

## Mission Statement

To increase the percentage of patients with suspected inflammatory arthritis seen at the Rheumatology Clinic in TTSH within 42 days from time of referral from 40% to 100% within 6 months

## Team Members

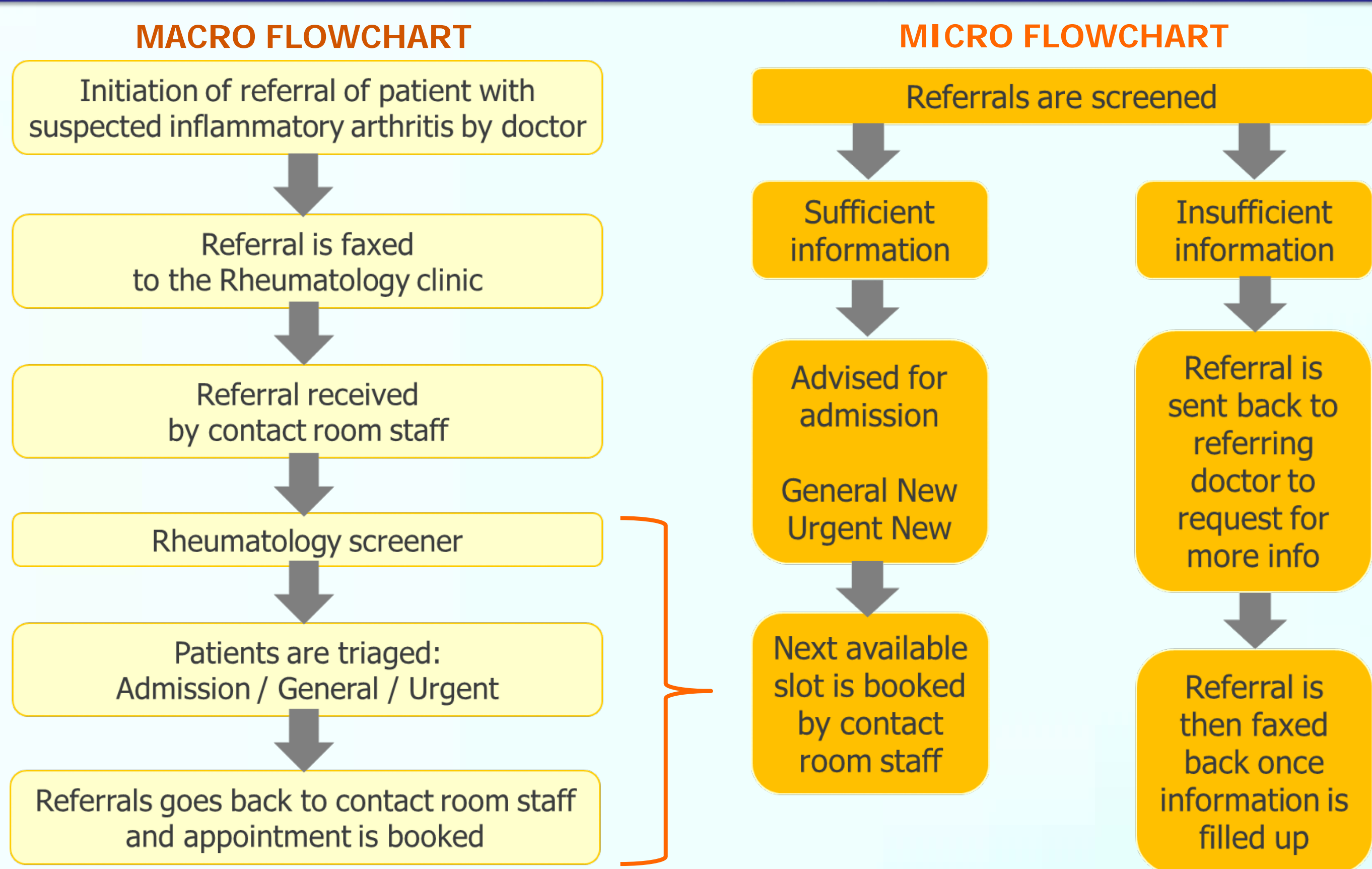
|                     | Name   | Designation               | Department                         |
|---------------------|--|---------------------------|------------------------------------|
| <b>Team Leader</b>  | Adj Asst Prof Justina Tan Wei Lynn                 | Senior Consultant         | RAI                                |
| <b>Team Members</b> | Dr Koh Li Wearn                                    | Senior Consultant         | RAI                                |
|                     | Ms Xanthe Chua Bee Ling                            | Advanced Practice Nurse   | RAI                                |
|                     | Mr Hamzah Bin Sameen                               | Patient Service Associate | Clinic B1A                         |
|                     | Mr Cheng Dong Hao                                  | Operations Manager        | RAI                                |
|                     | Dr Yong Yan Zhen                                   | Primary Care Physician    | Hougang Polyclinic                 |
|                     | Dr Hazel Oon Hwee Boon                             | Senior Consultant         | National Skin Centre               |
|                     | Dr Stephen Siew Ka Fai                             | Senior Resident           | Hand & Reconstructive Microsurgery |
| <b>Sponsor</b>      | Adj A/Prof Kong Kok Ooi                            | Head of Department        | RAI                                |
| <b>Mentors</b>      | Adj A/Prof Gervais Wansaicheong & Dr Troy Sullivan |                           |                                    |

