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Research Objectives and Aims: Investigate the usage of developed methods for the sequential monitoring under the assumption that the database is updated on a regular basis via equal intervals of time. Further develop the methods to make them more suitable for sequential use.

Methods: Disproportionality Analysis, Case-Control, Bayesian Self-Controlled Case Series, Cohort Methods and Bayesian Logistic Regression

Proposed Approach: Investigate operational characteristics of the methods when used sequentially, for example, when measures of association for a set of drug-outcome pairs are estimated via regular increments of time (a week, a month, or a quarter). Based on findings, develop a sequential framework for drug safety monitoring. The project relies on my experience and my contributions to the former OMOP project. Proposed project is a community effort.

Impact: The real drugs safety system would monitor safety of medications sequentially with new data being added to the system via regular intervals of time. To my knowledge, there are very few efforts to evaluate existing methods and methodology in truly sequential settings. More research efforts in this direction will contribute to further improvements in the US health care system and thus it will serve the interests of the public.

Timeline: 02/2014 – 12/2015