**PCL/ 17/10 - Improving predictions of prognosis in Parkinson's: moving from intensive small-scale studies to large and reliable routinely-collected datasets**

Some people with Parkinson's disease become disabled and develop dementia in a few years whereas others survive for many years with good quality of life. With this project I will be able to make more accurate predictions of how people fare over time. This will have many benefits: it means that health professionals can give better information about how people might be affected by their disease, it opens up possibilities for doctors to tailor treatments to particular individuals, and it can also be used to design better trials of whether new treatments are effective.

I will firstly combine data from the highest-quality studies (six studies, about 1000 participants) that are currently available (those which have tried to identify everybody with newly-diagnosed Parkinson's in a certain area). I will combine information from these six studies about the characteristics of people with Parkinson's to identify how people of different ages with Parkinson's will fare over time in terms of needing help with basic daily activities, developing dementia, going into a nursing home, or survival. I will then work out what characteristics influence whether someone with Parkinson's will develop these problems, and develop statistical tools to make specific predictions about how individuals will do over time – in a more precise way than has been previously possible.

I will then develop new ways to anonymously gather information about characteristics of people at the time of their diagnosis by automatic computer screening of clinical letters. This will allow us to study prognosis in people with Parkinson's using data which is routinely collected in the health service, which is an efficient and cost-effective way to do research without creating the additional burdens of participation in research studies.