Cochrane PICO: Using linked data technologies for evidence curation

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Trusted evidence.
Informed decisions.
Better health.

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This talk is about

how …

- finding evidence
- synthesising evidence
- disseminating evidence

… are changing

and what it means for you.

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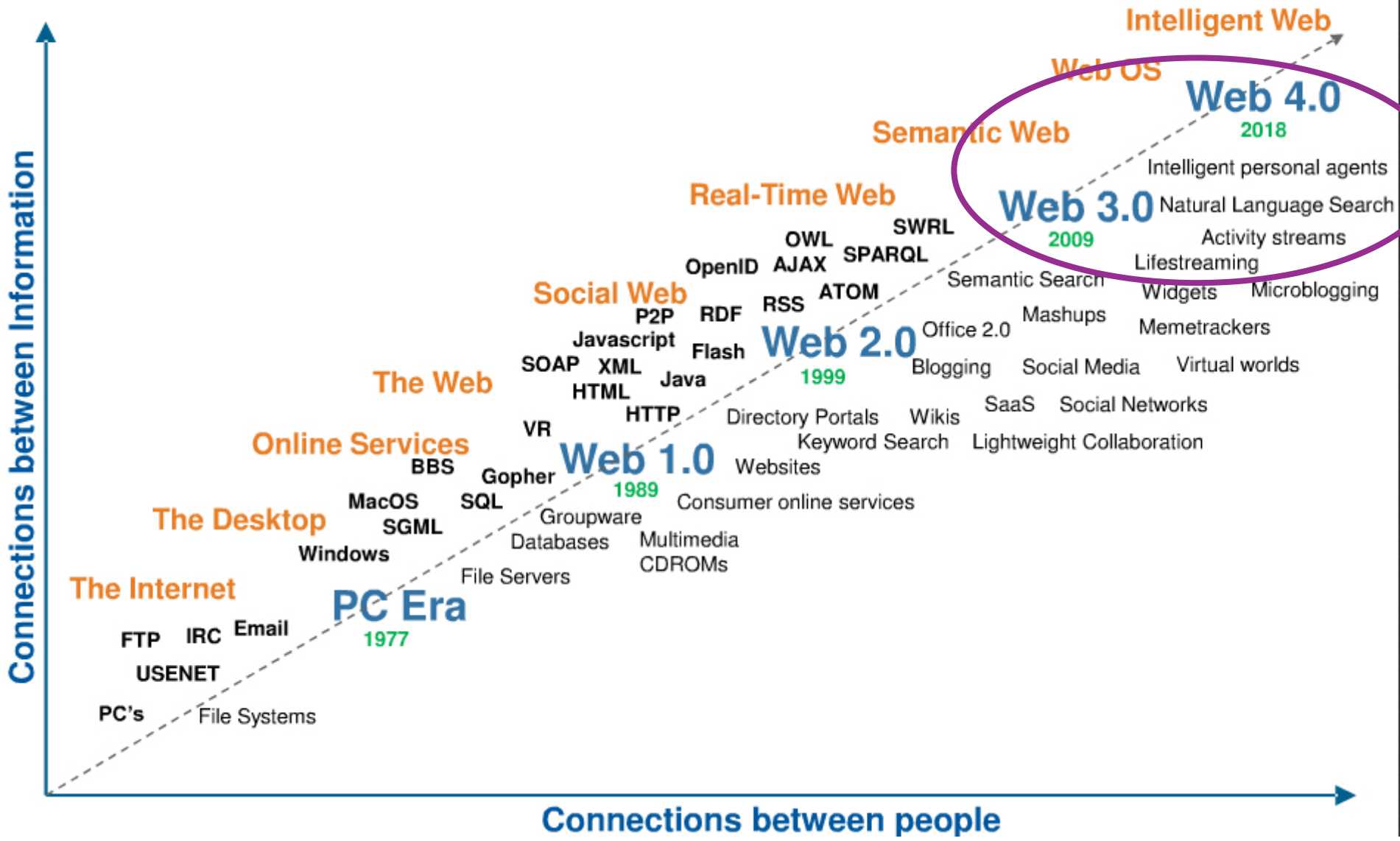
Some key concepts

- Metadata curation
- Linked Data
- Data re-use and provenance
- Role of machine learning and crowdsourcing
- Living systematic reviews
- Beyond the PDF and publications

The Intelligence is in the Connections



Credit: Nova Spivack

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The present situation

- Current evidence processes very manual
- Machines and machine/human not optimally utilised
- Organising human effort not optimised
- Tools not yet fit for purpose and connected
- Data not "smart”
- Outputs not optimised for use (by humans and machines) and impact
- Solving “today's problems"
- Preparing for tomorrow's challenges

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Direction of travel

- Less manual work, more focus on data curation, synthesis, and “reflection”
- Structured, “PICO-fied”/computable data
- Audit trails, provenance, re-useable data
- Machine/crowd assistance
- New models of participation
- Tools fit for purpose and integrated
- More evidence synthesized; Outputs have greater impact

The emerging "ecosystem"

People + Process + Technology
optimized for the task

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Trusted evidence.
Informed decisions.
Better health.

New Cochrane Review Ecosystem

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Trusted evidence.
Informed decisions.
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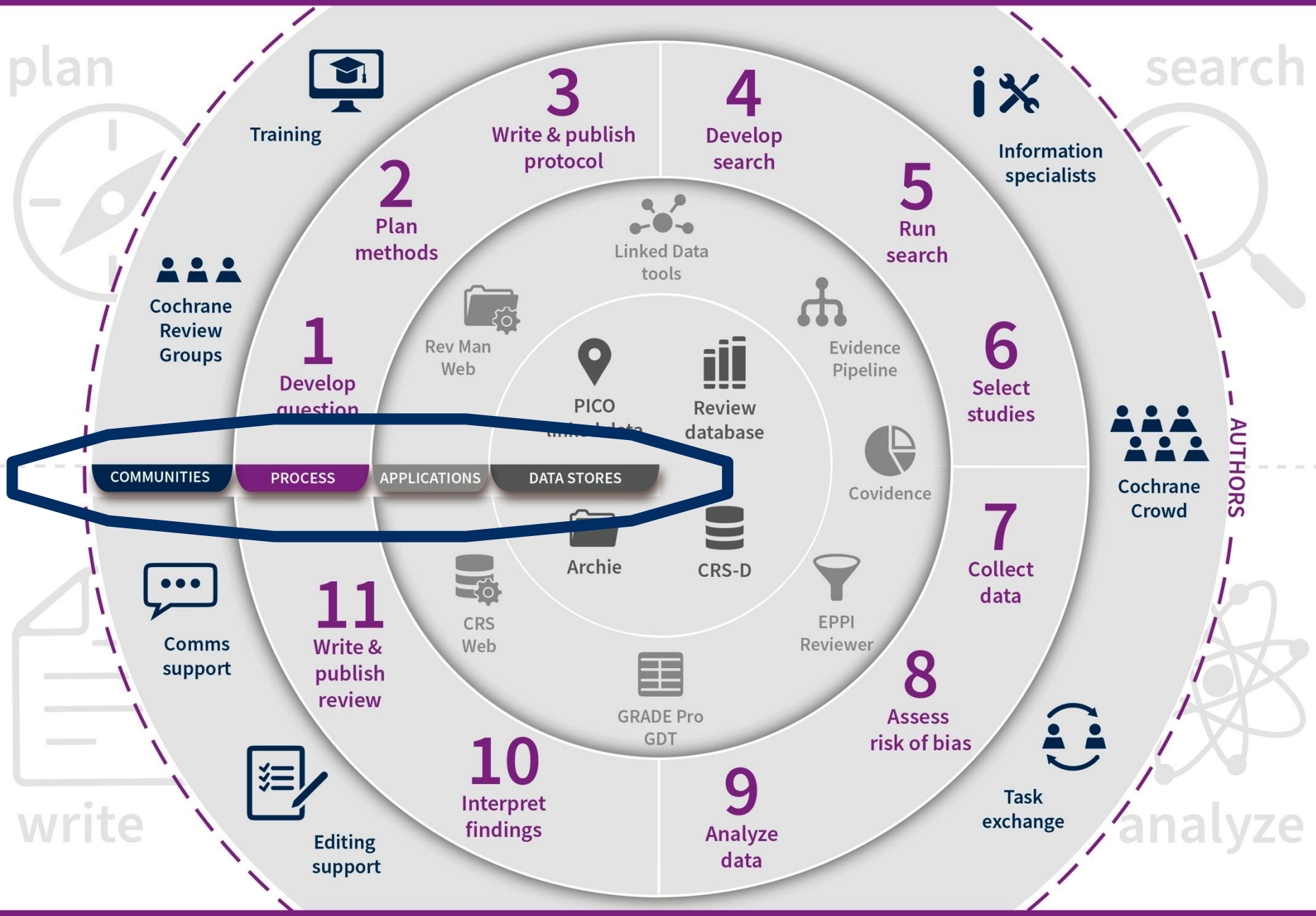
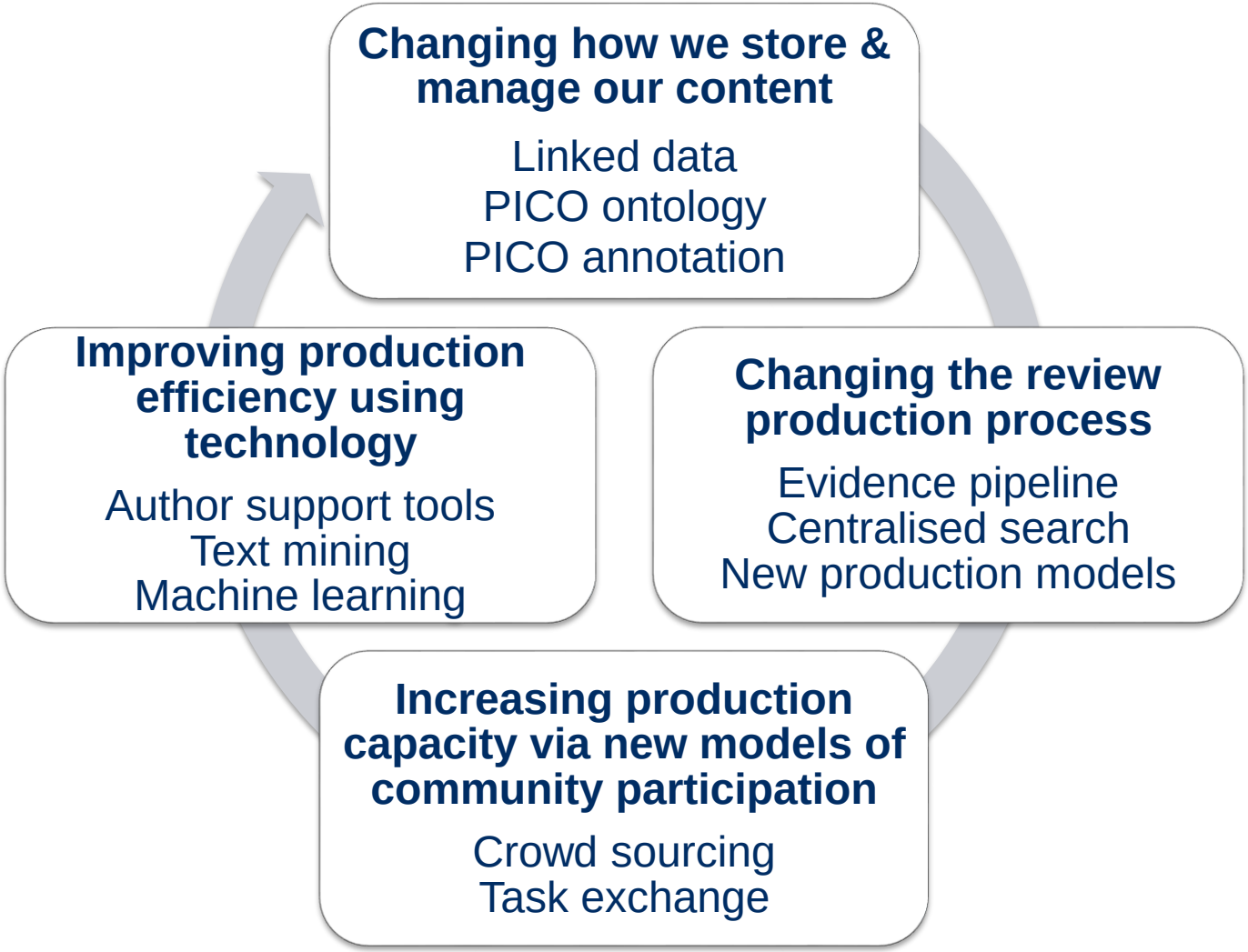
New Cochrane Review Ecosystem



Cochrane operational projects



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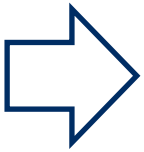
Objectives



- Improve usability & utility of Cochrane data
- Production efficiency
- Quality & standardisation
- Revenue protection & generation
- Improve contributor engagement & experience

Getting outside the review/article “container“

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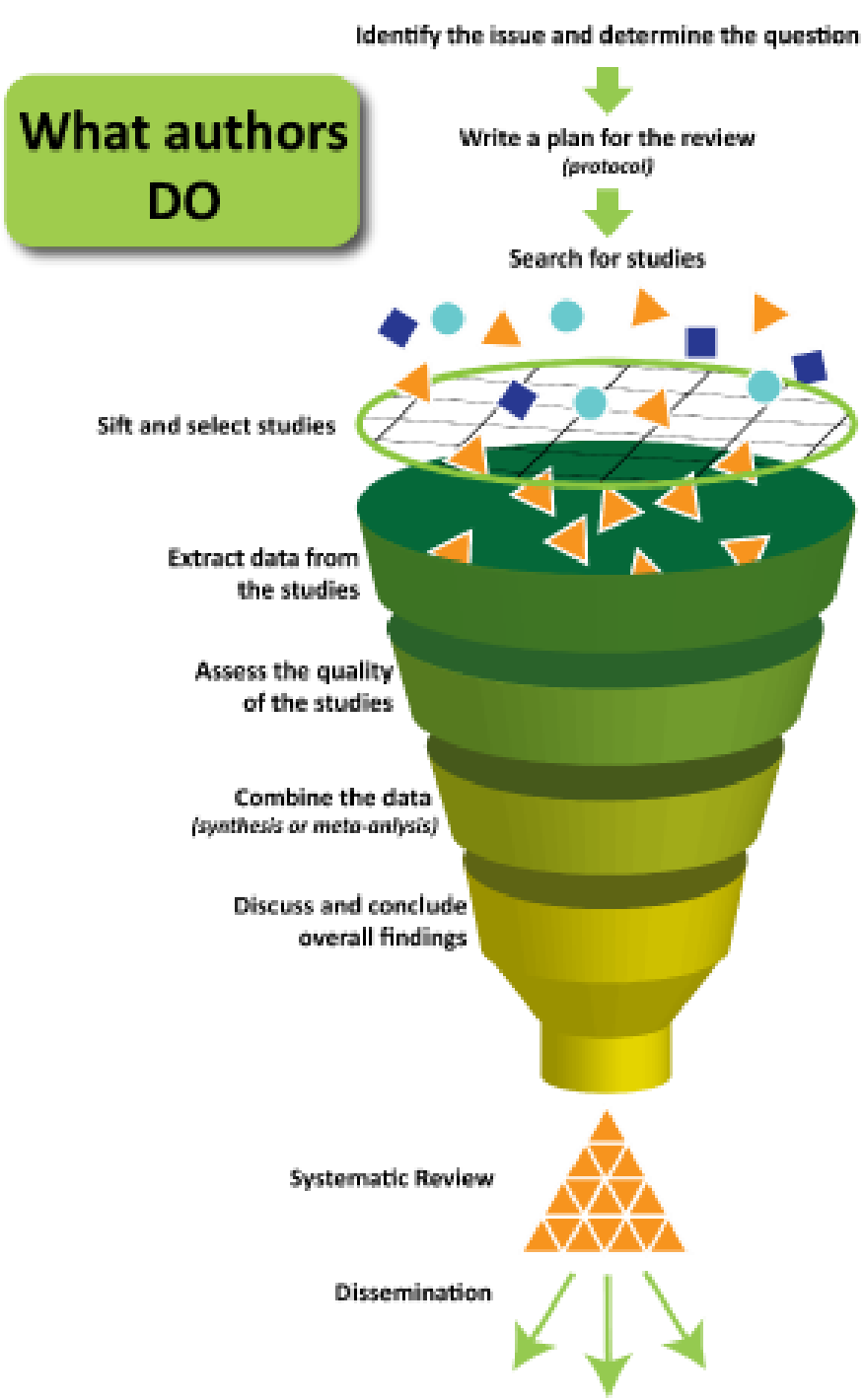
Cochrane Reviews

- Have always been electronic
- Summary of a research project, not really an article (actually a database of results)
- PICO framework (but not consistently structured)
- Follow standard process
- Many of the key components buried in the document: Forest plots, Risk of Bias assessments, etc.
- Continuously updated when new studies are reported



PICO

- Population
- Intervention
- Comparison
- Outcome

What is in a systematic review

TITLE

ABSTRACT

PLAIN LANGUAGE SUMMARY

BACKGROUND

OBJECTIVES

METHODS
- Selection criteria (types of studies, participants, interventions, outcomes)
- Search strategy
- Data collection and analysis
- Quality, risk of bias

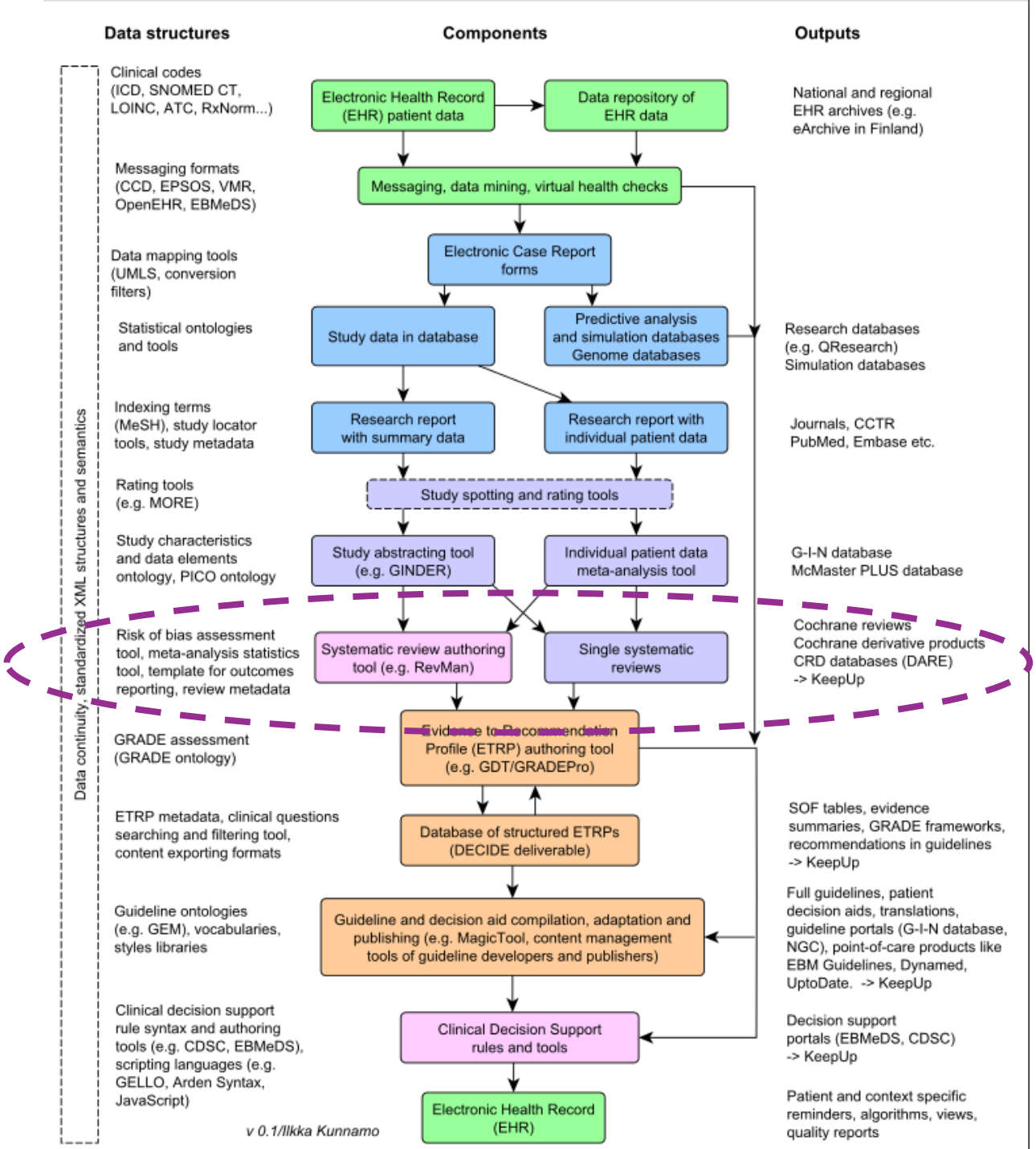
RESULTS
- Description of studies
- Risk of bias
- Effects of interventions

DISCUSSION
- Summary of main results
- Quality of evidence
- Potential biases in the review

