



# UP for the CHALLENGE

## Optimising Drug Challenge Waiting Time

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### Background

#### Introduction:

- A **drug provocation test (challenge)** is required to **evaluate drug allergies**
- Labour intensive, requires 3 to 8 man-hours to complete and involves a multi-disciplinary team (including pharmacy, nursing, medicine and clinic operations)
- Performed in SGH Immunology Hub clinic once every alternate week

#### Problems:

- Long patient wait time** for a drug challenge – approximately **53 weeks (369 days)** as of August 2022
- High patient **no-show** and **re-scheduling** rates for drug challenges

#### Impact:

- Long wait time adversely affects patients' **access to care** and **service satisfaction** – may cause **delay** of treatment or use of **alternative medications** which are less effective, costlier, have more adverse effects or are challenging to access

### Objective

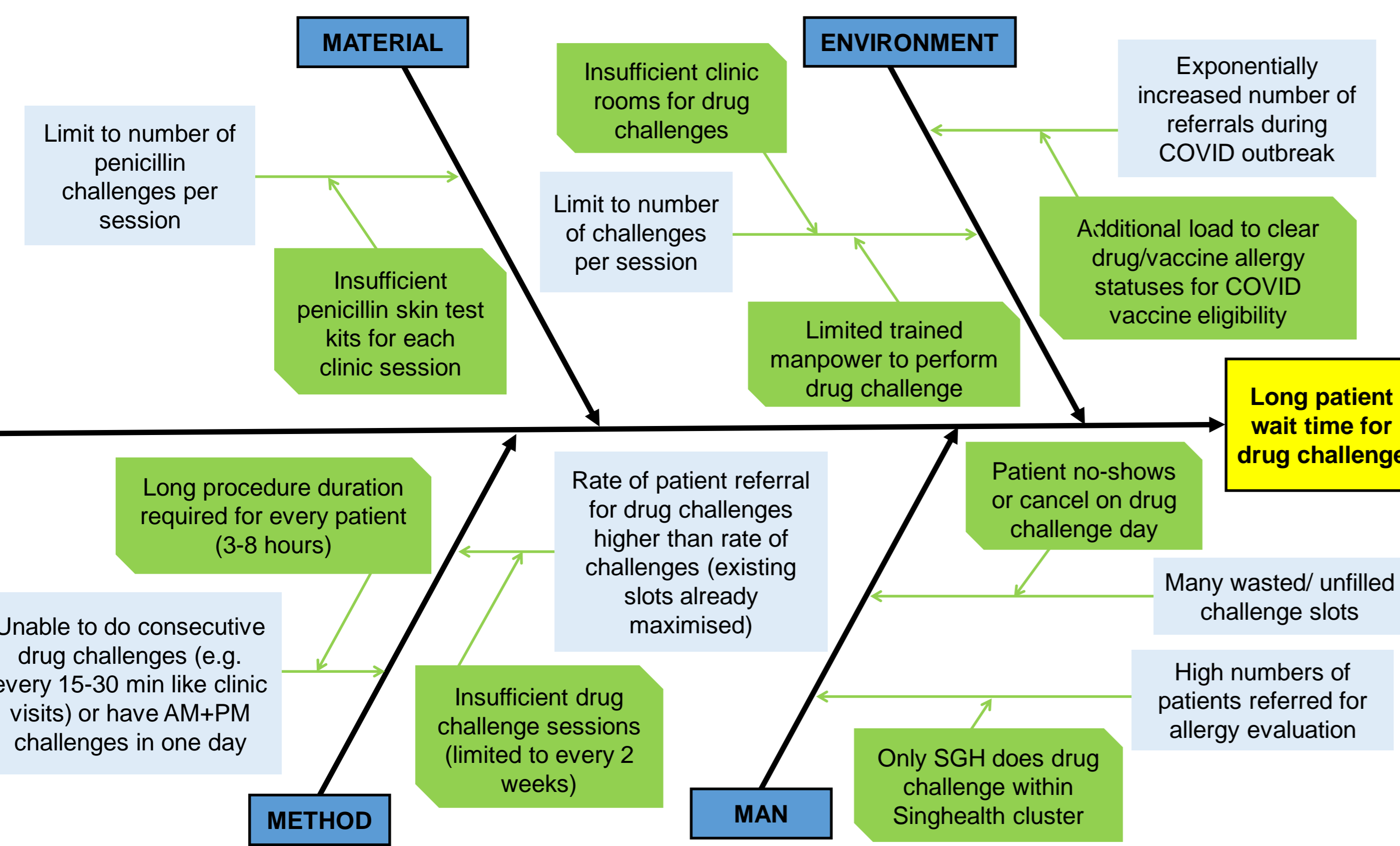
- Multi-disciplinary collaboration to improve efficiency of allergy evaluation outcomes and patient service satisfaction – aligning with SGH's quality commitment to provide 'Best Outcome, Best Experience' through quality clinical care and service delivery.

