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## 1. SELECTION OF OPPORTUNITIES FOR IMPROVEMENT

### INTRODUCTION

Poor oral health amongst antenatal mothers leads to significant implications in prenatal health and infant's well-being, such as potentially triggering early labour contractions by stimulating inflammation in the uterus; being born prematurely can have a high risk of brain injury; and endothelial dysfunction can lead to impaired blood flow to the placenta, potentially contributing to the development of pre-eclampsia. In Johor state, Kluang district had the lowest percentage of antenatal patients who were considered orally fit at 15% in 2021. Thus, addressing this issue is essential to improving oral care for antenatal patients in Kluang.

### PROBLEM PRIORITIZATION

| No | PROBLEMS  | S  | M  | A  | R  | T  | TOTAL MARKS |
|----|---|----|----|----|----|----|-------------|
| 1  | Low Percentage Of Orally-fit Antenatal Patients In Kluang District      | 15 | 10 | 15 | 15 | 10 | 65          |
| 2  | High Percentage of Repaired Denture                                     | 10 | 10 | 5  | 10 | 5  | 40          |
| 3  | Long Patients Waiting Time.   | 15 | 10 | 10 | 5  | 10 | 50          |
| 4  | High Incidence of Repeated Radiograph in Kluang District                | 10 | 5  | 10 | 5  | 15 | 45          |
| 5  | Low Percentage Of Primary Schoolchildren Maintaining Orally Fit Status. | 15 | 5  | 5  | 15 | 5  | 45          |

Score (1-3) : 1:Low 2:Moderate 3:High (Number of members: 5)

### PROBLEM ANALYSIS

| S  | M   | A   | R  | T  |
|--|---|---|--|--|
| Poor oral health during pregnancy lead to periodontal disease, caries can lead to poor health outcome for the mother and baby. | Data are available and easily taken from HIMS report. | This project is related to dental health and consistent with MOH goals and values | Possible causes can be identified and remedied | Research and improvement can be done within 1 year |

### LITERATURE REVIEW

Zi MY et al revealed that hormones from pregnancy trigger gum inflammation (pregnancy gingivitis) in the 2nd month.  
 Herrera JA et al highlighted that mothers afflicted with periodontal disease have a higher likelihood of giving birth to low-birth-weight infants, experiencing premature delivery and witnessing slower child growth.