AUTHORS' CONCLUSIONS
- Implications for practice
- Implications for research

FIGURES

TABLES



Ilkka Kunnamo

Document view

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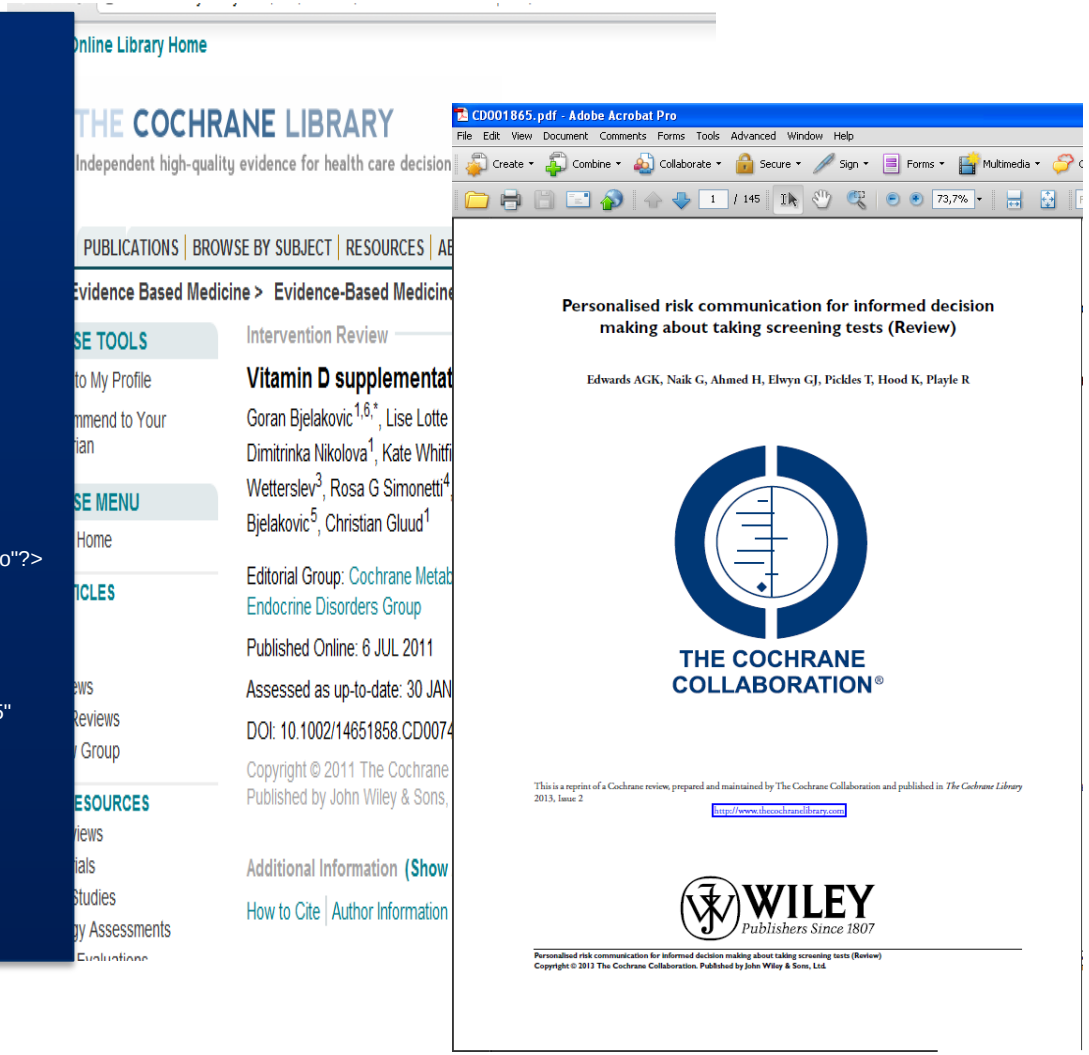


Key components

s: varied

ntion: exercise interventions (varied)

rison: usual care

nes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Comparison group	Exercise group				
l QoL e score - 2 ' up	The standardized mean change from baseline to up to 12 weeks' follow-up in overall QoL in the control groups ranged from -0.65 to 0.70 standard deviation units	The standardized mean change from baseline to up to 12 weeks' follow-up in overall QoL was 0.47 standard deviation units higher (0.16 to 0.79 standard deviation units higher) in the exercise groups		806 (11 studies)	⊕⊕⊕⊕ very low[1,2,5]	(SMD 0.47; 95% CI 0.16 to 0.79) A standard de unit is equiva about a 14.8- change using FACT-G HRQ
l QoL up - up to eks' up	The standardized mean follow-up values at up to 12 weeks' follow-up in anxiety in the control groups ranged from -0.96 to 10.87 standard deviation units	The SMD in follow-up values at up to 12 weeks' follow-up in overall QoL was 0.33 standard deviation units higher (0.12 to 0.55 standard deviation units higher) in the exercise groups		1166 (20 studies)	⊕⊕⊕⊕ very low[1,2,5]	(SMD 0.33; 9 0.12 to 0.55)
l anxiety up - up to eks' up	The standardized mean follow-up values at up to 12 weeks' follow-up in anxiety in the control groups ranged from 0.70 to 12.2 standard deviation units	The SMD in follow-up values at up to 12 weeks' follow-up in anxiety was -0.46 standard deviation units higher (-0.81 to -0.11 standard deviation units higher) in the exercise groups		1010 (12 studies)	⊕⊕⊕⊕ very low[1,2,5]	(SMD -0.46; 9 -0.81 to -0.11) A standard de unit is equiva about a 2.7-p change using anxiety subsc the HADS fort about 11.8 pc usi
l anxiety up - 6 s' up	The standardized mean follow-up values at 6 months' follow-up in anxiety in the control groups ranged from	The SMD in follow-up values at 6 months' follow-up in anxiety was -0.44 standard deviation units higher (-0.71 to -0.17		286 (3 studies)	⊕⊕⊕⊕ low[1,3]	(SM -0.7

Review: Exercise interventions on health-related quality of life for people with cancer during active treatment
Comparison: 1 Health-related quality of life
Outcome: 1 Overall quality of life change score

Study or subgroup	Exercise N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference IV,Random,95% CI	Weight	Std. Mean D IV,Random,9
1 Up to 12 weeks' follow-up							
Arbane 2009	21	-0.79 (14.65)	23	4.35 (21.6)		8.3 %	-0.27 [-0.8
Campbell 2005	10	11.9 (13.8)	9	-2.9 (16.1)		5.6 %	0.95 [-0.0
Courneya 2008	26	13.4 (27)	29	20.3 (29.1)		8.8 %	-0.24 [-0.7
Monga 2007	11	7.4 (10.4)	10	-6.4 (9.8)		5.6 %	1.31 [0.3

Implications for research

This systematic review and meta-analysis of 56 trials on the effects of exercise on HRQoL ar undergoing active treatment for their cancer provides evidence that exercise interventions ma periods on overall HRQoL and certain HRQoL domains, including physical functioning, role f among cancer survivor undergoing active cancer treatment for their primary or recurrent canc are more pronounced with moderate- or vigorous-intensity versus mild-intensity exercise pro suggests that exercise interventions may have minimal or no effects on HRQoL domains su functioning, depression based on exercise program intensity, fatigue based on exercise prog pain, and spiritual well-being among cancer survivors undergoing active treatment for their c

Further research is required to investigate whether the effect of an exercise intervention can b

Implications for practice

This systematic review finds that exercise interventions may have beneficial effects at varying follow-up periods on overall HRQoL and certain HRQoL domains including physical functioning, role function, social functioning, and fatigue among cancer survivors undergoing active cancer treatment for their primary or recurrent cancer. Since there is consistency of findings on both types of measures (change

nce in the robustness of these findings. Positive effects of exercise

nsity versus mild-intensity exercise programs. Exercise programs

nt of HRQoL among cancer survivors undergoing active cancer

low-up periods in prostate cancer concerns, breast cancer concerns,

isturbances. These findings, however, need to be interpreted

ositive effects were observed not on the change scores but in the

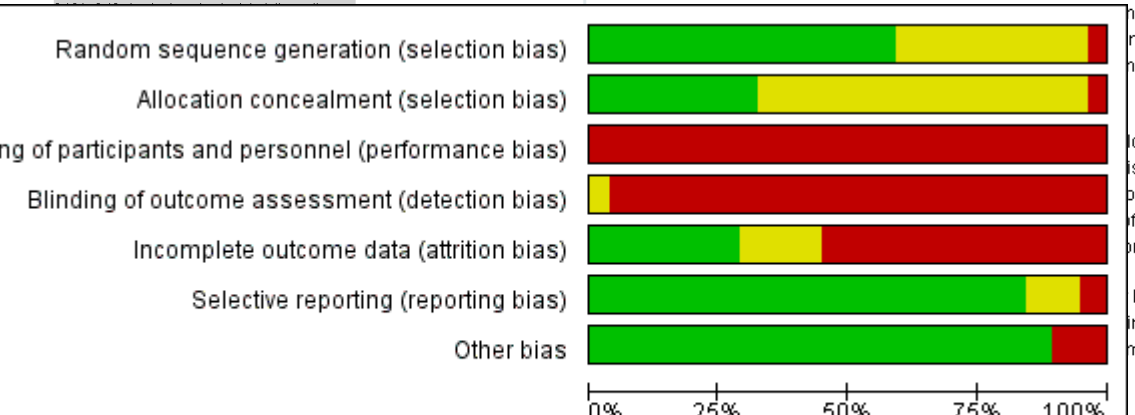
f the different number (or type) of trials reporting results in this manner

rs did not account for differences in baseline values.

body image and self-esteem, cognitive functioning, depression based

intensity, general health perspective, pain, and spiritual well-being. No

measured these outcomes or reported on the intensity of the exercise



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Linked data

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The “age of pointing at things“

- h/t Tom Coates, 2005:
ttp://www.plasticbag.org/archives/2005/04/the_age_of_pointatthings/

*The realization [behind creation of the [**Internet**] was, "It isn't the cables, it is the computers which are interesting".*

*[**World Wide Web**] the realization was "It isn't the computers, but the documents which are interesting". Now you could browse around a sea of documents without having to worry about which computer they were stored on.*

*Now, people are making another mental move. There is realization now, "It's not the documents, it is the **things** they are about which are important”.*

-Tim Berners-Lee, inventor of the World Wide Web

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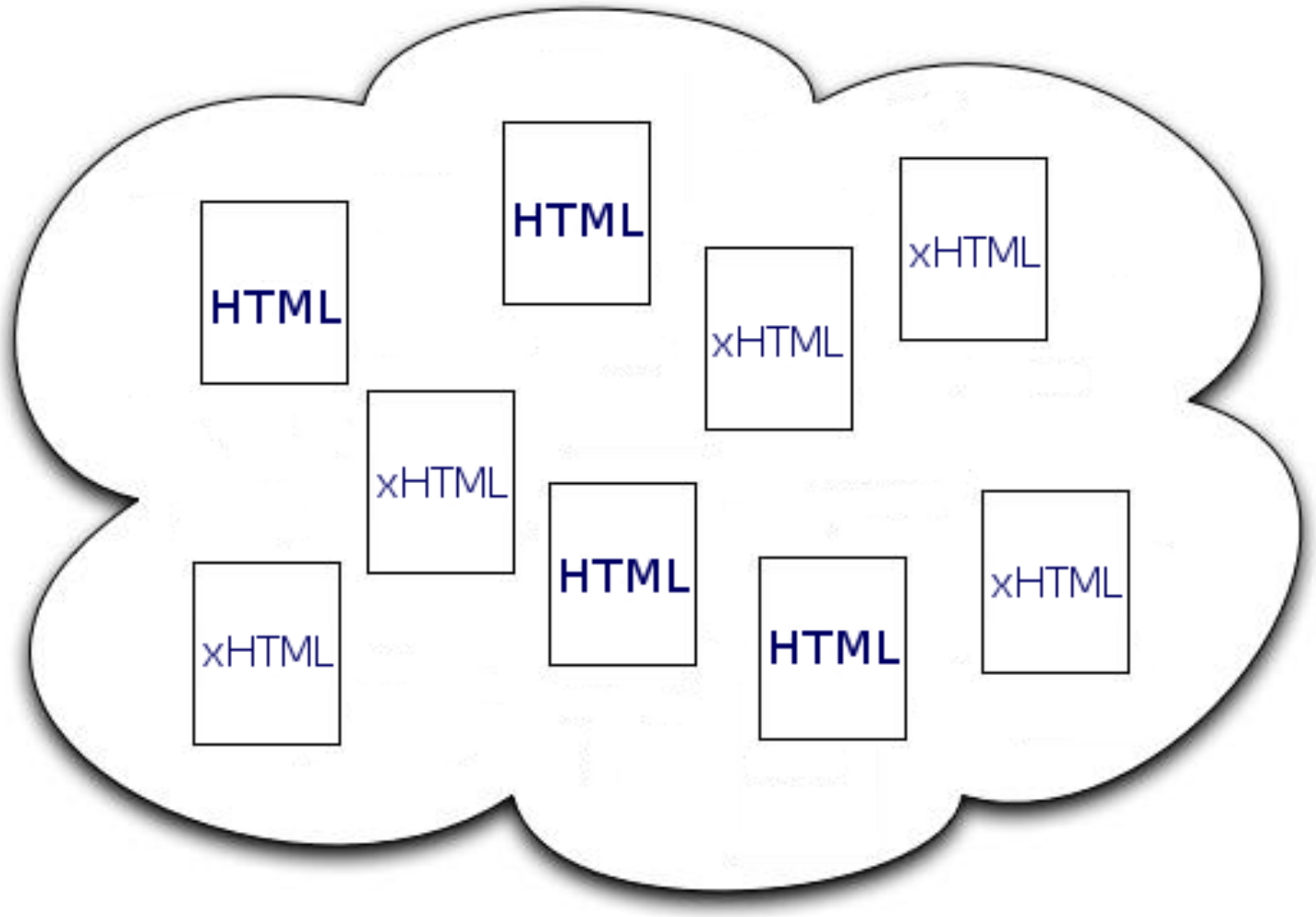
“The problem is not information overload. It‘s filter failure.“

- Clay Shirky

Current web = Web of documents



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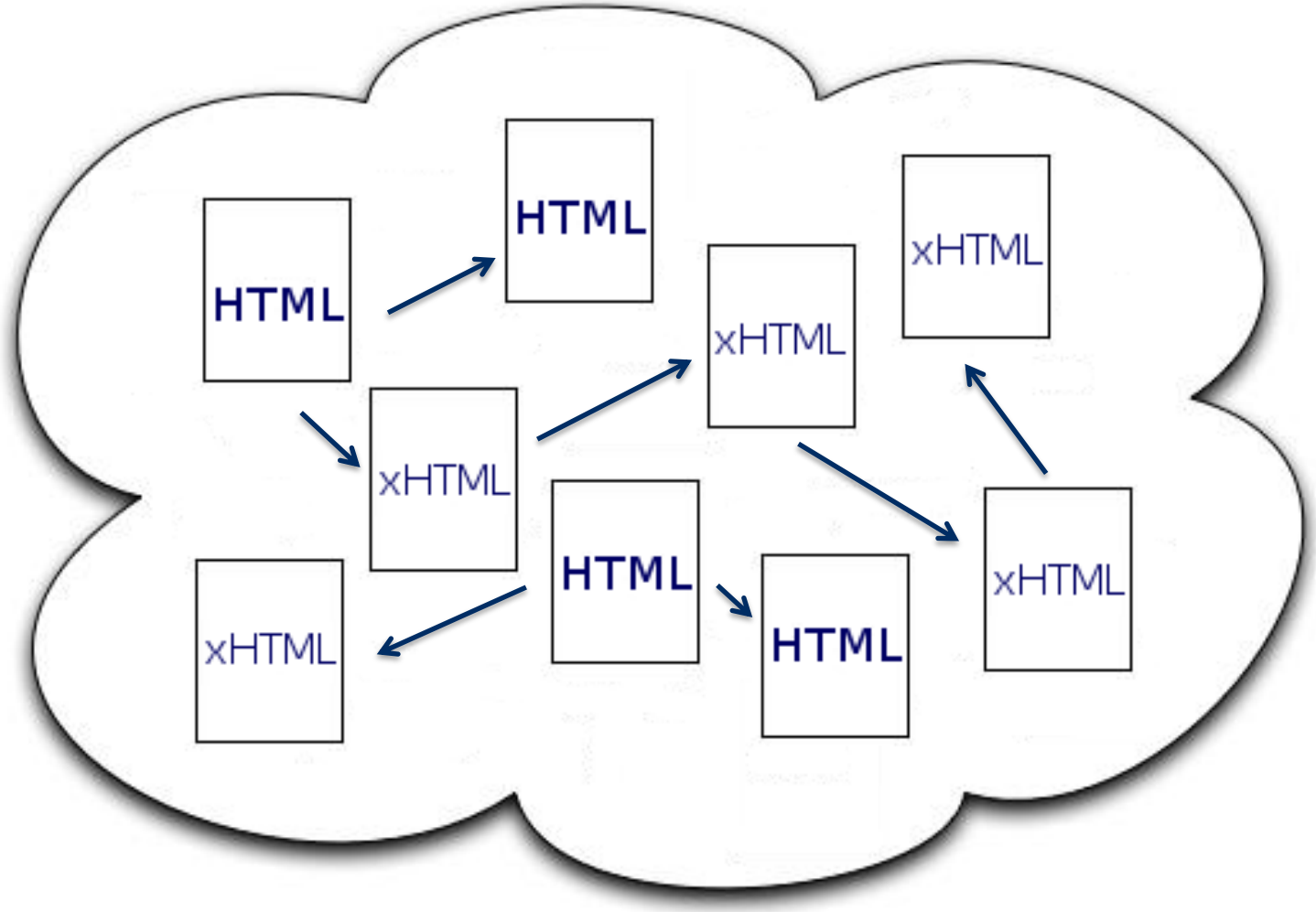
Docs are linked not data (things) in docs



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Machines aren‘t good at reading web pages and documents

- Data on the web is meant for human consumption
- Machines need the data to be structured
- Then, information can be more easily shared within and across datasets and web pages
- Interfaces and APIs can be built to allow better (and programmatic) access
- The article could evolve into an interface

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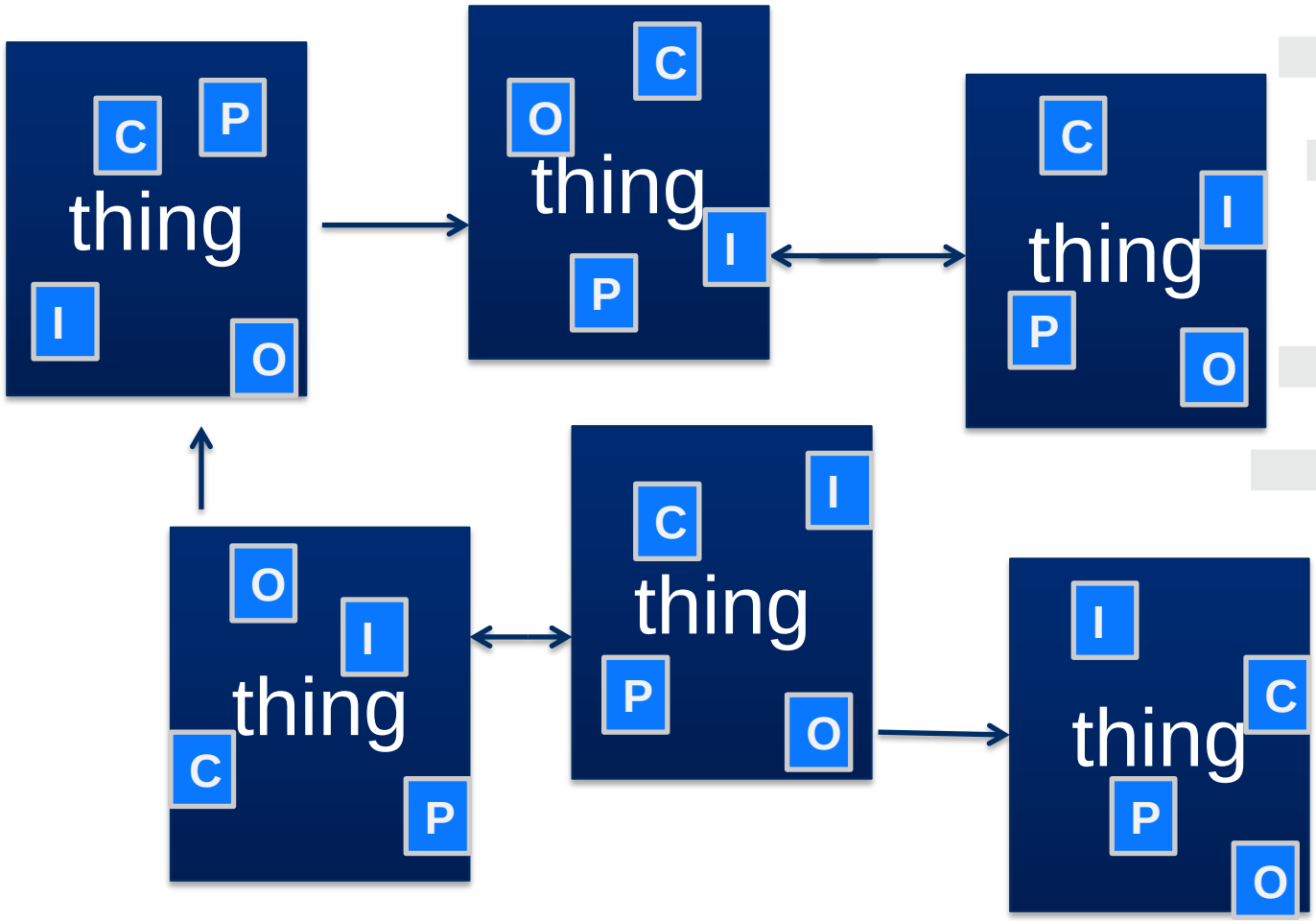
Reviews, studies, references, analyses



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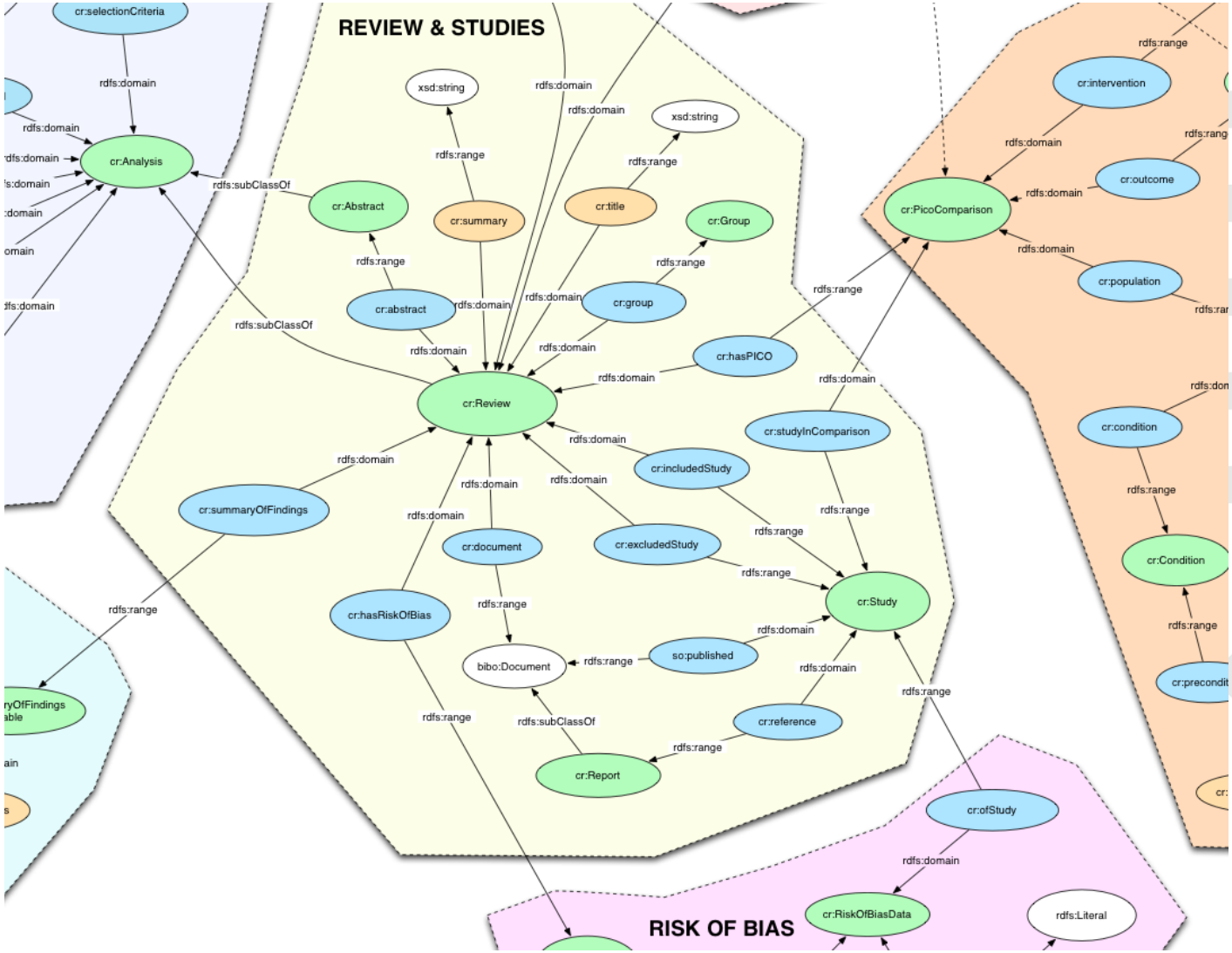
Graphs of knowledge



