

# Systematic Review Tools

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# Session Outline

- Systematic Review Overview
- Tools for each steps of the systematic review process



# Objectives

By the end of this session, you will be able to:

- Identify three systematic review tools
- Access two (freely available or from UNMC) tools to use with your systematic review

# What is a Systematic Review?

"attempts to collate all empirical evidence that fits pre-specified eligibility criteria in order to answer a specific research question"

# Characteristics of Systematic Review

- Clearly stated set of objectives
- Explicit, reproducible methodology
- Attempts to identify all studies that meets eligibility criteria
- Assessment on validity of findings of included studies
- Systematic presentation and synthesis of characteristics of findings of included studies

# Question Frameworks

## 2. Develop a Research Question

**A well-developed and answerable question is the foundation for any systematic review. This process involves:**

- Systematic review questions typically follow a PICO-format (patient or population, intervention, comparison, and outcome)
- Using the PICO framework can help team members clarify and refine the scope of their question. For example, if the population is breast cancer patients, is it all breast cancer patients or just a segment of them?
- When formulating your research question, you should also consider how it could be answered. If it is not possible to answer your question (the research would be unethical, for example), you'll need to reconsider what you're asking
- Typically, systematic review protocols include a list of studies that will be included in the review. These studies, known as exemplars, guide the search development but also serve as proof of concept that your question is answerable. If you are unable to find studies to include, you may need to reconsider your question

- PICO (Patient, Intervention, Comparison, Outcome)
- SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type)
- SPICE (Setting, Perspective, Intervention, Comparison, Evaluation)
- ECLIPSE (Expectation, Client group, Location, Impact, Professionals, Service)

<https://guides.mclibrary.duke.edu/sysreview/question>

# PICO(TT)(S) Framework

- Patient, population, problem
- Intervention
- Comparison
- Outcome
- (Timeframe)
- (Type of study)
- (Setting)

In school-aged children, what is the effect of at-school dental clinic visits on a reduction of dental caries compared with no at-school dental clinic visits?

# Right Review



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*Previously known as "What Review is Right for You?"*

This tool is designed to provide guidance and supporting material to reviewers on methods for the conduct and reporting of knowledge synthesis.

Select the type of review:

Quantitative

Qualitative

<https://whatreviewisrightforyou.knowledgetranslation.net/>

# PRISMA

- Rationale and objectives
- Eligibility criteria
- Information sources
- Draft on a search strategy
- Data management
- Outcomes and prioritization
- Data synthesis

# Equator Network



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**Transparency Of health Research**



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## Library for health research reporting

The Library contains a comprehensive searchable database of reporting guidelines and also links to other resources relevant to research reporting.



Search for reporting guidelines



Not sure which reporting guideline to use?



Reporting guidelines under development



Visit the library for



## Reporting guidelines for main study types

[Randomised trials](#)

[Observational studies](#)

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[SPIRIT](#)

[STARD](#)

[CARE](#)

[AGREE](#)

[SRQR](#)

[ARRIVE](#)

[SQUIRE](#)

[QUERRA](#)

[Extensions](#)

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[Extensions](#)

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Apologies!

CONSORT & PRISMA websites

TEMPORARILY UNAVAILABLE

<https://www.equator-network.org/>



# Protocols

# Why create a Protocol?

- 1<sup>st</sup> thing your team completes
  - "Blueprint" of your systematic review
  - Describes rationale, hypothesis, and planned methods for review
  - Prepared before beginning systematic review
  - Protocols made publicly and registered

# Systematic Review Registries

- Prospero
  - International prospective register of systematic reviews
  - Review protocol recorded and maintained
  - Reviews available on open access database
  - Transparency in review process
- Open Science Framework (use the pre-registration template)
- Publish in a Journal

# PROSPERO

Registering a review is easy. Please read the guidance notes for registering a **systematic review of human studies** or a **systematic review of animal studies relevant to human health**, then just follow the five step process below.

