

Systematic Reviews in Veterinary Medicine: Resources and Tools to find, appraise, & conduct reviews

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Dept. of Internal Medicine, School of Medicine

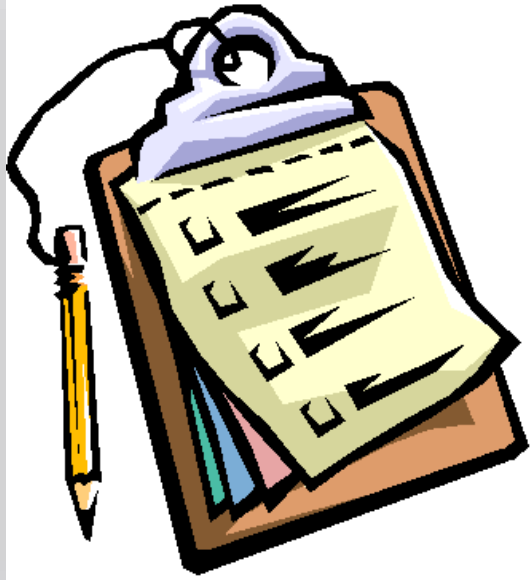
Dept. of Health Promotion & Community Health Sciences

**Best Evidence.
Better Care.**

**The 7th
Evidence-
Based
Veterinary
Medicine
Association
(EBVMA)
Symposium**

Nov 13, 2015

Overview

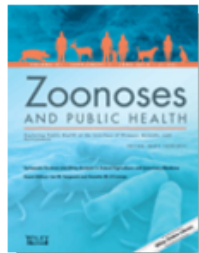


- Steps to determine feasibility of a review question
- Tools for conducting reviews

Trends in Veterinary SRs

Zoonoses and Public Health

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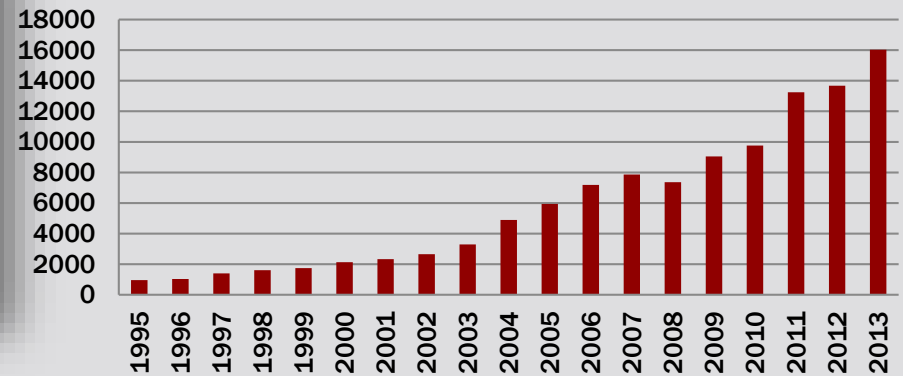
Special Issue: Systematic Reviews and Meta-Analysis in Animal Agriculture and Veterinary Medicine

June 2014

Volume 61, Issue Supplement S1
Pages 1–63

[Previous Issue](#) | [Next Issue](#)

All medical, Scopus 1995-2013



WILEY

Journal of Veterinary Internal Medicine

New Article Categories Announced

Recognizing that there is an increasing need for rigorous reviews of literature, the development of evidence-based recommendations for diagnosis or interventions in animal diseases, and an opportunity for articles that provide perspective on animal diseases, the *Journal of Veterinary Internal Medicine* is now accepting three new categories of articles:

JVIM has 3 new categories

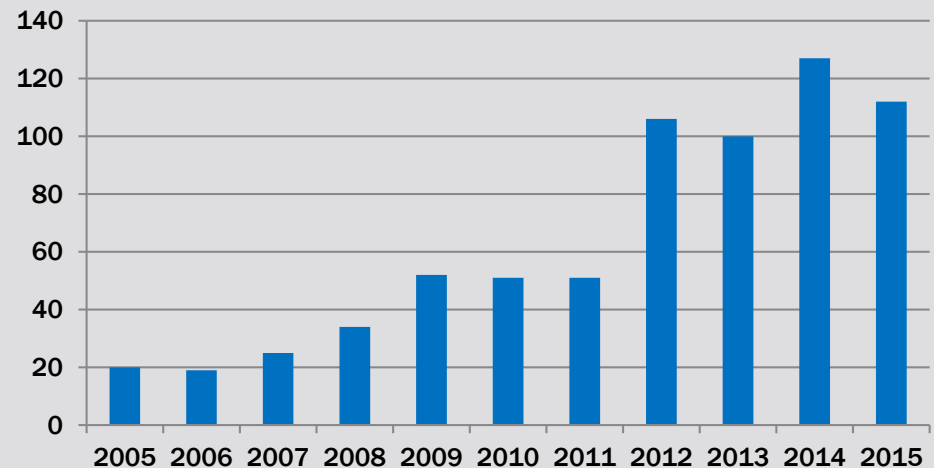
- 1 Systematic reviews
- 2 Guidelines and recommendations
- 3 Perspectives in veterinary internal medicine

