

### Mission Statement

The Outpatient Automation System (OPAS) was implemented in Hougang Polyclinic Pharmacy in October 2015. A single queue system for prescriptions processed via OPAS led to a higher number of patients waiting for their medications at any one time and a longer overall waiting time. The 1 queue system had an average 95th percentile waiting time of 28.07 minutes. Our objective was to split the 1 queue system into 2 queues in a bid to decrease the average 95th percentile waiting time to less than 20mins.

### Optimizing queue management to improve waiting time for patients at Hougang Pharmacy

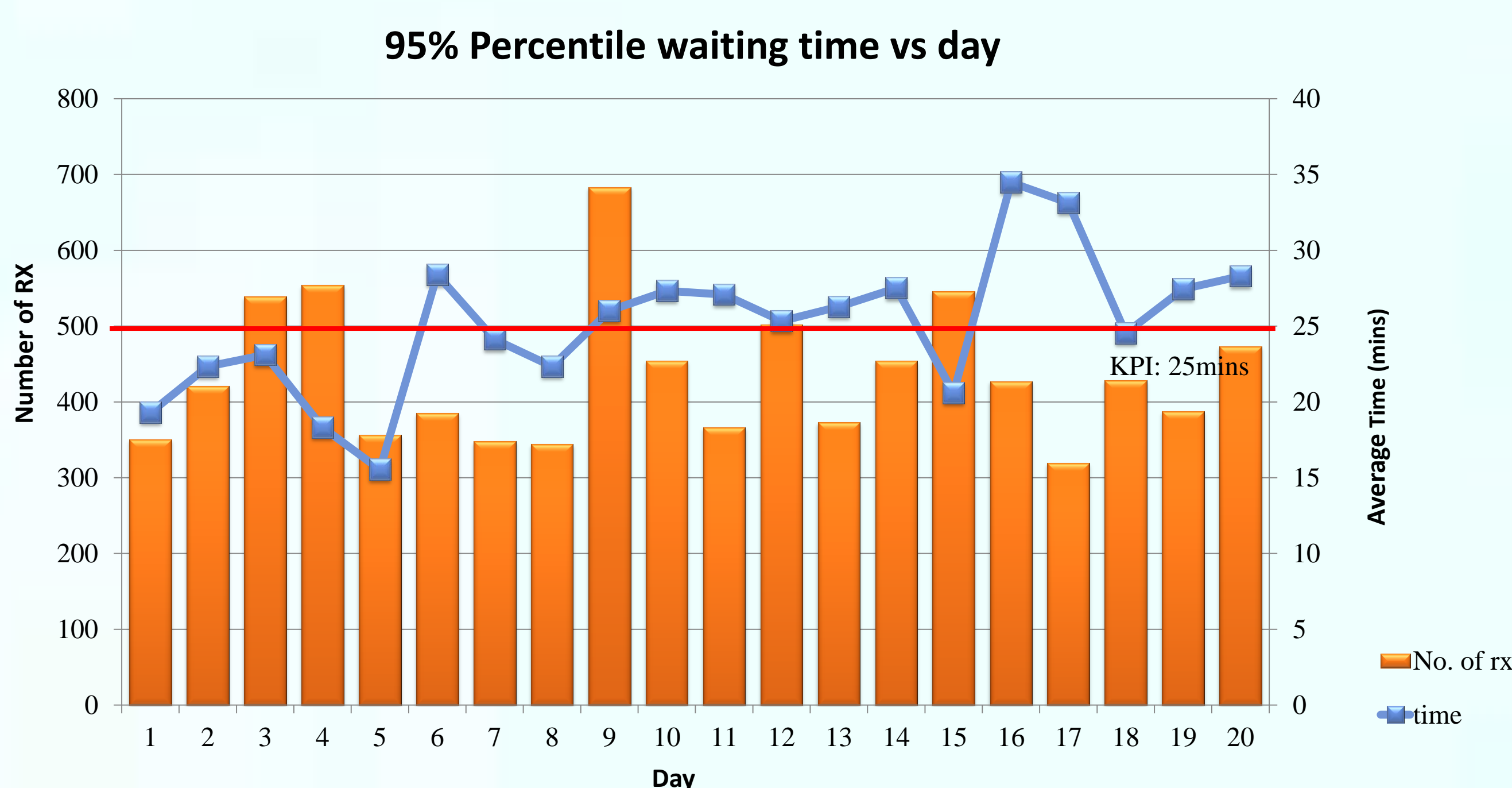
Average time taken (minutes)	Numeric Goal: 95 <sup>th</sup> percentile waiting time $\leq$ 25 minutes	Time frame for completion August 2015 - March 2016
	Stretched Goal: 95 <sup>th</sup> percentile waiting time $<$ 20 minutes	

