Tools for Managing a Systematic Review

Systematic Review Training

Center for Knowledge Management

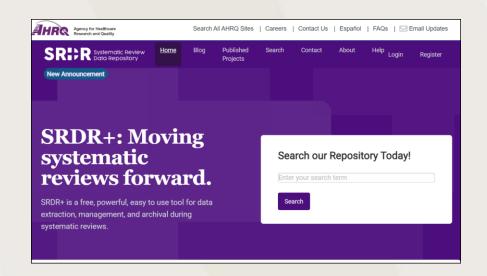
VANDERBILT UNIVERSITY

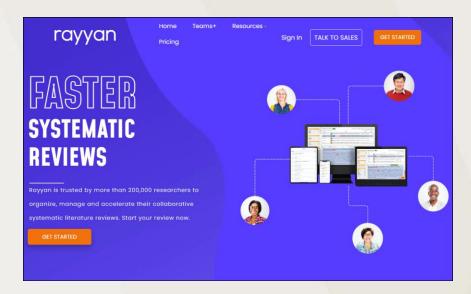
MEDICAL CENTER

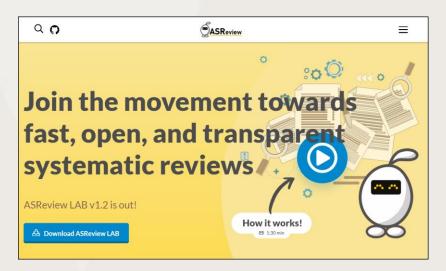


Objectives:

- ✓ Introduce common tools for managing a systematic review
- ✓ Describe benefits and limitations of different tools

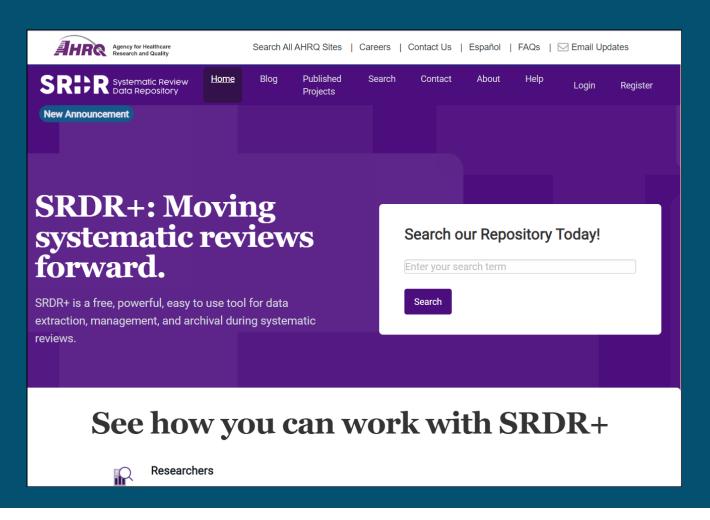








Systematic Review Data Repository Plus (SRDR+)



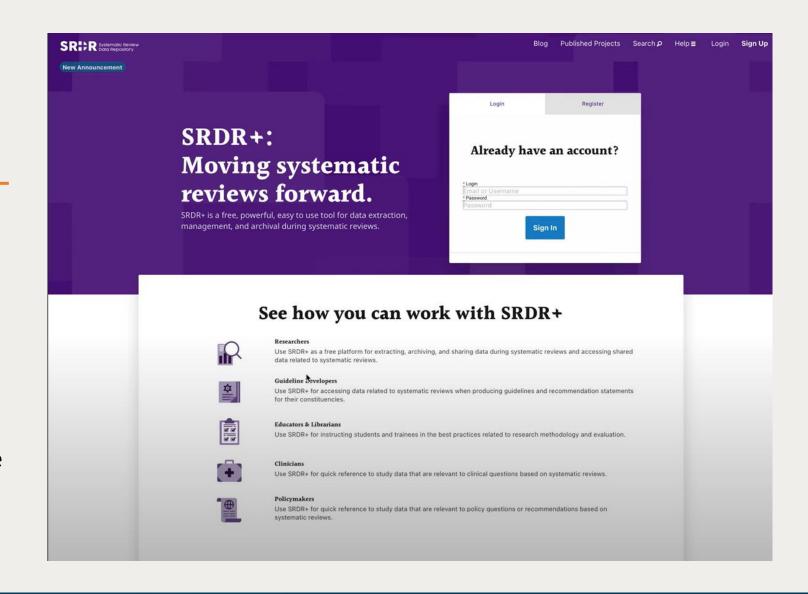
- Free, open-source systematic review platform
- Latest version launched in 2018 (previously launched in 2012)
- Developed by Brown University Evidence-based Practice Center & Agency for Healthcare Research and Quality (AHRQ)

"designed to improve the efficiency of the systematic review data extraction process!"

SRDR+ [Internet]. [cited 2023 Oct 12]. Available from: https://srdrplus.ahrq.gov/.

Systematic Review Data Repository Plus (SRDR+) offers...

