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**Title of project:** Improving type 2 diabetes prevention and care. The potential of family relations.

## **ABSTRACT**

This postdoctoral research project builds on previous work showing how family relations affect type 2 diabetes risk. Its overall vision is to develop a new family-focused approach for type 2 diabetes prevention and care. The project consists of two work packages (WP):

- **WP1:** Development and validation of a population-wide register based diabetes risk estimation tool that harnesses data on familial connections. WP1 will use routine diagnostic, socio-economic and prescription information on individuals and their relatives to estimate family and individual level diabetes risk predictions, assessing feasibility and performance. The guiding hypothesis (H1) is that by considering long-term broad health trajectories not only at the individual level but also at the level of couples and nuclear families, an individual and family diabetes risk prediction can be made for the entire Danish population based on existing register data. WP1 includes both the development of a register-based prediction model as well as its internal and external validation.
- **WP2:** This study will explore the idea of how diabetes care and lifestyle management can be improved if it is targeted with regard to its circadian timing and involves the close social environment. In continuation of previous work, it will focus on the spouse, the closest relation most people have. WP2 will be a cross-sectional study aiming to assess synchrony (co-variation) in glucose variability and behaviors using wearable devices in couples in which one of the partners lives with type 2 diabetes. The guiding hypothesis (H2) is that a higher degree of spousal behavioral synchrony is related to a better glycaemic control in the partner with type 2 diabetes after adjustment for individual level confounders (e.g. diabetes duration, BMI) and medication.