

IMPROVING TUBERCULOSIS CASE DETECTION RATE AT PERLIS PRIMARY HEALTH CLINIC



QLL57

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1. SELECTION OF OPPORTUNITIES FOR IMPROVEMENT

1.1 INTRODUCTION

- Tuberculosis (TB) is making a comeback and has remained one of the main causes of mortality among the list of infectious diseases in Malaysia.
- Perlis did not achieve target for TB treatment success rate (> 90%: KPI PKN) and estimated TB incidence rate (97 cases per 100,000 population).
- Perlis recorded a rate of 65 cases for 100,000 people in 2021 (total of 107 TB cases) compare to the estimated TB incidence rate in Malaysia which is 97 cases per 100,000 populations.
- Aim of project is to identify contributing factors for not achieving all the targets regarding Tuberculosis Program in Perlis and implement remedial measures.

1.2 PROBLEM PRIORITIZATION - S.M.A.R.T CRITERIA

Quality Problem	S	M	A	R	T	TOTAL
Low detection of TB case in Primary Health Care in Perlis	18	17	16	17	18	86
High defaulter rate of TB contacts for TB screening in Health Clinic	16	13	16	18	16	79
Poor Implementation of DOTS for TB cases in Health Clinic in Perlis	17	18	16	16	15	82
Low number of TB contact traced for TB screening in Perlis	13	15	14	16	14	72
High percentage poor quality sputum in Perlis Health Clinic	15	16	17	16	13	77

Group members: 6
With score: 1 (Low), 2 (Medium), 3 (High)

1.3 REASON FOR SELECTION

- S** Tuberculosis case detection rate in Primary Health Care Perlis contributes only 20-24% from all new TB cases detected in Perlis from 2018 till 2020. This is far below compared to Perlis standard which is 50% (set during current epidemiology JKN Meeting). This is alarming because primary health care as a gate keeper for early TB detection has failed. In 2021, 40% of new TB cases detected in Perlis are moderate to advanced TB cases based on grading of PTB severity from CXR.
- M** Data is available from Primary health clinic return and TBIS. Data can be analyzed for further details.
- A** Late presentation will lead to spread of disease, reduce quality of life and further increase mortality rate. From all TB mortality in 2021, 48% were moderate to advanced TB cases.
- R** Intervention can be implemented to improve early TB detection. Health screening on high-risk groups in PHC can be increase to unravel undetected cases early.
- T** Cross sectional study can be done and the results can be revealed on time.

2. KEY MEASURES OF IMPROVEMENT

2.1 OBJECTIVES

GENERAL OBJECTIVE
Improving TB Case Detection Rate in Primary Health Clinic in Perlis

SPECIFIC OBJECTIVE

- To identify TB case detection rate in Primary Health Clinic in Perlis
- To identify factors contributing to TB case detection in Primary Health Clinic in Perlis
- To formulate and implement appropriate remedial measures
- To evaluate the effectiveness of the remedial measure

