

# REDUCING INAPPROPRIATE REFERRALS FROM ED TO ORTHOPAEDIC SOC

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## Define Problem, Set Aim

### Problem/ Opportunity for Improvement

The Emergency Department (ED) is experiencing a significant challenge with high volume of patients referred from the ED to SOC not attending their appointment (no-show). This suggests an inefficient use of valuable specialist resources and potentially delaying care for patients who genuinely require specialist follow-up.

By implementing targeted interventions to optimize the referral process, there is an opportunity to ensure ED patients receive appropriate level of care for their condition, reduce unnecessary SOC referrals and improve overall healthcare efficiency.

**Aim:** We aim to reduce the total number of referral from ED to Orthopaedic SOC by at least 5% (from 720 to 684 i.e. 36 less referrals per month) by December 2025.

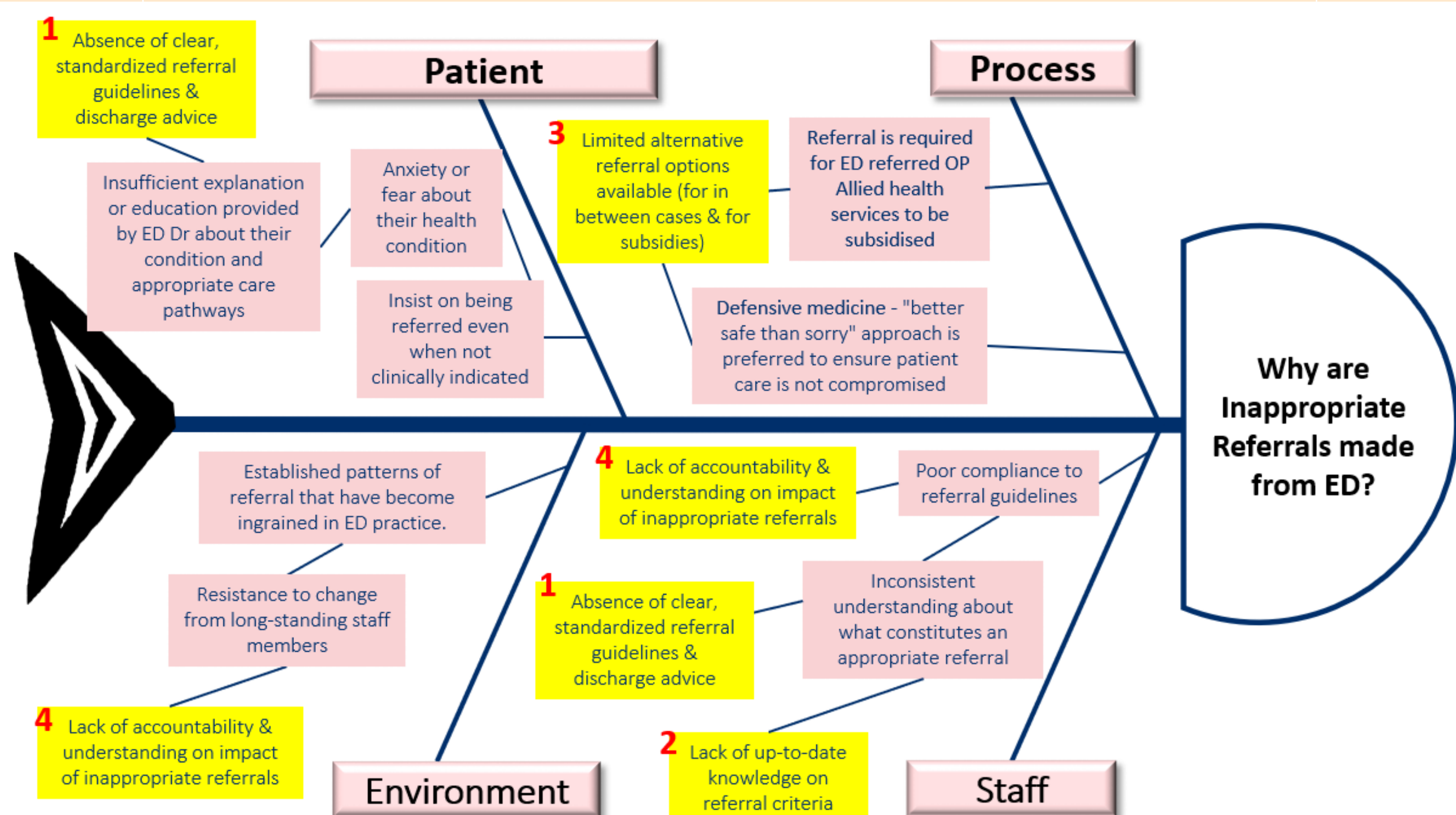
