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# **Reducing The Percentage Of Improper Insulin Pen Care Handling Among Patients In**

Kampar District Health Office

**KONVENSYEN QA KEBANGSAAN 2024  
(8 – 10 OKTOBER 2024)**

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# Meet Our Team



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PKD Kampar



**Tang Xuan Han**

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Klinik Bergerak



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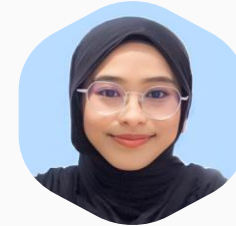
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**Nuraini bt Osman**

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**Farah Mardiah bt  
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Klinik Kesihatan Kampar



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**Selection of**  
**01** ✨ **Opportunities for** ✨  
**Improvement**

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# Problem Identification

1



Low awareness on timing of insulin injection among T2DM patients at Mobile Clinic PKD Kampar

2



High return rate of Metformin tablet at pharmacy

3



High numbers of improper insulin pen care handling among patients

4



High usage of Folic Acid Syrup

# Problem Prioritization (SMART Criteria)

NO	PROBLEM	S	M	A	R	T	TOTAL
1	Low awareness of timing of insulin injection among T2DM patients at Mobile Clinic PKD Kampar	27	17	27	18	18	107
2	High quantity of Metformin Tablet returned to pharmacy	20	27	27	18	16	108
3	<b>High numbers of improper insulin pen care handling among patients</b>	<b>27</b>	<b>20</b>	<b>27</b>	<b>20</b>	<b>16</b>	<b>110</b>
4	High usage of Folic Acid Syrup	9	27	27	18	18	99

10 Team Members

Marks Awarded	1	2	3
Rating	Low	Average	High



# Problem Chosen



**High numbers of improper insulin pen care handling among patients**



# Reason For Selection

## Seriousness

S

In verification study, 18 out of 23 cases visiting the pharmacy department for insulin pen issues were due to improper insulin pen care handling. Improper pen usage cause:

Increase dosing error

Insulin  
degradation/expiration

## Measurable

M

Data related to the problem can be obtained using questionnaire form

## Appropriateness

A

This study has direct impact to the patients and will likely result in an improvement in glycemic control.

## Remediable

R

With the implementation of remedial measures, improper insulin pen care handling can be reduced

## Timeliness

T

The study and remedial measures can be carried out within a year



# Problem Statement

<b>PROBLEM</b>	A survey conducted in verification study show that 18 out of 23 patients in 3 selected health clinic showed improper insulin pen care		
<b>EFFECT</b>	Improper use of insulin pen can cause:		
	Increase dosing error	Insulin degradation/expiration	
<b>POSSIBLE CAUSE</b>	Various factors can contribute to improper insulin pen care:		
	Lack of knowledge	Lack of counselling material	Misinformation
<b>AIM OF STUDY</b>	Reducing the percentage of improper insulin pen care handling among patients in Kampar District Health Office.		





# Term and Definition

## INSULIN

Insulin is a peptide hormone secreted in the body by beta cells of islets of Langerhans of the pancreas and regulates blood glucose levels

*(Thota & Akbar, 2023)*



A disposable pen with prefilled cartridge or a reusable insulin pen with replaceable insulin cartridge allowing push-button injections.

*(Diabetes Care, 2024)*

## INSULIN PEN

# Term and Definition

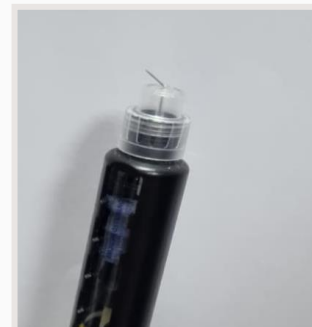
## IMPROPER INSULIN PEN CARE

Patient with issue as below:

Plunger and rubber stopper detached	Storing pen with needle attached
Bent needle	Needle used more than 3 times
Improper pen storage	Empty cartridge



Plunger & Rubber stopper detached



Bent needle



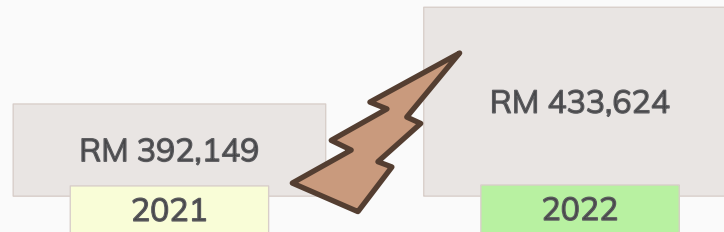
Storing pen with needle attached

# Introduction

According to National Diabetes Registry (NDR), at the end of 2020 approximately **1 million Malaysians were diagnosed with Diabetes Mellitus** which comprise of 99.33% with T2DM followed by 0.59% with T1DM and others 0.06%.<sup>5</sup>

In PKD Kampar, there was a total of **4,920 active diabetes cases in year 2022** and **1,198 (24.35%) patients** were treated with insulin therapy.

There was an increment in insulin expenses in PKD Kampar from 2021 to 2022 by **10.58%**.



# Literature Review

In daily usage, 60% patient refrigerated their in-use insulin pen and 68% never noticed a visual change in the insulin quality of the in-use pen.

*(Kongmalai & Sriwijitkamol , 2019)*

Storage of pen needle attached may cause air accumulation in the cartridge or insulin loss by creating an open path between the cartridge and room air.

*(Mitchell VD, Porter K, Beatty SJ, 2012)*

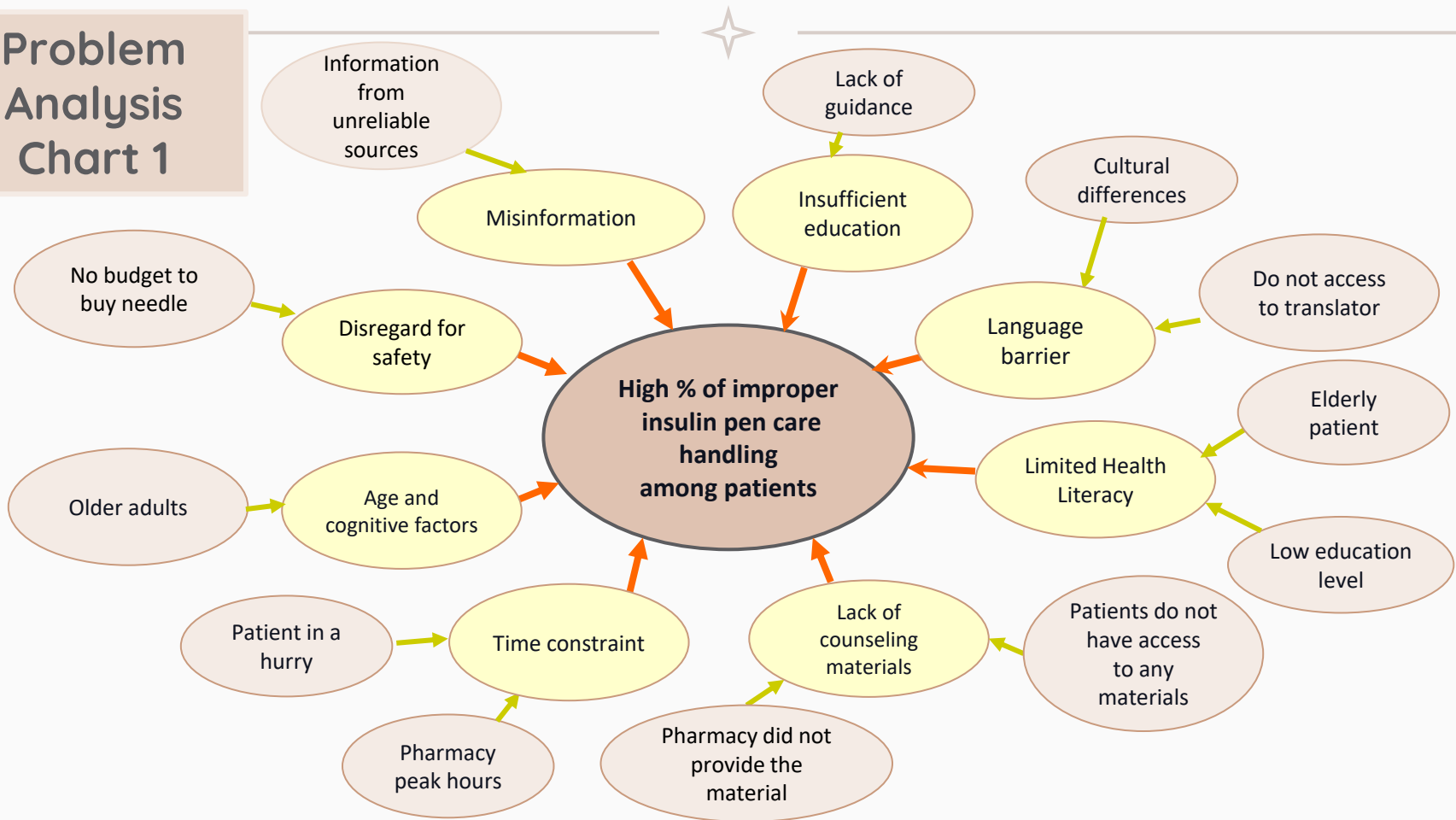
Repeated use of needles amplifies the risk of needle contamination. Patients using insulin needles several times have more pain at injection site.