### Team Members

	Name	Designation
<b>Team Leader</b>	Leong Sushan Suzanna	Pharmacy Technician Executive
<b>Team Members</b>	Xu Jia Lun Sandra	Senior Pharmacist
	Chong Siao Mian Sherica	Pharmacy Technician
	Lim Liu Gin Joey	Pharmacy Technician
	Maurya Kanchan Sheoshankar	Pharmacy Technician
<b>Sponsor</b>	Ng Mok Shiang	Deputy Director
<b>Facilitator</b>	Ng Ke Li	Clinic Pharmacy Manager

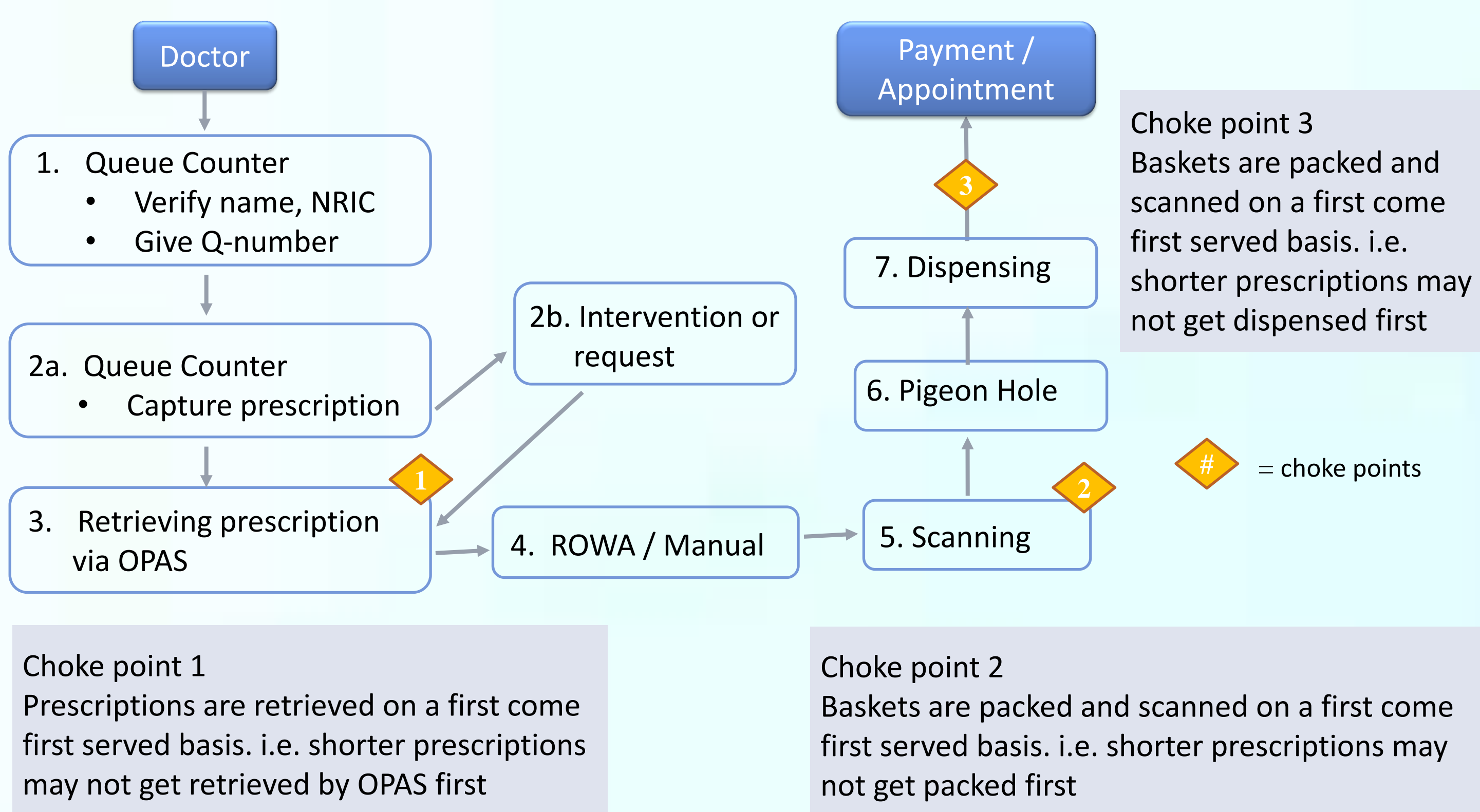
### Evidence for a Problem Worth Solving

- The 95<sup>th</sup> percentile waiting time was 28.07 minutes while the target waiting time was less than 25 minutes. (refer Graph 1)
- Overcrowding in the pharmacy led to high tension among staff and patients, leading to verbal complaints from patients