2.2 INDICATOR AND STANDARD

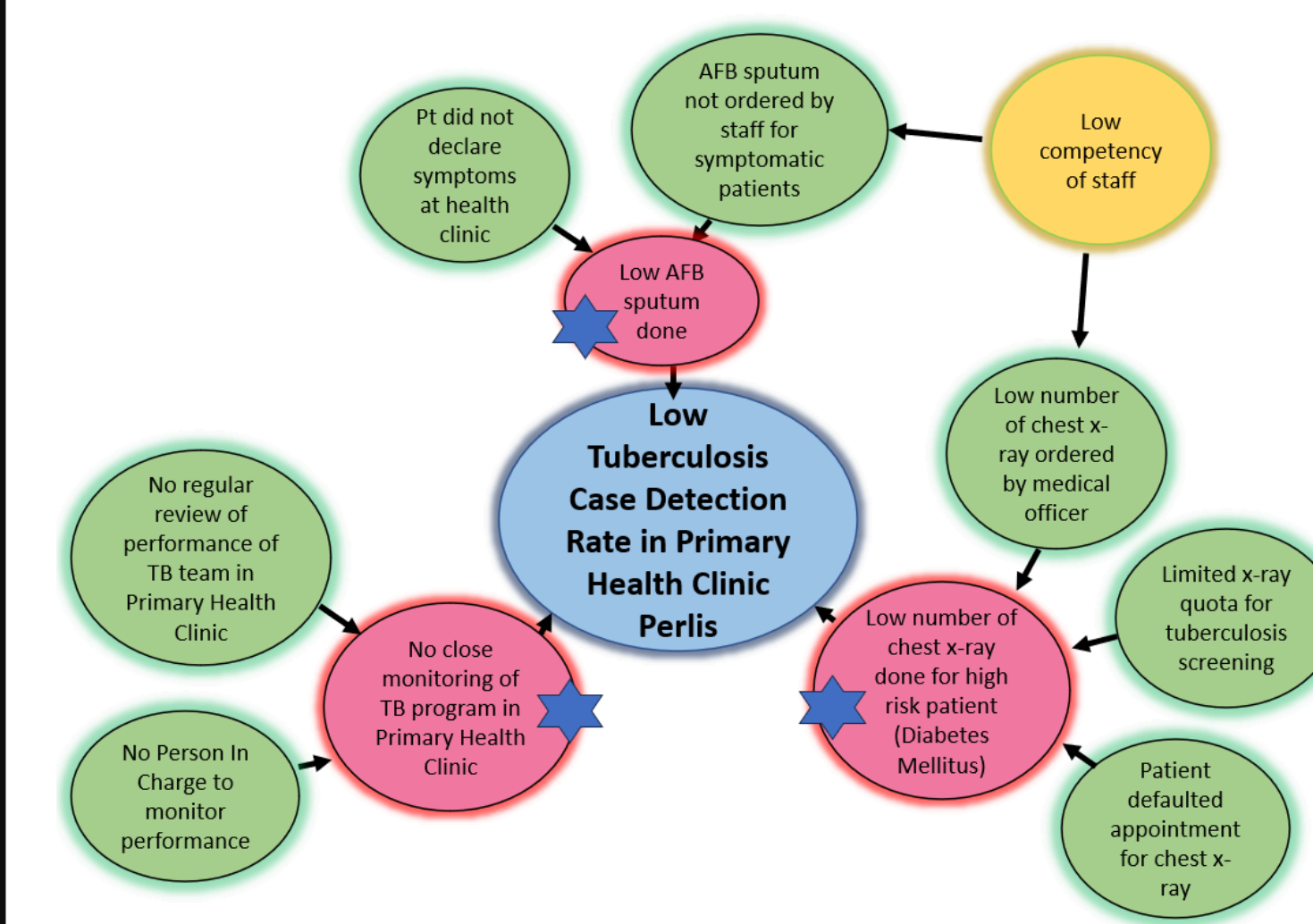
Indicator	Percentage of TB cases diagnosed in Primary Health Clinic in Perlis
Formula	$\frac{\text{Number of TB cases diagnosed in Primary Health Clinic in Perlis}}{\text{Total number of TB cases diagnosed in Perlis}} \times 100\%$
Standard	50% (based on current Epidemiology JKN Perlis Meeting) *No available data at National level

3. PROCESS OF GATHERING INFORMATION

3.1 PROBLEM STATEMENT

- Low TB case detection rate in PHC Perlis will lead to delay in treatment thus increase in disease transmission
- Possible contributing factors are low number of CXR done for high risk patient (DM), low sputum AFB done and no close monitoring of TB program in Primary Health Clinic
- Aim of this study is to improve TB case detection rate at Perlis Primary Health Clinics