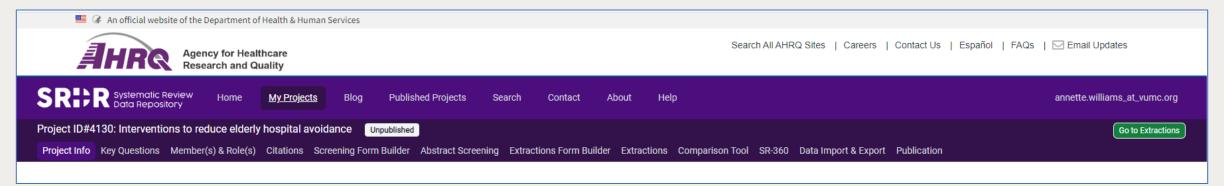
- Citation import from in variety of formats (e.g., RIS, CSV, PMID list, Endnote (enw))
- Abstract and full text screening
- Citations can be assigned to specific users
- Tracking disposition of citations during title & abstract screening
- Customizable extraction forms can be created within each project (e.g., multiple choice, checkboxes, dropdown menus)



SPP P Systematic Review Data Repository

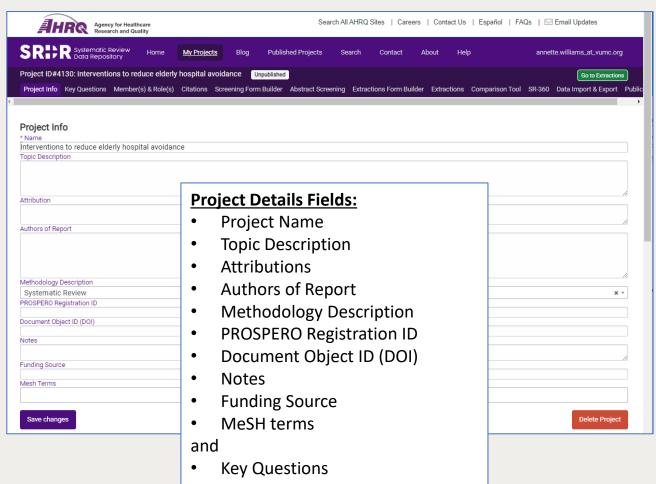
Special Features

- Side-by-side view of data extractions (performed by multiple extractors)
- Disagreements between extractors flagged
- Extractors can add outcomes/outcome measures on the fly
- Allows field dependency relationships
- Sharing of archived data and projects with other SRDR+ users



Disadvantages:

- SRDR+ Administrator controls access to your project
- Cannot store protocol
- Project Details tab holds only rudimentary data
- Contact the SRDR+ team for the most current help and guidance.



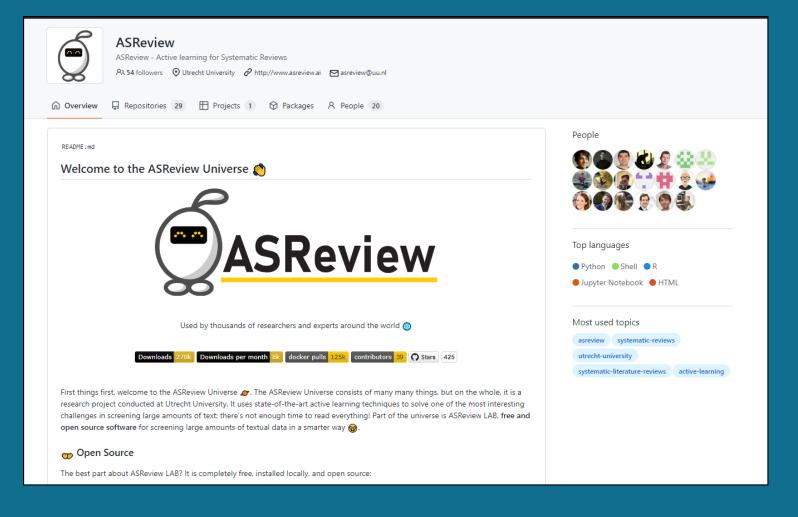
SRDR+ in Summary

Feature		
Cost & access	Free and open source	
Supports multiple users	Varied role options (e.g., leader, consolidator, contributor, or auditor)	
Aids with protocol development	Not applicable	
Integrates with search databases	PubMed	
Easy to import/export	Yes	
Aid with duplicate citation removal	Not applicable	
Title & abstract screening	Designed for title and abstract screening	
Full-text review	Designed for full-text review	
Critical appraisal	Does not aid with critical appraisal	
Assist with reporting	Aids with creating PRISMA flow diagram	

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

ASReview

Free, open-source systematic review tool with built-in machine learning

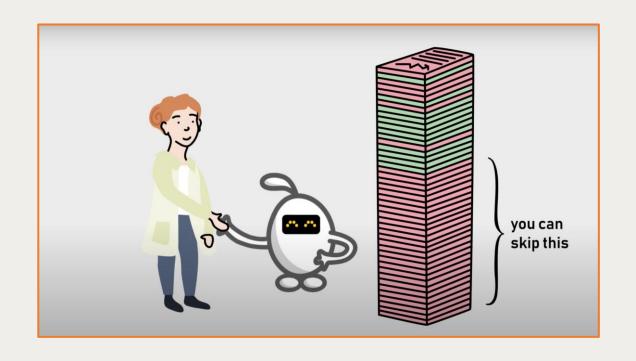


Created around 2019 by researchers at Utrecht University

Goal: to reduce the amount of time needed for screening; not limited to just systematic reviews.

