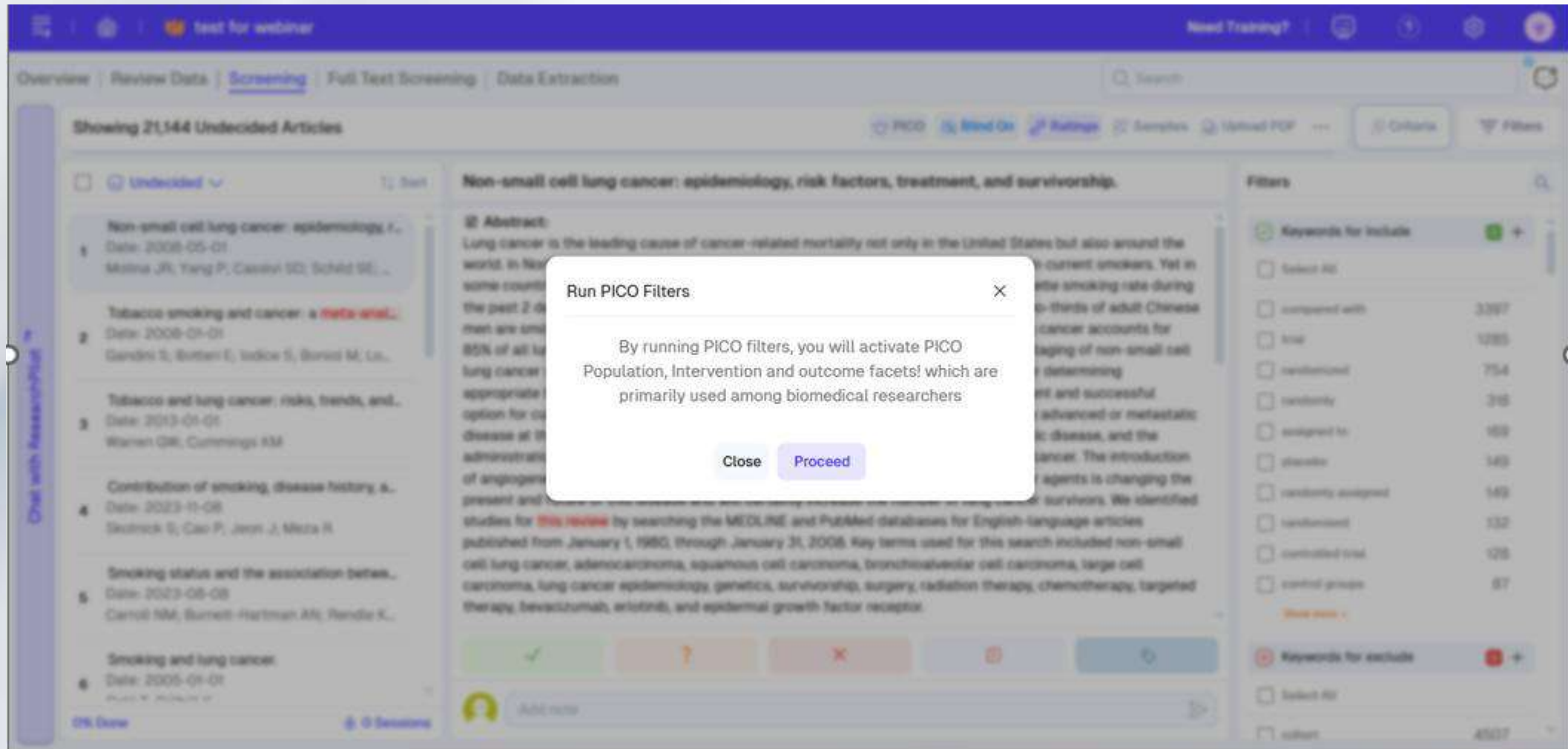
✓

?

×

Add note

PICO DEFINITION



The screenshot shows a web application interface for screening research articles. The top navigation bar includes tabs for Overview, Review Data, Screening (active), Full Text Screening, and Data Extraction. A search bar is located on the right. The main content area displays a list of articles under the heading "Showing 21,144 Undecided Articles". A pop-up window titled "Run PICO Filters" is centered on the screen, containing the text: "By running PICO filters, you will activate PICO Population, Intervention and outcome facets! which are primarily used among biomedical researchers". The pop-up has "Close" and "Proceed" buttons. The background interface shows a list of articles on the left, a detailed abstract in the center, and a "Filters" panel on the right with sections for "Keywords for include" and "Keywords for exclude".



Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research



PICO CRITERIA

Showing 21,144 Undecided Articles

☐ Undecided Sort

- 1

Non-small cell lung cancer: epidemiology, risk factors, treatm...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; Adjei AA
- 2

Tobacco smoking and cancer: a meta-analysis.
Date: 2008-01-01
Gandini S; Botteri E; Iodice S; Boniol M; Lowenfels AB; Maiso...
- 3

Tobacco and lung cancer: risks, trends, and outcomes in patie...
Date: 2013-01-01
Warren GW; Cummings KM
- 4

Contribution of smoking, disease history, and survival to lung ...
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R
- 5

Smoking status and the association between patient-level fac...
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas ...
- 6

Smoking and lung cancer.
Date: 2005-01-01
Ozlu T; Bulbul Y
- 7

Smoking Status and Survival Among a National Cohort of Lun...
Date: 2019-03-30
Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...
- 8

Smoking and lung cancer survival: the role of comorbidity and ...
Date: 2004-01-01
Tammemagi CM; Neslund-Dudas C; Simoff M; Kvale P

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.

Abstract:
Lung cancer is the leading cause of cancer-related mortality not only in the United States but also around the world. In North America, lung cancer has become more predominant among former than current smokers. Yet in some countries, such as China, which has experienced a dramatic increase in the cigarette smoking rate during the past 2 decades, a peak in lung cancer incidence is still expected. Approximately two-thirds of adult Chinese men are smokers, representing one-third of all smokers worldwide. Non-small cell lung cancer accounts for 85% of all lung cancer cases in the United States. After the initial diagnosis, accurate staging of non-small cell lung cancer using computed tomography or positron emission tomography is crucial for determining appropriate therapy. When feasible, surgical resection remains the single most consistent and successful option for cure. However, close to 70% of patients with lung cancer present with locally advanced or metastatic disease at the time of diagnosis. Chemotherapy is beneficial for patients with metastatic disease, and the administration of concurrent chemotherapy and radiation is indicated for stage III lung cancer. The introduction of angiogenesis, epidermal growth factor receptor inhibitors, and other new anti-cancer agents is changing the present and future of this disease and will certainly increase the number of lung cancer survivors. We identified studies for this review by searching the MEDLINE and PubMed databases for English-language articles published from January 1, 1980, through January 31, 2008. Key terms used for this search included non-small cell lung cancer, adenocarcinoma, squamous cell carcinoma, bronchioalveolar cell carcinoma, large cell carcinoma, lung cancer epidemiology, genetics, survivorship, surgery, radiation therapy, chemotherapy, targeted therapy, bevacizumab, erlotinib, and epidermal growth factor receptor.

Publication Types:
Journal Article, Review

Topics:
Adenocarcinoma/epidemiology, Carcinoma, Non-Small-Cell Lung/*epidemiology/genetics/mortality/pathology/therapy, Carcinoma, Squamous Cell/epidemiology, Chemotherapy, Adjuvant, Diet, ErbB Receptors/antagonists & inhibitors, Erlotinib Hydrochloride, Gefitinib, Genetic Predisposition to Disease, Humans, Lung Neoplasms/*epidemiology/genetics/mortality/pathology/therapy, Lymph Node Excision, Neoplasm Staging, Pharmacogenetics, Quinazolinones/therapeutic use, Radiotherapy Dosage, Risk Factors, Smoking/epidemiology, Survival Analysis, Survivors, Tobacco Smoke Pollution/statistics & numerical data, Treatment Outcome

Authors:
Molina JR, Yang P, Cassivi SD, Schild SE, Adjei AA

✓ Include

? Maybe

✗ Exclude

Reason

Label

Add note

Filters

PICO Population

Select All

patient 15122

cancer 12501

lung 7921

cell 7164

year 5735

non 4876

age 4606

small 4290

nsclc 4049

carcinoma 3752

Show more >

PICO Intervention

Select All

chemotherapi 2621

therapi 1937

inhibitor 1547

radiotherapi 1357

surg 10/1/2025 114

base 749



RATING OF THE STUDIES

Showing 1,574 / 1,575 Undecided Articles

PICO Blind On Ratings Samples Upload PDF Criteria Filters

Undecided Sort

- 1

The hydropericardium syndrome and inclusi...
Date: 2000-04-01
Chandra R; Shukla SK; Kumar M
- 2

Complete Genome Analysis and Animal Mo...
Date: 2022-08-20
Liu A; Zhang Y; Wang J; Cui H; Qi X; Liu C; Z...
- 3

Emerging of a novel natural recombinant fo...
Date: 2021-03-01
Lv L; Lu H; Wang K; Shao H; Mei N; Ye JQ; ...
- 4

Hydropericardium syndrome: current state ...
Date: 2013-05-01
Asthana M; Chandra R; Kumar R
- 5

Hydropericardium syndrome caused by fow...
Date: 2019-02-19
Chen Z; Shi S; Qi B; Lin S; Chen C; Zhu C; H...

The hydropericardium syndrome and inclusion body hepatitis in domestic fowl.

inclusion bodies fill the entire enlarged nucleus of some of the hepatocytes. The disease can be diagnosed from its gross lesions, histopathological changes in the liver and by serological tests, such as agar gel diffusion, counter immunoelectrophoresis, indirect haemagglutination and ELISA. It has been brought under control by inactivated liver organ vaccines (0.25 ml/bird) or inactivated cell culture vaccines (10(3.5) LD50/bird) given by the subcutaneous route at 10-15 days of age. The vaccine is effective in the face of an outbreak and significantly reduces the mortality.

Publication Types:

Journal Article, Review

Topics:

Adenoviridae Infections/pathology/prevention & control/*veterinary, Animal Husbandry, Animals, Aviadenovirus/*isolation & purification/pathogenicity, *Chickens, Hepatitis, Viral, Animal/*pathology/prevention & control/virology, Inclusion Bodies, Viral/pathology, Liver/pathology/virology, Pericardial Effusion/pathology/*veterinary/virology, Pericardium/pathology, Poultry Diseases/pathology/prevention & control/*virology, Syndrome, Viral Vaccines

Authors:

Chandra R, Shukla SK, Kumar M

Filters

Tap to enable and extract PICO filters.

Ratings

- ☐ Select All
- ☐ Most Likely to Include 40
- ☐ Likely to Include 12
- ☐ No recommendation 124
- ☐ Likely to Exclude 148
- ☐ Most Likely to Exclude 126

Sampled Data

PICO Filters

The action is currently in progress. Please wait.

In Progress

Add note

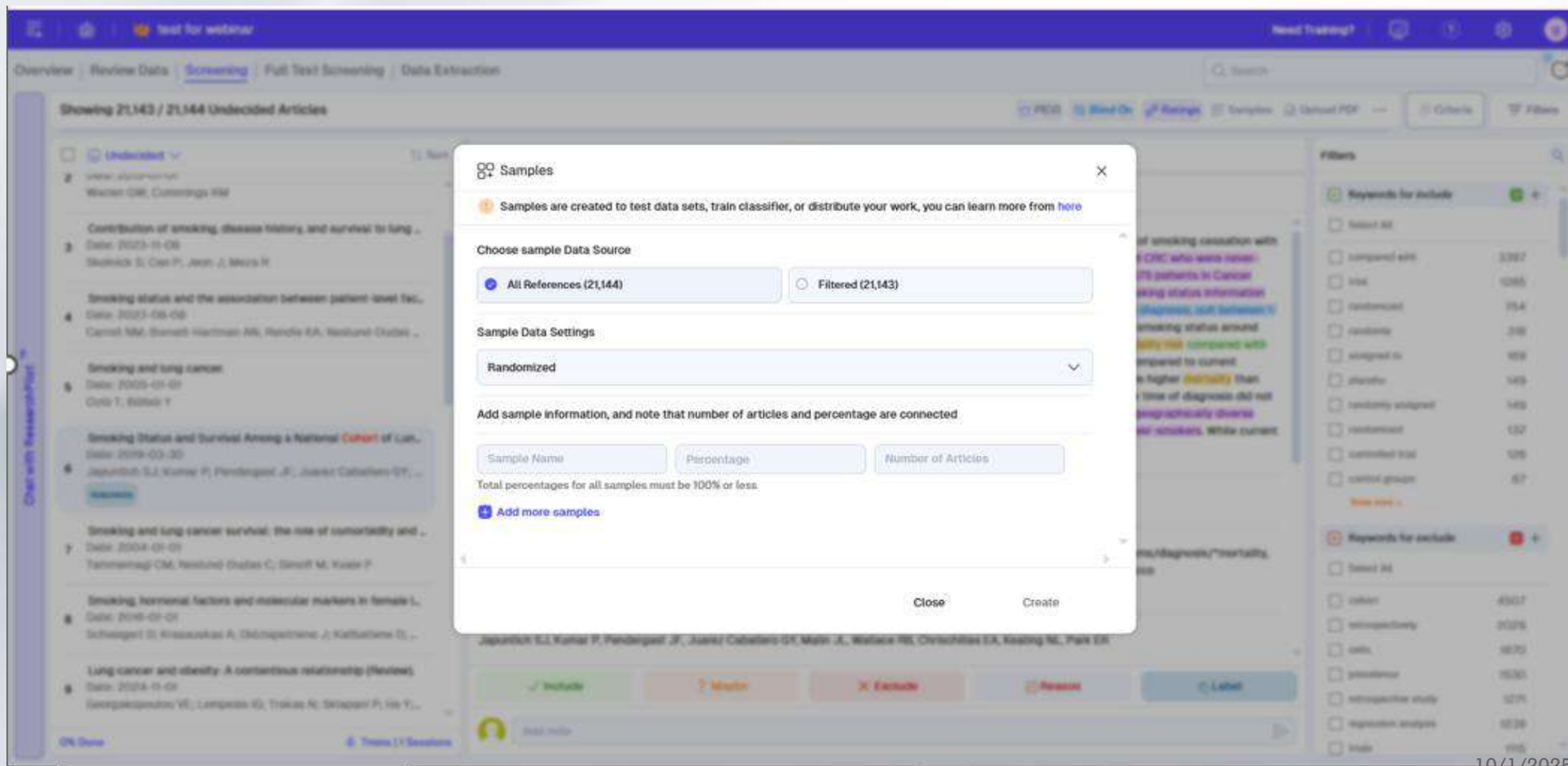
Enable filter

10/1/2025

115

Enable Samples filter to help you

TAKE SAMPLE FROM ARTICLES



The screenshot displays the SANA Institute software interface, specifically the 'Screening' tab. A modal window titled 'Samples' is open, allowing users to create data samples from a list of articles. The background shows a list of articles with details like title, date, and authors. The 'Samples' dialog includes the following sections:

- Samples**: A header with a close button and a note: 'Samples are created to test data sets, train classifier, or distribute your work, you can learn more from [here](#)'.
- Choose sample Data Source**: Two radio buttons: 'All References (21,144)' (selected) and 'Filtered (21,143)'.
- Sample Data Settings**: A dropdown menu set to 'Randomized'.
- Add sample information, and note that number of articles and percentage are connected**: Three input fields for 'Sample Name', 'Percentage', and 'Number of Articles'. Below these fields, a note states: 'Total percentages for all samples must be 100% or less.' and a button 'Add more samples'.
- Buttons**: 'Close' and 'Create' buttons at the bottom.

The background interface shows a list of articles with columns for 'Unselected', 'Selected', and 'Articles'. The 'Articles' column lists titles, dates, and authors. The 'Selected' column has checkboxes. The 'Unselected' column has a 'Chat with Researcher' button. The top navigation bar includes 'Overview', 'Review Data', 'Screening', 'Full Text Screening', and 'Data Extraction'. The right sidebar shows 'Filters' for 'Keywords for include' and 'Keywords for exclude'.



RATING OF THE STUDIES

Showing 1,574 / 1,575 Undecided Articles

PICO Blind On Ratings Samples Upload PDF Criteria Filters

Undecided Sort

- 1

The hydropericardium syndrome and inclusi...
Date: 2000-04-01
Chandra R; Shukla SK; Kumar M
- 2

Complete Genome Analysis and Animal Mo...
Date: 2022-08-20
Liu A; Zhang Y; Wang J; Cui H; Qi X; Liu C; Z...
- 3

Emerging of a novel natural recombinant fo...
Date: 2021-03-01
Lv L; Lu H; Wang K; Shao H; Mei N; Ye JQ; ...
- 4

Hydropericardium syndrome: current state ...
Date: 2013-05-01
Asthana M; Chandra R; Kumar R
- 5

Hydropericardium syndrome caused by fow...
Date: 2019-02-19
Chen Z; Shi S; Qi B; Lin S; Chen C; Zhu C; H...

The hydropericardium syndrome and inclusion body hepatitis in domestic fowl.

inclusion bodies fill the entire enlarged nucleus of some of the hepatocytes. The disease can be diagnosed from its gross lesions, histopathological changes in the liver and by serological tests, such as agar gel diffusion, counter immunoelectrophoresis, indirect haemagglutination and ELISA. It has been brought under control by inactivated liver organ vaccines (0.25 ml/bird) or inactivated cell culture vaccines (10(3.5) LD50/bird) given by the subcutaneous route at 10-15 days of age. The vaccine is effective in the face of an outbreak and significantly reduces the mortality.

Publication Types:
Journal Article, Review

Topics:
Adenoviridae Infections/pathology/prevention & control/*veterinary, Animal Husbandry, Animals, Aviadenovirus/*isolation & purification/pathogenicity, *Chickens, Hepatitis, Viral, Animal/*pathology/prevention & control/virology, Inclusion Bodies, Viral/pathology, Liver/pathology/virology, Pericardial Effusion/pathology/*veterinary/virology, Pericardium/pathology, Poultry Diseases/pathology/prevention & control/*virology, Syndrome, Viral Vaccines

Authors:
Chandra R, Shukla SK, Kumar M

✓

?

✗

📝

🔖

Filters

Tap to enable and extract PICO filters.

- Ratings

Select All

Most Likely to Include40

Likely to Include12

No recommendation124

Likely to Exclude148

Most Likely to Exclude126

Sampled Data

Chat with ResearchPilot™

PICO Filters

In Progress

The action is currently in progress. Please wait.

