PP-23

Reducing Percentage of T2DM Patient Medication Non-Adherence in Klinik Kesihatan Port Dickson

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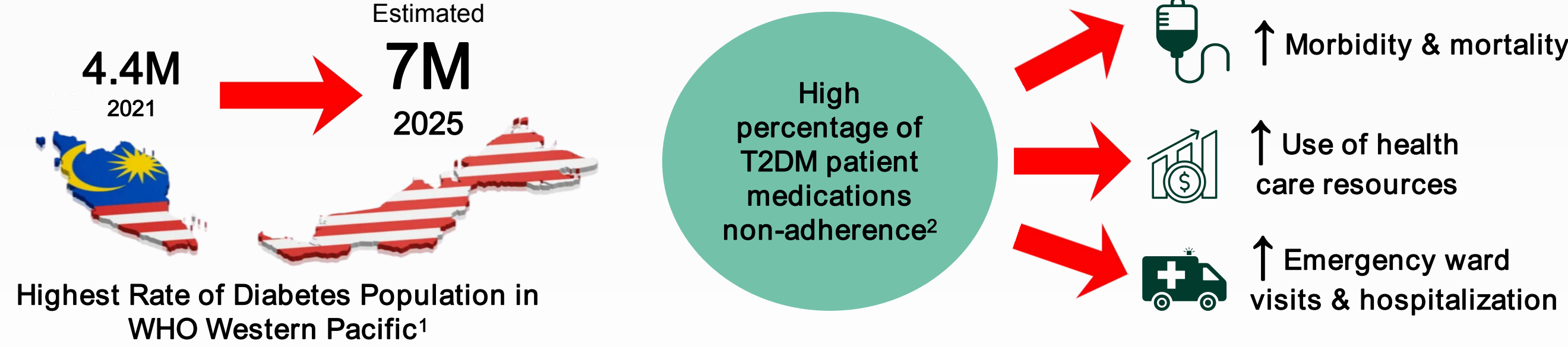[1] Pharmacy Department, Klinik Kesihatan Port Dickson
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1. SELECTION OF OPPORTUNITIES FOR IMPROVEMENT

Problems (n= 7 members)	S	M	A	R	T	Total
High percentage of T2DM Patient Medications Non-Adherence in outpatient setting	21	19	21	21	18	100 ★
Inappropriate management of asthma in outpatient setting	21	17	19	21	17	95
Long waiting time for collecting medication causing low satisfaction of patient	17	18	17	18	17	87
Low percentage of complete quit smoking clinic within 6 months from start of treatment	16	14	16	18	14	78

Rating scale: 1 = low, 2 = medium, 3 = high   Technique: Multivoting

4.4M 2021 → 7M 2025 Estimated

Highest Rate of Diabetes Population in WHO Western Pacific[1]

High percentage of T2DM patient medications non-adherence[2]
→ ↑ Morbidity & mortality
→ ↑ Use of health care resources
→ ↑ Emergency ward visits & hospitalization

Verification Study (Jan-Feb 2022)
70% of the T2DM patient were not adherent to medications