Find out more details on these new article types in JVIM's Author Guidelines

(These new article categories are in addition to JVIM's traditional categories: standard manuscripts, case series, case reports, narrative reviews, and Consensus Statements.)

Submit Today!

Vet only, 2005-2015



Managing reviews

- **Project management: Managing resources & activities to reach specific goals while predicting potential risks¹**
- **Review methods provide “ready made phased structure for planning and conducting a review”²**

Piehl et al, 2002³

- **36% financial support**
- **80% time**
- **23% method issues**
- **10% group dynamics**
- **Communication can also be difficult**

¹Cleveland D, Gareis R. *Global Project Management Handbook: Planning, Organising and Controlling International Projects*. New York: McGraw-Hill; 2006.

²Booth, A., Papaioannou, D., & Sutton, A. (2012). *Systematic approaches to a successful literature review*. Los Angeles; Thousand Oaks, Calif.: Sage.

³Piehl, J. H., Green, S., & Silagy, C. (2002). Training practitioners in preparing systematic reviews: a cross-sectional survey of participants in the Australasian Cochrane Centre training program *BMC Health Services Research*, 2(1), 11.

Is it worth it?

FINER

Feasible

- Adequate # of studies
- Adequate skills within team members or consultants
- Affordable in time and money
- Manageable scope

Interesting

- Who will be interested in the answer?
- Potential stakeholders/funders?

Novel

- Confirms/refutes previous findings
- Extends previous findings
- Provides new findings

Ethical

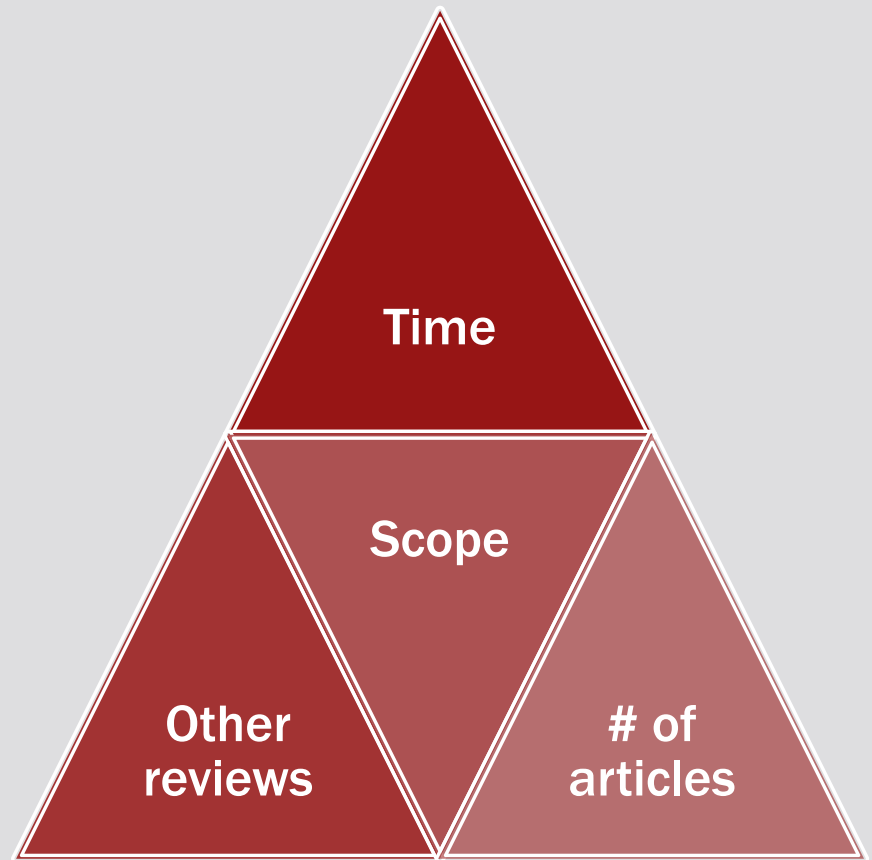
- Time & money spent on project appropriate use?