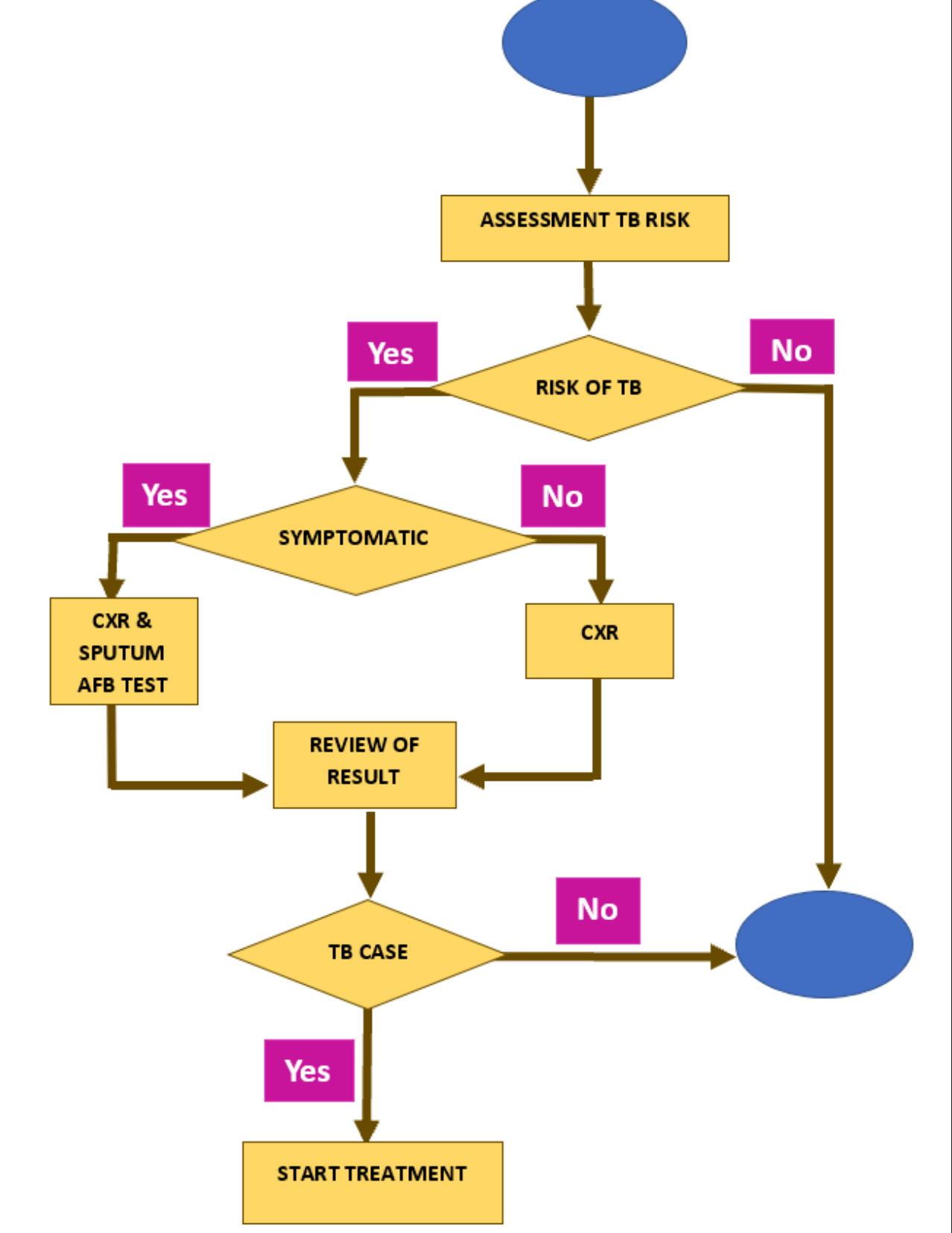
3.2 PROBLEM ANALYSIS CHART



3.3 METHODOLOGY

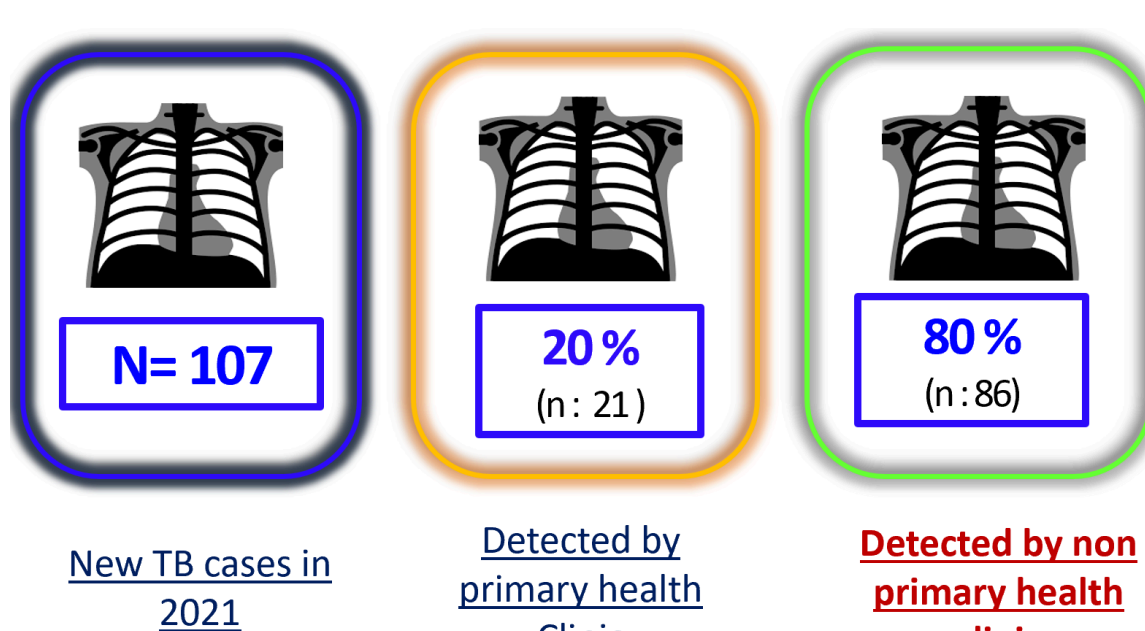
	Phase 1	Phase 2
Aim	To verify the low TB detection rate in PHC Perlis	To identify the possible causative factors of low TB detection rate in PHC Perlis
Type of study	Cross Sectional	
Place	Primary health clinic Perlis (PHC)	
Duration	Pre Intervention : Jan-Dec 2021 Post Intervention : Jan-Dec 2023	
Sample Population	Sample size (TB cases registered in MyTB Perlis) Pre intervention: n=107 Post intervention: n=169	Sample size 1. All Sputum AFB done in PHC Perlis Pre Intervention: n=1083 Post Intervention: n=3656 2. All CXR done for high risk group in PHC Perlis Pre-intervention: n=3270 Post Intervention: n=8862
Inclusion Criteria	TB cases registered in MyTB Perlis	TB Screening done in PHC Perlis
Exclusion Criteria	TB cases diagnosed outside Perlis	TB screening by method other than sputum AFB and CXR
Tools	MyTB	Data on TB Screening