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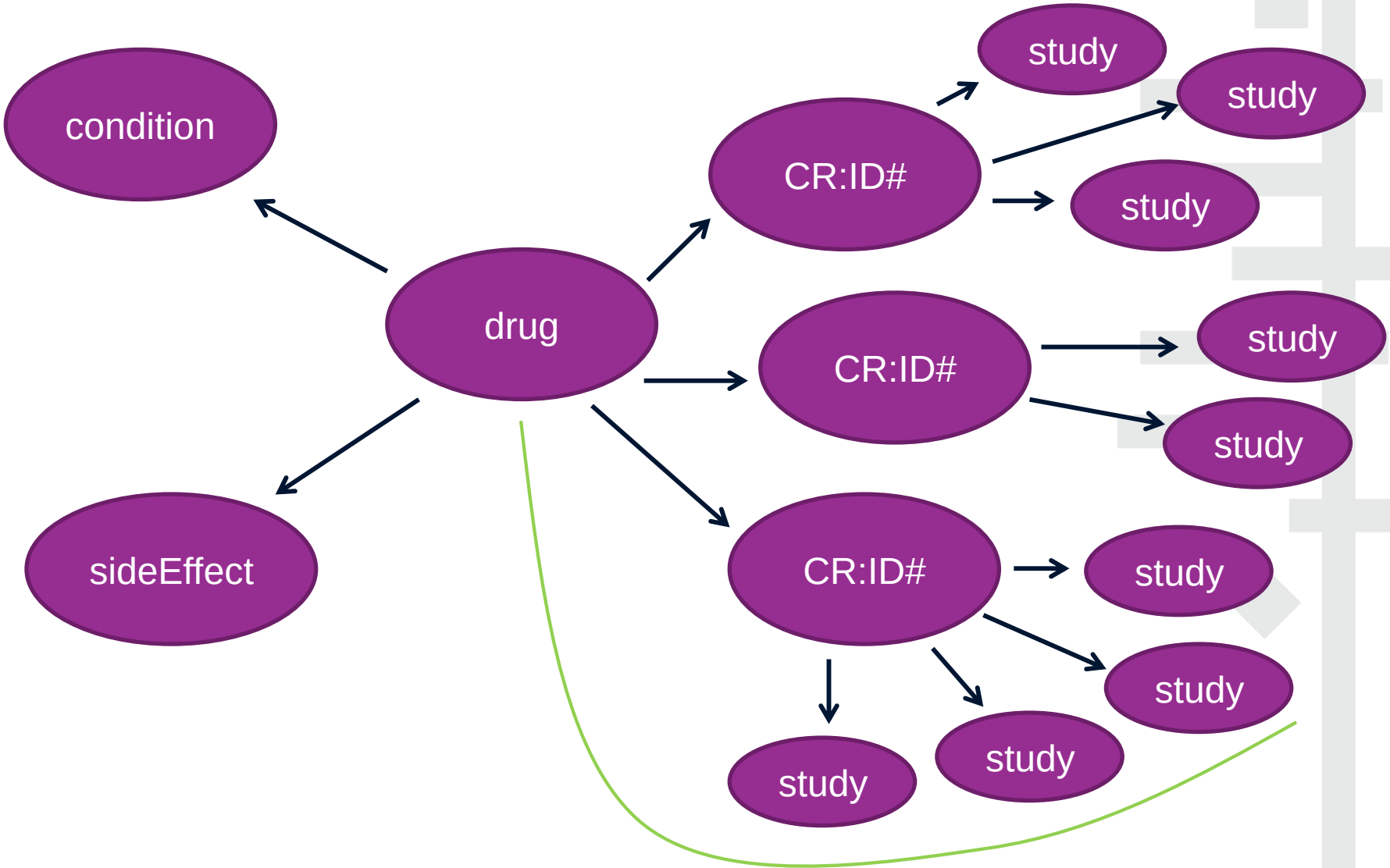
Start anywhere, go anywhere



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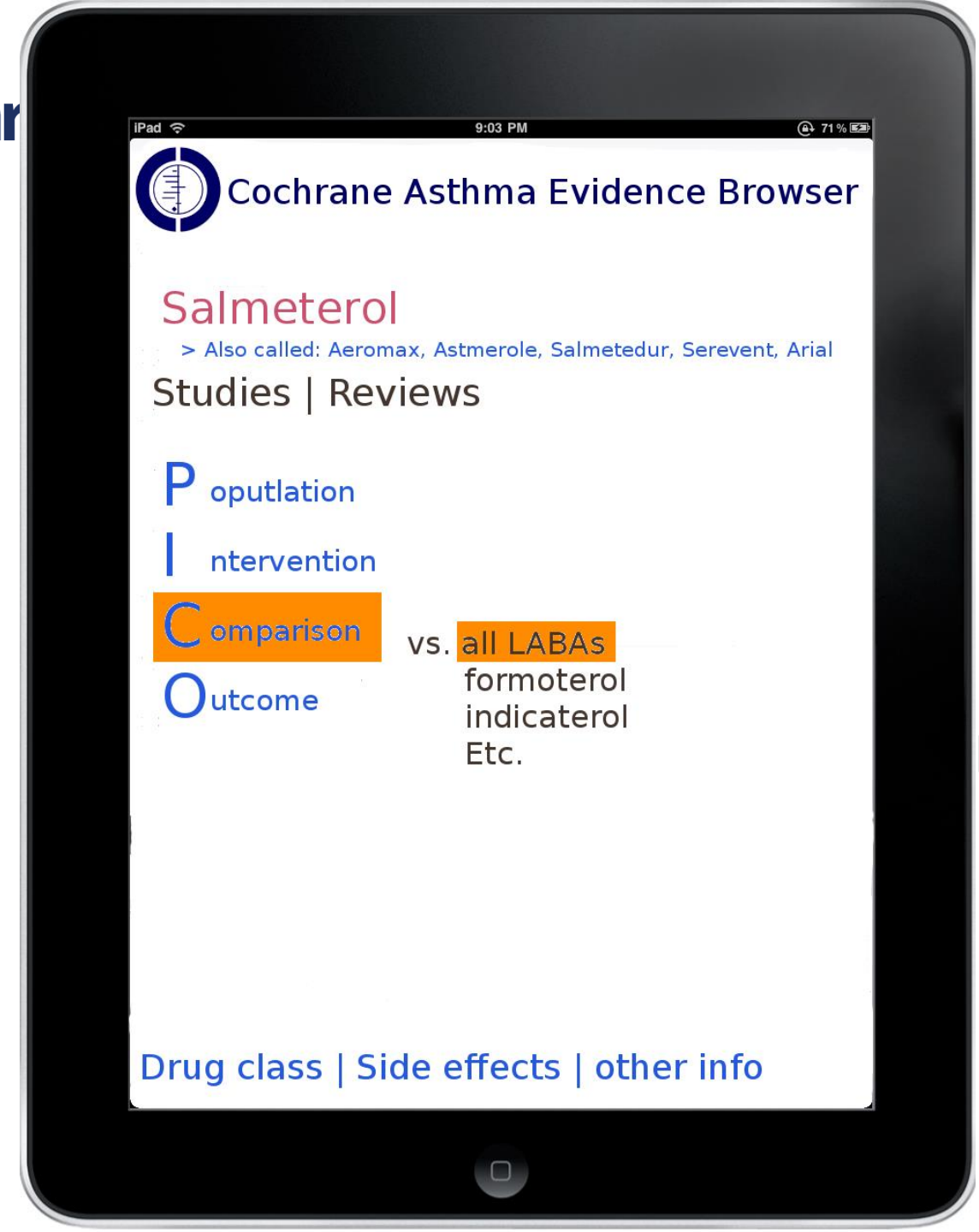
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Cochrane Asthma Evidence Browser
Salmeterol
> Also called: Aeromax, Astmerole, Salmetedur, Serevent, Arial
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vs. all LABAs
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indicaterol
Etc.
Drug class | Side effects | other info

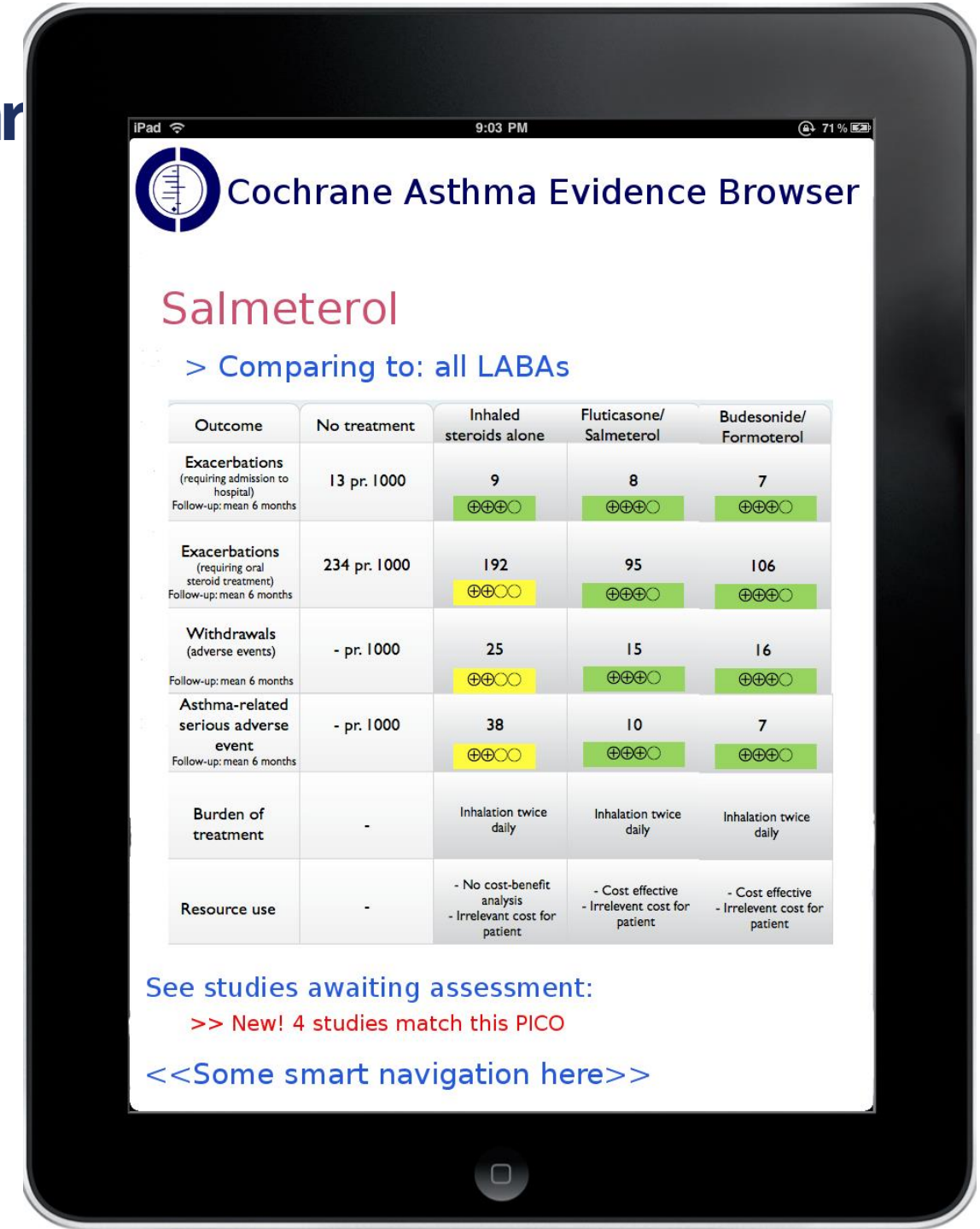

Chart: Linn Brandt/ DECIDE Project

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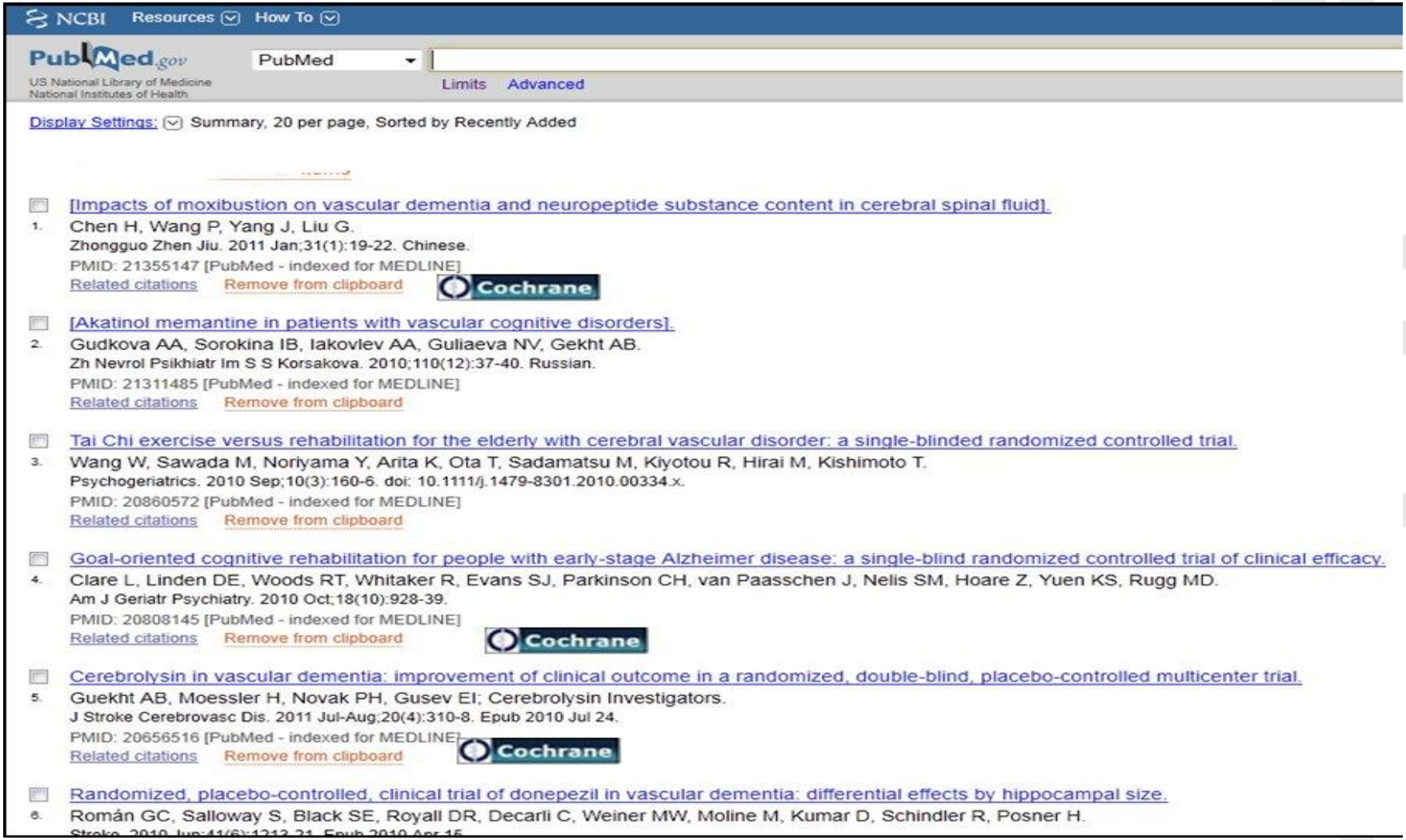
Access points



Access points

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed | Search | Limits | Advanced

Display Settings: Abstract | Send to:

J Pediatr. 2008 May;152(5):685-9. Epub 2008 Feb 20.

Double-blind placebo-controlled trial of amitriptyline for the treatment of irritable bowel syndrome in adolescents.

Bahar RJ, Collins BS, Steinmetz B, Ament ME.

Department of Pediatrics, Division of Gastroenterology, Hepatology, and Nutrition, UCLA Geffen School of Medicine, Los Angeles, CA 91316, USA. bahar@bizla.rr.com

Abstract

OBJECTIVES: To determine the efficacy of amitriptyline (AMI) in treating irritable bowel syndrome (IBS) in adolescents.

STUDY DESIGN: Adolescents 12 to 18 years with newly diagnosed IBS were surveyed with a symptom checklist, pain rating scale, visual analog scale, and IBS quality of life (QOL) questionnaire. Subjects were randomized in a double-blinded fashion to receive AMI or placebo, and again completed surveys at 2, 6, 10, and 13 weeks.

RESULTS: Thirty-three patients (24 female) were enrolled. Patients receiving AMI were more likely to experience improvement from baseline in overall QOL at 6, 10, and 13 weeks (P = .019, .004, and .013). Patients receiving AMI were also more likely to experience a reduction in IBS-associated diarrhea at 6 and 10 weeks (P = .029 for both), a reduction in periumbilical pain at 10 weeks (P = .018), and a reduction in right lower quadrant pain at 6, 10, and 13 weeks (P = .014, .039, and .004).

CONCLUSION: AMI significantly improves overall QOL in adolescents with IBS and should be a therapeutic option for adolescents with this disorder.

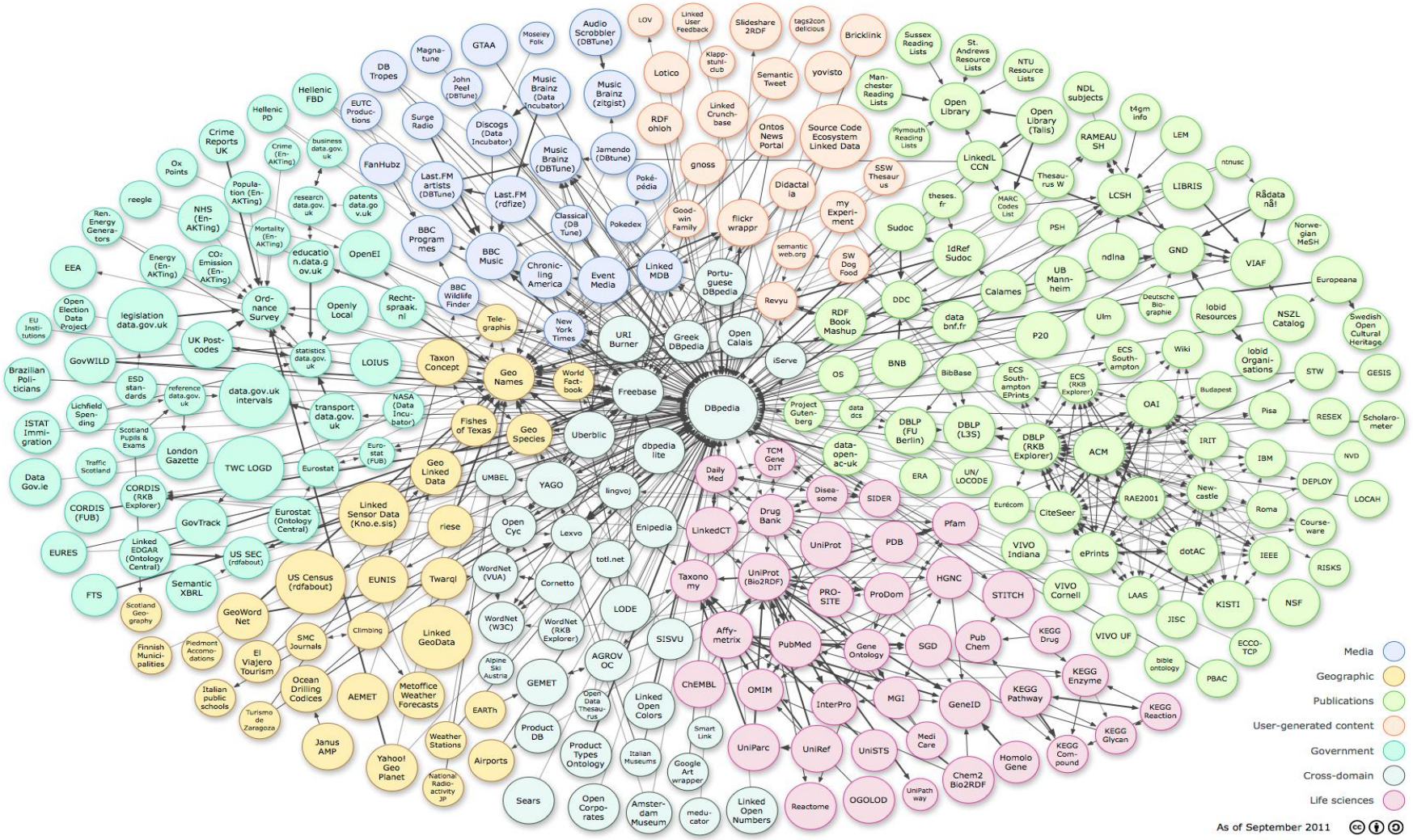
Comment in

J Pediatr. 2008 Dec;153(6):872; author reply 872-4.