Rejected & Returned Medilog* (July-Dec 2019)[3]
Total of approximately RM8000 of anti-diabetic medication was returned
* Inovation project by Isaac D on medications rejected and returned by the patient at the point of dispensing at Klinik Kesihatan Port Dickson
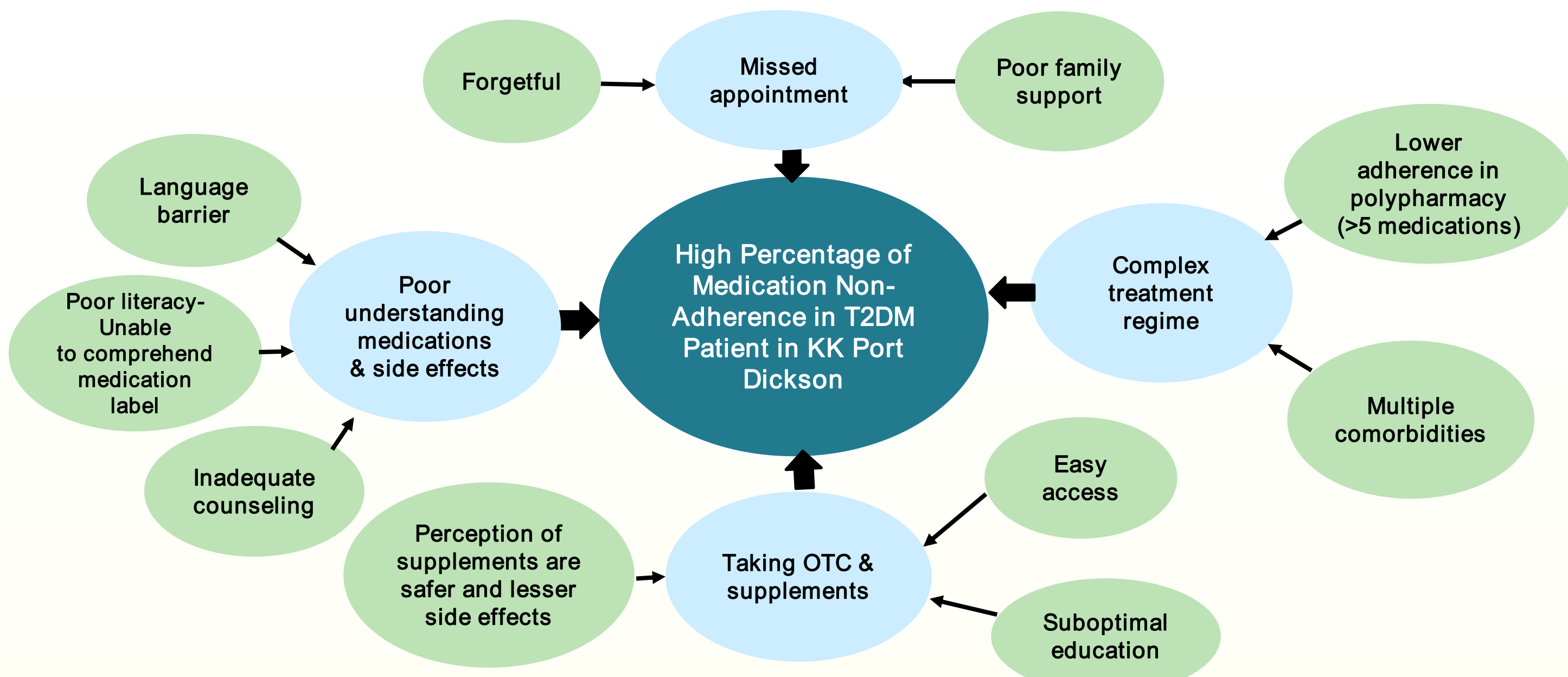

Figure 1: Problem analysis chart for high percentage of medication non-adherence in T2DM patient in KK Port Dickson

2. KEY MEASURES FOR IMPROVEMENT

General Objective
To reduce the percentage of patient medication non-adherence among T2DM in KK Port Dickson

