

INTRODUCTION



Diabetes in Greenland – how to deliver diabetes care in a country with a geographically dispersed population

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International Journal of Circumpolar Health, Ilisimatusarfik, University of Greenland

Greenland is the world's largest island, yet with a very small population of 56,000 persons living in 16 towns and a number of settlements around the coastline.

Traditionally, living conditions in Greenland were those of a hunter-fisher society. The disease pattern was characterised by high rates of infectious diseases and low rates of chronic diseases inclusive of diabetes. In 1940, the Danish physician and Chief Medical Officer for Northern Greenland Alfred Berthelsen wrote that, "One case of diabetes is noted among the patients treated in 1910 at Julianehaab (Qaqortoq, South Greenland), and a few additional patients are known later to have been treated" [1]. In 1962–1964, diabetes was found in less than 0.06% of 4,249 Greenlanders examined in the capital Nuuk and the towns of Uummannaq and Tasiilaq [2].

However, since the 1950s, living conditions in Greenland have changed rapidly towards those of a more western society. Likewise, the health status of the population is changing. Population surveys from 1999 have demonstrated marked changes with much higher rates of diabetes in the Greenlandic population. Three surveys from 1999, 2005–2010 and 2014 among a total of 4,520 adult persons based on oral glucose tolerance test and HbA1c found rates of diabetes in the range of 6–9.7% [3–5].

The overwhelming majority of diabetes cases are type 2 diabetes, and autoimmune diabetes is hardly seen [6].

There is no doubt that changes in living conditions are important for the rapidly changing incidence of diabetes, including changes in diet, physical activity and obesity. However, the high incidence suggests that a genetic or other predisposition for diabetes exists in the Greenlandic population. Accordingly, recent studies have found particular genetic variants in the Greenlandic population that are highly associated with diabetes, including the p.Arg684T variant in the TBC1D4 gene that occurs with a gene frequency of 17% in the adult population and results in an increased risk of diabetes in homozygous bearers (Odds ratio 10.3) [7].

Thus, diabetes represents a public health burden in Greenland at present and in the future.

However, due to the traditionally low prevalence of diabetes in Greenland, awareness of diabetes in the public and among health professionals was low in Greenland when these scientific findings were done.

In 2007, a donation from the Novo Nordisk A/S was offered to the health-care system in Greenland with the purpose to increase awareness of diabetes. Dr Michael Lyng Pedersen, who has worked as a hospital and primary care physician in Greenland since 1997, was employed as the manager of this project, which started in 2008. This laid the foundation for an ongoing national diabetes care programme in Greenland that Dr Pedersen has spearheaded.

Providing diabetes care to the population of Greenland is not only a question of raising awareness of the condition but also facing challenges caused by among others the geographically spread of the small population in Greenland, limited diagnostic services and chronic shortage of staff. Thus, providing modern diabetes care to a population living in Greenland is a challenge.

The research was, from the start, an integral part of the programme and subsequent initiatives. This is important, as a systematic collection of experiences and continuous research-based monitoring and analysis is the foundation for successful adjustments of the programme and development of new initiatives.

The present special volume of *International Journal of Circumpolar Health* describes this new programme for diabetes care in Greenland and reports research-based findings from the monitoring of the programme. The volume forms the Doctoral Thesis (DMSc) of Dr Pedersen, which he defended in March 2019 at the University of Aarhus, Denmark.

After 10 years of observation, it is clear that the programme has improved diabetes care in the country substantially. Thus, the programme, which is the largest and most comprehensive diabetes care programme in the Arctic, may serve as an inspiration for diabetes care programmes in similar parts of the vast circumpolar

area and among populations characterised by the same living conditions and health challenges.

References

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