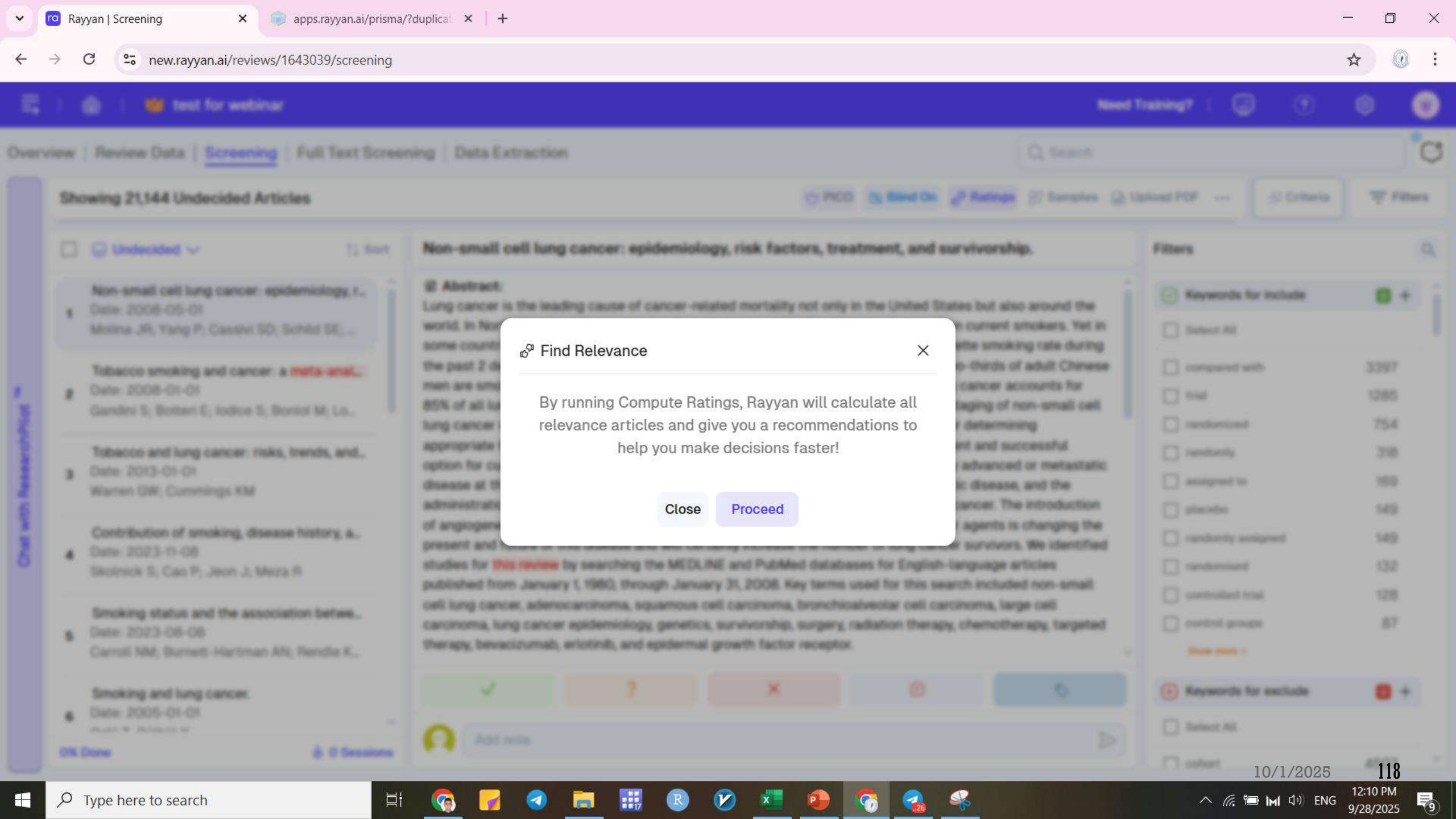
Add note

Enable filter

10/1/2025

117

Enable Samples filter to help you



Find Relevance

By running Compute Ratings, Rayyan will calculate all relevance articles and give you a recommendations to help you make decisions faster!

Close

Proceed

Showing 1,574 / 1,575 Undecided Articles

 PICO  Blind On  Ratings  Samples  Upload PDF ...  Criteria  Filters

☐ Undecided 

1

The hydropericardium syndrome and inclusi...
Date: 2000-04-01
Chandra R; Shukla SK; Kumar M

2

Complete Genome Analysis and **Animal** Mo...
Date: 2022-08-20
Liu A; Zhang Y; Wang J; Cui H; Qi X; Liu C; Z...

3

Emerging of a novel natural recombinant fo...
Date: 2021-03-01
Lv L; Lu H; Wang K; Shao H; Mei N; Ye JQ; ...

4

Hydropericardium syndrome: current state ...
Date: 2013-05-01
Asthana M; Chandra R; Kumar R

5

Hydropericardium syndrome caused by fow...
Date: 2019-02-19
Chen Z; Shi S; Qi B; Lin S; Chen C; Zhu C; H...

The hydropericardium syndrome and inclusion body hepatitis in domestic fowl.

inclusion bodies fill the entire enlarged nucleus of some of the hepatocytes. The disease can be diagnosed from its gross lesions, histopathological changes in the liver and by serological tests, such as agar gel diffusion, counter immunoelectrophoresis, indirect haemagglutination and ELISA. It has been brought under control by inactivated liver organ vaccines (0.25 ml/bird) or inactivated cell culture vaccines (10(3.5) LD50/bird) given by the subcutaneous route at 10-15 days of age. The vaccine is effective in the face of an outbreak and significantly reduces the mortality.

Publication Types:
Journal Article, Review

Topics:
Adenoviridae Infections/pathology/prevention & control/*veterinary, **Animal** Husbandry, **Animals**, Aviadenovirus/*isolation & purification/pathogenicity, *Chickens, Hepatitis, Viral, **Animal**/*pathology/prevention & control/virology, Inclusion Bodies, Viral/pathology, Liver/pathology/virology, Pericardial Effusion/pathology/*veterinary/virology, Pericardium/pathology, Poultry Diseases/pathology/prevention & control/*virology, Syndrome, Viral Vaccines

Authors:
Chandra R, Shukla SK, Kumar M



 Ratings

☐ Select All

☐ Most Likely to Include 40

☐ Likely to Include 12

☐ No recommendation 124

☐ Likely to Exclude 148

☐ Most Likely to Exclude 126

 Sampled Data 

Enable filter

Enable Samples filter to help you

Chat with ResearchPilot™

 PICO Filters In Progress 

The action is currently in progress. Please wait.

Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research

10/1/2025 119



NOTE FOR THE ARTICLES

test for webinar

Need Training?

?

Overview | Review Data | **Screening** | Full Text Screening | Data Extraction

Showing 21,144 Undecided Articles

reassess

Non-small cell lung cancer: epidemiology, risk factors, treatm...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; Adjei AA
1 ☒ sahdri

Notes
sahdri
این مطالعه باید به علت نوع مطالعه، دوباره بررسی شود

2
...fals AB; Maison...

3
Date: 2013-01-01
Warren GW; Cummings KM
Contribution of smoking, disease history, and survival to lung ...
4
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R
Smoking status and the association between patient-level fac...
5
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle KA; Nesiund-Dudas ...
Smoking and lung cancer.
6
Date: 2005-01-01
Ozlu T; Bulbul Y
Smoking Status and Survival Among a National Cohort of Lun...
Date: 2019-03-30
Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...
reassess

0% Done 0 Sessions

Smoking Status and Survival Among a National Cohort of Lung and Colorectal Cancer Patients.

reassess

Abstract:
INTRODUCTION: The purpose of this study was to explore the association of smoking status and clinically relevant duration of smoking cessation with long-term survival after lung cancer (LC) or colorectal cancer (CRC) diagnosis. We compared survival of patients with LC and CRC who were never-smokers, long-term, medium-term, and short-term quitters, and current smokers around diagnosis. METHODS: We studied 5575 patients in Cancer Care Outcomes Research and Surveillance (CanCORS), a national, prospective observational cohort study, who provided smoking status information approximately 5 months after LC or CRC diagnosis. Smoking status was categorized as: never-smoker, quit >5 years prior to diagnosis, quit between 1-5 years prior to diagnosis, quit less than 1 year before diagnosis, and current smoker. We examined the relationship between smoking status around diagnosis with mortality using Cox regression models. RESULTS: Among participants with LC, never-smokers had lower mortality risk compared with current smokers (HR 0.71, 95% CI 0.57 to 0.89). Among participants with CRC, never-smokers had a lower mortality risk as compared to current smokers (HR 0.79, 95% CI 0.64 to 0.99). CONCLUSIONS: Among both LC and CRC patients, current smokers at diagnosis have higher mortality than never-smokers. This effect should be further studied in the context of tumor biology. However, smoking cessation around the time of diagnosis did not affect survival in this sample. IMPLICATIONS: The results from our analysis of patients in the CanCORS consortium, a large, geographically diverse cohort, show that both LC and CRC patients who were actively smoking at diagnosis have worse survival as compared to never-smokers. While current smoking is detrimental to survival, cessation upon diagnosis may not mitigate this risk.

Publication Types:
Journal Article, Research Support, N.I.H., Extramural

Topics:
Adult, Aged, Cohort Studies, Colorectal Neoplasms/diagnosis/*mortality, Female, Follow-Up Studies, Humans, Lung Neoplasms/diagnosis/*mortality, Male, Middle Aged, *Non-Smokers, Prospective Studies, *Smokers, Smoking Cessation/methods, Survival Rate/trends, Tobacco Smoking/*mortality/therapy/*trends

Authors:
Japuntich SJ, Kumar P, Pendergast JF, Juarez Caballero GY, Malin JL, Wallace RB, Chrischilles EA, Keating NL, Park ER

☒ Include

☐ ? Maybe

☐ X Exclude

☐ Reason

☐ Label

Add note

Filters

☒ Keywords for include

human ☒ Add

☐ Select All

☐ compared with 3397

☐ trial 1285

☐ randomized 754

☐ randomly 318

☐ assigned to 169

☐ placebo 149

☐ randomly assigned 149

☐ randomised 132

☐ controlled trial 128

☐ control groups 87

☒ Keywords for exclude

☐ Select All

☐ cohort 4507

☐ retrospectively 2029

☐ cells 1870

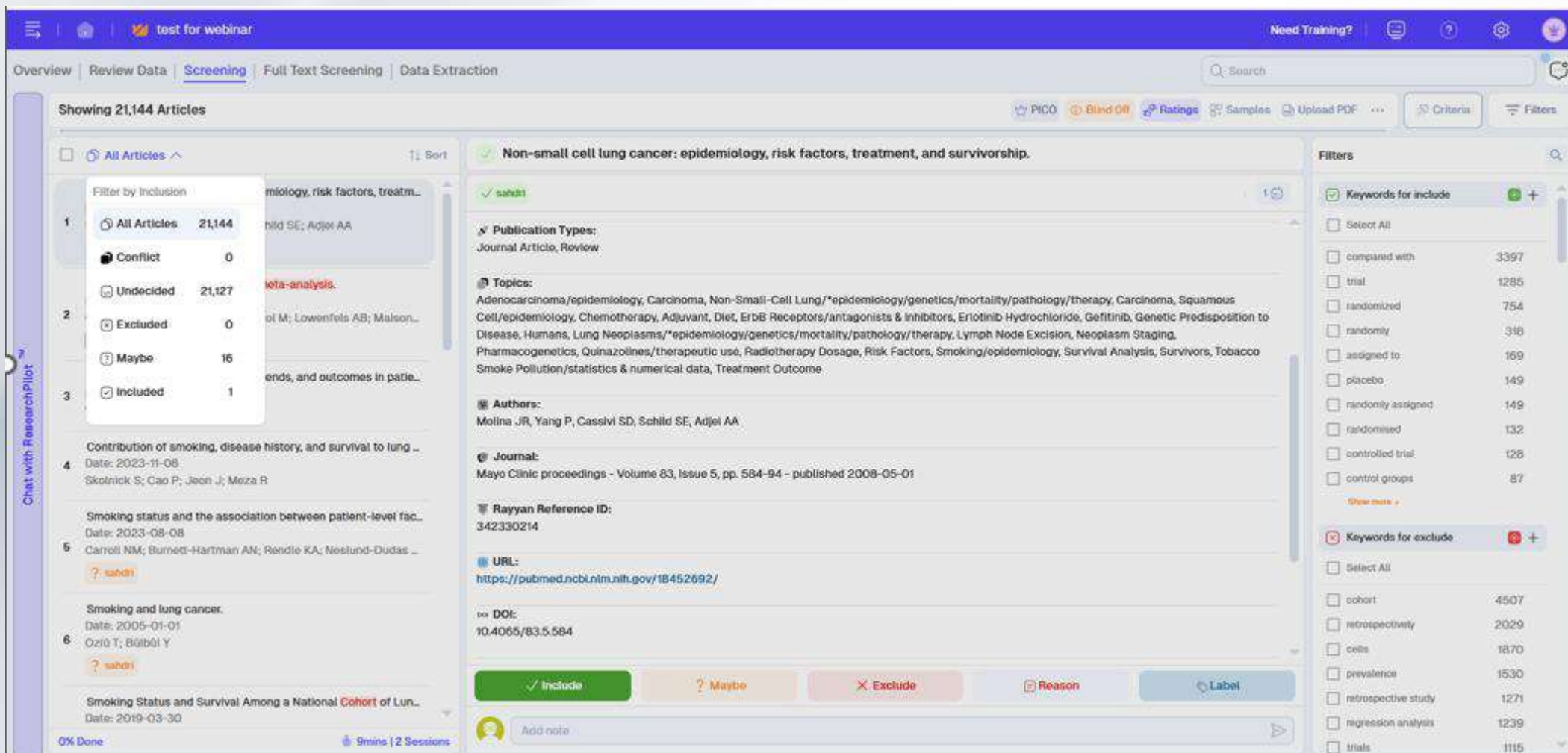
☐ prevalence 1530

☐ retrospective study 1271

☐ regression analysis 1219

☐ trials 1115

SCREENING, ARTICLES SITUATION



The screenshot displays the Rayyan screening interface. At the top, there's a navigation bar with tabs: Overview, Review Data, Screening (active), Full Text Screening, and Data Extraction. A search bar is on the right. Below the navigation bar, it says "Showing 21,144 Articles". A filter dropdown menu is open, showing options: All Articles (21,144), Conflict (0), Undecided (21,127), Excluded (0), Maybe (16), and Included (1). The main area shows a list of articles. The selected article is "Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship." by Molina JR, Yang P, Cassivi SD, Schild SE, Adjei AA. The article details include publication types (Journal Article, Review), topics (Adenocarcinoma/epidemiology, Carcinoma, Non-Small-Cell Lung/*epidemiology/genetics/mortality/pathology/therapy, Carcinoma, Squamous Cell/epidemiology, Chemotherapy, Adjuvant, Diet, ErbB Receptors/antagonists & inhibitors, Erlotinib Hydrochloride, Gefitinib, Genetic Predisposition to Disease, Humans, Lung Neoplasms/*epidemiology/genetics/mortality/pathology/therapy, Lymph Node Excision, Neoplasm Staging, Pharmacogenetics, Quinazolines/therapeutic use, Radiotherapy Dosage, Risk Factors, Smoking/epidemiology, Survival Analysis, Survivors, Tobacco Smoke Pollution/statistics & numerical data, Treatment Outcome), authors, journal (Mayo Clinic proceedings - Volume 83, Issue 5, pp. 584-94 - published 2008-05-01), Rayyan Reference ID (342330214), URL (https://pubmed.ncbi.nlm.nih.gov/18452692/), and DOI (10.4065/83.5.584). At the bottom, there are buttons for Include, Maybe, Exclude, Reason, and Label. On the right, there are filters for keywords to include and exclude. The "Keywords for include" list includes: compared with (3397), trial (1285), randomized (754), randomly (318), assigned to (169), placebo (149), randomly assigned (149), randomised (132), controlled trial (126), and control groups (87). The "Keywords for exclude" list includes: cohort (4507), retrospectively (2029), cells (1870), prevalence (1530), retrospective study (1271), regression analysis (1239), and trials (1115).



ADD OR REMOVE CRITERIA IN SCREENING

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Search

Showing 21,144 Undecided Articles

PICO Blind On Ratings Samples Upload PDF ... Criteria Filters

Undecided

Sort

Non-small cell lung cancer: epidemiology, risk factors, treatm...
Date: 2008-05-01

1 Molina JR; Yang P; Cassivi SD; Schild SE; Adjei AA

1

Tobacco smoking and cancer: a meta-analysis.

2 Date: 2008-01-01

Gandini S; Botteri E; Iodice S; Boniol M; Lowenfels AB; Maisson...

Tobacco and lung cancer: risks, trends, and outcomes in patie...

3 Date: 2013-01-01

Warren GW; Cummings KM

Contribution of smoking, disease history, and survival to lung ...

4 Date: 2023-11-08

Skolnick S; Cao P; Jeon J; Meza R

Smoking status and the association between patient-level fac...

5 Date: 2023-08-08

Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas ...

Smoking and lung cancer.

6 Date: 2005-01-01

Ozlu T; Bulbul Y

Smoking Status and Survival Among a National Cohort of Lun...

7 Date: 2019-03-30

Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...

Smoking and lung cancer survival: the role of comorbidity and ...

8 Date: 2004-01-01

0% Done

0 Sessions

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.

1

Abstract:

Lung cancer is the leading cause of cancer-related mortality not only in the United States but also around the world. In North America, lung cancer has become more predominant among former than current smokers. Yet in some countries, such as China, which has experienced a dramatic increase in the cigarette smoking rate during the past 2 decades, a peak in lung cancer incidence is still expected. Approximately two-thirds of adult Chinese men are smokers, representing one-third of all smokers worldwide. Non-small cell lung cancer accounts for 85% of all lung cancer cases in the United States. After the initial diagnosis, accurate staging of non-small cell lung cancer using computed tomography or positron emission tomography is crucial for determining appropriate therapy. When feasible, surgical resection remains the single most consistent and successful option for cure. However, close to 70% of patients with lung cancer present with locally advanced or metastatic disease at the time of diagnosis. Chemotherapy is beneficial for patients with metastatic disease, and the administration of concurrent chemotherapy and radiation is indicated for stage III lung cancer. The introduction of angiogenesis, epidermal growth factor receptor inhibitors, and other new anti-cancer agents is changing the present and future of this disease and will certainly increase the number of lung cancer survivors. We identified studies for this review by searching the MEDLINE and PubMed databases for English-language articles published from January 1, 1980, through January 31, 2008. Key terms used for this search included non-small cell lung cancer, adenocarcinoma, squamous cell carcinoma, bronchioalveolar cell carcinoma, large cell carcinoma, lung cancer epidemiology, genetics, survivorship, surgery, radiation therapy, chemotherapy, targeted therapy, bevacizumab, erlotinib, and epidermal growth factor receptor.