## Analyse Problem & Establish Measures

Our team analysed the top no-show diagnoses referred from ED and identified those that can potentially be intervened. Period: June 2023 to June 2024

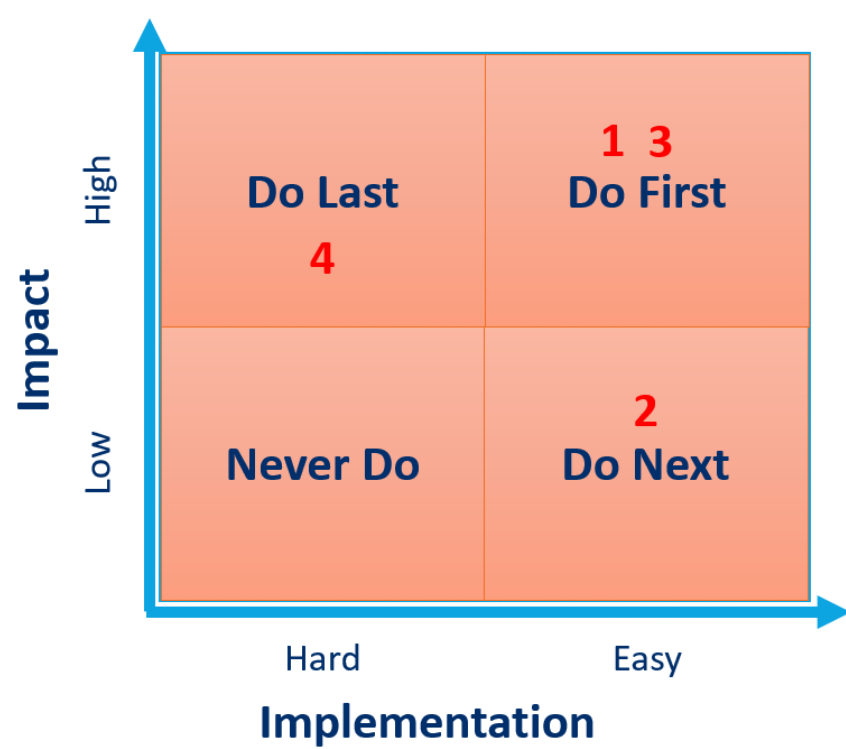
Diagnosis	No-Show rate	Diagnosis	No-Show rate
Foot pain/ sprain/ contusion	51%	Ankle pain/ sprain/ contusion	43%
Neck pain/ sprain/ contusion	50%	Shoulder dislocation	39%
Shoulder pain/ sprain/ contusion	48%	Knee pain/ sprain/ contusion	36%
Back pain/ sprain/ contusion	47%	Toe fracture	12%

The following measures were then defined:

Type	Measure	Baseline
Outcome	Mthly no. of ED patients discharged and referred to Orthopaedic SOC	720
Process	Mthly No. of patients referred to SOC for Pain/ Strain/ Contusion	198
Process	No. of patients referred to SOC for Toe Fracture	30