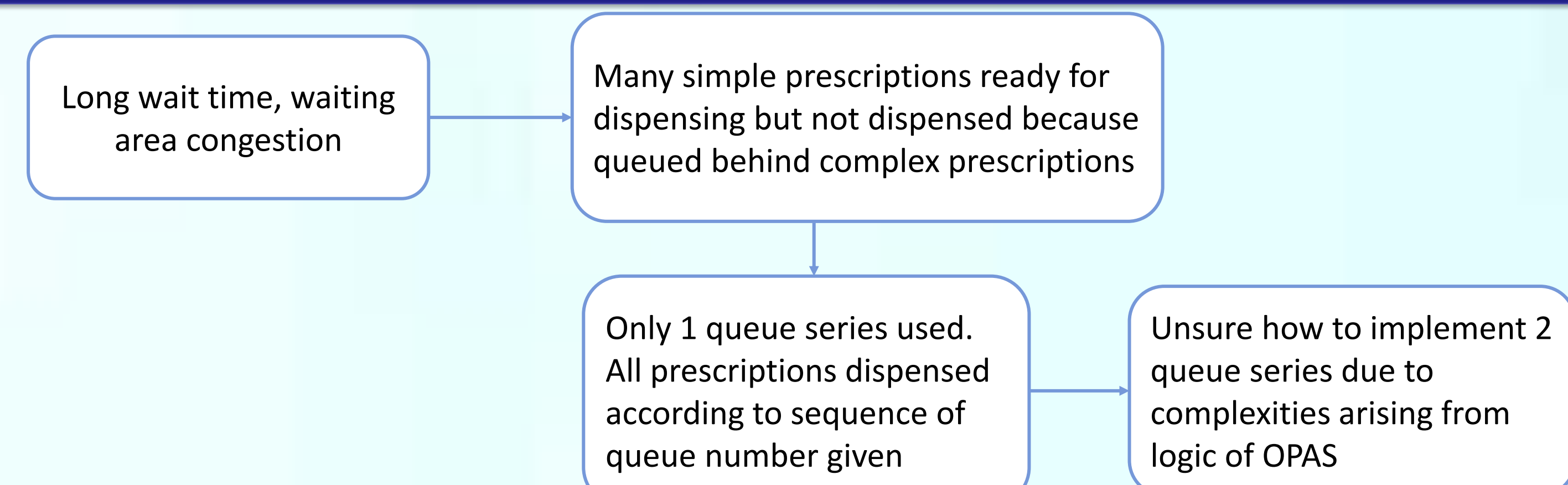


Graph 1: Run chart of waiting time

### Flow Chart of Process



### Gap Analysis



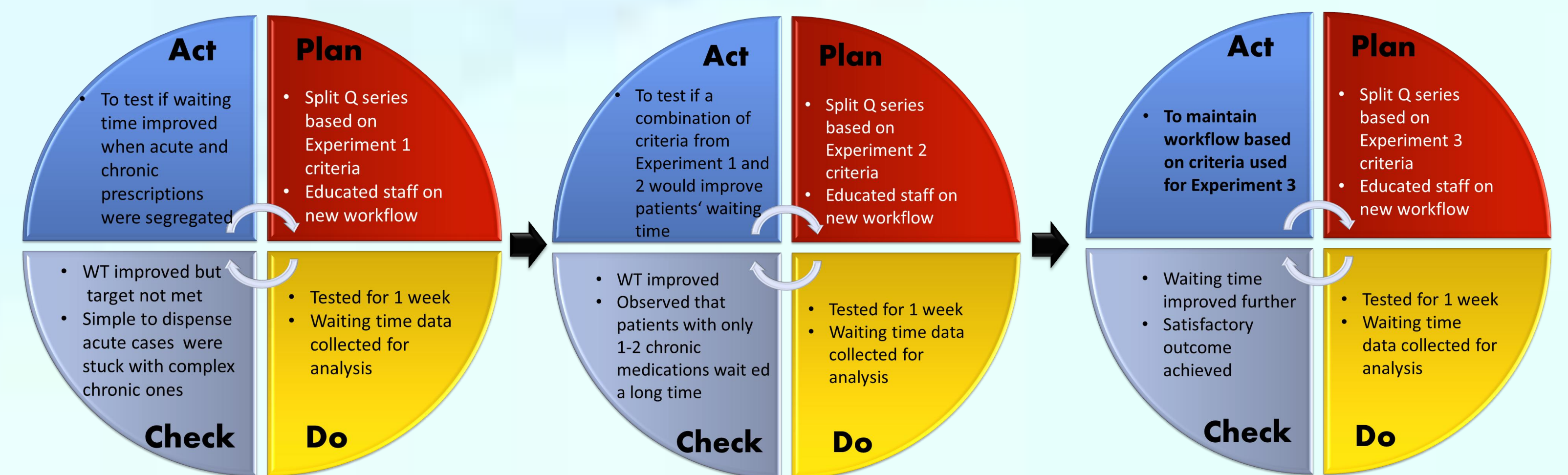
### Implementation

- Keeping in mind not to increase waiting time for patients with longer prescriptions, we embarked on an experiment to find a balance to the new queue system. We assigned a new queue series to the short queue (6000) and maintained the 8000 series for long queue.