Specific Objectives
- To verify the percentage of T2DM patient medication non-adherence
- To identify the probable contributing factors to the prevalence of low medication adherence
- To formulate and implement appropriate remedial actions
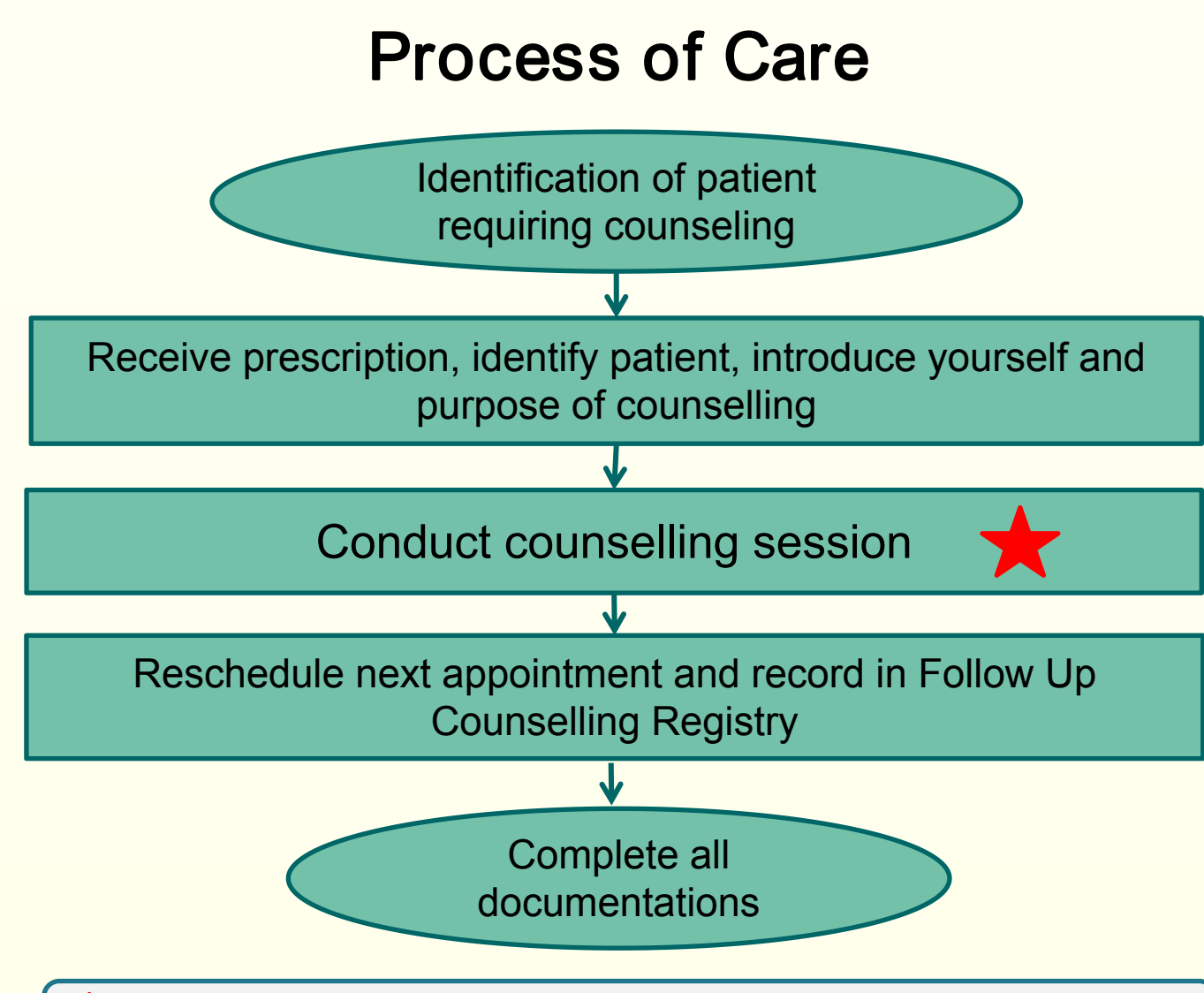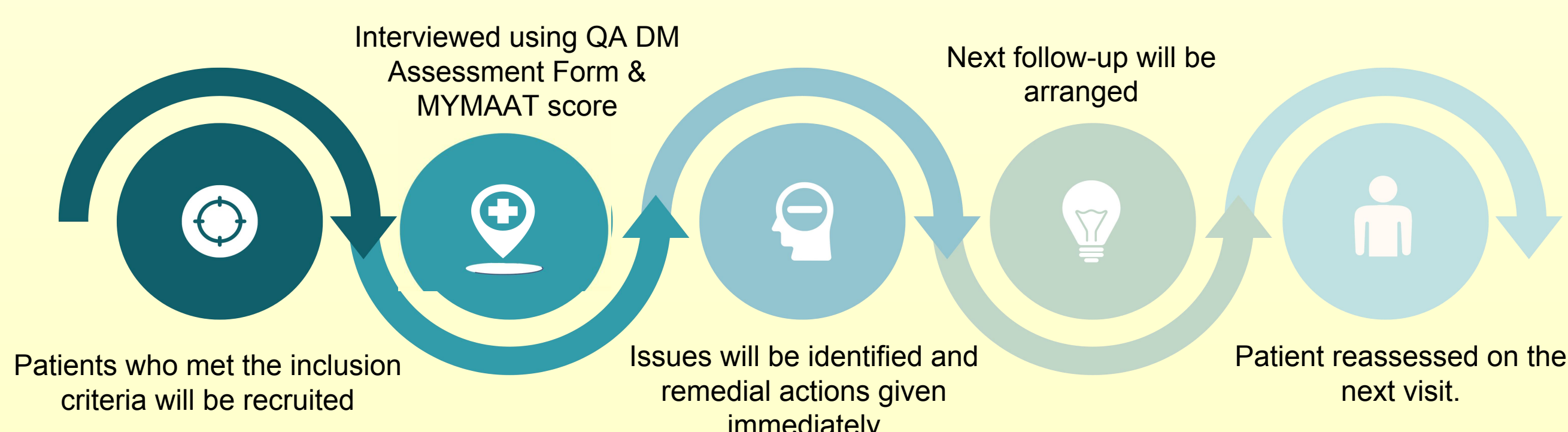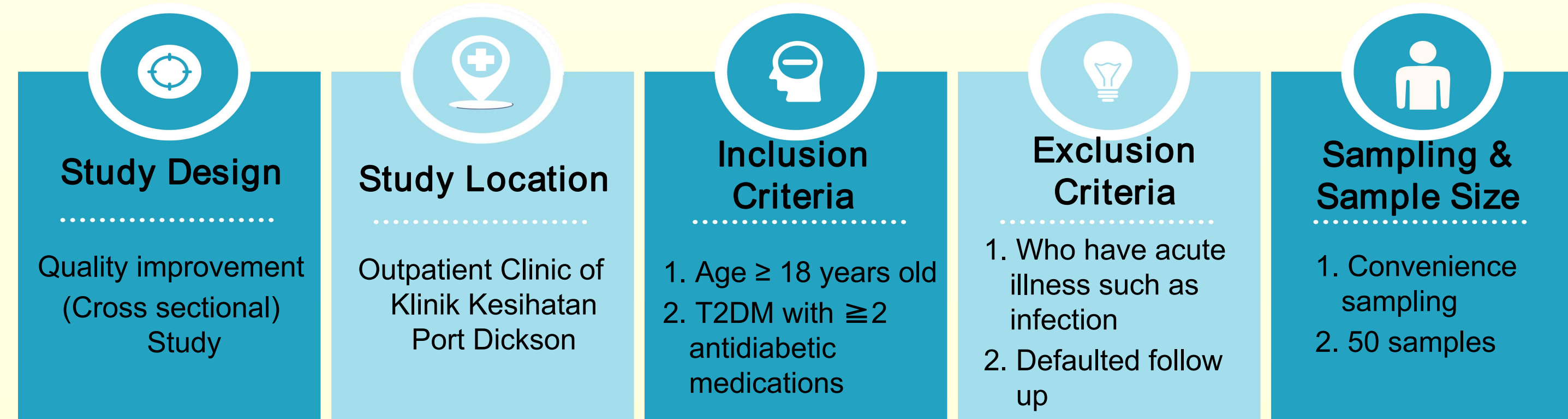- To evaluate the effectiveness of remedial measures