PMID: 18410774 [PubMed - indexed for MEDLINE]

⊕ Publication Types, MeSH Terms, Substances

⊕ LinkOut - more resources



Linked Open Data


…breathe…

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Linked Data Project

PICO Annotation and PICOfinder

http://linkeddata.cochrane.org

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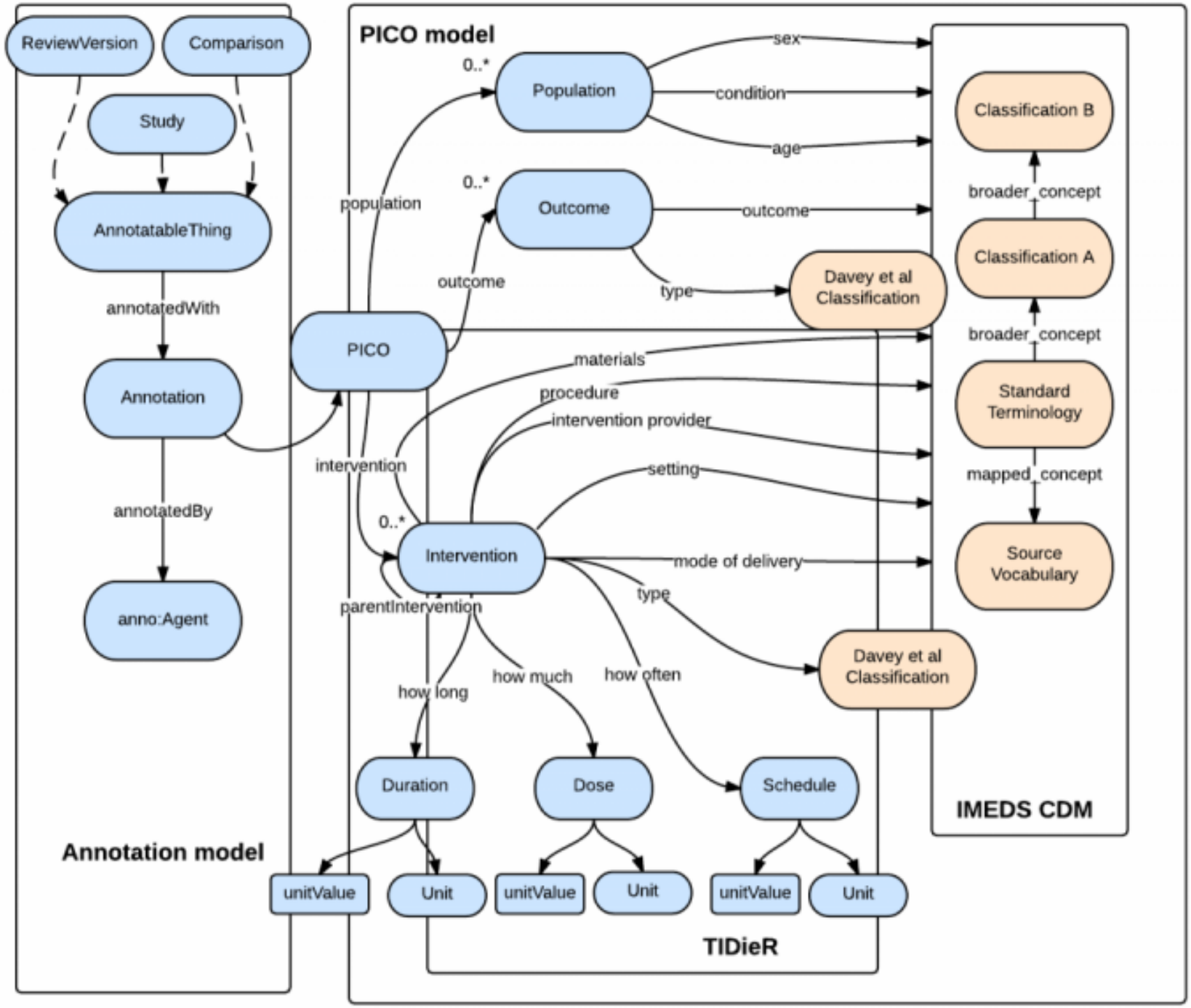
Linked Data: Overarching goals

- Enrich our content and data with metadata using controlled vocabularies (SNOMED CT, etc.)
- Construct knowledge models and structures (ontologies) that will allow re-use of this metadata (annotations) for both downstream (dissemination) and upstream (production) use
- Become more interoperable with other projects, products, datasets, and systems
- Improve production (“smarter data”) and dissemination of evidence (“unlocking the evidence”)
- http://linkeddata.cochrane.org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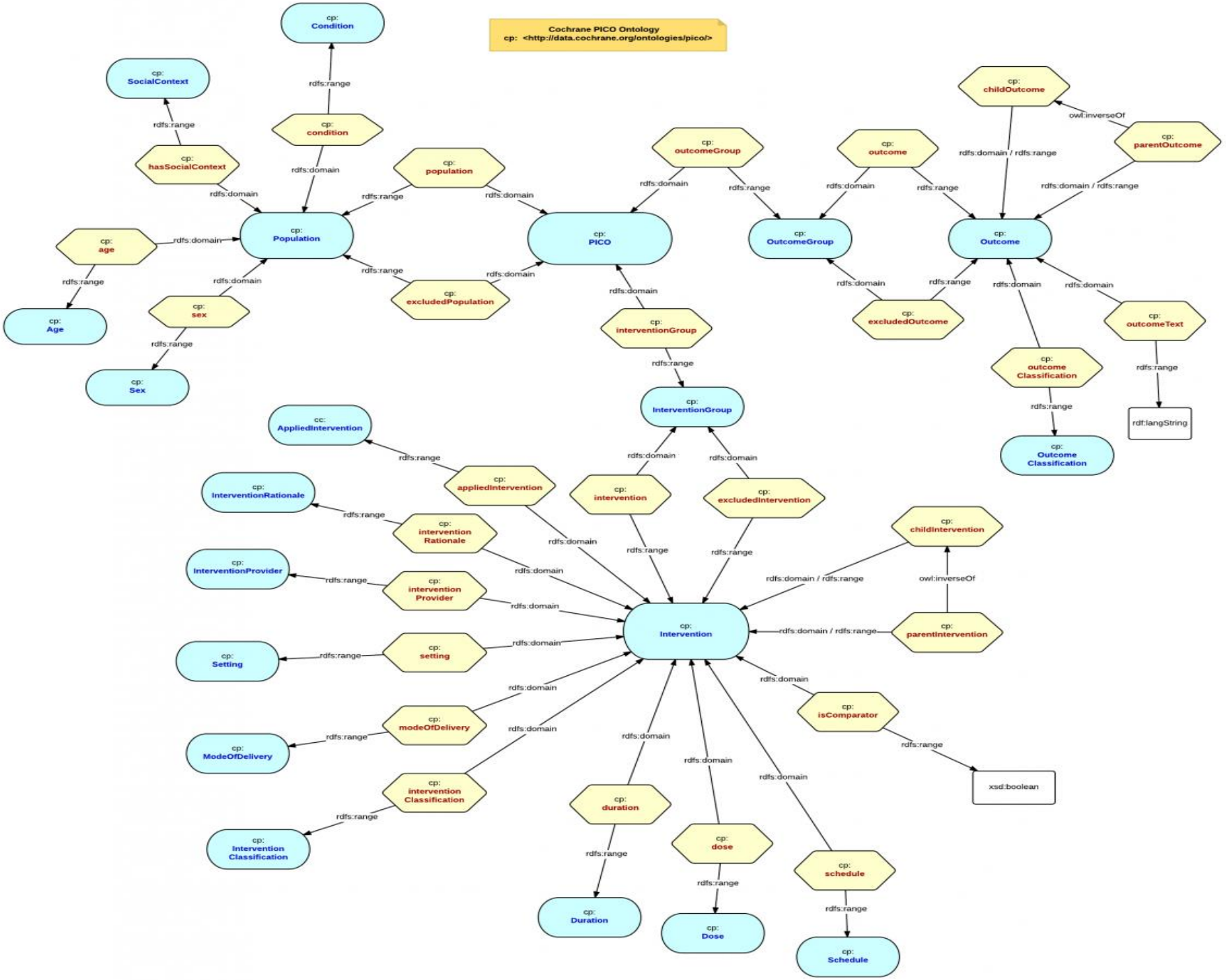
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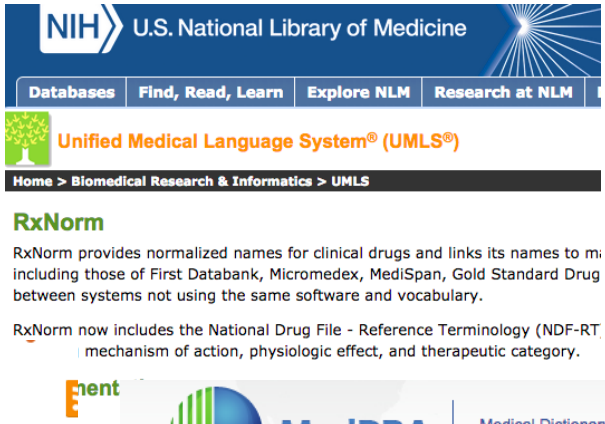
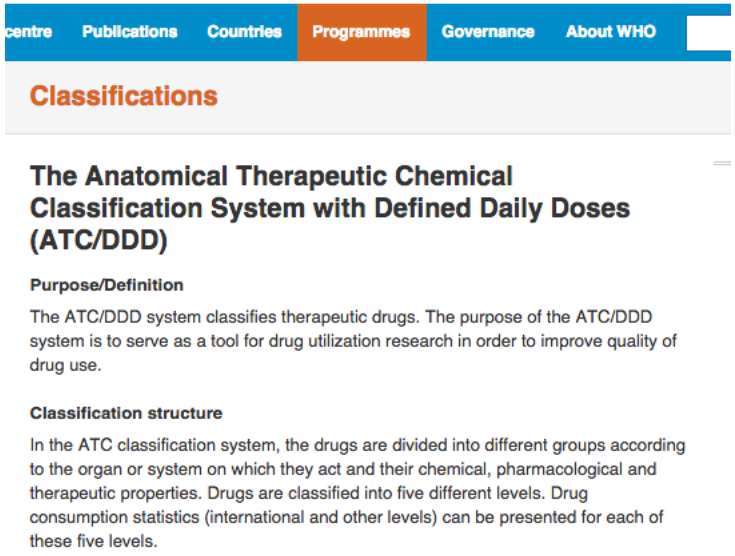
Controlled terminology sets (vocabularies)





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Existing Cochrane databases

Archie

CRS

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A new Cochrane *PICO database*

Archie

Linked data Store

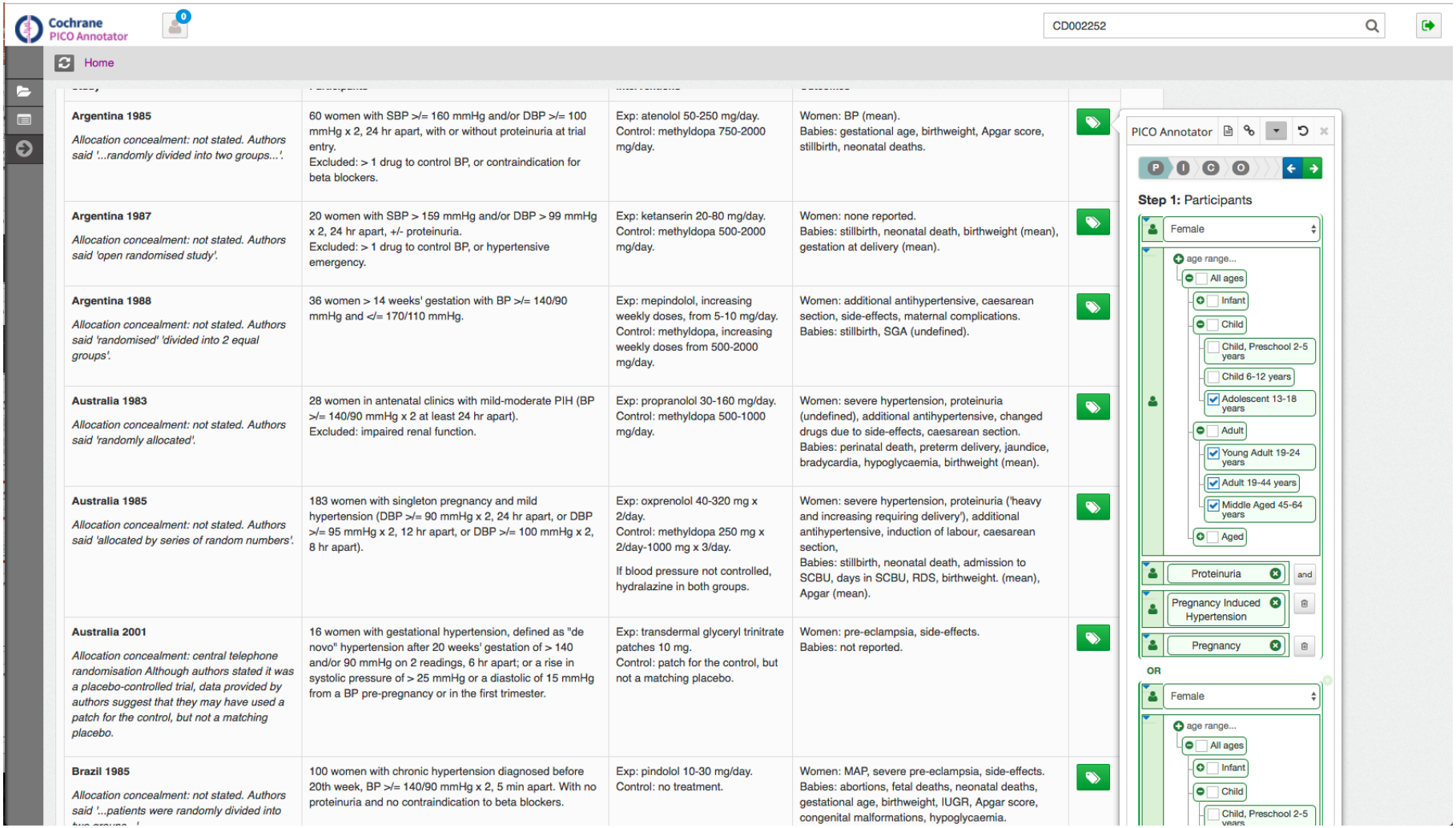
CRS

PICO annotations:
- Reviews (question, studies, analyses)
- CRS/CENTRAL
- Data sets (Covidence, EPPI-R)

User Interfaces…

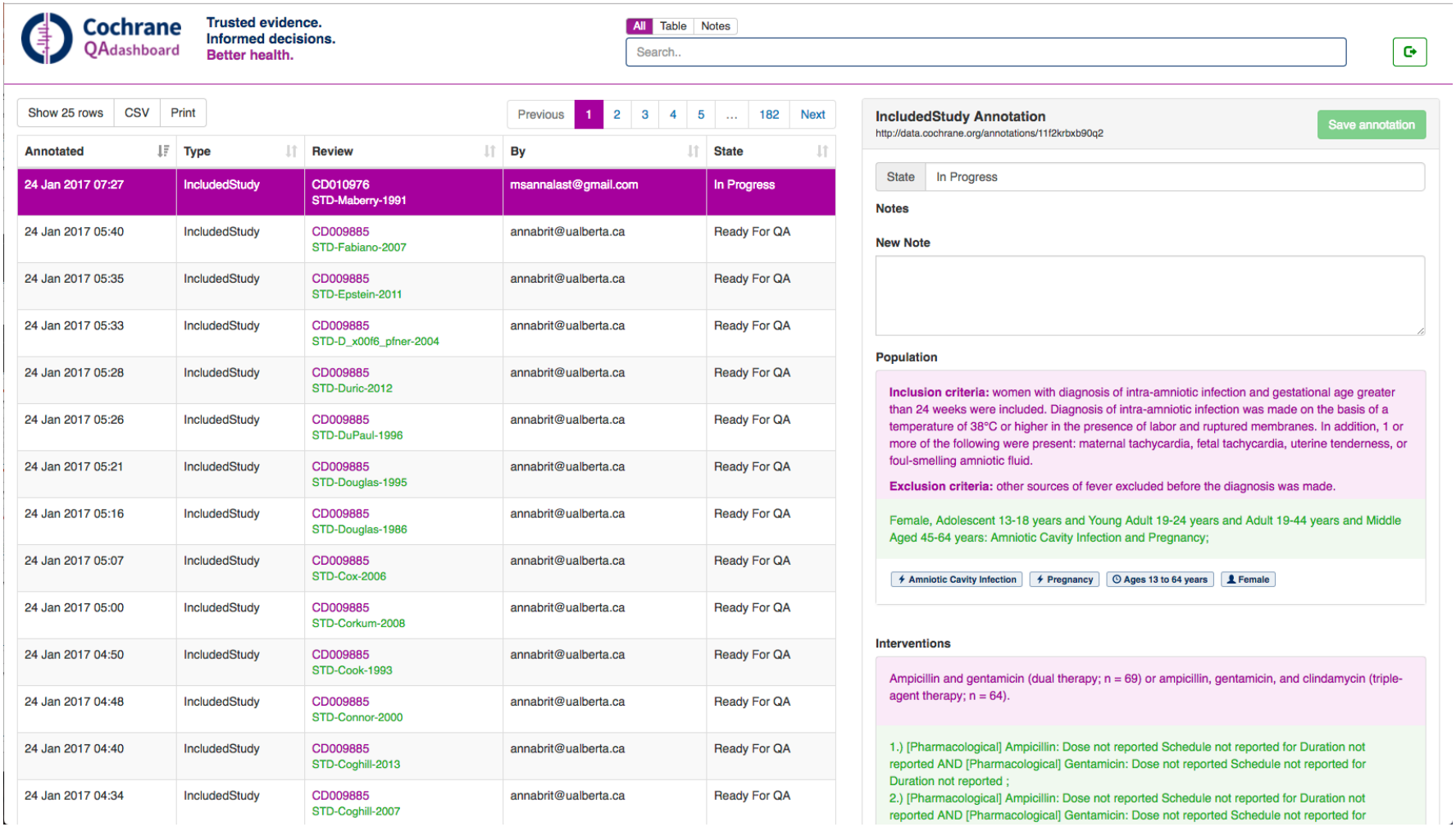
PICO Annotator: Annotation of PICO's

Each review and included study receives its own PICO



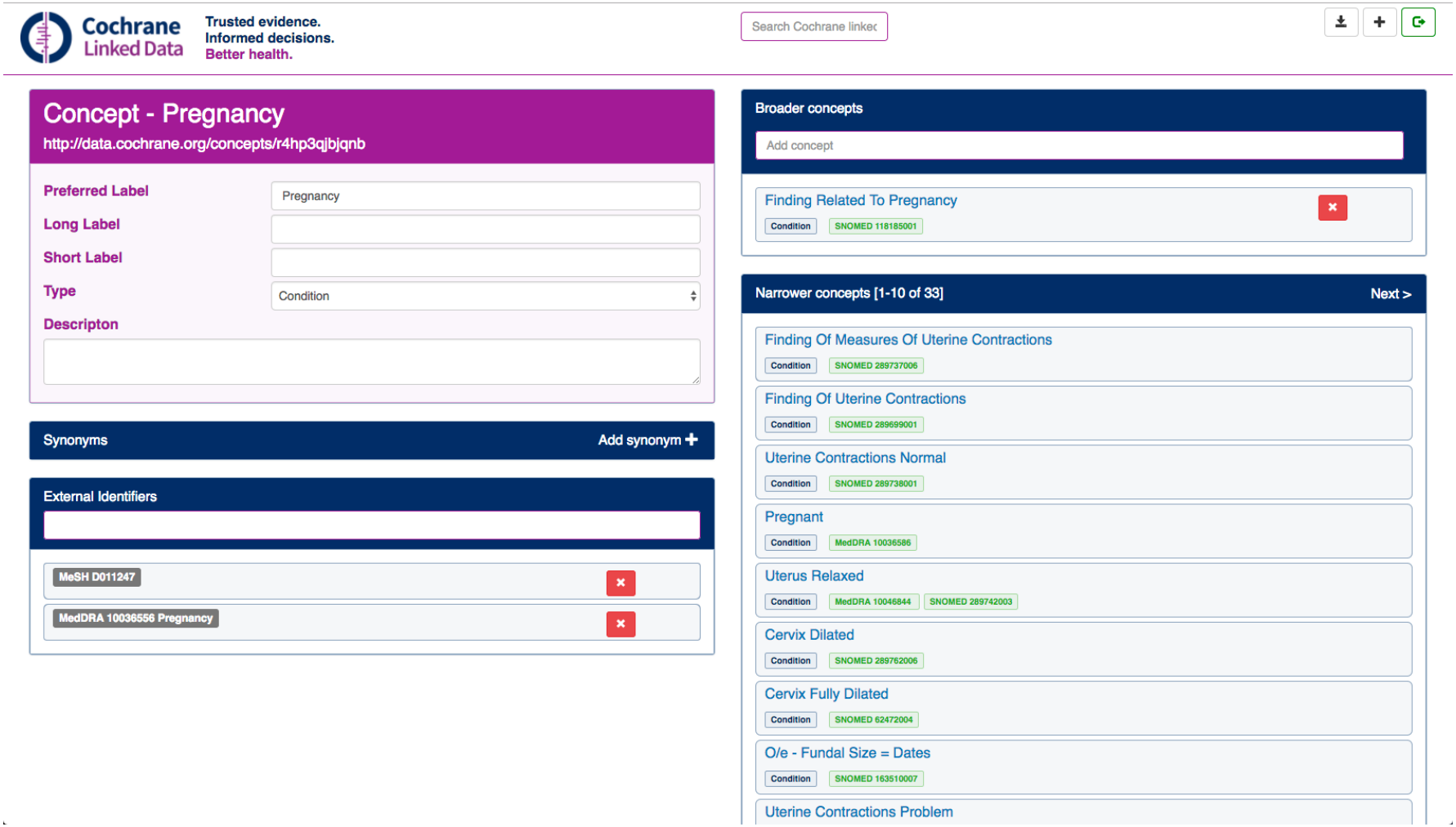
QA Dashboard: Ensuring High Quality PICO Data