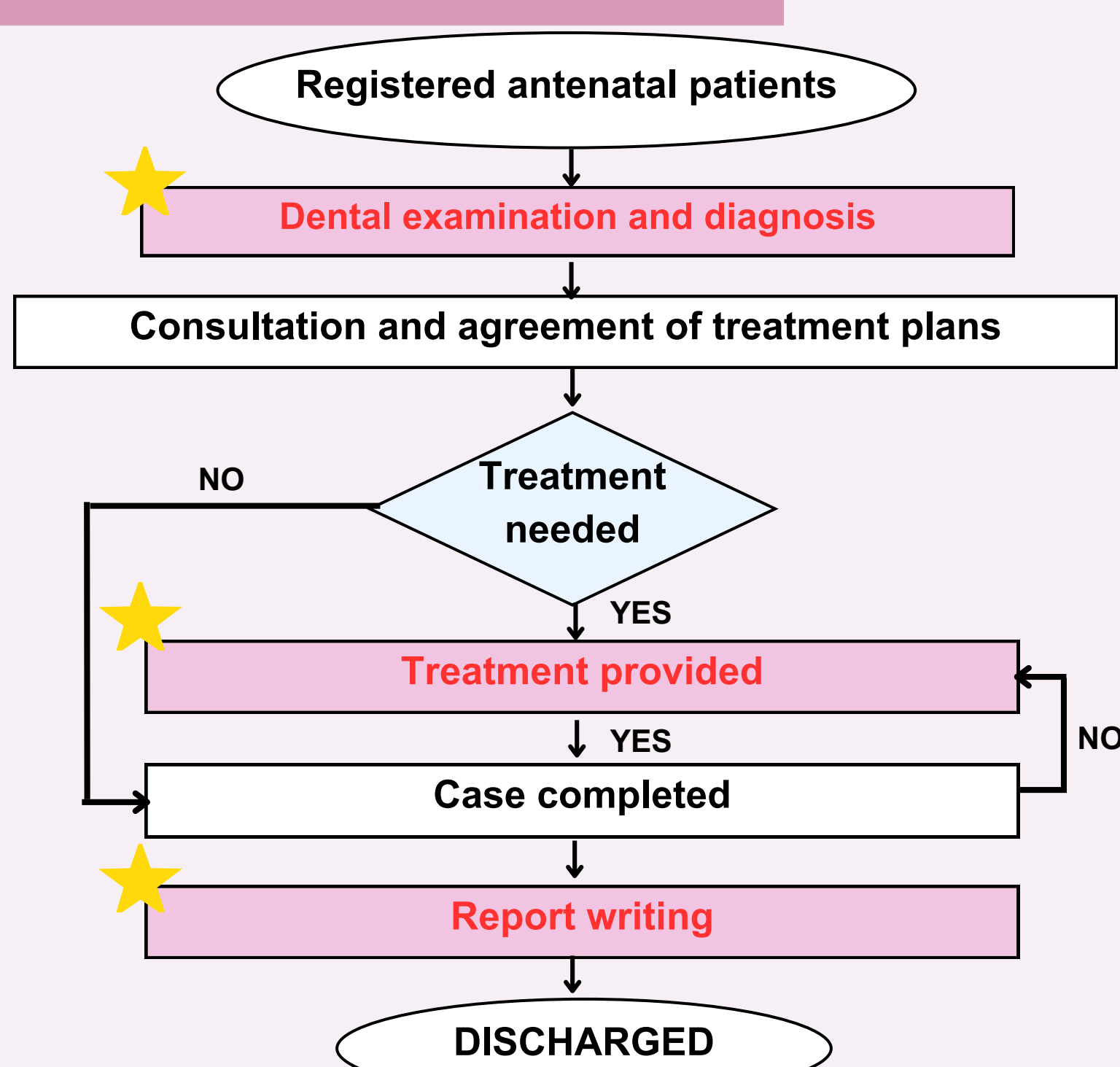
| TERM                               | DEFINITION   |
|------------------------------------|--|
| Antenatal Programme                | Pregnant women visiting public health facilities for antenatal check-ups will be referred to dental clinics for dental examination and oral health education (OHE). They will receive immediate treatment or the earliest appointment, and the cost will be covered. |
| Orally Fit Antenatal Patients      | Antenatal patient who has completed all necessary dental treatments at primary care level including tooth restoration, extraction, scaling and denture construction.   |
| Newly Registered Antenatal Patient | Pregnant women in the current year who have received dental health services.   |