Relevant

- To advance scientific knowledge
- To policy, practitioners, others?
- To future research directions

Feasibility

1. Determine scope of review
2. Locate and analyze relevant reviews
3. Conduct preliminary search

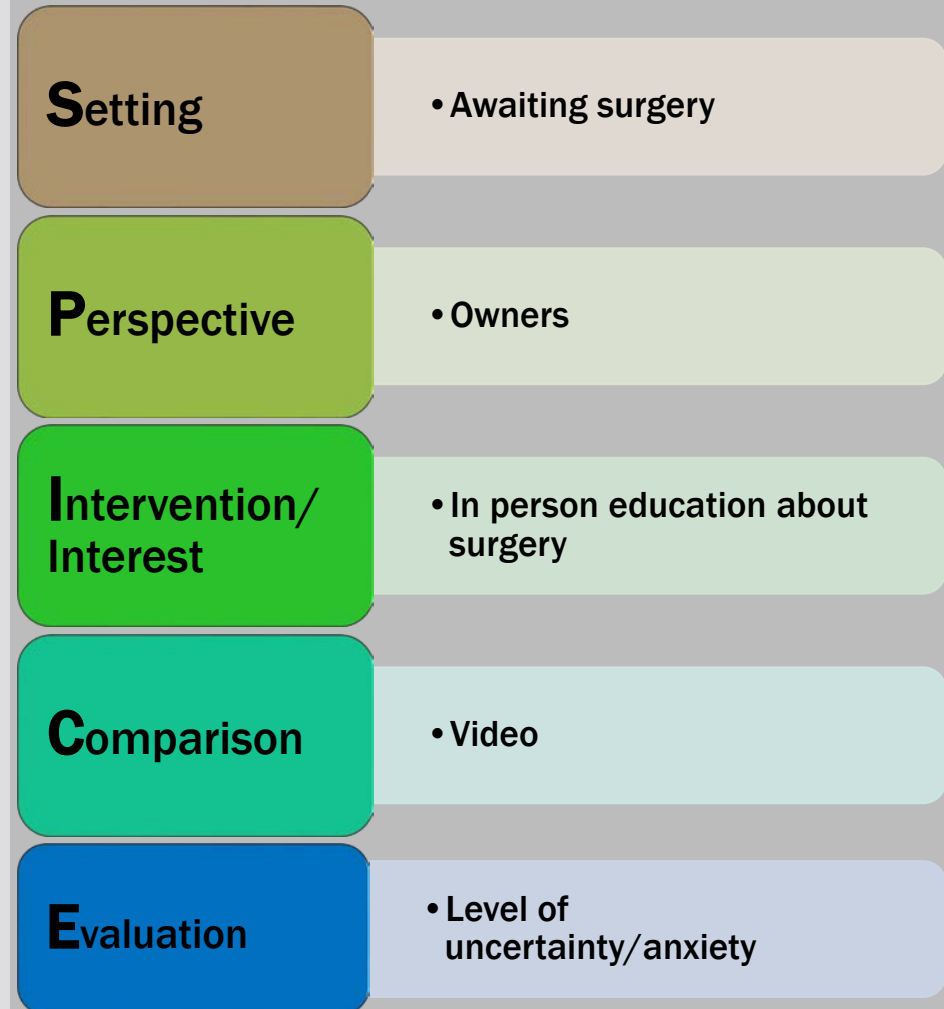


Step 1: Scope of review

Frame question

- Health
 - PICO(T)
 - PHICOC
- Social sciences
 - SPICE
 - PIECE*
- Interdisciplinary
 - WWH
 - PRoPheT

*my own focusing on education



Step 1: Scope of review

List eligibility criteria

- Describe criteria
- Include definitions and citations as appropriate
- Determine if it will be used in the search or screening
- For exclusions, provide reasons, consider biases against Grey Literature, English
- Goal is to be as specific as necessary



Step 2: Analyze related reviews

Searching for reviews

- **Databases of reviews**
 - VetSRev
 - **Subject databases**
 - Pubmed
 - Cab Abstracts
 - Agricola
 - **Dissertations/theses**
 - **Protocols**
 - *Animal Health Research Reviews*
 - Systematic Reviews for Animals and Food (<http://www.syreaf.org/>)
 - **Critically appraised Topics (CATs)**
 - BestBets for Vets
 - Knowledge Summaries
- Keep the terms very broad
 - Searching smaller group of articles
 - Looking for anything related

Step 2: Analyze related reviews

Free dissertation/theses

- PQDT Open:
pqdtopen.proquest.com
- Open Access Theses and Dissertations
<https://oatd.org>
- OpenThesis
www.openthesis.org

openthesis
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Home Upload Search FAQ For Universities For Authors Help

Search Results [Back to Last Search](#)