*Non-adherence is defined as total score of MyMAAT < 54

Process of Care
- Identification of patient requiring counseling
- Receive prescription, identify patient, introduce yourself and purpose of counselling
- Conduct counselling session ★
- Reschedule next appointment and record in Follow Up Counselling Registry
- Complete all documentations

★ The Current Standard Counselling Form doesn't focus on patient's understanding of medications, side effects & missed appointment

Figure 2: Process of care from patient's counselling until completion of session

Key Indicator — Percentage of medication non-adherence in T2DM patient

$$\frac{\text{Total number of T2DM patient non-adherent to medications}}{\text{Total number of T2DM patients} \geq 2 \text{ antidiabetic medications}} \times 100\%$$

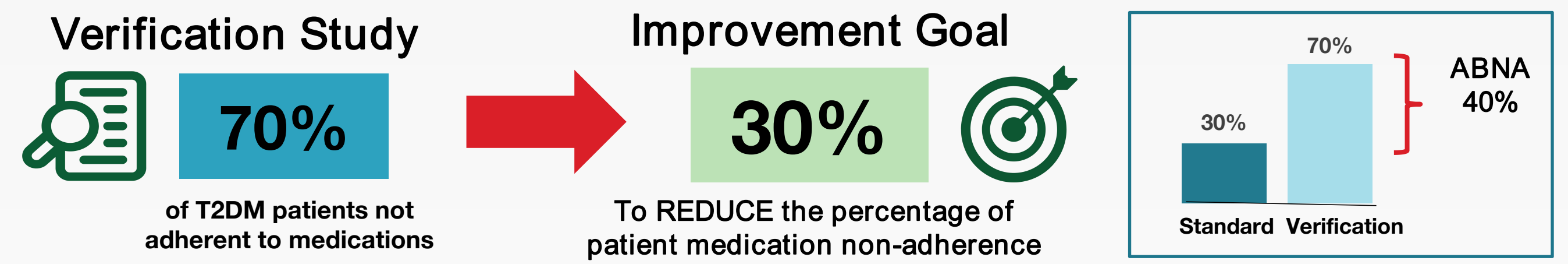**STANDARD** Less than 30% (Based on Saad et al. 2021[4])

*Saad et al. (2021) in IADMAS study showed the prevalence of non-adherence to medication was reported to be no more than 30%.

3. PROCESS OF GATHERING INFORMATION

Study Design
Quality improvement (Cross sectional) Study

Study Location
Outpatient Clinic of Klinik Kesihatan Port Dickson

Inclusion Criteria
1. Age ≥ 18 years old
2. T2DM with ≥2 antidiabetic medications

Exclusion Criteria
1. Who have acute illness such as infection
2. Defaulted follow up

Sampling & Sample Size
1. Convenience sampling
2. 50 samples

Malaysia Medication Adherence Assessment Tool (MyMAAT)
To assess the level of adherence to medications

Data Collections Tools

QA DM Assessment Form
Assessing & counselling on
- Understanding of medications & side effects
- Use of OTC & supplements
- Missed appointment

Patients who met the inclusion criteria will be recruited → Interviewed using QA DM Assessment Form & MYMAAT score → Issues will be identified and remedial actions given immediately → Next follow-up will be arranged → Patient reassessed on the next visit.

4. ANALYSIS AND INTERPRETATION

Verification Study 70% of T2DM patients not adherent to medications

→ **Improvement Goal** 30% To REDUCE the percentage of patient medication non-adherence from 70% to 30%

30% Standard — 70% Verification — ABNA 40%

Remediable Factors
- Inadequate counseling
- Unable to comprehend medication label
- Forgetful
- Poor Family Support
- Perception of supplements are safer & lesser side effects
- Easy access

Main findings of Contributing Factors (Verification Study)
- Poor Understanding of Medications & Side Effects — 45%
- Missed Appointment — 40%
- Use of OTC & Supplement — 15%

Figure 3: Main findings of verification study

5. STRATEGIES FOR CHANGE

	Findings	Underlying Problems	Remedial Measures
Cycle 1 (Mac- Aug 2022)	Poor Understanding of Medication & Side Effects	• Current form doesn't assess patient's understanding on medications • Current medication label only available in BM & English	• Modified QA counseling form with dose, frequency, indication and timing of administration (DFIT) • Use of pictorial label on the dosage instruction labelling
Cycle 2 (Aug-Dec 2022)	Missed Appointment	• Forgetful • Poor family support	• Medication Reminder app • Family involment in counseling session