3.4 PROCESS OF CARE



4. ANALYSIS AND INTERPRETATION

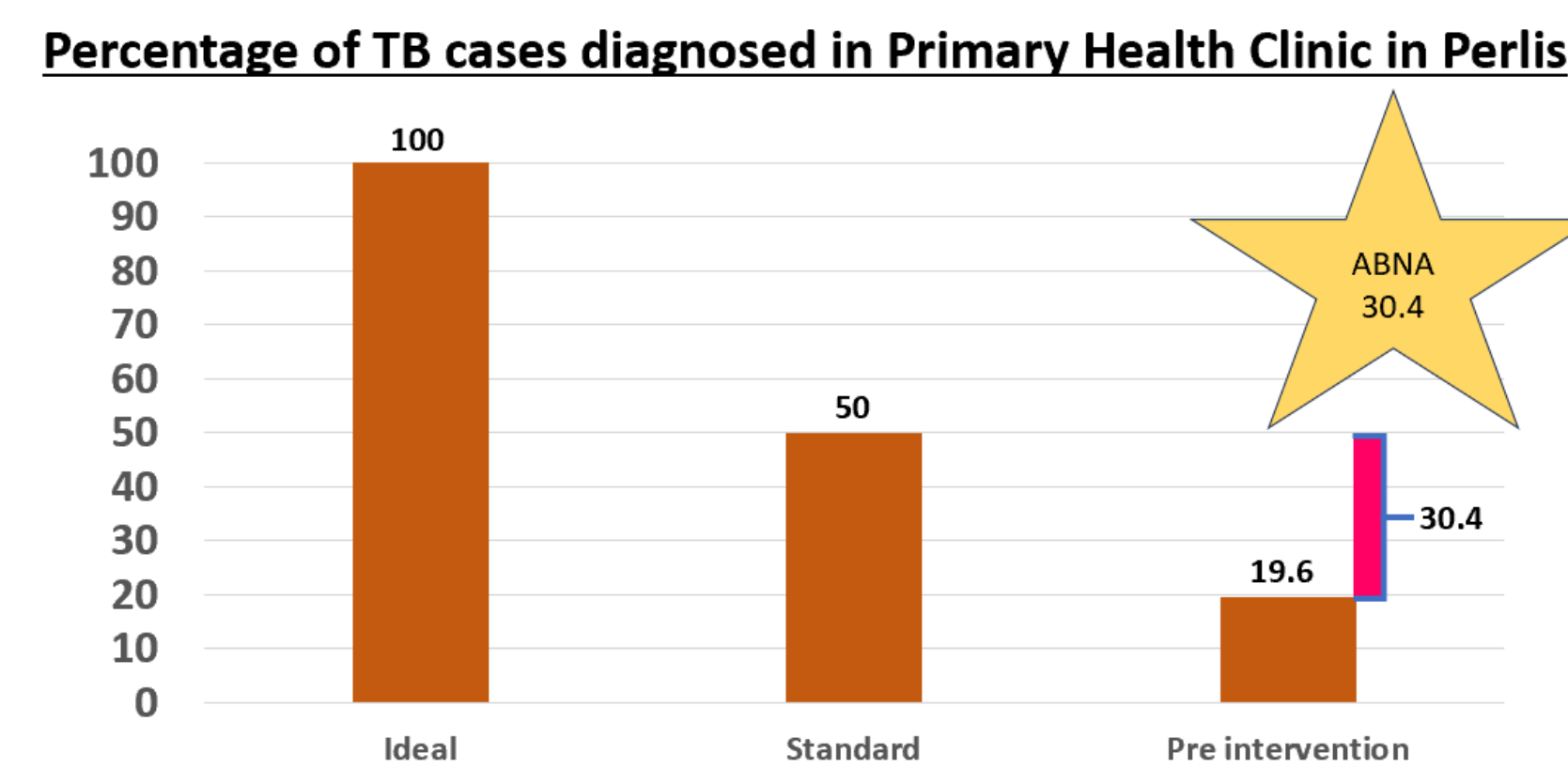
4.1 VERIFICATION OF DATA



4.3 CONTRIBUTING FACTORS

- Only 14.1% DM patients screened for TB using CXR in 2021 (screening):
 - only 16% DM patients given appointment for CXR
 - only 21% slots CXR screening for DM filled
 - only 88.5% DM patients given appointment for CXR adhere to appointment

4.2 ACHIEVABLE BENEFIT NOT ACHIEVED (ABNA)



- Only 3.65% sputum AFB ordered by staff for URTI patient
- No regular review of performance with TB team in health care

5. STRATEGIES FOR CHANGE

5.1 INTERVENTION

Project Selection: Low Tuberculosis Case Detection Rate in Primary Health Clinic Perlis

Root Cause: Low AFB sputum done, Low number of CXR done for high risk patient (DM), No close monitoring of TB program in primary health clinic.