Publication Types:

Journal Article, Review

Topics:

Adenocarcinoma/epidemiology, Carcinoma, Non-Small-Cell Lung/*epidemiology/genetics/mortality/pathology/therapy, Carcinoma, Squamous Cell/epidemiology, Chemotherapy, Adjuvant, Diet, ErbB Receptors/antagonists & inhibitors, Erlotinib Hydrochloride, Gefitinib, Genetic Predisposition to Disease, Humans, Lung Neoplasms/*epidemiology/genetics/mortality/pathology/therapy, Lymph Node Excision, Neoplasm Staging, Pharmacogenetics, Quinazolines/therapeutic use, Radiotherapy Dosage, Risk Factors, Smoking/epidemiology, Survival Analysis, Survivors, Tobacco Smoke Pollution/statistics & numerical data, Treatment Outcome

Include

Maybe

Exclude

Reason

Label



Add note

Filters

Keywords for include

human

Add

Select All

compared with 3397

trial 1285

randomized 754

randomly 318

assigned to 169

placebo 149

randomly assigned 149

randomised 132

controlled trial 128

control groups 87

Keywords for exclude

Use comma, to separate words

Select All

cohort 4507

retrospectively 2029

cells 1870

prevalence 10/1/2025 123

retrospective study 1271



LABEL TO ARTICLES

test for webinar

Need Training?

view

Review Data

Screening

Full Text Screening

Data Extraction

Showing 21,123 / 21,144 Undecided Articles

PICO

Blind Off

Ratings

Samples

Upload PDF

Criteria

Filters

Undecided

Sort

Tobacco smoking and cancer: a meta-analysis.

Date: 2008-01-01

1 Gandini S; Botteri E; Iodice S; Boniol M; Lowenfels AB; Maisonneuve P; Boyle P

data extracted

reassess

Tobacco and lung cancer: risks, trends, and outcomes in patients with a history of smoking.

Date: 2013-01-01

2 Warren GW; Cummings KM

Contribution of smoking, disease history, and survival to lung cancer prognosis: results from the International Lung Cancer Consortium (ILCCO) cohort.

Date: 2023-11-08

3 Skolnick S; Cao P; Jeon J; Meza R

Impact of smoking amount on clinicopathological features and survival in patients with lung cancer: a meta-analysis.

Date: 2020-09-03

4 Ban WH; Yeo CD; Han S; Kang HS; Park CK; Kim JS; Kim JW; Kim JH

Sex disparities in lung cancer survival rates based on screening: results from the National Cancer Institute's Cancer Therapy Evaluation Program (CTEP) Lung Cancer Screening Trial.

Date: 2022-09-01

5 Rodriguez Alvarez AA; Yumling S; Kothari J; Digumarthy SR; Bhatnagar S; et al.

Lung health, tobacco, and related products: gaps, challenges, and opportunities for research.

Date: 2020-05-01

6 St Claire S; Gouda H; Schotte K; Fayokun R; Fu D; Varghese C; et al.

Evaluation of sex inequity in lung-cancer-specific survival: results from the International Lung Cancer Consortium (ILCCO) cohort.

Date: 2024-05-15

7 Lærum D; Strand TE; Brustugun OT; Gallefoss F; Falk R; Durheim T; et al.

Smoking cessation and the success of lung cancer surgery: results from the International Lung Cancer Consortium (ILCCO) cohort.

Date: 2009-07-01

0% Done

15mins | 6 Sessions

Tobacco smoking and cancer: a meta-analysis.

data extracted

reassess

Abstract:

We conducted a systematic meta-analysis of observational studies on cigarette smoking and cancer from 1961 to 2003. The aim was to quantify the risk for 13 cancer sites, recognized to be related to tobacco smoking by the International Agency for Research on Cancer (IARC), and to analyze the risk variation for each site in a systematic manner. We extracted data from 254 reports published between 1961 and 2003 (177 case-control studies, 75 cohorts and 2 nested case-control studies) included in the 2004 IARC Monograph on Tobacco Smoke and Involuntary Smoking. The analyses were carried out on 216 studies with reported estimates for 'current' and/or 'former' smokers. We performed sensitivity analysis, and looked for publication and other types of bias. Lung (RR = 8.96; 95% CI: 6.73-12.11), laryngeal (RR = 6.98; 95% CI: 3.14-15.52) and pharyngeal (RR = 6.76; 95% CI: 2.86-15.98) cancers presented the highest relative risks (RRs) for current smokers, followed by upper digestive tract (RR = 3.57; 95% CI: 2.63-4.84) and oral (RR = 3.43; 95% CI: 2.37-4.94) cancers. As expected, pooled RRs for respiratory cancers were greater than the pooled estimates for other sites. The analysis of heterogeneity showed that study type, gender and adjustment for confounding factors significantly influence the RRs estimates and the reliability of the studies.

Publication Types:

Journal Article, Meta-Analysis, Research Support, Non-U.S. Gov't

Topics:

Humans, Neoplasms/*etiology/mortality, Risk Factors, Smoking/*adverse effects, Survival Rate/trends

Authors:

Gandini S, Botteri E, Iodice S, Boniol M, Lowenfels AB, Maisonneuve P, Boyle P

Journal:

International journal of cancer - Volume 122, Issue 1, pp. 155-64 - published 2008-01-01

Rayyan Reference ID:

342330215

Include

Maybe

Exclude

Add note

Filters

Keywords for include

Select All

compared with 3397

trial 1285

randomized 754

randomly 318

assigned to 169

placebo 149

randomly assigned 149

exclude

prevalence 1530

retrospective study 1271

regression analysis 1239

trials 1115

Labels

Add hotkeys to get a faster experience!

data extracted

reassess

Click to add hotkey

Click to add hotkey

Start typing to add labels

Apply



≡ Filters

Clear

↑↓ Sort

reassess

 Label

C

2

Looks empty here!



REASON OF EXCLUSION

Overview

Review Data

Screening

Full Text Screening

Data Extraction

Showing 21,144 Undecided Articles

PICO

Blind On

Ratings

Samples

Upload PDF

Criteria

Filters

Undecided

Sort

1

Non-small cell lung cancer: epidemiology, risk factors, treatment...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; Adjei AA
✓ sahri

2

Tobacco smoking and cancer: a meta-analysis.
Date: 2008-01-01
Gandini S; Botteri E; Iodice S; Boniol M; Lowenfels AB; Maisonneuve P; et al.
reassess

3

Tobacco and lung cancer: risks, trends, and outcomes in patients...
Date: 2013-01-01
Warren GW; Cummings KM

4

Contribution of smoking, disease history, and survival to lung cancer...
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R

5

Smoking status and the association between patient-level factors and...
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas S; et al.

6

Smoking and lung cancer.
Date: 2005-01-01
Ozlu T; Bulbul Y

7

Smoking Status and Survival Among a National Cohort of Lung Cancer...
Date: 2019-03-30
Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; et al.

Tobacco smoking and cancer: a meta-analysis.

reassess

Abstract:

We conducted a systematic meta-analysis of observational studies on cigarette smoking and cancer from 1961 to 2003. The aim was to quantify the risk for 13 cancer sites, recognized to be related to tobacco smoking by the International Agency for Research on Cancer (IARC), and to evaluate the risk variation for each site in a systematic manner. We extracted data from 75 cohorts and 2 nested case-control studies included in the 2004 IARC monograph on tobacco smoking. The meta-analysis was carried out on 216 studies with reported estimates for 'current' and/or 'former' smokers, and other types of bias. Lung (RR = 8.96; 95% CI: 6.73-12.11), laryngeal (RR = 10.98; 95% CI: 7.73-15.41), and esophageal (RR = 3.43; 95% CI: 2.37-4.94) cancers presented the highest relative risks (RRs) for current smokers, while for former smokers the highest RRs were found for lung (RR = 0.73; 95% CI: 0.58-0.92), laryngeal (RR = 0.73; 95% CI: 0.58-0.92), and esophageal (RR = 0.73; 95% CI: 0.58-0.92) cancers. As expected, pooled RRs for respiratory cancer of heterogeneity showed that study type, gender and adjustment for confounding factors of the studies.

Publication Types:

Journal Article, Meta-Analysis, Research Support, Non-U.S. Gov't

Topics:

Humans, Neoplasms/*etiology/mortality, Risk Factors, Smoking/*adverse effects

Authors:

Gandini S, Botteri E, Iodice S, Boniol M, Lowenfels AB, Maisonneuve P, et al.

Journal:

International journal of cancer - Volume 122, Issue 1, pp. 155-64 - published 2008

Rayyan Reference ID:

342330215

Include

Maybe

Exclude

Reason

Label

Add note

Filters

Keywords for include

human

Select All

compared with 3397

trial 1285

randomized 754

randomly 318

assigned to 169

placebo 149

randomly assigned 149

randomised 132

controlled trial 128

control groups 87

Keywords for exclude

Select All

cohort 4507

retrospectively 2029

cells 1870

prevalence 1530

retrospective study 1271

regression analysis 1230

trials 1115

0% Done

0 Sessions

Chat with ResearchPilot



TAG OF ARTICLES, SHOW THE SITUATION

test for webinar

Need Training?

Overview | Review Data | **Screening** | Full Text Screening | Data Extraction

Showing 21,144 Undecided Articles

Undecided

Sort

1 Non-small cell lung cancer: epidemiology, risk factors, treatment...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; Adjei AA
sahdri

2 Tobacco smoking and cancer: a meta-analysis.
Date: 2008-01-01
Gandini S; Botteri E; Iodice S; Boniol M; Lowenfels AB; Mason...
reassess

3 Tobacco and lung cancer: risks, trends, and outcomes in patients...
Date: 2013-01-01
Warren GW; Cummings KM

4 Contribution of smoking, disease history, and survival to lung cancer...
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R

5 Smoking status and the association between patient-level factors and...
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas ...

6 Smoking and lung cancer.
Date: 2005-01-01
Ozilo T; Bolbol Y

7 Smoking Status and Survival Among a National Cohort of Lung and Colorectal Cancer Patients.
Date: 2019-03-30
Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...
reassess

reassess

Abstract:
INTRODUCTION: The purpose of this study was to explore the association of smoking status and clinically relevant duration of smoking cessation with long-term survival after lung cancer (LC) or colorectal cancer (CRC) diagnosis. We assessed survival of patients with LC and CRC who were... Care Outcomes Research and Surveillance (CanCORS), a national, prospective cohort study of patients with LC and CRC who were... approximately 5 months after LC or CRC diagnosis. Smoking status was... 5 years prior to diagnosis, quit less than 1 year before diagnosis, and current diagnosis with mortality using Cox regression models. RESULTS: Among current smokers (HR 0.71, 95% CI 0.57 to 0.89). Among participants with smokers (HR 0.79, 95% CI 0.64 to 0.99). CONCLUSIONS: Among both LC and CRC patients, never-smokers. This effect should be further studied in the context of tobacco affect survival in this sample. IMPLICATIONS: The results from our analysis cohort, show that both LC and CRC patients who were actively smoking smoking is detrimental to survival, cessation upon diagnosis may not be...
Publication Types:
Journal Article, Research Support, N.I.H., Extramural
Topics:
Adult, Aged, Cohort Studies, Colorectal Neoplasms/diagnosis/*mortality, Male, Middle Aged, *Non-Smokers, Prospective Studies, *Smokers, Smoking/*mortality/therapy/*trends
Authors:
Japuntich SJ, Kumar P, Pendergast JF, Juarez Caballero GY, Malin JL, V...

Exclude with Reasons

background article

foreign language

wrong drug

wrong outcome

wrong population

wrong publication type

Apply

Include

Maybe

Exclude

Reason

Label

Add note

Filters

Keywords for include

human

Select All

compared with

trial

randomized

randomly

assigned to

placebo

randomly assigned

randomised

controlled trial

control groups

Keywords for exclude

Select All

cohort

retrospectively

cells

prevalence

retrospective study

regression analysis

trials



SUBGROUP SHOWS OF THE ARTICLES

test for webinar

Need Training?

Overview | Review Data | **Screening** | Full Text Screening | Data Extraction

Showing 16 / 21,144 Maybe Articles

PICO | Blind On | Ratings | Samples | Upload PDF | ... | Criteria | Filters

1 **Maybe** Sort

Filter by inclusion

All Articles 21,144

Undecided 21,127

Excluded 0

Maybe 16

Included 1

1 **Smoking status and the association between patient-level factors and survival among lung cancer patients.**

Date: 2019-03-30

Japuntlich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...

?

sahdi

Reassess

Smoking and lung cancer survival: the role of comorbidity and ...

Date: 2004-01-01

Tammemagi CM; Neslund-Dudas C; Simoff M; Kvale P

?

sahdi

Smoking, hormonal factors and molecular markers in female L...

Date: 2016-01-01

Schweigert D; Krasauskas A; Didziapetriene J; Kalibatiene D; ...

?

sahdi

Lung cancer and obesity: A contentious relationship (Review).

Date: 2024-11-01

Georgakopoulou VE; Lempestis IG; Trakas N; Sklapani P; He Y; ...

?

sahdi

0% Done

9mins | 2 Sessions

?

sahdi

Abstract:

BACKGROUND: Declines in the prevalence of cigarette smoking, advances in targeted therapies, and implementation of lung cancer screening have changed the clinical landscape for lung cancer. The proportion of lung cancer deaths is increasing in those who have never smoked cigarettes. To better understand contemporary patterns in survival among patients with lung cancer, a comprehensive evaluation of factors associated with survival, including differential associations by smoking status, is needed. METHODS: Patients diagnosed with lung cancer between January 1, 2010, and September 30, 2019, were identified. We estimated all-cause and lung cancer-specific median, 5-year, and multivariable restricted mean survival time (RMST) to identify demographic, socioeconomic, and clinical factors associated with survival, overall and stratified by smoking status (never, former, and current). RESULTS: Analyses included 6813 patients with lung cancer: 13.9% never smoked, 54.2% formerly smoked, and 31.9% currently smoked. All-cause RMST through 5 years for those who never, formerly, and currently smoked was 32.1, 25.9, and 23.3 months, respectively. Lung cancer-specific RMST was 36.3 months, 30.3 months, and 26.0 months, respectively. Across most models, female sex, younger age, higher socioeconomic measures, first-course surgery, histology, and body mass index were positively associated, and higher stage was inversely associated with survival. Relative to White patients, Black patients had increased survival among those who formerly smoked. CONCLUSIONS: We identify actionable factors associated with survival between those who never, formerly, and currently smoked cigarettes. These findings illuminate opportunities to address underlying mechanisms driving lung cancer progression, including use of first-course treatment, and enhanced implementation of tailored smoking cessation interventions for individuals diagnosed with cancer.

Publication Types:

Journal Article, Research Support, N.I.H., Extramural

Topics:

Humans, Female, *Lung Neoplasms/pathology, Early Detection of Cancer, Body Mass Index, Prevalence, Smoking/adverse effects/epidemiology

Authors:

Carroll NM, Burnett-Hartman AN, Rendle KA, Neslund-Dudas CM, Greenlee RT, Honda SA, Vachani A, Ritzwoller DP

Journal:

✓ Include

? Maybe

✗ Exclude

Reason

Label

?

sahdi

Add note

Keywords for include

Select All

compared with 3397

trial 1285

randomized 754

randomly 318

assigned to 169

placebo 149

randomly assigned 149

randomised 132

controlled trial 128

control groups 87

Show more >

Keywords for exclude

Select All

cohort 4507

retrospectively 2029

cells 1870

prevalence 1530

retrospective study 1271

regression analysis 1239

trials 1115

10/1/2025

128



REVIEW SEETING

Showing 16 / 21,144 Maybe Articles

[PICO](#) [Blind On](#) [Ratings](#) [Samples](#) [Upload PDF](#) [Criteria](#) [Filters](#)

- ☐ [? Maybe](#) [Sort](#)
- Smoking status and the association between patient-level fac...
Date: 2023-08-08
1 Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas ...
[? sahdri](#)

Smoking and lung cancer.
Date: 2005-01-01
2 Ozlû T; Bâlbâl Y
[? sahdri](#)

Smoking Status and Survival Among a National Cohort of Lun...
Date: 2019-03-30
3 Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...
[? sahdri](#) [reassess](#)

Smoking and lung cancer survival: the role of comorbidity and ...
Date: 2004-01-01
4 Tammemagi CM; Neslund-Dudas C; Simoff M; Kvale P
[? sahdri](#)

Smoking, hormonal factors and molecular markers in fomale L...
Date: 2016-01-01
5 Schweigert D; Krasauskas A; Didziapetriene J; Kalibatiene D; ...
[? sahdri](#)

Lung cancer and obesity: A contentious relationship (Review).
Date: 2024-11-01
6 Georgakopoulou VE; Lempesis IG; Trakas N; Sklapani P; He Y; ...
[? sahdri](#)
- 0% Done

9mins | 2 Sessions

[? sahdri](#)

Abstract:
BACKGROUND: Declines in the prevalence of cigarette smoking, advances in targeted therapies, and implementation of precision medicine have changed the clinical landscape for lung cancer. The proportion of lung cancer deaths is increasing in those who have never smoked, and better understand contemporary patterns in survival among patients with lung cancer, a comprehensive evaluation of the literature including differential associations by smoking status, is needed. METHODS: Patients diagnosed with lung cancer between January 1, 2010, and September 30, 2019, were identified. We estimated all-cause and lung cancer-specific median, 5-year, and multivariable-adjusted (RMST) to identify demographic, socioeconomic, and clinical factors associated with survival, overall and stratified by sex, age, and current (and former) smoking status. RESULTS: Analyses included 6813 patients with lung cancer: 13.9% never smoked, 54.2% formerly smoked, and 31.9% currently smoked. All-cause RMST through 5 years for those who never, formerly, and currently smoked was 32.1, 25.9, and 23.3 months, respectively. Lung cancer-specific RMST was 36.3 months, 30.3 months, and 26.0 months, respectively. Across most models, female sex, younger age, higher education, measures of socioeconomic status, first-course surgery, histology, and body mass index were positively associated with survival. Relative to White patients, Black patients had increased survival among those who formerly smoked. CONCLUSIONS: These findings illuminate the association with survival between those who never, formerly, and currently smoked cigarettes. These findings illuminate the underlying mechanisms driving lung cancer progression, including use of first-course treatment, and enhanced implementation of cessation interventions for individuals diagnosed with cancer.

