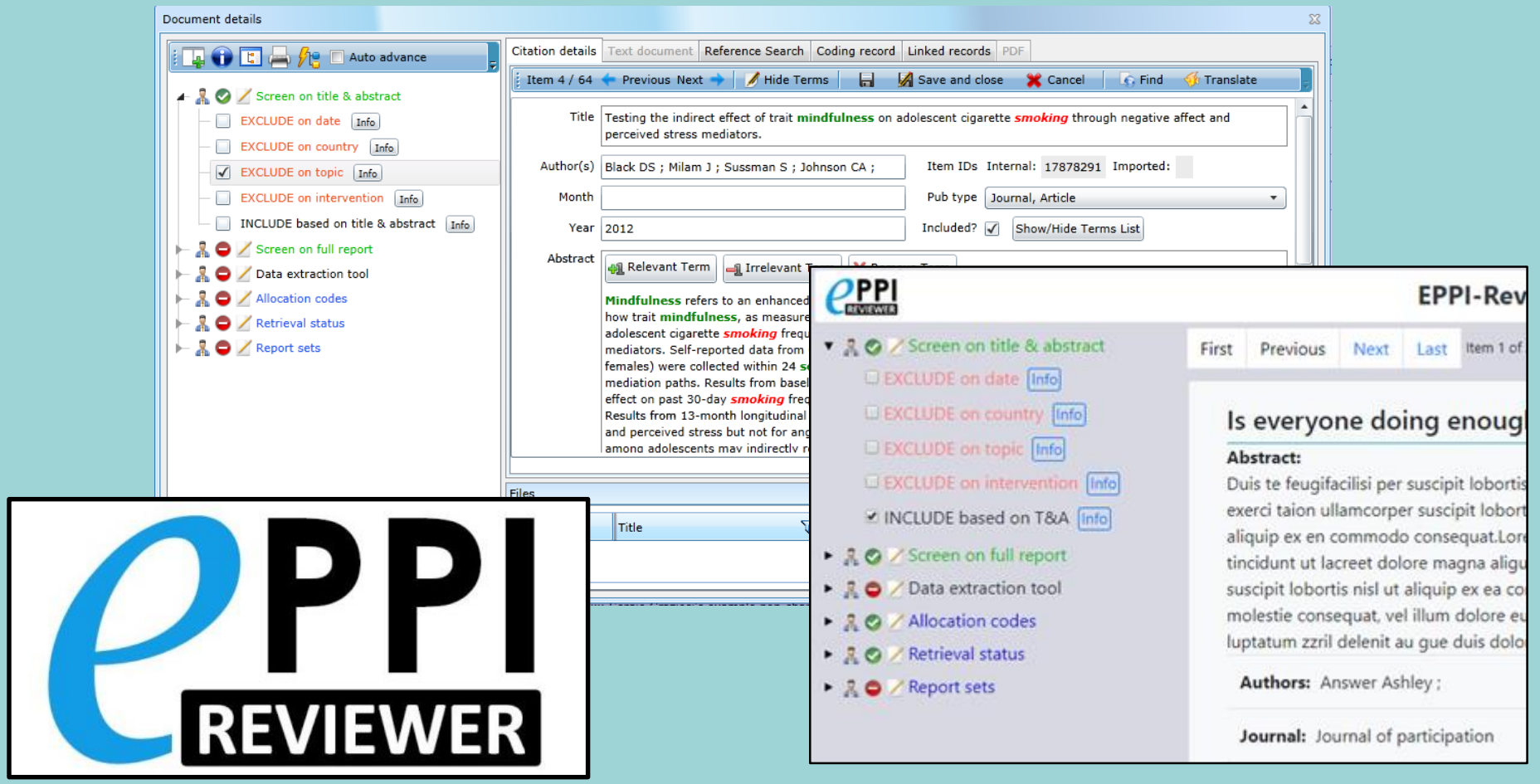
Melbourne 2018

EPPI-Reviewer: EPPI Reviewer Workshop



Declaration of interests and funding

- I'm the IT manager (and developer) at the EPPI-Centre, UCL Institute of Education.
- EPPI-Reviewer is the EPPI-Centre's online tool for research synthesis.
- We have an active collaboration with the Campbell Collaboration (Evidence maps).
- EPPI-Reviewer is available, free of charge for all Campbell reviews.
- I am not aware of any actual or potential conflict of interest in relation to this presentation.

Aims of workshop

- Understand the basic approach we take in *writing* our software.
- See directly (hands-on) how this affects functionalities and flexibility.
- Get an idea of the main functionalities and “where is what”.
- Overview of evidence gap maps.

Not in the agenda:

- Describe all features (would take days).
- Detailed how-to (too much to remember).

Introductions

- A bit about myself.
- Why are we here?
  - To decide which tool to use?
  - To use EPPI-Reviewer better?
  - Have you used it already?
  - Do you have an EPPI-Reviewer account?

Who we are: EPPI-Centre

Conducting reviews since 1993 e.g. in health promotion, education, social care, employment

Support for review groups: Education (25 groups, 70+ reviews), criminology, speech and language, social care

Tools: EPPI-Reviewer and connected services.

Formal links with Cochrane and Campbell Collaborations

Methodological work, e.g. Methods for Research Synthesis Project ESRC National Centre for Research Methods

On-line libraries of research evidence

Short courses and Masters level courses in research synthesis

Your Everyday Software…

EPPI-Reviewer

© Chris Finney
Source: https://commons.wikimedia.org/wiki/File:Zivko_Edge_540_AN1129673.jpg

GP software

Comfortable and safe

Process-oriented

Low entry barriers

Fixed itinerary

EPPI-Reviewer

Extremely versatile

Cutting edge abilities

Always pushing the boundaries

Not built for comfort

The EPPI-Reviewer environment:

EPPI-Reviewer 4 gateway (http://eppi.ioe.ac.uk/cms/er4)

- Access to all Applications & Tools.
- Create Accounts.
- Latest Manual.
- Support Forum.
- Utilities.
- Manage reviews.
- Help, Videos, FAQ and more.

EPPI-Reviewer Concepts

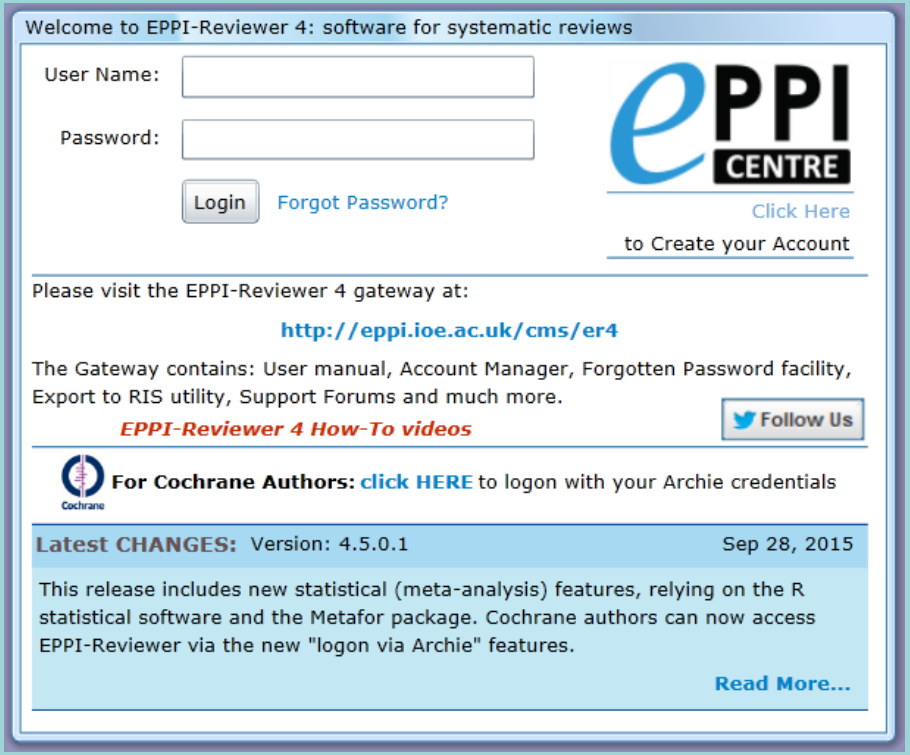
1. Bird's eye: how it works.
2. In transition: EPPI-Reviewer and the **New Coding App**.
3. Visual Organisation, where things are and why.
4. **Main concepts: how it handles your data.**
5. Very quick run through some of the features.

