

Burden of disease of Diabetes mellitus Type 2 in Austria

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Objectives

Type 2 diabetes mellitus affects 358,267 individuals in Austria and exerts a substantial economic burden on patients, healthcare systems and society. The main objective of this study was to analyse the burden of disease as well as the direct and indirect healthcare costs of type 2 diabetes in Austria.

Methods

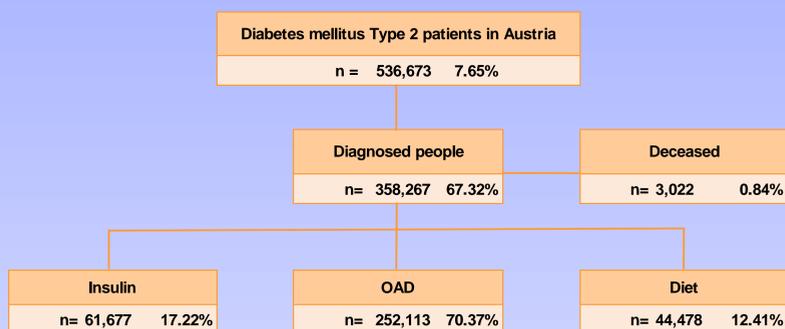
A burden of disease study, which evaluates all kinds of disease burden, like costs, quality adjusted life years (QALYs) and disability adjusted life years (DALYs) lost, was conducted. This study uses a prevalence-based bottom-up approach and projects costs over the time horizon of one year. Data were collected via literature review, published list prices and hospital records. Costs from published sources were used from the societal perspective. The direct costs include hospital, treatment and physician consultation costs. Indirect costs cover patient care giver costs as well as work absenteeism.

Results

Patient Flow

A patient flow analysis was used to identify the number of patients in each disease stage. Afterwards the costs of each disease cohort were calculated.

Figure 1: Patient flow



Source: own depiction, 2015

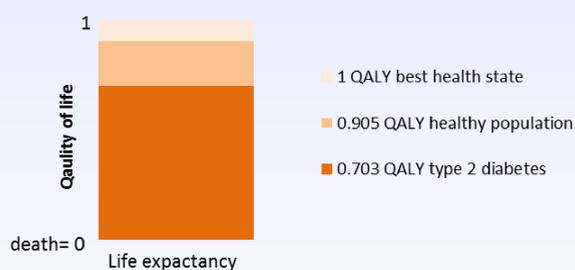
Mortality

In 2011 nearly 2,900 people died as a result of diabetes mellitus type 2 in Austria. This represents a mortality rate of 3.8 percent of all deaths. Moreover it can be asserted, that three quarters of all diabetes type 2 deaths are registered in the over-74 age group.

Quality adjusted life year

Patients with type 2 diabetes usually have a lower quality of life compared to the healthy population. While people with diabetes have a QALY of 0.703, the general population has a QALY of 0.905. Thus, compared to the healthy population, a diabetes type 2 patient has average utility decrements of 0.202.

Figure 2: Quality of Life in patients with diabetes mellitus type 2



Source: own depiction, 2015

Disability adjusted life year

In 2004 261 DALYs were lost in Austria due to diabetes. Due to the fact that 90 percent of all affected people suffer from type 2 diabetes the DALY rate amount 2.3 percent. Thus diabetes type 2 causes a reduction of 19,853 DALYs in Austria.

Costs

Costs were calculated for one year for all patients suffering from diabetes type-2. The direct medical costs include the primary care sector as well as the hospital sector. All direct medical cost factors associated with the treatment have been recorded based on resource consumption and documented by quantity. Direct costs are typically defined as the treatment cost – consisting of the drug costs as well as medical services. The drug costs incurred in the outpatient setting are shown on the basis of the health insurance prices. Costs for medical services were broken down among the Austrian provinces and were weighted after the share of population in each province. Costs for adverse events were divided into inpatient costs, rehabilitation costs, outpatient costs and drug costs.

Table 1 gives additional information about the composition of costs in the Austrian healthcare sector.

Table 1: Annual costs of diabetes mellitus type 2

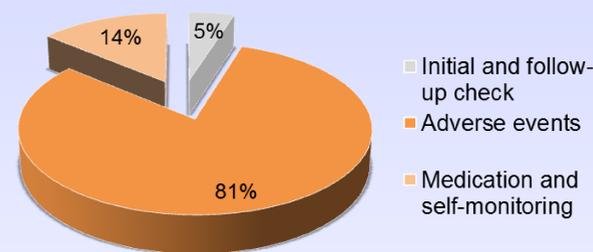
	Total costs per patient	Total costs type-2 diabetes
Initial and follow-up check	158	56,918,160
Medication and self-monitoring	449	160,870,610
Adverse events	2,635	944,039,970
Total costs	3,242	1,161,828,740

Source: own calculations, 2015

The average costs per year of a patient with diabetes type 2 amount 3,242.91 Euro. The estimated total direct annual cost for all patients diagnosed with type 2 diabetes is 1.2 billion Euro. This represents a share of 3.3% of the country's total healthcare expenditures. The average annual indirect costs for patients with diabetes mellitus type 2 amounts to 781 million Euro.

Figure 3 gives additional information about the percentage of healthcare expenditure in Austria. The figure shows that inpatient care is a major contributor to costs, accounting for 81% of total costs while drug costs account for an average of 14%.

Figure 3: Percentage of healthcare expenditure



Source: own depiction, 2015

Since economic data are usually incomplete and involve uncertainties, it appears to be particularly important to perform a sensitivity analysis. To test the robustness of the results, one-way sensitivity analyses were performed. As a result, cardiovascular events had the strongest impact on the result.

Conclusion

Type 2 diabetes mellitus is a common disease and the prevalence is expected to increase considerably in the future. The research showed that the treatment of diabetes mellitus type 2 patients causes about 2 billion Euro, including direct as well as indirect costs. Thus, the findings demonstrate the high economic importance of the disease.

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Additional Literature with the author

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