Potential solutions	Root cause
Establish/ enhance risk stratification guidelines, referral criteria and discharge advice	1. Absence of clear, standardized referral guidelines & discharge advice
Explore diverse methods for effective information distribution	2. Lack of up-to-date knowledge on referral criteria
Explore alternative referral options (i.e. Open date) Discuss alternative approach for subsidies eligibility	3. Limited alternative referral options available (for in between cases & for subsidies)
Regular review on inappropriate referrals and provide targeted feedback on inappropriate referrals and its impact	4. Lack of accountability & understanding on impact of inappropriate referrals



## Learning Points

### Key Learning Points:

- Data-Driven decision making** plays a fundamental role in driving healthcare improvements. Our team could tailor strategies to address specific pain points in the referral process, monitor trends and evaluate the effectiveness of our initiatives.
- Remaining flexible and innovative in healthcare delivery** is vital for creating a more efficient, and patient-centered system. By implementing flexible referral pathways (eg. Open date referrals for less acute conditions and direct referral to Physiotherapy for musculoskeletal conditions), we can reduce unnecessary specialist appointments while still ensuring appropriate care provision. These strategies demonstrate the value of reimagining traditional referral pathways to better serve patient needs and optimize healthcare resources.
- Scalability of successful interventions across departments** can amplify hospital-wide improvements. The strategies implemented such as exploring alternative referral options and improving communication through innovative means could potentially be adapted and applied to other specialties or departments facing similar challenges with referral management. By identifying common principles and customizing solutions to fit different contexts, we can leverage successful initiatives to drive systemic improvements in patient care and resource utilization across multiple departments.