### PROBLEM STATEMENT

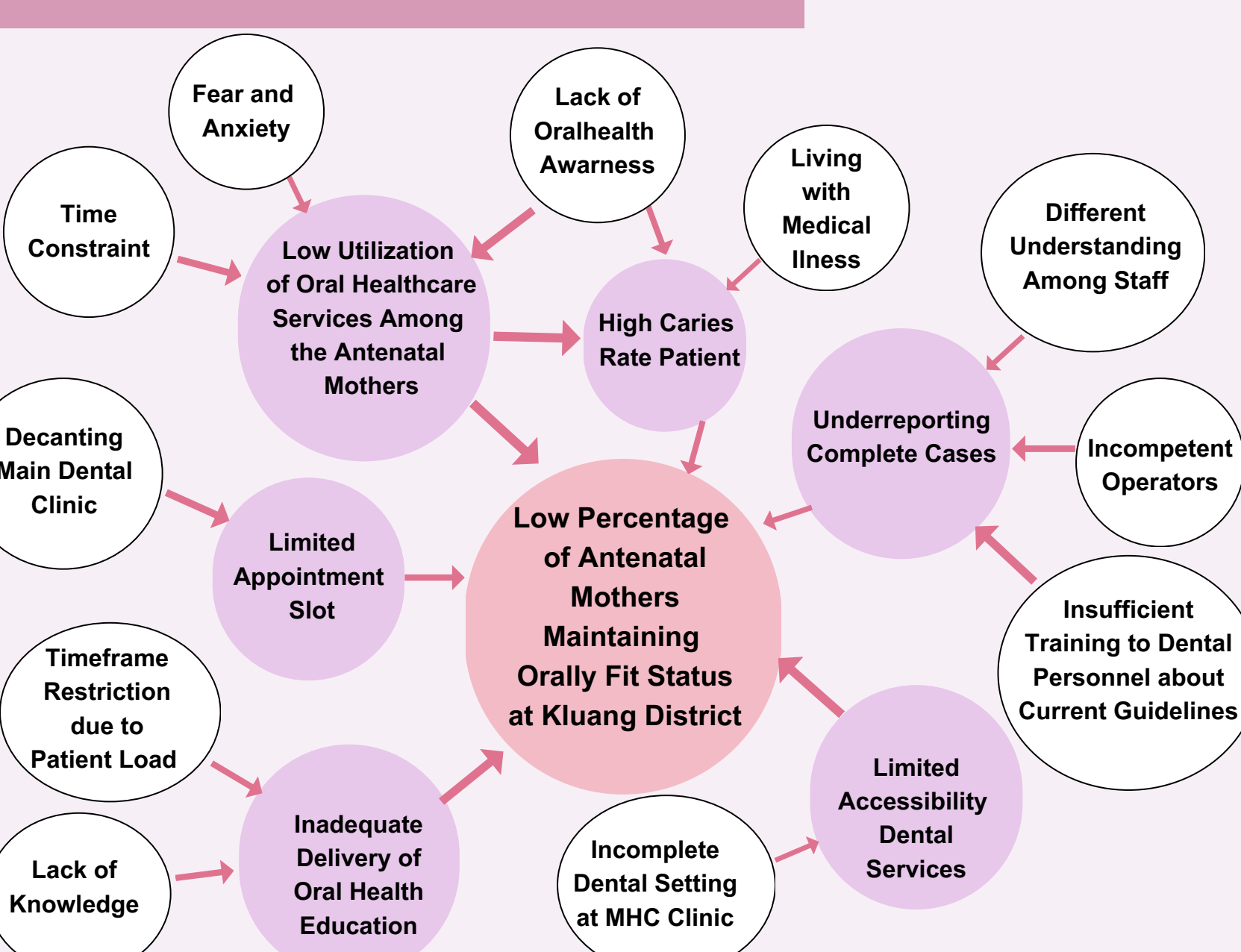
A verification study in Kluang discovered that only 21.9% and 15% of expectant mothers were orally-fit in 2020 and 2021, respectively. The contributing factors involving fear and anxiety, limited accessibility for dental services, limited treatment appointments, inadequate delivery of oral health education and underreporting complete cases. The aim of this study is to enhance orally fit among antenatal patients.

## 2. KEY MEASURES OF IMPROVEMENT

### PROCESS OF CARE



### CAUSE-EFFECT ANALYSIS



### GENERAL OBJECTIVE

To increase the percentage of orally-fit antenatal patients in Kluang district

### SPECIFIC OBJECTIVE

- To determine the percentage of orally-fit antenatal patients in Kluang District
- To identify the contributing factors to the low percentage of orally-fit antenatal patients
- To plan and implement the remedial action according to findings
- To assess the effectiveness of the steps taken

| INDICATOR  | FORMULA  | STANDARD  |
|--|--|---|
| Percentage of Orally-fit Antenatal Patients in Kluang District | $\frac{\text{Total Number of Orally-Fit Antenatal Patients}}{\text{Total Number of Newly Registered Antenatal Patients Examined in Kluang District in Current Year}} \times 100$ | $\geq 45\%$<br>Key Performance Indicator MOH 2022 |

