



**Karolinska
Institutet**

Institutionen för lärande, informatik, management och etik

As time goes by

Diabetes mellitus and the health services from short- and long-term perspectives - healthcare utilisation, costs and health-related quality of life

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Karolinska Institutet
offentligen försvaras i Inghesalen, Widerströmska huset, Tomtebodavägen 18A

Torsdagen den 29 augusti 2013, kl 09.00

av

Vibeke Sparring

Huvudhandledare:

Docent Rolf Wahlström
Karolinska Institutet
Institutionen för folkhälsovetenskap
Health Systems and Policy

Bihandledare:

Docent Kristina Burström
Karolinska Institutet
Institutionen för lärande, informatik, management
och etik, Medical Management Centre
Institutionen för folkhälsovetenskap

Utvecklingschef Pia Maria Jonsson
Institutet för hälsa och välfärd
Helsingfors, Finland

Docent Lennarth Nyström
Umeå Universitet
Institutionen för folkhälsa och klinisk medicin
Epidemiologi och global hälsa

Docent Jan Östman
Karolinska Universitetssjukhuset, Huddinge
Karolinska Institutet
Institutionen för medicin

Fakultetsopponent:

Professor emeritus Lars Borgquist
Linköpings universitet
Institutionen för medicin och hälsa
Avdelningen för samhällsmedicin

Betygsnämnd:

Professor emerita Kerstin Brismar
Karolinska Institutet
Institutionen för molekylär medicin och kirurgi
Tillväxt och metabolism

Adjungerad professor Nils-Olov Stålhammar
Göteborgs Universitet
Handelshögskolan
Institutionen för nationalekonomi med statistik
Centrum för hälsoekonomi

Docent Birger Forsberg
Karolinska Institutet
Institutionen för folkhälsovetenskap
Health Systems and Policy

Stockholm 2013

ABSTRACT

Aim: To analyse how healthcare utilisation, healthcare costs and health-related quality of life (HRQoL) differ for individuals with diabetes compared to control individuals from the general population and how these differences are associated with disease duration and changes in the health care over time. A further aim was to explore diabetes care from an equity perspective.

Methods: The research was based on four cohorts with disease durations of 1, 8, 15 or 24 years. These cohorts were selected from the Diabetes Incidence Study in Sweden, which registers all incident cases of diabetes in the age group 15 to 34 years, the majority Type 1 and insulin-treated. Control individuals were selected from the population register matched by age, sex and county of residence. In January 2008, a survey questionnaire was mailed by post to the 1983, 1992 and 1999 cohorts and their matching control groups. In 2009, the same survey questionnaire was quarterly sent to the 2008 cohort and to matching controls. The overall response rates were 54% (n=864) for individuals with diabetes and 51% (n=1616) for control individuals.

Results: Higher utilisation of healthcare services by patients with diabetes compared to control individuals, and the necessary medication, led to an annual excess costs of 40 000 to 50 000 Swedish crowns per patient with no significant differences among the four cohorts. The costs of health care for women (in both the diabetes groups and the control groups) were almost double the costs for men in most cohorts.

Living with diabetes had a negative impact on HRQoL and the difference to control individuals increased by disease duration for women with diabetes. However, there were no significant differences between individuals with diabetes 1 year after diagnosis and the control individuals, which may be related to good early management of diabetes care and an early adaptation to the disease.

Compared to a previous study conducted in the early 1990s, excess costs increased mainly due to the greater use of insulin pumps and insulin analogues. Utilisation patterns for patients with diabetes were stable except for a significant decrease in hospital inpatient care 1 year after diagnosis (60% to 13%), and an increase in daycare 8 years after diagnosis (11% to 44%). The excess costs 1 year after diagnosis were similar whereas excess costs 8 years after diagnosis more than doubled, but while the largest proportion of costs in 2009 was for hospital outpatient care, 16 years earlier most costs were for hospital inpatient care. In line with the results from the previous study, the largest proportion of costs 8 years after diagnosis were attributable to insulin treatment and monitoring of blood glucose, followed by the costs for hospital outpatient care.

Conclusions: Individuals with diabetes seem to lead rather unrestricted lives with less hospital inpatient care and a higher degree of self-management than 16 years earlier. However, the findings indicate that healthcare utilisation, costs and HRQoL vary by gender and socio-economic background. In addition to having diabetes, being a women, having a low education level or low income, and not being married all had a negative effect on almost all outcome measures addressed in this thesis.

Utilisation patterns, costs and HRQoL can be described and analysed by continued health services research, and may be a valuable complement to more clinically oriented research. Health services research may also provide valuable information in the formulation of future healthcare policies. In contrast to randomised controlled trials, long-term studies of diabetes populations in real-world health systems can shed light on issues of access to the healthcare systems as well as on associated equity issues.