The mosaic of translation: an analysis of translational medicine publications
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Using PubMed, we found 43,086 publications connected to CTSA grants from 2008-2015. The titles and abstracts were exported to a CSV file for analysis. Search strategy: ([JUL TR] OR [Grant Number] OR [UL TR] OR [ULIR] OR [ULIR] OR [ULIR] [Grant Number]). Grant numbers were identified using NR RifA7371.

Using VOSviewer software, this and abstracts of the 43,086 PubMed records were parsed to produce a list of noun phrases and term co-occurrences. The term co-occurrence map is laid out in clusters. A cluster is a set of closely related terms, with each term assigned to exactly one cluster. The number of clusters is determined by VOSviewer using a resolution parameter. The size of each term circle indicates the number of times the term was used in the title or abstract of publications within the dataset. Cluster themes were identified algorithmically through text analysis and matching.

Using Tableau software, the data file from VOSviewer was visualized to show the average citation impact and the number of occurrences of the terms. Each term was assigned a citation impact score. This score is calculated based on the number of citations received by the publication divided by the average number of citations of all publications that were published in the same year. Because terms can be used in a large number of publications, each term’s citation impact is calculated as an average from each publication in which the term is found. A citation impact score of 1.0 means the term is used in publications that are cited 1.0 times on average. A score of 0.5 means the term is used in publications that are cited half as many times as would be expected based on the global average for similar publications. A citation impact score of 1.5 means the term is used in publications that are cited 50% more than would be expected. A citation impact score of 0.5 means the term is used in publications that are cited 50% less than would be expected.

As with the visualization above, each term has been assigned to one of six clusters. Cluster themes were identified algorithmically through test analysis and matching.

Analysis of Indexing

Medical Subject Headings (MeSH)
The term “Translational Medical Research” [Mesh] was introduced in 2012 (2015) and refers to the application of discoveries generated by laboratory research and preclinical studies to the development of clinical trials and studies in humans. A second area of translational research concerns enhancing the adoption of best practices. As of 03/31/2016 there are 6,541 PubMed records indexed with the “Translational Medical Research” MeSH term.

Using Tableau software, we mapped the top 35 institutions when ranked by number of publications. The circles are sized by number of publications and colored by number of citations. This map was created on 4/27/2016.