## 3. PROCESS OF GATHERING INFORMATION

|              |   |  |
|--------------|---|--|
| Study Design | Quality Improvement Study   |  |
| Study Frame  | Pre - Remedial : January 2022   | Post Remedial : 1st Cycle - November 2022<br>2nd Cycle - November 2023 |
| Study Tools  | <ul style="list-style-type: none"> <li>PG207 report</li> <li>LP8 2019 cards</li> <li>Self administered questionnaire</li> </ul> |  |
| Study Period | January 2020 – December 2023  |  |
| Study Sample | Dental officers<br>n: 30  | Antenatal patients<br>n: 340   |

INCLUSION CRITERIA : Antenatal patients examined in Kluang

: All primary dental officers

EXCLUSION CRITERIA : Antenatal patients who had previously taken part in comparable studies and initiatives, unwilling to take part  
 : Dental officers who work in specialist clinic, administrative, maternity or medical leave

## 4. ANALYSIS AND INTERPRETATION

### MODEL OF GOOD CARE

| Critical steps            | Criteria  | Standard | Pre-Remedial | 1st Cycle | 2nd Cycle |
|---------------------------|---|----------|--------------|-----------|-----------|
| Examination and Diagnosis | 1. Thorough medical, social & dental history are taken by dental officers.                        | 100      | 80           | 100       | 100       |
|                           | 2. Close inspection of the teeth and oral mucosa using physical assessment & other diagnostic aid | 100      | 77           | 100       | 100       |
| Treatment provided        | 1. Explanation concerning dental issues and oral health educations                                | 100      | 80           | 92        | 100       |
|                           | 2. Provide dental treatment on first visit  | 100      | 20           | 80        | 100       |
|                           | 3. Follow-up treatment if necessary   | 100      | 58           | 89        | 100       |
| Report writing            | Recording of daily and monthly work returns correctly   | 100      | 58           | 89        | 100       |