#### Mission statement:

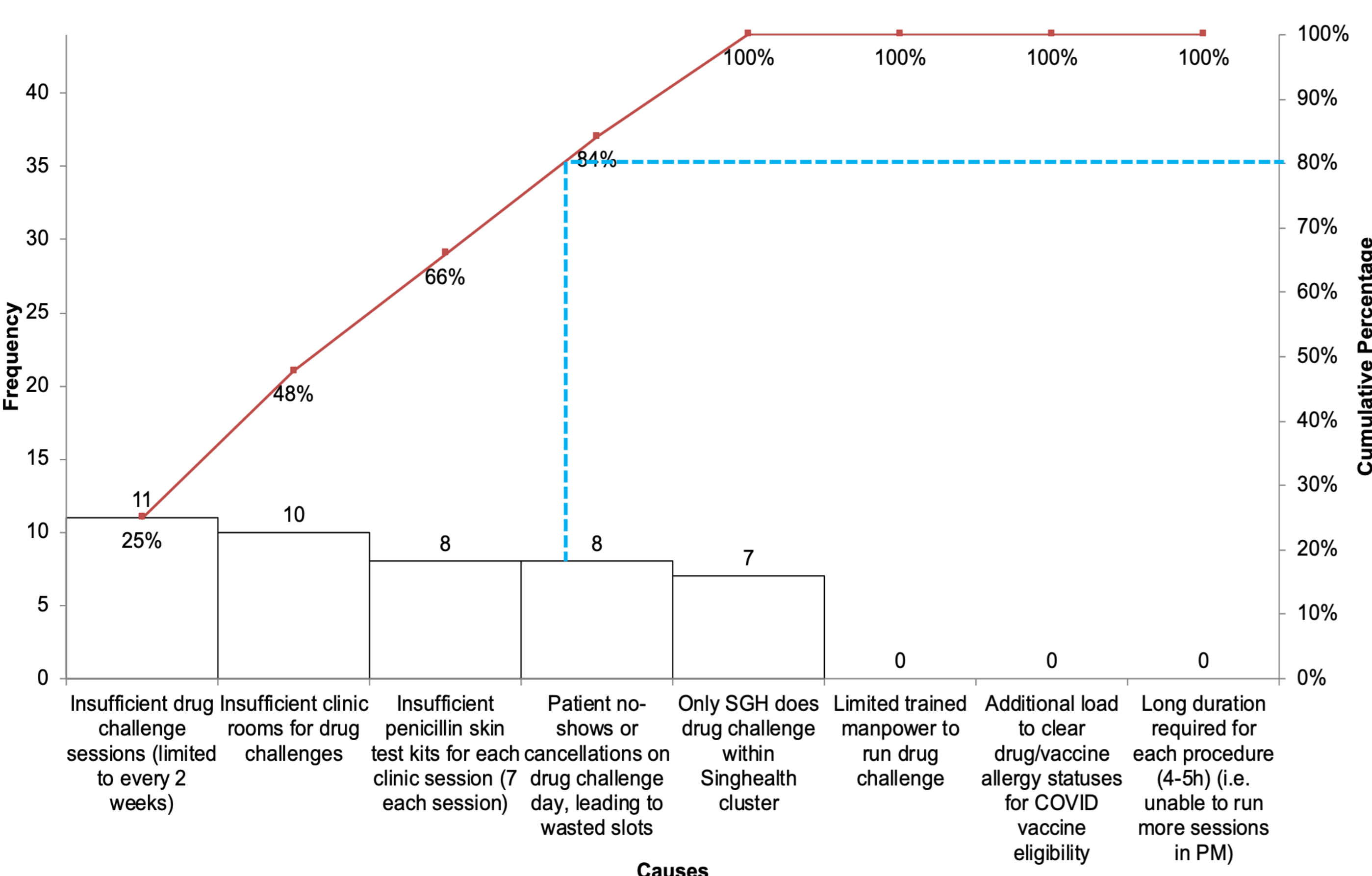
To reduce **drug challenge waiting time** (between allergist appointment to drug challenge appointment) from 369 days (approximately 53 weeks) **to 294 days (42 weeks)** for Immunology Hub clinic in **9 months**

