Causes and prediction of complications in type 1 diabetes

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Type 1 diabetes is caused by autoimmune destruction of insulin producing pancreatic beta cells, requiring lifelong treatment by administration of insulin. The disease and suboptimal control of blood sugar can lead to a variety of complications, the risk of which is increased with earlier onset of diabetes.

With collaborator Loredana Marcovecchio we have genetic and longitudinal clinical data from patients who were recruited up to 20 years ago during childhood and adolescence, linked to current outcome data through the national diabetes audit. We plan to use these to discover child and adolescent risk factors of poor outcomes in adulthood. This project will involve a combination of longitudinal data analysis, trajectory modelling, and genetic association analysis.