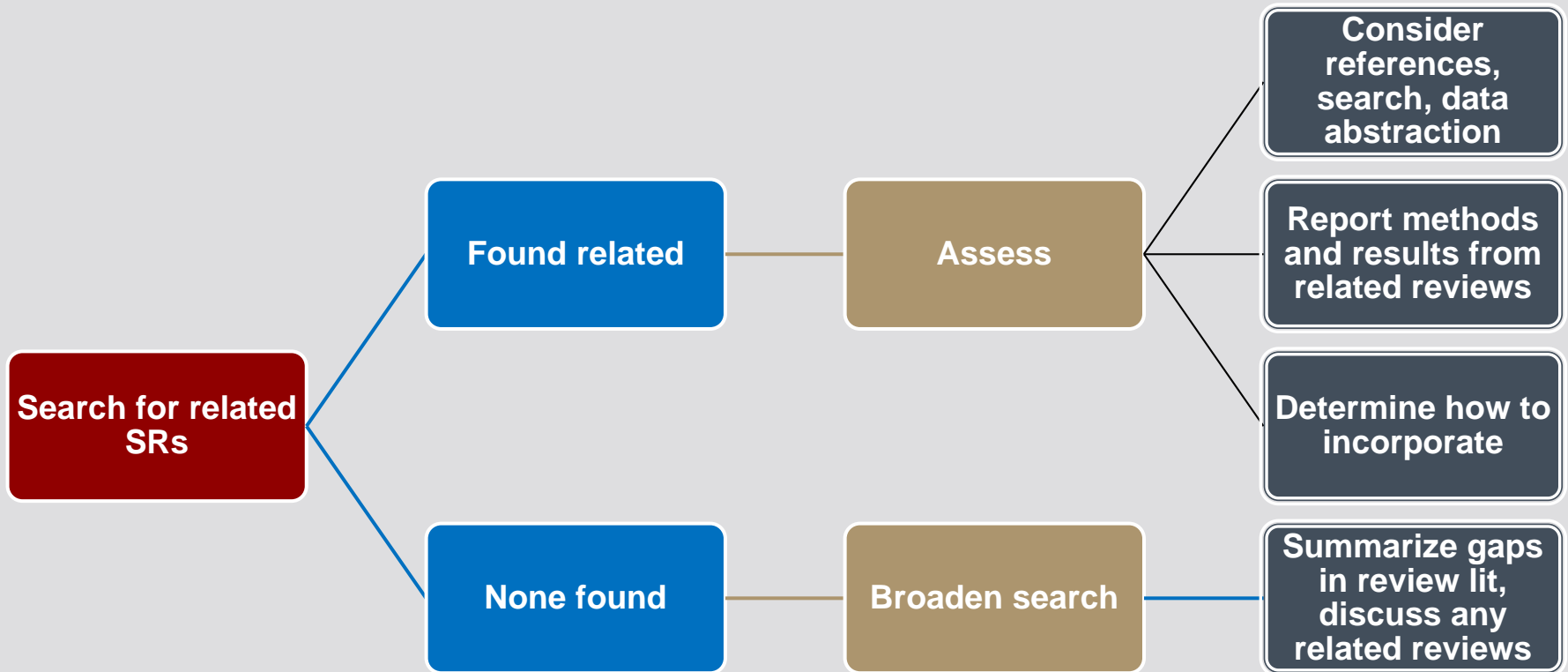
Showing 1 - 50 of 7172 results for query (veterinary or dog or cat or horse or cow or canine or feline or equine or bovine) and (meta analysis or systematic review) [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) .. [144](#) [Next >](#)

Match	Authors	Date	School	Type
Preservation of Sperm Harvested from the Rat, Caprine, Equine and Bovine Epididymis				
1	James, Aida Nioma	2004-01-28	Louisiana State University in Shreveport - USA - Louisiana	THESIS
Complementary medicine for canine osteoarthritis, a critical review and a clinical trial of asa, two herbal formulas and placebo				
2	Poland, Carol Marie	1998-01-01		THESIS
Genomic analysis of the horse Y chromosome				
3	Santani, Avni Bhawan	2004-12-01	Texas A&M University - USA - Texas	THESIS
Identification of a mutation in COL4A5 causative for X-linked Alport syndrome in the domestic dog and analysis of gene expression in the kidneys of affected and nonaffected siblings				
4	Cox, Melissa Luanne	2003-12-01	Texas A&M University - USA - Texas	THESIS
Investigation into the Presence of Helicobacter in the Equine Stomach by Urease Testing and Polymerase Chain Reaction and Further Investigation into the Application of the 13C-Urea Blood Test to the Horse				
5	Hepburn, Richard James	2004-07-12	Virginia Polytechnic Institute and State University - USA - Virginia	THESIS

proportion of dogs... ..list of 18 studies included in systematic review.....185 A.5: Forest plots for reasons with

Step 2: Analyze related reviews

Results of review search



Modified from Figure 1 from

Robinson KA, Whitlock EP, Oneil ME, Anderson JK, Hartling L, Dryden DM, et al. Integration of existing systematic reviews into new reviews: identification of guidance needs. *Syst Rev.* 2014 Jun 23; 3, 60.