*(Misnikova, I.V et. Al, 2011)*

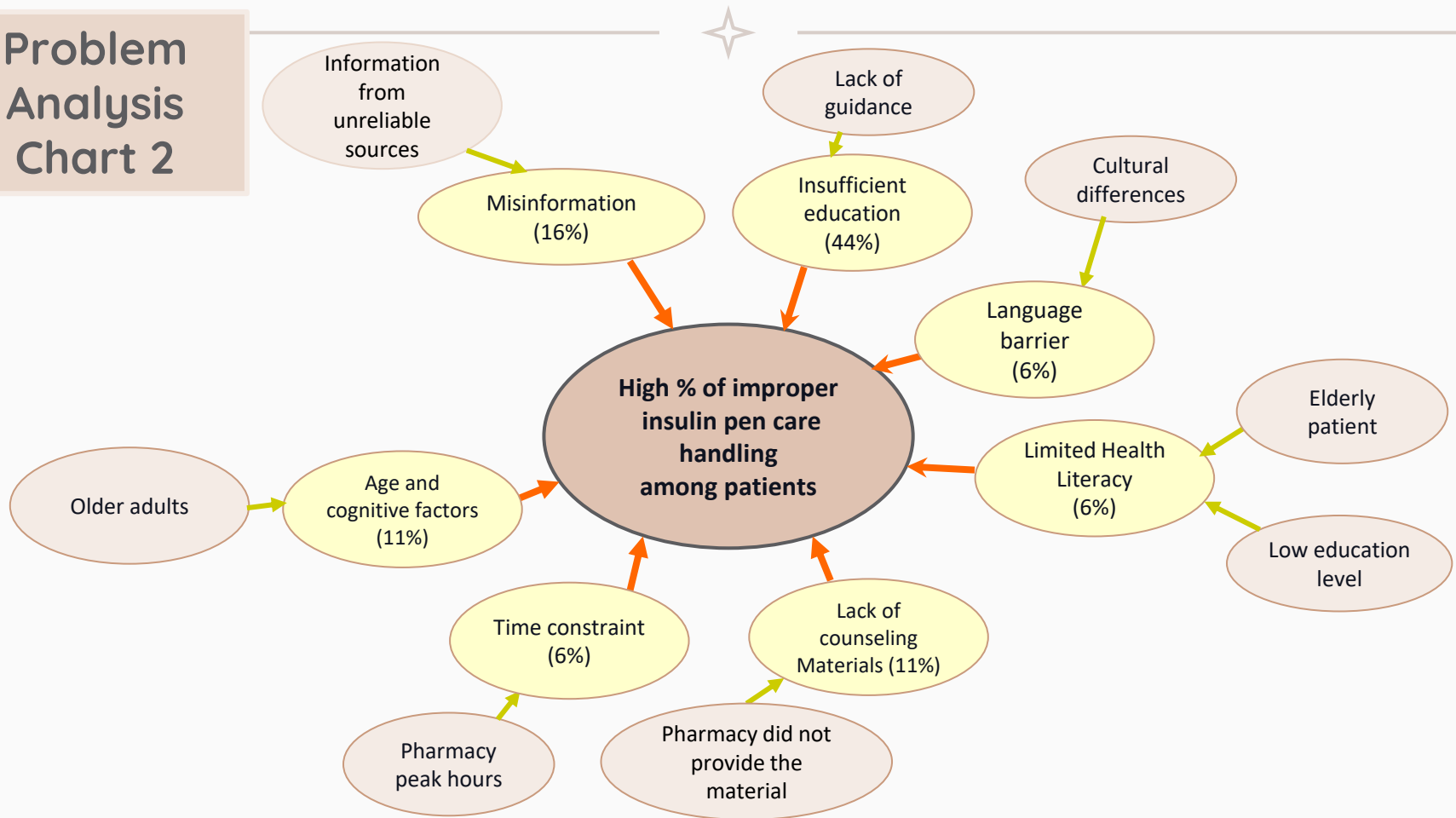
Barrier treatment such as cultural issues, educational level, language barriers, literacy levels and other characteristics of patient communication skills may affect outcomes.

*(Athiyah,Umi & Aditama, Lisa., 2018)*

# Problem Analysis Chart 1



# Problem Analysis Chart 2



# Study Objectives

## General Objective:

To reduce the percentage of improper insulin pen care handling among patients in Kampar District Health Office.

## Specific Objectives:

1

To verify the percentage of improper insulin pen care handling among patients.

2

To identify the contributing factors to improper insulin pen care handling.

3

To formulate and implement proper remedial action.

4

To evaluate the effectiveness of remedial action.

02

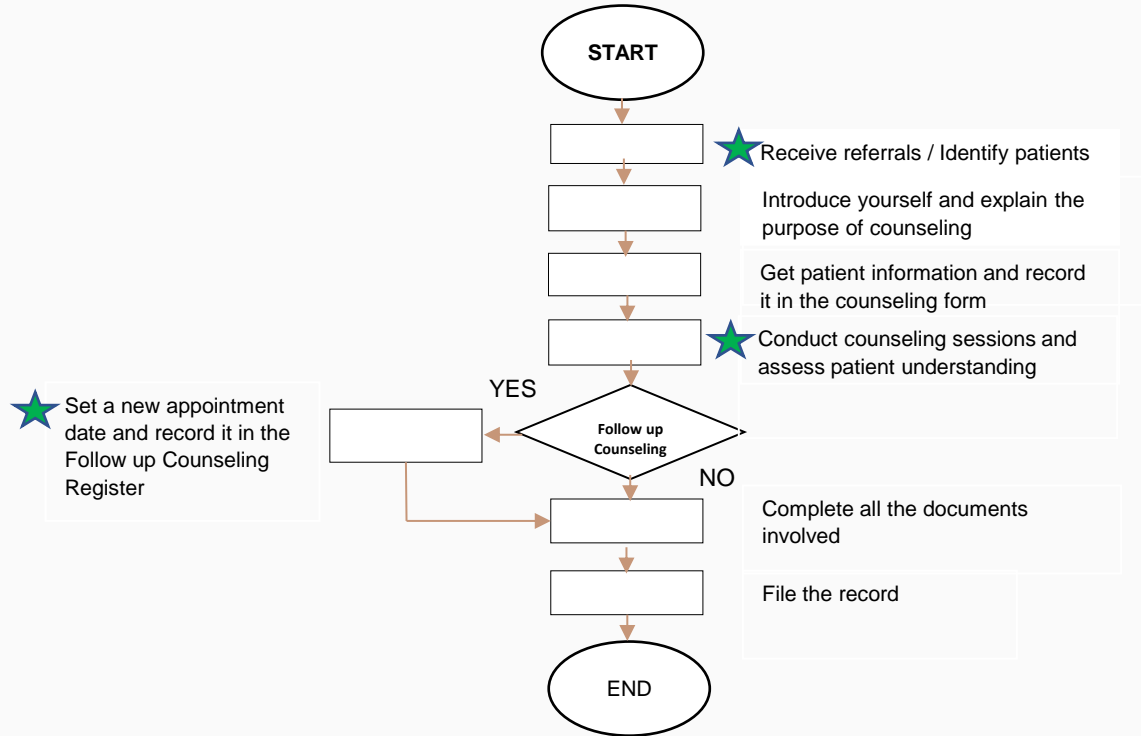


# Key Measures for Improvement





# Process of Care: Individual Counselling





# Model Of Good Care (MOGC): Individual Counseling

No	Process	Criteria	Standard
1.	Receive referrals / Identify patients	<ul style="list-style-type: none"><li>a. Check the prescription and identify if there is a prescriber note for counseling</li><li>b. Key in patient data into PHIS</li><li>c. Prepare the patient's medication</li><li>d. Dispense medicine to patients</li><li>e. Ask the patient to the counseling room for a counseling session</li></ul>	100% 100% 100% 100% 100%
2.	Conduct counseling sessions and assess patient understanding	<ul style="list-style-type: none"><li>a. Introduce yourself and the purpose of counselling</li><li>b. Pathophysiology of diabetes mellitus (DM)</li><li>c. Differentiate the short- and intermediate-acting insulin at first counseling session</li><li>d. Demonstrate the technique of using an insulin pen</li><li>e. Describe additional information related to:<ul style="list-style-type: none"><li>i) Adherence to insulin injection</li><li>ii) Site of administration</li><li>iii) Administration time</li><li>iv) Storage and expiry of Insulin</li><li>v) Glucose monitoring at home</li><li>vi) Symptoms of hypoglycemia and its correction</li><li>vii) Supply of insulin, pen and needle</li></ul></li><li>f. Review of patient understanding</li><li>g. Provide supporting materials for patient reference at home</li></ul>	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%
3.	Set a new appointment date and record it in the Follow up Counseling Registry	<ul style="list-style-type: none"><li>a. Set a date for follow-up counseling within 2 weeks</li><li>b. Ask for patient consent</li><li>c. Record it in the Follow-up Counseling Registry</li></ul>	100% 100% 100%



# Indicator and Standard

<b>INDICATOR</b>	<b>Percentage of improper insulin pen care handling</b>
<b>FORMULA</b>	<b>Percentage of improper insulin pen care = <math>\frac{\text{Number of improper insulin pen care handling}}{\text{Total number of patients with insulin therapy}} \times 100\%</math></b>
<b>STANDARD</b>	<b><math>\leq 0.5\%</math> <i>As agreed in Pharmacy Department Meeting 01/2023</i></b>

03



# Process of Gathering Information



# Methodology



## Study design



### Cross-sectional study

Conducted in 3 health clinic  
(Kampar Health Clinic, Gopeng Health Clinic &  
Malim Nawar Health Clinic)



## Sampling Technique



### Universal Sampling Technique



## Study sample



Patient with insulin therapy



**Inclusion criteria** : All insulin patients who  
register under National Diabetic Registry (NDR)



**Exclusion Criteria** : Patient's representative



# Methodology



Sample size

Pre : 1,208



Post-1 : 1,169

Post-2 : 1,183



Study Duration

Pre (February – March 2023)



Post-1 (July – August 2023)

Post-2 (December 2023 – January 2024)

