

French Health big data experience: The evolution of the national health insurance information system

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The French national health insurance information system created in 1999 is one of the largest global data warehouse of medico-administrative data, covering nearly 66 million inhabitants and containing more than 160 billion records, including all outpatient health expenditures. Recent legislation has enlarged the scope of information and access to the data warehouse. Initially created to reimburse patients, the national health insurance data warehouse has developed into a powerful tool for conducting public health research.

Public health researchers and epidemiologists have long studied population health determinants, including access to and impact of health care interventions, through hypothesis driven investigations based on experimental (randomized controlled trials) or quasi-experimental designs (e.g. cohort or case control studies). In such studies, efforts are centred on data validity rather than scope or volume. Nowadays the availability of medical claims and electronic health records (eHR) allows users not only to address similar research questions at no or little cost for data collection, but also to extend the scope of research questions to the analysis of care pathways, the evaluation of public health policies, the impact of interventions in real-life conditions.

Striding away from the conventional hypothesis driven research paradigm, public health researchers have started exploring the power of applying data mining approaches on eHR. As demonstrated in the omics revolution, data driven approaches are discovery-generating tools with explanatory and predictive power. Could data mining methods applied to eHR deliver similar breakthroughs in Health Services Research? What new knowledge and tools must the public health research community acquire to embrace this new research paradigm? These are the issues that we will discuss, with illustrations, during this presentation.