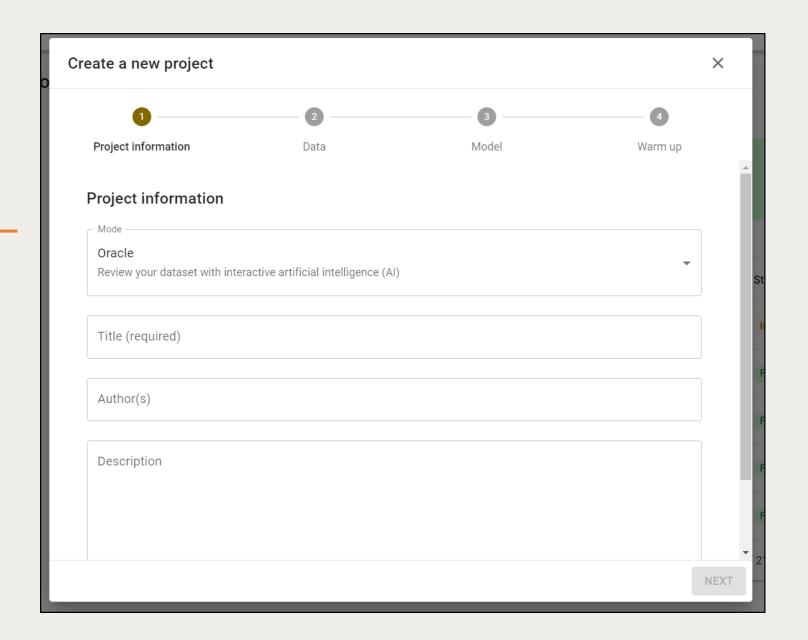
AS Review Explained

- Created for scientists, guideline developers, journalists, policy makers, and other information workers
- Works by using active learning
 - As the user chooses which results are relevant, AS Review's machine learning system reshuffles the order of the results so that the more relevant articles are closer to the top of the list
 - User in complete control of judgement
 - Saves time; AS Review claims that users may skip having to review up to 95% of results



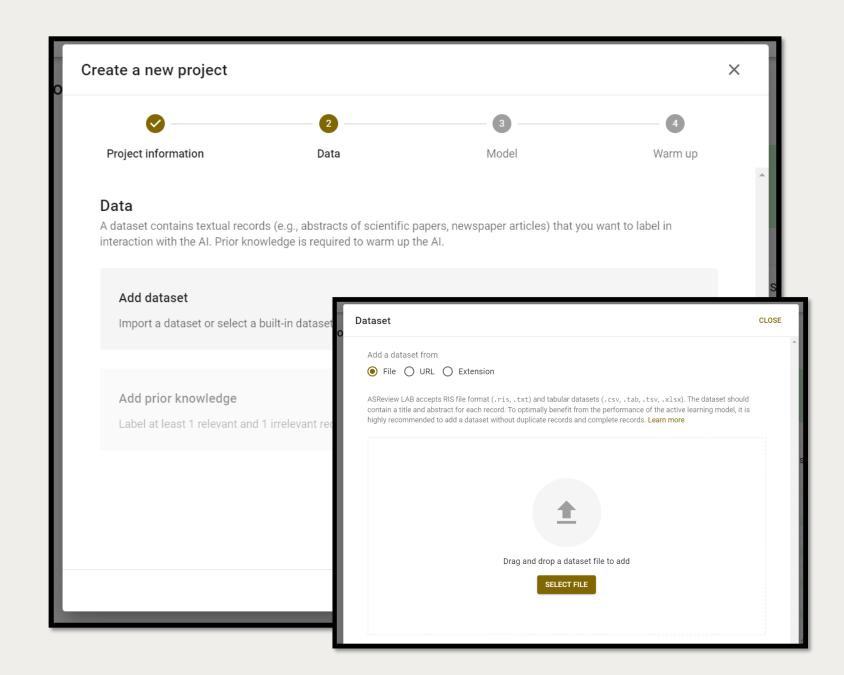
Some technical knowledge is needed to start a project with ASReview.