### Analysis

**Cause and Effect Diagram (Figure 1)** was used to identify possible root causes for the long patient wait time for drug challenge, with consideration of man, method, material and environment related factors.



**Pareto Chart (Figure 2)** was used to select the final root causes to focus on, based on team voting on the impact, frequency and prevalence of each root cause, and 80/20 principle.



### Intervention

**Driver diagram and prioritization matrix (Figure 3)** was used to further develop solutions and select final ones based on criteria: **feasibility, effectiveness and sustainability** (scoring 1 = meets criteria poorly, 5 = meets criteria very well) to identify the final solutions for implementation (in ticked boxes).

Goal	Primary Driver	Solutions	Feasible	Effective	Sustainable	Total score	Solutions selected
Reduce drug challenge waiting time from 52 weeks to 42 weeks	Increase clinic sessions for drug challenges	Increase clinic session for drug challenges from fortnightly to weekly	5	5	5	15	✓
		Open up clinics for another session of drug challenge in the afternoon	1	5	1	7	
		Open up clinics for drug challenge on other days	1	5	1	7	
	Increase number of penicillin skin test kits	Increase number of penicillin skin test kits (produced by pharmacy lab) from 7 to 10 every 2 weeks	5	5	5	15	✓
		Increase frequency of penicillin skin test kits (produced by pharmacy lab) from 7 every 2 weeks to 7 every week	1	5	1	7	
	Expand space for drug challenge	Increase number of moderate and low-risk oral challenges by seating patients in waiting areas of clinic instead of clinic room	5	5	5	15	✓
		Use W10A beds for challenges	1	5	3	9	
	Reduce patient no-shows or cancellations	Calling patient once (1-2 weeks before drug challenge date) and replacing all cancellation slots	5	5	5	15	✓
		Calling patient twice (once 1-2 weeks before drug challenge date and once more on Friday before challenge)	3	5	1	9	
		Increase numbers of bookings for each session to account for no-shows or cancellations	3	3	1	7	

During team meetings to gather feedback and address stakeholder concerns. One major concern was the significant change in resources required (e.g. clinic resources, manpower). To address concerns and ensure feasibility of interventions, the team implemented selected interventions in 2 consecutive PDSA cycles. PDSA cycle 1 consisted of feasible solutions within current constraints, while PDSA cycle 2 was started in a new year with solutions requiring major changes to resources.

