

Reducing Percentage Of Geriatric Patients With Metformin Overstock In Pejabat Kesihatan Daerah Seberang Perai Selatan



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INTRODUCTION

Geriatric diabetic patients contribute to the **major demographic background** of diabetic patient in primary health clinic in PKD SPS. These patients are often presented with **excessive balance antidiabetic medications**, especially **Metformin**.

SELECTION OF OPPORTUNITIES FOR IMPROVEMENT

Problems	S	M	A	R	T	Score
Improving monitoring of emergency trolley medications' expiry date in outpatient	13	14	16	16	17	76
High number of geriatric patients with metformin overstock	17	17	16	14	16	80
High rate of early empty mdi salbutamol exchange	13	12	14	15	13	67
Frequent change in drugs company provider cause confusion among patients which affect their compliance	18	15	18	13	15	79

Number of team members: 6 Score: 1-Low, 2-Medium, 3-High

S **Seriousness** Metformin overstock ↓ therapeutic effectiveness, ↓ medication adherence & ↑ drug wastage

M **Measurable** Number of geriatric patients with overstock metformin

A **Appropriateness** Medication wastage prevention & glycemic control improvement

R **Remedial** Additional effective tools will increase patient's understanding & adherence

T **Timeliness** The study and remedial measures can be completed within a year

Literature Review

A study by Greener (2008) showed that most of the geriatric patients faced difficulty in swallowing pills and thus, it is vital to **improve patient's adherence** in order to **reduce morbidity** and **mortality** associated with type-2 diabetes. A total of **10%** increasing of compliance could possibly decrease the risk of microvascular complications by **3.7%**.

Problem Statement

52.2% Metformin Overstock → **Effects**

- ↑ Drug wastage
- ↑ Unnecessary cost
- ↓ Glycemic control

315 geriatric patients

Verification study (2019-2021)

We aim to identify the **contributing factors** of metformin overstock and implement **remedial measures**

KEY MEASURES FOR IMPROVEMENT

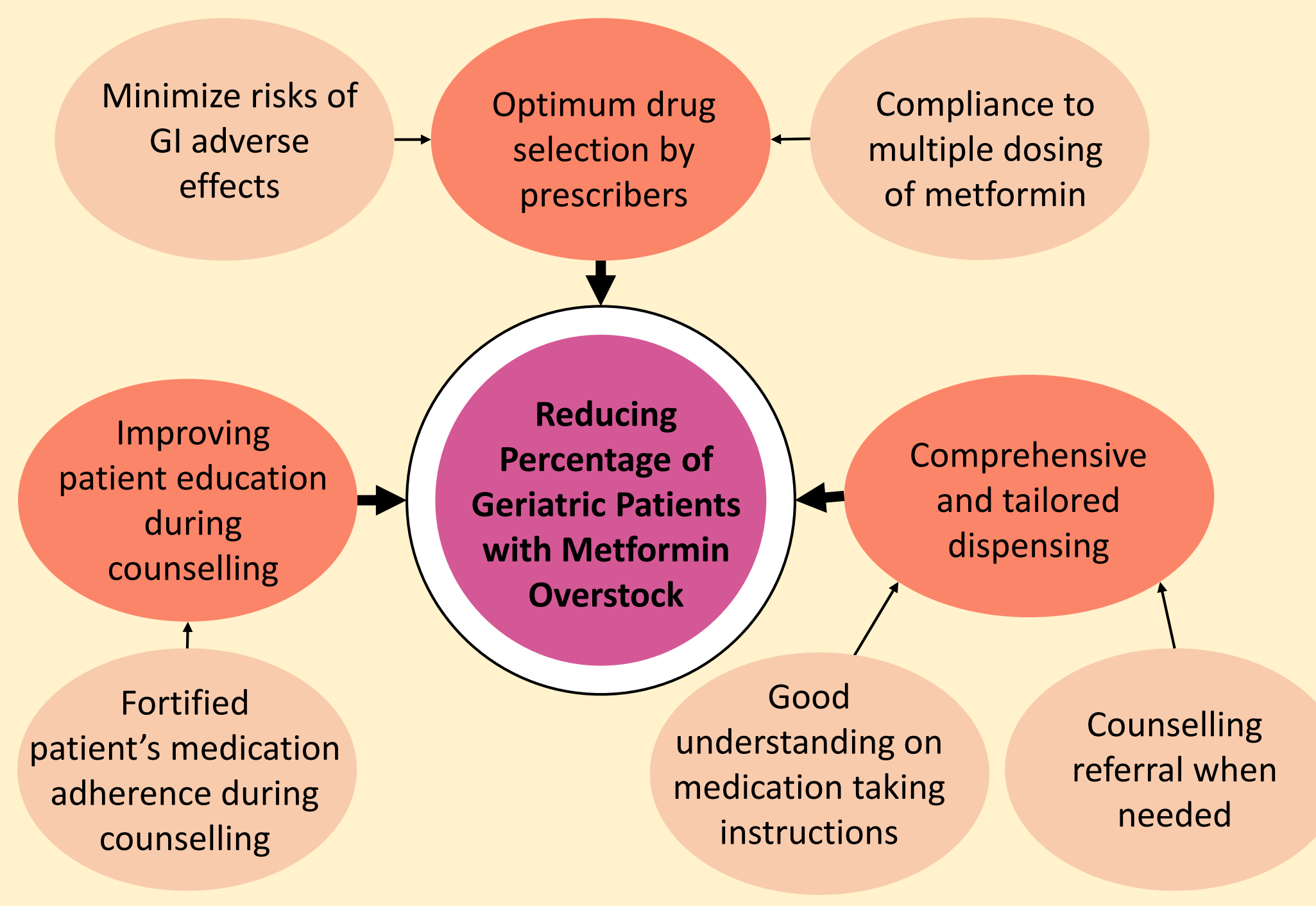
To **reduce** the percentage of geriatric patient of overstock metformin in PKD SPS from 52.2% to **≤ 20%** in year of 2023