- Technical installation requires knowledge of Python and familiarity with principles of machine learning
- ASReview provides exploratory and simulation options for learning how the platform works

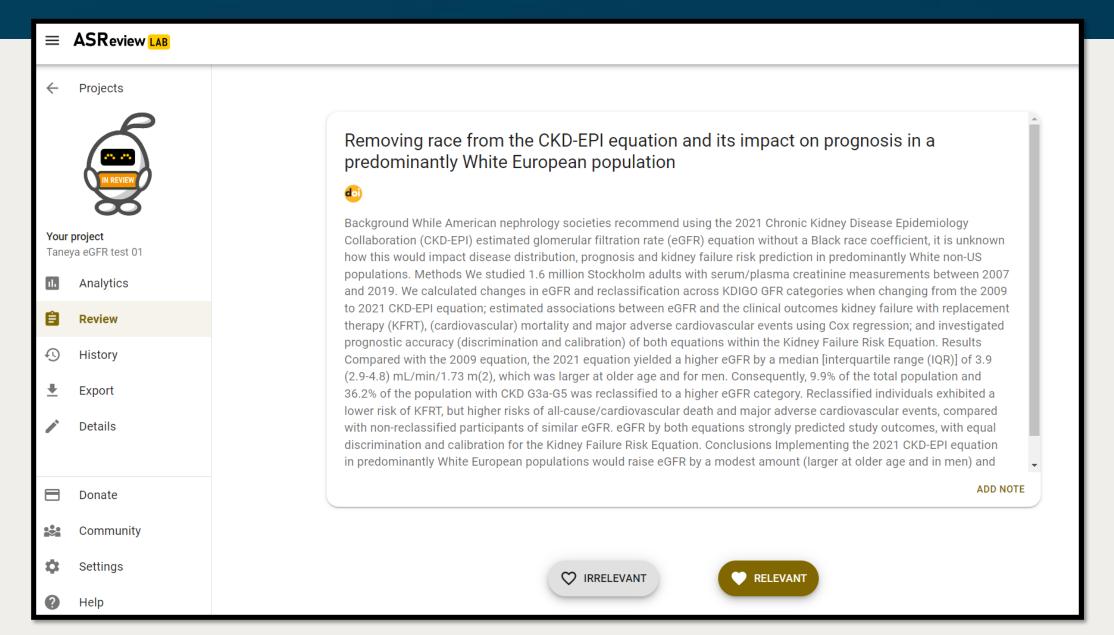


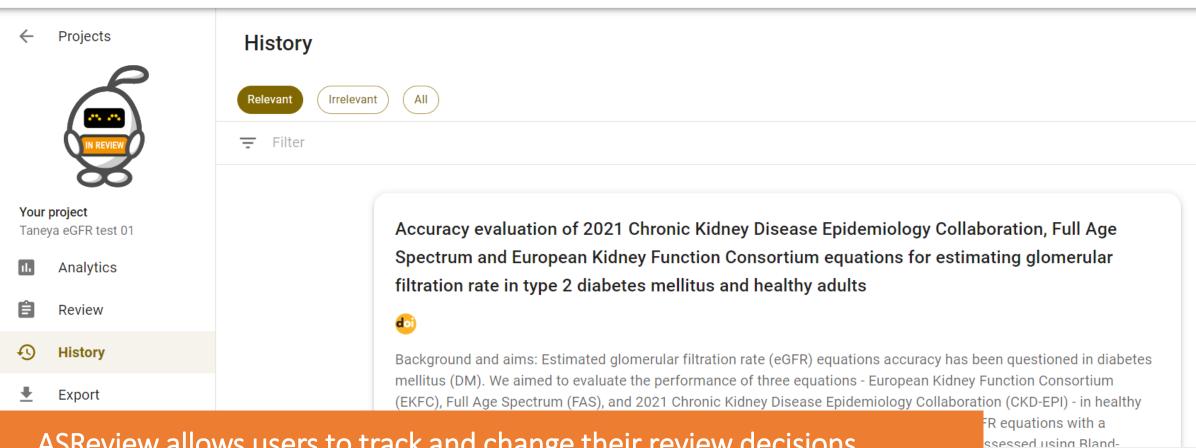
Add Citations

- Citation import conducted via standardized file formats (e.g., .ris, .txt, .csv, .xsls)
- Only 1 data set can be imported, thus citations should be combined ahead of import



The Review Process - "Irrelevant" or "Relevant"

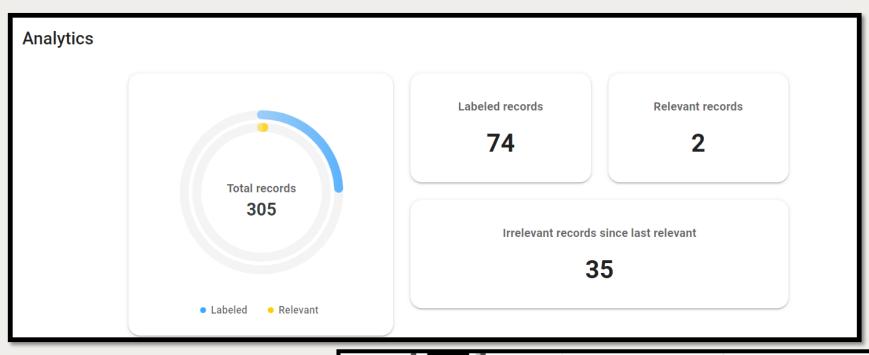




ASReview allows users to track and change their review decisions.