Ensuring annotated PICO Data is fit for purpose and correct



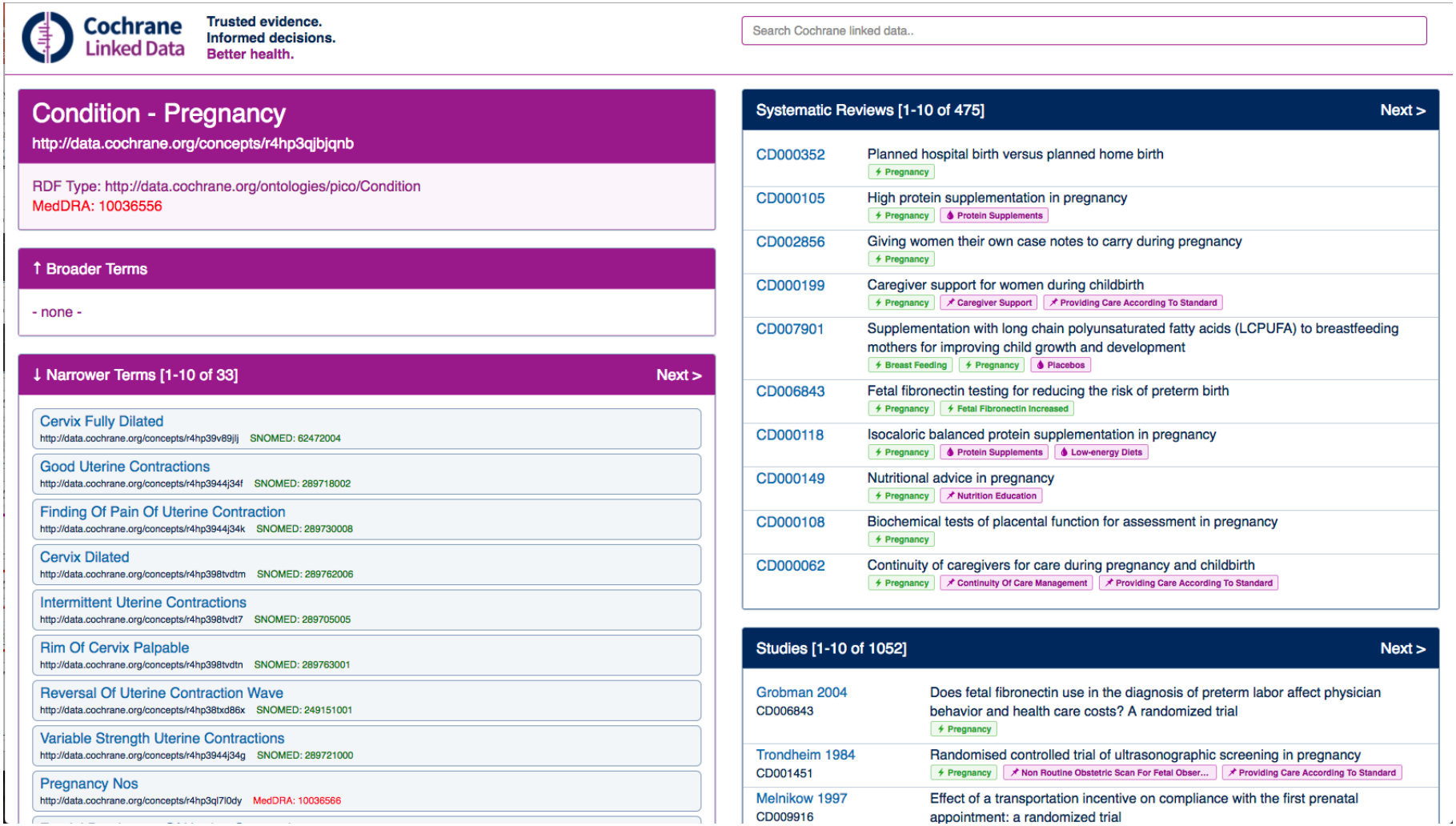
Linked Data Editor

Curating the Cochrane vocabularies



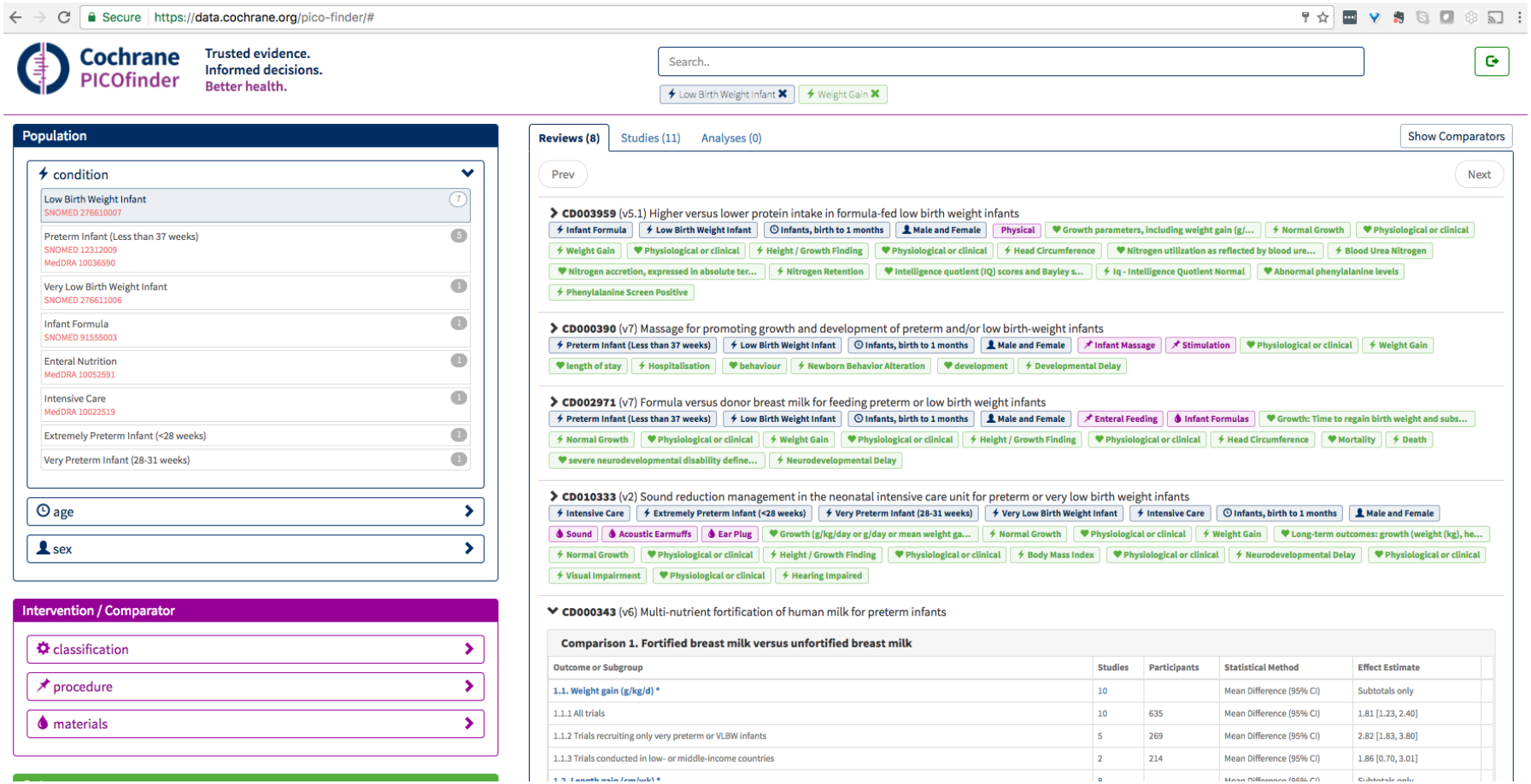
Data Discovery

Understanding what a term means and where it's used



Exploring PICO

Flexible search for combinations of Population, Intervention, Outcome



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PICO Annotator

Annotating Cochrane Review content

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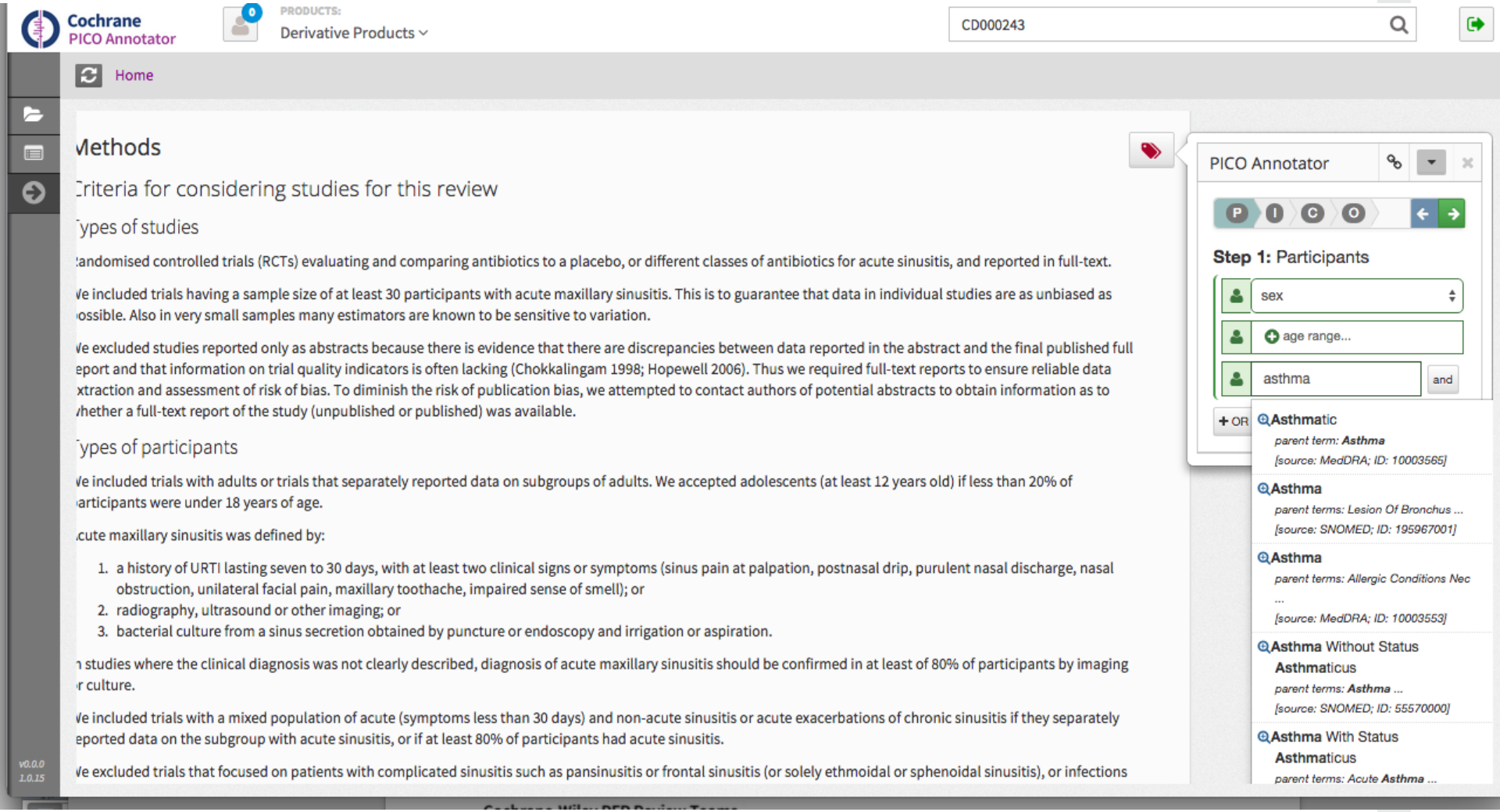
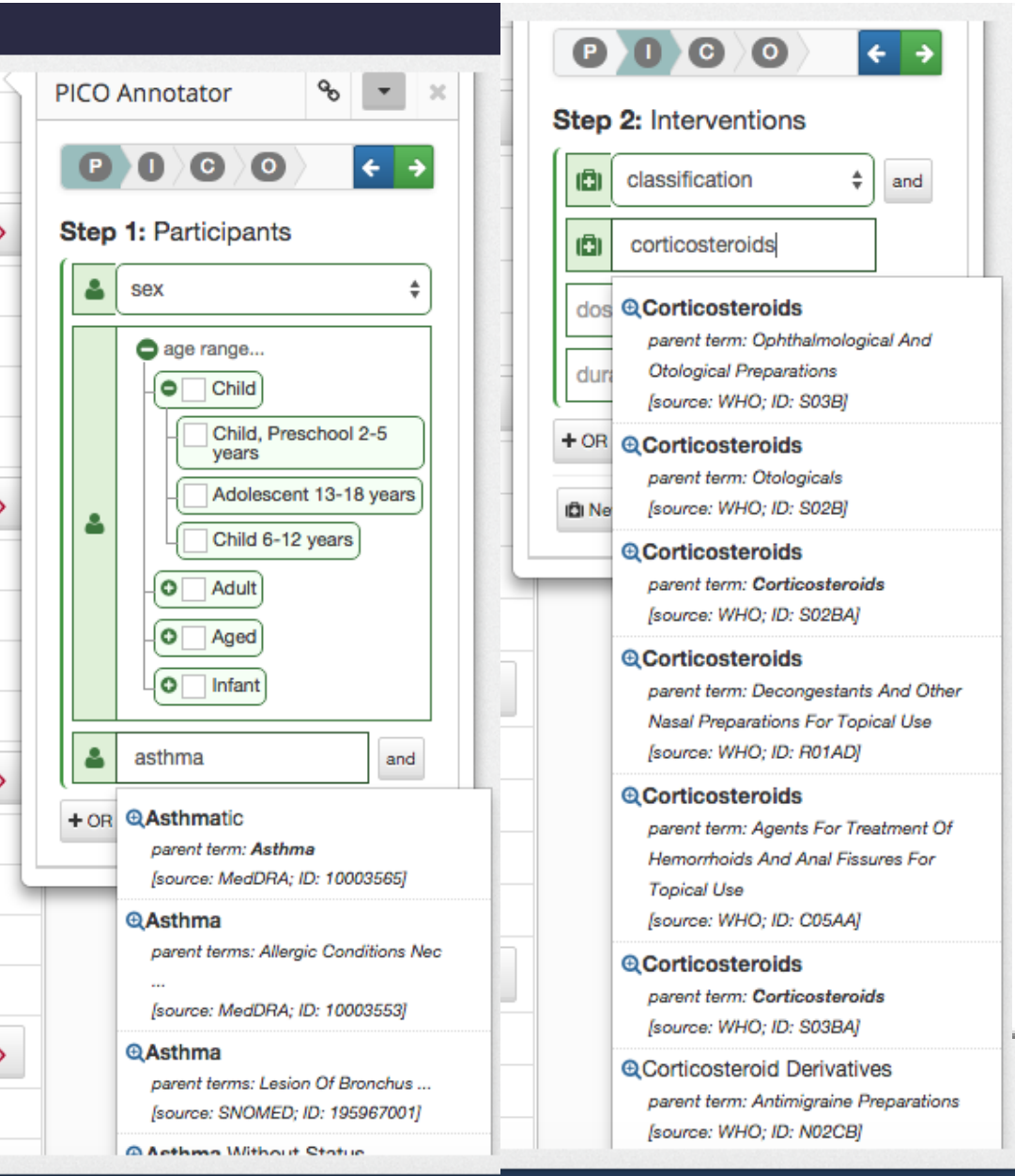
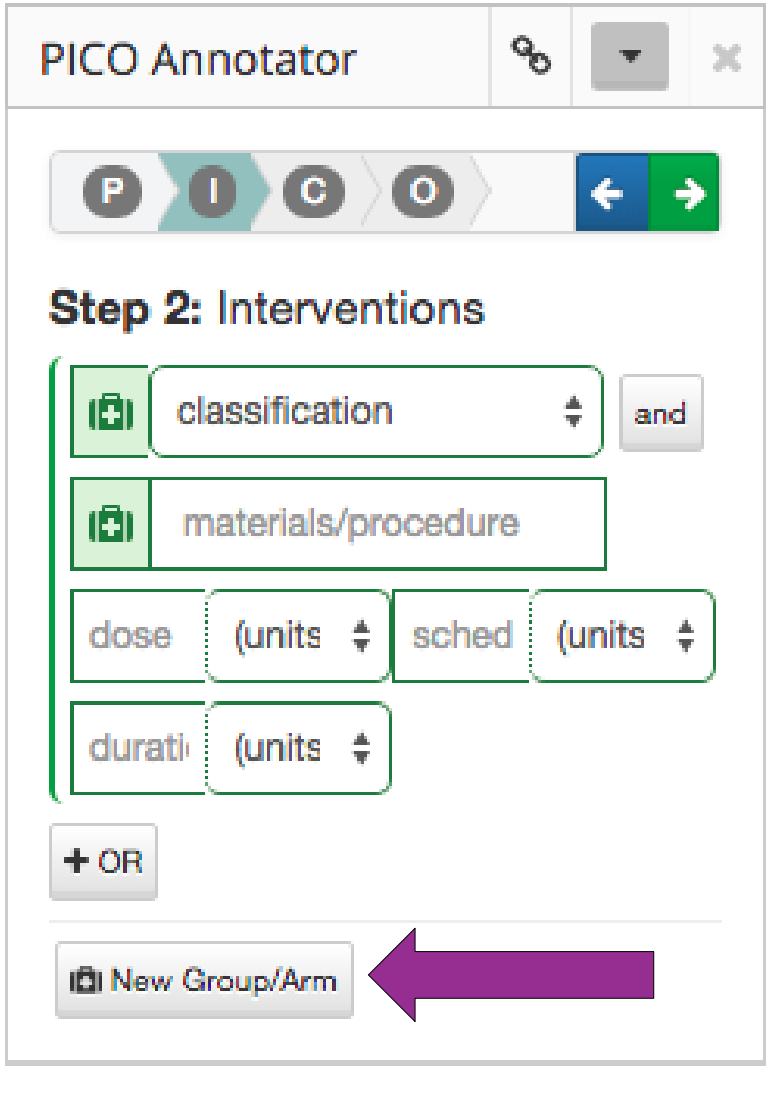

Cochrane
PICO Annotator
PRODUCTS:
Derivative Products
CD000243
Home
Methods
Criteria for considering studies for this review
Types of studies
randomised controlled trials (RCTs) evaluating and comparing antibiotics to a placebo, or different classes of antibiotics for acute sinusitis, and reported in full-text.
We included trials having a sample size of at least 30 participants with acute maxillary sinusitis. This is to guarantee that data in individual studies are as unbiased as possible. Also in very small samples many estimators are known to be sensitive to variation.
We excluded studies reported only as abstracts because there is evidence that there are discrepancies between data reported in the abstract and the final published full report and that information on trial quality indicators is often lacking (Chokkalingam 1998; Hopewell 2006). Thus we required full-text reports to ensure reliable data extraction and assessment of risk of bias. To diminish the risk of publication bias, we attempted to contact authors of potential abstracts to obtain information as to whether a full-text report of the study (unpublished or published) was available.
Types of participants
We included trials with adults or trials that separately reported data on subgroups of adults. We accepted adolescents (at least 12 years old) if less than 20% of participants were under 18 years of age.
Acute maxillary sinusitis was defined by:
1. a history of URTI lasting seven to 30 days, with at least two clinical signs or symptoms (sinus pain at palpation, postnasal drip, purulent nasal discharge, nasal obstruction, unilateral facial pain, maxillary toothache, impaired sense of smell); or
2. radiography, ultrasound or other imaging; or
3. bacterial culture from a sinus secretion obtained by puncture or endoscopy and irrigation or aspiration.
In studies where the clinical diagnosis was not clearly described, diagnosis of acute maxillary sinusitis should be confirmed in at least of 80% of participants by imaging or culture.
We included trials with a mixed population of acute (symptoms less than 30 days) and non-acute sinusitis or acute exacerbations of chronic sinusitis if they separately reported data on the subgroup with acute sinusitis, or if at least 80% of participants had acute sinusitis.
We excluded trials that focused on patients with complicated sinusitis such as pansinusitis or frontal sinusitis (or solely ethmoidal or sphenoidal sinusitis), or infections
v0.0.0
1.0.15
PICO Annotator
P I C O
Step 1: Participants
sex
age range...
asthma
and
+ OR
Asthmatic
parent term: Asthma
[source: MedDRA; ID: 10003565]
Asthma
parent terms: Lesion Of Bronchus ...
[source: SNOMED; ID: 195967001]
Asthma
parent terms: Allergic Conditions Nec ...
[source: MedDRA; ID: 10003553]
Asthma Without Status Asthmaticus
parent terms: Asthma ...
[source: SNOMED; ID: 55570000]
Asthma With Status Asthmaticus
parent terms: Acute Asthma ...

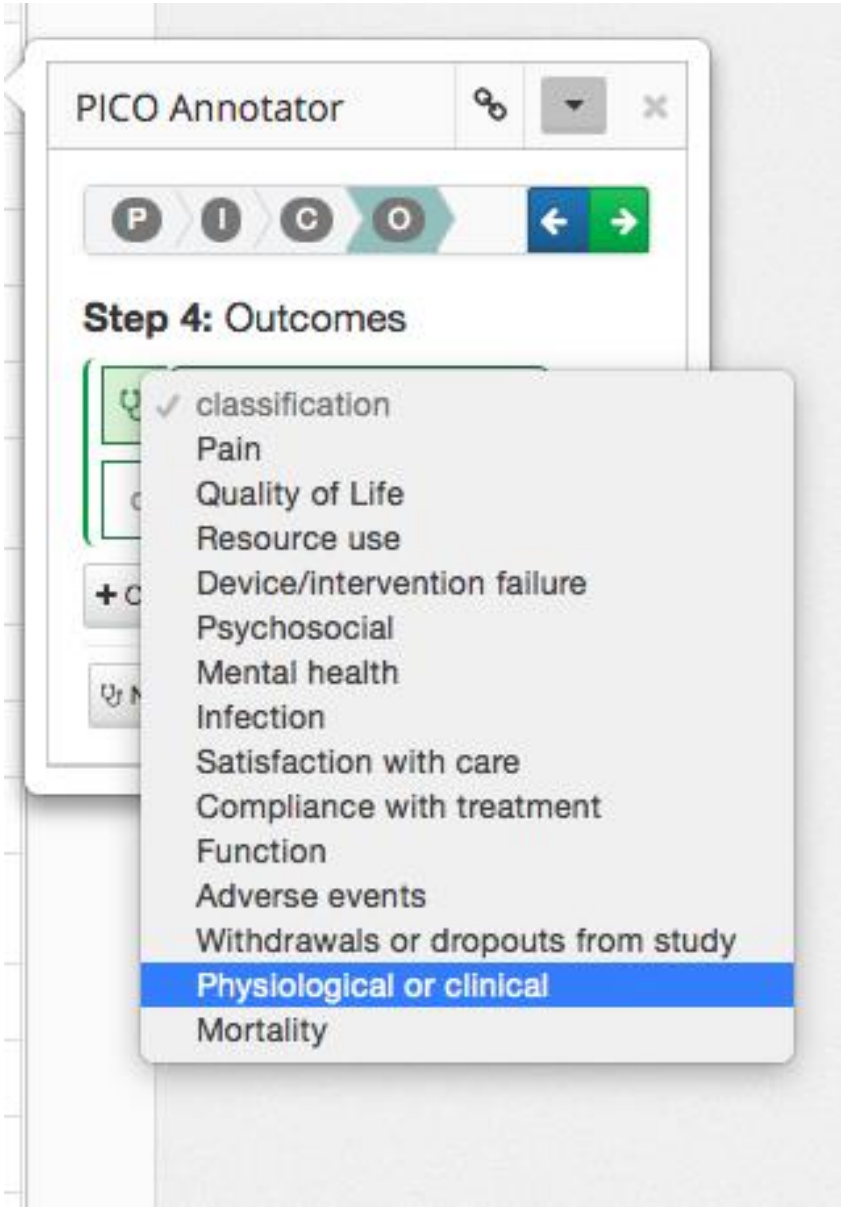
Cochrane


PICO Annotator
P I C O
Step 1: Participants
sex
age range...
Child
Child, Preschool 2-5 years
Adolescent 13-18 years
Child 6-12 years
Adult
Aged
Infant
asthma
and
+ OR
Asthmatic
parent term: Asthma
[source: MedDRA; ID: 10003565]
Asthma
parent terms: Allergic Conditions Nec ...
[source: MedDRA; ID: 10003553]
Asthma
parent terms: Lesion Of Bronchus ...
[source: SNOMED; ID: 195967001]

P I C O
Step 2: Interventions
classification
and
corticosteroids
+ OR
Corticosteroids
parent term: Ophthalmological And Otological Preparations
[source: WHO; ID: S03B]
Corticosteroids
parent term: Otologicals
[source: WHO; ID: S02B]
Corticosteroids
parent term: Corticosteroids
[source: WHO; ID: S02BA]
Corticosteroids
parent term: Decongestants And Other Nasal Preparations For Topical Use
[source: WHO; ID: R01AD]
Corticosteroids
parent term: Agents For Treatment Of Hemorrhoids And Anal Fissures For Topical Use
[source: WHO; ID: C05AA]
Corticosteroids
parent term: Corticosteroids
[source: WHO; ID: S03BA]
Corticosteroid Derivatives
parent term: Antimigraine Preparations
[source: WHO; ID: N02CB]


PICO Annotator
P I C O
Step 2: Interventions
classification
and
materials/procedure
dose
(units
sched
(units
durati
(units
+ OR
New Group/Arm

Cochrane


PICO Annotator
P
I
C
O
Step 4: Outcomes
classification
Pain
Quality of Life
Resource use
Device/intervention failure
Psychosocial
Mental health
Infection
Satisfaction with care
Compliance with treatment
Function
Adverse events
Withdrawals or dropouts from study
Physiological or clinical
Mortality

Cochrane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CORRESPONDENCE
Characteristics of meta-analyses and their component studies in the *Cochrane Database of Systematic Reviews*: a cross-sectional, descriptive analysis
Jonathan Davey, Rebecca M Turner, Mike J Clarke and Julian PT Higgins
BMC Medical Research Methodology 2011 11:160 | DOI: 10.1186/1471-2288-11-160 | © BioMed Central Ltd 2011


Outcome
outcome type
Physiological or clinical 235
Resource use 147
Adverse events 139
Quality of Life 106
Mental health 55
Mortality 45
Function 39
Withdrawals or dropouts from study 25
Compliance with treatment 19
Satisfaction with care 13


COMET
INITIATIVE
Core Outcome Measures in Effectiveness Trials
www.comet-initiative.org

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Cochrane PICO Annotator

PRODUCTS: Derivative Products

CD010177

Home

Methods

Criteria for considering studies for this review

Types of studies

We included randomised controlled trials (RCTs) with a parallel-group design, of at least 12 weeks' duration. We did not exclude studies on the basis of blinding. We excluded cross-over trials, as we were looking at long-term effects including adverse events.