- ✓ To **measure** percentage of geriatric patient with metformin overstock
- ✓ To **identify** the contributing factors of metformin overstock
- ✓ To **formulate** and **implement** remedial measures to reduce metformin overstock
- ✓ To **re-evaluate** the effectiveness of remedial actions on reducing metformin overstock

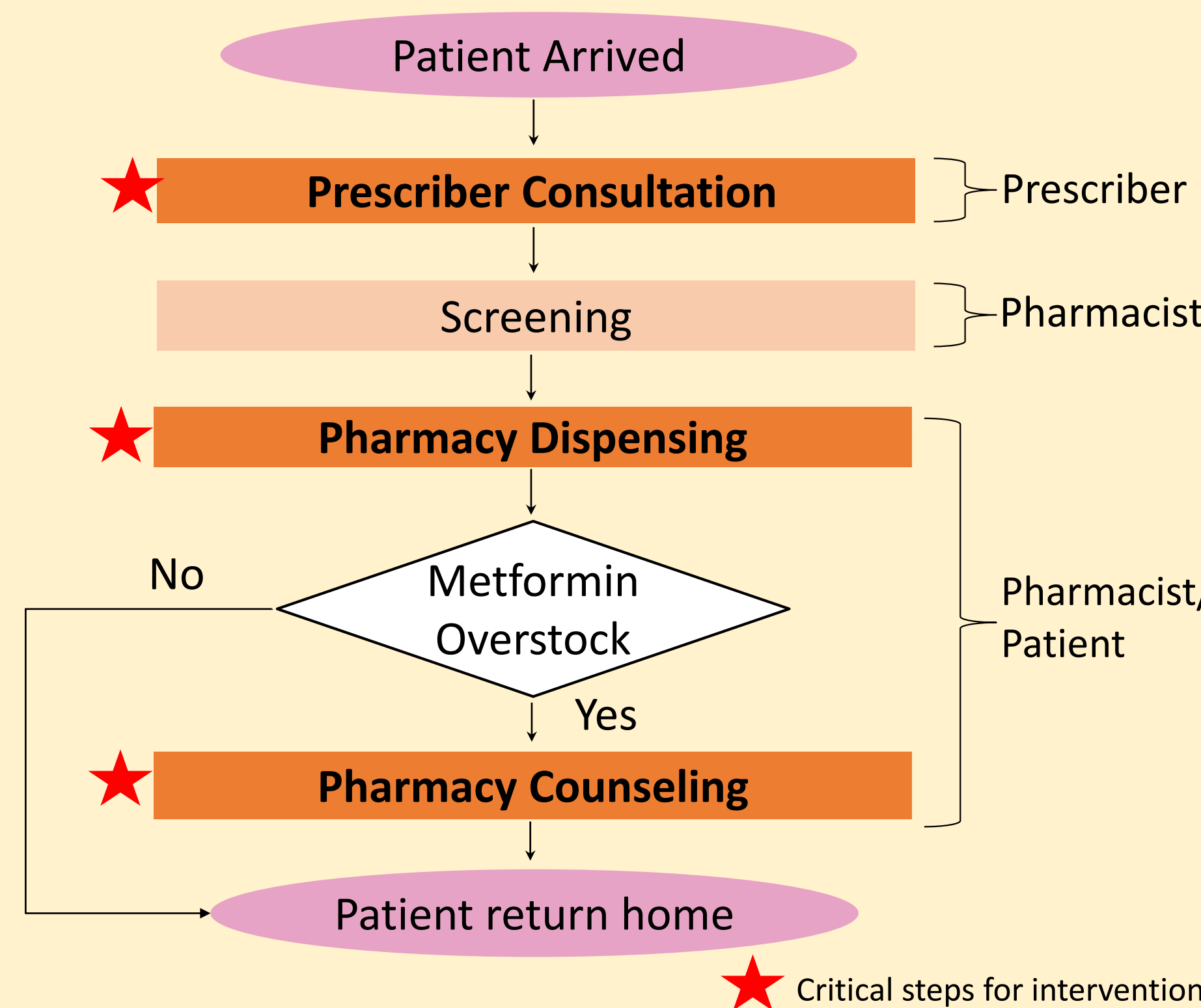
General Objective

Specific Objectives

Cause-Effect Analysis Chart



Process Of Care



Model of Good Care

*All values are in percentage (%)

Process	Criteria	N	Standard*	Pre-Remedial*	Post 1 st Cycle*	Post 2 nd Cycle*	Post 3 rd Cycle*
Prescriber Consultation	Prescribers must enquire whether geriatric patients experience any GI adverse effects	226	100	0	38.6	76.5	84.6
	Prescribers must ask if patients able to comply to metformin BD dosing	226	100	0	38.6	76.5	84.6
Pharmacy Dispensing	Pharmacist/pharmacy assistants must assess patient's understanding on their medication regimens	226	100	30	100	100	100
	Pharmacist must refer all DM geriatric patients for counseling when there is metformin overstock detected	226	100	0	100	100	100
Pharmacy Counselling	Pharmacist must assess patient's adherence and identify factors causing metformin overstock	226	100	50	100	100	100