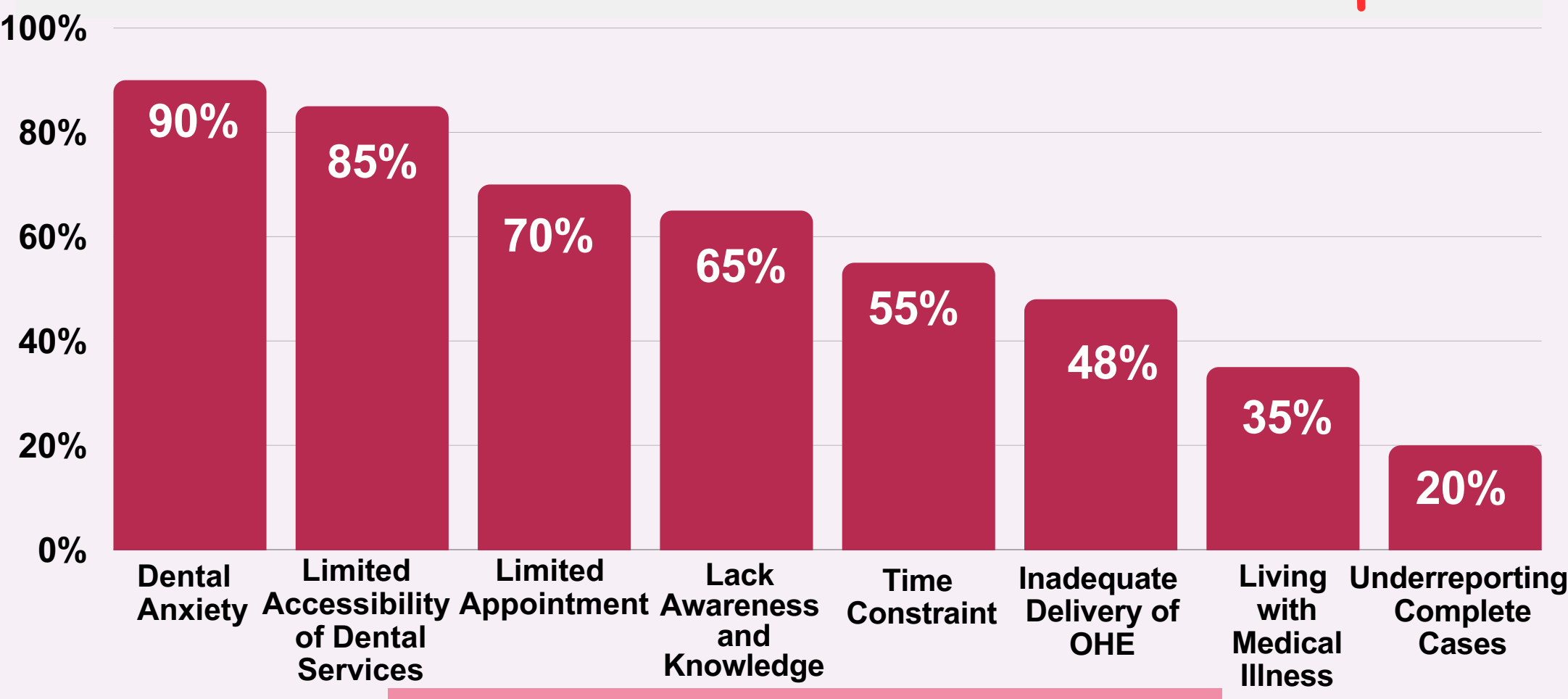


Figure 1: Magnitude of Contributing Factors

## 5. STRATEGY FOR CHANGE

| PROBLEMS  | AIM   | STRATEGIES  |
|---|---|---|
| 1. Fear and anxiety lead to low utilization of oral healthcare services among the antenatal mothers | To reduce dental anxiety  | 1. Strengthen oral health promotion via social media, flyers and Ikon Gigi<br><br>Jan 2022- ongoing                 |
| 2. Limited accessibility of dental services   | To build effective communication and good rapport with patients | 2. Establishment of "Pregnant, Infant n Kids" (PlnK) room to provide conducive environment<br><br>May 2022- ongoing |
|   | To enhance utilization of oral healthcare services              | 3. A supportive and non-judgmental environment  |
|   | To increase accessibility of dental services                    | 1. Utilization of mobile dental clinic located at KKIA compound<br><br>Jan 2022- ongoing                            |
|   | To facilitate antenatal mothers for dental treatments           | 2. Increasing antenatal coverage through outreach and community services<br><br>Jan 2022- ongoing                   |

| PROBLEMS  | AIM   | STRATEGIES  |
|---|---|---|
| 3. Limited treatment appointment slots          | To increase turn-up patients that were given appointments   | 1. "App Remind" innovation streamlines appointment slot management.<br><br>2. Fast-lane for walk in antenatal mothers and provide dental treatments on first visit<br>Jan 2022- ongoing<br>3. PinK-room VIPs : booking slots specific to antenatal mothers treatment.<br>May 2022- ongoing  |
| 4. Inadequate delivery of oral health education | To improve techniques of delivering oral health education   | 1. Facilitate oral health education using D-Box innovation<br><br>May 2022- ongoing<br>2. Collaborative oral health awareness campaigns involving agencies like Badan Kebajikan Keluarga Angkatan Tentera and Pejabat Pendidikan Daerah Kluang<br><br>C2 : Jan 2023 - ongoing<br>3. Oral health workshop / seminar for relevant health personnel<br><br>4. Schedule OHE sessions in groups by dental officers for all antenatal mothers.<br>Jan 2022- ongoing |
| 5. Underreporting complete cases                | To strengthen the awareness of dental staff regarding the importance of achieving good oral health status among antenatal mothers | 1. Monitoring reporting data of dental staff by Pegawai Pergigian Yang Menjaga (PPYM)<br>2. Oral health CDE / seminar for dental staff<br>Jan 2022- ongoing   |

