

Additional file 5. Health utility and cost parameters for type 2 diabetes patients with and without cardiovascular disease history

Description	Base value (range) [PSA distribution]	Reference
Baseline health utility values of T2D patients with and without CVD history in state of no event: 0.798 (0.782-0.814) and 0.983 (0.967-0.999), respectively*		
Utility penalties		
Stroke	0.266 (0.186-0.346) [Normal]	Kuo ¹
Myocardial infarction	0.185 (0.036-0.334) [Normal]	
Heart failure	0.237 (0.178-0.296) [Normal]	
Age (per year greater; centered at 62)	0.002 (N/A)	
Baseline annual healthcare costs for T2D patients with and without CVD history under routinely care of T2D: USD 624 (619-628) and USD 529 (525-532), respectively*		
Cost multipliers		
Stroke (event-year)	2.95 (2.92-2.98) [Normal]	Chen ²
Stroke (state-year)	1.44 (1.43-1.45) [Normal]	
Myocardial infarction (event-year)	2.53 (2.48-2.58) [Normal]	
Myocardial infarction (state-year)	1.18 (1.16-1.20) [Normal]	
Heart failure (event-year)	2.24 (2.21-2.27) [Normal]	
Heart failure (state-year)	1.49 (1.47-1.52) [Normal]	
Cardiovascular death	20.49 (19.93-21.05) [Normal]	
Non-cardiovascular death	16.42 (16.20-16.64) [Normal]	
Annual drug acquisition costs		
SGLT2is	384 (373-395) [Triangular]	NHI ³
DPP4is	214 (87-319) [Triangular]	

Abbreviations: T2D: type 2 diabetes; CVD: cardiovascular disease; PSA, probabilistic

sensitivity analysis; N/A, not available; SGLT2is, sodium-glucose cotransporter-2 inhibitors; DPP4is, dipeptidyl peptidase 4 inhibitors; NHI, National Health Insurance.

*The baseline health utility and cost parameters for base-case patients in this study were estimated based on our assumptions of patient baseline characteristics (i.e., age of 55 years, diabetes duration of 8 years, exposure to oral antidiabetic agents [SGLT2is or DPP4is]) and stratified by the presence of CVD history. For example, the baseline health utility and cost parameters for T2D patients with CVD history were 0.798 (i.e., 0.983 [baseline health utility for T2D without CVD history] – 0.185 [utility penalty due to the presence of CVD history]) and USD 624 (i.e., USD 349.63 [baseline costs for T2D patients aged 55 years] × 0.85 [cost multiplier for diabetes duration of 8 years] × 1.78 [cost multiplier for initiating DPP4i or SGLT2i] × 1.18 [cost multiplier for having CVD history]), respectively.

References:

1. J Diabetes Investig. 2021 Sep;12(9):1749-1758.
2. Diabetes Care 2020;43(8):1732-1740.
3. List of reimbursed drugs by NHI. Available from <https://www.nhi.gov.tw/QueryN/Query1.aspx> on July 04, 2021.