# Methodology

## Study Tools

**Questionnaire to Evaluate Limited Understanding of Insulin Pen Care Among Patients**

- 1) Patient Name: \_\_\_\_\_
- 2) IC No.: \_\_\_\_\_
- 3) Date or year of starting insulin: \_\_\_\_\_
- 4) Date or year of last counseling received for insulin: \_\_\_\_\_
- 5) Last counseling received by: Patient / Family Members
- 6) Please choose the contributing factors that have been identified.  
\*Can tick more than one contributing factor

Contributing Factors	Description	Please tick (✓)
Insufficient Education, Lack of Guidance	Healthcare providers might not have provided clear instructions or guidance on how to properly care for insulin pens, leaving patients uninformed.	
Language Barriers	Patients who do not speak the primary language of the healthcare instructions might struggle to understand.	
Limited Health Literacy	Patients with low health literacy levels might find it difficult to understand complex medical instructions, including those related to insulin pen care.	
Lack of Counseling Materials	Patients do not have access to any written materials or visual aids.	
Time Constraints	Limited time during appointments to thoroughly explain insulin pen care, leaving patients with only partial information. Pharmacy peak hours or the patient in a hurry.	
Age and Cognitive Factors, Memory Issues	Older patients or those with cognitive impairments might face challenges in grasping new information or remembering care instructions.	
Misinformation	Patients might receive incorrect information from unreliable sources, leading to misconceptions about insulin pen care.	
Disregard for Safety	Patients who are not fully aware of the potential consequences might prioritise convenience over safety.	
Others	Please specify:	

7) Please provide details about the actions or interventions that have been taken:

8) Date & Name of Pharmacy Staff: \_\_\_\_\_

*Questionnaire Form*



# Data Entry

Questionnaire to evaluate limited understanding of insulin pen care among patients

Bil.	Fasiliti	Feb-Mar 23	Jul-Aug 23	Dis23-Jan-24		
1	Klinik Kesihatan Kampar	9				
2	Klinik Kesihatan Gopeng	5				
3	Klinik Kesihatan Malim Nawar	16				
		30				

Faktor Penyumbang

	Faktor	Feb-Mar 23	Jul-Aug 23	Dis23-Jan-24		
A	Insufficient education, lack of guidance	10				
B	Language barriers	2				
C	Limited Health Literacy	3				
D	Lack of counseling materials	3				
E	Time constraints	1				
F	Age and cognitive factors, memory issues	3				
G	Misinformation	3				
H	Disregard for safety	1				
	PEN ROSAK	4				

Responden

	Nama	Jantina	Bangsa	Umur	Berapa tahun on insulin	KK
1		L	C	62	3	KKG
2		P	I	43	8 bulan	KKG
3		P	I	51	3	KKMN
4		L	M	54	1	KKMN
5		L	C	60	3	KKMN

*Microsoft Excel*

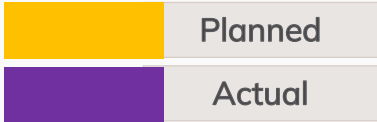


# Plan for Data Collection

Factors	Variables need to be collected	Data collection tool	Responsibility
Indicator of the study	Number of improper insulin pen care handling	Questionnaire form	Farah Mardhiah Noraini Ahmad Faris
	Total number of patients with insulin therapy	Pharmacy Information System (PhIS) National Diabetes Registry	Nurul Diyana  Nor Zuraida Dr. Elleasha
Factors contributing to the problem	<ol style="list-style-type: none"><li>1. Insufficient education</li><li>2. Misinformation</li><li>3. Lack of counselling Materials</li><li>4. Age and cognitive factors</li><li>5. Language barrier</li><li>6. Limited Health Literacy</li></ol>	Questionnaire form	Farah Mardhiah Noraini Ahmad Faris
Blood Glucose Level	Patient's Hemoglobin A1C (HbA1C)	Chemolims system (Pathology)	Nor Zuraida Dr. Elleasha



# Gantt Chart



	Dis 22	Jan 23	Feb 23	Mac 23	Apr 23	Mei 23	Jun 23	Jul 23	Aug 23	Sep 23	Okt 23	Nov 23	Dis 23	Jan 24	Feb 24
<b>Committee establishment</b>	Planned Actual														
<b>Brainstorming &amp; problem selection</b>		Planned Actual													
<b>Verification study &amp; problem analysis</b>			Planned Actual	Planned Actual											
<b>Remedial action implementation</b>					Planned Actual	Planned Actual	Planned Actual								
<b>Re-evaluation (Cycle 1)</b>								Planned Actual	Planned Actual						
<b>Discussion &amp; remedial action Cycle 2</b>										Planned Actual	Planned Actual	Planned Actual			
<b>Re-evaluation (Cycle 2)</b>													Planned Actual	Planned Actual	
<b>Sustainability</b>															Planned Actual



**04** ✨ **Analysis &**  
**Interpretation** ✨





# Pre-Intervention Data

Percentage of Improper insulin pen care handling (%)

	Number of improper insulin pen care handling	Number of patients with insulin therapy
Kampar HC	5	442
Gopeng HC	3	424
Malim Nawar HC	10	342
<b>TOTAL</b>	<b>18</b>	<b>1,208</b>

$$= \frac{\text{Number of improper insulin pen care handling (A)}}{\text{Total number of patients with insulin therapy (B)}} \times 100\%$$