- Step 1** Check the **inclusion criteria** to make sure that your review is eligible for inclusion in PROSPERO
- Step 2** Ensure that your review protocol is in its (near) final form and that no major changes are anticipated at this stage - e.g. if your protocol will be peer reviewed it will usually be sensible to wait until this is complete before registering.
- Step 3** Search PROSPERO to ensure that your review has not already been registered by another member of your team
- Step 4** Search PROSPERO to ensure that you are not unnecessarily duplicating a review that is being done by another team or has been registered previously
- Step 5** Start registering your review



Register a systematic review of health research studies (**study participants are people**)



Register a systematic review of animal research studies (**study subjects are animals**) that is of direct relevance to human health

## United States health inequities in disaster health planning and response

*Sara Donovan, Abigail Lowe, David Brett-Major, Claire Figi, Danielle Westmark, Shelly Schwedhelm, James Lawler, Nellie Darling*

To enable PROSPERO to focus on COVID-19 submissions, this registration record has undergone basic automated checks for eligibility and is published exactly as submitted. PROSPERO has never provided peer review, and usual checking by the PROSPERO team does not endorse content. Therefore, automatically published records should be treated as any other PROSPERO registration. Further detail is provided [here](#).

### Citation

Sara Donovan, Abigail Lowe, David Brett-Major, Claire Figi, Danielle Westmark, Shelly Schwedhelm, James Lawler, Nellie Darling. United States health inequities in disaster health planning and response. PROSPERO 2022 CRD42022363610 Available from: [https://www.crd.york.ac.uk/prospERO/display\\_record.php?ID=CRD42022363610](https://www.crd.york.ac.uk/prospERO/display_record.php?ID=CRD42022363610)

### Review question

The objective of this study is to identify and elaborate on health equity issues in disaster preparedness and response through systematic review of literature.

We will examine how health inequities in disasters have been highlighted; extents to which the disaster exacerbated such health inequity; and reported strategies adopted to prevent or mitigate impact from the disaster through pursuing improved health equity.

### Searches

Search strategies will be designed and conducted by an experienced systematic review librarian. Studies will be identified via the following databases: MEDLINE, Embase, Cochrane Library, CINAHL, and Scopus. The search will include controlled vocabulary terms and free text words related to disasters and health inequities, incorporating MESH terms. The search will be limited to articles published in English from 2007 to 2022 and limited to the United States. If the full text of a study that may meet inclusion criteria is unavailable, the corresponding author will be contacted. Bibliographies of relevant articles will be reviewed to identify relevant articles not returned by the search.

# Open Science Framework



HOME

PREPRINTS

REGISTRIES

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The open registries network

Search registrations...

You are submitting to OSF Registries. [Click here](#) to learn more about other hosted registries.

STEP 1

Do you have content for registration in an existing OSF project?

YES

NO

STEP 2

Which type of registration would you like to create? \*

OSF Preregistration

Create draft



# Searching

# Systematic Review Toolkit

## Advanced Search

Guidance  Software [How do I search?](#)

Select a **review family**:

Select **stages of the review** you want support with:

Any

### OR

Protocol development

Search

Screening

Data extraction

Quality assessment

Synthesis

Report

Reference management

Stakeholder engagement

<http://systematicreviewtools.com/>

# Systematic Review LibGuide

Resources & Tools for conducting an exhaustive literature search

<https://unmc.libguides.com/systematicreview>

# PRESS

## *Peer Review of Electronic Search Strategies*

McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS Peer Review of Electronic Search Strategies: 2015 guideline statement. J Clin Epidemiol. 2016 Jul;75:40-

6. <http://www.sciencedirect.com/science/article/pii/S0895435616000585>



# Screening Tools

# Screening Tools

- Streamlines systematic reviews
- Import citations
- Screen titles/abstracts
- Upload references
- Screen full text
- Data extraction
- Risk of bias
- Export

<https://unmc.libguides.com/systematicreview/tools>

# Covidence



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## Better systematic review management

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# Review Summary

Settings

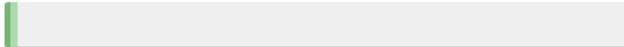
PRISMA

Export

∨ Import references 3 total duplicates removed [Import](#)

∧ Title and abstract screening 6 irrelevant 1037 studies to screen

TEAM PROGRESS



9 ● DONE      0 ● CONFLICTS  
13 ● ONE VOTE      1024 ● NO VOTES

[Team settings](#)

**KIARA,  
YOU CAN STILL**

SCREEN

1037

[Continue](#)

 You've screened 0 studies so far

∨ Full text review 0 excluded 3 studies to screen

∨ Extraction 0 extracted 0 studies to extract



# Rayyan

- Up to 3 active reviews
- Unlimited reviewers
- De-duplication
- Filtration facets
- Mobile app
- Standard support

