Mapping the Pediatric Literature: Co-citation and Subject Term Bibliometrics

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Introduction

Motivation: How do you know that you have good coverage in a field?
What are the topics of most importance?
For medicine: secondary sources are becoming highly important; how do we evaluate them?

Core Pediatric Journals

Methods

Determine core pediatric journals by analyzing all cited references in the 2007 year of Pediatrics
Take the top 1% of cited articles in these core journals and do co-occurrence analysis to map their relationships using three different methods: co-citation, MESH co-occurrence, and expert card sorting.

Co-occurrence analysis

A and B are called cited article.
C is called a citing article/term.
For each citing article/term in common, A and B are linked with strength 1.
Mapping shows the best solution to making strength of co-occurrence inversely proportional to Euclidean distance in 2 dimensions.

Comparison to expert

Both MESH and co-citation clusters were ~30% similar to expert clusters.
Best match was MESH cluster 1, which had 84% similarity to the neonatology cluster.
Second best match was co-citation cluster 5, which had 40% similarity to adolescent child psychology cluster.

Conclusions

Bibliometric methods can provide an overview of a field of literature.
Care must be taken using these techniques: comprehensive searches are necessary.
MESH and co-citations are complementary, with different strengths.