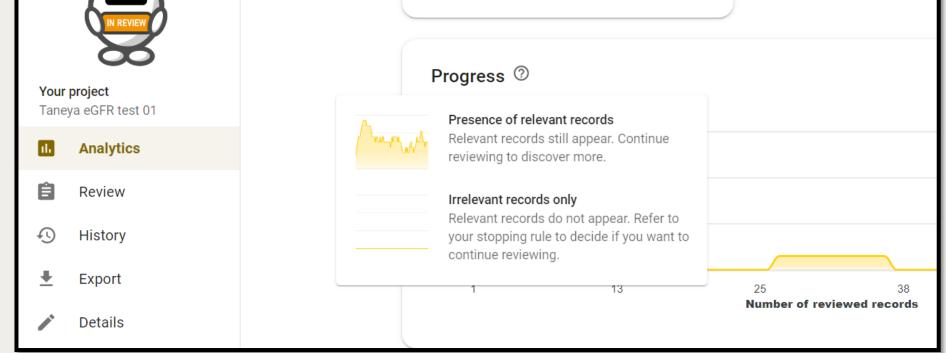
ASK eview LAB

- The "History" feature allows you to see past decisions; filtered by selection status
- Notes can only be added to citations marked as "relevant"



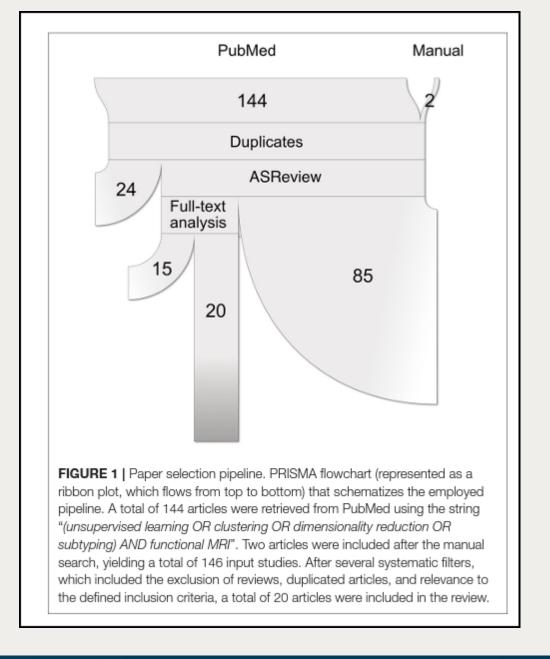
Analytics panel provides overview of citation dataset decisions.

"Stopping rules" can be a priori defined for screening.



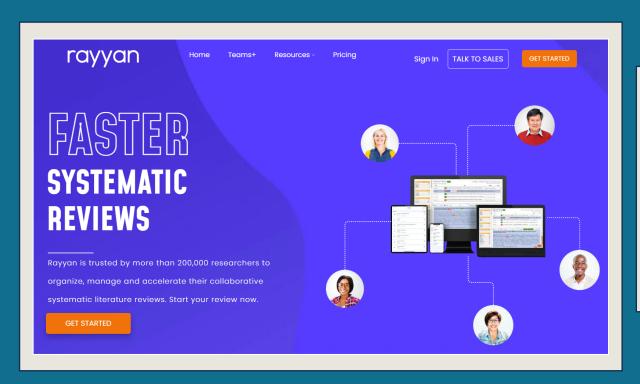
An Example Flow Chart with ASReview

 Flow charts of studies using ASReview are less transparent in documenting reasons for article exclusion



ASReview in Summary

Feature		
Cost & access	Free and open source; technical expertise needed to install	
Supports multiple users	Review by one person at a time	
Aids with protocol development	Not applicable	
Integrates with search databases	Not applicable	
Easy to import/export	Easy to import and export	
Aid with duplicate citation removal	Not applicable	
Title & abstract screening	Designed for title and abstract screening	
Full-text review	Not applicable	
Critical appraisal	Not applicable	
Assist with reporting	Not applicable	





Rayyan

Developed by Qatar Computing Research Institute, first launched in 2014

Uses machine learning to accelerate the systematic review process

Through deduplication, Rayyan makes parts of the systematic review less time consuming.

- The auto-resolver feature identifies duplicate citations; can resolve large numbers of duplicates quickly
- Rating are assigned to estimate which records are "possible duplicates"

Presenting Auto-resolver: Resolve Large Number of Duplicates in Seconds

Removing duplicate references from an extensive collection of articles is not just taxing but also time consuming when it comes to literature review. To make the process easier Rayyan has introduced Auto-resolver.

With just one click, Rayyan's Auto-resolver lets you automatically detect and remove duplicate references with a statistical similarity of 95% and higher, significantly reducing the amount of time spent on de-duplication!

