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Psychiatric research platform within SAIL - Linkage of prospectively ascertained phenotypically rich and genetic data to routinely collected anonymised records

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Objectives

We have conducted a feasibility study linking clinically rich survey data to routine data to create a platform for psychosis research in Wales: K Lloyd et al (2015), A national population-based e-cohort of people with psychosis (PsyCymru) linking prospectively ascertained phenotypically rich and genetic data to routinely collected records: overview, recruitment and linkage, Schizophrenia Research. Now we expand upon this through the linkage of large clinically rich cohorts with a range of mental health diagnoses along with genetic data to conduct validation exercises, develop novel methodologies, assess genetic and environment interactions and outcomes and address hypothesis-driven research questions.

Approach

Through collaborations between the Farr Institute, Cardiff University based MRC centre for Neuropsychiatric Genetics and Genomics and the National Centre for Mental Health (NCMH) clinically rich data and genetic (CNVs, SNPs & polygenic scores) data from around 6000+ participants recruited from a variety of mental health research studies including 'PsyCymru', Genetic susceptibility to cognitive deficits study and NCMH amongst others will be loaded and linked to the datasets within SAIL. The analysis plan would firstly include validation exercises to compare the data between sources. Methodologies would be developed using this data to determine illness onset, relapse, chronicity, severity and response to treatment applied to large population-based mental health e-cohorts.

Results

By pooling together health service data, genetic variants, environmental and lifestyle factors, phenotypic and endo-phenotypic (cognitive scores) along with the ability to ascertain temporal

relationships afforded by the longitudinal perspective available in SAIL we may be able to evaluate potential risk factors, assess the complex GxE interactions that lead to disease progression, and assess outcomes such as prognosis, remission, relapse and premature mortality. The on-going routine updates provide us with the opportunity to follow-up these individuals across multiple health care settings in a cost effective and in-obtrusive manner and to carry out health services utilization/benefit and treatment surveillance in a naturalistic setting. This resource will continue to expand over the coming years in size, breadth and depth of data, with continued recruitment and additional measures planned.

Conclusion

To advance mental health research by developing our understanding of the causes, course and outcomes of mental illness that may lead to the development of better diagnostic classification, predictive, preventative strategies and therapeutic approaches.

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