http://eppi.ioe.ac.uk/eppireviewer4/

http://eppi.ioe.ac.uk/eppireviewer-coding/

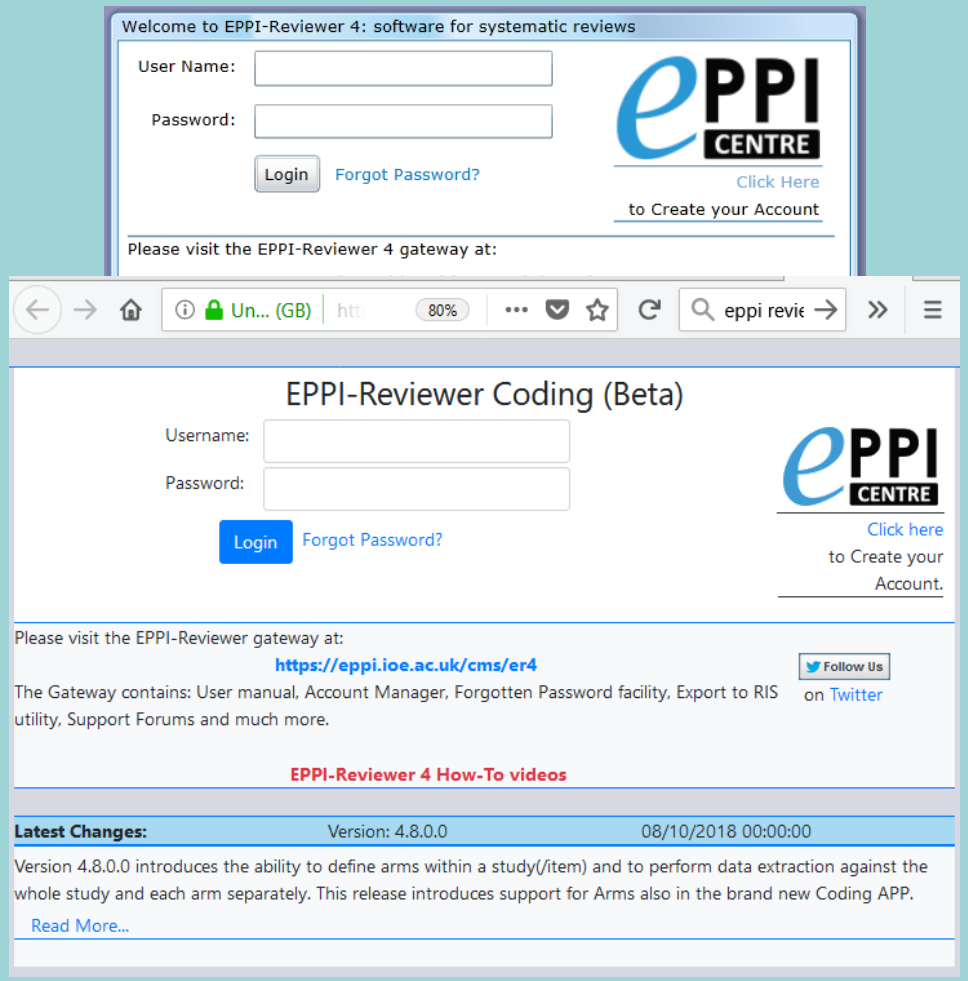
(Main) EPPI-Reviewer: How it Works

1. Silverlight Web Application
2. Runs on the Desktop (?)
3. Data comes from central server
4. Concurrent use:
    1. Data is saved in real time
    2. Last change is retained
5. Safety:
    1. Encrypted communication
    2. Backups
    3. Error Messages

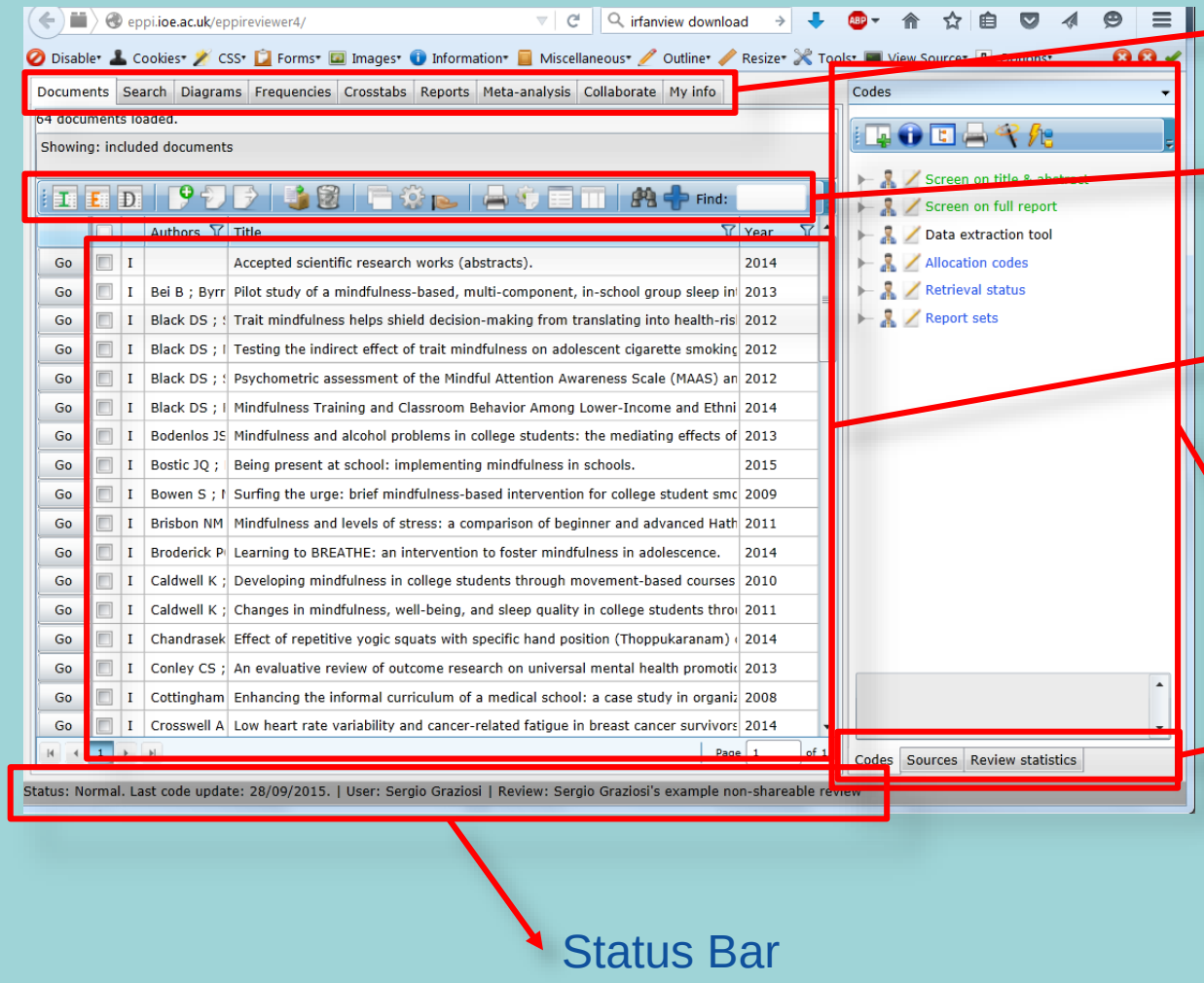


EPPI-Reviewer Coding App

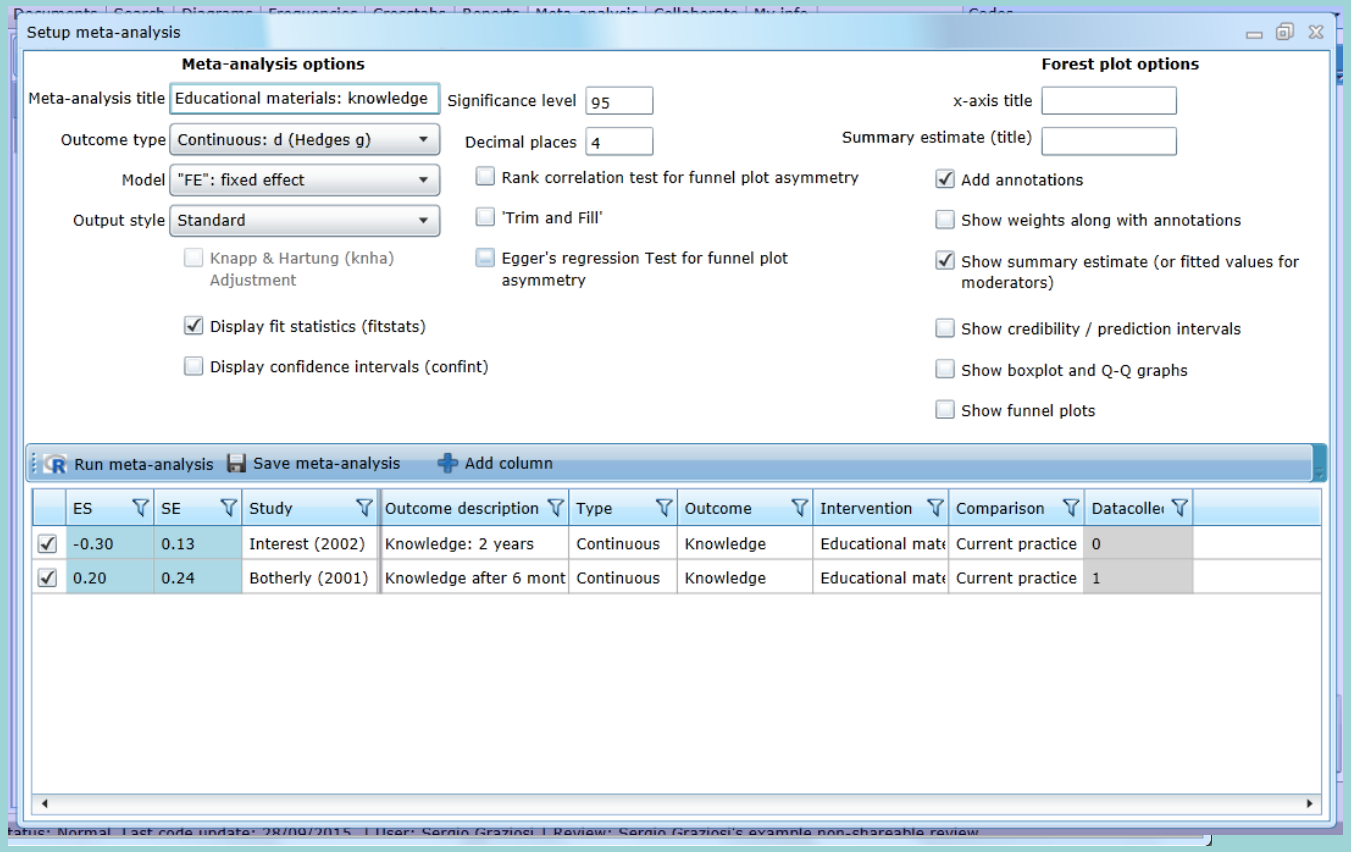
1. Native Web Application
2. Accesses **the same** data
3. Runs on any device
4. Allows to do screening and basic data extraction
5. Requires to set up the review on the main EPPI-Reviewer interface (for now).
6. Will be expanded and eventually replace the Silverlight-based UI.