Standard & Indicator

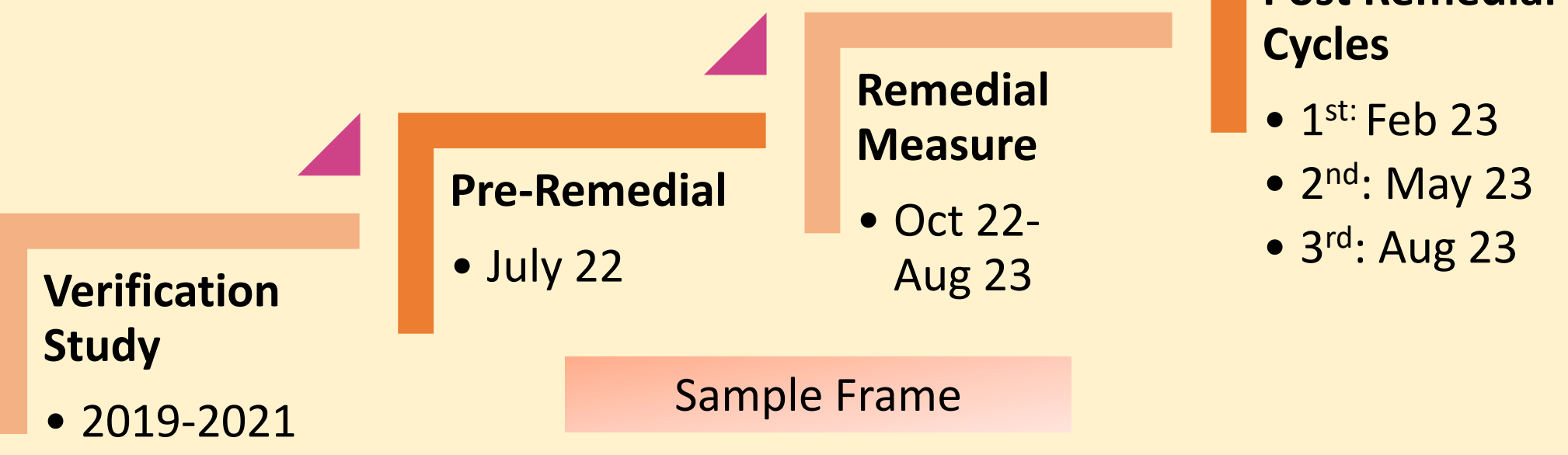
STANDARD: ≤ 20%
(Standard is set to be ≤20% based on a consensus in QA meeting PKDSPS)

INDICATOR:
Percentage of geriatric patient with metformin overstock (%)

= $\frac{\text{Number of geriatric patient with overstock metformin}}{\text{Total number of geriatric patient with metformin}} \times 100\%$

Overstock metformin = Patient has more than 1 strip (10 tablet) balance of metformin

Methodology



PROCESS OF GATHERING INFORMATION

Study Design
Cross-sectional study at 5 health care clinics in PKDSPS

Sampling Method
Convenient sampling method

Sampling Population
Geriatric patients (≥ 60 years old) with T. Metformin

Inclusion Criteria:

- Existing geriatric patients with DM
- Prescription refill by caregiver

Exclusion Criteria:

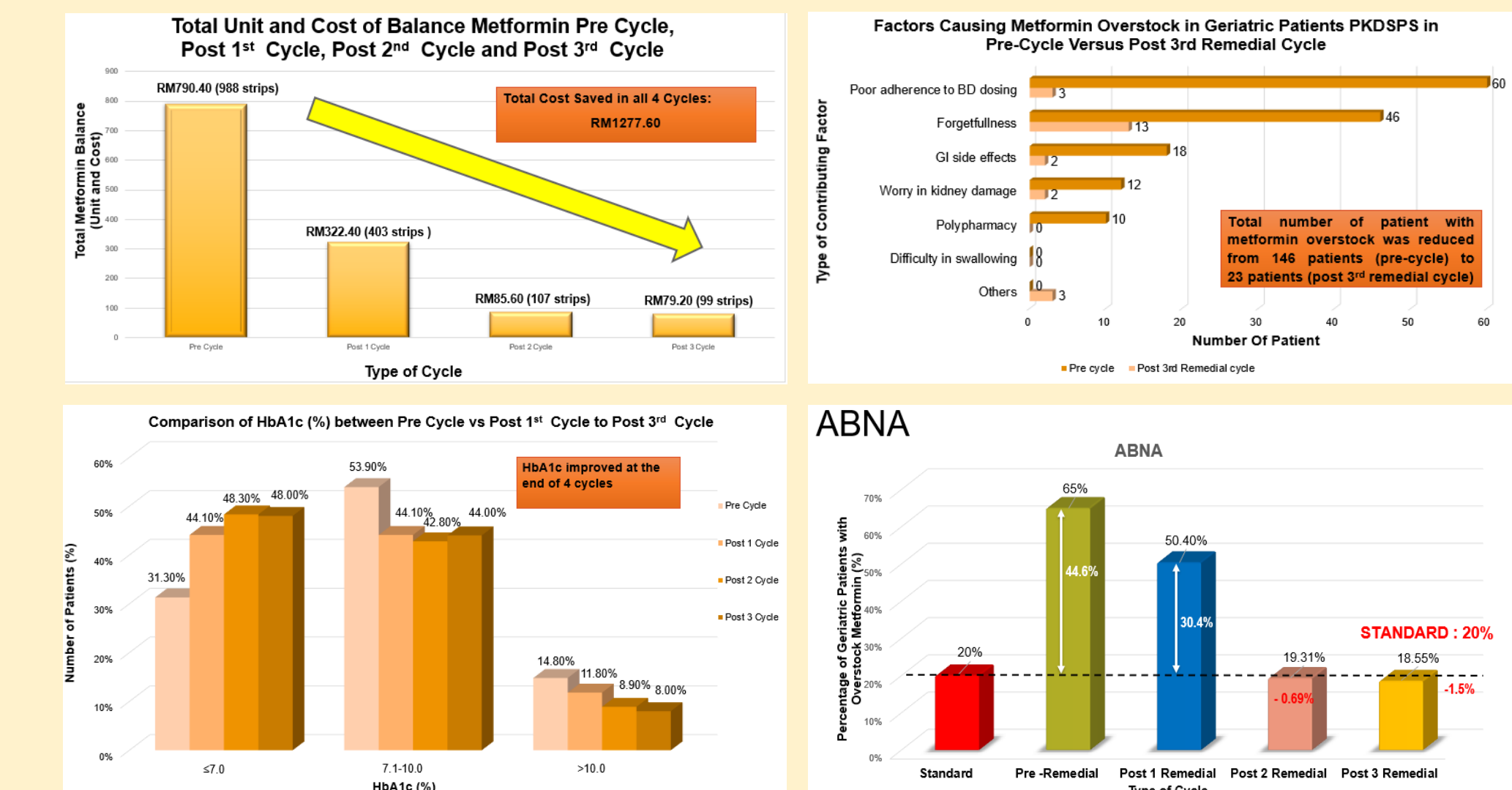
- Newly diagnosed geriatric patients with DM
- SPUB patients
- Recent hospitalisation (3 months)
- Multiple facilities follow up

Sampling Tools

- Data Collection Form QA Project PKDSPS 2022
- Metformin Understanding (MEDFIT) Form
- Medication Counselling Form
- Malaysia Medication Adherence Assessment Tool (MyMAAT) Form

STRATEGY FOR CHANGE & IMPACTS

Problem List	Strategies
Prescriber Consultation	a) To introduce GI Adverse Effect & BD Dosing (GIBD) Intervention note to all prescribers (Oct 22 & ongoing)
Pharmacy Dispensing	a) To introduce Metformin Understanding (MEDFIT) Form for dispensing counter (Oct 22 & ongoing)
Pharmacy Counselling	1 st Remedial Measures (Oct 22 & ongoing) a) To stick MetBD label on patient medication label and explain during counselling
	2 nd Remedial Measures (May 23 & ongoing) a) To introduce 'Missed T. Metformin dose Management' card



CONCLUSION & NEXT STEP

- Number of geriatric patient with metformin overstock in PKD SPS has reduced from 64.6% in year of 2022 to **18.5%** in year of 2023
- Adverse effect** and **multiple dosing of metformin** experienced by geriatric patient, **poor patient's medication understanding** on medication talking instruction and **inadequate patient education** are the contributing factors of metformin overstock
- Implementation of **GI Adverse Effect & BD Dosing (GIBD) Intervention note**, **Metformin Understanding (MEDFIT) Form**, **MetBD label** and **Missed T. Metformin dose Management' card** are beneficial in reducing metformin overstock
- Achievable but not achieve (ABNA) was improved from 44.6% to 30.4%, followed by **-0.69%** then to **-1.5%**

- Expand this initiative to other frequently returned medications in the future

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