Types of participants

We included RCTs that recruited participants with a clinical diagnosis of COPD based on the following (GOLD 2013).

1. Forced expiratory volume after one second (FEV_1)/forced vital capacity (FVC) ratio < 0.7, which confirms the presence of persis
2. Several of the following key indicators:
    1. Progressive and/or persistent dyspnoea (breathlessness);
    2. Chronic cough;
    3. Chronic sputum production; and
    4. History of exposure to risk factors (tobacco smoke, smoke from home cooking and heating fuels, occupational dusts and chemicals).

We excluded RCTs in which participants had to have asthma as well as COPD to be included.

Types of interventions

We included studies in which participants were randomly assigned to receive the following.

1. Salmeterol 50 µg or placebo twice daily.
2. Formoterol 12 µg or placebo twice daily.
3. Formoterol 24 µg or placebo twice daily.

We included studies that allowed concomitant short-acting bronchodilators, provided they were not part of the trial treatment under study. We did not include studies in which most participants were receiving other COPD treatments.

Types of outcome measures

Primary Outcomes

PICO Annotator

Population:
Male and Female, Young Adult 19-24 years and Adult 19-44 years and Middle Aged 45-64 years: Chronic Obstruct Airways Disease;

Interventions:
1.) [Pharmacological] Salmeterol: ;
2.) [Pharmacological] Formoterol: ;

Comparators:
[No active treatment] Placebos: ;

Outcomes:
1.) Quality of Life - Quality of life;
2.) Physiological or clinical - Severe COPD exacerbations;
3.) Physiological or clinical - Moderate COPD exacerbations;
4.) Mortality - Mortality; all-cause;
5.) Adverse events - Non-fatal serious adverse events; all-cause;
6.) Physiological or clinical - lung function;
7.) Withdrawals or dropouts from study - Withdrawals from study treatment:

v0.0.0
1.0.15

Cochrane

PICOfinder demo interface

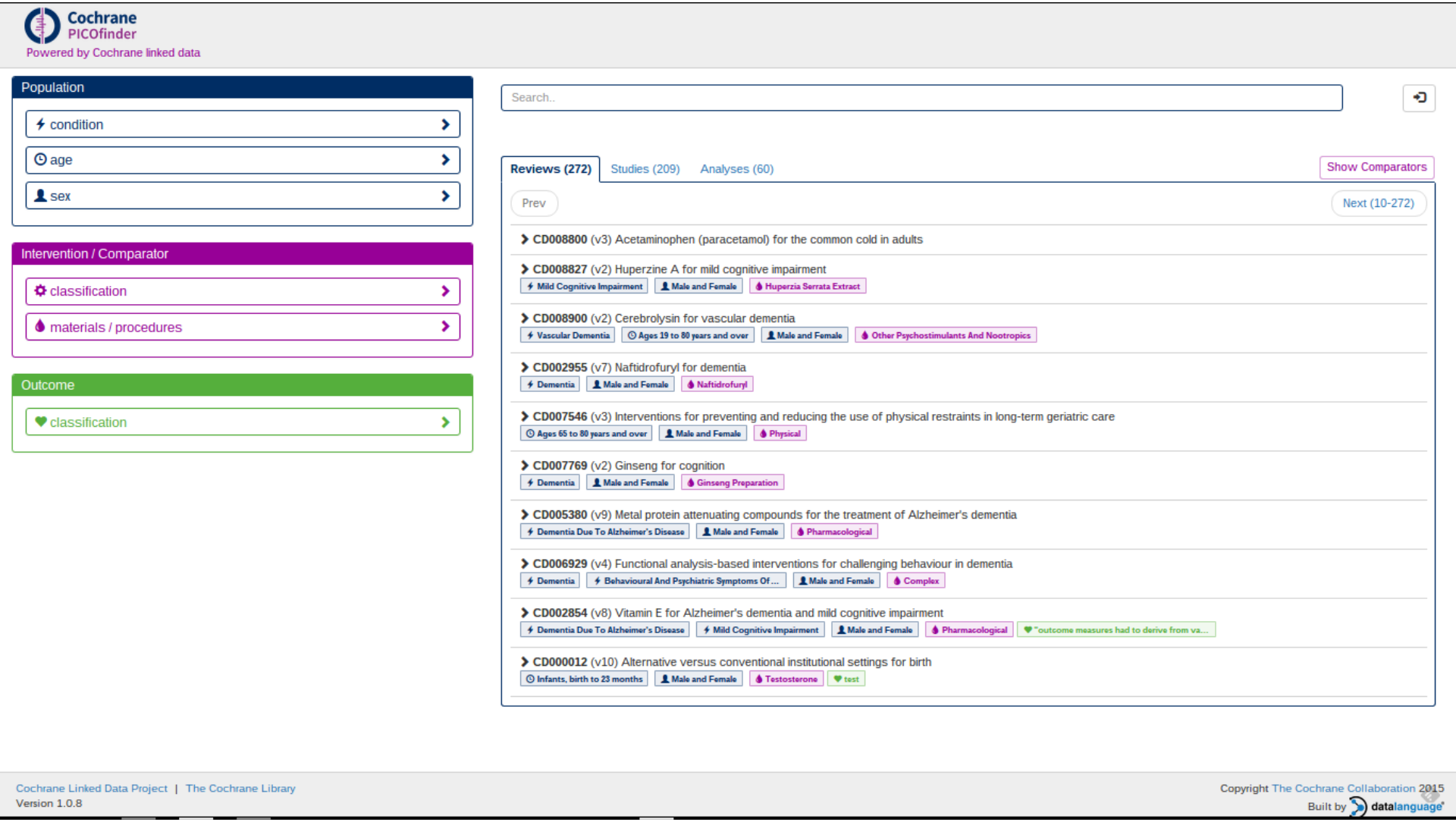
Exploring, filtering, and visualizing Cochrane evidence using PICO

Cochrane

PICOfinder demo user interface

- Allow exploration of Cochrane content (Reviews, studies, forest plots, etc) using PICO
- Allow display of selected portions of Cochrane content in a flexible manner
- Allow linkage to relevant content produced by others
- Foundation for future Cochrane Library interface and derivative products

https://data.cochrane.org/pico-finder



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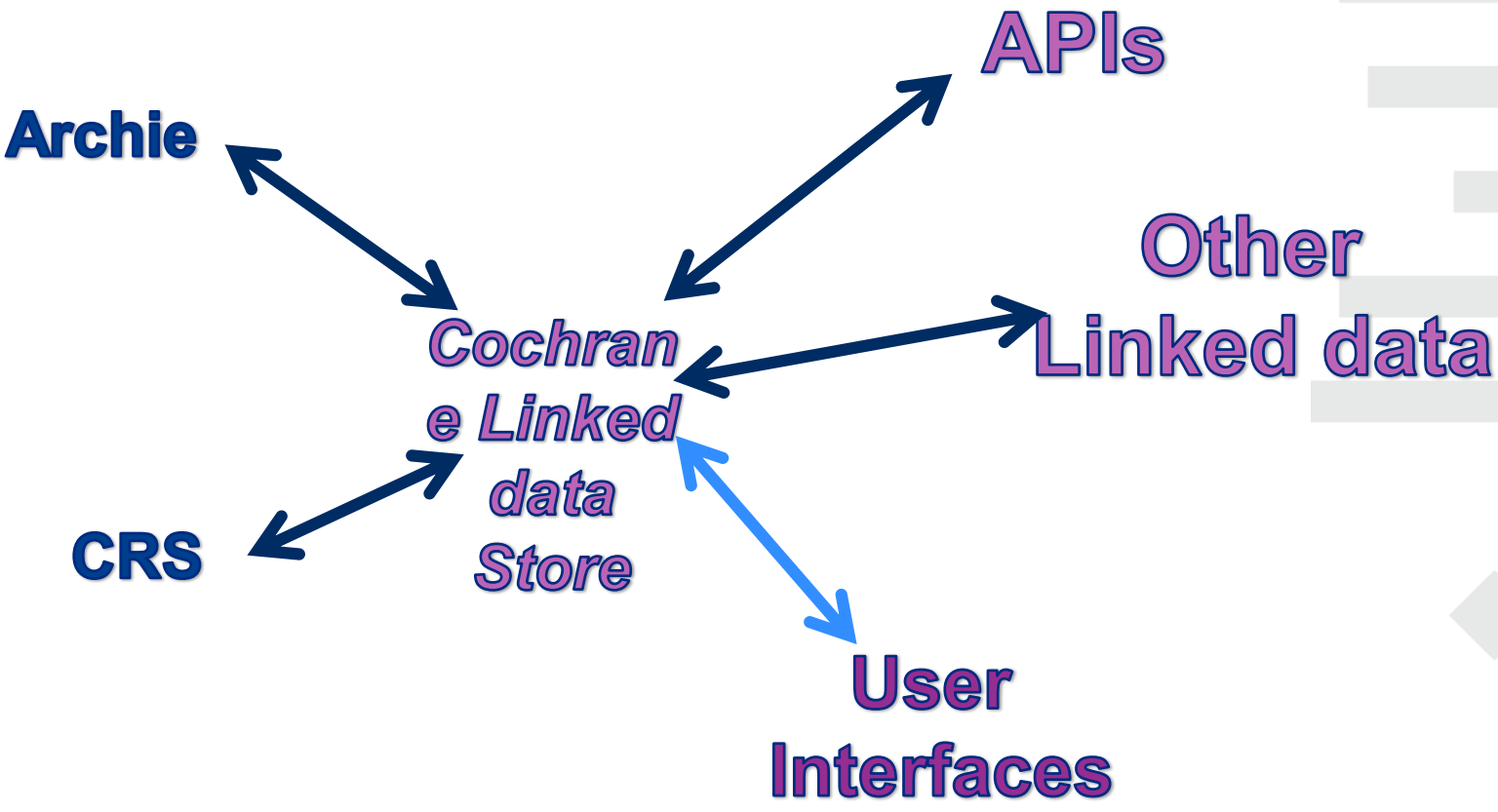
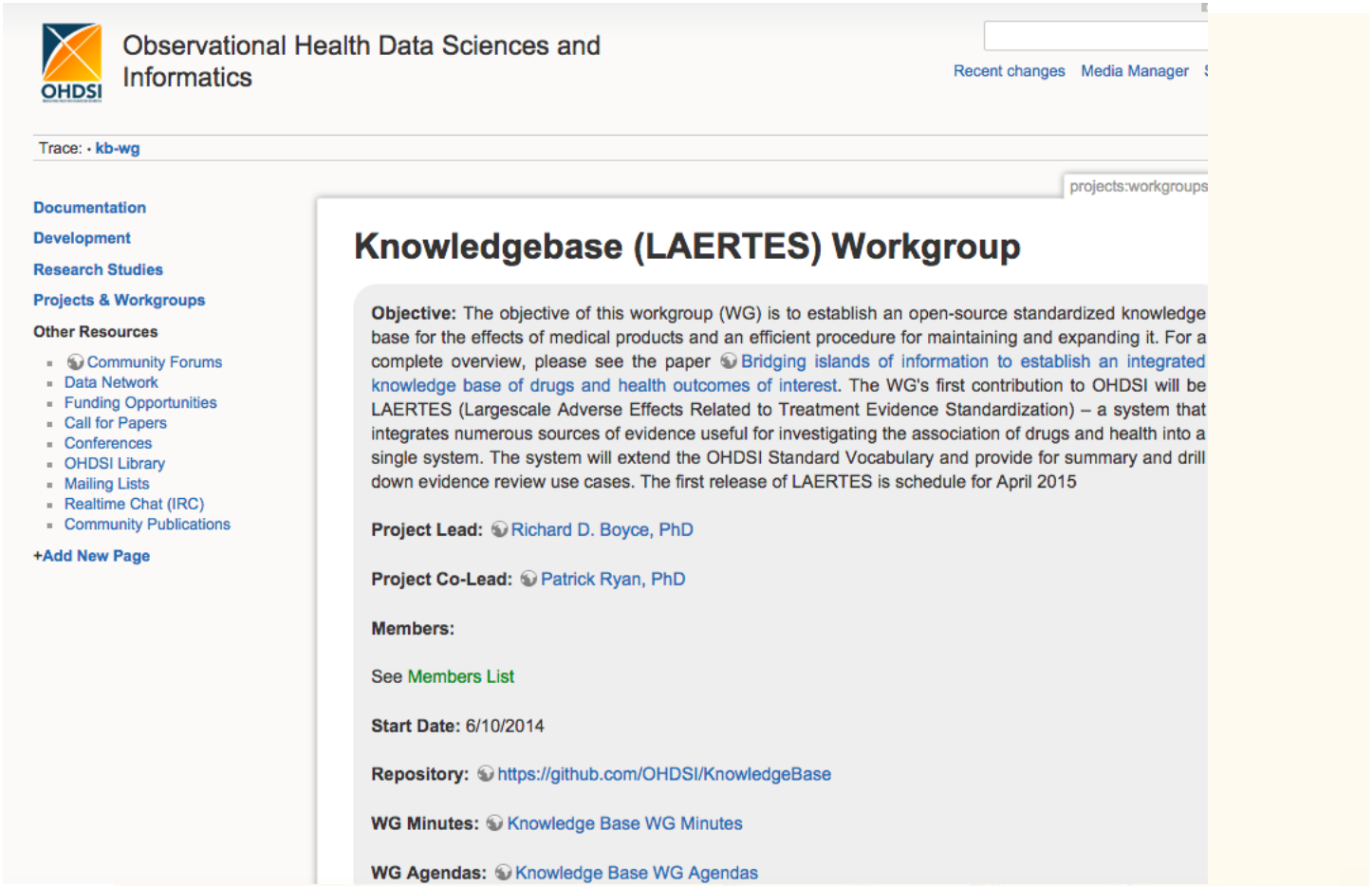
Linking to other resources



Adverse effects of drugs – from LAERTES



Adverse effects of drugs – from LAERTES

Lisinopril - Overview

HOI	# clinical trials	# case reports	# SPLs
Angioedema	1	43	103
Pancreatitis		11	129
Disorder of intestine		8	
Acute renal failure syndrome		8	85
Disease of mouth		6	
C/O - cough	8	6	
Disorder of tongue		5	
Respiratory obstruction		3	
Abdominal pain		3	100
Hyperkalemia	2	2	123
Disorder of lip		2	
Disorder of duodenum		2	
Bradycardia		2	109
Hypertensive disorder		2	37
Aplastic anemia		2	84
Erythroderma		2	14
Disorder of taste		1	
Hematoma		1	

Linking to adverse effects

Intervention

intervention type

Pharmacological	179
No active treatment	152
Other	30
Physical	17
Complementary	13
Educational	12
Behavioral	10
Psychological	10
Complex	6
Medical Devices	5

procedure

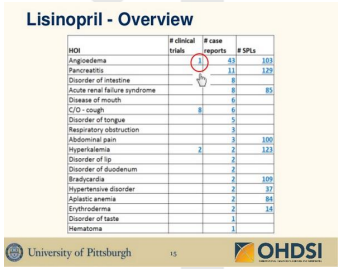
materials

Placebos RxNorm 8375	149
Corticosteroids	26
Providing Care According To Standard SNOMED 372921003	21
Selective Beta-2-adrenoreceptor Agonists	15
Anticholinesterases	7
Education SNOMED 409073007	7
Formoterol	6
Budesonide	6
Beclomethasone RxNorm 1347	5
Anticholinergics	5

Lisinopril RxNorm ####

Lisinopril RxNorm ID#....

Laertes data set on AEs



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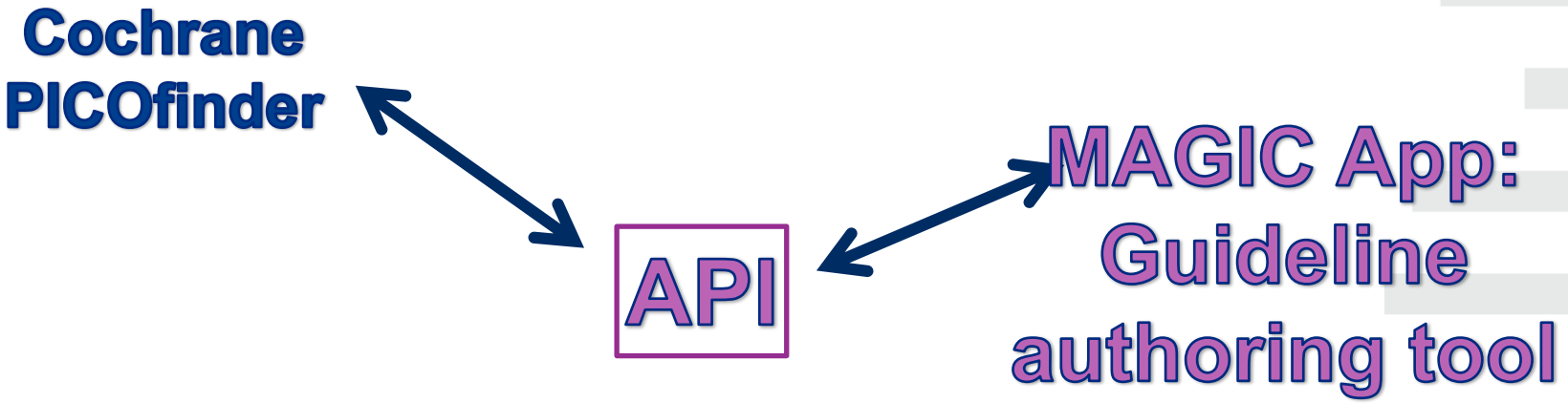
Integrating with external Apps



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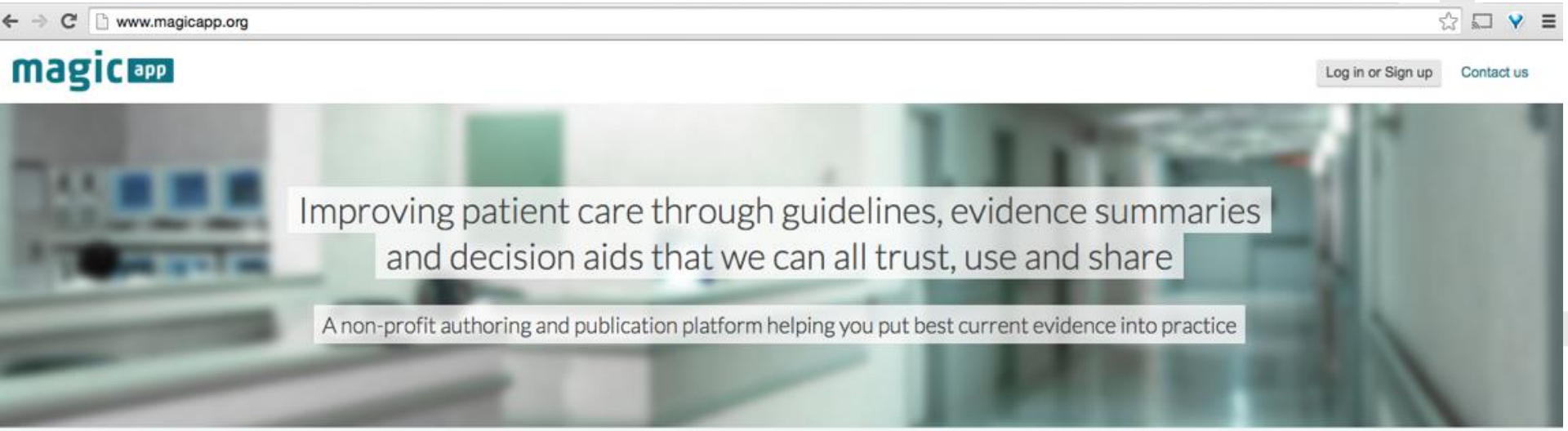
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Improving patient care through guidelines, evidence summaries and decision aids that we can all trust, use and share
A non-profit authoring and publication platform helping you put best current evidence into practice
Recently published public guidelines
View all
Wiki Recs
Adjunctive corticosteroid therapy for adults hospitalized with community-acquired pneumonia
Reed Siemiemiuk - WikiRecs Group
Retningslinjer for antitrombotisk behandling og profylakse
Per Olav Vandvik - Norsk Selskap for Trombose og Hemostase
Behandlingsretningslinjer for håndleddsbrudd hos voksne
Hebe Désirée Kvernmo. Medforfattere: Leiv Magne Hove, Adalsteinn Odinsson, Katrine Bjørnebek Frønsdal, Ingrid Harboe, Yngvar Krukhaug - Norsk Ortopedisk forening