EPPI-Reviewer the User Interface (UI)



EPPI-Reviewer UI: Windows

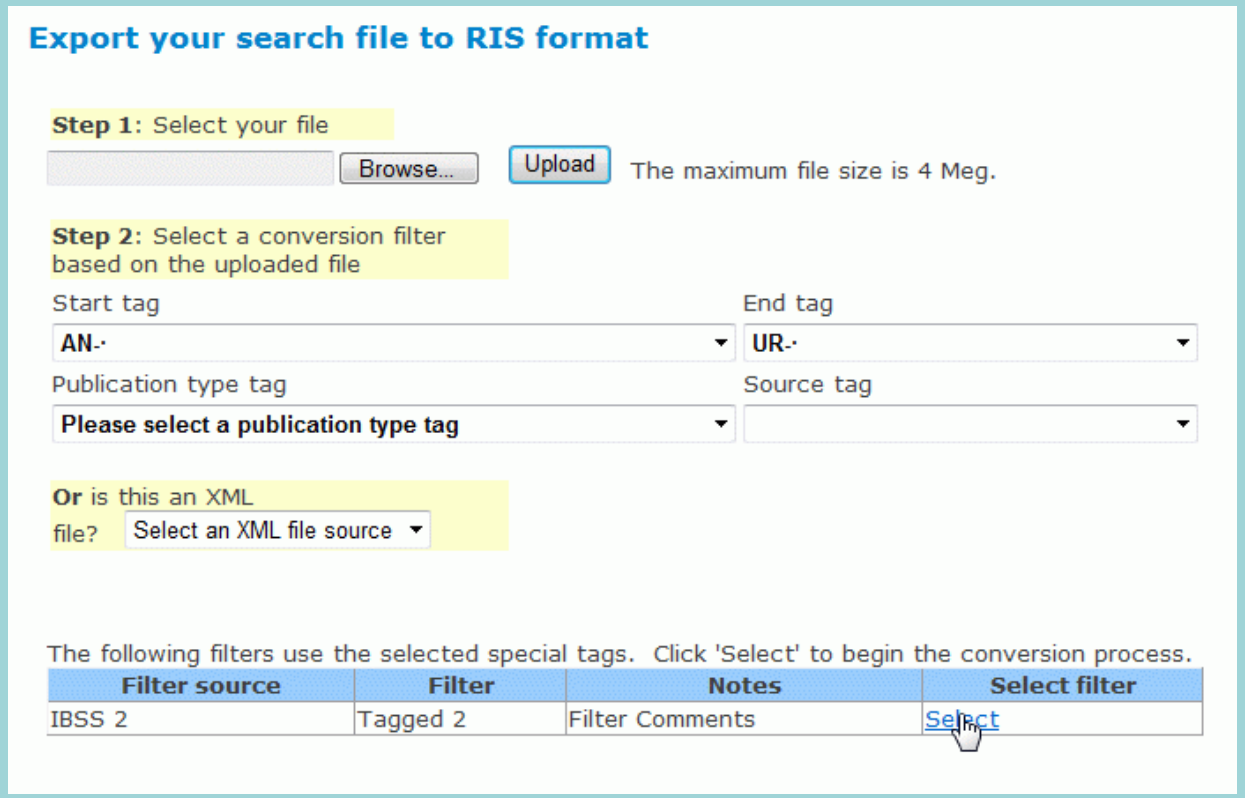


EPPI-Reviewer: Main concepts

1. Conceptual Phases:
    a. Import Primary Data
    b. Create new Results
    c. Export Results
2. Design/Use principles:
    a. Maximise Flexibility
    b. Usability Vs. Power
    c. Enhance user friendliness

Main concepts: Import Data

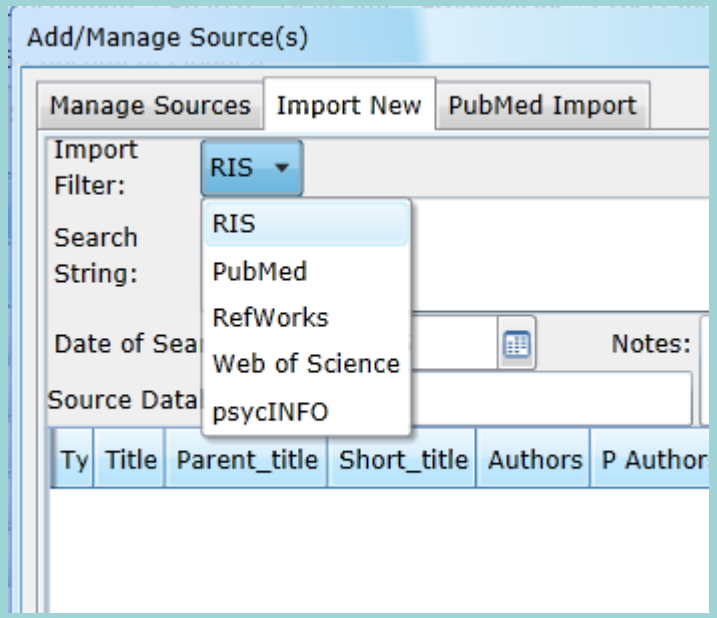
Flexibility! RIS export Utility (in the gateway).