Publication Types:
Journal Article, Research Support, N.I.H., Extramural

Topics:
Humans, Female, *Lung Neoplasms/pathology, Early Detection of Cancer, Body Mass Index, Prevalence, Smoking/adverse effects

Authors:
Carroll NM, Burnett-Hartman AN, Rendle KA, Neslund-Dudas CM, Greenlee RT, Honda SA, Vachani A, Ritzwoller DP

Journal:

✓ Include

? Maybe

✗ Exclude

Reason

Label

🗨️ Add note

➡️

Review Settings

Actions

📄 Copy

📄 Export

📄 Generate Screening report

Controls

Active Filters ☒

Highlights ☒

Auto Scroll ☒

Ratings ☒

Articles Layout

Title & Abstract view

Title only view

Articles for include		
		+
with	3397	
	1285	
ed	754	
	318	
to	169	
	149	
assigned	149	
	132	
ed trial	128	
	87	
Articles for exclude		
		+
	4507	
actively	2029	
	1870	
prevalence	1530	
retrospective	129	
regression analysis	1239	
trials	1115	

Chat with ResearchPilot™



EXPORT ARTICLES

Showing 16 / 21,144 Maybe Articles

- ☐ [? Maybe](#) [Sort](#)
- Smoking status and the association between patient-level fac...
Date: 2023-08-08
1 Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas ...
[? sahdri](#)

Smoking and lung cancer.
Date: 2005-01-01
2 Ozlû T; Bâlbâl Y
[? sahdri](#)

Smoking Status and Survival Among a National Cohort of Lun...
Date: 2019-03-30
3 Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...
[? sahdri](#) [reassess](#)

Smoking and lung cancer survival: the role of comorbidity and ...
Date: 2004-01-01
4 Tammemagi CM; Neslund-Dudas C; Simoff M; Kvale P
[? sahdri](#)

Smoking, hormonal factors and molecular markers in fomale L...
Date: 2016-01-01
5 Schweigert D; Krasauskas A; Didziapetriene J; Kalibatiene D; ...
[? sahdri](#)

Lung cancer and obesity: A contentious relationship (Review).
Date: 2024-11-01
6 Georgakopoulou VE; Lempesis IG; Trakas N; Sklapani P; He Y; ...
[? sahdri](#)

[? sahdri](#)

Abstract:
BACKGROUND: Declines in the prevalence of cigarette smoking, advances in targeted therapies, and implementation of precision medicine have changed the clinical landscape for lung cancer. The proportion of lung cancer deaths is increasing in those who have never smoked, and better understand contemporary patterns in survival among patients with lung cancer, a comprehensive evaluation of the literature including differential associations by smoking status, is needed. METHODS: Patients diagnosed with lung cancer between September 30, 2019, were identified. We estimated all-cause and lung cancer-specific median, 5-year, and multivariable-adjusted (RMST) to identify demographic, socioeconomic, and clinical factors associated with survival, overall and stratified by sex and current. RESULTS: Analyses included 6813 patients with lung cancer: 13.9% never smoked, 54.2% formerly smoked, and 31.9% currently smoked. All-cause RMST through 5 years for those who never, formerly, and currently smoked was 32.1, 25.9, and 23.3 months, respectively. Lung cancer-specific RMST was 36.3 months, 30.3 months, and 26.0 months, respectively. Across most models, female sex, younger age, higher education, first-course surgery, histology, and body mass index were positively associated, and higher stage was inversely associated with survival. Relative to White patients, Black patients had increased survival among those who formerly smoked. CONCLUSIONS: These findings illuminate the underlying mechanisms driving lung cancer progression, including use of first-course treatment, and enhanced implementation of cessation interventions for individuals diagnosed with cancer.

Publication Types:
Journal Article, Research Support, N.I.H., Extramural

Topics:
Humans, Female, *Lung Neoplasms/pathology, Early Detection of Cancer, Body Mass Index, Prevalence, Smoking/adverse effects

Authors:
Carroll NM, Burnett-Hartman AN, Rendle KA, Neslund-Dudas CM, Greenlee RT, Honda SA, Vachani A, Ritzwoller DP

Journal:

[✓ Include](#) [? Maybe](#) [✗ Exclude](#) [Reason](#) [Label](#)

[💬 Add note](#)

[PICO](#) [Blind On](#) [Ratings](#) [Samples](#) [Upload PDF](#) [Criteria](#) [Filters](#)

Review Settings

[Copy](#) [Export](#)

Active Filters

Highlights

Auto Scroll

Ratings

Articles Layout

Title & Abstract view

Title only view

is for include

3397

1285

754

318

169

149

149

132

128

87

is for exclude

4507

2029

1870

1530

1239

1115

Chat with ResearchPilot™

0% Done [9mins](#) | [2 Sessions](#)



EXPORT ARTICLES

Showing 16 / 21,144 Maybe Articles

1

Smoking status and the association between patient-level fac...

2023-08-08

Carroll NM, Burnett-Hartman AN, Penzler KA, Nestlund-Gud...

1

Smoking and lung cancer.

2006-01-01

Qin T, Bibace Y

2

Smoking Status and Survival Among a National Cohort of L...

2019-03-30

Japuntch SJ, Kumar P, Pondongat JF, Juarez Caballero GP, ...

3

Smoking and lung cancer survival: the role of comorbidity and ...

2004-01-01

Tammamag CM, Nestlund-Gudus C, Simoff M, Truss P

4

Smoking, hormonal factors and molecular markers in female L...

2016-01-01

Schweigert D, Krawczyk A, Dietzschmann J, Kallithras D, ...

5

Lung cancer and obesity: A contentious relationship (Review)

2024-01-01

Georgakopoulos VE, Lampiris GS, Trakas N, Sklapani P, Ho Y, ...

6

Abstract

BACKGROUND changed t better und including t September 2023) to and curre All cases specific re increased. Relative to associated underlying cessation

Publica

Journal A

Topic

humans, f

Author

Carroll NM, Burnett-Hartman AN, Penzler KA, Nestlund-Gudus C, ...

Journal

Filters

Keywords for include

Select All

compared with 3397

trial 1086

randomized 754

randomly 318

assigned to 169

patient 149

randomly assigned 149

randomized 132

controlled trial 128

control groups 87

View more

Keywords for exclude

Select All

cohort 4507

retrospectively 2029

cell 1870

prevalence 1530

regression analysis 1271

trial 515

Export Articles

Choose the files you want to Export

All References (21,144)

Filtered (16)

File Format

RefMan

Include Abstracts

Include Decisions

Include Exclusion Reasons

Include Labels

Include User Notes

Authors Format

First Name, Last Name

Close

Export



AI AND CHAT BOX OF THE RAYYAN

Chat with ResearchPilot™

Overview | Review | Screening | Full Text Screening | Data Extraction

Need Training?

?

3

?

Showing 7 Undecided Articles

Undecided

Sort

Non-small cell lung cancer: epidemiology, risk factors, treatm...
Date: 2008-05-01
Molina JR; Yang P; Cassivi SD; Schild SE; Adjei AA
1 sahdri

Tobacco smoking and cancer: a meta-analysis.
Date: 2008-01-01
Gandini S; Botteri E; Iodice S; Boniol M; Lowenfels AB; Maiso...
reassess

Tobacco and lung cancer: risks, trends, and outcomes in patie...
Date: 2013-01-01
Warren GW; Cummings KM

Contribution of smoking, disease history, and survival to lung ...
Date: 2023-11-08
Skolnick S; Cao P; Jeon J; Meza R

Smoking status and the association between patient-level fac...
Date: 2023-08-08
Carroll NM; Burnett-Hartman AN; Rendle KA; Neslund-Dudas ...

Smoking and lung cancer.
Date: 2005-01-01
Ozilo T; Bolbol Y

Smoking Status and Survival Among a National Cohort of Lun...
Date: 2019-03-30
Japuntich SJ; Kumar P; Pendergast JF; Juarez Caballero GY; ...
reassess

Smoking Status and Survival Among a National Cohort of Lung and Colorectal Cancer Patients.

reassess

Abstract:

INTRODUCTION: The purpose of this study was to explore the association of smoking status and clinically relevant duration of smoking cessation with long-term survival after lung cancer (LC) or colorectal cancer (CRC) diagnosis. We assessed survival of patients with LC and CRC who were... smokers, long-term, medium-term, and short-term quitters, and current Care Outcomes Research and Surveillance (CanCORS), a national, prospective cohort study of patients with LC and CRC who were... approximately 5 months after LC or CRC diagnosis. Smoking status was... 5 years prior to diagnosis, quit less than 1 year before diagnosis, and current smokers (HR 0.71, 95% CI 0.57 to 0.89). Among participants with smokers (HR 0.79, 95% CI 0.64 to 0.99). CONCLUSIONS: Among both LC... never-smokers. This effect should be further studied in the context of tobacco affect survival in this sample. IMPLICATIONS: The results from our analysis cohort, show that both LC and CRC patients who were actively smoking smoking is detrimental to survival, cessation upon diagnosis may not m...

Exclude with Reasons

background article

foreign language

wrong drug

wrong outcome

wrong population

wrong publication type

Apply

Include

Maybe

Exclude

Reason

Label

Publication Types:

Journal Article, Research Support, N.I.H., Extramural

Topics:

Adult, Aged, Cohort Studies, Colorectal Neoplasms/diagnosis/*mortality Male, Middle Aged, *Non-Smokers, Prospective Studies, *Smokers, Smoking/*mortality/therapy/*trends

Authors:

Japuntich SJ, Kumar P, Pendergast JF, Juarez Caballero GY, Malin JL, V...

Filters

Keywords for include

human

Select All

compared with

trial

randomized

randomly

assigned to

placebo

randomly assigned

randomised

controlled trial

control groups

Keywords for exclude

Select All

cohort

retrospectively

cells

prevalence

retrospective study

regression analysis

trials

0% Done

0 Sessions

Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research



CHAT BOX OF THE RAYYAN

new.rayyan.ai/reviews/1643039/screening

test for webinar

Overview | Review Data | **Screening** | Full Text Screening | Data Extraction

Showing 21,144 Articles

All Articles

1 | Sort

1

Tobacco smoking and cancer: a meta-analysis.
Date: 2008-01-01
Gandini S, Burton S, Iodice S, Sassi M, Lasserre AB, Mastrorilli S
[View](#)

2

Tobacco and lung cancer: risks, trends, and outcomes in patie...
Date: 2013-01-01
Warren GW, Cummings KM
[View](#)

3

Contribution of smoking, disease history, and survival to lung ...
Date: 2013-01-01
Skutnick S, Cao P, Jeon J, Mura R
[View](#)

4

Smoking status and the association between patient-level fac...
Date: 2023-08-08
Carroll NM, Burnett-Hartman AN, Rendle KA, Nestlund-Oudas ...
[View](#)

5

Smoking and lung cancer.
Date: 2008-01-01
Cao P, Jeon J
[View](#)

6

Smoking Status and Survival Among a National Cohort of Loh...
Date: 2019-03-30
Japuntchik SJ, Kumar P, Pendergast JF, Juarez-Caballero GF, ...
[View](#) [Reasons](#)

7

Smoking and lung cancer survival: the role of comorbidity and ...
[View](#)

Smoking status and the association between patient-level factors and survival among lung cancer

Topic:
Humans, Female, *Lung Neoplasms/pathology, Early Detection of Cancer, Body Mass Index, **Prevalence**, Smoking/adverse

Authors:
Carroll NM, Burnett-Hartman AN, Rendle KA, Nestlund-Oudas CM, Greenlee RT, Honda SA, Vachani A, Ritzwiler DP

Journal:
Journal of the National Cancer Institute - Volume 115, Issue 8, pp. 937-948 - published 2023-08-08

Rayyan Reference ID:
342330218

URL:
<https://pubmed.ncbi.nlm.nih.gov/37228018/>

DOI:
10.1093/jnci/djz008

Search Methods:
Uploaded References [pubmed-smokingORs-set.ris]

Language:
eng

✓ Include

⚡ Maybe

✗ Exclude

⚡ Reason

Add note

Review Chat

1 Member

Rayyan Systems Bot

a few seconds ago

Export started

Rayyan Systems Bot

a few seconds ago

Export completed. [Click to download](#)

Rayyan Systems Bot

a few seconds ago

Export started

Rayyan Systems Bot

a few seconds ago

Export completed. [Click to download](#)

Rayyan Systems Bot

a few seconds ago

Review blind: Off

Rayyan Systems Bot

a few seconds ago

Export started

Rayyan Systems Bot

a few seconds ago

Export completed. [Click to download](#)

sandri

a few seconds ago

ok

Type your message...

Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research

10/1/2025133



FULL TEXT ASSESSMENT

new.rayyan.ai/reviews/1643039/fulltext

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

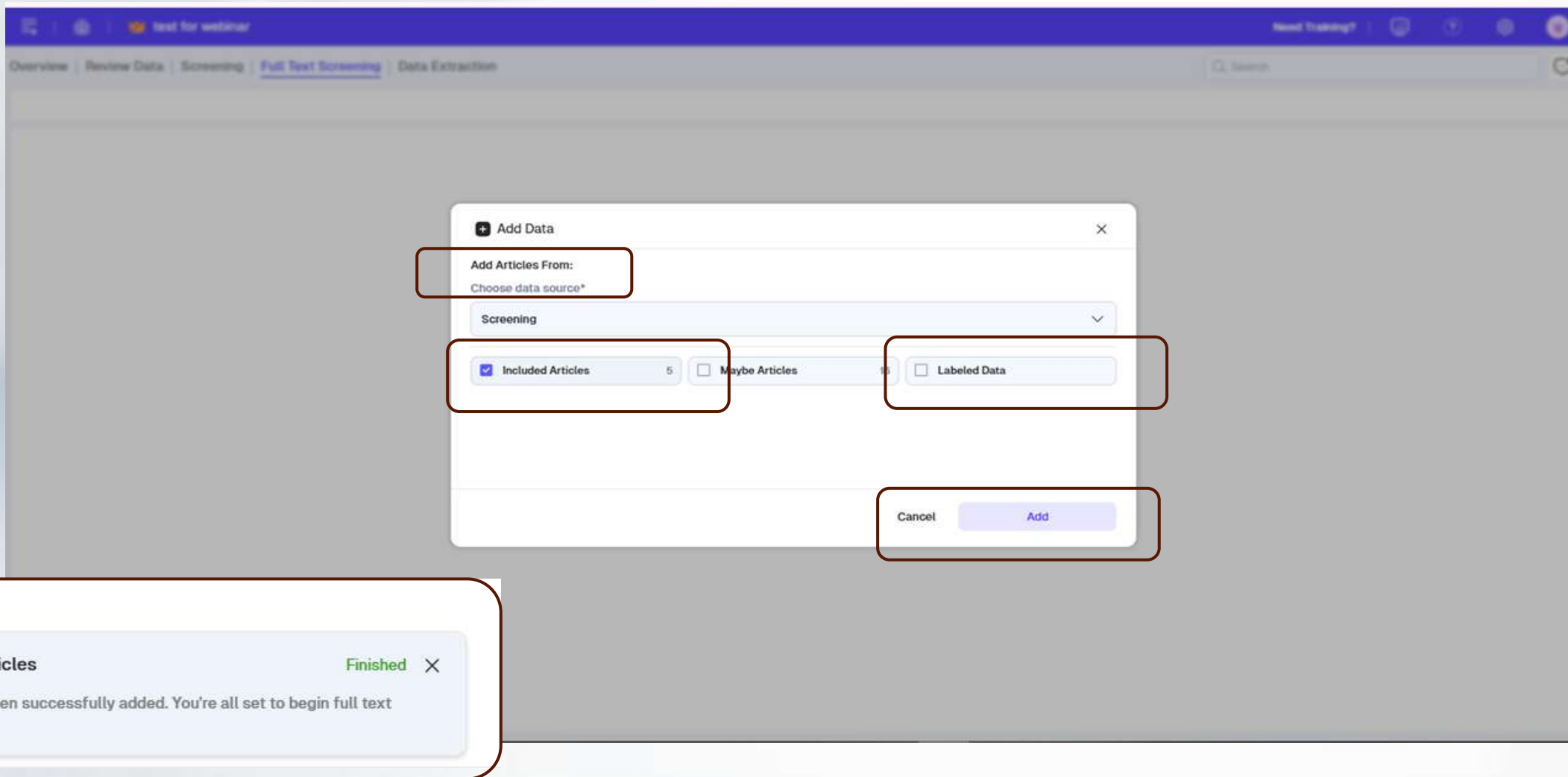
Search

Ready for Full Text Screening?

Start By importing the articles you want to screen at this phase. These articles should be the ones you've included after title/abstract screening.

Add Data

ADD THE DATA FOR FULL TEXT



+ Add Data [X]

Add Articles From:
Choose data source*

Screening

☒ Included Articles 5 ☐ Maybe Articles 0 ☐ Labeled Data

Cancel Add

Import Articles Finished [X]
Your data has been successfully added. You're all set to begin full text screening!



FULL TEXT DOWNLOAD AND UPLOAD

new.rayyan.ai/reviews/1643039/fulltext

Tobacco Dependence Predicts Higher Lung Cancer and Mortality Rates and Lower Rates of Smoking Cessation in the National Lung Screening Trial.

Overview | Review Data

Blind off

Showing 5 Under

Undecided

Time 4

Non-smoker

1 PDF | 100%

The Survival

2 PDF | 100%

Tobacco C

3

Screening

4

Lung cancer

5

10mins | 3 Sessions

Upload PDF

Implications for personalizing tobacco treatment and improving risk assessment.

