Collaborative Working Project executive summary

Project title	To partner with University Hospitals of Morecambe Bay NHS Foundation Trust to pilot an early detection of presymptomatic Type 1 diabetes project.
Partner organisation/s	**University Hospitals of Morecambe Bay NHS Foundation Trust** Westmorland General Hospital, Burton Road, Kendal, Kendal-Cumbria LA9 7RG **Sanofi** 410 Thames Valley Park, Reading, RG6 1PT
Project rationale	The aim of this project is to pilot the feasibility of a hospital DSN facilitating early detection of people with pre-symptomatic Type 1 diabetes who are first degree relatives (FDR's) of diagnosed Type 1 diabetic patients. It is now widely accepted that Type 1 diabetes is characterised by three stages: • Stage 1: Initiation of the autoimmune process (presence of two or more autoantibodies); Importantly, currently pre-symptomatic stage associated with normoglycaemia. • Stage 2: Persistence of type 1 diabetes-related autoantibodies with further loss of βcell function and development of dysglycaemia. • Stage 3: Symptomatic or clinical type 1 diabetes with hyperglycaemia. In the absence of early testing, most patients present in this stage. Stage 2 is associated with a 75% risk of progression to a diagnosis of T1D within 5 years, and a lifetime risk of nearly 100%.(Anti-Islet Autoantibodies in Type 1 Diabetes - PubMed) There are many reasons to diagnose type 1 diabetes at Stage 1 and 2. • Identifying children before they present, using Aab alone or in combination with genetic testing, has been shown to reduce DKA by 90%. One advantage of DKA reduction is in avoiding

	the associated comorbidities, such as cerebral oedema, neurocognitive deficits, and lengthy hospitalisation. (Is It Time to Screen the General Population for Type 1 Diabetes? - PMC) • There also appears to be a longer-term benefit in terms of lower HbA1c. (Screening for Type 1 Diabetes in the General Population: A Status Report and Perspective | Diabetes | American Diabetes Association) • Better family psychological adjustment, parents reported their child had better diabetes-specific quality of life over the first year and there was lower parental stress following diagnosis compared with community controls (Smith LB, Liu X, Johnson SB, et al. Family adjustment to diabetes diagnosis in children: can participation in a study on type 1 diabetes genetic risk be helpful? Paediatric Diabetes 2018; 19:1025–33.) • Data suggests the majority (~95%) of relatives of individuals with type 1 diabetes are Aab negative at screening, which can be reassuring, particularly for families with an affected family member. (https://diabetesjournals.org/diabetes/article/71/4/610/144874/Screening-for-Type-1-Diabetes-in-the-General)
Project period	Q1 2025 to Q2 2026
Project objectives	The aim of this project is to pilot the feasibility of a hospital DSN facilitating early detection of people with pre-symptomatic Type 1 diabetes who are first degree relatives (FDR's) of diagnosed Type 1 diabetic patients. This will be achieved by completing the following objectives: • Recruitment of a DSN to facilitate early detection in FDRs. • To test index patient willingness to reach out to their FDRs regarding antibody testing. To determine number of FDRs per diagnosed Type 1 diabetic person • To measure understand FDR uptake of antibody testing. It is anticipated the collaborative working project will deliver the following benefits for Patients, the NHS and Sanofi: Patients • The opportunity to learn more about T1Ds from a specialist. • For those that are antibody negative reassurance that their likelihood of developing T1Ds is low

	• For those that are antibody positive education and monitoring to reduce their likelihood of experiencing DKA. NHS • Determine the feasibility of case finding by a District General Hospital via existing T1D caseload. • Determine the level of uptake by the index patients and the FDRs. • Reduction in future unplanned care for those that are identified as presymptomatic T1D monitoring to reduce their likelihood of experiencing DKA. Sanofi • An opportunity to learn about the implementation of case finding of patients with presymptomatic Type 1 positive diabetes. • Improved corporate reputation with the associated partner organisations. • Sanofi has a product in autoimmune T1D that is scheduled for regulatory and reimbursement review in 2024/25. This project will be completed by pooling resources of approximately £84,000 (Sanofi 47%, NHS 53%)
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