From study identification to publication: Using EndNote to undertake systematic reviews

Information Specialists devise a method to deliver high quality systematic review data using EndNote.

The Information Specialist team at the University of Exeter Medical School use EndNote throughout the systematic review process and have developed a novel workflow to manage references throughout the screening process. This workflow utilizes key functionality available in EndNote, such as de-duplication, using SMART groups and editing in custom fields, whilst proposing novel methods to undertake key systematic review processes, such as blinded double-screening. The strength of this method is that it can all be done entirely in one bibliographic management tool, EndNote.

The information specialist team at Exeter works with researchers, clinicians and commissioners to deliver a portfolio of evidence-based work, including systematic reviews.

The University of Exeter Medical School is focussed on improving people’s lives, through better care, treatments, therapies and healthcare systems. Staff undertake world-class research with real impact, driven by the principle of translation from discovery to personalised care and healthy communities.
The University of Exeter Medical School is ranked among the top ten universities in the UK for their world-class research on health and wellbeing. The Information Specialist (IS) team at UEMS is part of the Evidence Synthesis & Modelling for Health Improvement (ESMI) research group which specializes in the synthesis of research evidence for health policy and practice. Funders include UK government agencies such as the Medical Research Council, the National Institute for Health and Care Excellence and the NIHR Research for Patient Benefit Programme. The IS team supports a range of systematic reviews from public health, clinical effectiveness and qualitative reviews to literature reviews and health technology assessments. They are responsible for identification of relevant studies, capture of that information and processing it through the story of the review. Using Clarivate Analytic’s EndNote reference management platform, the IS team has designed and built a robust, end-to-end process for managing information used in systematic reviews.

Challenges Around Systematic Reviews

Identifying and capturing studies, reports and associated metadata from the web

- For systematic reviews, researchers need to identify references to studies: this includes published studies, unpublished reports and grey literature.
- They also need to find, download and store full text documents.
- Manually loading metadata and full-text is highly time consuming.

Accurately tracking studies / study data and double-screening

- Keeping a transparent record of how you identified studies, and where you identified them, is critical in systematic reviews.
- An efficient process for managing studies and study data is key.

Institution University of Exeter

- **Students:** 19,000
- **Location:** Exeter and Cornwall, UK
- **Featured Products:** EndNote

*In systematic reviews, we want to manage all of our data in one tool. EndNote is that tool.*

Chris Cooper, Senior Research Fellow and Lead of Information Specialist (IS) team and workflow, University of Exeter Medical School

*When we apply for a grant to undertake a Systematic Review, we emphasise our access to EndNote. It is a key point: it demonstrates how we plan to transparently manage our bibliographic data and undertake key review functions such as de-duplication and double-screening. I feel that it is an important selling point.*

Chris Cooper, Senior Research Fellow and Lead of Information Specialist (IS) team and workflow, University of Exeter Medical School

*Traditional tools work well with bibliographic databases but are not so good when it comes to working with data from the internet. Manually inputting this data takes a long time and holds the team back from other work.*

Chris Cooper, Senior Research Fellow and Lead of Information Specialist (IS) team and workflow, University of Exeter Medical School
Risk of inadvertently deleting studies during the process of de-duplication

- The IS team next need to prepare de-duplicated libraries.
- There is a risk that errors creep in or deleting a study that is not a duplicate.
- Going back and trying to manually undo errors is extremely cumbersome, if not impossible.

Collaborating with researchers in screening studies

- The IS team had to devise a process that made it easy and efficient to share libraries with the researchers carrying out the systematic review.
- The purpose was first to provide researchers with de-duplicated libraries for independent double-screening.
- And, secondly, to combine screened libraries when screening was completed, so screening decisions could be compared.

Solution

Workflows for Systematic Reviews
Data Management

The solution developed in EndNote by the IS team supports researchers undertaking systematic reviews for leading funders in the U.K. It includes the following workflows:

- Identification of Published & Unpublished Studies
- Consolidation of Studies
- De-duplicating
- Screening
- Downloading and/or Ordering Full Text
- Supporting PRISMA Reporting
- Cite as You Write
- Post-Review Data Archive

EndNote enables the IS team to efficiently manage studies and study data in systematic reviews, and then ensure end-to-end tracking of studies and study data throughout Systematic Reviews. It facilitates key steps in the process by enabling efficient collaboration between the IS and research teams, including:

- Preparing a de-duplicated library for the researcher to screen their studies
- Taking the library back when the researchers have finished their initial screen
- Cleaning up the library again and comparing all the studies with the second screener
- Presenting the validated library back to the researchers with a view of all their included studies and excluded studies and disagreements

The IS Team also uses EndNote to archive data for years after systematic reviews have been completed, as contractually stipulated by several funders.

De-duping makes people very nervous. As you manipulate your Endnote library you could potentially delete studies. Having the side-by-side view when de-duplicating is important: it helps to instill confidence in the process.

Chris Cooper, Senior Research Fellow and Lead of Information Specialist (IS) team and workstream, University of Exeter Medical School

At Exeter, we use EndNote desktop. This allows us to open and own multiple EndNote libraries with no restriction on the size of the library. The ability to have multiple libraries means that we can easily work on multiple projects at any time whilst also keeping review data clearly separate on a project-by-project basis.
Clarivate Analytics accelerates the pace of innovation by providing trusted insights and analytics to customers around the world, enabling them to discover, protect and commercialize new ideas, faster. As the owners, curators and analysts of the most complete and authoritative knowledge base, Clarivate will continue to deliver the products and services that customers have come to trust and value.

How to videos: medicine.exeter.ac.uk/esmi/workstreams/informationscience/is_resources,_guidance_&_advice/

Developed and recorded by Alison Bethel.

Chris Cooper
Senior Research Fellow and Lead of Information Specialist (IS) team and work-stream
University of Exeter Medical School

Who We Are

Value Delivered

Delivers high quality systematic reviews with a track record of studies at every stage of the review

- EndNote enables researchers to efficiently download studies and study data
- Multiple libraries of the same content, at different stages of the systematic review, allow the team to quickly and easily understand how studies have been identified and then included/excluded in systematic reviews
- Our novel method to merge the libraries after blind double-screening, developed by Alison Bethel, helps record screening decisions transparently

Saves time by importing reference types from bibliographic databases and the web

- Capture references to published and unpublished studies and reports either by importing a collection of documents or taken directly from a website
- Automatically capture a standardized set of full bibliographic information for source documents

Mitigates risk during de-duplication

- Maintain versions of the same studies in multiple EndNote libraries for comparison and roll back if necessary
- EndNote allows users to manipulate how duplicates are identified so as to personalize the de-duplication process
- The Find Duplicates window enables the IS team to quickly identify potential duplicates, compare the records and remove actual duplicates