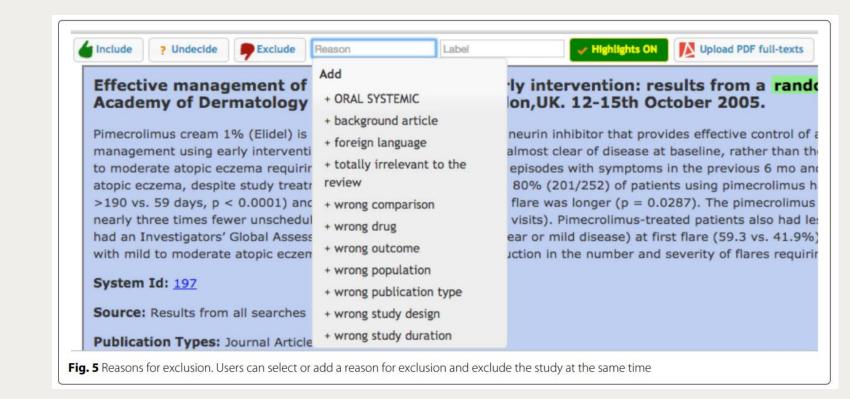


Once you initiate Detect Duplicates, Rayyan's artificial intelligence automatically detects and resolves identical records retrieved from multiple databases that are 100% exact matches. For articles that appear to be possible duplicates based on their content overlap, Rayyan assigns them their corresponding duplicate confidence percentages and a Possible Duplicates facet will appear. You are then able to review and remove duplicates manually, or you may confirm the duplicates by comparing the title, authors, date and percentage similarity and then use the Auto-resolver to auto-resolve statistically high similarity duplicates. For a step-by-step guide on how to incorporate the Auto-resolver into your workflow, please visit this Help Center article.

Screen title and abstract, and full text, all through Rayyan.

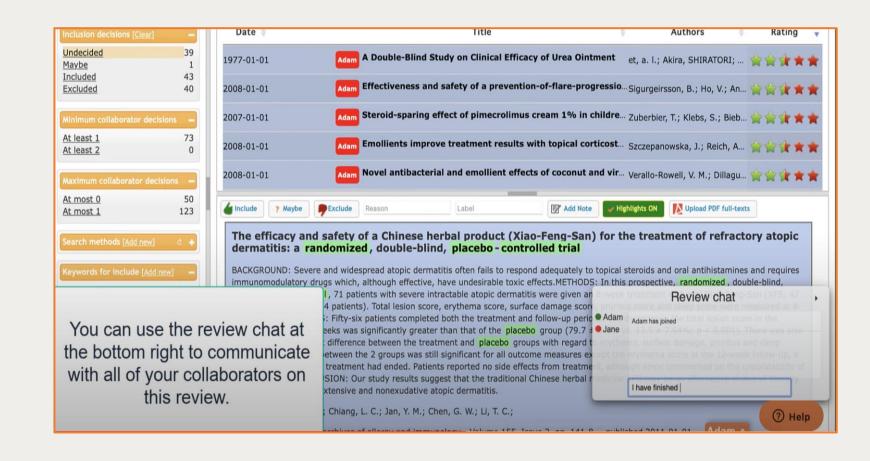
 Rayyan helps reviewers quickly move through the screening processes by highlighting pre-determined keywords

 Users can choose (or add) a reason for exclusion/inclusion while screening

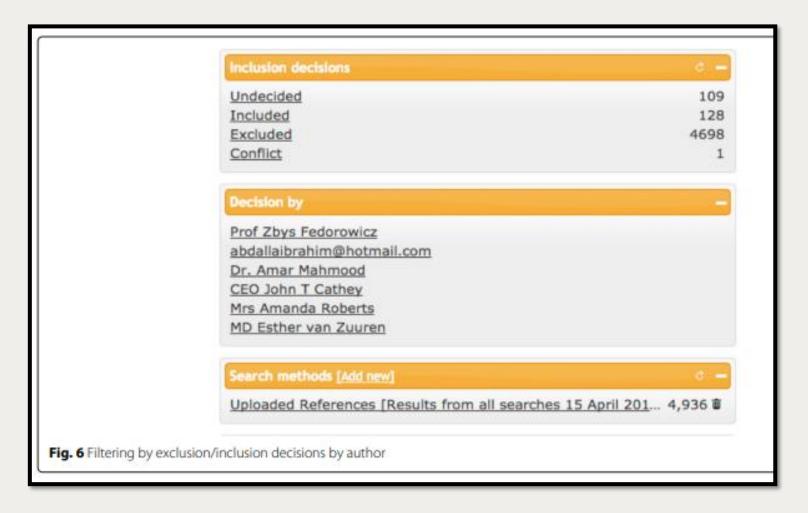


Rayyan allows for collaboration between multiple reviewers, in addition to easy communication.