Step 2: Analyze related reviews

Appraisal of SRs

Citation	Review	Search	Findings	Quality
Author (year)	Type of review question Eligibility criteria	Databases Years covered Other searches	Main findings	Overall quality; relevance to your review

■ AMSTAR

- 11 item checklist (available online as pdf or interactive form), focuses more on meta-analysis (working on new one for reviews included non-randomized trials)
- Shea BJ, Bouter LM, Peterson J, Boers M, Andersson N, Ortiz Z, Ramsay T, Bai A, Shukla VK, Grimshaw JM. External Validation of a Measurement Tool to Assess Systematic Reviews (AMSTAR). PLoS ONE. 2007; 2(12): e1350. PMID: PMC2131785

■ ROBIS

- 4 domains: eligibility criteria, identification and selection, data collection and study appraisal, and synthesis and findings (5-6 subquestions in each domain)
- Whiting, P., Savović, J., Higgins, J. P., Caldwell, D. M., Reeves, B. C., Shea, B., Davies, P., Kleijnen, J., & Churchill, R. (2015). ROBIS: A new tool to assess risk of bias in systematic reviews was developed. *Journal of clinical epidemiology*.

Step 3: Scoping search

- 1. Select most relevant database**
- 2. Select concepts from research question**
- 3. Conduct a quick search**

- Quickly evaluate results
- Is there enough on the topic?
 - How much time it will take to go through relevant literature?
 - There is no “right” number

Tools

Project management

Type	Examples
Meeting planning	Doodle, meet-o-matic
Voice/video communication	Skype, Google talk
Sharing files	Dropbox, Google Sites (project wiki template)
Citation management	Refworks, Endnote, Zotero, Mendeley

Baker, P. R., Francis, D. P., Hall, B. J., Doyle, J., & Armstrong, R. (2010). Managing the production of a Cochrane systematic review *Journal of Public Health (Oxford, England)*, 32(3), 448-450. doi:10.1093/pubmed/fdq058 [doi]

Lorenzetti, D. L., & Ghali, W. A. (2013). Reference management software for systematic reviews and meta-analyses: an exploration of usage and usability *BMC Medical Research Methodology*, 13, 141-2288-13-141. doi:10.1186/1471-2288-13-141 [doi]

King, R., Hooper, B., & Wood, W. (2011). Using bibliographic software to appraise and code data in educational systematic review research *Medical Teacher*, 33(9), 719-723. doi:10.3109/0142159X.2011.558138; 10.3109/0142159X.2011.558138

Citation management-Refworks

References to Use

Selected Page All in List

Authors, Primary Standard View

Find Text TAMU

Ref ID 1955 Journal Article Reference 3 of 242

Authors [Abromitis,R.A.](#); [Saqhafi,E.](#); [Folb,B.L.](#)
Title Assessing the information needs of psychiatric residents.
Source [Academic Psychiatry](#), 2003, 27, 2, 100-103
Folders [out by abstract;.../no 3](#); [Search results;.../01Medline](#);
Find Text TAMU

Ref ID 4104 Journal Article Reference 4 of 242

Authors [Alloway,C.](#); [Cool,E.](#); [Feintuch,S.](#); [Giblin,C.](#)
Title Health Index Plus: a CD-ROM product for consumer health information.
Source [Med.Ref.Serv.Q.](#), 1992, 11, 1, 39-45
Folders [out by abstract;.../no 3](#); [Search results;.../01Medline](#);
Find Text TAMU

Ref ID 5602 Journal Article Reference 5 of 242

Authors [Alpi,Kristine M.](#); [Bibel,Barbara M.](#)
Title Meeting the health information needs of diverse populations
Source [Library Trends](#), 2004, 53, 2, 268-282
Folders [out by abstract;.../no 3](#); [Search results;.../02LISA](#);
Find Text TAMU

Ref ID 1028 Journal Article Reference 6 of 242

Authors [Anderson,R.P.](#); [Wilson,S.P.](#); [Yeh,F.](#); [Phillips,B.](#); [Livingston,M.B.](#)
Title Topics and features of academic medical library tutorials.
Source [Med.Ref.Serv.Q.](#), 2008, 27, 4, 406-418
Folders [out by abstract;.../no 3](#); [Search results;.../01Medline](#);