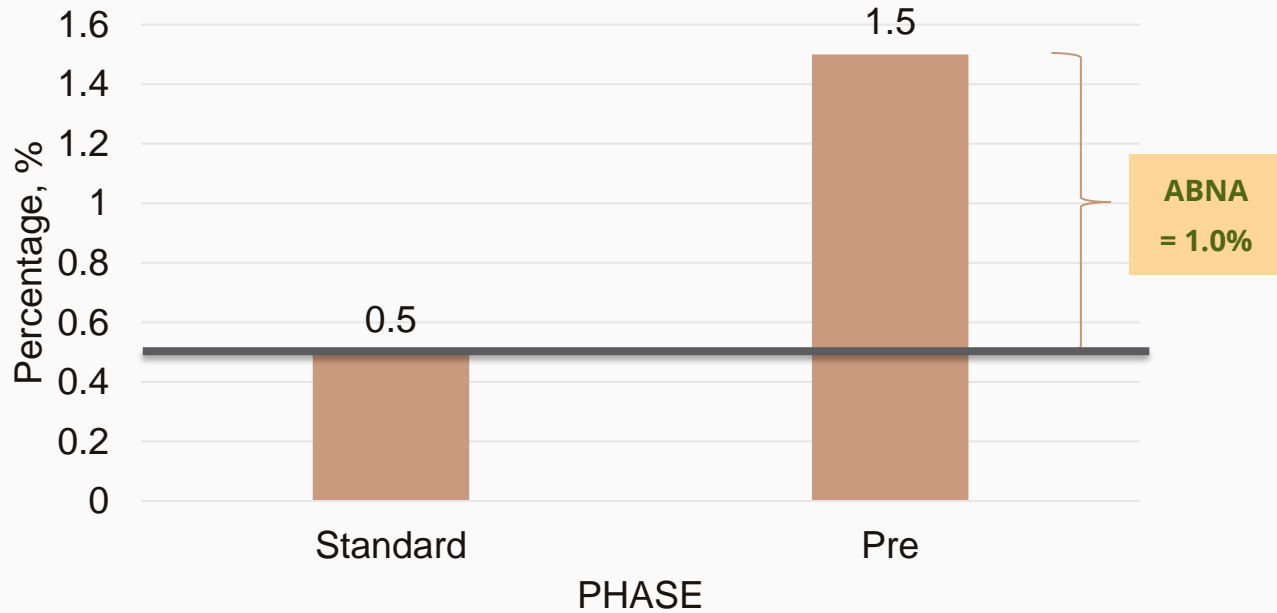
$$= \frac{18}{1,208} \times 100\%$$

$$= \mathbf{1.5\%} \text{ (Feb-Mac 2023)}$$

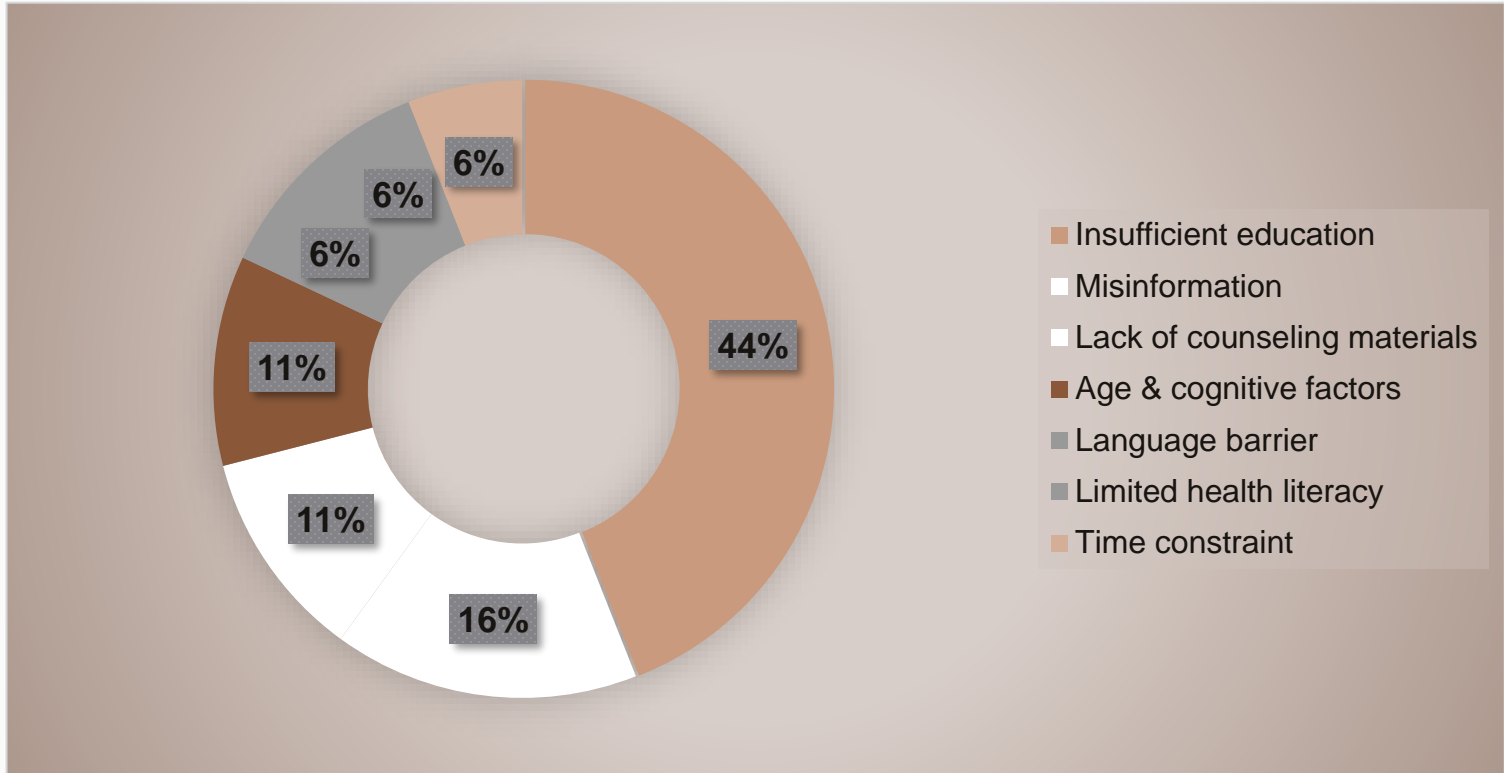
**A = 18, B = 1,208**

# ABNA Chart

Percentage of Improper Insulin Pen Care Handling



# Contributing Factors





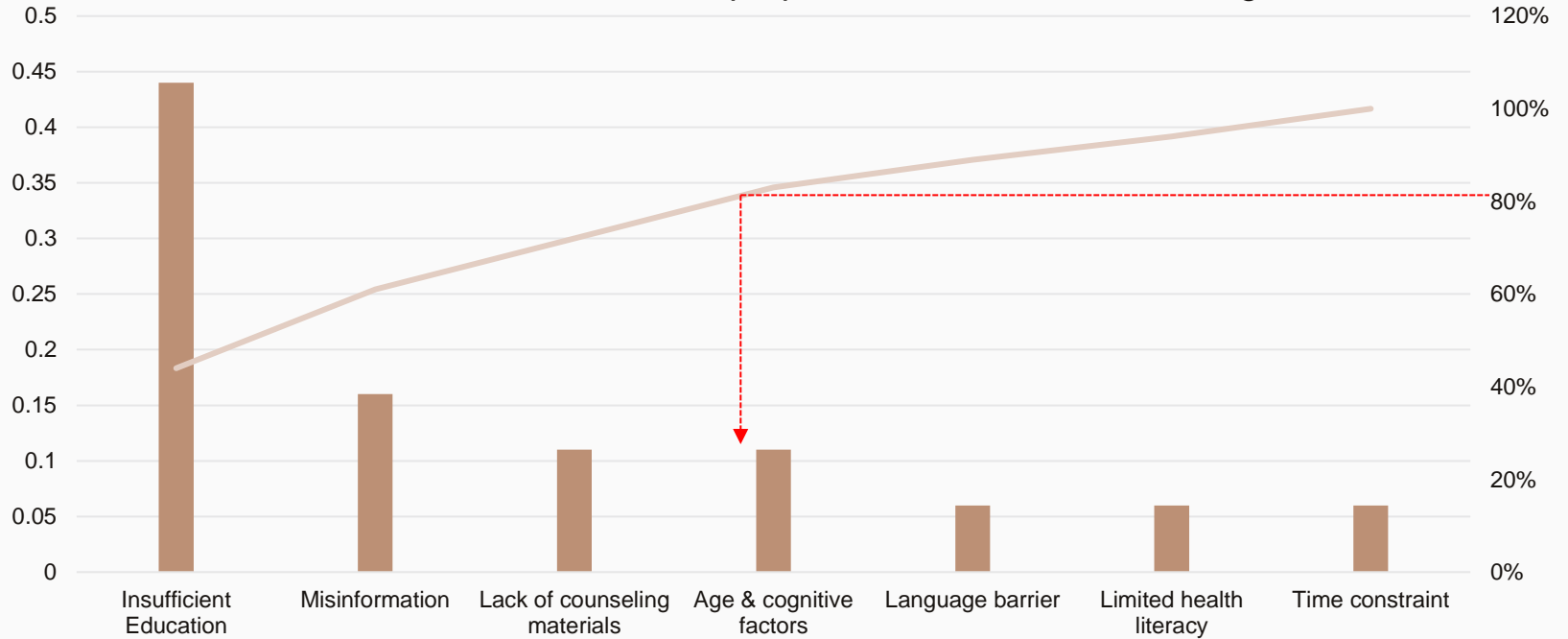
# Pareto Chart

Contributing factors	Frequency, n	Percentage	Cumulative frequency	Cumulative percentage
Insufficient Education	8	44%	8	44%
Misinformation	3	16%	11	61%
Lack of counseling materials	2	11%	13	72%
Age & cognitive factors	2	11%	15	83%
Language barrier	1	6%	16	89%
Limited health literacy	1	6%	17	94%
Time constraint	1	6%	18	100%



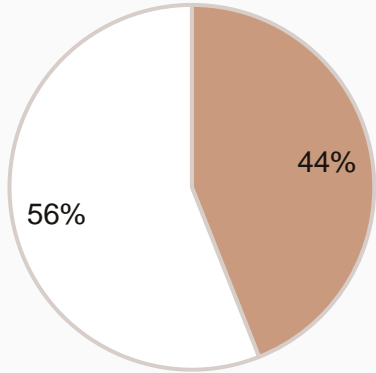
# Pareto Chart

Pareto Chart: Causes of Improper Insulin Pen Care Handling



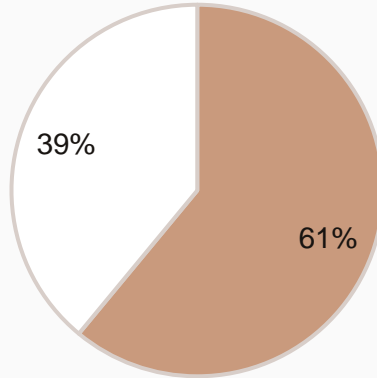
# Demographic Data

## Age



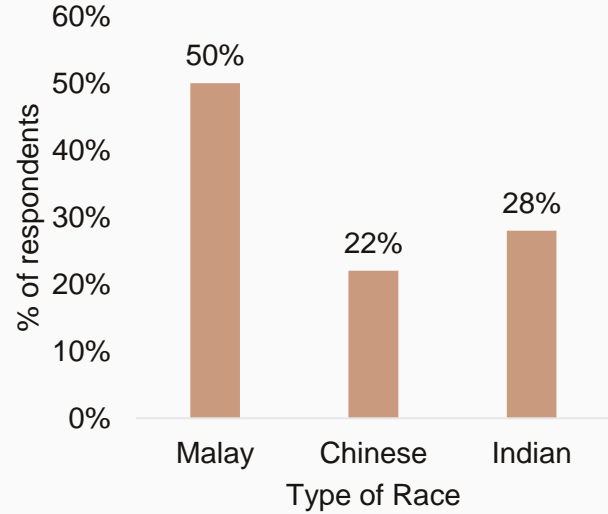
■ Middle-Age Adults (40-59)    □ Old Adults (60-99)

