Improving drug safety using big data analytics and machine learning

Julia Hippisley-Cox

I am interested in using Big Data Analytics and Machine Learning to look at unintended effects of new or commonly prescribed medicines. So this would include developing/enhancing new technical approaches to generating and testing 'signals' in data related to drug safety using large databases (which could include QResearch, CPRD, Researchone and THIN), but also, potentially triangulating this with systematic reviews and looking at the governance/PPI aspects. The big idea is to develop a new drug safety surveillance system which can help improve safety for patients by identifying unintended effects (both risks and benefits) more quickly.

We are looking for at least 4 additional partners. Ideally each partner could lead on analysis of a different database (CPRD, THIN, ResearchOne, QResearch); one on PPI and another to lead on systematic reviews. We would anticipate that there would be researchers based at each site working to common protocols. The project would also help us understand key similarities and differences between the four UK databases and potentially lead to collaborative grant applications where analyses of multiple databases is likely to add value.