Routine Counseling Form → Modified QA Counseling Form — Pictorial label

6. EFFECT OF CHANGE

Model of Good Care

Criteria	Standard	Verification	Cycle 1	Cycle 2
Make sure these detail are correct (Right patient, medication, dose, timing & route of administration)	100%	100%	100%	100%
Counseling Assessment				
- Assess adherence	100%	50%	100% ↑	100%
- Assess medication understanding & side effect	100%	50%	100% ↑	100%
- Assess use of OTC & supplements	100%	50%	100% ↑	100%
- Assess frequency of missed appointment	100%	0%	50% ↑	100% ↑
Reschedule for follow up based on their performance	100%	100%	100%	100%
Recording in PhIS	100%	100%	100%	100%

Figure 2: Modal of good care from patient's counselling until completion of session

ACHIEVABLE BENEFIT NOT ACHIEVED (ABNA)

Patient Medication Non-Adherence in T2DM Patients (%)
- Standard <30%
- Verification (Jan - Feb 2022) 70% — ABNA 40%
- Cycle 1 (Mac - Aug 2022) 35% — ABNA 5%
- Cycle 2 (Aug - Dec 2022) 20% — ABNA -10%

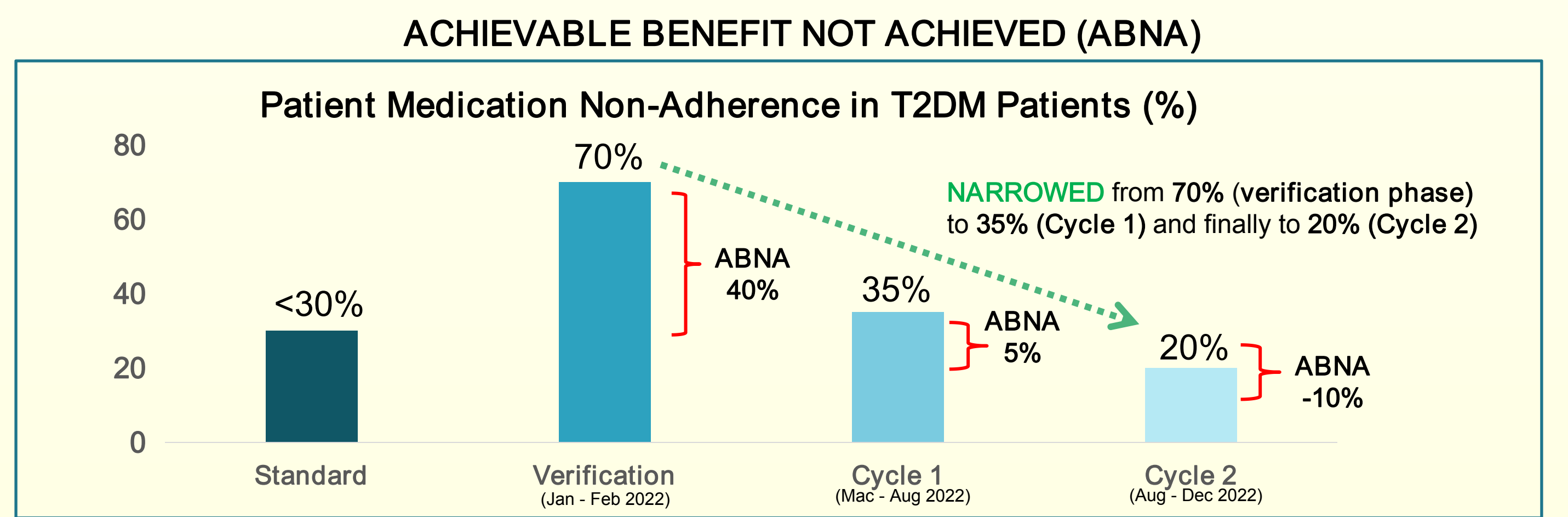NARROWED from 70% (verification phase) to 35% (Cycle 1) and finally to 20% (Cycle 2)