- Add new reviewers to the project through email
- A "review chat" feature helps reviewers communication within Rayyan



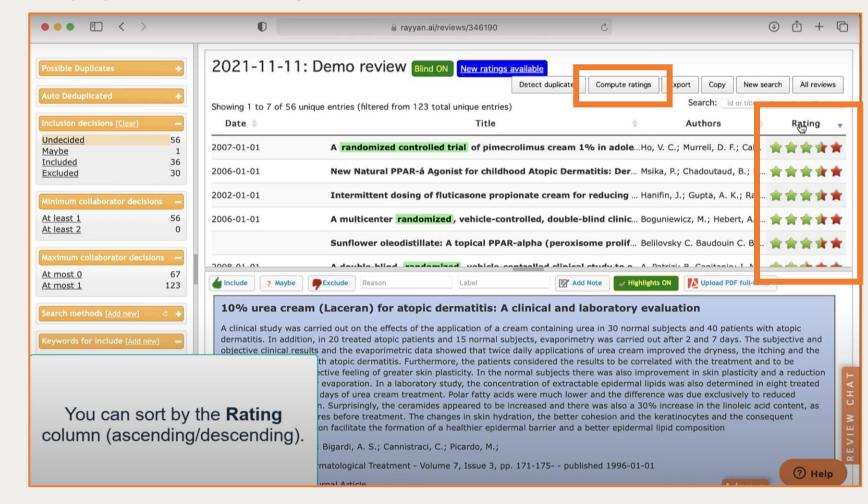
Keep track of any conflicts between reviewers



- Masked review process
- Easily track individual decisions on inclusion/exclusion
- Identify and resolve any conflicts

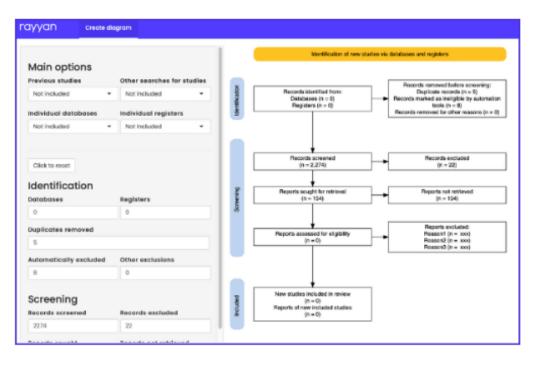
Additionally, Rayyan uses machine learning to save time for reviewers by predicting relevance.

- After 50 decisions have been made, a "compute ratings" feature calculates the probability of inclusion/exclusion for each undecided reference
- More accurate predictions are made after more decisions are made by reviewers



Rayyan can be helpful in creating a PRISMA flow diagram.

Rayyan allows you to easily create a PRISMA flow diagram. PRISMA flow diagrams are commonly used in systematic reviews to show the flow of articles through the review process, from initial search results to the final included studies.



The PRISMA option on Rayyan automatically collects the available populated values from your decisions and displays them as a pre-set, ready-to-use flowchart, saving you all the labour of creating one from scratch. Additionally, Rayyan also provides a control panel to manually make updates or override values as necessary. You can then download your PRISMA Flow Diagram in any format including PDF, PNG, SVG, and Interactive HTML.

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

A mobile app is available to keep users connected with ongoing projects.

Create Review and Manage Your Team with Rayyan's Mobile App

At Rayyan, we are always on the move to ensure that your user experience improves with every new update. Our recent major release allows you to create a new review, invite reviewers, and manage roles – all from the mobile app, in addition to other important usability enhancements for easier navigation!

Experience the All New Rayyan Mobile App and Unlock the Full Potential of Productivity



Rayyan's Mobile App is a game-changer! Learn how to use it to add productive time to your day.

Rayyan has multiple types of membership, including a free plan.



Professional, student, team, and enterprise memberships are also available



Some Rayyan features may not be available on the free membership

Free

For early career researchers just getting started with research.

US\$0

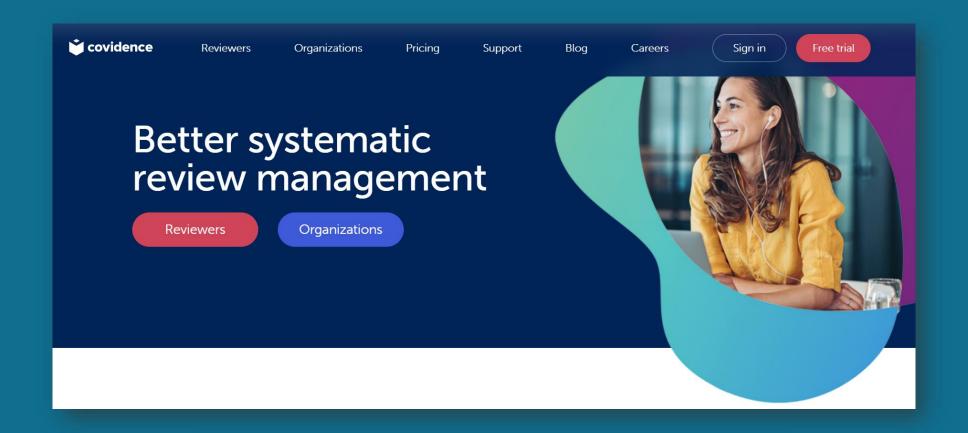
Free foreve

GET STARTED

- 3 Active Reviews
- Invite Unlimited Reviewers
- Import Directly from Mendeley
- Industry Leading De-Duplication
- 5-Star Relevance Ranking
- Advanced Filtration Facets
- Mobile App Access
- 100 Decisions on Mobile App
- Standard Support
- Revoke Reviewer
- Online Training
- PICO Highlights & Filters
- PRISMA (Beta)
- Auto Resolver (Beta)
- Multiple Teams & Management Role:
- Monitor & Manage Users, Searches, Reviews, Full Texts
- Onboarding and Regular Training