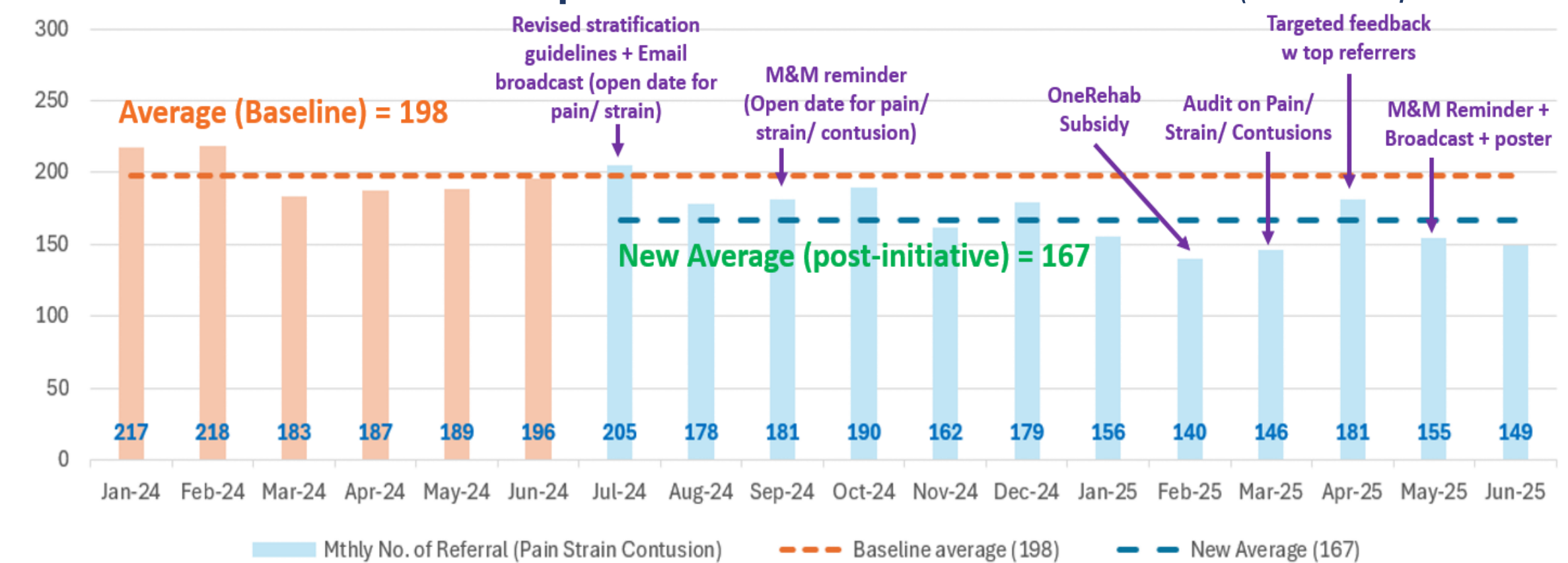
## Test & Implement Changes

CYCLE	PLAN	DO	STUDY	ACT
1a Root cause 1 & 3	<b>Enhance Risk Stratification guidelines &amp; Explore alternative referral options</b> Since appts relating to <b>Pain/ Strain/ Contusions</b> had the highest no-show rates, we plan to refine the referral protocol to include <b>open-date</b> options to reduce booked appt slots while still ensuring appropriate care provision.	ED engaged Orthopaedic and established that Pain/ Strain/ Contusions conditions are suitable for open-date referrals (valid for 3 months).  ED clinicians were informed via email broadcast and during M&M.	Our team monitored the referral data which showed a slight decrease in referrals and increase in utilisation of open-date referrals for the targeted conditions.	<b>Adopt</b> Based on the positive results, our team adopted the new referral protocol and plans to extend this approach to other no-show conditions.
1b Root cause 4	<b>Regular review on inappropriate referrals &amp; Targeted Feedback</b> Recognising the need to <b>ensure adherence</b> to the new referral protocol, we planned to conduct a retrospective audit to assess appropriateness of referrals.	Following the audit, 24 ED clinicians were identified and given targeted feedback.	We analysed the profile of top referrers and Dr Joeann had a one-to-one conversation with them.  Some clinicians revealed that they were unaware of the updated guidelines.	<b>Adopt</b> More significant reduction in referral is observed after targeted feedback was given.
2	<b>Establish New Clinical Management Guidelines</b> Shoulder dislocations had been identified as the next highest no-show diagnosis. Building on the success of their previous initiative, the team planned to apply a similar approach to optimize the management of shoulder dislocation.	Our team initiated a comprehensive audit, including patients' condition, referral criteria & scheduling pattern.	Our investigation revealed that the majority of these referrals were for patients with recurrent dislocations, a condition that indeed warrants specialist evaluation.	<b>Abandon</b> Referral guidelines for shoulder dislocation remained unchanged to ensure that quality of patient care was not inadvertently compromised.
3 Root cause 1	<b>Establish New Toe Fracture Clinical Management guidelines and Discharge Advice</b> Optimize the management of toe fractures through <b>further risk stratification</b> . This directive was established in agreement with SOC F&A consultants.	An email broadcast was sent to ED clinicians in Jul 2024 to avoid referring patients with lesser toe fractures to SOC.  Repeated reminders given to clinicians during subsequent M&Ms and feedback was gathered.	Some juniors expressed reservations about discharging patients to specialist referral.  Their concerns stemmed from apprehensions about potential errors in judgment that could adversely affect patient recovery or result in medico-legal complications.	<b>Adapt</b> In response, guidelines that encompass patient counselling information and directives for issuing MC/HL was created to supplement the protocol.  Regular audit is also performed to ensure compliance.
4 Root cause 3	<b>Alternative approach for subsidies eligibility</b> Currently, MSK patients were referred to SOC for subsidized Physiotherapy. Recognizing this as a potential source of unnecessary referral, we planned to explore alternative pathways that could ensure appropriate care provision without increasing financial burden on patients.	The team initiated discussion with Allied Health and Finance to explore the feasibility of subsidised PT with an open date referral to SOC under the 'OneRehab' framework.	After discussion, it was agreed that patients could be referred to PT at subsidised rate even w/o referral to SOC - Referral order can still be placed by PT if required) after reviewing the patient.	<b>Adopt</b> WEF 10 Feb 25, MSK patients from ED can be referred directly at subsidised rate without SOC appt.
5 Root cause 2	<b>Improve communication &amp; create awareness in ED</b> The team intend to explore ways to <b>use AI to improve communication</b> of referral guidelines to doctors.	Comic strips were developed to remind doctors of the appropriate referral guidelines. By enhancing visual appeal and incorporating subtle humour, we aim to potentially increase doctors' retention of and adherence to these guidelines.	To ensure accessibility, the comics were distributed through via MS Teams with physical copies posted in common areas such as call room & toilets.  Favourable responses were received on this innovative approach.	<b>Adopt</b> While this did not lead to a further reduction in the no. of referrals, it successfully maintained the existing lower referral rate that could otherwise likely have increased with the new batch of MOPEX in ED.