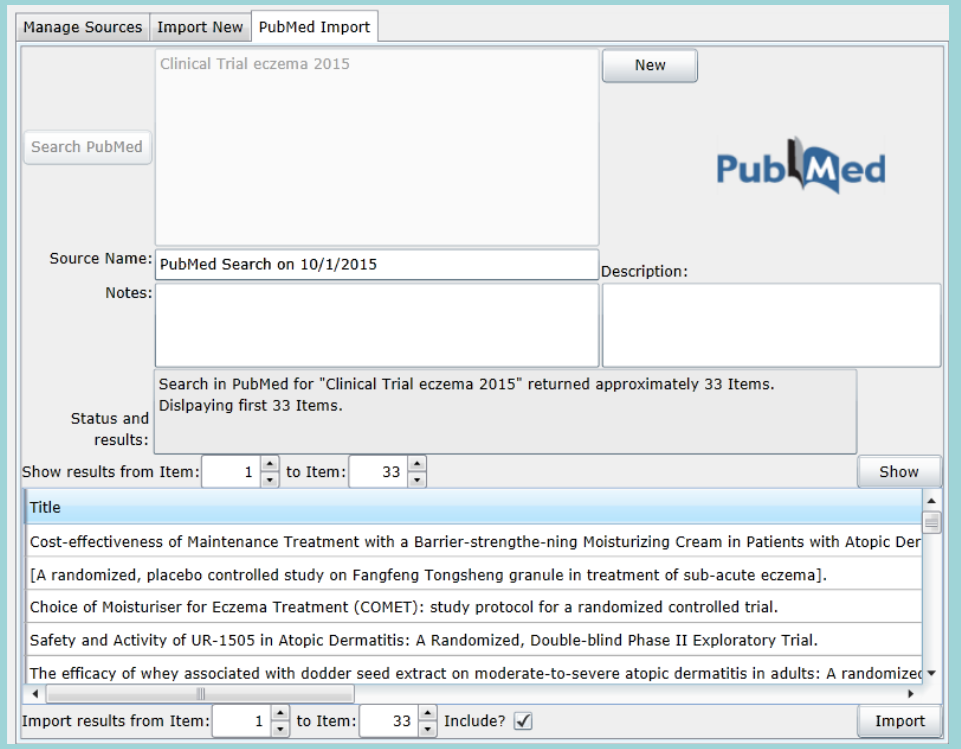
Main concepts: Import Data

User Friendliness

Selected, built-in Import Filters



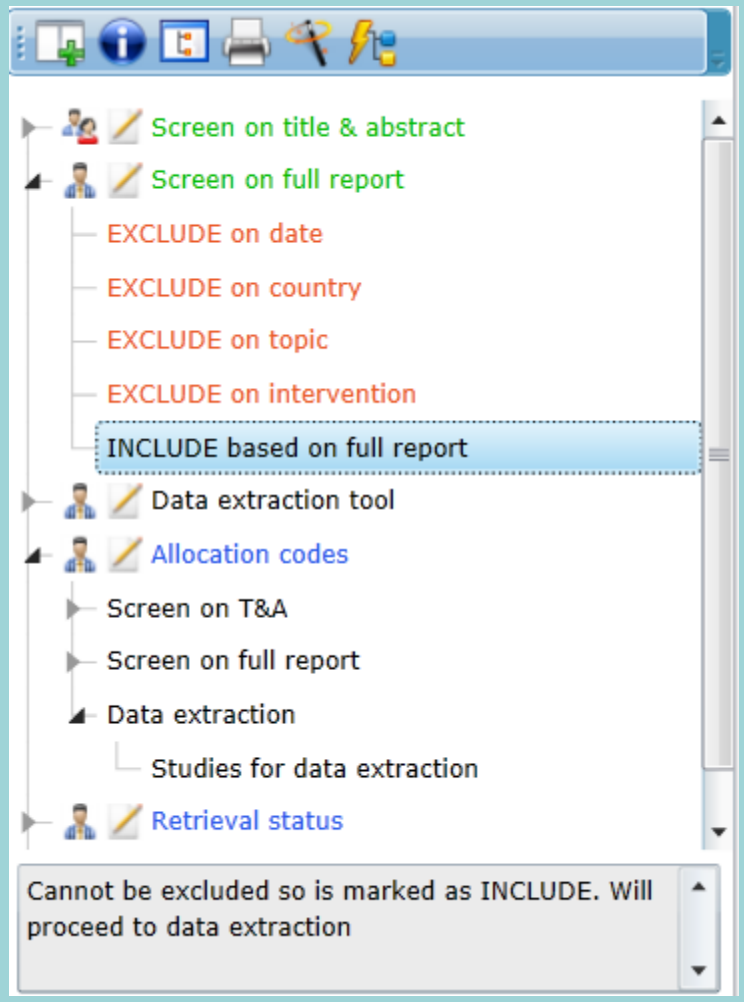
Direct import from PubMed

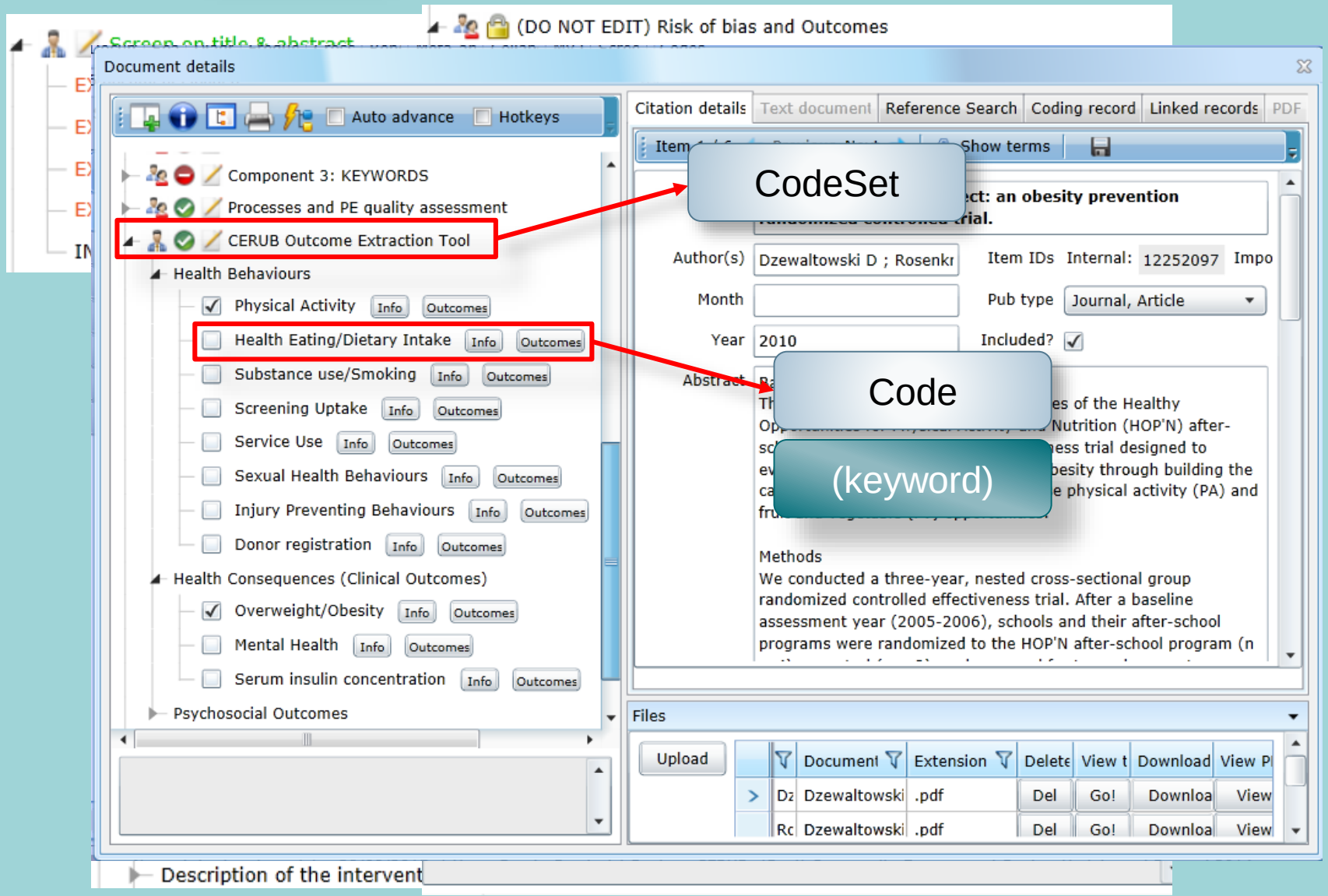


Main concepts: Generate Results

Flexibility!

- User-designed Code-trees of hierarchical concepts
- Predefined specialised Meaning for Different trees
- Predefined special Meaning for nodes within trees
- Specialised activity-based behaviours

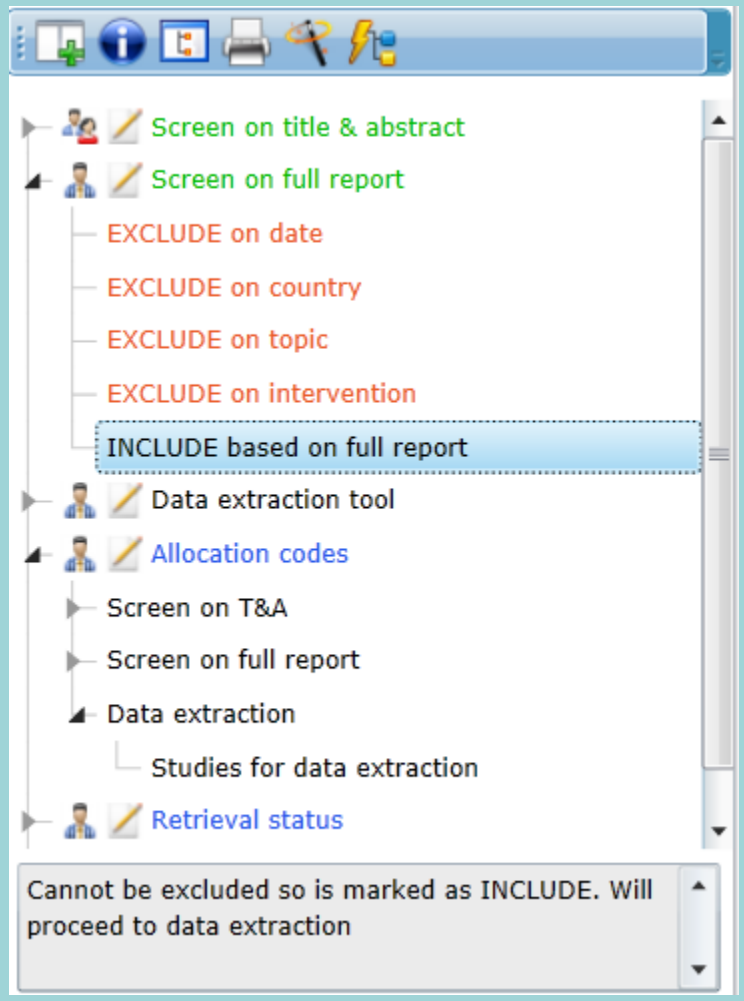



(DO NOT EDIT) Risk of bias and Outcomes
Document details
Auto advance
Hotkeys
Component 3: KEYWORDS
Processes and PE quality assessment
CERUB Outcome Extraction Tool
Health Behaviours
Physical Activity
Health Eating/Dietary Intake
Substance use/Smoking
Screening Uptake
Service Use
Sexual Health Behaviours
Injury Preventing Behaviours
Donor registration
Health Consequences (Clinical Outcomes)
Overweight/Obesity
Mental Health
Serum insulin concentration
Psychosocial Outcomes
Info
Outcomes
CodeSet
Code
(keyword)
Citation details
Text document
Reference Search
Coding record
Linked records
PDF
Show terms
Author(s)
Dzewaltowski D ; Rosenkr
Item IDs
Internal:
12252097
Month
Pub type
Journal, Article
Year
2010
Included?
Abstract
Methods
We conducted a three-year, nested cross-sectional group randomized controlled effectiveness trial. After a baseline assessment year (2005-2006), schools and their after-school programs were randomized to the HOP'N after-school program (n
Files
Upload
Extension
Delete
View t
Download
View P
Dzewaltowski
.pdf
Del
Go!
Description of the intervent