## Evidence for a Problem Worth Solving

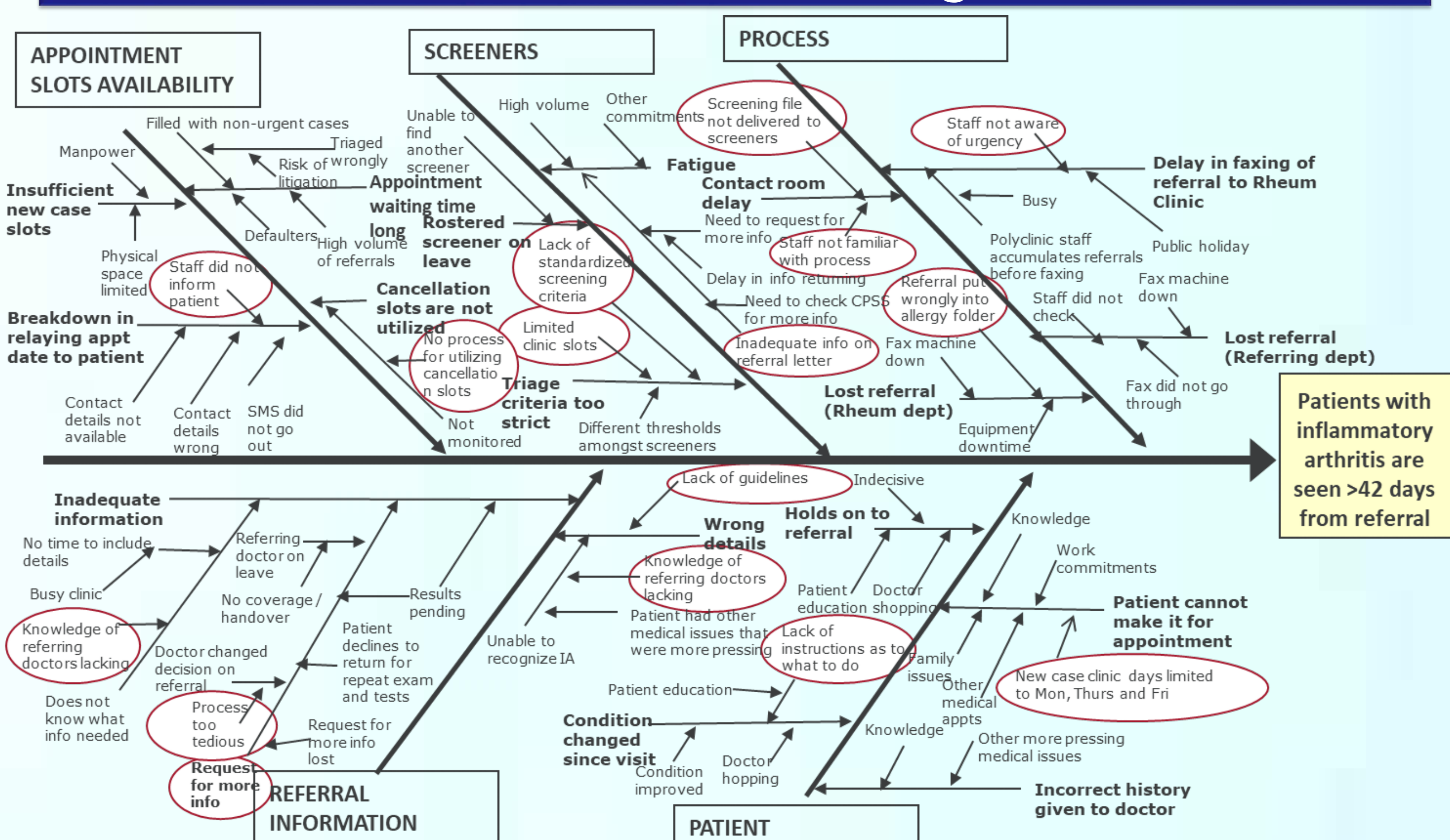
- In TTSH, amongst patients suspected to have inflammatory arthritis and are referred to Rheumatology clinic, only about 40% of them are seen within 6 weeks time frame.
- Delay in presentation to a Rheumatologist will lead to a delay in diagnosis and initiation of treatment for inflammatory arthritis.
- Numerous studies have shown there exists a window of opportunity for treatment of inflammatory arthritis - earlier diagnosis and treatment is associated with better prognosis, reduced morbidity and mortality, better functional status and quality of life.
  - Canadian Rheumatology Association - guidelines on wait-time benchmarks for rheumatology: Max wait time to see patient with suspected rheumatoid arthritis is 4 weeks<sup>1</sup>
  - In the United Kingdom, NICE (National Institute for Health and Care Excellence) guidelines 2013 published quality standards for the diagnosis and treatment of rheumatoid arthritis. Waiting time, states that people with suspected persistent synovitis (swelling) should be assessed in a rheumatology service within 3 weeks of referral.<sup>2</sup>

