

Abstract No. 22 : Effectiveness and Sustainability of Re-education on Insulin Injection Technique in Patients with Type 2 Diabetes Mellitus in a Primary Health Clinic Malaysia

Theme	A. Non-communicable diseases
Author(s)	: Chia Woon Tai ¹ , Amanina Binti Ali Faishal ¹ , Nur Nashrah Binti Khushairi ¹ , Nur Syafiqah Binti Mohd Asri ¹ , Madisah Nasuha Binti Yunus ¹ , Yusuhaimi Bin Remli ¹
Affiliation(s)	: Pharmacy Unit of Mahmoodiah Health Clinic Johor Bahru, Ministry of Health Malaysia

Purpose / Background:

Background:	Correct insulin storage and injection technique are crucial for good glycaemic control in patients with Type 2 Diabetes Mellitus (T2DM). Lipohypertrophy (LH) is one of the general problem associated with poor insulin injection technique. Despite advancements in insulin pen technology, errors in the administration technique are still common among patients. The purpose of this study is to assess the insulin injection technique of patients and the impacts of re-education on insulin injection technique on glycaemic control.
Purpose:	To evaluate if pharmacist-delivered re-education on insulin injection technique can improve haemoglobin A1c (HbA1c) over 6-month and 18-month interval in patients with poor control of T2DM.

Table 1: Background and Purpose of Study

Abstract No. 22 : Effectiveness and Sustainability of Re-education on Insulin Injection Technique in Patients with Type 2 Diabetes Mellitus in a Primary Health Clinic Malaysia

Methods

A prospective study was carried out at Mahmoodiah Health Clinic from June 2018 until January 2019. A hundred of patients were recruited and all patients were treated with insulin.

Excluded criteria:

Patients with T2DM with non-insulin injection

Patients who are recruited in DMTAC programme

Last reading of HbA1c \leq 7.5%

Information Required Recorded Into Data Collection Form

- Participants will be given consent form in the English language and their demographic information and history of T2DM will be collected and recorded in the form.
- Education on the insulin injection technique will be given by a single researcher who is a trained Diabetes Medication Therapy Adherence Clinic (DMTAC) pharmacist.
- Assessment of insulin injection technique is standardized based on the latest guidelines on medication counselling published by Pharmaceutical Services Division of MOH Malaysia in 2014.
- Participants' injection technique and HbA1c were assessed at baseline, 6 months and 18 months afterward.

Result analyzed using SPSS Version 20

Descriptive, paired T test for parametric data

Figure 1: Study Flow

Results

Table 2: Demographic Characteristic

Characteristics	No. of Patients (n=100)
Age (years) 58.88 \pm 8.13 (Mean \pm SD)	
Gender	
Male	45
Female	55
Ethnicity	
Malay	58
Chinese	16
Indian	26

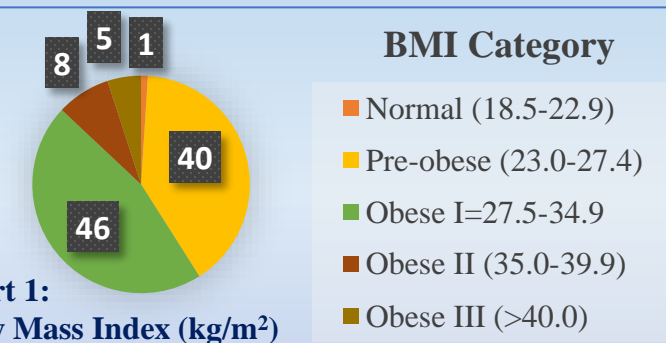


Chart 1: Body Mass Index (kg/m²)

Abstract No.22 : Effectiveness and Sustainability of Re-education on Insulin Injection Technique in Patients with Type 2 Diabetes Mellitus in a Primary Health Clinic Malaysia

Results & Conclusions:

**Chart 2 :
 Frequency of Needles Reuse**

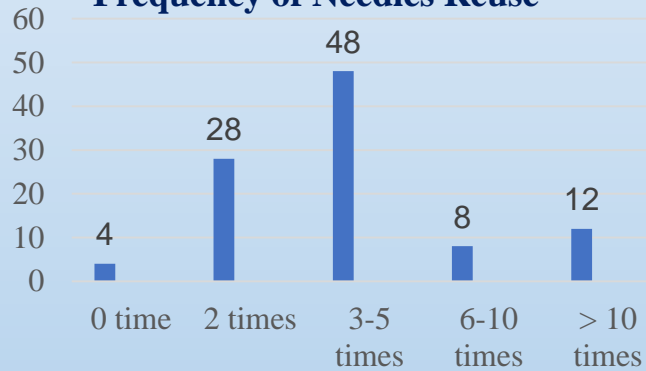


Chart 3 : Storage of Insulin

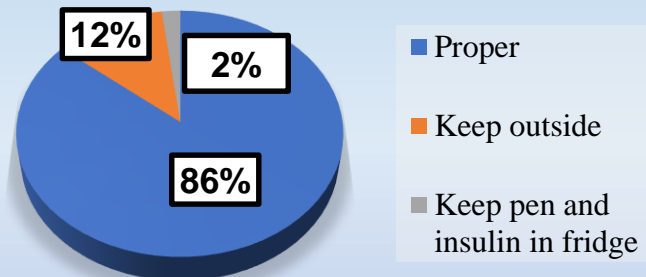


Table 3: Outcomes of Pre and Post Re-education

Steps of insulin injection technique and presence of lipohypertrophy	Pre-education (n = 100)	Post-education (n = 100)
	Frequency (n)	Frequency (n)
Mix insulin uniformly before injection	75	98
To prime the insulin pen before injection (2 units)	64	93
Injecting insulin at an angle of 90°	72	90
Hold the needle for at least 10 seconds before removing it	86	98
Detach the needle from insulin pen after injection	56	84
Check insulin level and replace with new cartridge when needed	74	94
Presence of lipohypertrophy	20	0

Table 4: Mean Difference of HbA1c Between Baseline, 6-month and 18-month Follow-up

Variables	Pre-education Mean (SD)	Post-education Mean (SD)	Mean difference (6-month)	Mean difference (18-month)
HbA1c (%)	9.93 (1.57)	8.81 (1.60)	↓ 1.11	↓ 0.42

Conclusion:

The mean reduction of HbA1c within 6 months post intervention was 1.11%. However, the significant HbA1c reduction decreased to 0.42% (1.96) when comparing baseline and 18-month follow-up measurement. There was a significant gap between the insulin delivery recommendation through insulin pen and current insulin injection practice. The findings from this study implied that re-education on insulin injection technique is necessary during each follow up as it may improve the long term glycaemic control among patients with T2DM.