## Gender



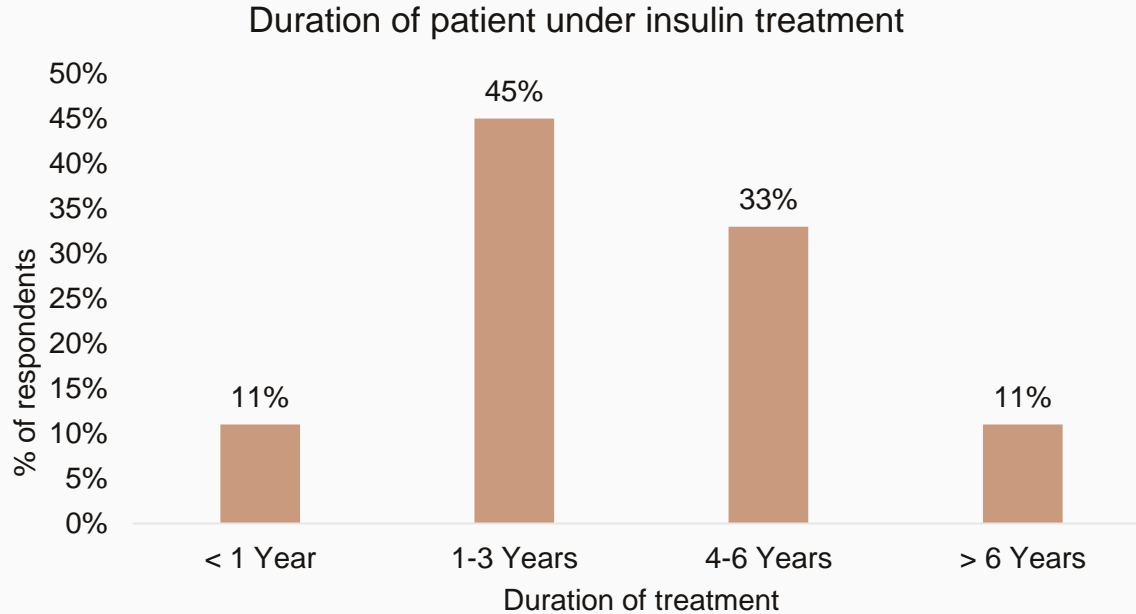
■ Male    □ Female

## Race of Respondents





# Demographic Data





# Model Of Good Care (MOGC): Individual Counseling

No	Process	Criteria	Standard	Pre
1.	Receive referrals / Identify patients	a. Check the prescription and identify if there is a prescriber note for counseling	100%	100%
		b. Key in patient data into PHIS	100%	100%
		c. Prepare the patient's medication	100%	100%
		d. Dispense medicine to patients	100%	100%
		e. Ask the patient to the counseling room for a counseling session	100%	100%
2.	Conduct counseling sessions and assess patient understanding	a. Introduce yourself and the purpose of counselling	100%	100%
		b. Pathophysiology of diabetes mellitus (DM)	100%	50%
		c. Differentiate the short- and intermediate-acting insulin at first counseling session	100%	70%
		d. Demonstrate the technique of using an insulin pen	100%	100%
		e. Describe additional information related to:		
		i) Adherence to insulin injection	100%	100%
		ii) Site of administration	100%	100%
		iii) Administration time	100%	100%
		iv) Storage and expiry of Insulin	100%	80%
		v) Glucose monitoring at home	100%	75%
vi) Symptoms of hypoglycemia and its correction	100%	50%		
vii) Supply of insulin, pen and needle	100%	90%		
f. Review of patient understanding	100%	85%		
g. Provide supporting materials for patient reference at home	100%	0%		
3.	Set a new appointment date and record it in the Follow up Counseling Registry	a. Set a date for follow-up counseling within 2 weeks	100%	0%
		b. Ask for patient consent	100%	0%
		c. Record it in the Follow-up Counseling Registry	100%	0%

05

# Strategy for Change

# Strategy for Change

Contributing factors	How	Who	When
Insufficient Education	<ol style="list-style-type: none"> <li>1) Video collection on insulin technique</li> <li>2) Rescue Card</li> <li>3) Flip chart</li> <li>4) Follow-up counseling</li> <li>5) Handbook</li> </ol>	Helmi/Noraini  Tang/Umairah Diyana Zuraida Hazrina/Farah	Starting April 2023
Misinformation	<ol style="list-style-type: none"> <li>1) Rescue Card</li> <li>2) Flip chart</li> <li>3) Reminder card</li> </ol>	Tang/Umairah Diyana Faris	
Lack of counseling materials	Flip Chart	Diyana	
Age & cognitive factors	Handbook	Hazrina/Farah	
Language barrier	Multiple language	Tang	
Limited health literacy	<ol style="list-style-type: none"> <li>1) Rescue Card</li> <li>2) Flip chart</li> </ol>	Tang/Umairah Diyana	

# Strategy 1: RESCUE CARD

Given to all insulin pen patients

Prepared in 3 languages – Malay, English & Chinese

**Pen Insulin Anda Rosak?**  
Apakah yang anda perlu lakukan?

- 1) Sila periksa jarum insulin anda. Pastikan jarum tidak bengkok atau tersumbat.
- 2) Pastikan tiada jarak diantara "plunger" dan "rubber stopper" cartridge insulin. (Solusinya berada di belakang had)
- 3) Sila periksa cartridge insulin anda. Pastikan masih ada ubat di dalam cartridge.
- 4) Sekiranya sudah periksa hetiga-tiga perkara di atas. Tetapi pen insulin masih tidak berfungsi. Sila bawa pen insulin anda ke kaunter farmasi untuk dapatkan bantuan.



FRONT

**Langkah-langkah merapatkan "Plunger" ke "Rubber stopper".**

- 1) Tarik butang dos dan pusingkan kepada 2 unit.
- 2) Pastikan kedudukan jarum insulin mengahala ke atas.
- 3) Tekan butang dos sehingga menunjukkan angka "0"
- 4) Ulang langkah tersebut sehingga "Plunger" dan "Rubber Stopper" rapat dan tiada ruang kosong (belihatan cecair insulin di bahagian hujung jarum).

**\*Langkah ini mungkin perlu diulang beberapa kali untuk memastikan insulin dapat dikeluarkan dari jarum.**

**SILA IMBAS**  
Tehnik penggunaan insulin pen yang betul.



**Pejabat Kesihatan Daerah Kampar**  
KK Kampar: 05-4667052  
Ext: 163/164  
KK Gopeng: 05-3593355  
Ext: 111  
KK Malim Nawar: 05-4771818  
Ext: 17

BACK

# Strategy 1: RESCUE CARD



# Strategy 1: RESCUE CARD (MALAY)

## Pen Insulin Anda Rosak?

Apakah yang anda perlu lakukan?

- 1) Sila periksa jarum insulin anda. Pastikan jarum tidak bengkok atau tersumbat.



- 3) Sila periksa cartridge insulin anda. Pastikan masih ada ubat di dalam cartridge.



- 2) Pastikan tiada jarak diantara "plunger" dan "rubber stopper" cartridge insulin. (Solusinya berada di belakang kad)



- 4) Sekiranya sudah periksa ketiga-tiga perkara di atas. Tetapi pen insulin masih tidak berfungsi. Sila bawa pen insulin anda ke haunter farmasi untuk dapathan bantuan.



## Langkah-langkah merapatkan "Plunger" ke "Rubber stopper".

- 1) Tarik butang dos dan pusingkan kepada 2 unit.



- 2) Pastikan kedudukan jarum insulin menghala ke atas.



- 3) Tekan butang dos sehingga menunjukkan angka "0"



- 4) Ulang langkah tersebut sehingga "Plunger" dan "Rubber Stopper" rapat dan tiada ruang kosong (belihatan cecair insulin di bahagian hujung jarum).

**\*Langkah ini mungkin perlu diulang beberapa kali untuk memastikan insulin dapat dikeluarkan dari jarum.**

## SILA IMBAS

Teknik penggunaan insulin pen yang betul.



### Pejabat Kesihatan Daerah Kampar

KK Kampar: 05-4667052

Ext: 163/164

KK Gopeng: 05-3593355

Ext: 111

KK Malim Nawar: 05-4771818

Ext: 17



# Strategy 1: RESCUE CARD (ENGLISH)

## Is the insulin pen damaged?

What do you need to do?



1) Please check your insulin needle. Ensure the needle is not bent or clogged.



2) Ensure there is no gap between the plunger and the rubber stopper of the insulin cartridge. (Please refer to the solution on the back of the card.)



3) Please ensure the insulin cartridge is not running out of insulin.



4) If you have checked all three points above but the insulin pen still does not function, please seek assistance at the pharmacy.



## Steps on reaching the plunger to rubber stopper.

1) Dial the insulin pen to 2 units and hold it with needle pointing upwards.



2) Push the injection button.



3) Repeat these steps until there is no gap between the plunger and the rubber stopper. You may observe a stream of insulin at the needle tip.

**\*It may be necessary to repeat these steps several times to ensure a consistent insulin stream.**

## SCAN ME

Correct insulin technique.



Pejabat Kesihatan Daerah Kampar

KK Kampar: 05-4667052

Ext: 163/164

KK Gopeng: 05-3593355

Ext: 111

KK Malim Nawar: 05-4771818

Ext: 17





# Strategy 1: RESCUE CARD (CHINESE)

## 胰岛素笔坏了吗?

您需要做什么?



1) 请检查您的胰岛素针。确保针头没有弯曲/堵了。



3) 请检查您的胰岛素笔芯(胰岛素药液)。确保还没用完。



2) 确保活塞杆和笔芯(胰岛素药液)尾部的橡皮活塞没有空隙。请参考卡片背面的解决方案。

活塞杆



橡皮活塞  
胰岛素药液

4) 如果已经检查了上述三点, 但胰岛素笔仍然无法正常工作, 请到药剂处寻求帮助。



## 活塞杆与橡皮活塞接触的步骤

1) 把剂量调节至“2单位”, 并将针头朝上握住。

2) 按下注射按钮。

3) 如有胰岛素从针头溢出, 即表示活塞杆与笔芯(胰岛素药液)尾部的橡皮活塞完全接触。

4) 如果没有药液排出, 重复进行此操作, 直至排出胰岛素为止。

请扫描下方二维码

胰岛素笔的正确使用方法



Pejabat Kesihatan Daerah Kampar

KK Kampar: 05-4667052

Ext: 163/164

KK Gopeng: 05-3593355

Ext: 111

KK Malim Nawar: 05-4771818

Ext: 17

# Strategy 2: VIDEO COLLECTION ON INSULIN PEN TECHNIQUE




**SILA IMBAS**

**Teknik penggunaan insulin pen yang betul.**



Video collection from YouTube – 3 languages  
(Malay/Chinese/Tamil)

QR code inserted in Rescue Card & Handbook

-  Kaunseling Insulin (Versi Bahasa Tamil).mp4  
👤 Modified Jan 5
-  Kaunseling Pen Insulin (Versi Bahasa Cina).mp4  
👤 Modified Jan 5
-  Kaunseling Pen Insulin (Versi Bahasa Melayu).mp4  
👤 Modified Jan 5



PEJABAT KESIHATAN DAERAH KAMPAR  
Tingkat 1, Klinik Kesihatan Kampar  
Jalan Degong, 31900 Kampar,  
PERAK DARUL RIDZUAN

Tel. : 05-4659045  
05-4659093  
05-4659197  
05-4667002  
Email : pkdkampar@moh.gov.my

Kementerian Kesihatan Malaysia

BUKTI BERTANGGUNG

Ruj. Kami : PKDKPR.100-7/6/2 (22)  
Tarikh : 30 Ogos 2024

Pengarah Hospital  
Hospital Ampang  
Jalan Mewah Utara  
Pandan Mewah  
68000 Ampang  
Selangor Darul Ehsan  
(u.p. : Ketua Jabatan Farmasi)

Tuan/Puan,

**MEMOHON KEBENARAN UNTUK MENGGUNAKAN VIDEO KAUNSELING PEN INSULIN UNTUK KEGUNAAN PESAKIT DI PEJABAT KESIHATAN DAERAH KAMPAR**

Dengan segala hormatnya saya diarah merujuk perkara tersebut di atas.