Resources

Support Center
Webinars

Folders

- My List
- Not In Folder (1)
- Last Imported (330)
- Articles to code (70)
- Background (130)
- out by abstract (2299)
 - no 1 (1674)
 - no 2 (300)
 - no 3 (242)
 - no 4 (83)

Quick Access


- Advanced Search
- Import
- Export

Prev Next

Duplicate Save Reference Save & Add New

Project documentation

- Google Sites- Project Wiki template
- Excel- PIECES template
- My own way of tracking methods and results



a guide to developing, conducting, & reporting reviews

Title:				
Author(s):				
Step 0	Watch video: Introduction to systematic reviews		Developed by	
P	1-1	Frame the question	Appendices A1 Resources cited in work A2 Standards/guides on rev A3 Books* A4 Types of reviews A5 Review databases* A6 Review software* A7 Citation software* A8 search filters* A9 Bibliographic databases A10 Grey literature resources A11 Expanded search appro A12 Levels of evidence A13 Critical appraisal sheets* A14 Standards for reporting* * link out to guide	Margaret J. Foster, MS, MPH, AHIP Systematic Reviews Coordinator Associate Professor Medical Sciences Library, Texas A&M University margaretfoster@tamu.edu Systematic Review online guide
	1-2	Document criteria		
	1-3	Find and analyze reviews		
	1-4	Team and meetings		
I	2-1	Collect search terms		Copyright This work is licensed under the Creative Commons Attribution 3.0 Unported License. To view a copy of this license, visit http://creativecommons.org/licenses/by/3.0/ or send a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain View, California, 94041, USA.
	2-2	Develop search		
	2-3	Document search		
	2-4	Expanded search approaches		
	2-5	Update search		
	2-6	Evaluate search		
E	3-1	Screen by title/abstract		Coming soon in next version Video instructions More definitions and overall instruction on reviews Updated expanded search section More guidance on synthesis including meta analysis Sign up Sign up to be notified when a new version is available
	3-2	Select by full text		
	3-3	Evaluate screening/selection		
	3-4	Determine assessment methods		
C	4-2	Coding form		
	4-3	Meta analysis selection* (optional)		
E	5-1	Discussion		
S	6-1	Flowchart		
	6-2	Writing		
	6-3	Publishing		

Tools

Specific to systematic reviews

- search
- appraisal
- coding
- meta analysis
- reporting
- entire process

Listing here
is not an
endorsement

The screenshot shows the SR Toolbox website. At the top is a blue header with the 'SR TOOLBOX' logo and navigation links for 'About' and 'Contact'. Below the header, there are two main search sections: 'Quick Search' and 'Advanced Search'. The 'Quick Search' section includes a search bar, a 'Search' button, and a section for 'Tweets' featuring two tweets from @SRToolbox. The 'Advanced Search' section has several filters: 'Software Tools' (selected) and 'Other Tools', 'Add a New Tool', 'Approach' (Any), 'Discipline' (Any), and 'Cost' (Any). There is also a section for 'features' with a list of checkboxes for various tool capabilities like Protocol Development, Automated Search, Study Selection, etc. A 'Search' button is located at the bottom right of the advanced search section.

<http://systematicreviewtools.com/>

Elamin MB, Flynn DN, Bassler D, Briel M, Alonso-Coello P, Karanicolas PJ, et al. Choice of data extraction tools for systematic reviews depends on resources and review complexity. J Clin Epidemiol. 2009 May;62(5):506-10