Publication Types:
Journal Article, Multicenter Study, Randomized Controlled Trial, Research Support, N.I.H., Extramural

Topics:
Aged, Early Detection of Cancer/*methods, Female, Humans, Lung Neoplasms/diagnosis/*epidemiology, Male, Mass Screening/*methods, Middle Aged, Prognosis, Radiography, Thoracic, Risk Assessment/*methods, Risk Factors, Smoking/*adverse effects/trends, Smoking Cessation/*statistics & numerical data, South Carolina/epidemiology, Survival Rate/trends, Tobacco Use Disorder/*epidemiology, Tomography, X-Ray Computed

Authors:
Rojewski AM, Tanner NT, Dai L, Ravenel JG, Gebregziabher M, Silvestri GA, Toll BA

Journal:
Chest - Volume 154, Issue 1, pp. 110-118 - published 2018-07-01

Rayyan Reference ID:
342330248

URL:
<https://pubmed.ncbi.nlm.nih.gov/29793736/>

DOI:
10.1016/j.chest.2018.04.016

Search Methods:
Uploaded References [pubmed-smokingORt-set.nbib]

Language:
eng

✓ Include

? Maybe

✗ Exclude

Reason

Label



UPLOAD THE FILE

new.rayyan.ai/reviews/1643039/fulltext

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Showing 18 Undecided Articles

Blind Off | Add Articles | Criteria | Filters

0% Done | 10mins | 3 Sessions

Title ↓	Publication Date ↓	Author ↓	
Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.	2008-05-01	Molina JR; Ya...	Upload PDF
Smoking stat...	2023-08-08	Carroll NM; E...	Upload PDF
Smoking and	2005-01-01	Oziû T; BûtbûL...	Upload PDF
Smoking Stat	2019-03-30	Japuntich SJ;...	Upload PDF
Smoking and	2004-01-01	Tammemagi ...	Upload PDF
Smoking, hor	2016-01-01	Schveigert D; ...	Upload PDF
Lung cancer s	2024-11-01	Genrnaknnel	Upload PDF

Open

This PC > Downloads >

Organize | New folder

Name | Date modified | Type | Size

Today (6)

djad098.pdf | 9/28/2025 3:48 PM | Foxit PDF Reader ... | 1,055 K

djab224.pdf | 9/28/2025 3:43 PM | Foxit PDF Reader ... | 1,157 K

photo_2025-09-28_15-03-44.pdf | 9/28/2025 3:05 PM | Foxit PDF Reader ... | 76 K

nty012.pdf | 9/28/2025 12:35 PM | Foxit PDF Reader ... | 325 K

99.pdf | 9/28/2025 10:04 AM | Foxit PDF Reader ... | 532 K

Predicting fbroblast activation protein (1).pdf | 9/28/2025 9:58 AM | Foxit PDF Reader ... | 1,773 K

Yesterday (2)

Predicting fbroblast activation protein.pdf | 9/27/2025 1:31 PM | Foxit PDF Reader ... | 1,773 K

Video | 9/27/2025 5:21 PM | File folder

Last week (16)

File name: | Foxit PDF Reader Document (*.pdf)

Open | Cancel



UPLOAD THE FILE

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Showing 18 Undecided Articles

Undecided

Title

Non-small cell lung cancer: epidemiology, risk factors, treatment, and survival

PDF | myd12.pdf

1

Smoking status and the association between patient-level factors and survival

Smoking status and the association betw...

djad098.pdf

2

Smoking and lung cancer

3

Smoking Status and Survival Among a National Cohort of Lung and Colorectal Cancer

4

Smoking and lung cancer survival: the role of comorbidity and treatment

5

Smoking, hormonal factors and molecular markers in female lung cancer

6

Lung cancer and obesity: A contentious relationship (Review)

7

Upload Full Text PDF

add pdf's to selected articles

Match Articles to PDF's

Auto Match

Smoking status and the association betw...

djad098.pdf

X

Import

Import Articles

Finished

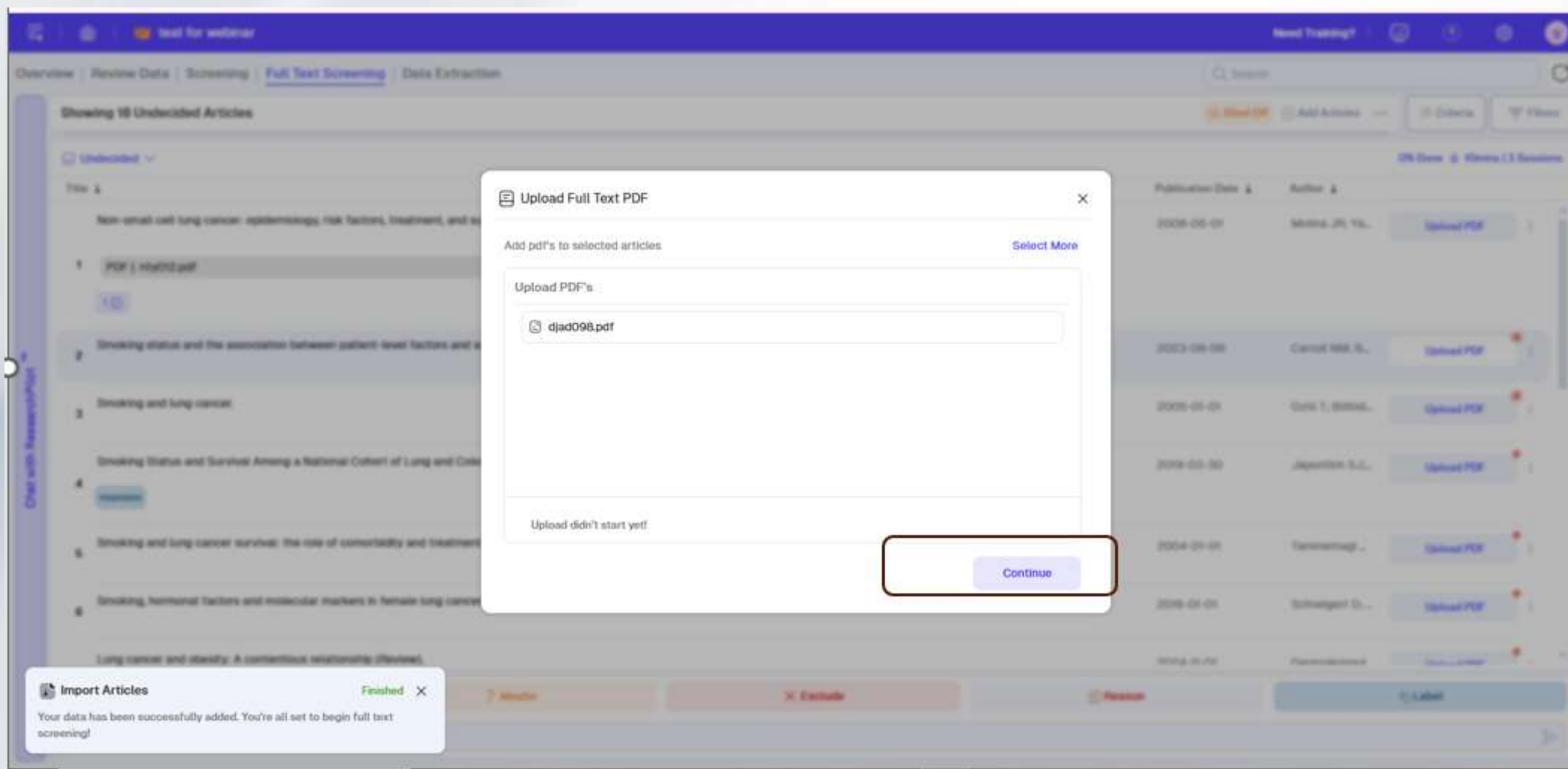
Your data has been successfully added. You're all set to begin full text screening!

Publication Date	Author	Upload PDF
2008-05-01	Molina JP, Ya...	Upload PDF
2013-06-06	Carroll NM, SL	Upload PDF
2005-01-01	Goto T, Sobue...	Upload PDF
2019-03-30	Japuntchik S, L...	Upload PDF
2004-01-01	Tannerhage J...	Upload PDF
2016-01-01	Schweigert G...	Upload PDF
2019-01-01	Chen et al.	Upload PDF

10/1/2025

138

UPLOAD THE FILE



test for webinar

Overview | Review Data | Screening | **Full Text Screening** | Data Extraction

Showing 18 Undecided Articles

Upload Full Text PDF

Add pdf's to selected articles [Select More](#)

Upload PDF's

djad098.pdf

Upload didn't start yet!

Continue

Import Articles Finished

Your data has been successfully added. You're all set to begin full text screening!

Title	Publication Date	Author	Upload PDF
Non-small cell lung cancer: epidemiology, risk factors, treatment, and etiology	2008-05-01	Molina JR, Yang SC	Upload PDF
Smoking status and the association between patient-level factors and survival	2003-06-06	Carroll WW, et al.	Upload PDF
Smoking and lung cancer	2005-04-01	Goh Y, et al.	Upload PDF
Smoking Status and Survival Among a National Cohort of Lung and Colorectal Cancer	2006-03-30	Jagoevich S, et al.	Upload PDF
Smoking and lung cancer survival: the role of comorbidity and treatment	2004-01-01	Tamminga J, et al.	Upload PDF
Smoking, hormonal factors and molecular markers in female lung cancer	2006-01-01	Schwartz G, et al.	Upload PDF
Lung cancer and obesity: A contentious relationship (Review)	2010-10-01	Parmar MKB, et al.	Upload PDF



UPLOADED FILE

new.rayyan.ai/reviews/1643039/fulltext

test for webinar

Need Training?

Overview | Review Data | Screening | **Full Text Screening** | Data Extraction

Showing 2 Undecided Articles

Blind Off | Add Articles | Criteria | Filters

Undecided

0% Done | 10mins | 3 Sessions

Title ↓	Publication Date ↓	Author ↓	
Non-small cell lung cancer: epidemiology, risk factors, treatment, and survivorship.	2008-05-01	Molina JR; Ya...	Upload PDF
1 PDF nty012.pdf			
1			
The Survival Impact of Second Primary Lung Cancer in Patients With Lung Cancer.	2022-04-11	Choi E; Luo S...	Upload PDF
2 PDF djab224_bw9.pdf			

✓ Include

? Maybe

✗ Exclude

Reason

Label

Add note

10/1/2025



METHODS: DATA ITEMS (PRISMA ITEMS 10A & 10B)

- **Checklist Item:**
- **10a:** "List and define **all outcomes** for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. **for all measures, time points, analyses**), and if not, the methods used to decide which results to collect."
- **10b:** "List and define all **other variables** for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information."



PURPOSE AND KEY ELEMENTS:

- This section explains exactly what data you collected from included studies, both for outcomes and other variables (study and participant details, interventions, funding, etc.).

Key Elements:

- Outcomes (10a)
 - List primary outcomes (the main variables of interest in your review).
 - List secondary outcomes (additional, supportive variables).



EXPLANATION:

- Other Variables (10b)
- Describe additional variables collected to give context to your review, such as:
 - Participant characteristics (species, breed, age, sex, health status).
 - Intervention details (type, dosage, administration route).
 - Study characteristics (year, country, design, sample size).
 - Funding sources and conflicts of interest.



EXAMPLE: MORTALITY IN BIRDS WITH AVIAN INFLUENZA

Record N	First Author (APA)	Year	Country	Species	Disease	Sample size	Study design	Age mean (SD)	Sex (M/F)	Detection method	Viral load cut-off	Infected (n)	Non-infected (n)	Mortality OR (95% CI)	P value	Shedding duration HR (95% CI)	P value	Notes
1	Hassan, M. (2015)	2015	Egypt	Chicken (broiler)	HPAI H5N1	200	Cohort	6 wk (±1)	Mixed	RT-PCR	Ct ≤ 35	120	80	3.50 (2.00–6.10)	<0.001	2.10 (1.30–3.45)	0.002	Media FU: 21
2	Alvarez, J. (2017)	2017	Spain	Turkey	HPAI H7N9	150	Experimental	8 wk (±2)	Mixed	Virus isolation	≥10^3 EID50	90	60	2.85 (1.65–4.95)	<0.001	1.75 (1.05–2.90)	0.03	Adjusted for housing
3	Chen, L. (2019)	2019	China	Duck (Pekin)	HPAI H5N6	100	Case-control	10 wk (±2.5)	Mixed	ELISA + RT-PCR	≥1:80 titer	55	45	1.95 (1.00–3.80)	0.048	1.40 (0.85–2.30)	0.18	Ducks had lower mortality
Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research																10/1/2025	144	



DATA EXTRACTION

My Systematic Review

Overview | Review Data | Screening | Full Text Screening | **Data Extraction**

Showing 13 Undecided Articles

Extract Data | Blind On | Add Articles | Export | Criteria

Not Started

Title	PDF	
1 Monitoring neonates for otot...	PDF PDF EXAMPLE 3	Click on + button to add questions
2 Cytomegalovirus.	PDF PDF EXAMPLE (1	

Add Question

+

My Systematic Review

Overview | Review Data | Screening | Full Text Screening | **Data Extraction**

Showing 13 Undecided Articles

Extract Data | Blind On | Add Articles | Export | Criteria

Not Started

Title	PDF	Question 1	
1 Monitoring neonates for otot...	PDF PDF EXAMPLE 3		
2 Cytomegalovirus.	PDF PDF EXAMPLE (1		
3 Timing of primary maternal ...	PDF PDF EXAMPLE 2		

Add Question

Section *

Select section...

results

Create "results"

Type *

Free Text

Column Title *

Add column title

Required Question

Add

10/1/2025

145

DATA EXTRACTION

new.rayyan.ai/reviews/1643039/data-extraction

Tobacco Dependence Predicts Higher Lung Cancer and Mortality Rates and Lower Rates of Smoking Cessation in the National Lung Screening Trial

Page: 4 Of 11 age

2.31%-2.49%) among those who ever smoked, which was 7 times higher than the rate for those who

Table. Characteristics of the Study Participants in the Multiethnic Cohort Study

Characteristic	No. (%)		
	Entire cohort (N = 211 414)	IPLC (n = 7161)	SPLC (n = 163)
Age at cohort enrollment, mean (SD), y	59.9 (8.8)	63.6 (7.7)	62.7 (7.1)
Sex			
Male	95 331 (45.1)	4031 (56.3)	84 (51.5)
Female	116 083 (54.9)	3131 (43.7)	79 (48.5)
Race and ethnicity			
African American	34 169 (16.2)	1852 (25.9)	35 (21.5)
Japanese American	56 272 (26.6)	1633 (22.8)	29 (23.9)
Latino	45 776 (21.7)	1005 (14.0)	20 (12.3)
Native Hawaiian	14 289 (6.8)	578 (8.1)	14 (8.6)
White	48 921 (23.1)	1714 (23.9)	47 (28.8)
Other ^a	11 987 (5.7)	379 (5.3)	8 (4.9)
Smoking history ^b			
Never	94 579 (44.7)	849 (11.9)	19 (11.7)
Former	82 856 (39.2)	3004 (41.9)	66 (40.5)
Current	33 979 (16.1)	3311 (46.2)	78 (47.9)
Prior history of cancer			
No	193 643 (91.6)	5308 (74.1)	112 (68.7)
Yes	17 769 (8.4)	1853 (25.9)	51 (31.3)
Family history of lung cancer			
No	198 643 (94.0)	6533 (91.2)	149 (91.4)
Yes	12 740 (6.0)	628 (8.8)	14 (8.6)
Smoking pack-years excluding those who never	18.3 (15.9)	29.2 (17.4)	33.4 (17.7)

Sections

method

sample size ⓘ

Enter your answer here

intervention * ⓘ

Enter your answer here

mean age of the participants by year

mean age * ⓘ

59.9

Mark as Completed

Save and Exit



Principle and methods for writing systematic review and meta-analysis. SANA Institute for avian health and disease research



ITEM DETAILS

new.rayyan.ai/reviews/1643039/data-extraction

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Showing 3 / 5 Not Started Articles

Extract Data | Blind Off | Add Articles | Export | Criteria

Not Started

Title	PDF	sample size	intervention	mean age
1 Tobacco Dependence Predicts Higher Lung Cancer and Mortality Rates and Lower Rates o...	PDF chol_2			
2 Screening for lung cancer.	Upload PDF			
3 Lung cancer in India.	Upload PDF			
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Edit Question

Section *
results

Question *
mean age of the participants by year

Type *
Numbers

Column Title *
mean age

Required Question

Save Changes

Delete Question



ITEMS SITUATION

new.rayyan.ai/reviews/1643039/data-extraction

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Showing 3 / 5 Not Started Articles

Not Started

Extract Data

Blind Off

Add Articles

Export

Criteria

Title	PDF	sample size	intervention	mean age
1 Tobacco Dependence Predicts Higher Lung Cancer and Mortality Rates and Lower Rates o...	PDF chol_2			
2 Screening for lung cancer.	Upload PDF			
3 Lung cancer in India.	Upload PDF			
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Edit Question

Section *
results

Question *
mean age of the participants by year

Type *
Numbers

Column Title *
mean age

Required Question

Save Changes

Delete Question



ITEMS SITUATION

[Overview](#) | [Review Data](#) | [Screening](#) | [Full Text Screening](#) | [Data Extraction](#)

Showing 2 / 5 Not Started Articles

Not Started ^

Filter by status

All Data5

Not Started2

Uncompleted1

Completed>

		PDF	
	ancer.	Upload PDF	
		PDF nihms-	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			



EXPORT THE DATA

new.rayyan.ai/reviews/1643039/data-extraction

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Showing 3 / 5 Not Started Articles

Extract Data | Blind Off | Add Articles | **Export** | Criteria

Not Started

Title	PDF	sample size	intervention	mean age
1 Tobacco Dependence Predicts Higher Lung Cancer and Mortality Rates and Lower Rates o...	PDF chol_2			
2 Screening for lung cancer.	Upload PDF			
3 Lung cancer in India.	Upload PDF			
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Edit Question

Section *
results

Question *
mean age of the participants by year

Type *
Numbers

Column Title *
mean age

Required Question

Save Changes

Delete Question



EXPORT THE DATA

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | **Data Extraction**

Showing 2 / 5 Not Started Articles

Extract Data | Blind Off | Add Articles | Export | Criteria

Not Started

Title	PDF	sample size	Intervention	mean age
1 Screening for lung cancer.	Upload PDF			
2 Lung cancer in India.				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Export Articles

Choose the files you want to Export

☒ All References (5)

☐ Filtered (2)

File Format

CSV

Close

Export



EXPORT THE ARTICLES

test for webinar

Need Training?

Overview | Review Data | Screening | Full Text Screening | Data Extraction

Showing 1 / 5 Not Started Articles

Extract Data

Blind On

Add Articles

Export

Criteria

Not Started

Title	PDF	sample size	intervention	mean age	
1 Screening for lung cancer.	Upload PDF				
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Export Articles

We are preparing your file!

You will receive an email within minutes including a download link to your exported articles. If this is not the case, please check your junk mail folder. IMPORTANT: Do not change the blind mode before the operation is complete, otherwise the results will have mixed blind modes.

Got it



DOWNLOAD DATA

Compose

Inbox 5

Starred

Snoozed

Sent

Drafts

More

Labels +

Search mail

rayyan

Dear Sana Institute of Health sahdri sana,

This is to let you know that the export of articles you had requested for the below review is ready to download:

Review title: test for webinar

Review description:

You can download the exported file by clicking [here](#).

If the above link does not work for you, please copy and paste the below link in your browser: https://s3.amazonaws.com/rayyan-prod/export/44cd33a212e24a08_826415_1643039_2025-10-01_12-04-22.zip

The link will remain **valid for 3 days only**. After that, the file will be automatically deleted from our servers.

Regards,
The Rayyan Team.

Enable desktop notifications for Gmail. OK No thanks X



REPORTED EXCEL

articles.csv - Excel																						Majid Janani		Share	
File Home Insert Draw Page Layout Formulas Data Review View Help Tell me what you want to do																									
Clipboard		Font				Alignment				Number		Styles		Cells		Editing		Add-ins		AI					
Y2		19462																							
	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ			
1	location	abstract	notes	doi	keywords	pubmed_id	pmc_id	PDF files	sample size	mean age	intervention														
2	England			10.4065/8	Adenocarc	18452692	PMC27184	nty012.pdf	19461	19497	19462														
3	United States			10.1093/jr	Cohort Stu	34893871	PMC90022	djab224_b	138969		surgery														
4	United States			10.1016/j.	Aged;Early	29793736	PMC60457	choi_2023	180	59.9	not reported														
5	United States				Carcinoma	11091922																			
6	India				Air Pollutic	15515828		nihms468128.pdf																	
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									



ARTICLES INCLUDED/EXCLUDED REPORTS

test for webinar

Need Training?

Overview

Review Data

Screening

Full Text Screening

Data Extraction

Stay caught up with review updates

Edit Info

Invite Members

Blind Off

PRISMA

Review Info

I

Review Title: test for webinar

E

Review Type: Systematic Review

U

Review Domain: Biomedical

D

Description: Add Description to your Review!