2. Dimaklumkan bahawa Unit Farmasi, Pejabat Kesihatan Daerah Kampar sedang menjalankan sebuah kajian Quality Assurance (QA) bertajuk "*Reducing the percentage of improper insulin pen care handling among patients in Kampar District Health Office*". Salah satu daripada strategi penambahbaikan bagi kajian ini adalah menyediakan kompilasi video kaunseling pen insulin dalam bentuk kod QR bagi membolehkan pesakit mendapat maklumat yang tepat dengan cepat.

3. Ahli kumpulan telah memilih video kaunseling pen insulin yang dihasilkan oleh pihak tuan/puan sebagai rujukan pesakit. Video ini dihasilkan dalam 3 bahasa dan telah dimuatnaik ke dalam Youtube pada 3 Oktober 2021 oleh Jabatan Farmasi, Hospital Ampang. Berikut adalah kod QR yang telah dihasilkan di dalam projek ini:

SILA BIKAS



4. Sehubungan itu, pihak kami dengan rasa rendah diri ingin memohon kebenaran daripada pihak tuan/puan untuk menggunakan video-video tersebut sebagai bahan rujukan pesakit di dalam daerah Kampar. Tuan/puan boleh menghubungi Puan Nor Zuraida binti Abdul Wahab, di talian 05-4659045 sambungan 165, sekiranya ada sebarang pertanyaan.

(Sila catatkan rujukan surat ini apabila menjawab)



PENSULAN MS ISO 9001:2015  
MS 9001 : 2015 031641



HOSPITAL AMPANG  
JALAN MEWAH UTARA  
PANDAN MEWAH  
68000 AMPANG  
SELANGOR DARUL EHSAN



Telefon : 03-4289 6000  
Fax : 03-4295 4666 (Pengurusan)  
03-4295 7026 (Pej. Pakar)

Ruj Tuan:

Ruj Kami : HA.771/KPF/33 (83)

Tarikh : 10 September 2024

Pegawai Kesihatan Daerah  
Pejabat Kesihatan Daerah Kampar,  
Tingkat 1, Klinik Kesihatan Kampar  
Jalan Degong,  
31900 Kampar  
Perak Darul Ridzuan

Tuan/Puan,

**KEBENARAN UNTUK MENGGUNAKAN VIDEO KAUNSELING PEN INSULIN UNTUK KEGUNAAN PESAKIT DI PEJABAT KESIHATAN DAERAH KAMPAR**

Dengan segala hormatnya saya merujuk kepada perkara di atas.

2. Sukacita dimaklumkan bahawa Jabatan Farmasi Hospital Ampang ambil maklum dan tiada halangan berkenaan penggunaan video tersebut.

3. Pihak kami berbesar hati dapat membantu dan memberi manfaat pada yang lain terutama untuk kebaikan pesakit.

Sekian, terima kasih.

"MALAYSIA MADANI"

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(SITI HAJJAR BINTI MOHD JALIL)  
Ketua Jabatan Farmasi  
Hospital Ampang

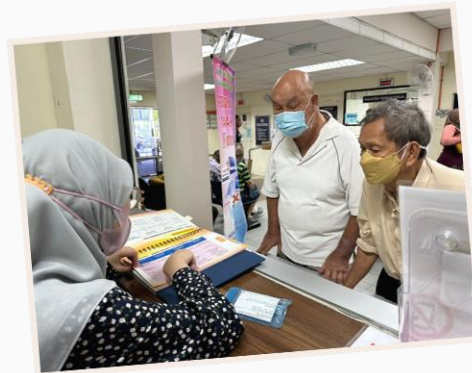
s.k – Pengarah, Hospital Ampang

# Strategy 3: FLIP CHART

Standard from Pharmaceutical Services Division, Ministry of Health Malaysia

4 Modules – aid materials during counseling

Distributed to all 3 health clinics





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## Strategy 4: FOLLOW-UP COUNSELLING

1

Follow-up counseling appointment dates are given to all new patients and those who require further evaluation

2

An internal memo issued by the Health Pharmacy Officer for its comprehensive implementation



# Strategy 5: REMINDER CARD

**PEN INSULIN BERMASALAH**

**1 Insulin tidak keluar**

- JARUM BENGKOK**  
Simpan bersama sarung yang betul  
Maksimum 1 jarum 3 kali penggunaan sahaja
- KATRIJ KOSONG**  
Pastikan katraj tidak kosong  
Baca takat yang disediakan
- MASALAH INJAP**  
Pastikan injap menyentuh katraj

**2 Jarum tidak boleh ditinggalkan bersambung pada katraj**

**RISIKO**

- Jarum bengkok atau patah
- Buih terperangkap di dalam katraj
- Pencemaran isi kandungan insulin

**3 Cara penyimpanan pen insulin yang SALAH**

- Pen boleh berkarat dan rosak
- Boleh menyebabkan kesakitan semasa mencucuk insulin

**Simpan pen insulin di tempat yang BETUL**

- Simpan di kawasan bersuhu bilik dan tidak lembap
- Simpan di kawasan jauh dari capaian kanak-kanak

PEJABAT KESIHATAN DAERAH KAMPAR

KK KAMPAR: 05-4647052 Ext: 163/164  
KK GOPENG: 05-3993355 Ext: 111  
KK MALIM NAWAR: 05-4771616 Ext: 17



Placed at the pharmacy counter

Patients taking insulin supplies will be reminded on the proper insulin pen care

# Strategy 6: HANDBOOK

Given to the patient after the counseling session

6 topic with 20 pages

In the form of infographics and easy to understand

Video Collection on Insulin Pen Technique inserted into this handbook (QR Code)



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06



# Effect of Change





# Post-Intervention 1

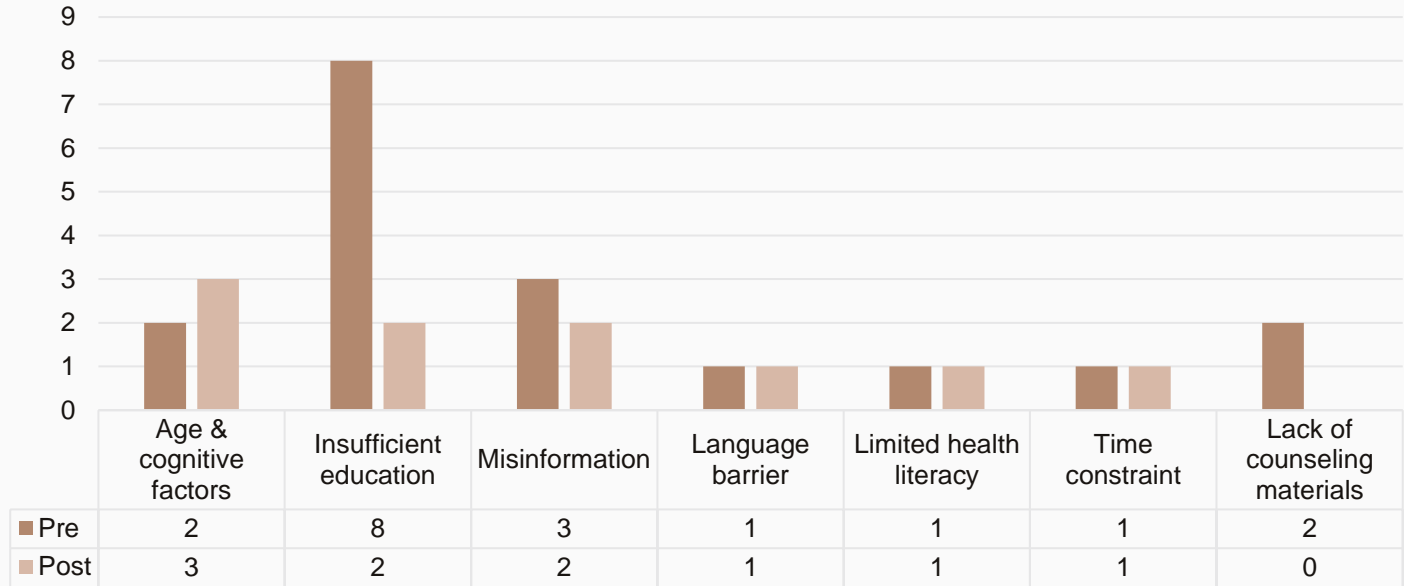
Number of improper insulin pen care handling (A)	Total number of patients with insulin therapy (B)	Percentage of improper insulin pen care handling [( A/B) x 100%]
10	1,169	[(10/1,169) x 100%]  = <b>0.9%</b>

% of improper insulin pen care  
(Jul–Aug 23)

**0.9%**

(n=10)

