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COST-EFFECTIVENESS OF THE USE OF ANGIOTENSIN-II-RECEPTER BLOCKERS IN PATIENTS WITH TYPE 2 DIABETES AND NEPHROPATHY IN JAPAN

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OBJECTIVE: To assess the cost-effectiveness of the use of telmisartan (angiotensin-II-receptor blocker, ARB) in patients with type 2 diabetes and microalbuminuria in Japan. **METHODS:** We developed the life-time Markov model that predicts the progression of diabetic nephropathy. Probabilities of disease progression were taken from the results of INNOVATION study, which was the first large-scale clinical study to investigate prevention of overt diabetic nephropathy using an ARB in normotensive and hypertensive Japanese patients with type 2 diabetes. Sixty-two year-old Japanese male patients with type 2 diabetes and microalbuminuria were chosen as the model cases for this analysis. Three management strategies were compared: 1) use of telmisartan at the dose of 80 mg daily (T80); 2) use of telmisartan at the dose of 40 mg daily (T40); and 3) no ARB treatment (control). Payers' perspective was considered to estimate the costs. The costs for laboratory tests and pharmaceuticals were obtained from the National Price List of 2007. The cost of dialysis was derived from a published article. Quality-adjusted life years (QALYs) was used to describe the health outcomes. Discounting for both the future cost and the health outcome was performed at an annual rate of 3%. **RESULTS:** As compared with the expenditure in the control group, a projected saving of 120 million yen and 490 million yen, respectively, was estimated for every 1000 patients on T80 and T40. T80 added 2870 QALYs, whereas T40 added 1760 QALYs in 1000 patients. The incremental cost-effectiveness ratio for T80 as compared with that for T40 was 330,395 per QALY gained. T80 was considered to be cost-effective as compared with T40 and no ARB treatment under a wide range of plausible assumptions. **CONCLUSION:** Use of telmisartan at the dose of 80 mg daily in male patients with type 2 diabetes and microalbuminuria appeared to be a cost-effective treatment in Japan.

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CANADIAN COST UTILITY ANALYSIS COMPARING EXENATIDE VERSUS INSULIN GLARGINE IN PATIENTS WITH TYPE TWO DIABETES

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OBJECTIVE: The aim of this study was to assess the incremental cost per quality-adjusted life year of exenatide versus insulin glargine when added to oral therapy for patients with poorly controlled type 2 diabetes from the Canadian health care perspective. **METHODS:** Costs and quality-adjusted life years (QALYs) were modelled for fifty years using the CORE Diabetes Model, a validated and peer reviewed computer simulation model. The model simulates the progression of diabetes related complications based on data from the published literature. Analyses were conducted for a cohort of patients with the same characteristics as those participating in a randomized controlled trial comparing exenatide to insulin glargine. Progression was modified by the treatment effects observed in the clinical trial. Costs and QALYs were derived by weighting events by published utility values and Canadian specific costs for 2007. Costs and

QALYs were discounted at 5% as per Canadian guidelines. Extensive sensitivity analyses were conducted relating to all treatment effects including the impact on weight. In addition, probabilistic sensitivity analysis assessed the probability that treatments were cost-effective given the available data. **RESULTS:** Exenatide was associated with higher lifetime costs per patient than insulin glargine (CDN\$57,400 versus CDN\$44,900), but with higher expected QALYs (5.68 versus 5.33) at a cost per QALY gained of CDN\$36,300. Results were most sensitive to changes in the impact of treatment on weight: when assuming no reduction in weight with exenatide, the incremental cost per QALY was greater than CDN\$50,000. The probabilistic analysis found that the probability that exenatide is cost effective (assuming a threshold of CDN\$50,000) is 75%. **CONCLUSION:** Based on previous decisions relating to the funding of treatments for chronic therapy in Canada, these results demonstrate that exenatide may represent a cost-effective alternative to insulin glargine in this specific patient population.

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LOST PRODUCTIVITY ASSOCIATED WITH TYPE 1 AND TYPE 2 DIABETES IN A COMMERCIALY-INSURED POPULATION

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OBJECTIVE: Indirect costs due to lost productivity account for an estimated one-third of the total economic burden associated with diabetes. Little is known about the relative contributions of type 1 (T1DM) and type 2 diabetes (T2DM) to indirect costs. This study quantifies and compares the amount of work loss incurred by individuals with T1DM and T2DM. **METHODS:** Productivity data (Thomson MarketScan) from a database of the commercially-insured was used to identify individuals for analysis. Patients with diabetes in the pre-period with at least two claims for an antidiabetic drug in 2005 and 24 months of continuous enrollment were selected. Control groups of persons without diabetes were selected using propensity score matching. Total number of days lost due to paid absence and short-term disability (STD), conditional upon work loss, were evaluated. Associated costs were estimated using an average hourly wage and benefit rate of \$30.00. **RESULTS:** A total of 877 patients with T1DM and 7033 patients with T2DM were identified. Patients with T1DM who incurred work loss missed an average of 25.4 days due to absence and 45.6 days due to STD, valued at \$6108 and \$7659, respectively. Patients with T2DM with work loss missed an average of 29.7 days due to absence and 46.5 days due to STD, valued at \$7136 and \$7812, respectively. Patients with T1DM missed significantly more days due to STD than did their matched controls (45.6 vs. 37.5 days) ($p < 0.0001$); patients with T2DM had significantly more absence days than their matched controls (29.7 vs. 27.7 days) ($p < 0.0001$). **CONCLUSION:** Patients with T2DM incurred more work loss than patients with T1DM. Patients with T1DM incurred more work loss due to STD, but not to paid absence, than did their non-diabetic controls, while patients with T2DM had more work loss due to paid absence, but not STD, than did their matched controls.