Figure 4: Effect of changes on the patient medication non-adherence in T2DM patients

Percentage of patient medication non-adherence has been reduced from 70% to 20%
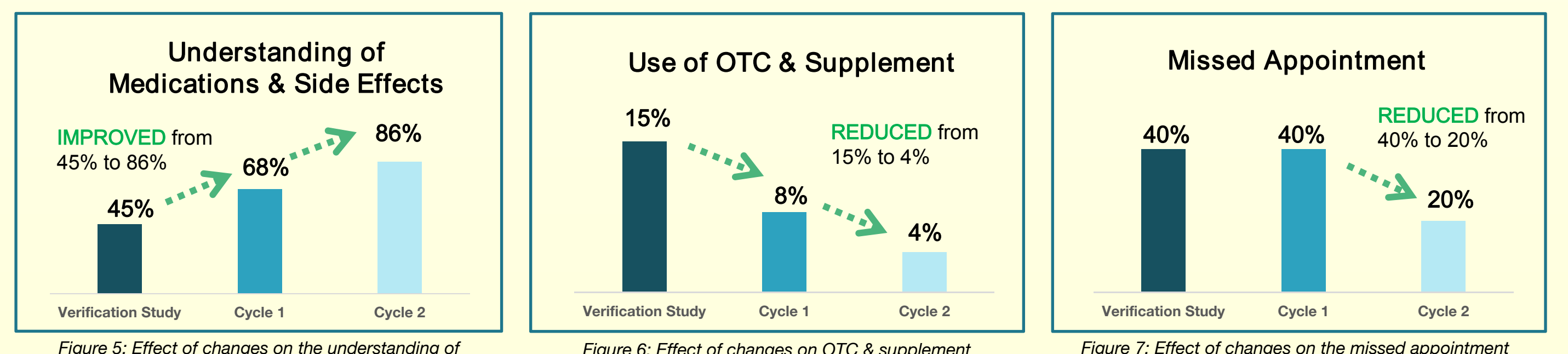
Understanding of Medications & Side Effects — IMPROVED from 45% to 86%: Verification Study 45%, Cycle 1 68%, Cycle 2 86%
Figure 5: Effect of changes on the understanding of medications & side effects

Use of OTC & Supplement — REDUCED from 15% to 4%: Verification Study 15%, Cycle 1 8%, Cycle 2 4%
Figure 6: Effect of changes on OTC & supplement

Missed Appointment — REDUCED from 40% to 20%: Verification Study 40%, Cycle 1 40%, Cycle 2 20%
Figure 7: Effect of changes on the missed appointment

≈ RM 9700 Medication Wastage Prevented ← **Impacts** → Average of 0.8% HbA1c Reduction per patient

Lessons Learnt — Reducing percentage of patient medication non-adherence requires collaborations among healthcare providers. Continuous evaluations and more strategies are needed.

Limitations
1. Patients missed the appointment given resulting in varies follow-up visit.
2. Difficult to change patients negative perception and attitude

7. THE NEXT STEP
- To replicate the project to other facilities
- To publish in Q Bulletin

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1. Sun H et.al (2022). IDF Diabetes Atlas: Global, regional and country-level diabetes prevalence estimates for 2021 and projections for 2045. Diabetes research and clinical practice, 183, 109119
2. Polonsky, W. H., & Henry, R. R. (2016). Poor medication adherence in type 2 diabetes: Recognizing the scope of the problem and its key contributors. Patient Preference and Adherence, 10, 1299-1306
3. Isaac D (2019). Rejected and returned medilog. Inovation Project Klinik Kesihatan Port Dickson, Negeri Sembilan.
4. Saad et al (2021). Evaluation of the adherence to antidiabetic medications among Iraqi patients with T2DM using the Iraqi antidiabetic medication adherence scale (IADMAS). İstanbul Journal of Pharmacy, 51(3), 307-312