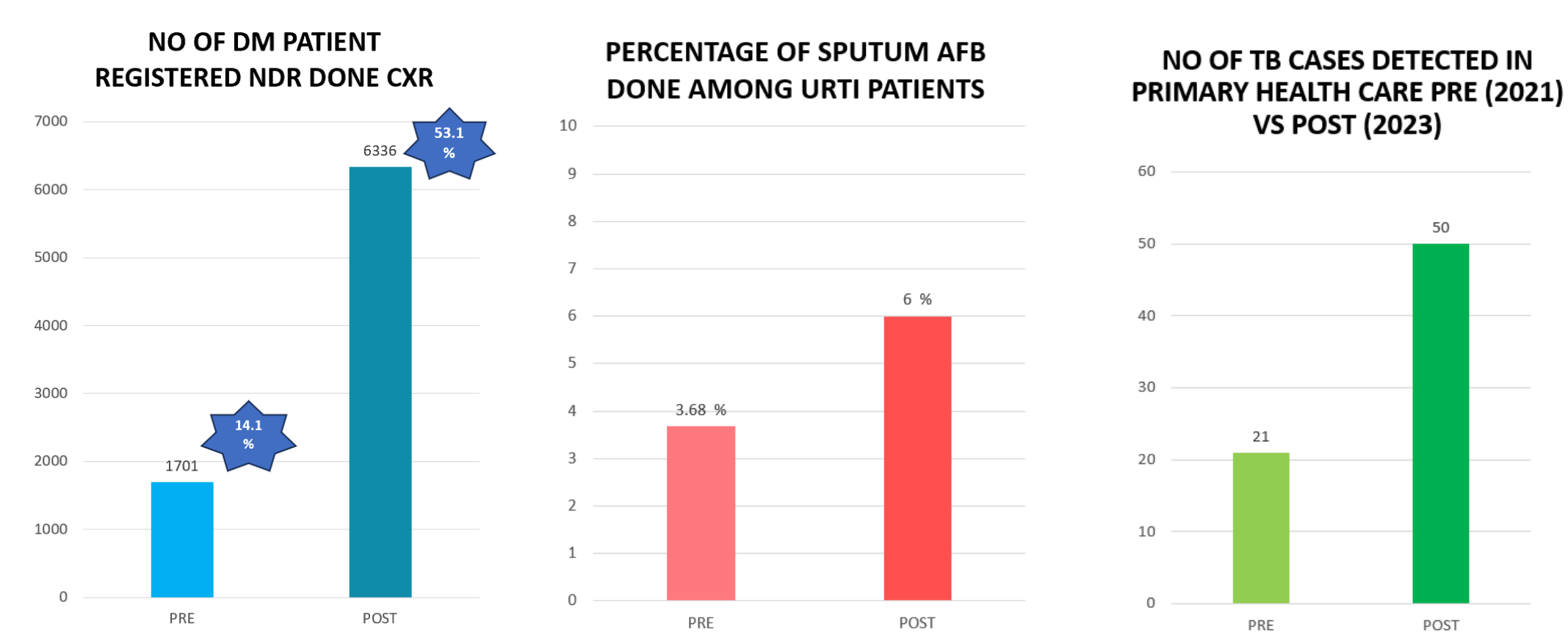
- Tuberculosis program was restructured by:
 - Assigning tuberculosis champion from every PHC
 - Periodic meeting was organized as a part of taskforce to enhance tuberculosis screening
- Quota for chest x-ray screening were increased and extended to non-working days
- Tuberculosis training course for PHC staffs was organized to increase staff competency and skills
- Google Sheets was developed to assist in close monitoring of tuberculosis screening among diabetic patients

Intervention images: Google Sheet Monitoring, Increment of chest x-ray quota, TB Taskforce Meeting, Assigning tuberculosis champion, Tuberculosis training course.