<sup>1</sup> Canadian Rheumatology Association. Wait-time benchmarks for rheumatology [Internet. Accessed July 25, 2016] Available from: www.waittimealliance.ca/wp-content/uploads/2014/05/Wait-Time-Benchmarks-for-Rheumatology-FINAL.pdf  
<sup>2</sup> JM Ledingham et al. Achievement of NICE Quality Standards for patients with new presentation of inflammatory arthritis: Observation from the National Clinical Audit for Rheumatoid and Early Inflammatory Arthritis. Rheumatology (Oxford) 2017; 56(2): 223-230

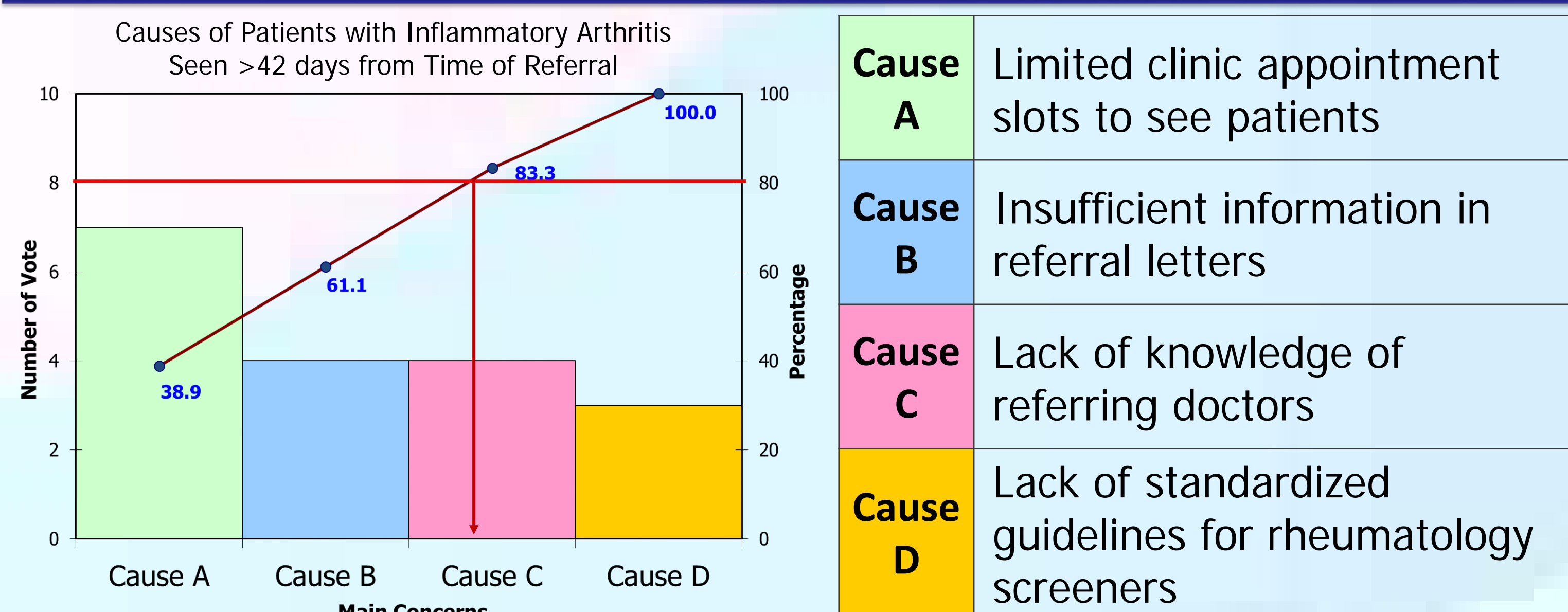
## Flow Chart of Process



## Cause and Effect Diagram



## Pareto Chart

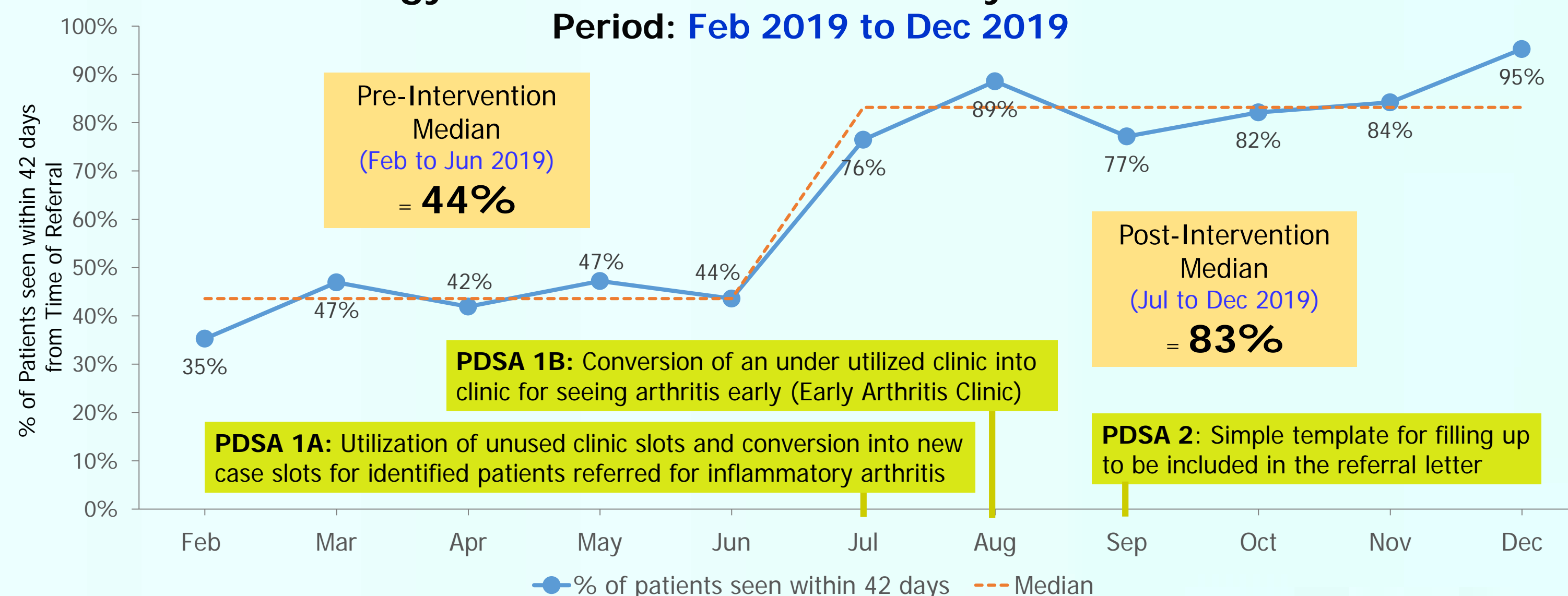


## Implementation

| Root Cause   | Intervention  | Implementation Date |
|--|---|---------------------|
| <b>Cause A:</b> Limited clinic appointment slots to see patients | <b>PDSA 1A:</b> Utilization of unused clinic slots and conversion into new case slots for identified patients referred for inflammatory arthritis | 1 Jul 2019          |
| <b>Cause B:</b> Insufficient information in referral letters     | <b>PDSA 1B:</b> Conversion of an under utilized clinic into clinic for seeing arthritis early (Early Arthritis Clinic)                            | 1 Aug 2019          |
