

Yu-Chun Chen

Dr. med.

Quantitative and visualization methods to assess the impact of administrative health databases on health research

Promotionsfach: Medizinische Biometrie und Informatik

Doktorvater: Prof. Dr. rer. nat. Thomas Wetter

Research is a result of various strongly connected networks between people, technologies and knowledge. An analysis framework that combines quantitative and visualization methods is crucially needed to identify the influential factors that impact the research network. The trend to use administrative health care databases as research material is increasing but not well explored. Taiwan's National Health Insurance Research Database (NHIRD), one of the largest administrative health care databases around the world, has been used widely in academic studies.

This study developed an analysis framework which incorporates quantitative bibliometric indicators as well as state-of-the-arts network analysis and visualization to analyze 383 NHIRD studies published between 2000 and 2009 and to quantify the effects on overall growth, scholar response, and spread of the study fields. The NHIRD studies expanded rapidly in both quantity and quality since the first study was published in 2000. Researchers usually collaborated to share knowledge, which was crucial to process the NHIRD data. However, once the fundamental problem had been overcome, success to get published became more reproducible. NHIRD studies were also published diversely in a growing number of journals. The NHIRD benefited both general health and clinical science studies.

In conclusion, the analysis framework clearly demonstrated how a new research material widely promotes scientific production in a greater magnitude. Such framework could be a decision support tool toward research and development. The experience of Taiwan's NHIRD should encourage national- or institutional-level data holders to consider re-using their administrative databases for academic purposes.