## 6. EFFECT OF CHANGE

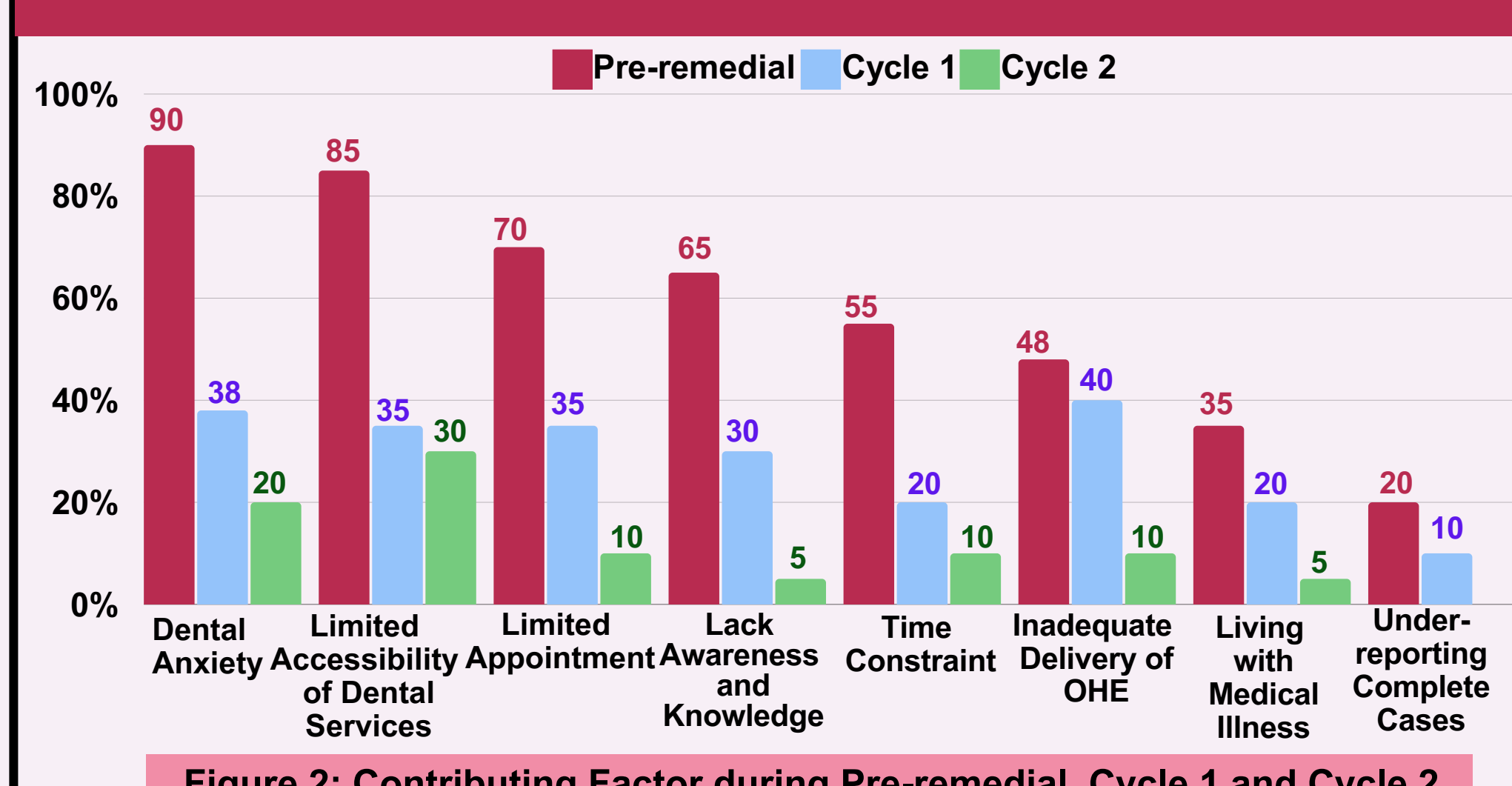


Figure 2: Contributing Factor during Pre-remedial, Cycle 1 and Cycle 2

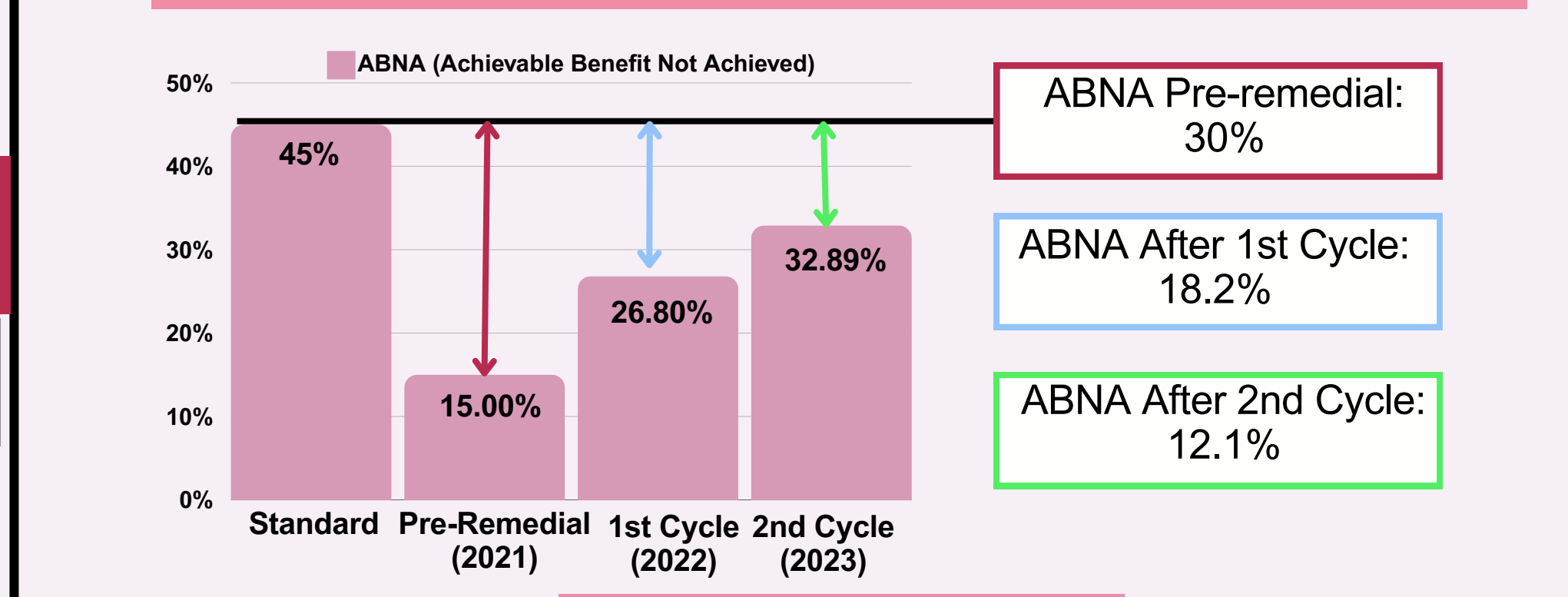


Figure 3: ABNA Pre VS Post

ABNA narrowed down from 30% to 18.2% in 2022, and finally 12.1% in 2023

### CONCLUSION

- Our remedial actions have led to a growing percentage of orally-fit antenatal patients in Kluang district to 26.80% in 2022 and 32.89% in 2023.
- Dental anxiety was the main contributing factor during pre-remedial phase, impacting around 90% of cases.
- In the 1st cycle, the inadequacy of oral health education (OHE) was a significant factor for approximately 40% of cases, while limited accessibility to dental services emerged as the major issue in the 2nd cycle, affecting about 30%.
- Recognizing the limited accessibility to dental services, we are planning to introduce further initiatives to address this concern during 3rd cycle.

## 7. THE NEXT STEP

Intervention measures will be carried out and monitored continuously. Cooperation with Pengangkutan Awam Johor (PAJ) to facilitate accessibility to dental clinic will be conducted in the near future.

### REFERENCES

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