Project description

## Introduction

Diabetes is a complex, multi-factorial disease. Its development depends on the timing and accumulation of exposures throughout the life-course. In addition to genetic influences, behavioral risk factors and socioeconomic conditions cluster in families and are passed through generations. For instance, poor childhood socioeconomic status (SES) can impact final educational attainment, adult SES, and lifestyle and behavioral characteristics, which ultimately influence an individual’s metabolic capacity to regulate glucose and subsequent risk for diabetes.

## Purpose

The overall aim of this project is to identify the contributions of family and early life determinants on the development, management, economics, and care of diabetes and the diseases that may arise following a diabetes diagnosis, under a life-course framework.

## The problem of the project

Some of our questions include:

1. Are some metabolic characteristics affected more by early life conditions than others?
2. Knowing the above and knowing an adult individual’s history during early life, could we intervene and target specific metabolic characteristics to lower the risk for T2DM?
3. Do some early life conditions affect an adult individual’s metabolic status and risk for disease more than other conditions?
4. Are long-term diabetes outcomes (nephropathy, eye disease, premature death) affected by treatment persistence and stability in patients with psychiatric comorbidity?
5. To what extent does the family network (e.g. parents, grandparents, siblings) and family environment influence the risk for developing type 2 diabetes in adulthood?

## Data and Method

We intend to use the requested data from both SDS and DST registers, as well as data from Danish cohort studies, to apply causal and predictive statistical methods that best model associations for our questions and compare how various public health strategies might impact the prevention, economics, and management of diabetes and the diseases that follow its diagnosis.

Because we intend to try to answer questions that involve any individual’s early life and early childhood conditions, we need data on their parents. Likewise, to understand the role that the family network, including siblings and grandparents, has on diabetes risk, we need a large enough population to make these linkages and to adequately study this area. Given the complicated nature of linking and constructing family networks, we need data on not just the individual but also the family in order to obtain the data we need to answer our questions.

## Publication of results

We will disseminate the results of the planned research project through pre-print archives, conference presentations, journal articles, and through blogs and other social media outlets. Results will only be published in open access scientific outlets.

## Perspective

This project will contribute to a broader and deeper understanding of the role that these factors play with the development and progression of diabetes.

Understanding how early life and familial factors can influence diabetes provides us with tools and knowledge to better target, intervene, and either prevent or manage diabetes and its complications. Considering the impact that diabetes as a disease itself and its related comorbidities has at the personal, public health, and economic level, any improvement in knowledge can have major impacts.

## Ethical considerations

No direct contact to citizens are made in this project.