# Contributing Factors



■ Pre ■ Post



## Post-Intervention 2

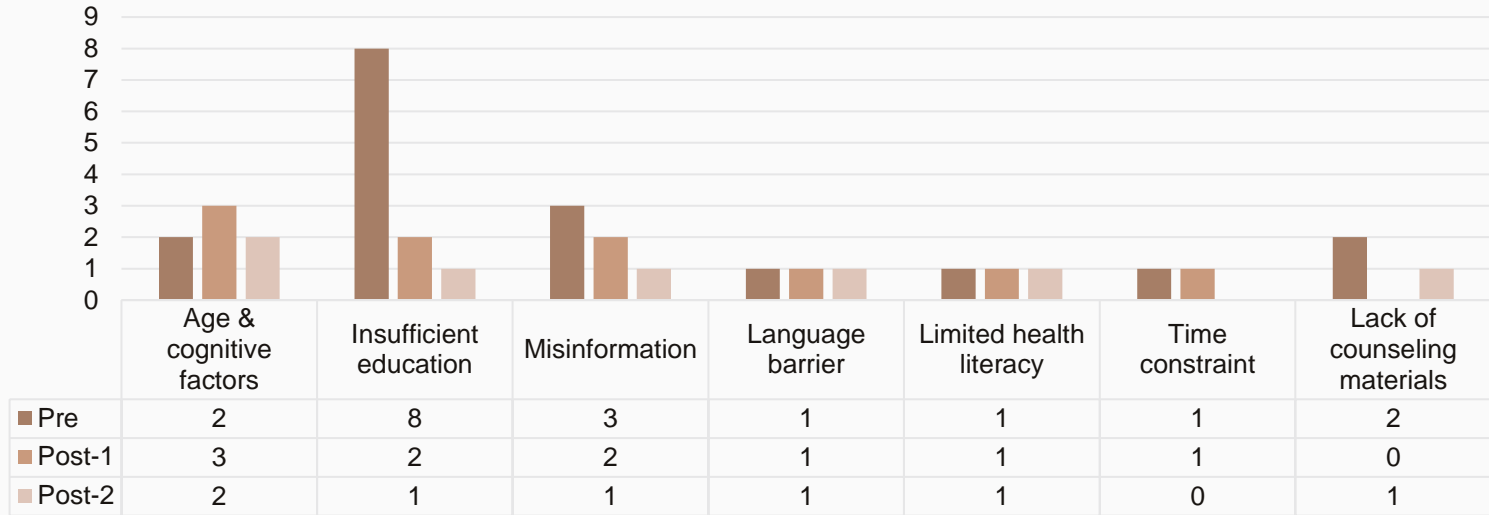
Number of improper insulin pen care handling (A)	Total number of patients with insulin therapy (B)	Percentage of improper insulin pen care handling [( A/B) x 100%]
7	1,183	[(7/1,183) x 100%]  = <b>0.6%</b>

% of improper insulin pen care  
(Dec 23–Jan 24)

**0.6%**

(n=7)

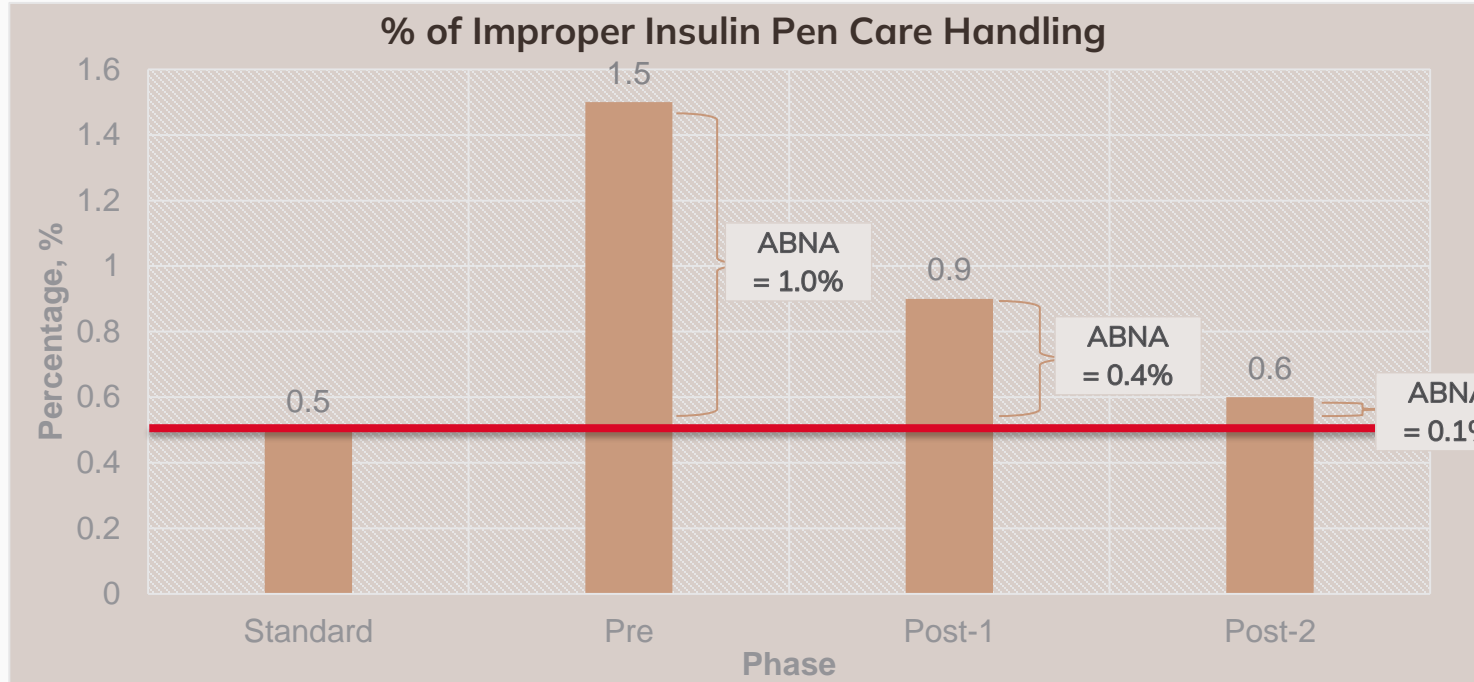
# Contributing Factors



■ Pre ■ Post-1 ■ Post-2



# ABNA Chart

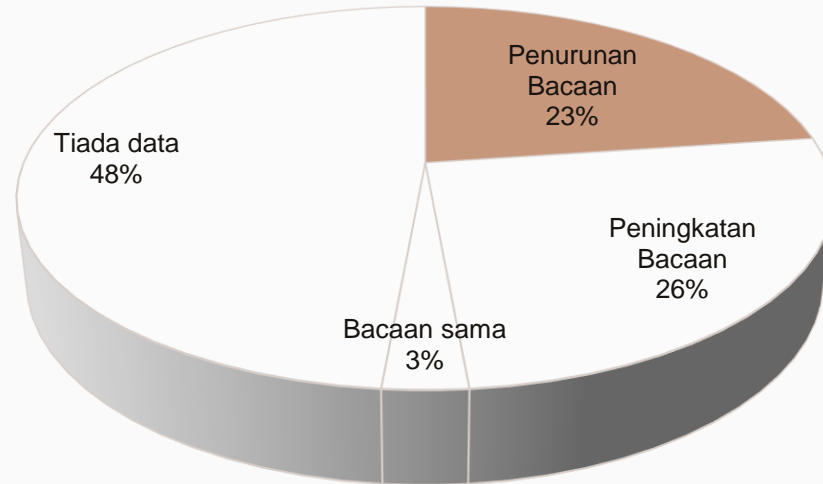


# Model of Good Care

No	Process	Criteria	Standard	Pre	Post 1
1.	Receive referrals / Identify patients	a. Check the prescription and identify if there is a prescriber note for counseling	100%	100%	100%
		b. Key in patient data into PhIS	100%	100%	100%
		c. Prepare the patient's medication	100%	100%	100%
		d. Dispense medicine to patients	100%	100%	100%
		e. Ask the patient to the counseling room for a counseling session	100%	100%	100%
2.	Conduct counseling sessions and assess patient understanding	a. Introduce yourself and the purpose of counselling	100%	100%	100%
		b. Pathophysiology of diabetes mellitus (DM)	100%	50%	80%
		c. Differentiate the short- and intermediate-acting insulin at first counseling session	100%	70%	100%
		d. Demonstrate the technique of using an insulin pen	100%	100%	100%
		e. Describe additional information related to:			
		i) Adherence to insulin injection	100%	100%	100%
		ii) Site of administration	100%	100%	100%
		iii) Administration time	100%	100%	100%
		iv) Storage and expiry of Insulin	100%	80%	100%
		v) Glucose monitoring at home	100%	75%	100%
vi) Symptoms of hypoglycemia and its correction	100%	50%	100%		
vii) Supply of insulin, pen and needle	100%	90%	100%		
f. Review of patient understanding	100%	85%	100%		
g. Provide supporting materials for patient reference at home	100%	0%	100%		
3.	Set a new appointment date and record it in the Follow up Counseling Registry	a. Set a date for follow-up counseling within 2 weeks	100%	0%	100%
		b. Ask for patient consent	100%	0%	100%
		c. Record it in the Follow-up Counseling Registry	100%	0%	100%

# HbA1c Level

Peratus



■ Penurunan Bacaan ■ Peningkatan Bacaan ■ Bacaan sama ■ Tiada data

# Patient's feedback

**FEEDBACK PESAKIT TERHADAP RESCUE CARD**

B I U ☰ ✕

Borang maklumbalas ini digunakan untuk mengukur keberkesanan Rescue Card dalam mengurangkan kejadian Improper Pen Care Handling di kalangan pesakit dalam Daerah Kampar. Mohon majukan soalan-soalan di bawah ketika pesakit mengambil bekalan insulin di kaunter farmasi.

Terima kasih di atas kerjasama semua ahli kumpulan dalam menjayakan projek QA ini

---

Pernahkah anda menerima kad ini (Rescue Card)

Pernah

Tidak Pernah

---

Adakah anda membaca kandungan kad tersebut

Ada

Tidak

---

Adakah anda memahami isi kandungan di dalam kad tersebut ?