# 2023-02-14: Congestive Heart Failure

Detect duplicates Compute ratings Export Copy New search All reviews

Search:

Showing 1 to 9 of 25 unique entries

Date	Title	Authors	Rating
2023-01-01	<b>In-Hospital Outcomes of Chronic Total Occlusion Percutaneous Coronary Interventions in Heart failure patients</b>	Albaeni, A.; Chatila, K. F.; T...	
2022-01-01	<b>Low-dose spinal block combined with epidural volume extension in a high-risk cardiac patient: A case-based systematic literature review</b>	Almeida, C. R.; Vieira, L. S.; ...	
2022-01-01	<b>Infective endocarditis of a left atrial appendage closure device: a case report and literature review</b>	Al-Terki, H.; Mügge, A.; Gotz...	
2021-01-01	<b>Clinical Importance of Myocardial T2 Mapping and Texture Analysis</b>	Amano, Y.; Omori, Y.; Ando, ...	
2021-01-01	<b>Successful Treatment of Steroid-Refractory Checkpoint Inhibitor Myocarditis with Globulin Derived-Therapy: A Case Report and Literatur</b>	Barry, T.; Gallen, R.; Freema...	
2021-01-01	<b>Stress Urinary Incontinence: Slings, Single-Incision Slings, and Nonmesh Approaches</b>	Caldwell, L.; White, A. B.	
2021-01-01	<b>Meta-analysis</b> of retrospective studies suggests that the pre-operative opioid use is associated with an increased risk of adverse outcome...Chen, L.; Wang, Q.; Li, D.; ...		
2021-01-01	<b>Diabetes as a Predictor of In-Hospital and One-Year Outcomes After Decompensated Heart Failure</b>	Fairman, E.; Delfino, F.; Mau...	
2022-01-01	<b>Digital Health in Primordial and Primary Stroke Prevention: A Systematic Review</b>	Feigin, V. I.; Owolabi, M.; H...	

Include
  Maybe
  Exclude
 Reason  Label 
 Add Note
  Highlights ON
  Upload PDF full-texts

## Infective endocarditis of a left atrial appendage closure device: a case report and literature review

**Background:** Due to advances in interventional cardiology in recent years, more and more patients are currently receiving cardiac devices, with a subsequent increase in the number of patients with device-associated endocarditis. Device-associated endocarditis is a life-threatening disease with special diagnostic and therapeutic challenges. Interventional devices for left atrial appendage (LAA) closure have been available for several years. However, there have been very few case reports of LAA closure device-associated endocarditis. **Case summary:** An 83-year-old woman presented with fever and fatigue. She had a history of permanent atrial fibrillation and recurrent bleeding on oral anticoagulation. Consequently, the patient underwent interventional LAA closure ~20 months earlier. Blood cultures grew *Staphylococcus aureus*. Transoesophageal echocardiography revealed an LAA closure device-associated mobile, echo-dense mass that was consistent with infectious vegetation in this clinical context. Intravenous antibiotic therapy was started, and our heart team recommended complete removal of the device, which the patient refused. The patient subsequently died as a result of progressive endocarditis and multiple pre-existing co-morbidities. **Discussion:** Left atrial appendage occlusion device-associated endocarditis has rarely been reported. Due to the increase in LAA closure device implantation, device-associated endocarditis is expected to increase in the future. Transoesophageal echocardiography is required for correct diagnosis. Our case report suggests that an infection can occur long after implantation.

**Authors:** Al-Terki, H.; Mügge, A.; Gotzmann, M.;

**Journal:** European Heart Journal - Case Reports - Volume 6, Issue 11, pp. - published 2022-01-01

**Publication Types:** Journal Article

**Topics:** left atrial appendage closure device | acetylsalicylic acid | amikacin | antivitamin K | apixaban | cefazolin | cefotaxime | ceftriaxone | ciprofloxacin | clopidogrel | diuretic agent | flucloxacillin | metronidazole | nafcillin | piperacillin plus tazobactam | rifampicin | vancomycin | aged | artery embolism | atrial fibrillation | bacterial endocarditis | bleeding | case report | chill | cholecystitis | clinical article | clinical feature | comorbidity | computer assisted tomography | congestive heart failure | disease course | disease severity | echography | fatigue | female | fever | hospital admission | human | hypertension | positron emission tomography-computed tomography | pulmonary hypertension | recurrent disease | review | risk assessment | *Staphylococcus aureus* | *Staphylococcus aureus* infection | transesophageal echocardiography | tricuspid valve regurgitation | very elderly | amplatzet amulet | watchman (left atrial appendage closure device)