## Outcome

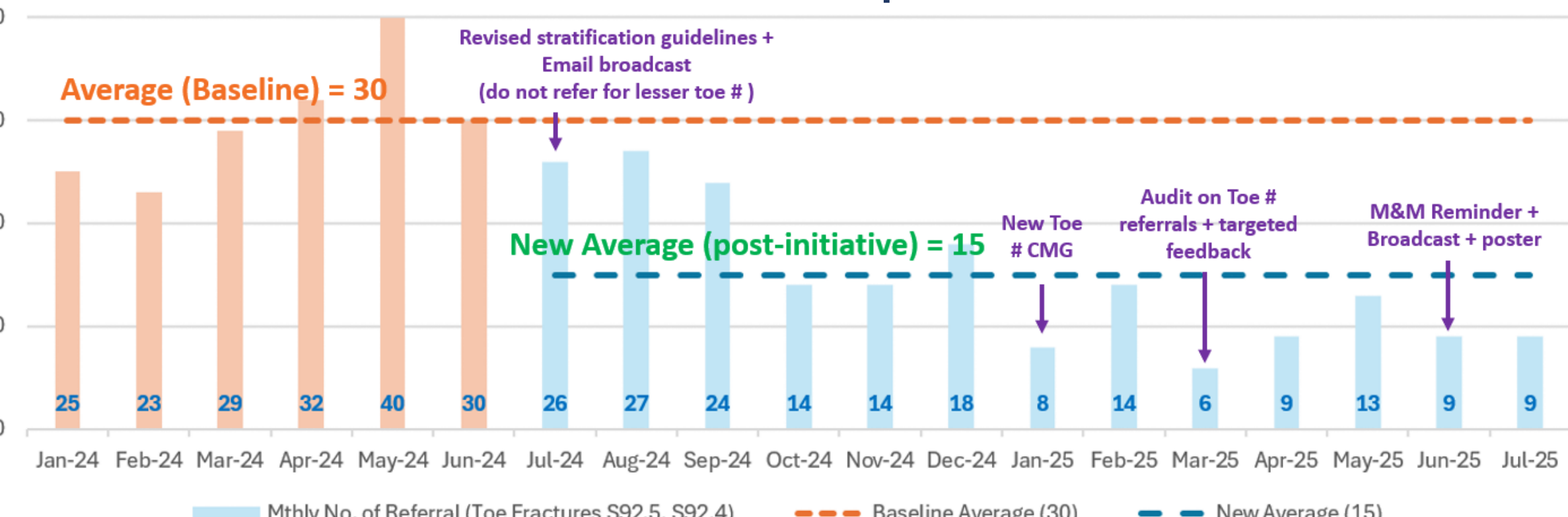
Average no. of referral for Pain/ Strains/ Contusion (excluding Chronic conditions & open-date referrals) reduced by **15.7%** from **198** to **167** (31 less referrals per month)