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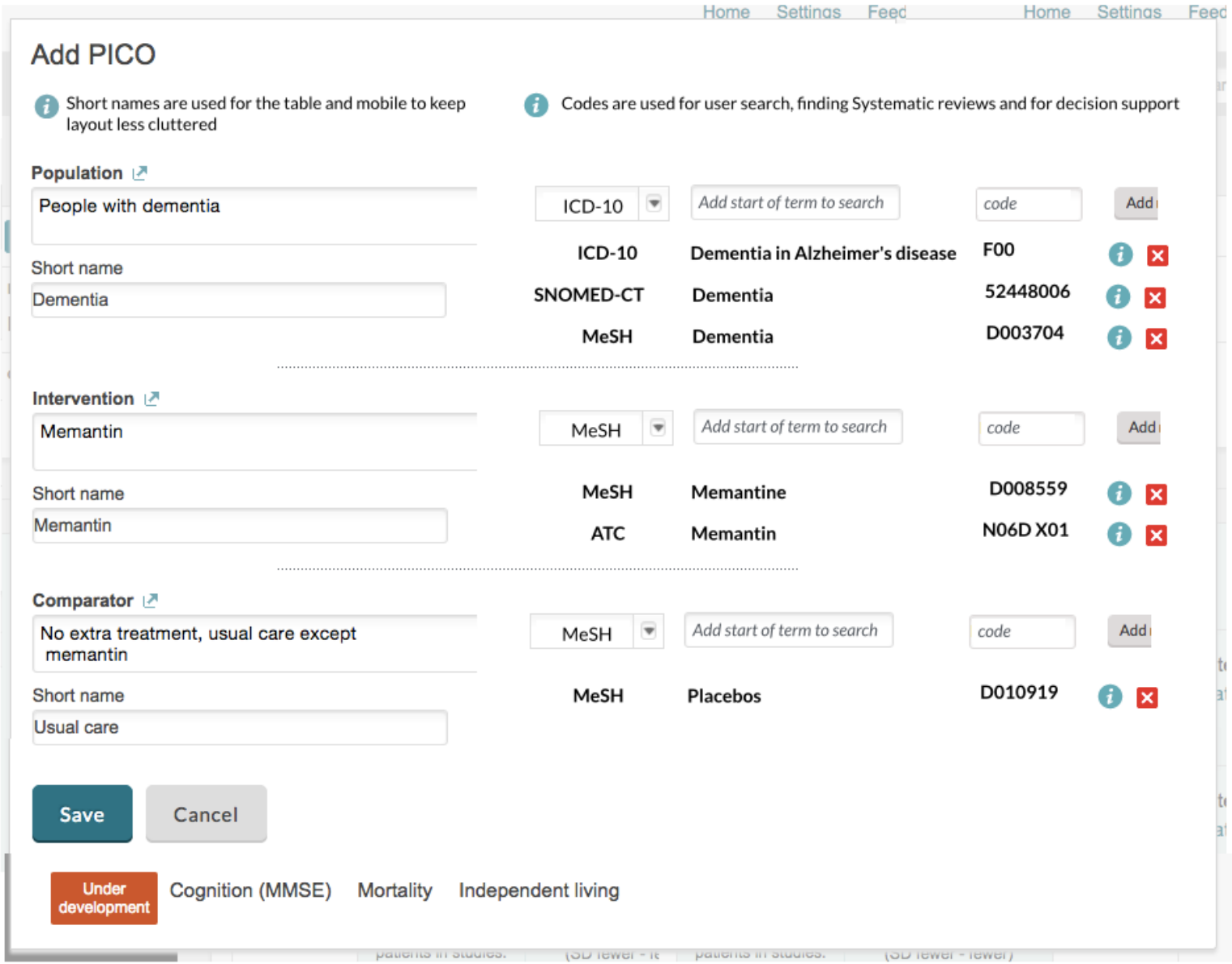
Home Settings Feed
Add PICO
Short names are used for the table and mobile to keep layout less cluttered
Codes are used for user search, finding Systematic reviews and for decision support
Population
People with dementia
Short name
Dementia
ICD-10
Add start of term to search
code
Add
ICD-10 Dementia in Alzheimer's disease F00
SNOMED-CT Dementia 52448006
MeSH Dementia D003704
Intervention
Memantin
Short name
Memantin
MeSH
Add start of term to search
code
Add
MeSH Memantine D008559
ATC Memantin N06D X01
Comparator
No extra treatment, usual care except memantin
Short name
Usual care
MeSH
Add start of term to search
code
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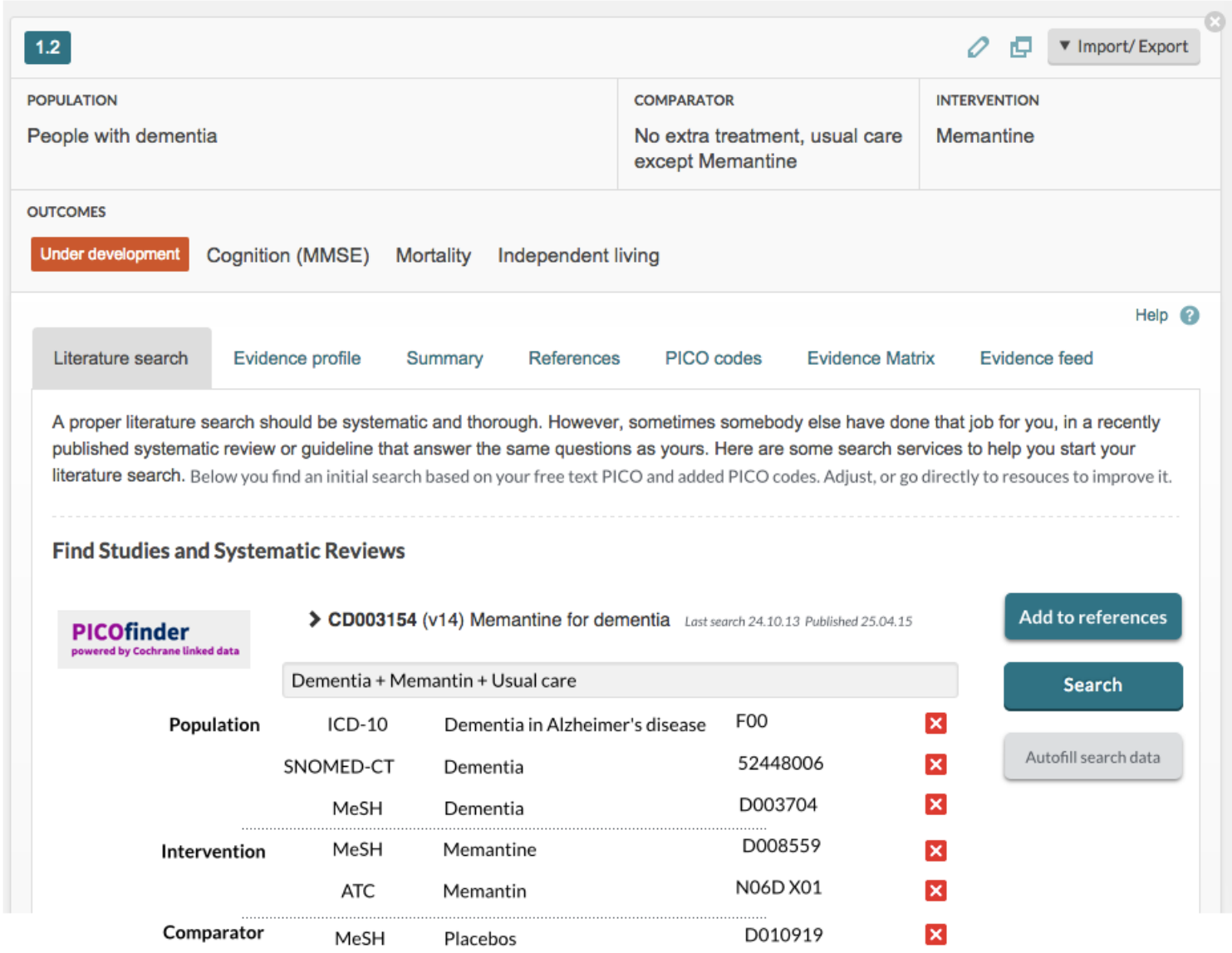
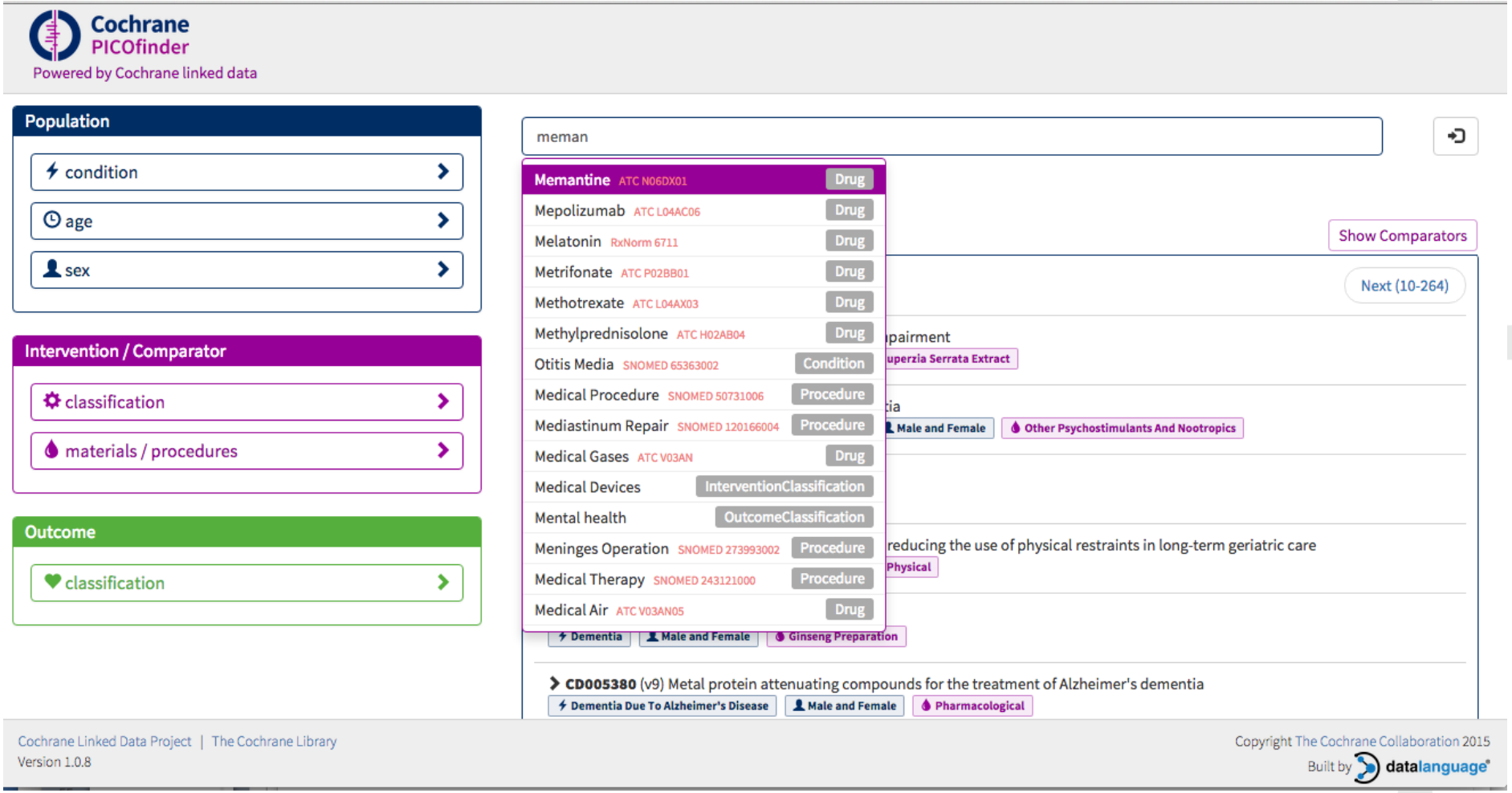
MeSH Placebos D010919
Save
Cancel
Under development
Cognition (MMSE)
Mortality
Independent living

Cochrane


1.2
Import/ Export
POPULATION
People with dementia
COMPARATOR
No extra treatment, usual care except Memantine
INTERVENTION
Memantine
OUTCOMES
Under development
Cognition (MMSE)
Mortality
Independent living
Help
Literature search
Evidence profile
Summary
References
PICO codes
Evidence Matrix
Evidence feed
A proper literature search should be systematic and thorough. However, sometimes somebody else have done that job for you, in a recently published systematic review or guideline that answer the same questions as yours. Here are some search services to help you start your literature search. Below you find an initial search based on your free text PICO and added PICO codes. Adjust, or go directly to resouces to improve it.
Find Studies and Systematic Reviews
PICOfinder
powered by Cochrane linked data
CD003154 (v14) Memantine for dementia
Last search 24.10.13 Published 25.04.15
Add to references
Search
Autofill search data
Dementia + Memantin + Usual care
Population
ICD-10
Dementia in Alzheimer's disease
F00
SNOMED-CT
Dementia
52448006
MeSH
Dementia
D003704
Intervention
MeSH
Memantine
D008559
ATC
Memantin
N06D X01
Comparator
MeSH
Placebos
D010919

Cochrane


Cochrane
PICOfinder
Powered by Cochrane linked data
Population
condition
age
sex
Intervention / Comparator
classification
materials / procedures
Outcome
classification
meman
Memantine ATC N06DX01 Drug
Mepolizumab ATC L04AC06 Drug
Melatonin RxNorm 6711 Drug
Metrifonate ATC P02BB01 Drug
Methotrexate ATC L04AX03 Drug
Methylprednisolone ATC H02AB04 Drug
Otitis Media SNOMED 65363002 Condition
Medical Procedure SNOMED 50731006 Procedure
Mediastinum Repair SNOMED 120166004 Procedure
Medical Gases ATC V03AN Drug
Medical Devices InterventionClassification
Mental health OutcomeClassification
Meninges Operation SNOMED 273993002 Procedure
Medical Therapy SNOMED 243121000 Procedure
Medical Air ATC V03AN05 Drug
Show Comparators
Next (10-264)
pairment
uperzia Serrata Extract
ia
Male and Female
Other Psychostimulants And Nootropics
reducing the use of physical restraints in long-term geriatric care
Physical
Dementia
Male and Female
Ginseng Preparation
CD005380 (v9) Metal protein attenuating compounds for the treatment of Alzheimer's dementia
Dementia Due To Alzheimer's Disease
Male and Female
Pharmacological
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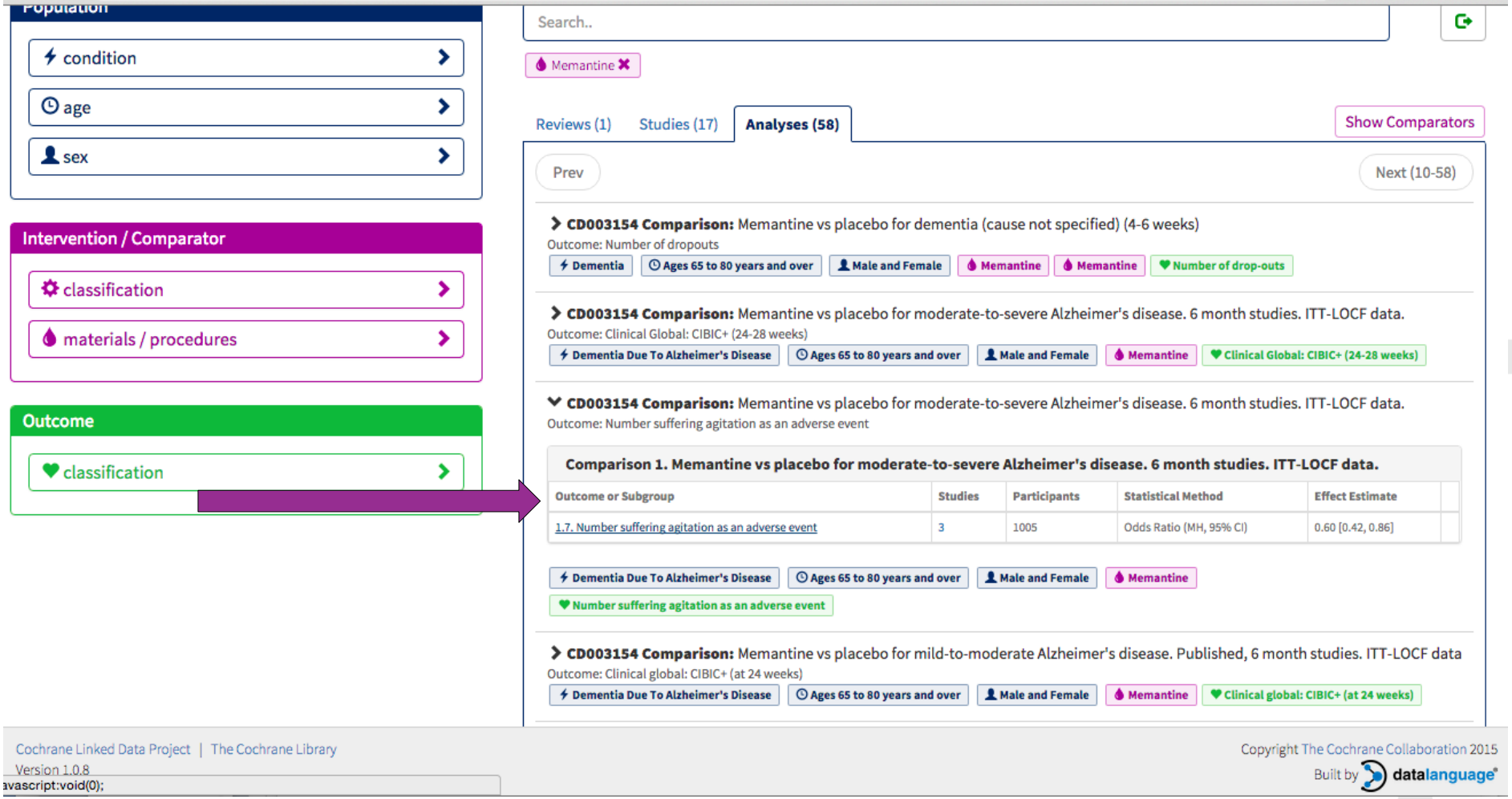
Population
condition
age
sex
Intervention / Comparator
classification
materials / procedures
Outcome
classification
Search..
Memantine
Reviews (1)
Studies (17)
Analyses (58)
Show Comparators
Prev
Next (10-58)
CD003154 Comparison: Memantine vs placebo for dementia (cause not specified) (4-6 weeks)
Outcome: Number of dropouts
Dementia
Ages 65 to 80 years and over
Male and Female
Memantine
Memantine
Number of drop-outs
CD003154 Comparison: Memantine vs placebo for moderate-to-severe Alzheimer's disease. 6 month studies. ITT-LOCF data.
Outcome: Clinical Global: CIBIC+ (24-28 weeks)
Dementia Due To Alzheimer's Disease
Ages 65 to 80 years and over
Male and Female
Memantine
Clinical Global: CIBIC+ (24-28 weeks)
CD003154 Comparison: Memantine vs placebo for moderate-to-severe Alzheimer's disease. 6 month studies. ITT-LOCF data.
Outcome: Number suffering agitation as an adverse event
Comparison 1. Memantine vs placebo for moderate-to-severe Alzheimer's disease. 6 month studies. ITT-LOCF data.
Outcome or Subgroup
Studies
Participants
Statistical Method
Effect Estimate
1.7. Number suffering agitation as an adverse event
3
1005
Odds Ratio (MH, 95% CI)
0.60 [0.42, 0.86]
Dementia Due To Alzheimer's Disease
Ages 65 to 80 years and over
Male and Female
Memantine
Number suffering agitation as an adverse event
CD003154 Comparison: Memantine vs placebo for mild-to-moderate Alzheimer's disease. Published, 6 month studies. ITT-LOCF data
Outcome: Clinical global: CIBIC+ (at 24 weeks)
Dementia Due To Alzheimer's Disease
Ages 65 to 80 years and over
Male and Female
Memantine
Clinical global: CIBIC+ (at 24 weeks)
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Version 1.0.8
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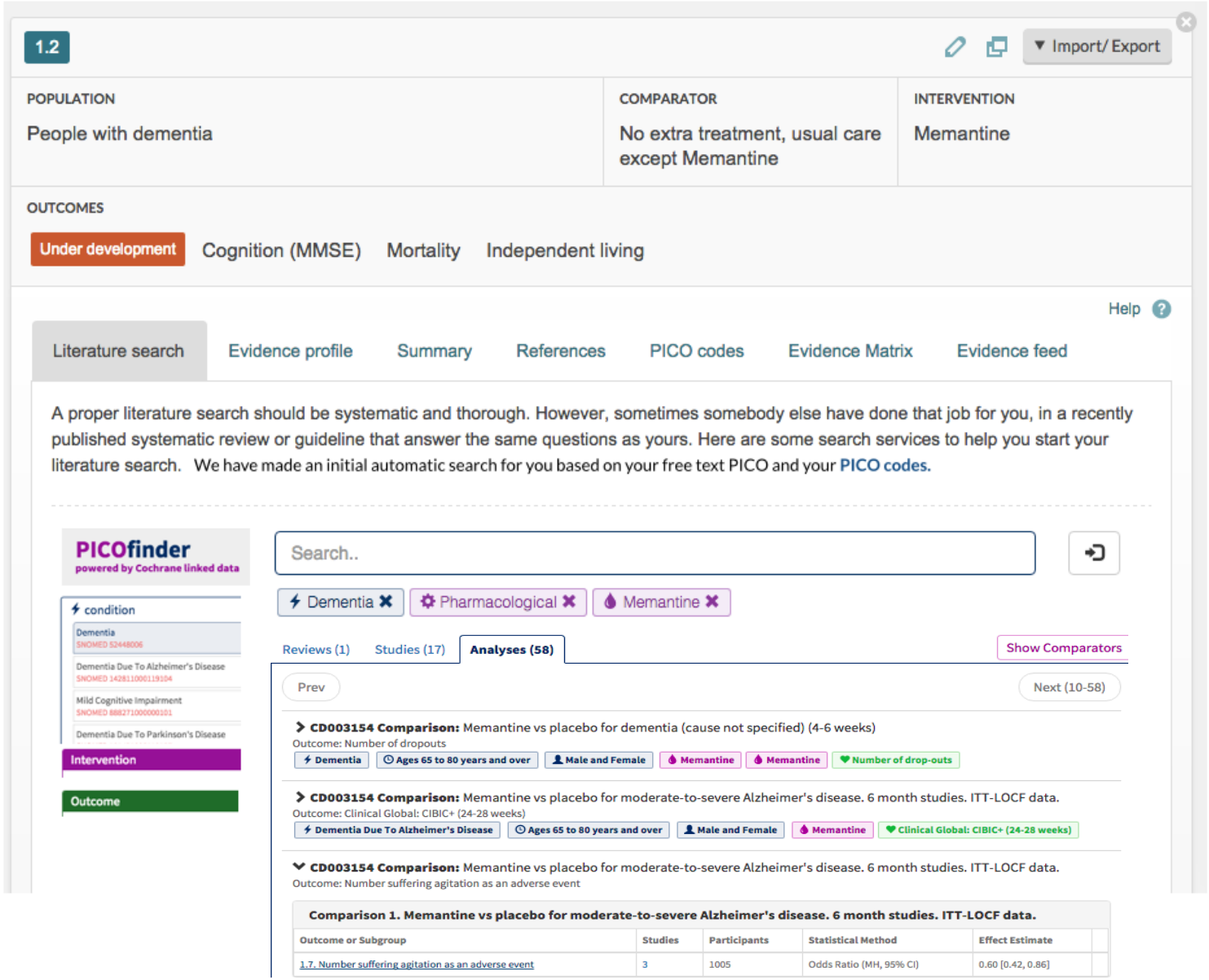
1.2
Import/ Export
POPULATION
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No extra treatment, usual care except Memantine
INTERVENTION
Memantine
OUTCOMES
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A proper literature search should be systematic and thorough. However, sometimes somebody else have done that job for you, in a recently published systematic review or guideline that answer the same questions as yours. Here are some search services to help you start your literature search. We have made an initial automatic search for you based on your free text PICO and your PICO codes.
PICOfinder
powered by Cochrane linked data
condition
Dementia
SNOMED 52448006
Dementia Due To Alzheimer's Disease
SNOMED 1428110001191O4
Mild Cognitive Impairment
SNOMED 88827100000101
Dementia Due To Parkinson's Disease
Intervention
Outcome
Search..
Dementia
Pharmacological
Memantine
Reviews (1)
Studies (17)
Analyses (58)
Show Comparators
Prev
Next (10-58)
CD003154 Comparison: Memantine vs placebo for dementia (cause not specified) (4-6 weeks)
Outcome: Number of dropouts
Dementia
Ages 65 to 80 years and over
Male and Female
Memantine
Memantine
Number of drop-outs
CD003154 Comparison: Memantine vs placebo for moderate-to-severe Alzheimer's disease. 6 month studies. ITT-LOCF data.
Outcome: Clinical Global: CIBIC+ (24-28 weeks)
Dementia Due To Alzheimer's Disease
Ages 65 to 80 years and over
Male and Female
Memantine
Clinical Global: CIBIC+ (24-28 weeks)
CD003154 Comparison: Memantine vs placebo for moderate-to-severe Alzheimer's disease. 6 month studies. ITT-LOCF data.
Outcome: Number suffering agitation as an adverse event
Comparison 1. Memantine vs placebo for moderate-to-severe Alzheimer's disease. 6 month studies. ITT-LOCF data.
Outcome or Subgroup
Studies
Participants
Statistical Method
Effect Estimate
1.7. Number suffering agitation as an adverse event
3
1005
Odds Ratio (MH, 95% CI)
0.60 [0.42, 0.86]