ARTICLES INCLUDED/EXCLUDED REPORTS

Identification

Databases

2000

Registers

0301

Duplicates removed

631

Automatically excluded

0

Other exclusions

0

Screening

Records screened

615

Records excluded

329

Reports sought

94

Reports not retrieved

94

Reports assessed

0

Reports excluded

background article, 270; wrong pub

Included

New studies

0

New reports

0

Download

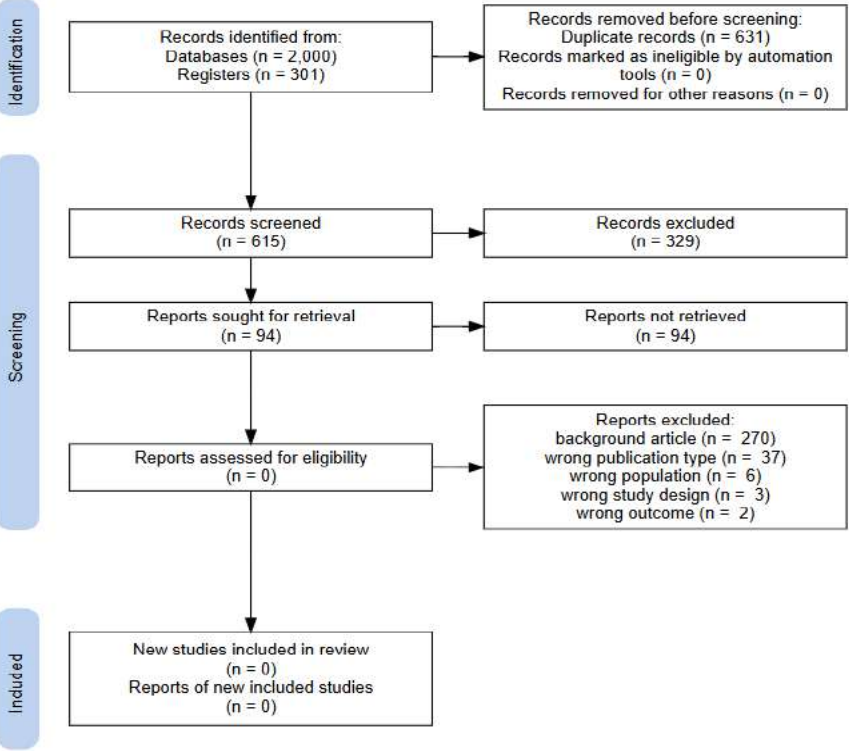
- PDF

PNG

SVG

Interactive HTML

Interactive HTML (ZIP)





METHODS: STUDY RISK OF BIAS ASSESSMENT (PRISMA ITEM 11)

- **Checklist Item:**
- "Specify the **methods used to assess risk of bias** in the included studies,
- Including:
 - details of the tool(s) used,
 - how many reviewers assessed
 - each study and whether they worked independently,
 - and if applicable, details of automation tools used in the process”.



PURPOSE OF RISK OF BIAS ASSESSMENT:

- This section explains how the **risk of bias in individual studies** was evaluated.
- The goal is to assess the **quality of the studies included in your review**, identifying potential biases that might affect the findings.
- Bias could arise from various factors such as poor randomization, incomplete outcome reporting, or funding sources influencing study results.



KEY ELEMENTS TO REPORT:

- 1. **Risk of Bias Tools:** Specify the tool(s) used to assess risk of bias (e.g., Cochrane Risk of Bias Tool, ROBINS-I for non-randomized studies).
- 2. **Reviewers:** State how many reviewers assessed the risk of bias for each study and whether they worked independently.
- 3. **Disagreements:** Describe how disagreements between reviewers were resolved (e.g., through discussion, third reviewer).
- 4. **Automation Tools:** Mention if any software tools (e.g., Covidence, RevMan) were used to assist with the risk of bias assessment.



RISK OF BIAS TOOLS



Risk of bias tools

^ Welcome

- ▼ RoB 2 tool
- ▼ ROBINS-I tool
 - ROBINS-I V2 tool
 - ROBINS-E tool
 - ROB-ME tool
 - robvis (visualization tool)

riskofbias.info

Welcome to our pages for risk of bias tools for use in systematic reviews.

- [RoB 2 tool \(revised tool for Risk of Bias in randomized trials\)](#)
- [ROBINS-E tool \(Risk Of Bias in non-randomized Studies - of Exposures\)](#)
- [ROB ME \(Risk Of Bias due to Missing Evidence in a synthesis\)](#)
- [ROBINS-I tool \(Risk Of Bias In Non-randomized Studies - of Interventions\)](#)
- [robvis \(visualization tool for risk of bias assessments in a systematic review\)](#)

EXAMPLE

Risk of bias assessment

Responses underlined in green are potential markers for low risk of bias, and responses in **red** are potential markers for a risk of bias. Where questions relate only to sign posts to other questions, no formatting is used.

Domain 1a: Risk of bias arising from the randomization process

Signalling questions	Comments	Response options
1a.1 Was the allocation sequence random?		<u>Y</u> / PY / PN / N / NI
1a.2 Was the allocation sequence concealed until clusters were enrolled and assigned to interventions?		<u>Y</u> / PY / PN / N / NI
1a.3 Did baseline differences between intervention groups suggest a problem with the randomization process?		Y / PY / <u>PN</u> / <u>N</u> / NI
Risk-of-bias judgement		Low / High / Some concerns
Optional: What is the predicted direction of bias arising from the randomization process?		NA / Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable



METHODS: DATA COLLECTION PROCESS (PRISMA ITEM 9)

- **Checklist Item:**
- "Specify the methods used to collect data from reports,
- including how many reviewers collected data from each report,
- whether they worked independently,
- any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process."



KEY ELEMENTS TO REPORT:

- **Data Extractors:** State **how many reviewers** were involved in the data extraction process and whether they worked independently.
- **Consistency:** Mention if a **standardized data extraction form** (manual or electronic) was used.
- **Verification:** Describe how extracted data were checked for accuracy (e.g., cross-checking by a second reviewer).
- **Contacting Authors:** Note whether you contacted study investigators for missing or unclear data.
- **Automation Tools:** Specify if any software tools (e.g., Covidence, Rayyan, Excel spreadsheets, DistillerSR) were used to assist in data collection



METHODS: EFFECT MEASURES (PRISMA ITEM 12)

- **Checklist Item:**
- "Specify for each outcome the effect measure(s) (e.g., risk ratio, mean difference) used in the synthesis or presentation of results."
- **Purpose:** Effect measures describe **how the results of individual studies were quantified and compared.**



KEY ELEMENTS TO REPORT:

- **Primary Outcomes:** For each outcome, state the exact measure used (e.g., **risk ratio**, **odds ratio**, **mean difference**).
- **Secondary Outcomes:** Provide effect measures for additional outcomes of interest (e.g., survival rate, antibody titers).
- **Precision:** Indicate how precision was reported, typically with **95% confidence intervals (CI)** or **credible intervals** (for Bayesian analyses).
- **Consistency:** If different studies reported outcomes in different ways (e.g., some used odds ratios, others relative risk), describe **how you standardized them for comparison**.



METHODS: SYNTHESIS METHODS (PRISMA ITEMS 13A–13F)

- 13a: Explain **how studies were chosen** for each synthesis.
- 13b: Describe **how missing or incompatible data were handled**.
- 13c: Explain **how results were tabulated or visualized**.
- 13d: Detail **how results were synthesized** (model, heterogeneity, software).
- 13e: Report **how heterogeneity was explored** (subgroups, meta-regression).
- 13f: Mention **sensitivity analyses** for robustness



13A. DECIDING WHICH STUDIES WERE ELIGIBLE FOR EACH SYNTHESIS

■ How to Report:

- Tabulate study characteristics (e.g., intervention type, outcome measures).
- Compare against your planned groups (from eligibility criteria).

■ Example (Veterinary CPV Vaccination Review):

- RCTs comparing **monovalent CPV vaccines** with placebo contributed to the *primary infection incidence analysis*.
- Studies reporting **antibody titers** only were included in the *immunogenicity synthesis*.



METHOD, STUDY SELECTION:

Study selection

The study selection process involved multiple stages, including duplicate elimination, screening, eligibility assessment at full-text assessment, and selection for review. Database search results were imported into End-Note version×9 at initial screening. Duplicates were identified and removed. Two independent reviewers (Z. A, and K. P) screened the remaining records based on titles and abstracts. Studies that did not meet the inclusion criteria were excluded at this stage. Two independent reviewers evaluated and reviewed full-text articles of potentially relevant studies (Z. A, and K. P). Any disagreements regarding study eligibility were resolved through discussion with the third reviewer to make the final decision.



13B. PREPARING DATA FOR PRESENTATION/SYNTHESIS

- **How to Report:**

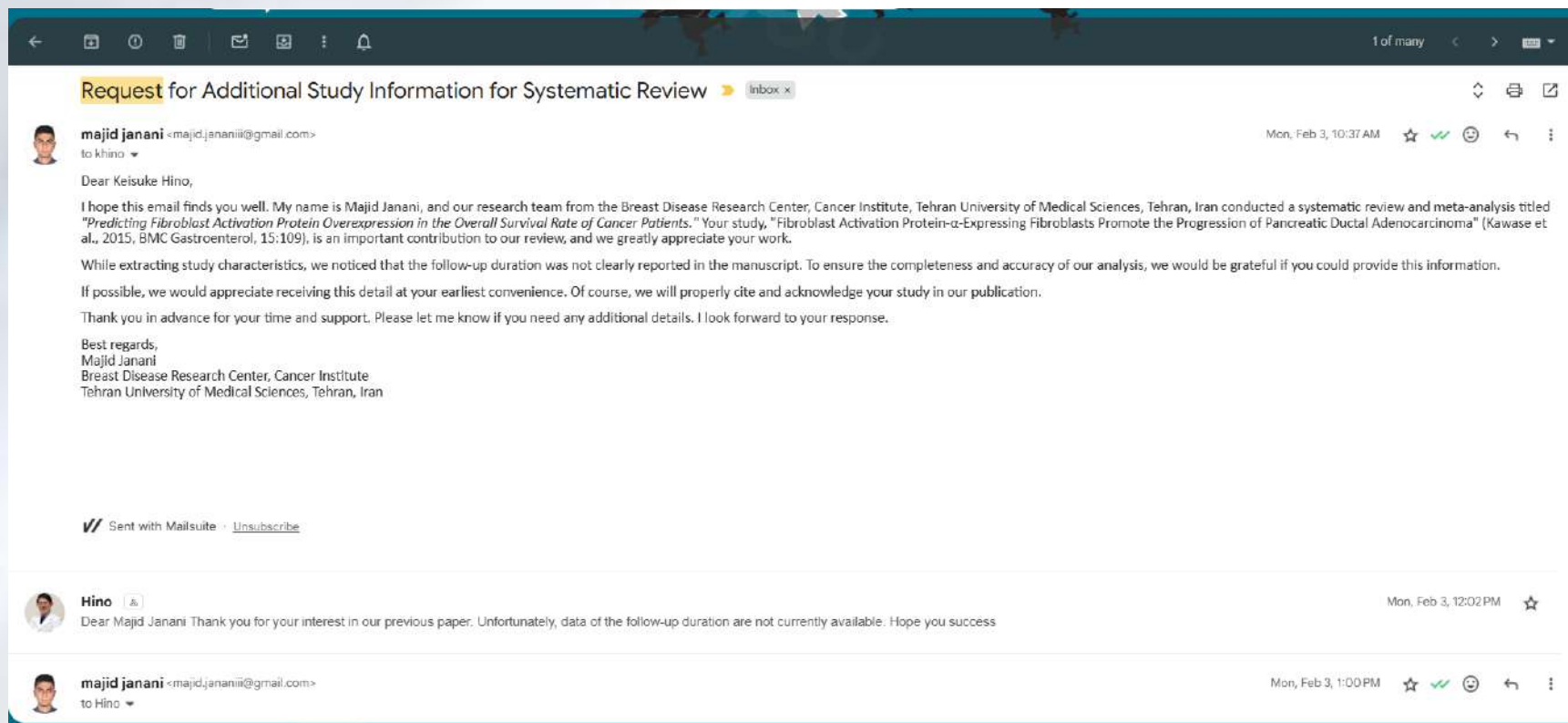
- Describe handling of missing data (e.g., imputing standard deviations).
- Note any data conversions (e.g., converting antibody titers from log scale to linear).

- **Example:**

- If a study reported mean **follow up by month**, we can synthesis and **convert all data to year⁺-Sd**.
- When outcome data were missing, attempts were made to **contact study authors**; if unsuccessful, the study was excluded from meta-analysis but included in narrative synthesis



EXAMPLE OF CONTACT STUDY AUTHORS



CALCULATE OR BY NUMBER OF PATIENTS

	Cases		Controls	
	N	%	N	%
Smoking pattern^c				
Non-filter	102	32.2	35	13.8
Ex-smoker	50	15.8	87	34.3
Filter	165	52.1	132	52.0
Type of tobacco				
Only blond	8	2.5	26	10.2
Black/both types	309	97.5	228	89.8
Total	317	100	254	100

^a Adjusted for age (categorized as in Table 1), socioeconomic level (categorized as I-II, III, IVa, IV variable in the Table).

^b Adjusted for age (categorized as in Table I), socioeconomic level (categorized as I-II, III, IVa, IVb- and for the other variable in the Table).

^c Smoking pattern: ex-smoker (>5 years since cessation), filter (exclusive filter cigarette use during



13C. TABULATING/DISPLAYING RESULTS

- **Purpose:** Readers should **easily see individual study results** before synthesis.
- **How to Report:**
 - Describe the methods used (tables, forest plots, summary of findings tables).
- **Example:**
 - A **Summary Table** was created to display study characteristics and outcomes (sample size, intervention, effect estimate).

EXAMPLE



Table 1 Characteristics of the included studies in the systematic review

First author name (year)	Country	Follow up duration	Sample size	Mean age	Gender	Cancer type	Tumor stage	Patients under treatment	FAP detection method, Cut off of FAP	Number of patients with high FAP level	Main results
Ariga, N. (2001) [41]	Japan	-	112	-	-	Breast cancer	-	-	IHC is focally positive (10%), positive (10% to 50%), or strongly positive (50%)	61	Higher expression of FAP/seprase in invasive ductal carcinoma cases is associated with longer OS and DFS Multivariate analysis has shown FAP/seprase expression as an independent prognostic factor for survival
Borchert, S. (2023) [46]	Germany		77	64.6 (Mean), 65.2 (Median), Range (37.6–82.9)	64 (male), 13 (female)	Lung cancer	-		IHC, negative (score 0)=0%; low (score 1)= 1–10%; moderate (score 2)= 11–50%; high (score 3)= > 50%	46	Two-year OS was 51.7% in the high FAP expression compared to 29.6% in the low expression (cutoff: 95 counts; $p=0.012$; HR: 1.93; 95% CI: 0.75–3.24). Median OS in high FAP



13D. SYNTHESIZING RESULTS

- **Purpose:** Explain how results were combined pooled across studies.
- **How to Report if a meta-analysis was performed:**
 - Specify the model (fixed-effect vs. random-effects).
 - Report heterogeneity methods (I^2 statistic, chi-square test).
 - Mention the software used (RevMan, STATA, R).
- **Example:**
 - A random-effects model was used due to expected variability in vaccine types and populations.
 - Heterogeneity was assessed using I^2 ; values $>50\%$ were considered moderate to high heterogeneity.
 - Analyses were performed using RevMan 5.4 software.



13E. EXPLORING CAUSES OF HETEROGENEITY

- **Purpose:** If results vary, explain how you explored the reasons.
- **How to Report:**
 - Subgroup analyses (e.g., by age group, vaccine type).
 - Meta-regression (if enough studies).
- **Example:**
 - Subgroup analyses compared puppies vs. adult dogs to assess whether age influenced vaccine effectiveness.
 - Subgroup analyses also compared monovalent vs. combination vaccines



13E. SENSITIVITY ANALYSES

- **Purpose:** Check **how robust your findings are.**
- **How to Report:**
- Describe analyses excluding certain studies (e.g., low-quality studies, small sample sizes) to see if results change.
- **Example:**
- Sensitivity analysis was performed by excluding studies at high risk of bias. Results remained consistent, strengthening confidence in the findings.
- Another sensitivity analysis excluded studies with fewer than 20 animals per group.



EXAMPLE

Statistical analysis

After data extraction, data were synthesized for meta-analysis. In the first step, we standardized variable units across studies. Besides, all reported HR were adjusted for the hazards of the high FAP- α group compared to the low FAP- α group based on study reports. Then, we took the logarithm of the HRs along with their 95% confidence intervals (CIs) due to the asymmetry in the HR range [13]. The primary method involved pooling HRs for overall survival. The effect size was calculated by fixed-effect and random-effects models based on the between-study variability [14].

The homogeneity and heterogeneity among studies were assessed by Cochran's Q test and I^2 statistics that quantify the percentage of total variation due to heterogeneity rather than chance. For the categorization of I^2 , an I^2 value of 25%, 50%, and 75% was defined to indicate low, moderate, and high levels of heterogeneity, respectively [15]. In addition, Begg's [16] and Egger's [17] tests were used to detect publication bias, and the funnel plot was reported as a visual representation of potential asymmetry [18]. Moreover, the Trim and Fill method was used to estimate and adjust for missing studies. In cases of heterogeneity ($I^2 \geq 50\%$ and significant Q test P -value) in studies, sensitivity analysis was conducted to assess outcome variations based on potential heterogeneity factors. A P -value less than 0.05 was considered statistically



METHOD: REPORTING PUBLICATION BIAS ASSESSMENT (PRISMA ITEM 14), CERTAINTY ASSESSMENT (PRISMA ITEM 15)

- **Checklist Item:**

"Describe any methods used to assess risk of **publication bias** due to missing results in a synthesis (arising from reporting biases)."

- **Why publication bias assessed?**

- Studies with *negative or null results* are not published (“publication bias”).
- Only selective outcomes from a study are reported (“outcome reporting bias”).

- **Why It Matters:**

- If not addressed, reporting bias can inflate the perceived effectiveness of an intervention and mislead conclusions.



HOW TO ASSESS AND REPORT THAT

- **Statistical Methods:** Describe how you checked for reporting bias across studies.
 - **Funnel plots** can reveal asymmetry suggestive of bias.
 - **Egger's test or Begg's test** can be applied for small-study effects.
- **Protocol Comparison:** If protocols or trial registrations exist (e.g., ClinicalTrials.gov), compare planned vs. reported outcomes.
- **Sensitivity Analyses:** Report whether excluding small or lower-quality studies changed conclusions.
- **Automation Tools:** Mention if software (e.g., RevMan, STATA, R packages like metafor) was used to generate funnel plots or run bias tests.
- **Certainty assessment:** Describe any methods used to assess confidence interval and weight of the studies



RESULTS: STUDY SELECTION (PRISMA ITEM 16A & 16B)

■ 16a. Search and Selection Results

- **Purpose:** Report what happened after you conducted your search — how many records you found, how many were excluded, and how many studies were finally included.

■ How to Report:

- Present the **numbers at each stage**:
 - Records identified (from databases, registers, websites).
 - Records after duplicates removed.
 - Records screened by title/abstract.
 - Full-text reports assessed for eligibility.
 - Studies included in the final review.
- Ideally, show this in a **PRISMA flow diagram** for clarity to visually show selection process

■ 16b. Excluded but Relevant-Looking Studies

- **Purpose:** Some studies *looked eligible* but were excluded after closer inspection. It is important to cite them and explain *why*.
- **How to Report:** Provide a list (often in a table) of excluded studies with clear reasons.