Assistance with search: Yale MeSH Analyzer

PMID	23708961	22332625	21182720	18241027	17014334
Title	Effect of topical administration of 0.8% nalbuphine on the corn...	Effects of one-week versus one-day preoperative treatment with ...	Topical KINOSTAT™ ameliorates the clinical development and prog...	Ultrasound biomicroscopy of the iridocorneal angle of the eye b...	Effects of topical administration of an aldose reductase inhibi...
Author Year	Lee CH (2013)	McLean NJ (2012)	Kador PF (2010)	Rose MD (2008)	Kador PF (2006)
MeSH Headings	Administration, Topical Animals	Administration, Topical Animals Anti-Inflammatory Agents / administration & dosage Anti-Inflammatory Agents / therapeutic use	Administration, Topical Aldehyde Reductase / antagonists & inhibitors Animals	Animals	Administration, Topical Aldehyde Reductase / antagonists & inhibitors Animal Feed Animals
		Cataract / therapy Cataract / veterinary	Cataract / drug therapy Cataract / etiology Cataract / prevention & control Cataract / veterinary	Cataract / veterinary	Cataract / chemically induced Cataract / drug therapy Cataract/prevention & control Cataract / veterinary
	Dogs	Dog Diseases / therapy Dogs Drug Administration Schedule	Diabetes Complications / prevention & control Diabetes Complications /veterinary Dog Diseases / etiology Dog Diseases /prevention & control Dogs	Dog Diseases / surgery Dogs	Diet / veterinary Dogs
				Eye / anatomy & histology Eye / pathology	Enzyme Inhibitors/pharmacology Enzyme Inhibitors / therapeutic use
				Lens Implantation, Intraocular / veterinary	
	Pain, Postoperative / drug therapy Pain, Postoperative/veterinary Phacoemulsification / adverse effects Phacoemulsification/veterinary Prednisolone	Phacoemulsification / veterinary Prednisolone / administration & dosage Prednisolone / adverse effects Prednisolone / analogs & derivatives Prednisolone / therapeutic use		Phacoemulsification / veterinary	

Appraisal tools

- List of validated appraisal checklists from AMSTAR
- Robot Reviewer
 - Detects Risk of Bias in Randomized Controlled Trials (pdfs)
 - JAMIA article

The screenshot displays the Vortex Annotate web application. The browser address bar shows the URL: <https://annotate.vortex.systems/projects/1/documents/f471625ba495f325f32023ab42c51617>. The page features a navigation bar with 'vortex' and 'Export' buttons, and a user profile/sign out option. The main content area displays a 'MAJOR ARTICLE' titled 'A Functional Variation in CD55 Increases the Severity of 2009 Pandemic H1N1 Influenza A Virus Infection'. The authors listed are Jie Zhou, Kelvin Kai-Wang To, Hui Dong, Zhong-Shan Cheng, Candy Choi-Yi Lau, Vincent K. M. Poon, Yan-Hui Fan, You-Qiang Song, Herman Tse, Kwok-Hung Chan, Bo-Jian Zheng, Guo-Ping Zhao, and Kwok-Yung Yuen. The article abstract discusses the role of CD55 polymorphisms in disease severity. A right-hand sidebar contains a 'Population' section with a 'Click to edit' button and three related items. Below this is an 'Intervention' section with 0 items, a 'Control' section with 1 item, and an 'Outcome' section with 0 items. A vertical watermark on the right side reads 'Downloaded from <http://dx.doi.org/10.1186/1745-7243-14-14> at University of Guelph on August 28, 2014'.

Entire process: Covidence

- Steps covered:
 - Screening
 - Full text
 - Appraisal
 - extraction
- 1 free review, unlimited for \$20 a month

bcreview Find a study Margaret Foster

Import studies Export studies Settings

Title and abstract screening 4 irrelevant 134 studies to screen

TEAM PROGRESS

7 131 3 0

DONE ONE VOTE CONFLICTS NO VOTES

Team settings

MARGARET, YOU CAN STILL

RESOLVE 3 SCREEN 131

Resolve conflicts Continue

You've screened 10 studies so far

Full text screening 0 excluded 2 studies to select

Extraction 0 extracted 1 studies to extract

Contact Us About Covidence Product Updates Terms & Conditions Privacy

<http://www.covidence.org>

Meta Analysis tools

- Forest Plot Generator by Evidence Partners
- NetMetaXL
- OpenMeta [Analyst]

The screenshot shows the 'Settings' tab of the Forest Plot Generator. The interface includes a sidebar with a list of studies and a main settings area. The settings are organized into sections: Chart Export, Graph Information, Measurement Acronym, Information Display, Y-Axis, and Overall Summary.

Setting	Value	Notes
Chart Export Width:	1098	Pixels (min: 800)
Graph Title:	Stroke Mortality	
X-Axis 1 Title:	Non-drinkers	
X-Axis 2 Title:	Alcohol drinkers	
Measurement Acronym:	OR	
Show Population Information:	<input type="checkbox"/>	
Show Odds Ratio Stats Information:	<input checked="" type="checkbox"/>	
Show Lower Confidence Levels Information:	<input checked="" type="checkbox"/>	
Show Upper Confidence Levels Information:	<input checked="" type="checkbox"/>	
Show Weight Information:	<input checked="" type="checkbox"/>	
Y-Axis Number:	1	
Comma delimited list:	0.5,0.75,1.5,2	Number, Number, Number, Number
Population Max Height / Width:	30	Cannot be greater than 298 pixels
Overall Title:	Overall: P,0.001, I ² =73.1%	
Overall Lower Confidence:	1	
Overall Upper Confidence:	1.4	
Overall Patient Population:	0	
Overall Odds Ratio:	1	
Overall Weight:	100	