Main concepts: Generate Results

Codesets types support different activities: Screening

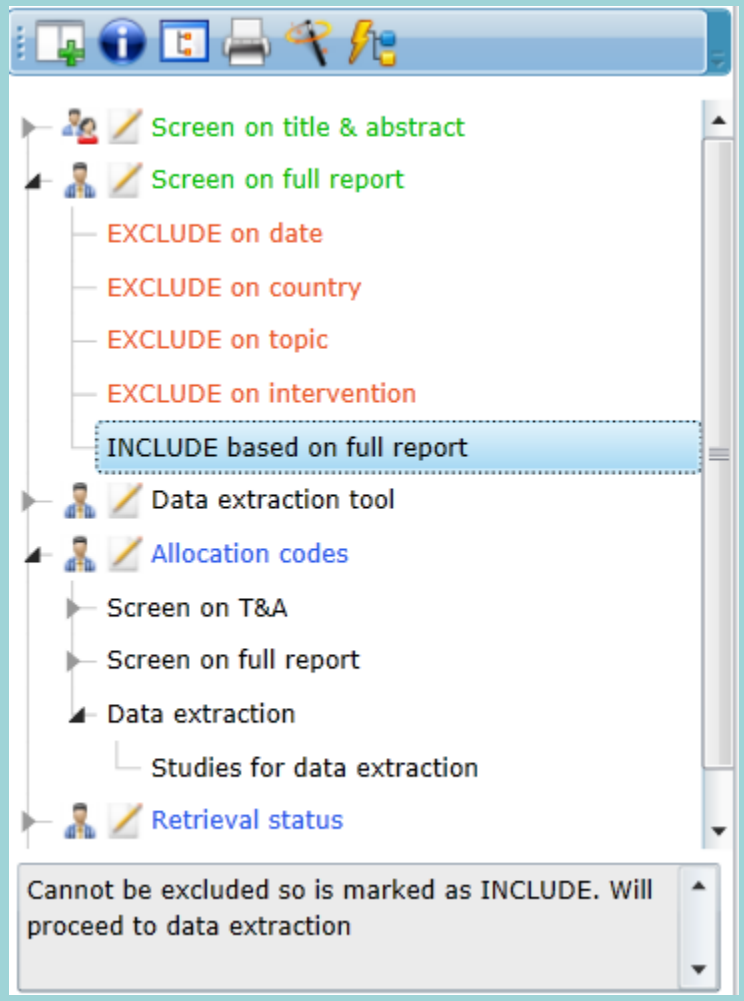
- Screening Codesets (green).
- One level only
- Contain two types of codes
  - “Include”
  - “Exclude” (red)
- These properties facilitate activities:
  - Reconcile differing choices
  - (semi) automation
  - Machine Learning to facilitate the process



Main concepts: Generate Results

Codesets control double blind exercises

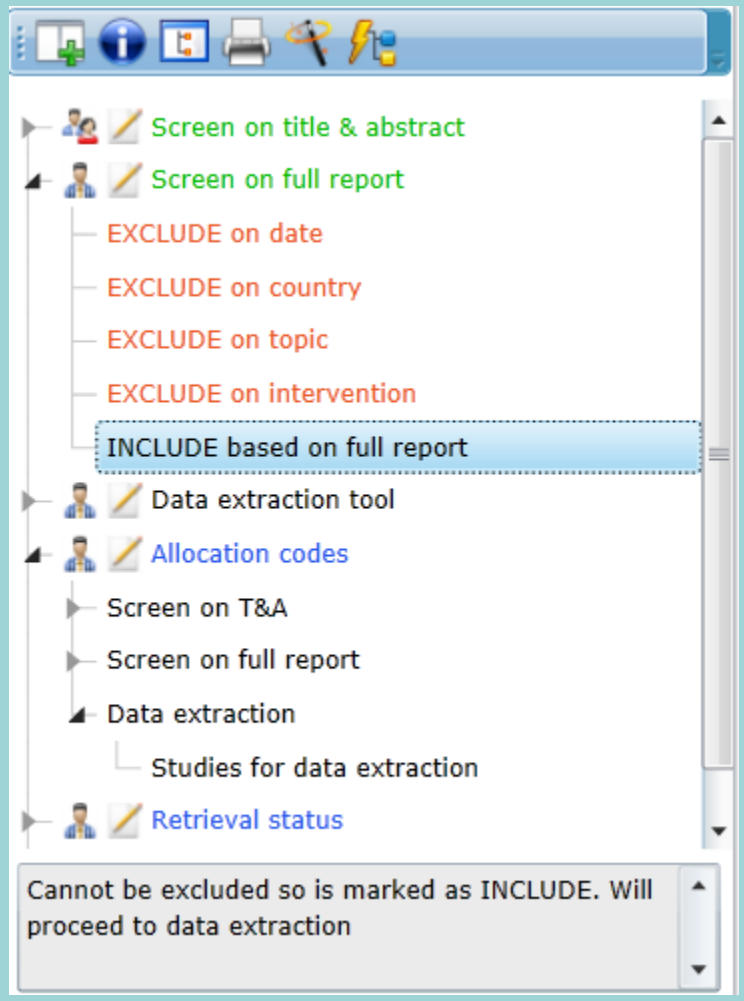
- Standard (black) & screening Codesets can be placed in **comparison mode (CM)**.
- In CM, assigning codes to items makes the “coding” incomplete (private)
- Comparisons will identify disagreements and allow discussing / solving them.
- Coding gets completed and becomes “public” (per-item)



Main concepts: Generate Results

Codesets also help **organising** your teamwork.

- Administration (blue) Codesets can be used to create coding assignments (work allocations)
- Codes (any code) can be associated to work allocations, providing access to a specific groups of items.
- Work allocations track progress, in combination with “coding-only” role, they can also restrict what users can do.



Main concepts: Generate Results

Who will do the work

What group of items will be used

Apply codes from this CodeSet

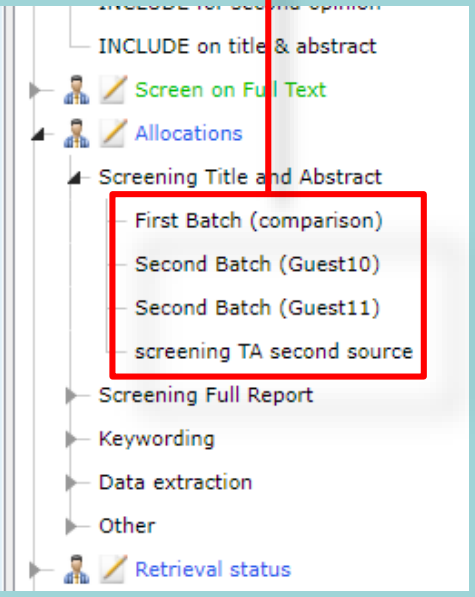
Track progress!

All is controlled by *just* some other code: list of assigned items is **dynamic**!