EXAMPLE

Results

General data

Figure 1 shows that 5,757 articles were included in the first search for this systematic review. In the next step, 513 studies were identified as duplicates. Following the evaluation of titles, abstracts, and keywords, 4,371 articles were excluded due to irrelevant patient populations ($n=2,896$), exposures ($n=864$), outcomes ($n=589$), or study design ($n=22$). Furthermore, 873 articles that initially met the inclusion criteria were re-evaluated with full-text assessment, 41 articles were included in this systematic review, and 25 studies were considered in this meta-analysis. Table 1 presents the characteristics of the included articles.

Systematic review

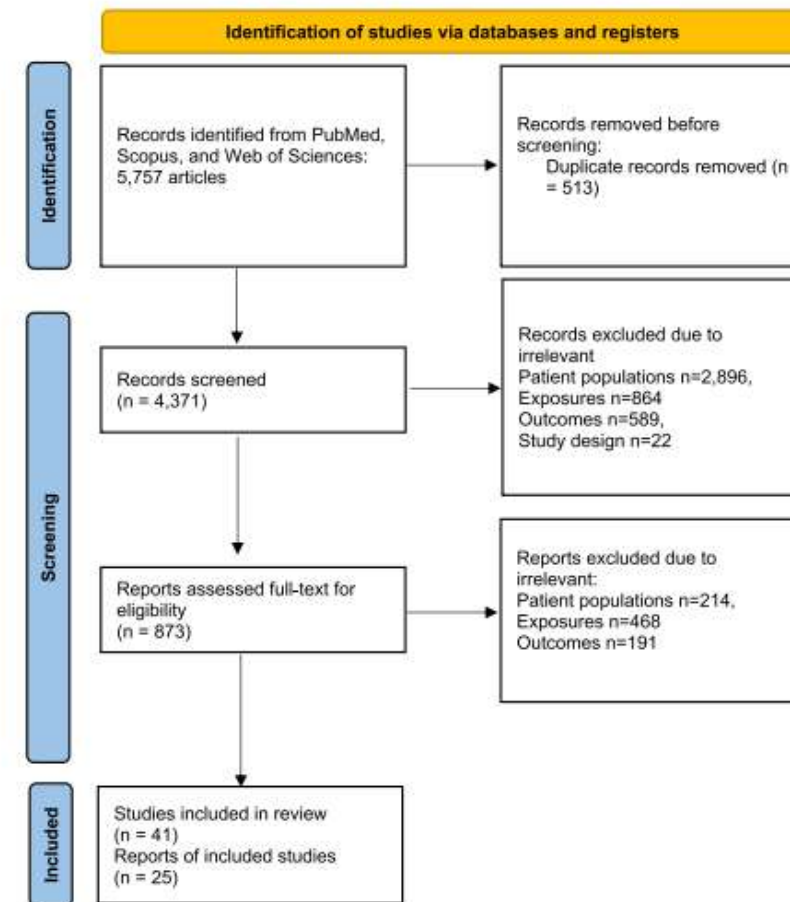


Fig. 1 PRISMA flowchart illustrating the selection process of studies, from initial identification (5,757 articles) to final inclusion in the systematic review (41 articles) and meta-analysis (25 studies)



RESULTS: STUDY CHARACTERISTICS (PRISMA ITEM 17)

- **Checklist Item:**
- "Cite each included study and present its characteristics."
- **Purpose:** Once you've selected the studies, you need to give readers a clear picture of what they look like.
- This allows comparison between studies and helps readers judge whether the findings are applicable to their context.



WHAT TO INCLUDE:

- **Citation details:** Author, year, journal.
- **Study design:** RCT, cohort, case-control, cross-sectional, etc.
- **Population:** Species, breed, age, sex, sample size.
- **Intervention(s):** Type of vaccine/treatment, dose, schedule.
- **Comparator(s):** Placebo, no treatment, alternative intervention.
- **Outcomes measured:** Infection incidence, antibody response, survival, etc.
- **Setting:** Country, clinical vs. laboratory conditions.

EXAMPLE

Systematic review

Table 1 shows the study characteristics. The studies were published between 2001 and 2024. The sample size was 908 (min=31, max=939). Among the reviewed articles, all of them were conducted in cohort design, and 16 studies had sample sizes of less than 100 participants. There were 17 studies between 101 and 200 participants, 2 studies between 201 and 300 participants, and 6 studies with sample sizes of more than 300 participants. The included studies were published in China (18 studies) [9, 19–33], South Korea (7 studies) [34–40], Japan (5 studies) [41–45], Germany (3 studies) [46–48], the USA (2 studies) [49, 50]. Other countries, Switzerland [51], Spain [52], Sweden [53], Egypt [54], Brazil [55], and Taiwan [56], were each study 1.

The mean/median age of participants was distributed between 51 and 70 years old, and cancer types of participants included lung cancer (7 studies), breast cancer (6 studies), colorectal cancer (5 studies), ovarian cancer (5 studies), gastric cancer (4 studies), pancreatic cancer (3 studies), oral squamous cell carcinomas (2 studies), rectal cancer (2 studies), bladder cancer (2 studies), hepatocarcinoma (2 studies), ampullary carcinoma (1 study), esophageal cancer (1 study), and nasopharyngeal carcinoma (1 study) (Table 1).

Surgical interventions were the most common treatment, among 23 studies that described treatment; 10 studies just investigated surgery as treatment [19, 24, 27, 30, 31, 38, 40, 53, 54, 57], 9 studies combined surgery and chemotherapy [23, 28, 33, 42, 43, 45, 47, 48, 52] and chemotherapy-only treatments were observed in 4 studies [25, 49, 50, 56]. In addition, 41 studies reported the FAP- α detection method. All of the included studies employed immunohistochemistry as an assessment method of FAP- α expression level, and



RESULTS: RISK OF BIAS IN STUDIES (PRISMA ITEM 18)

- **Checklist Item:**
- Report assessments of risk of bias for each included study.
- **Purpose:** This section summarizes how much confidence we can place in the individual study results.
- The risk of bias assessment (described earlier in Methods, **Item 11**) is now presented for each included study.



COMMON TOOLS:

- **Cochrane RoB 2.0 (for randomized controlled trials).**
- **ROBINS-I (for observational studies).**
- **Domains typically assessed:**
 - Randomization / selection bias.
 - Allocation concealment.
 - Blinding (participants, personnel, outcome assessors).
 - Incomplete outcome data.
 - Selective reporting.
 - Other sources of bias (e.g., funding).



HOW TO REPORT:

- **Text Summary:** Describe overall risk of bias patterns across studies.
- **Tables:** Present study-level judgments (low / some concerns / high risk).
- **Figures:** Traffic light plots or bar charts are highly recommended for teaching and publication.

PUBLICATION BIAS, HOW TO REPORT?

2.3 Publication quality assessment

We evaluated the quality of the studies by employing the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies from the National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH) (7), which is suitable for risk of bias assessment of cohort and case-control studies (8). This is a standardized and structured tool consisting of 14 criteria that include aim description (item 1), study population description (item 2), participation rate (item 3), homogeneity of study population (item 4), sample size and power (item 5), exposure measurement (item 6), adequate timeframe (item 7), varied exposure levels (item 8), clear exposure measures (item 9), repeated exposure assessment (item 10), clear outcome measures (item 11), blinding of outcome assessors (item 12), loss to follow-up

3.2 Quality assessment

The quality assessment of the included studies showed a mean score of 11.07, with the highest score being 12 and the lowest score being 10. Considering that the maximum score possible on the checklist was 14, the findings suggest that the overall quality of the studies was within the range of fair to acceptable quality (Table 2).

TABLE 2 Quality assessment of the included studies.

First author	Item number on the checklist														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Byrling et al. (2020) (15)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12
Chen et al. (2018) (17)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12
Coto-Lierena et al. (2020) (18)	1	1	1	1	1	1	1	1	1	0	1	0	NR	0	10
Errarte et al. (2016) (19)	1	1	1	1	1	1	1	1	1	0	1	0	NR	0	10
Gao et al. (2017) (20)	1	1	1	1	1	1	1	1	1	0	1	0	NR	0	10
Ha et al. (2014) (21)	1	1	1	1	1	1	1	1	1	0	1	1	NA	1	12
Henry et al. (2007) (37)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12
Higashino et al. (2019) (22)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12
Ma et al. (2017) (26)	1	1	1	1	1	1	1	1	1	0	1	0	NA	0	10
Son et al. (2019) (30)	1	1	1	1	1	1	1	1	1	0	1	0	NA	1	11
Song et al. (2016) (31)	1	1	1	1	1	1	1	1	1	0	1	0	NR	1	11
Wen et al. (2019) (34)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12
Yuan et al. (2013) (38)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12
Zhang et al. (2015) (35)	1	1	1	1	1	1	1	1	1	0	1	0	NR	1	11
Zou et al. (2018) (36)	1	1	1	1	1	1	1	1	1	0	1	1	NR	1	12

PUBLICATION BIAS, HOW TO REPORT?

Table 2 Risk of bias assessment using the joanna briggs institute (JBI) critical appraisal checklist for cohort studies [9, 22–57]

Study (first author)	Group Comparability	Exposure Assessment Consistency	Exposure Measurement Validity	Confounders Identified	Confounder Control Strategy	Outcome Free at Baseline	Outcome Measurement Validity	Follow-up Duration Adequacy	Follow-up Completeness	Handling of Incomplete Follow-up	Appropriateness of Statistical Analysis
Atgls, N. (2001) (42)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borchert, S. (2023) (47)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Calzavara, J. (2019) (53)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Chen, L. (2018) (19)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Jiang, S. (2023) (22)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Jiang, Y. Y. (2015) (38)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Kawano, T. (2015) (43)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Kutepov, K. (2023) (48)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Lee, P. J. (2022) (57)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Li, F. (2020) (23)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Li, M. (2020) (23)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Liao, Y. (2013) (24)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Lyu, S. L. (2024) (49)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Morones-Ruiz, P. (2021) (54)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Nam, V. (2022) (39)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Rong, X. X. (2022) (25)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Seo, G.M. (2019) (41)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Song, Z. (2016) (27)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Tahagi, K. (2023) (45)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Tong, Y. (2022) (24)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Waks, Y. (2023) (46)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Wen, X. (2017) (30)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Wen, Z. (2019) (58)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Zhao, Z. (2023) (33)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Zou, B. (2018) (34)	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Yes, No, Unclear

Risk of bias assessment

The risk of bias was assessed for studies included in the meta-analysis. The Joanna Briggs Institute (JBI) Critical Appraisal Checklist was used for risk of bias assessment and was designed explicitly for cohort studies. This tool evaluates key methodological aspects, including study design, exposure and outcome measurement validity, confounding control, and completeness of follow-up. Based on the checklist guideline, each parameter was classified as Yes (low risk), No (high risk), Unclear (insufficient data), or Not Applicable [12].

Risk of bias assessment

The risk of bias assessment showed that most studies had a low risk of bias in group comparability, exposure measurement, and outcome reliability. However, a high risk of bias was observed in confounder control and follow-up completeness, with several studies lacking proper adjustments or having incomplete follow-up data and unclear risk in handling missing data and follow-up sufficiency (Table 2).



RESULTS: RESULTS OF INDIVIDUAL STUDIES (PRISMA ITEM 19)

- **Checklist Item:**

- "For all outcomes, present, for each study:
 - (a) summary statistics for each group (where appropriate) and
 - (b) an effect estimate and its precision (e.g., confidence/credible interval), ideally using structured tables or plots."

- **Explanation:**

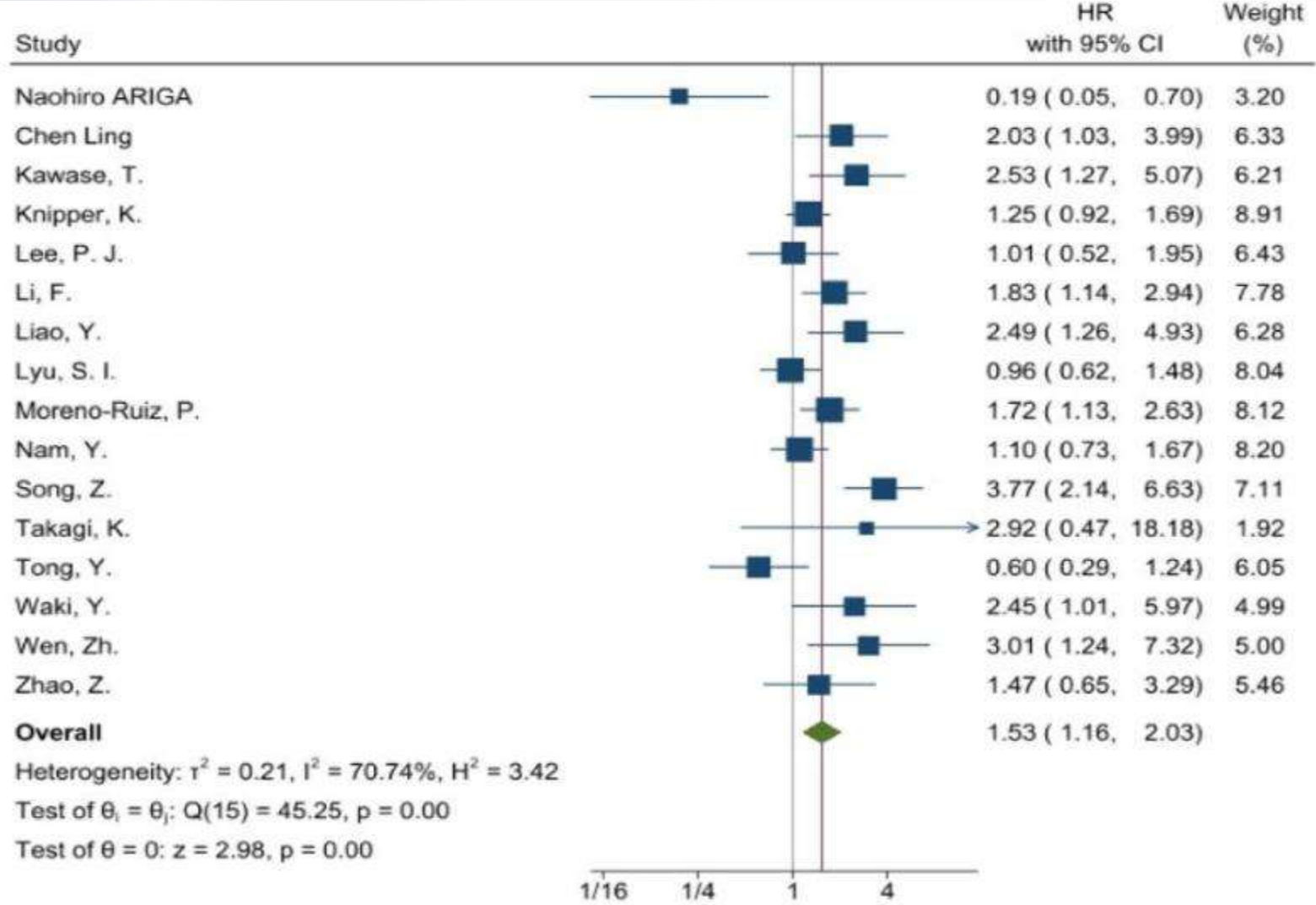
- Purpose: Readers should see the *raw study-level findings* before you combine them in synthesis or meta-analysis



VISUAL PRESENTATION:

- **Forest plots:** Useful for comparing effect estimates and confidence intervals across multiple studies.
- · **Bar charts / scatter plots:** Helpful for outcomes like antibody titers over time

FOREST PLOT



Random-effects REML model



20A. SUMMARIZE CHARACTERISTICS

- Summarize their designs, interventions, outcomes, and populations.
- Provide an overview of their risk of bias — for example, whether most were randomized trials or observational studies, and whether common bias issues were present (e.g., lack of blinding, incomplete reporting).
- The purpose is to give context before presenting pooled results.



20A. SUMMARIZE CHARACTERISTICS

Systematic review

Table 1 shows the study characteristics. The studies were published between 2001 and 2024. The sample size was 908 (min=31, max=939). Among the reviewed articles, all of them were conducted in cohort design, and 16 studies had sample sizes of less than 100 participants. There were 17 studies between 101 and 200 participants, 2 studies between 201 and 300 participants, and 6 studies with sample sizes of more than 300 participants. The included studies were published in China (18 studies) [9, 19–33], South Korea (7 studies) [34–40], Japan (5 studies) [41–45], Germany (3 studies) [46–48], the USA (2 studies) [49, 50]. Other countries, Switzerland [51], Spain [52], Sweden [53], Egypt [54], Brazil [55], and Taiwan [56], were each study 1.

The mean/median age of participants was distributed between 51 and 70 years old, and cancer types of participants included lung cancer (7 studies), breast cancer (6 studies), colorectal cancer (5 studies), ovarian cancer (5 studies), gastric cancer (4 studies), pancreatic cancer (3 studies), oral squamous cell carcinomas (2 studies), rectal cancer (2 studies), bladder cancer (2 studies), hepatocarcinoma (2 studies), ampullary carcinoma (1 study), esophageal cancer (1 study), and nasopharyngeal carcinoma (1 study) (Table 1).

Surgical interventions were the most common treatment, among 23 studies that described treatment; 10 studies just investigated surgery as treatment [19, 24, 27, 30, 31, 38, 40, 53, 54, 57], 9 studies combined surgery and chemotherapy [23, 28, 33, 42, 43, 45, 47, 48, 52] and chemotherapy-only treatments were observed in 4 studies [25, 49, 50, 56]. In addition, 41 studies reported the FAP- α detection method. All of the included studies employed immunohistochemistry as an assessment method of FAP- α expression level, and



20B. STATISTICAL SYNTHESSES

- Present the results of any quantitative syntheses (meta-analyses).
- Report the summary effect size (e.g., risk ratio, odds ratio, mean difference) with precision estimates such as confidence or credible intervals.
- Include measures of heterogeneity (e.g., I^2 , τ^2 , Chi-square test).
- If groups were compared, state the direction of effect (e.g., intervention group performed better, worse, or no difference).
- If no meta-analysis was possible, describe how findings were synthesised narratively.

EXAMPLE

Table 3 Pooled hazard ratios (HRs) for overall survival, disease-free survival (DFS), lymph node metastasis (LNM), and distant metastasis (DM) based on high FAP expression compared to low FAP expression

Associated factor	Number of studies	Sample size	HR	95% Confidence Interval	P-Value	I ² (%)
Crude FAP (univariable)	18	2452	1.486	(1.194—1.847)	<0.001	74.31
Adjusted FAP (Multivariable)	16	2550	1.534	(1.158—2.034)	0.003	70.74
DFS	6	1018	1.361	(0.750—2.469)	0.311	84.30
PFS	2	112	6.619	(5.844, 7.496)	<0.001	98.93
LNM	12	2341	2.053	(1.603—2.630)	<0.001	29.26
DM	7	1168	2.630	(1.902—3.637)	<0.001	20.59



20C. INVESTIGATING HETEROGENEITY

- When study results vary, explain how you explored possible causes.
- This can be done with subgroup analyses (e.g., by age, intervention type, or setting)
- Or meta-regression (testing whether study-level factors explain differences in results).
- Report **what factors were considered**, and what the findings showed about variation across studies.