Faham

Tidak Faham

Tidak Pasti

Perlukan penerangan lanjut

---

Adakah maklumat di dalam kad tersebut dapat membantu anda dengan lebih baik ?

Ya

Tidak

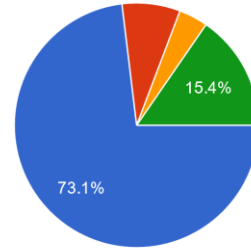
Tidak Pasti

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Mohon berikan feedback anda tentang Rescue Card di bawah

Adakah anda memahami isi kandungan di dalam kad tersebut ?

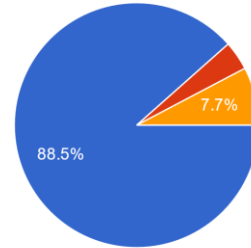
26 responses



- Faham
- Tidak Faham
- Tidak Pasti
- Perlukan penerangan lanjut

Adakah maklumat di dalam kad tersebut dapat membantu anda untuk mengendalikan pen insulin anda dengan lebih baik ?

26 responses



- Ya
- Tidak
- Tidak Pasti



# Patient's feedback

Mohon berikan feedback anda tentang Rescue Card di bawah ini:

19 responses



Komen
-
Tak de
-
Faham
Informasi yang padat dan sangat membantu saya.
-
-
-
Harap saiz kad ni boleh dibesarkan sikit supaya orang yang berumur boleh tengok dengan jelas.
Menarik tetapi tidak pernah ada isu insulin tidak keluar
Menarik. Baru tahu boleh cek pen sendiri
Menarik. Senang utk difahami. Ada gambar untuk rujukan
Membantu. Pernah refer untuk jarum patah
Tulisan kecil. Susah untuk dibaca
Cantik dan menarik. Mudah untuk difahami
Susah untuk dibaca. Tulisan kecil
Memudahkan pengguna. Senang untuk dirujuk
Pernah rujuk semasa plunger tak sentuh cartridge. Mudah faham
Mudah faham
Boleh faham dan saya boleh ikut step by step ketika hendak betulkan pen saya.
Mudah untuk saya follow dan ada translation/ ikut language yang saya faham.



## Reassessment of patients - Kampar HC

Responden	Contributing Factor	Type of Improper Pen Care Handling	
		PRE	POST
1	Age & Cognitive Factors	Jarum bengkok ; not prime dose after changing the cartridge	1/9/24 Pesakit telah menukar jarum setiap kali tersalah masuk jarum/ jarum bengkok.
2	Misinformation	Jarum bengkok	2/9/24 Pesakit lebih berhati-hati semasa memasang jarum & melihat jika jarum yang dimasukkan bengkok atau tidak
3	Misinformation	Jarum bengkok	2/9/24 Pesakit pasang jarum lebih berhati-hati agar tidak bengkok
4	Misinformation	Insulin Cartridge broken	3/9/24 Pesakit tiada masalah menggunakan insulin pen yang baru
5	Age & Cognitive Factors	Masalah injap (gap between the plunger and the rubber stopper of the insulin cartridge)	4/9/24 Pesakit tidak mengalami masalah insulin kerana telah memahami caranya
6	Misinformation	not prime dose after changing the cartridge ; needle used more than 3 times	4/9/24 Pesakit mempraktikkan 'dose priming' setiap kali memasukkan cartridge yang baru



## Reassessment of patients - Gopeng HC

Responden	Contributing Factor	Type of Improper Pen Care Handling	
		PRE	POST
1	Language Barriers	Masalah injap (gap between the plunger and the rubber stopper of the insulin cartridge)	Masalah injap tidak berulang. Pesakit mengetahui jalan penyelesaian untuk atasi masalah tersebut.
2	Insufficient Education	Masalah injap (gap between the plunger and the rubber stopper of the insulin cartridge)	Masalah injap tidak berulang. Pesakit mengetahui jalan penyelesaian untuk atasi masalah tersebut.
3	Age & Cognitive Factors	Masalah injap (gap between the plunger and the rubber stopper of the insulin cartridge)	Masalah injap tidak berulang. Pesakit mengetahui jalan penyelesaian untuk atasi masalah tersebut.
4	Age & Cognitive Factors	Jarum ditinggalkan bersambung pada katrij; needle used more then 3 times	Jarum dipisahkan daripada pen insulin. Jarum ditukarkan selepas penggunaan 3 kali.

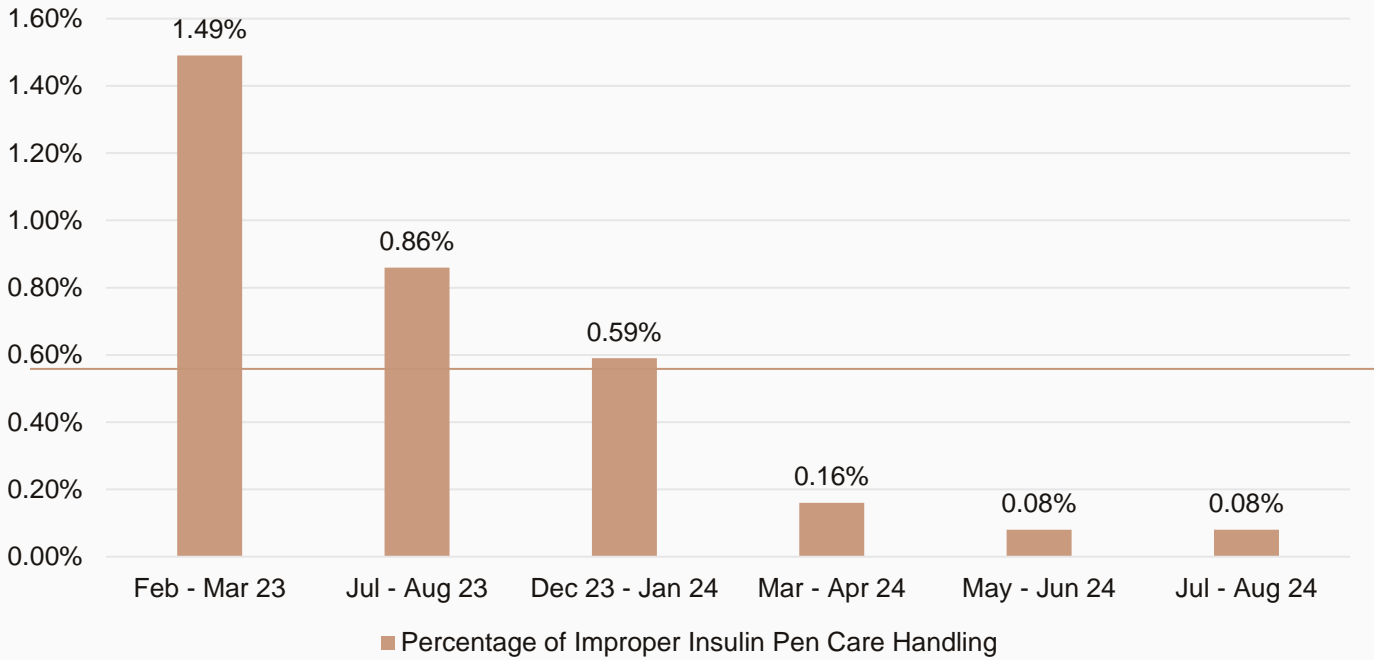
## Reassessment of patients - Malim Nawar HC

Responden	Contributing Factor	Type of Improper Pen Care Handling	
		PRE	POST
1	Misinformation	Cara penyimpanan pen insulin yang salah (dalam fridge)	16/8/24 Pesakit menyimpan pen insulin di tempat yang betul. Tidak lagi menyimpan pen di dalam peti sejuk
2	Insufficient Education	Jarum ditinggalkan bersambung pada katrij	20/8/24 Pesakit tidak lagi meninggalkan jarum bersambung pada insulin selepas injeksi
3	Insufficient Education	Cara penyimpanan pen insulin yang salah (dalam fridge)	10/9/24 Pesakit tahu pen tidak boleh disampun di dalam peti sejuk
4	Insufficient Education	Katrij kosong (insulin habis)	3/9/24 Pesakit tahu cara menegenal pasti katrij kosong
5	Limited Health Literacy	Cara penyimpanan pen insulin yang salah (dalam fridge)	29/8/24 Pesakit tidak meninggalkan pen insulin dalam fridge
6	Lack of Counseling Materials	needle used more than 3 times	26/8/24 Pesakit tahu tidak boleh menggunakan jarum lebih pada 3 kali, tetapi tidak mampu untuk membeli jarum. Tiada lump, luka atau parut pada perut.
7	Limited Health Literacy	needle used more than 3 times; Cara penyimpanan pen insulin yang salah (dalam fridge)	28/8/24 Pesakit tidak lagi menggunakan jarum lebih pada 3 kali. Pesakit tahu pen tidak boleh disampun di dalam peti sejuk



# Sustainability

Percentage of Improper Insulin Pen Care Handling





# 07 ✨ The Next Step ✨





# The Next Step

Opportunities for further enhancements are still needed as the percentage is still above the standard  $\leq 0.5\%$

Extend the remedial actions to the Diabetic Clinic of Kampar District Health Office

Reinforcement strategies for meeting the standards

Reassessment of patients who exhibited issues with insulin pen care handling during the study period – August 2024

Patient feedback survey on the effectiveness of Rescue Card





# The Lesson Learnt



Healthcare professionals need **initial education and re-education** on insulin pen care handling.



**Misinformation among patients may occur** due to differences in health literacy, age, and language barriers.







08/08/2024 : 'Sesi Perjumpaan Bersama Timbalan Pengarah Kesihatan (Farmasi) Negeri Perak'



11/09/2024 : 'Sesi Perjumpaan Bersama Pengarah Kesihatan Negeri Perak'



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*Diabetes Care* 2024, 47(Supplement\_1):S126-S144  
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