| <b>Cause C:</b> Lack of knowledge of referring doctors           | <b>PDSA 2:</b> Simple template for filling up to be included in the referral letter   | 1 Sep 2019          |

## Results

Percentage of Patients with Suspected Inflammatory Arthritis seen at the Rheumatology Clinic in TTSH within 42 days from Time of Referral Period: Feb 2019 to Dec 2019



| Month               | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Seen within 42 Days | 12  | 23  | 13  | 17  | 17  | 26  | 31  | 27  | 23  | 16  | 20  |
| Total Patient       | 34  | 49  | 31  | 36  | 39  | 34  | 35  | 35  | 28  | 19  | 21  |

## Cost Savings

|  | Pre-Intervention                                  | Post-Intervention                                |
|--|---|--|
| Percentage of Patients seen early (within 42 days)         | 44%   | 84.5%  |
| Mean of 30 patients with inflammatory arthritis each month |   |  |
| Each Month   | 13 patients seen early<br>17 patients seen late   | 25 patients seen early<br>5 patients seen late   |
| Each Year  | 156 patients seen early<br>204 patients seen late | 300 patients seen early<br>60 patients seen late |
| Biologics Use  | 5.6% of 156 = 9<br>26% of 204 = 53                | 5.6% of 300 = 17<br>26% of 60 = 16               |
| Total Patients requiring Biologics / Year                  | 9 + 53 = 62 patients                              | 17 + 16 = 33 patients                            |
| No. of Patients less requiring Biologics / Year            | 62 - 33 = 29                                      |  |
| Cost Savings / Year  | 29 x SGD \$19,200 = - SGD \$556,800               |  |

## Lessons Learnt

- Enthusiasm at the start is not usually sustained - a lot of hard work and effort needs to put in to carry things through.
- It is hard to change things internally, but even harder to implement change outside your department.
- With small changes to our current work processes, we can actually improve the quality of care for our patients.

## Strategies to Sustain

- Continue audit as a quality improvement work project
- Involving people into the project
  - Senior Residents
  - Other Rheumatologists
- Presentation of our work and results to the rest of the department
- Can become one of the key performance indicators for the department