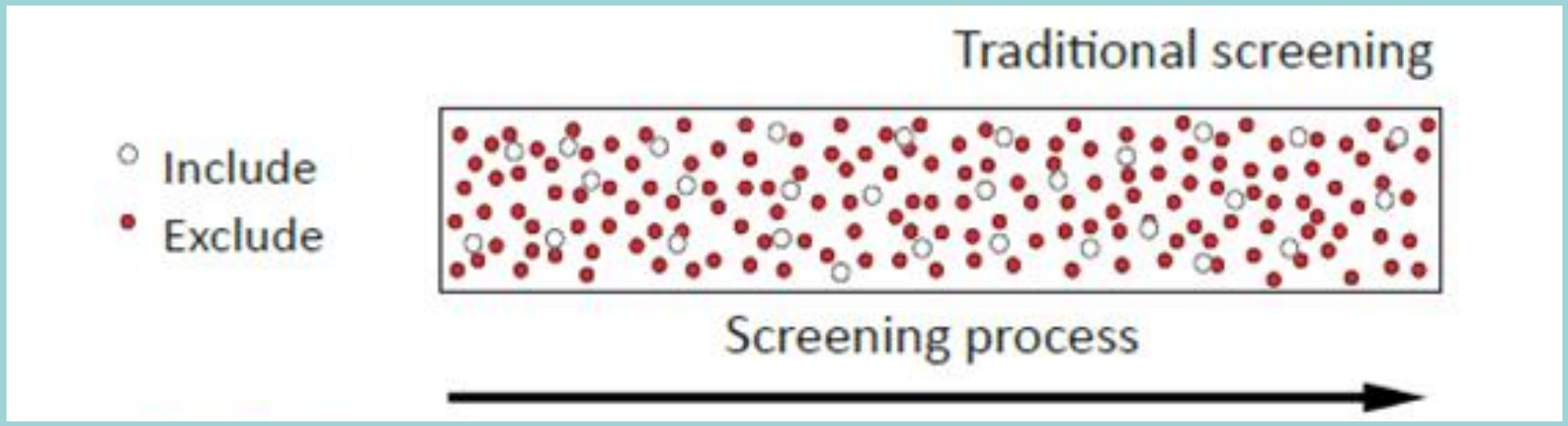
Coding assignments

Create new

Reviewer	Study group	Codes to apply	Allocated	Started	Remaining	
Guest10	First Batch (comparison)	Screen on Title & Abstract	166	166	0	Delete
Guest11	First Batch (comparison)	Screen on Title & Abstract	166	166	0	Delete
Guest10	Second Batch (Guest10)	Screen on Title & Abstract	166	166	0	Delete
Guest11	Second Batch (Guest11)	Screen on Title & Abstract	166	166	0	Delete
Guest11	INCLUDE on title & abstract	Retrieval status	125	18	107	Delete
Guest12	Uploaded	Screen on Full Text	11	3	8	Delete
Guest10	screening TA second source	Screen on Title & Abstract	141	15	126	Delete
Guest11	screening TA second source	Screen on Title & Abstract	141	6	135	Delete
Sergio Graziosi	screening TA second source	Screen on Title & Abstract	141	0	141	Delete



Priority screening.



Ready for some Hands-On?

- Early Stage Review:
  - Screening on T&A (priority screening).
  - Find Full text.
  - Start Screening on Full Text

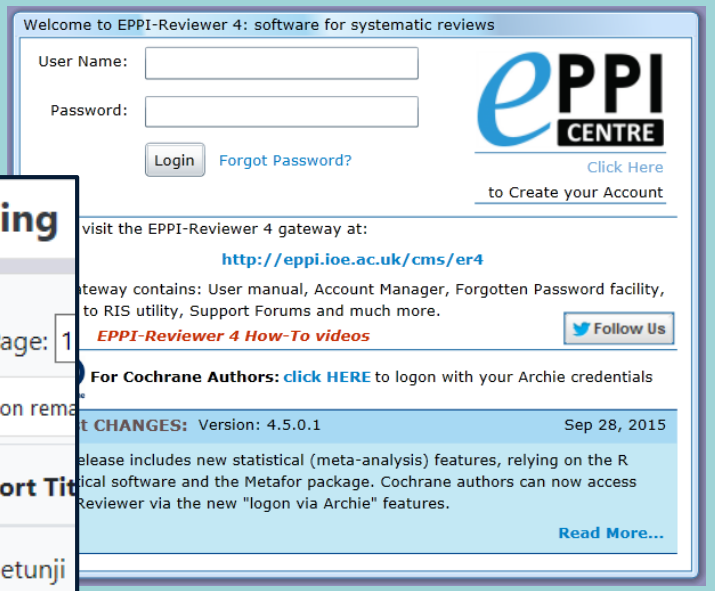
Pre-Configured:

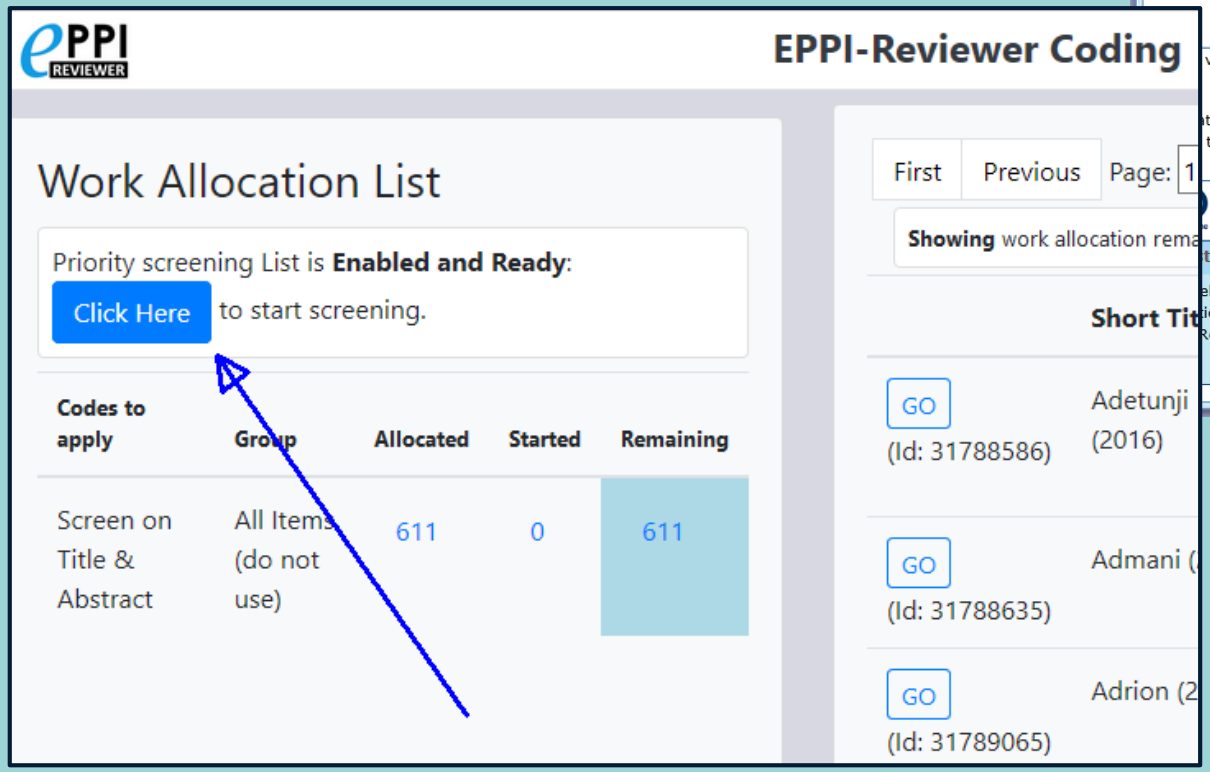
- Priority screening is ready to kick in (multiple people). Please select as “included” studies that mention “*Prevention* of Lyme disease”.
- 1 Work allocation to 1 person to locate/upload FT documents.
- 1 Person can start screening on Full Text.

Get your hands Dirty!