20D. SENSITIVITY ANALYSES

- **Sensitivity analyses test the robustness of your conclusions.**
- **Typical approaches include:**
 - Excluding studies judged to be at high risk of bias.
 - Comparing different statistical models (fixed vs. random effects).
 - Handling of studies with missing data or zero events.
 - Running leave-one-out analyses (removing one study at a time to check influence).



EXAMPLE

Table 4 Subgroup analysis of hazard ratios (HRs) based on potential sources of heterogeneity for crude HR, adjusted HR, and disease-free survival

Subgroups	No. of studies	HR (95% of CI)	Heterogeneity I ² (%)	P-value heterogeneity	P-value between subgroups
Survival (crude, based on univariable analysis)					
Age					<0.001
65 or under	4	1.45 (1.05–1.99)	51.65	0.102	<0.001
Over 65	6	1.73 (1.05–2.86)	81.91	<0.001	
Mean follow-up duration					0.013
60 months or lower	4	1.79 (1.28–2.50)	34.92	0.174	0.013
Over 60 month	2	1.01 (1.03–2.00)	0.00	0.420	
Treatment in Participants					<0.001
Not reported	4	1.43 (0.79–2.59)	87.16	<0.001	<0.001
Participants with treatment	13	1.52 (1.20–1.92)	67.08	0.001	
High FAP %					0.003
50% or under	8	1.40 (0.96–2.05)	68.09	0.003	0.003
Over 50%	8	1.67 (1.14–2.44)	82.04	<0.001	
Nodal metastasis in patients					<0.001
50% or under	7	1.78 (1.29–2.47)	60.91	0.014	<0.001
Over 50%	5	1.30 (0.67–2.50)	77.90	0.003	
Cancer type					<0.001
Gastrointestinal and head & neck cancers*	12	1.53 (1.16–2.03)	69.10	0.002	<0.001
Ovarian cancer	1	2.10 (1.23–3.57)	-	-	
Bladder cancer	1	1.68 (0.99–2.85)	-	-	

Principles and methods for writing systematic review and meta-analysis 2nd edn. Institute for advanced health and disease research



SUBGROUP ANALYSIS REPORT EXAMPLE

Subgroup analysis for heterogeneity

A subgroup analysis assessed potential heterogeneity in survival outcomes between the included studies.

The subgroup analysis showed older participants (over 65) had higher HR (HR of age > 65 years = 1.73 vs. HR of age < 65 years = 1.45). Also, studies with 60 months or less follow-up periods reported a higher HR (HR of follow-up ≤ 60 months = 1.79 vs. HR of follow-up > 60 months = 1.01). Studies conducted on untreated participants showed a lower HR (HR for untreated participants = 1.43 vs. HR for treated participants = 1.52). Moreover, studies with more than 50% high FAP-α expression in participants reported higher HR (HR of ≤ 50% = 1.40, HR of > 50% = 1.67). The HR was significantly increased in studies in which more than half of the participants had nodal metastases compared to the studies in which less than half had nodal metastases (HR of ≤ 50% = 1.78, HR of > 50% = 1.30). In addition, cancer type reported significant heterogeneity and various HR were reported between cancer type subgroups (Table 4).

Heterogeneity assessment

The heterogeneity across the studies that examined crude HR with FAP-α was moderate to high, with $I^2 = 74.31\%$ and a significant Q-test for heterogeneity ($Q = 64.68$, $P = 0.00$). In addition, studies that reported adjusted analyses ($I^2 = 70.74\%$, $Q = 45.25$, $P = 0.00$), PFS ($I^2 = 98.93\%$, $Q = 93.41$, $P < 0.001$), and DFS ($I^2 = 84.30\%$, $Q = 23.44$, $P = 0.001$) were statistically significant. However, studies reporting an association between LNM with HR ($I^2 = 29.26\%$, $Q = 16.89$, $P = 0.11$) and DM with HR ($I^2 = 20.59\%$, $Q = 6.48$, $P = 0.37$) showed non-significant heterogeneity (Table 3).



RESULTS: REPORTING BIASES (PRISMA ITEM 21) (PUBLICATION)

- This section showed whether your findings may be affected by reporting biases when not all results are available or selectively reported.
- **Types of Reporting Bias:**
 - Publication bias: Studies with positive findings are more likely to be published.
 - Outcome reporting bias: Only favorable outcomes within a study are reported, while negative or null results are omitted.
 - Selective time-point reporting: Only certain follow-up periods are reported.



WHAT TO INCLUDE:

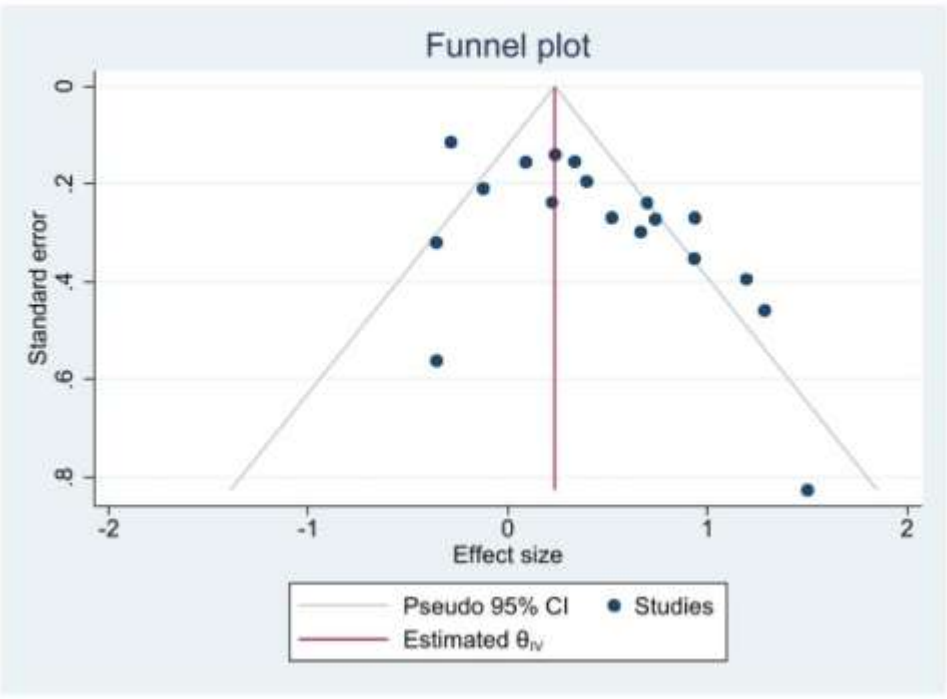
- Assessment methods used to detect reporting bias. Common approaches:
 - Funnel plots (visual check for asymmetry across studies).
 - Statistical tests (Egger's test, Begg's test).
 - Protocol comparison (e.g., trial registry outcomes vs. published outcomes).

PUBLICATION BIAS ASSESSMENT EXAMPLE

Publication bias

The publication bias assessment for studies that reported crude HR suggests significant small-study effects with the Egger test ($\text{beta}_1 = 2.09$, $P = 0.009$), Begg's test (Kendall's score = 55.00, $P = 0.041$), and for studies that reported PFS (Egger test $\text{beta}_1 = -18.33$, $P < 0.001$, Begg's test Kendall's score = not assessed due to insufficient observation); however, the trim-and-fill analysis reports that the effect size remains consistent. Also, publication bias assessment showed insignificant publication bias for studies that assessed adjusted HR (Egger test $\text{beta}_1 = -0.18$, $P = 0.866$, Begg's test Kendall's score = 12.00, $P = 0.620$), for studies that reported DFS (Egger test $\text{beta}_1 = -1.17$, $P = 0.662$, Begg's test Kendall's score = -1.00, $P = 1.000$), for studies that assessed the association of LNM with HR (Egger test $\text{beta}_1 = -1.35$, $P = 0.185$, Begg's test Kendall's score = -14.00, $P = 0.373$), and DM with HR (Egger test $\text{beta}_1 = 1.15$, $P = 0.439$, Begg's test Kendall's score = 3.00, $P = 0.7639$) (Fig. 3).

A:





RESULTS: CERTAINTY OF EVIDENCE (PRISMA ITEM 22)

- Even when you have multiple studies and meta-analyses, not all estimates is equally and 100% trustworthy.
- You should to report confidence interval of the estimates (usually 95% CI) even while you import high number of sample size and P-value reported.



DISCUSSION (PRISMA ITEMS 23A–23D)

- **23a. General Interpretation of Results in the Context of Other Evidence**
- Here, you interpret your review’s findings **in light of the broader body of literature.**
- Compare your results with **previous systematic reviews, meta-analyses, or large primary studies.**
- Point out whether your findings are consistent or divergent, and suggest possible reasons.
- Keep the tone **balanced** — not just what was found, but how it fits into the bigger picture.



23B. LIMITATIONS OF THE EVIDENCE INCLUDED IN THE REVIEW

- **Critically appraise the quality of the included studies:**
 - Were they small, underpowered, or poorly reported?
 - Was there risk of bias (e.g., poor randomization, lack of blinding)?
 - Were the populations, interventions, or outcomes heterogeneous?
 - Was there evidence of publication bias?
- The goal is to report the weaknesses **in the available evidence base**, not **your own methods yet.**



23C. LIMITATIONS OF THE REVIEW PROCESSES USED

- **Here, reflect on your own review methods:**
 - Were there language restrictions (e.g., only English studies included)?
 - Were databases limited (e.g., missed grey literature, conference proceedings)?
 - Was screening or data extraction performed by a limited number of reviewers?
 - Did you face time/resource constraints that may have influenced comprehensiveness?
- Transparency about process limitations helps readers judge reliability and validity of your study



23D. IMPLICATIONS FOR PRACTICE, POLICY, AND FUTURE RESEARCH

Practice:

- How can your findings be applied in clinical, veterinary, or public health practice?

■ Policy:

- Are there policy-level recommendations (e.g., vaccination programs, screening guidelines)?

■ Future Research

- Identify knowledge gaps — e.g., need for more RCTs, better standardization of outcomes, longer follow-ups.



REGISTRATION AND PROTOCOL (PRISMA ITEMS 24A–24C)

- **24a. Provide Registration Information for the Review**
- **24b. Indicate Where the Review Protocol Can Be Accessed**
- **24c. Describe and Explain Any Amendments to the Registration or Protocol**



24A. PROVIDE REGISTRATION INFORMATION FOR THE REVIEW

- **24a. Provide Registration Information for the Review**
- It's essential to be transparent about whether and where your review was **pre-registered**.
- **Why Register?:** Pre-registration improves transparency and reduces risk of **selective reporting** or **outcome switching**. It allows others to track your research methods and ensure you're following your original plan.
- **What to Include:**
 - **Register Name:** Name of the platform where the review was registered (e.g., **PROSPERO**, **Cochrane Database**).
 - **Registration Number:** The unique identification number assigned when the review was registered (e.g., **CRD42019112345**).
- **Example:**
 - "This systematic review was registered with **PROSPERO** (registration number: **CRD42020123456**)."



24B. INDICATE WHERE THE REVIEW PROTOCOL CAN BE ACCESSED

- Provide the location where others can access the detailed protocol of your review.
- This enhances transparency and helps prevent issues like outcome reporting bias.
- **What to Include:**
 - **Location/URL:** Direct readers to the repository where your protocol is available (e.g., PROSPERO website, institutional repository).
 - **State if No Protocol:** If you did not prepare a protocol, explicitly mention this.
- **Example:**
 - "The protocol for this systematic review is available at PROSPERO (https://www.crd.york.ac.uk/prospERO/display_record.php?ID=CRD42020123456)."
 - "A protocol for this review was not prepared."



REGISTRATION NUMBER REPORT

METHODS

Registration and search strategy

This systematic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (online supplemental table 1) and was prospectively registered with the International Prospective Register of Systematic Reviews (PROSPERO; CRD42024505533). As per the registered protocol, two researchers (LL and ZL) conducted searches in Ovid MEDLINE, Embase and the Cochrane Central Register of Controlled Trials up to 15 June 2025. The search strategy was developed with assistance from experts at the Sichuan University Library, as detailed in online supplemental table 2. The main search terms included 'heart failure', 'incidence', 'risk' and 'cohort study'.



24C. DESCRIBE AND EXPLAIN ANY AMENDMENTS TO THE REGISTRATION OR PROTOCOL

- If any changes were made after the review was registered or the protocol was written, that **must** be documented and justified.
- This improves transparency by showing whether the review adhered to the original plan and **helps others understand why the changes were necessary.**
- **What to Include:**
 - **Amendments:** List the changes made to the original protocol (e.g., changes in eligibility criteria, outcomes assessed).
 - **Reasons for Changes:** Explain why the changes were necessary (e.g., additional relevant studies discovered, data availability issues).
 - **Timeline:** When the changes occurred (e.g., date of amendment).



ABSTRACT (PRISMA ITEM 2)

- **Purpose of the Abstract:** The abstract should summarize the essential elements of your systematic review in a concise manner.
- It serves as a **brief overview for the reader** to understand the review's aims, methods, and key findings quickly.



WHAT TO INCLUDE IN THE ABSTRACT:



PRISMA 2020 for Abstracts Checklist

Section and Topic	Item #	Checklist item	Reported (Yes/No)
TITLE			
Title	1	Identify the report as a systematic review.	
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	
Risk of bias	5	Specify the methods used to assess risk of bias in the included studies.	
Synthesis of results	6	Specify the methods used to present and synthesise results.	
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	
Interpretation	10	Provide a general interpretation of the results and important implications.	
OTHER			
Funding	11	Specify the primary source of funding for the review.	
Registration	12	Provide the register name and registration number.	



ABSTRACT EXAMPLE

ABSTRACT

Objective To identify comorbidities associated with incident heart failure with preserved ejection fraction (HFpEF) and quantify their HRs for early risk stratification and prevention.

Design PROSPERO-registered (CRD42024505533) systematic review and meta-analysis. Primary analysis prioritised unadjusted HRs; exploratory analysis incorporated adjusted HRs.

Data sources Ovid MEDLINE, Embase and the Cochrane Central Register of Controlled Trials through 15 June 2025

Eligibility criteria for selecting studies Cohort studies of adults (≥ 18 years) without prior HF reporting HRs for incident HFpEF-associated comorbidities. Exclusions: non-English publications, reviews, non-clinical studies and studies without HR data.

Data extraction and synthesis Two reviewers independently extracted data and assessed quality (Newcastle-Ottawa Scale). Random-effects models pooled HRs. Heterogeneity was investigated using Galbraith/Baujat plots, meta-regression and subgroup analyses. Publication bias assessed via funnel plots, Egger's and Begg's tests.

Results Among 61 eligible studies, 22 reporting unadjusted HRs formed the primary analysis, identifying five comorbidities with significant incident HFpEF risk: atrial fibrillation (AF) (HR 2.92, 95% CI 1.94 to 4.37, $I^2=86.6\%$), hypertension (HR 2.28, 95% CI 1.35 to 3.84, $I^2=96.9\%$), diabetes (HR 1.88, 95% CI 1.54 to 2.30, $I^2=58.2\%$), obesity (HR 1.70, 95% CI 1.45 to 2.00, $I^2=69.7\%$) and myocardial infarction (MI) (HR 1.62, 95% CI 1.18 to 2.23, $I^2=72.1\%$). Conversely, chronic kidney disease (CKD) (HR 1.44, 95% CI 0.68 to 3.06, $I^2=86.6\%$) and cerebrovascular disease (HR 1.72, 95% CI 0.93 to 3.18, $I^2=77.2\%$) showed non-significant associations. Exploratory analysis integrating unadjusted HRs from primary studies and adjusted HRs from 39 additional studies confirmed these five comorbidities as significant risk factors, with CKD again demonstrating non-significant association.

Conclusion AF, hypertension, diabetes, obesity and MI constitute evidence-based targets for HFpEF risk stratification and preventive management. The CKD-HFpEF association requires validation in larger cohorts.

PROSPERO registration number CRD42024505533.



SUPPORT (PRISMA ITEM 25)

- Describe sources of **financial** or **non-financial** support for the review, and the role of the funders or sponsors in the review."
- **Explanation:**
 - This section ensures transparency about any external funding or support for the review.
 - It helps to assess whether the findings could be influenced by any external interests.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s13643-025-02929-6>.

Supplementary Material 1.

Supplementary Material 2.



WHAT TO INCLUDE:

- **Financial Support:** List any funding sources, such as grants from universities, research councils, or industry sponsors.
- **Non-financial Support:** Include non-financial contributions, like access to data, databases, or technical support (e.g., software access).
- **Role of Funders/Sponsors:** Clearly state whether the funders had any role in the design, conduct, analysis, or writing of the review.



COMPETING INTERESTS (PRISMA ITEM 26)

- **"Declare any conflict of interests of review authors."**
- Declaring competing interests is essential to ensure transparency. This disclosure **helps** readers assess whether any conflicts of interest could potentially bias the review's findings.
- **What to Include:**
 - **Financial Conflicts:** Any financial interests, such as funding from companies that may benefit from the review's findings.
 - **Non-financial Conflicts:** Any professional or personal relationships that could be seen as a conflict of interest (e.g., authors having close ties with organizations that may be impacted by the review's conclusions).
 - **Blank Declaration:** If there are no conflicts of interest to declare, a blank declaration is acceptable.

Competing interests

The authors have no conflicts of interest to declare and are responsible for the paper's content.



AVAILABILITY OF DATA, CODE, AND OTHER MATERIALS (PRISMA ITEM 27)

- **"Report which of the following are publicly available and where they can be found, this include:**
- template data collection forms
- Data extracted from included studies
- data used for all analyses
- analytic code
- any other materials used in the review.



WHAT TO INCLUDE:

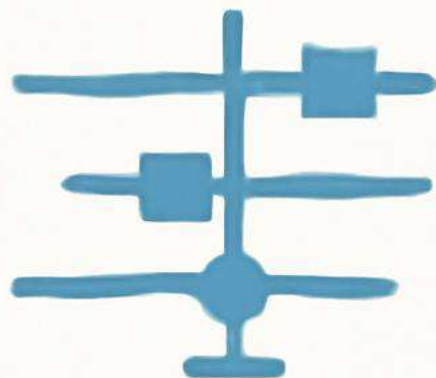
- **Data Collection Forms:** If you used a standard form to extract data, provide a **link or reference to the form**.
- **Extracted Data:** Share the **raw data** that was extracted from included studies, where possible (e.g., study characteristics, outcome data).
- **Analytic Code:** If any software or code was **used for analysis** (e.g., for statistical synthesis), provide access to it.
- **Other Materials:** Any supplementary materials, such as study protocols, **full search strategies**, or **supplementary analyses**.
- **Example:**

Data availability

The data supporting this study's findings are available on request from the corresponding author.



THANKS FOR YOUR ATTENTION





Q & A TIME