Cochrane

“Enabling” technology

- New interfaces and products for Cochrane evidence such as:
  - Dynamically-generated topic portals and interfaces
  - Improved discoverability
  - Comparator tools
  - APIs for third-party systems and data feeds
- Facilitating:
  - Data re-use and repurposing
  - Review production efficiency and intelligence
  - Living sys reviews into living guidelines
  - Creation of standards (PICO) for interoperability








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…refresh…

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Project Transform

People + Process + Technology converge

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Project Transform

4 components:

- **Evidence Pipeline**: uses machine learning and text mining to make study identification more efficient and semi-automated – **including Centralized Search Service**
- **Getting Involved**: uses crowdsourcing to get more people involved in tasks (**URL coming soon!)**
- **Task Exchange**: Platform for brokering tasks (**taskexchange.cochrane.org**)
- **Production Models**: New models of organising human effort in review production
- More info at **cochrane.org/transform**

Centralized Search Service (CSS)

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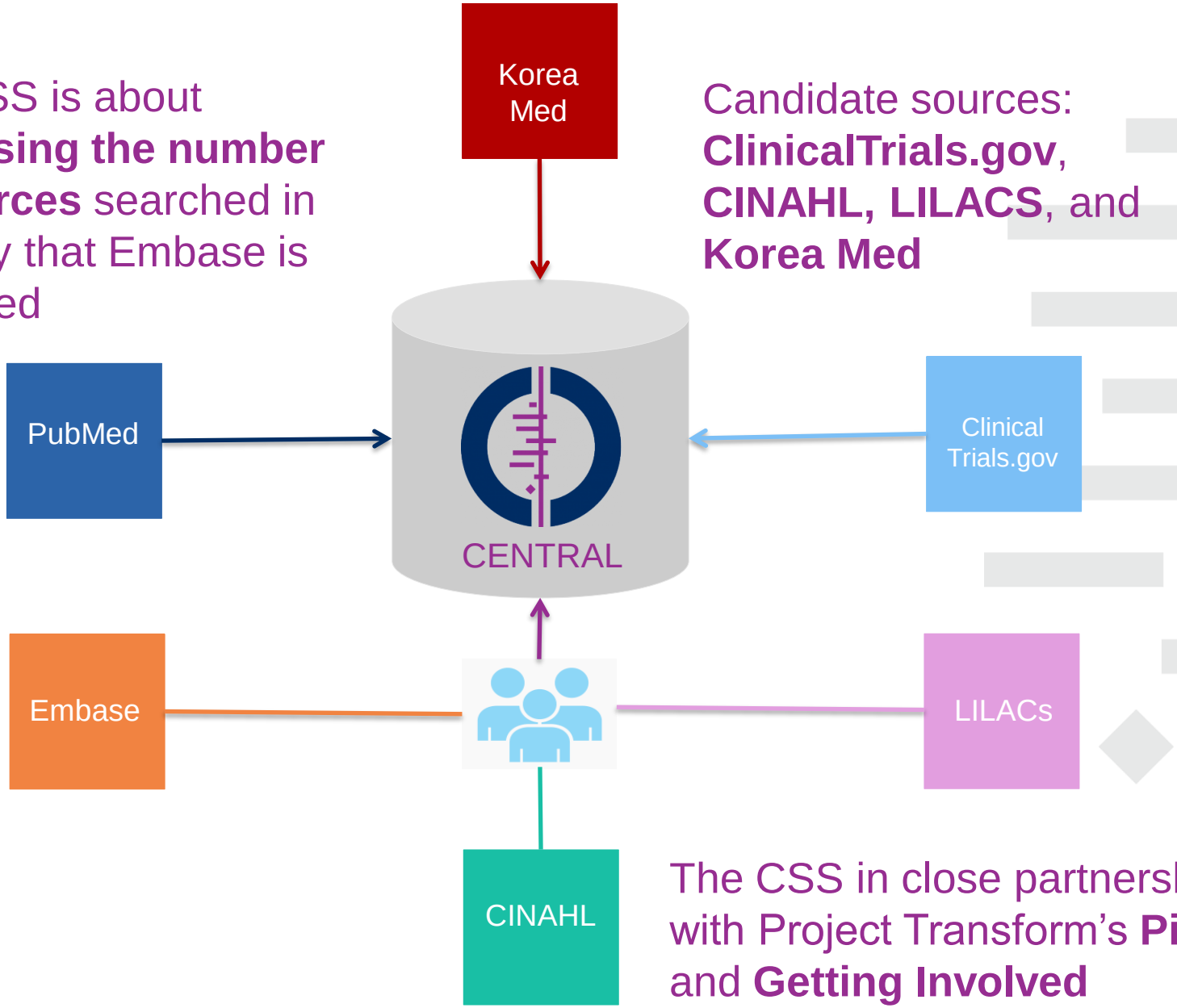
The CSS is about **increasing the number of sources** searched in the way that Embase is searched



Candidate sources: **ClinicalTrials.gov**, **CINAHL, LILACS**, and **Korea Med**

The CSS in close partnership with Project Transform's **Pipeline** and **Getting Involved**

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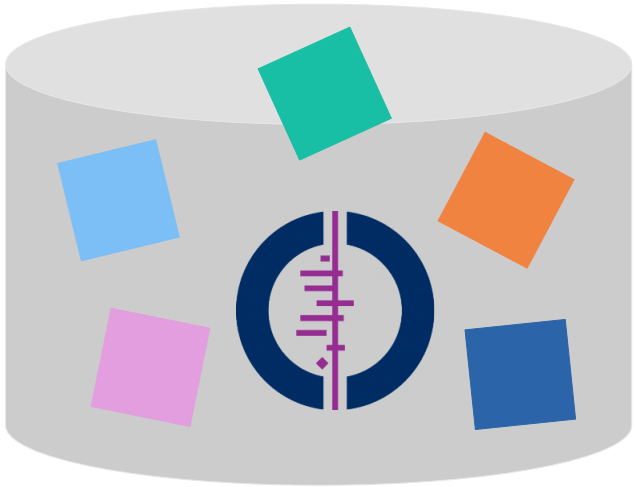
Why?



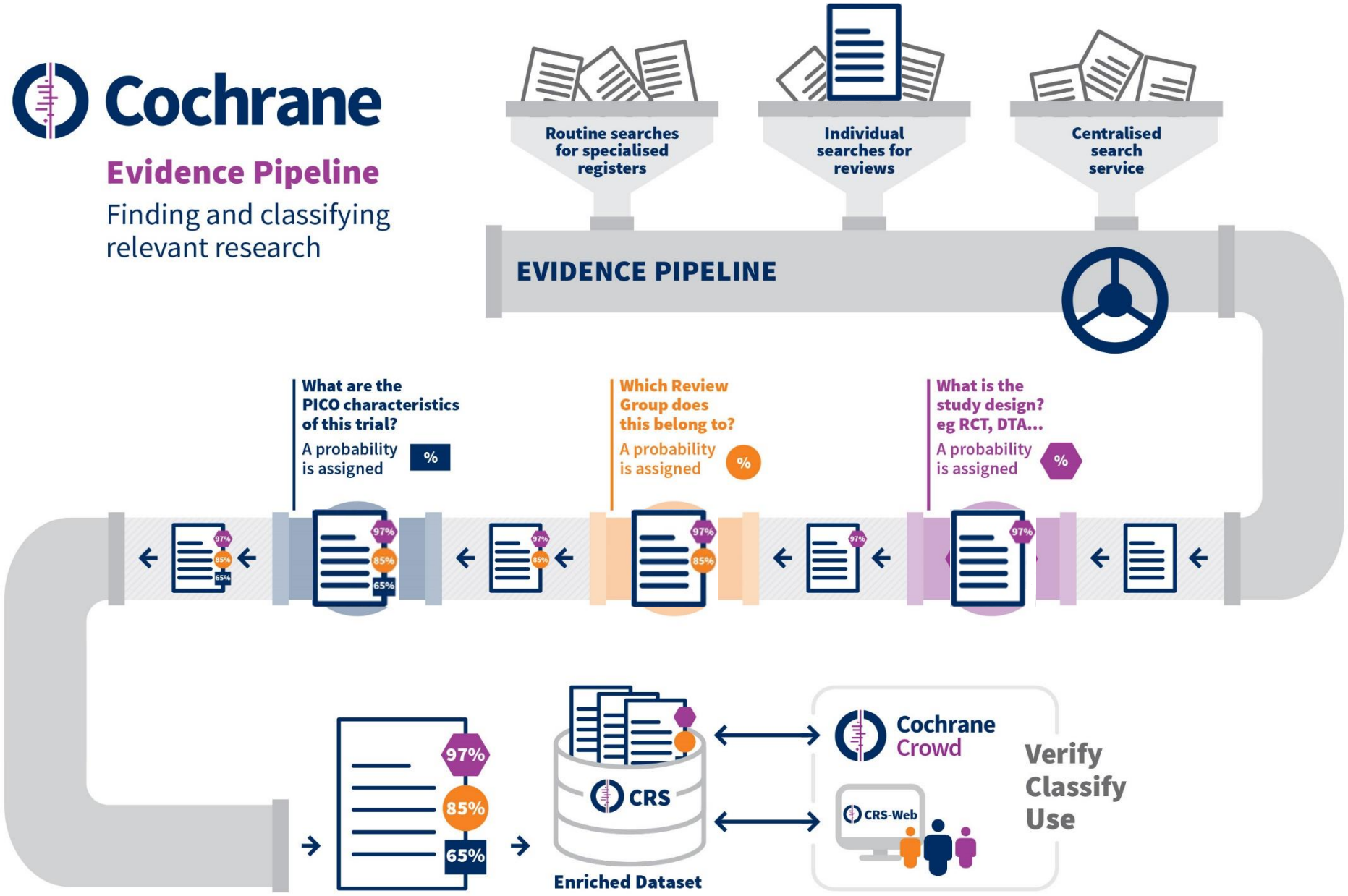
Endgame: Just search CENTRAL

Time **saved** searching
Time **saved** screening
Reduction in duplication of effort

Cochrane

Evidence Pipeline

Finding and classifying relevant research



http://community.cochrane.org/tools/project-coordination-and-support/transform

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6046
Contributors

118
Countries

1314816
Classifications

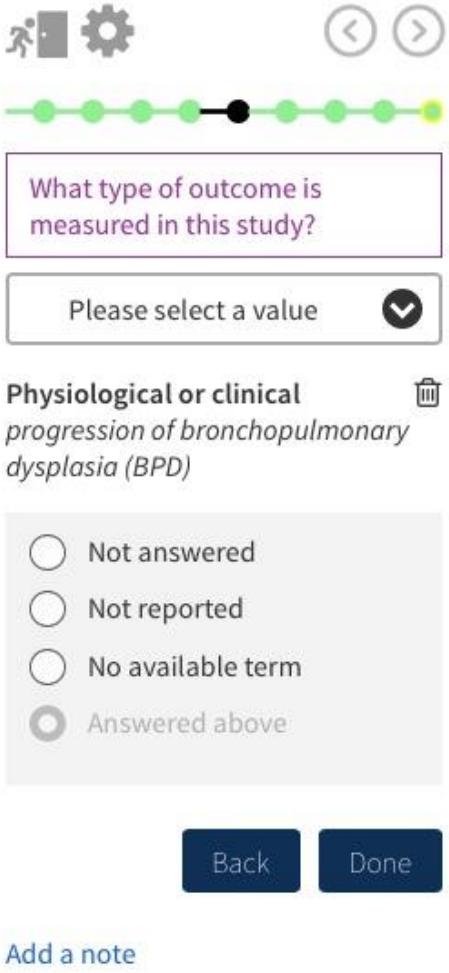
Just 60 seconds a day can make a difference

CROWD-Based Annotation

Using crowdsourcing to perform complex annotations as a series of micro-tasks

Early inhaled steroid use in extremely low birthweight infants: A randomised controlled trial. [201631]

Objective We hypothesised that a prophylactic inhaled steroid would prevent the progression of bronchopulmonary dysplasia (BPD) in extremely low birthweight infants (ELBWIs). Design This study was a multicentre, randomised, double-blinded, placebo-controlled trial. Setting This investigation was conducted in 12 level III neonatal intensive care units (NICUs). Patients A total of 211 ELBWIs requiring ventilator support were enrolled. Intervention Starting within 24 h of birth and continuing until 6 weeks of age or extubation, two doses of 50 mug fluticasone propionate (FP) or placebo were administered every 24 h. Main outcome measurement The primary outcome measure used to indicate the morbidity of severe BPD incidence was death or oxygen dependence at discharge from the NICU. The secondary measures were neurodevelopmental impairments (NDIs) at 18 months of postmenstrual age and 3 years of age. We performed subgroup analyses based on gestational week (GW) and the presence of chorioamnionitis (CAM). Results Infants were randomised into the FP (n=107) or placebo (n=104) groups. No significant differences were detected between the FP and placebo groups with respect to either the frequency of death or the oxygen dependence at discharge or NDIs. In subgroup analyses, the frequencies of death and oxygen dependence at discharge were significantly decreased in the FP group for infants born at 24-26 GWs and for infants with CAM, regardless of the GW at birth. Conclusions Inhaled steroids have no effect on the prevention of severe BPD or long-term NDI but might decrease the severity of BPD for ELBWIs with a risk factor. Trial registration number UMIN-CTR C000000405. Copyright Â© 2016 BMJ Publishing Group Ltd & Royal College of Paediatrics and Child Health.



Machine Curation

Using machine learning to identify and filter evidence prospectively

```
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pregnant women after birth (as defined by trial authors). Secondary outcomes include: \n', 'interventions': " Breas
t examination, for any purpose, conducted at least once during an antenatal care visit, compared with 'usual' care
(that is, that which does not include antenatal breast examination). "}, 'annotator-id': 'unique annotator ID'}}))

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, "Metastasis"], ["http://data.cochrane.org/concepts/r4hp39r5xxsx", "Birth"]]}'

In [9]:
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The wider context

Remaining relevant in an expanding marketplace of evidence

"Next generation" Cochrane?

- Big data
- “Diverse” data
  - IPD (Individual Patient Data)
  - ~omics
  - Device, systems
  - Data from different study designs
- Activity to date:
  - Meetings
  - Various conversations happening but nothing definitive yet
  - Discussions mainly what role Cochrane should play
  - Ida Sim Cochrane lecture in Vienna

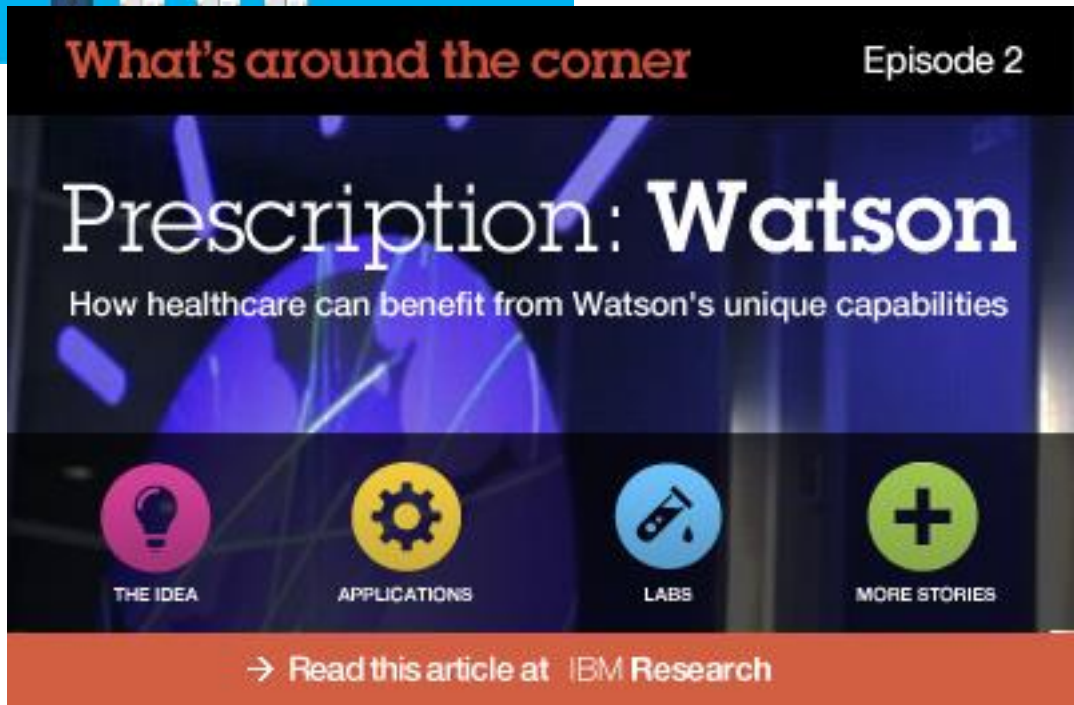
Cochrane

"Next generation" Cochrane

- How can we move towards…
  - "living" systematic reviews
  - and dynamic curation of evidence in real-time

  …that can incorporate methods and data from "diverse" sources?
- Vivli.org
  - Project to build a clinical trial data sharing platform
  - Will include IPD, CSRs, and vision is eventually imaging data, -omics and other data sources
  - Analytical tools, mechanisms for de-identification, privacy
  - Launching next year
- OpenTrials


IBM Watson Health Cloud
HIPAA compliant, standard based, massively scalable
Insights
Cognitive & Advanced Analytics
Data
Structured & unstructured
Solutions
IBM & Ecosystem Solutions
Individuals
Researchers
Govt.
Payers
Providers
Pharma


What's around the corner
Episode 2
Prescription: Watson
How healthcare can benefit from Watson's unique capabilities
THE IDEA
APPLICATIONS
LABS
MORE STORIES
→ Read this article at IBM Research

"The Yelp of medicine is here" : /

www.iodine.com

Community
People who've been there

More than 100,000 people sharing their medication experience and advice

Share your experience

Reviews
Is it worth it?

People-powered ratings show you which medications work best and have the fewest side effects.

Share your experience

1059 people Rated Xanax

Is Xanax worth it overall?

Worth it | Not Sure | Nope

How well does Xanax work for you?

Worked well | Somewhat | Didn't work

Is Xanax a hassle?

www.iodine.com/drug/xanax/reviews

"The Yelp of medicine is here" : /

www.iodine.com/compare

Compare Medications by letter

A B C D E F G H I J K L M N O

P Q R S T U V W X Y Z

Popular comparisons

Information from medical experts, and reviews from people like you.

Pain and inflammation

Ibuprofen vs. Tylenol vs. Naproxen

Different kinds of antidepressants

Cymbalta vs. Prozac vs. Wellbutrin

Heartburn and GERD

Prilosec vs. Nexium vs. Zantac

Statins for high cholesterol

Crestor vs. Lipitor vs. Zocor

Prescription vs. over-the-counter sleep meds

Ambien vs. Unisom

Anti-anxiety medications

Klonopin vs. Valium vs. Xanax

Alternatives to popular medications

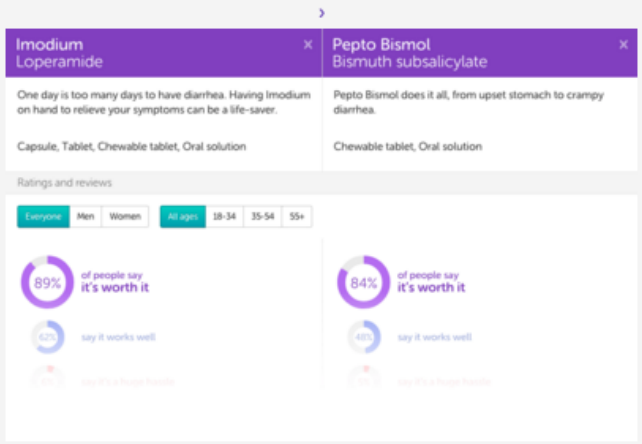
Zoloft alternatives ›

Claritin alternatives ›

Ambien alternatives ›

Compare ratings and reviews

See how Imodium and Pepto Bismol stack up for an upset stomach



Compare side effects

See prescription sleep medications head to head ›


Health Practice
Learning healthcare systems
Health 'big data'
Linked data repositories
Living systematic review
Living evidence services
Living guidance
Decision support systems
Hypotheses Prioritisation
Primary research
Publication
Systematic review
Publication
Guidance
Knowledge translation

...nearly there...

Cochrane

Summary

- People + Process + Technology are converging in new and innovative ways to aid evidence synthesis
- Ramping up of the machines, platforms, and structured, linked data (tech)
- Change management: people will need to adapt (process)
- Helps Cochrane and other evidence producers to "scale"
- We can produce more high-quality evidence for health care decision making
- So systematic review efforts can remain competitive and relevant

Demo: Cochrane linked data tools + Q & A