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### DESCRIPTIVE COST ANALYSIS OF TELECONSULTATION IN UMMC DIABETES CLINIC

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#### INTRODUCTION

Teleconsultation has become an increasingly important service in managing T2DM especially with the ongoing COVID-19 pandemic and is assumed to be less costly to patients compared to physical visits. This study aimed to compare patients' cost for a teleconsultation session vs physical clinic visit.

#### METHODOLOGY

This was a cross-sectional study from June 2020 to December 2021 in UMMC which included patients who had successfully participated in teleconsultation sessions. Patient interviews were conducted to collect demographics, detailed cost items (direct/indirect cost) and a self-administered Patient Satisfaction Questionnaire Short Form (PSQ-18). HbA1c and average self-monitoring blood glucose (SMBG) records at baseline and 3-months after teleconsultation were obtained from electronic medical records (EMR).

#### RESULTS

A total of 36 patients were recruited. The median cost of attending a physical visit was significantly higher compared to teleconsultation (RM 123.41 [54.29, 219.51] vs RM 41.41 [30.55, 49.66];  $p < 0.001$ ) with a median cost difference of RM 81.24 [20.20, 171.69]. Indirect costs (income loss from absence) made up the majority of the cost saving with teleconsultation (teleconsultation RM 10.71 [0.00, 18.45], physical visit RM 95.24 [0.00, 182.74];  $p < 0.001$ ). There was a reduction in HbA1c (9.45% [7.98, 11.38] to 8.25% [7.42, 9.49];  $p < 0.001$ ) and average fasting SMBG (8.11 mmol/L [6.75, 9.70] to 7.20 mmol/L [6.22, 8.71];  $p = 0.03$ ) after 3 months of teleconsultation. Patients reported high satisfaction levels with teleconsultation, with an overall PSQ-18 score of 78%.

#### CONCLUSION

Teleconsultation service in UMMC Diabetes outpatient clinic was cost saving to patients compared to physical visits without compromising blood glucose control. Teleconsultation may be a viable option of healthcare provision for many patients and may be considered as part of routine care.

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### USE OF BACILLUS CALMETTE–GUERIN VACCINATION TO PRESERVE BETA CELL FUNCTION IN TYPE 1 DIABETES MELLITUS

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#### INTRODUCTION

The Bacillus Calmette–Guerin (BCG) vaccine is a suspension of live attenuated Mycobacterium bovis used to prevent tuberculosis. It has been shown to modulate immune responses and decelerate the progression of type 1 diabetes mellitus (T1DM).

#### METHODOLOGY

We report a case of T1DM in partial remission after receiving repeated BCG vaccination. A 57-year-old female diagnosed to have T1DM at the age of 53, presented with severe diabetic ketoacidosis requiring intubation. HbA1c on presentation was 14.1% with elevated anti-glutamic acid decarboxylase (anti-GAD) of >250 IU/ml. She was discharged on basal bolus insulin regimen, with a total daily dose (TDD) of 44 units of insulin daily (0.88 units/kg/day).

#### RESULTS

A total of four doses of BCG vaccination were given within 24 months, with the first dose given 6 months after diagnosis. TDD of insulin was reduced to 24 units/day (0.48 units/kg/day) 3 months after the first dose, TDD further reduced to 16 units/day (0.32 units/kg/day) after the last dose of BCG vaccination. HbA1c levels remained stable at <6% 3.5 years post diagnosis and fasting C-peptide level increased from 32.23 pmol/L to 299.1 pmol/L (reference range 370-1470). Patient achieved partial remission of T1DM, which is defined by HbA1c <6% and TDD of insulin of  $\leq 0.5$  unit/kg/day.

#### CONCLUSION

BCG vaccine plays an important role in preserving pancreatic beta cell function and delaying the progression of T1DM. The impact of BCG vaccine on blood glucose appeared to be driven by the resetting of the immune system. BCG vaccine acts by releasing tumour necrosis factor which reduces the levels of suppressor T-cells that are responsible for pancreatic islet cell destruction in T1DM. BCG vaccine administration also shifts glucose metabolism from overactive oxidative phosphorylation to aerobic glycolysis.