http://bit.ly/GES-ER

- Groups of 2-3 people
- 1 account per group

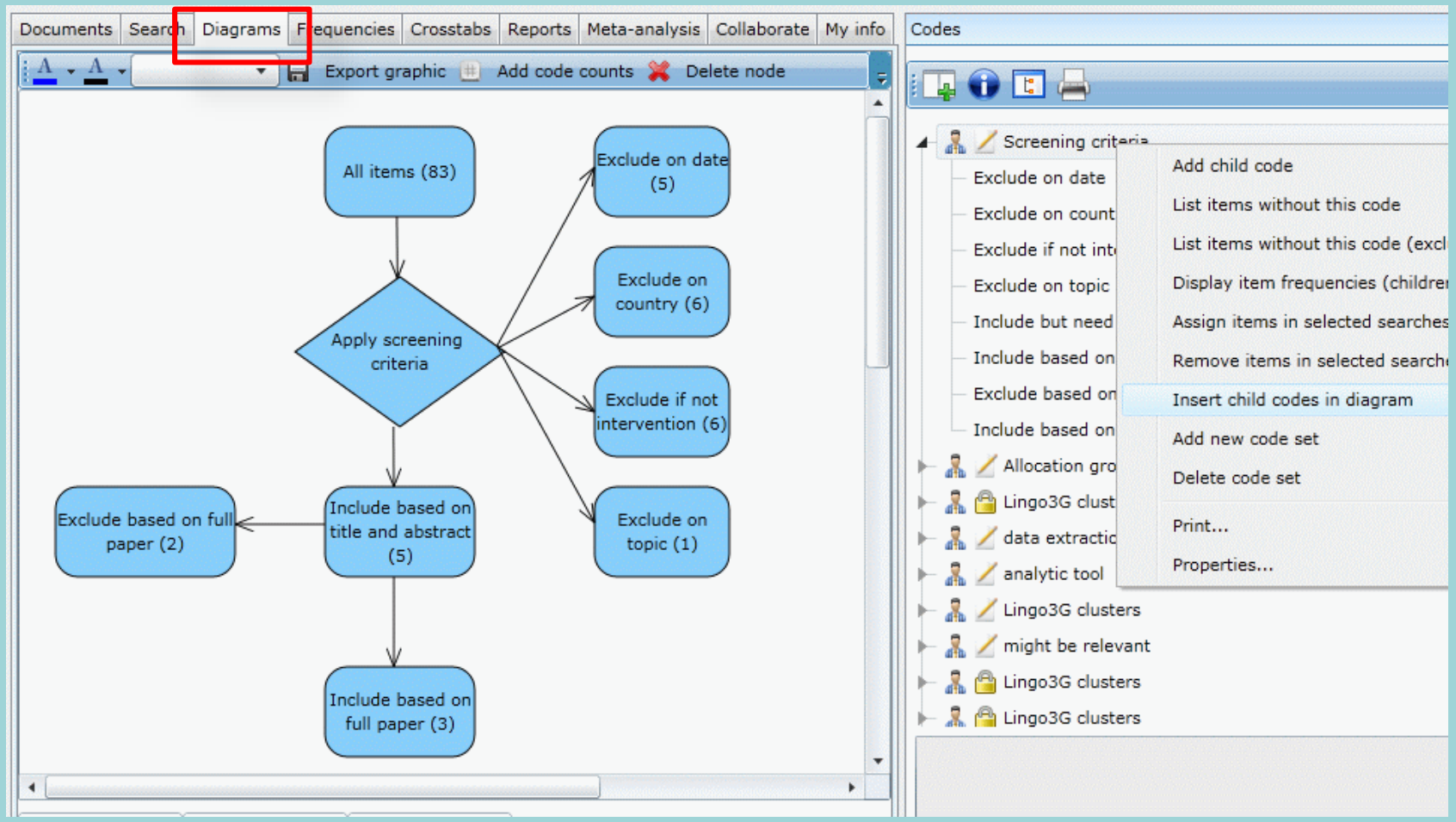




Geis2018

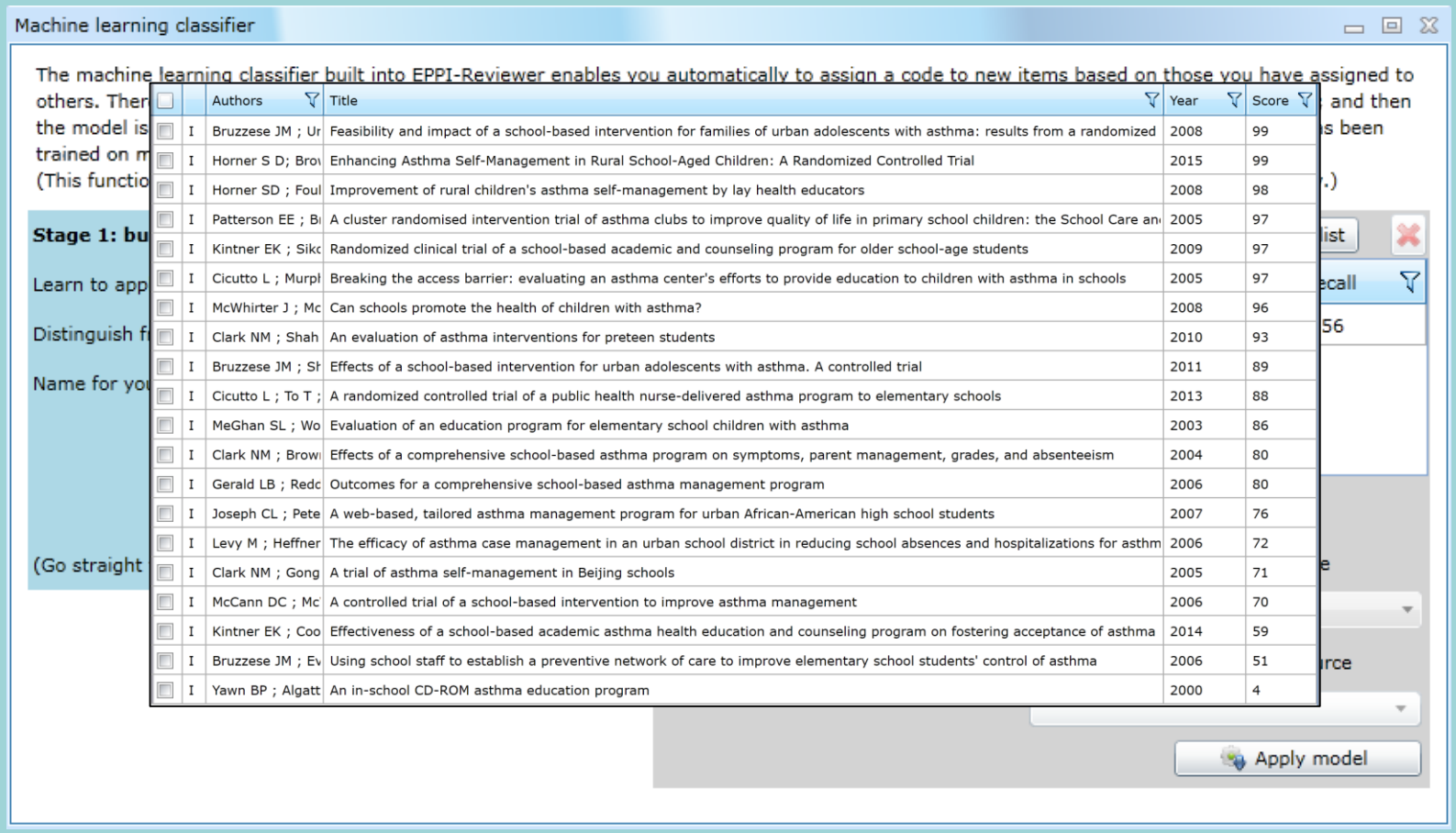
There is Much more:

Features we didn't cover: diagrams



There is Much more:

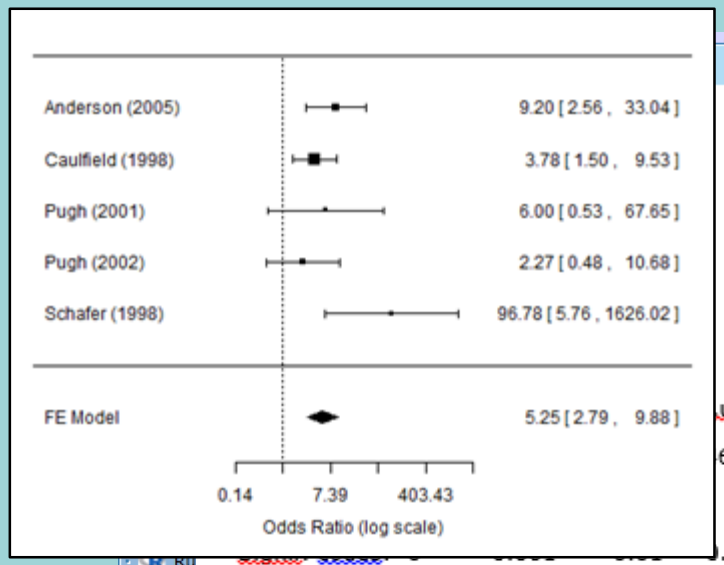
Features we didn't cover: machine learning – RCT and more



		Authors	Title	Year	Score
	I	Bruzzese JM ; Ur	Feasibility and impact of a school-based intervention for families of urban adolescents with asthma: results from a randomized	2008	99
	I	Horner S D; Brov	Enhancing Asthma Self-Management in Rural School-Aged Children: A Randomized Controlled Trial	2015	99
	I	Horner SD ; Foul	Improvement of rural children's asthma self-management by lay health educators	2008	98
	I	Patterson EE ; Bi	A cluster randomised intervention trial of asthma clubs to improve quality of life in primary school children: the School Care an	2005	97
	I	Kintner EK ; Sikc	Randomized clinical trial of a school-based academic and counseling program for older school-age students	2009	97
	I	Cicutto L ; Murpl	Breaking the access barrier: evaluating an asthma center's efforts to provide education to children with asthma in schools	2005	97
	I	McWhirter J ; Mc	Can schools promote the health of children with asthma?	2008	96
	I	Clark NM ; Shah	An evaluation of asthma interventions for preteen students	2010	93
	I	Bruzzese JM ; Sh	Effects of a school-based intervention for urban adolescents with asthma. A controlled trial	2011	89
	I	Cicutto L ; To T ;	A randomized controlled trial of a public health nurse-delivered asthma program to elementary schools	2013	88
	I	MeGhan SL ; Wo	Evaluation of an education program for elementary school children with asthma	2003	86
	I	Clark NM ; Brow	Effects of a comprehensive school-based asthma program on symptoms, parent management, grades, and absenteeism	2004	80
	I	Gerald LB ; Redc	Outcomes for a comprehensive school-based asthma management program	2006	80
	I	Joseph CL ; Pete	A web-based, tailored asthma management program for urban African-American high school students	2007	76
	I	Levy M ; Heffner	The efficacy of asthma case management in an urban school district in reducing school absences and hospitalizations for asthm	2006	72
	I	Clark NM ; Gong	A trial of asthma self-management in Beijing schools	2005	71
	I	McCann DC ; Mc	A controlled trial of a school-based intervention to improve asthma management	2006	70
	I	Kintner EK ; Coo	Effectiveness of a school-based academic asthma health education and counseling program on fostering acceptance of asthma	2014	59
	I	Bruzzese JM ; Ev	Using school staff to establish a preventive network of care to improve elementary school students' control of asthma	2006	51
	I	Yawn BP ; Algatt	An in-school CD-ROM asthma education program	2000	4

There is Much more:

Features we didn't cover: R + Metafor powered Meta-Analysis

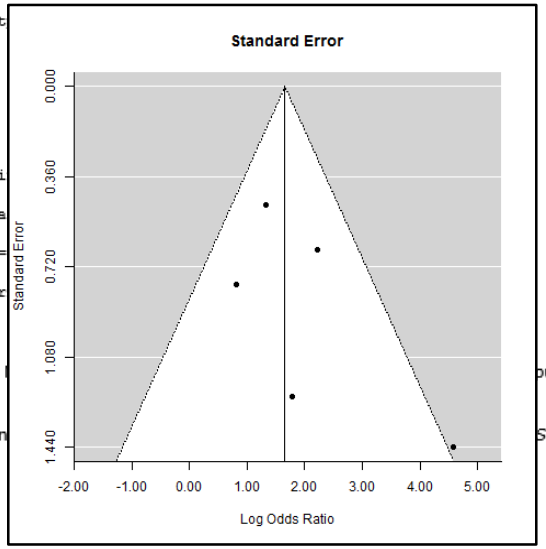


R-Code (Metafor):

```
if (!require(metafor))
{
# install.packages("src/metaforMin.zip", lib = ".", repos = NULL, verbose = TRUE)
library(metafor, lib.loc=".", verbose=TRUE)
}
res <- rma(log(yi), sei*sei, data=dat, measure='OR', slab=studylabs, level=95, digits=4,
verbose=0, method='FE')
Main_Summary <- capture.output(res)
Fit_Statistics <- capture.out
boxplot(dat$yi)
qqnorm(res)
radial(res)
funnel(res, yaxis='vinv', mai
funnel(res, yaxis='seinv', ma
funnel(res, yaxis='vi', main=
funnel(res, main='Standard Er
forest(res, atransf=exp)
```

These results are provided by the above.

Wolfgang Viechtbauer (2010). Con *Software*, 36(3), 1-48.



Fit Statistics

ML

logLik: -6.987587

deviance: 6.459898

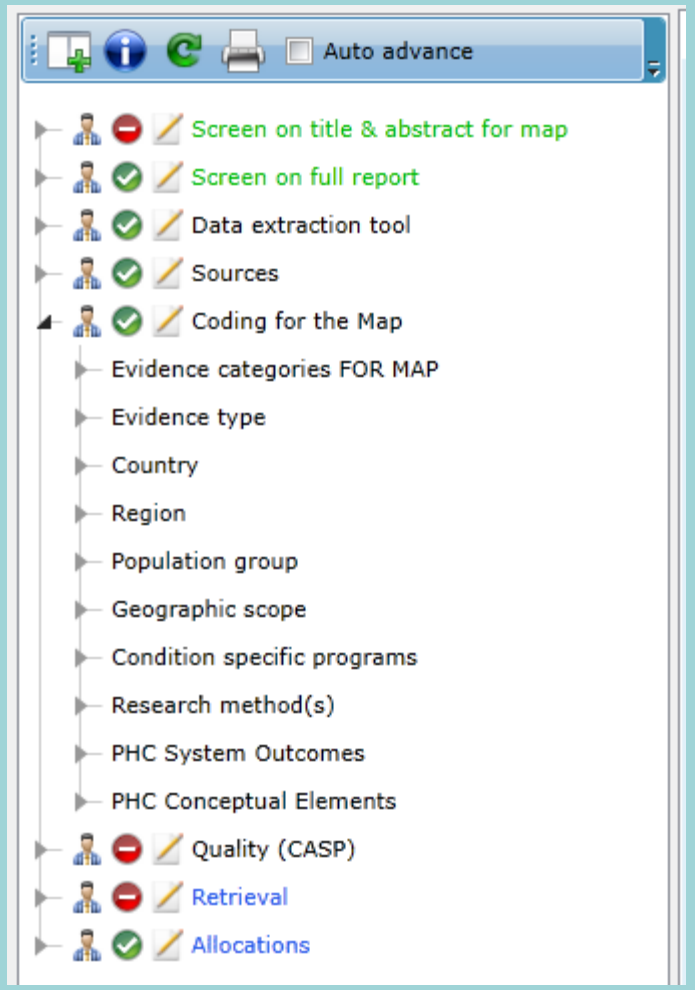
AIC: 15.975175

BIC: 15.584613

AICc: 17.308508

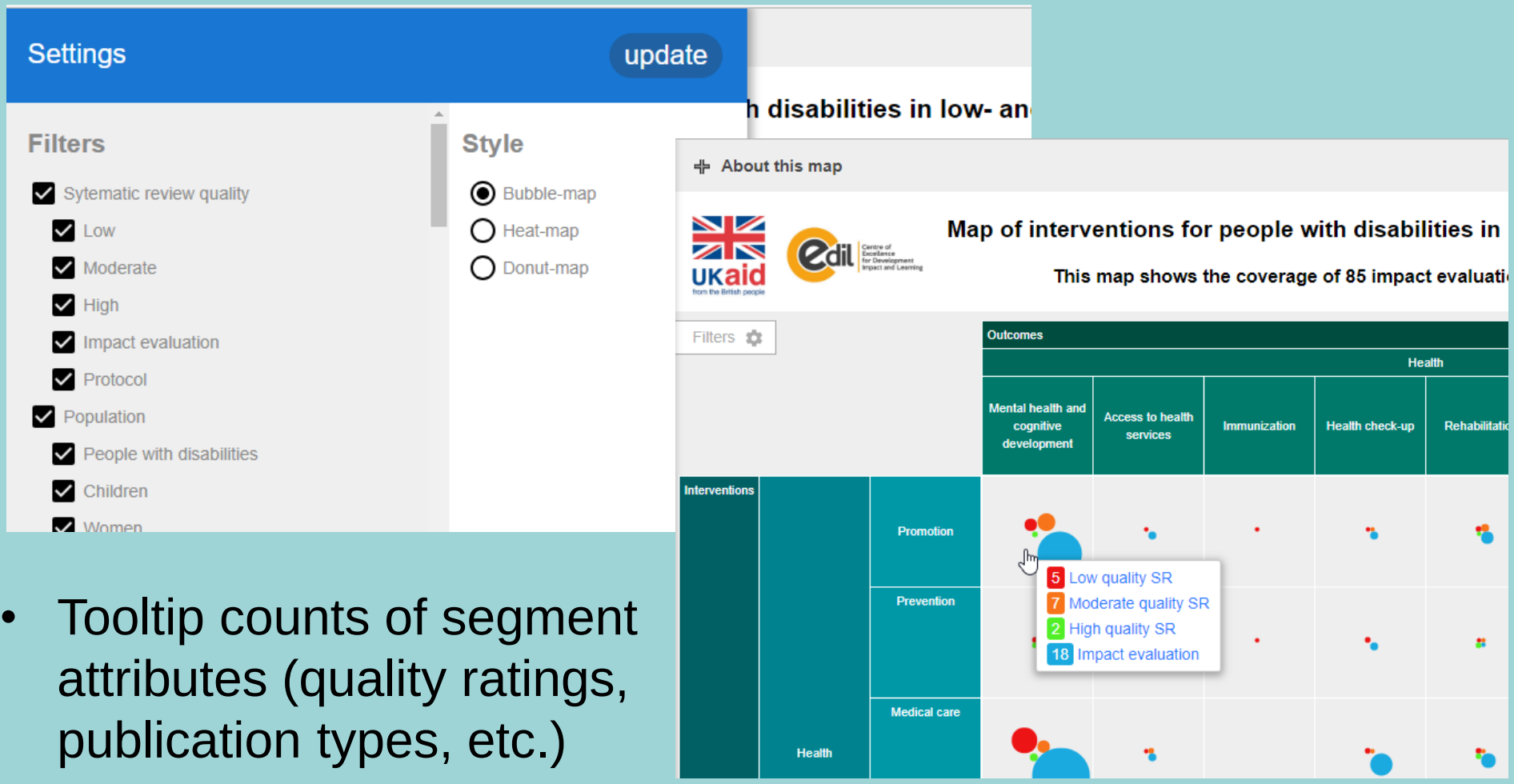
After EPPI-Reviewer… Evidence Maps

- Evidence (gap) maps developed with the Campbell Collaboration
  - Extract data using EPPI-Reviewer
  - Export using a coding report
  - Generate map using new mapping utility



Evidence Maps

- Filter the items to display



- Tooltip counts of segment attributes (quality ratings, publication types, etc.)

The future…

- **EPPI-Reviewer 5**, developed in collaboration with NICE:
  - Entirely new, uses a different database.
  - Being rolled out at NICE, specifically designed for their needs.
- **Coding App** will soon be promoted, we are actively expanding it:
  - Will gradually gain EPPI-Reviewer *current* functionalities.
  - Will contain *new* functionalities (sometimes exclusively).
- Data Services:
  - Search, data reuse, discovery of extracted data.
  - Semi automated data extraction from tables and plots.
  - Machine learning – driven services (via API).
  - Based on Big(ish)-data approaches and technologies.

EPPI-Reviewer – GEIS 2018

EPPI-Reviewer Workshop.

Sergio Graziosi, S.Graziosi@ucl.ac.uk - @GraziosiSergio (Twitter)
James Thomas
Jeff Brunton
Zak Ghouze
Patrick O'Driscoll

Thank you.

Support queries: **EPPISupport@ucl.ac.uk**

EPPI-Centre
Social Science Research Unit
UCL Institute of Education
University College London
18 Woburn Square
London WC1H 0NR

Tel +44 (0)20 7612 6391
Email eppiadmin@ioe.ac.uk
Web http://eppi.ioe.ac.uk
Twitter @EPPICentre