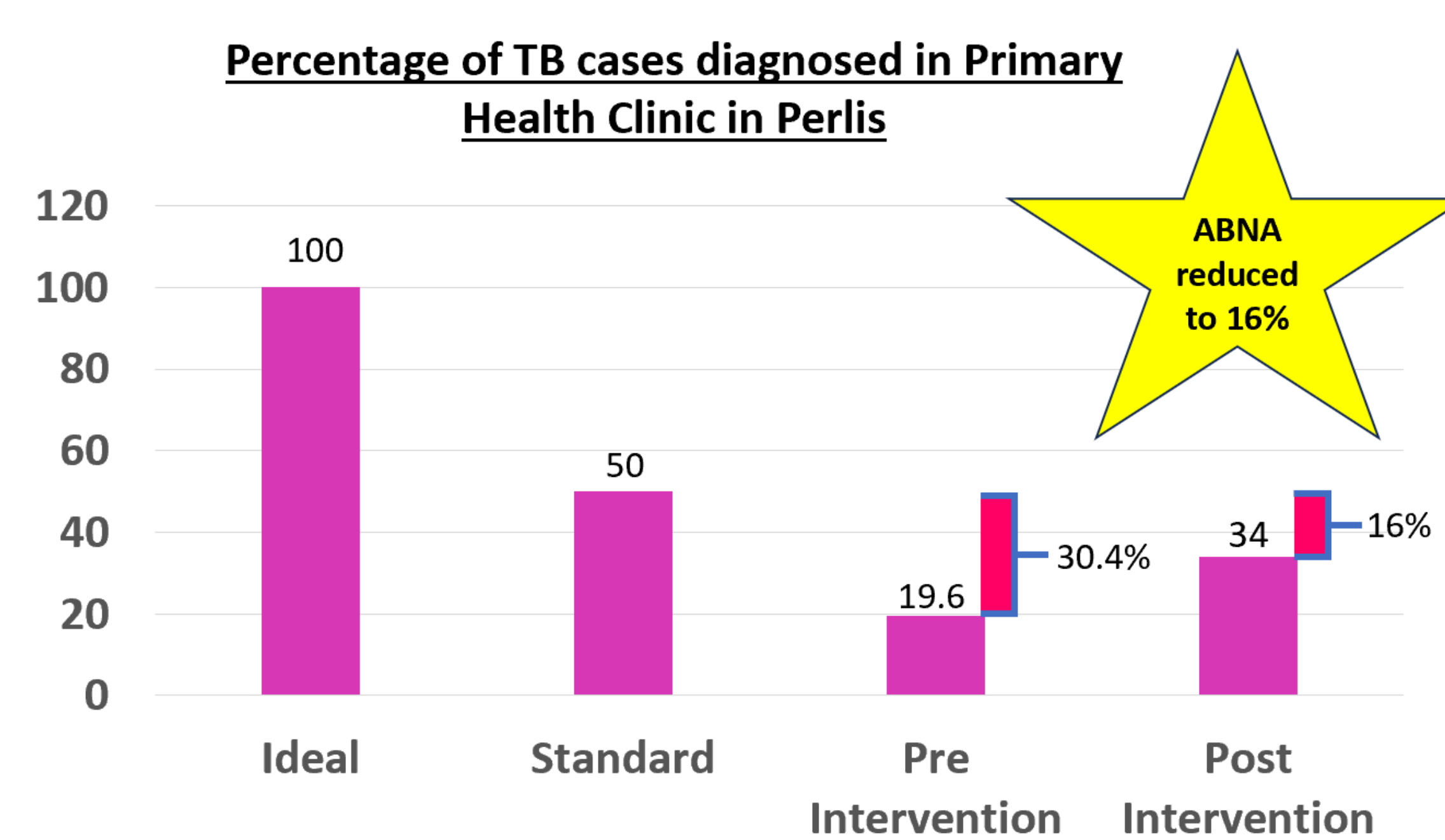
6. EFFECT OF CHANGE

6.1 MODEL OF GOOD CARE (MOGC)

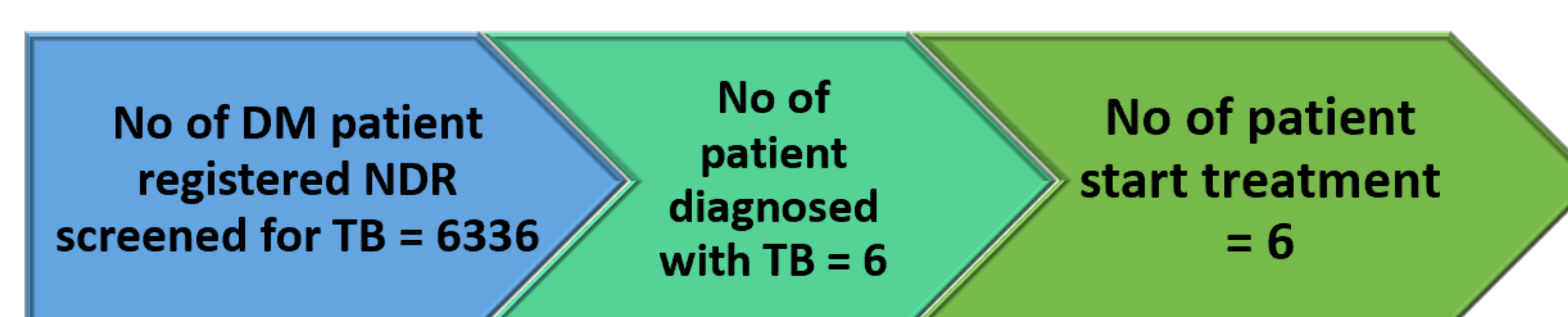
Process	Criteria	Standard	Result PRE (%)	Result POST (%)
Tuberculosis screening among patients with diabetes mellitus	- DM patient given appointment for CXR	100	1922/12045 (16.0)	8800/11920 (73.8)
	- Slots for DM high risk screening filled	100	1922/9360 (20.5)	8800/10140 (86.8)
Screening of URTI patients	- DM patient with appointment given adhere to appointment	80	1701/1922 (88.5)	6336/8800 (72.0)
	- Percentage of DM patient registered NDR done CXR	80	1701/12045 (14.1)	6336/11920 (53.1)
Screening of URTI patients	URTI patients sent for sputum AFB	5%	3.68%	6.00%
Monitoring	Task force TB meeting at PKD level	Every quarterly	Nil	Yes
	Google sheet line listing of DM patient screening	Every KK	Nil	12 KK



6.2 ACHIEVABLE BENEFIT NOT ACHIEVED (ABNA)



6.3 IMPACT ON CXR SCREENING AMONG DM PATIENTS



6.4 IMPACT ON COST

- Each TB case will cost (provider and patient perspective) RM 2,218.14 (Aug 2014). Thus, each TB cases avoided saved RM 2,218.14.
- In one year: pre remedial -21 TB case detected post remedial -50 TB case detected
- Each TB case will have minima 10 contact which has high potential in spread of disease
- Thus, we saved, 29 case x 10 potential TB spread x RM 2,218.14 = RM 643,260.60 post remedial (year 2023)

SAVE RM 643,260.60

7. NEXT STEP

This project will be shared with health clinics from other state for duplication. We will continue in 2024 with second cycle to further increase the detection rate of TB in primary health clinic with the support of Pejabat Kesihatan Daerah Kangar and Jabatan Kesihatan Negeri Perlis. We will focus on a more targeted TB screening among patient with diabetes and improve screening among contacts of TB patients. We will also focus on community screening and awareness. We will continue to train our staff in order to increase their competency in TB screening and management of TB case.