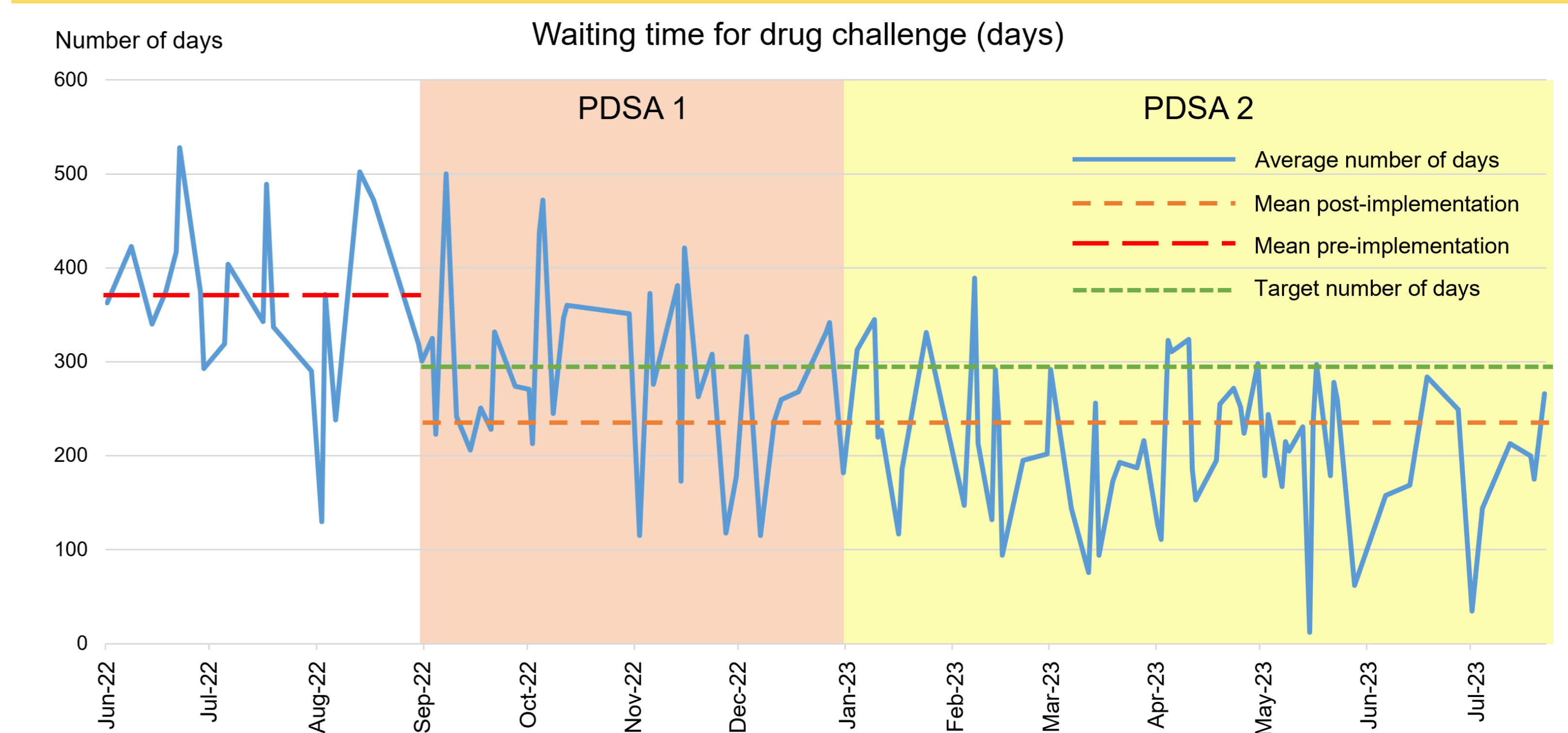
#### PDSA cycle 1 (1 Sep – 31 Dec 2022):

- Increase number of penicillin skin test kits (produced by pharmacy lab) from 7 to **10 every 2 weeks**
- Calling patient 1-2 weeks before** drug challenge dates and replacing all cancellation slots

#### PDSA cycle 2 (1 Jan 2023 onwards):

- Increase clinic session for drug challenges from fortnightly to **weekly**
- Increase number of moderate and low-risk oral drug challenges by **seating patients in waiting areas** instead of clinic room

### Results



This project involved a total of **314** unique patients.

As depicted on the run chart, there was a shift (reduction) in drug challenge waiting time - Mean number of days reduced from **369 to 238 (35.5% reduction)** at the end of PDSA 2

#### Other tangible results:

- Increased rate of drug allergy evaluations by **23.1%**

#### Intangible results:

- Increased patient accessibility to safer and more cost-effective treatment options (in cases where allergy labels are removed)
- Expedited clinical decisions and treatment plans which were put on hold prior to allergy evaluation
- Optimisation of manpower and resource utilisation

Our multi-disciplinary team collaboration to provide quality and seamless patient-centric care had resulted in outcomes of **reduced wait time** and **improved efficiency of allergy evaluation outcomes**, in line with SGH's quality commitment toward providing 'Best Outcome, Best Experience'.

### Sustainability

Solutions were incorporated into the clinic workflow and continued in 2<sup>nd</sup> half of 2023 onwards. The wait time was further improved to a mean of **124 days** in the next 9 months (1 Aug 2023 – 30 Apr 2024). The team was inspired to explore alternative locations (e.g. Ward 10A) for future drug challenge, such that clinic resources may be channelled towards allergist consultations. The team will continue working closely to optimise waiting time and reduce no-show rates.

#### Acknowledgements

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