

WHITE PAPER

SEARCHING AND ASSESSING THE MEDICAL LITERATURE

Rapid Literature Reviews for Enhanced Efficiency and Completeness

Synthesis Research Inc.

EXECUTIVE SUMMARY

Informed evidence-based decision making depends on having access to the latest research information in a summarized and collated manner. The ability to quickly search through and understand the large body of academic medical literature in a timely and complete manner is of utmost importance to both academic medical researchers and operational healthcare decision makers.

HOW SYNTHESIS AUTOMATES THE PROCESS

Synthesis differs from other reference managers as it puts advanced automation and text data mining techniques into the hands of researchers to accelerate the thorough review of a mass of research data, turning it quickly into “need to know” information. Synthesis does this through a combination of techniques, methods and by enhancing the workflow. The following is a breakdown of how Synthesis helps with the process.

Embedded Search PubMed Engine

The search process itself can be time-consuming. Researchers may access individual web sites and then export search results to files for import into other software. Synthesis allows PubMed and other bibliographic searches (PubMed Central, IEEE, arXiv.org) to be conducted within the software itself where the references are automatically imported into the software. Additionally, references from other bibliographic databases (Web of Knowledge, Scopus, Proquest, and many others) can be imported as well using the common RIS format.

De-duplication of References

Literature reviews may include thousands of articles from multiple bibliographic databases. The traditional manual process of identifying and removing duplicates from these references is a time-consuming, laborious, and error-prone activity. Synthesis uses algorithms to de-duplicate references in a manner whose speed and accuracy cannot be matched by a manual process.

Automated Keyword Searching and Tagging of References

Even computerized key-word searches can be cumbersome, if the tools used don't properly support fast and transparent searches within large bodies of text. Synthesis allows for instantaneous search through project references and PDFs. Matching references are updated in real-time as the user types, and search terms are highlighted in the interface (including the embedded PDF reader). Synthesis can automatically tag references that match search criteria, to document important characteristics of each paper such as type and location of study.

For medical academic researchers and operational hospital executives the rapid analysis of the literature is essential for better evidence-based decision making.

- Increased Productivity
- Improved Efficiency
- Completeness of Evidence
- Informed Decision Making

Automated Full-Text PDF Downloading

Full-text PDF articles can be automatically downloaded within Synthesis. Researchers can also batch download multiple full-text PDFs, based upon which references have been Included during the Inclusion/Exclusion criteria process. Articles are automatically downloaded based on the journal's open access status or based upon the researcher's institution journal subscriptions. Once the article has been successfully downloaded, full-text searching is automatically activated.

Improved Reference Management

Once the references have been imported into Synthesis they are stored in a repository which includes the reference, the full-text PDF if downloaded, and all the other meta data that has been derived and associated with the reference.

Enhanced Visualization

As meta data is created for the references, such as the tagging of references with the study type (RCT, Systematic Review, Case Control, etc.), Author Country, Country where the study is taking place, or other information extracted from the title, abstract, or full-text PDF, visualizations of this summarized data can occur. Data can be displayed in a variety of formats, such as pie, line, bar, stacked area, and stacked bar charts. These charts can also be manipulated to exclude null values or only showing the most frequent items.

THE PATH TO EFFICIENCY

Every one of the categories described about how Synthesis automates the process of searching and assessing the medical literature focuses on improving the efficiency and reducing the manual labor of conducting a literature review. This not only saves time for the researcher or student, but also for the supervisor or manager who receives more timely and through results then compared to the manual labor-intensive process.

CONCLUSION

Synthesis provides a tightly integrated research environment dedicated towards the rapid retrieval and assessment of the medical literature. Through an improved workflow and automated approach, Synthesis improves the efficiency from initial bibliographical search to the summarized, collated, and interpreted end product.

ABOUT SYNTHESIS RESEARCH INC.

Synthesis Research Inc. is a leading provider of intelligent literature review and text analytics software application solutions. Synthesis enables medical, technical, and patent searches to be conducted in the most efficient and automated manner. Synthesis runs on Windows, Apple, and Unix platforms.