### Inclusion decisions

Undecided 25  
 Maybe 0  
 Included 0  
 Excluded 0

### Search methods

Uploaded References [RIS Format CHF.txt] 25

### Keywords for include

randomized 2  
 compared with 1  
 placebo 1  
 RCT 1  
 randomised controlled trial 0  
 randomized controlled trial 0  
 placebo controlled 0  
 randomly allocated 0  
 controlled design 0  
 randomly assigned 0

More >>

### Keywords for exclude

systematic review 5  
 this review 4  
 prevalence 4  
 cohort 4  
 literature review 3  
 observational 3  
 trials 3  
 randomized controlled trials 2  
 meta-analysis 2  
 case reports 2

More >>

### Topics

systematic review middle aged  
 hypertension  
 adult clinical outcome  
 leading



# Citation Tools

# Citation Managers

## EndNote Research Guide:

<http://unmc.libguides.com/endnote>

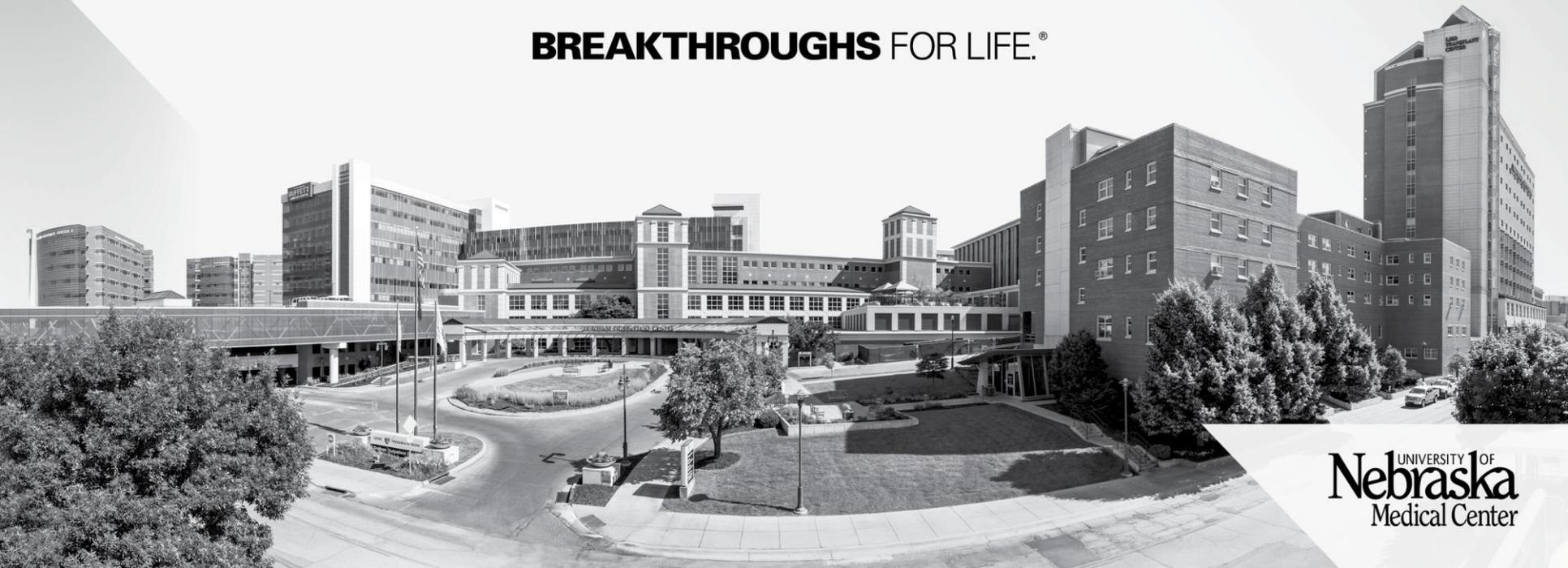
**Zotero Research Guide:** <https://unmc.libguides.com/zotero>

- Create Folders to Organize Key Articles/Findings
- Removes duplicates
- Use the note field to keep track of research notes
- Allows for highlighting and marking attached PDF's
- Export citations to Microsoft Excel



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