### Process Measure: Referral to Orthopaedics – Pain/ Strain/ Contusion (exclude open date & Chronic)



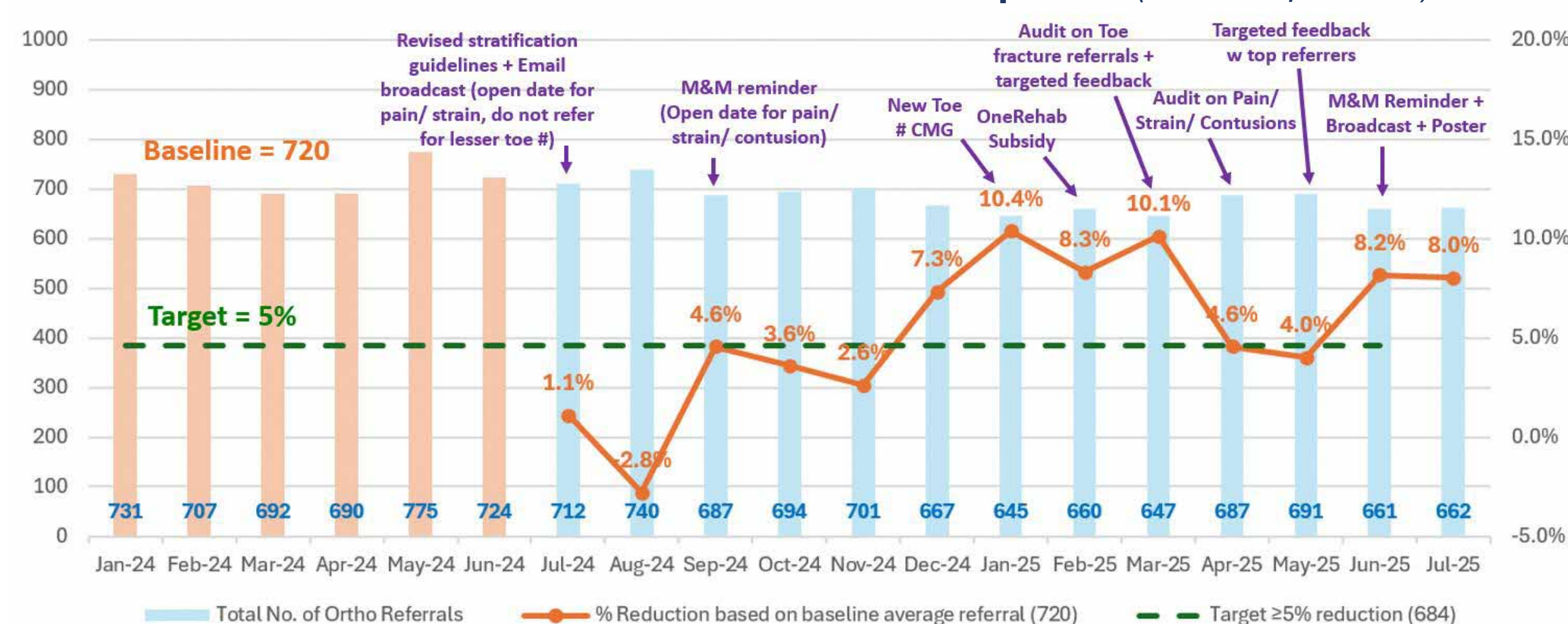
Average no. of referral for Toe Fractures reduced by **50%** from **30** to **15** (15 less referrals per month)

### Process Measure: Referral to Orthopaedics – Toe Fractures



Overall, the project successfully reduced the average monthly referral from ED to Orthopaedic from **720** to **681** (39 less referrals per month) with median reduction of **4.6%**. While the project has already shown substantial results, our team recognize that there are still rooms for improvement and will continue to work towards our goal of a 5% reduction by December 2025. Our team believes that there is strong potential to surpass this goal with further refinement and optimization of our referral process.

### Outcome Measure: Total ED referral to Orthopaedic (exclude open-date)



Additional credits to Contact Centre (open-date appointment booking), Allied Health (One-Rehab framework), Finance (One-Rehab framework), Dr Koh Yiwen (AI Comic), Dr Carmen (EPIC enhancement) for their support & contribution to the project