<https://distillercer.com/resources/forest-plot-generator>

Coding: SRDR

- Systematic
- Review Data Repository
- By: AHRQ
- Used for data extraction and data repository

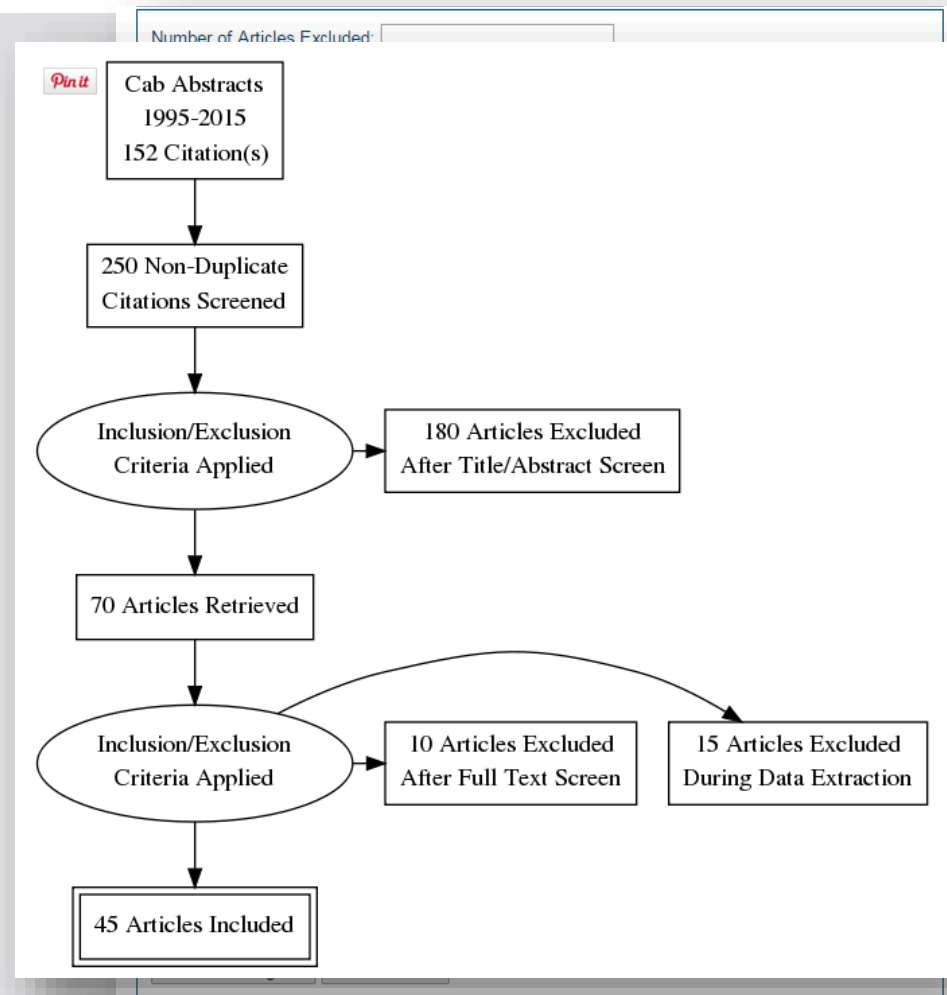
Baseline Characteristics

Question	Diet & Physical Activity Program		Control		Total		Comments
	Answer	Follow-up	Answer	Follow-up	Answer	Follow-up	
Baseline characteristics	265		257				Comments (0) Post/View
	34		32				Comments (0) Post/View
	55 +/- 7		55 +/- 7				Comments (0) Post/View
	NR		NR				Comments (0) Post/View
	NR		NR				Comments (0) Post/View
	NR		NR				Comments (0) Post/View
	31.3 +/- 4.6		31.0 +/- 4.5				Comments (0) Post/View
	NR		NR				Comments (0) Post/View
	109 +/- 14		110 +/- 13				Comments (0) Post/View
	159 +/- 27 (75g glucose)		159 +/- 26 (75g glucose)				Comments (0) Post/View
	265		257				Comments (0) Post/View
	34		32				Comments (0) Post/View
	55 +/- 7		55 +/- 7				Comments (0) Post/View
	NR		NR				Comments (0) Post/View
	NR		NR				Comments (0) Post/View

srdr.ahrq.gov

Reporting: PRISMA flowchart generator

- Add up to 26 sources
- Edit #s and text
- Export into wide variety of formats



Questions?

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guides.library.tamu.edu/systematicreviews



**Samwise,
resource for
encouragement to
complete review**