Rayyan in Summary

Feature		
Cost & access	Free and paid versions	
Supports multiple users	Multiple users can work concurrently on the same review	
Aids with protocol development	Not applicable	
Integrates with search databases	Not applicable	
Easy to import/export	Citations are easy to import and export	
Aid with duplicate citation removal	Duplicate citation removal features are offered	
Title & abstract screening	Designed for title and abstract screening	
Full-text review	Designed for full-text review	
Critical appraisal	Does not aid with critical appraisal	
Assist with reporting	Aids with creating PRISMA flow diagram	



Faster reviews

An average 35% reduction in time spent per review, saving an average of 71 hours per review.

How to access Covidence:

- Single (one review, unlimited reviewers), Package (up to three reviews), and Organizational plans are available through Covidence
- Check the website to see if your organization has a Covidence institutional license

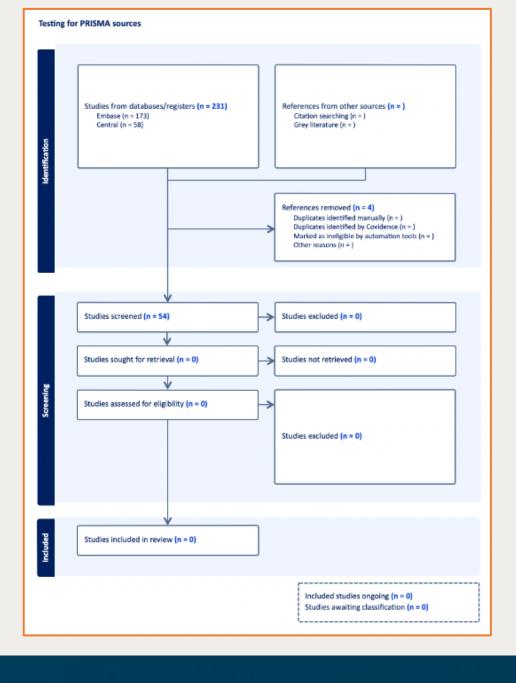
Join 300+ other leading organizations

Many of the world's leading universities, societies and hospitals around the world are already offering Covidence to their staff, students or members. With an institutional licence, you have complete admin control over user access, and visibility across reviews and authors within your organization.

See who's already using Covidence

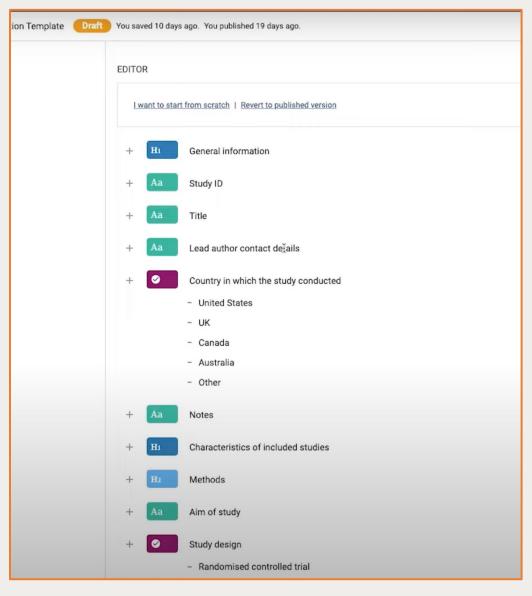
Using Covidence, users can...

- Import references
- Screen title & abstract
- Bulk PDF import
- Screen full text
- Create forms to track eligibility criteria and discordance among reviewers



Additional features

- Automatically populate risk of bias tables
- Customize forms for data extraction
- Easily export to all common formats
- Collaborate with internal and external colleagues



Example data extraction form

Covidence in Summary

Feature		
Cost & access	Paid versions; institutional license	
Supports multiple users	Multiple users can work concurrently on the same review	
Aids with protocol development	Not applicable	
Integrates with search databases	Not applicable	
Easy to import/export	Citation imports available in multiple formats	
Aid with duplicate citation removal	Duplicate citation detection is available	
Title & abstract screening	Designed for title and abstract screening	
Full-text review	Designed for full-text review	
Critical appraisal	Automatic calculation of risk of bias assessments	
Assist with reporting	Aids with creating PRISMA flow diagram	

Comparison of Systematic Review Tools

Feature	SRDR+	ASReview	Rayyan	Covidence
Cost				
Supports multiple users				
Aids with protocol development				
Integrates with search databases				
Easy to import/export				
Aid with duplicate citation removal				
Title & abstract screening				
Full-text review				
Critical appraisal				
Assist with reporting				



Objectives:

- ✓ Introduce common tools for managing a systematic review
- ✓ Describe benefits and limitations of different tools

Presented by Center for Knowledge Management