- 3 sets of experimental criteria were proposed and tested (Table 1). Each experiment was carried out for 1 month (20 working days) and the 95th percentile waiting time was tracked. Each criterion was evaluated for its ability to attain our target waiting time and ability to distribute the patient load equitably.

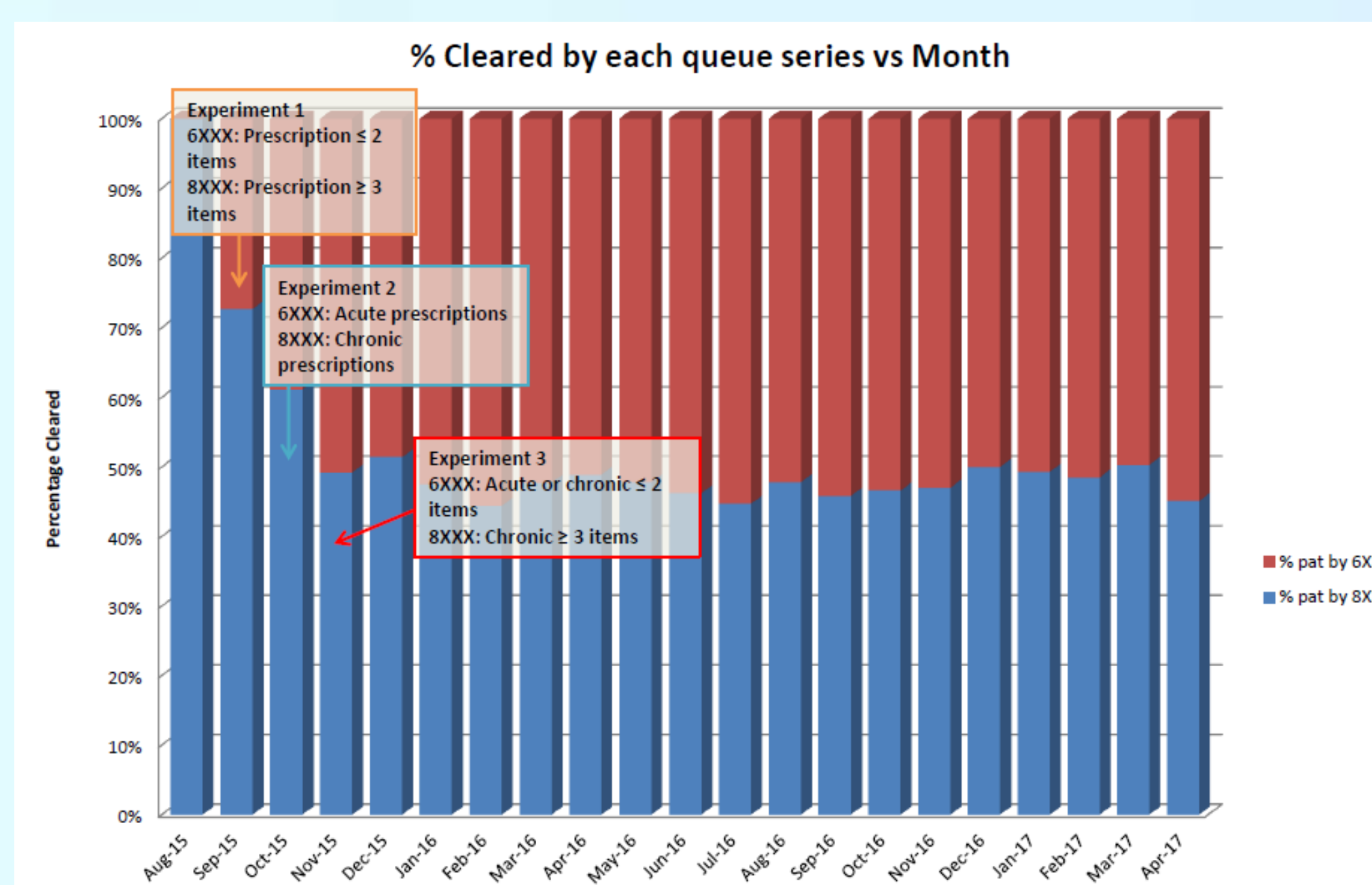
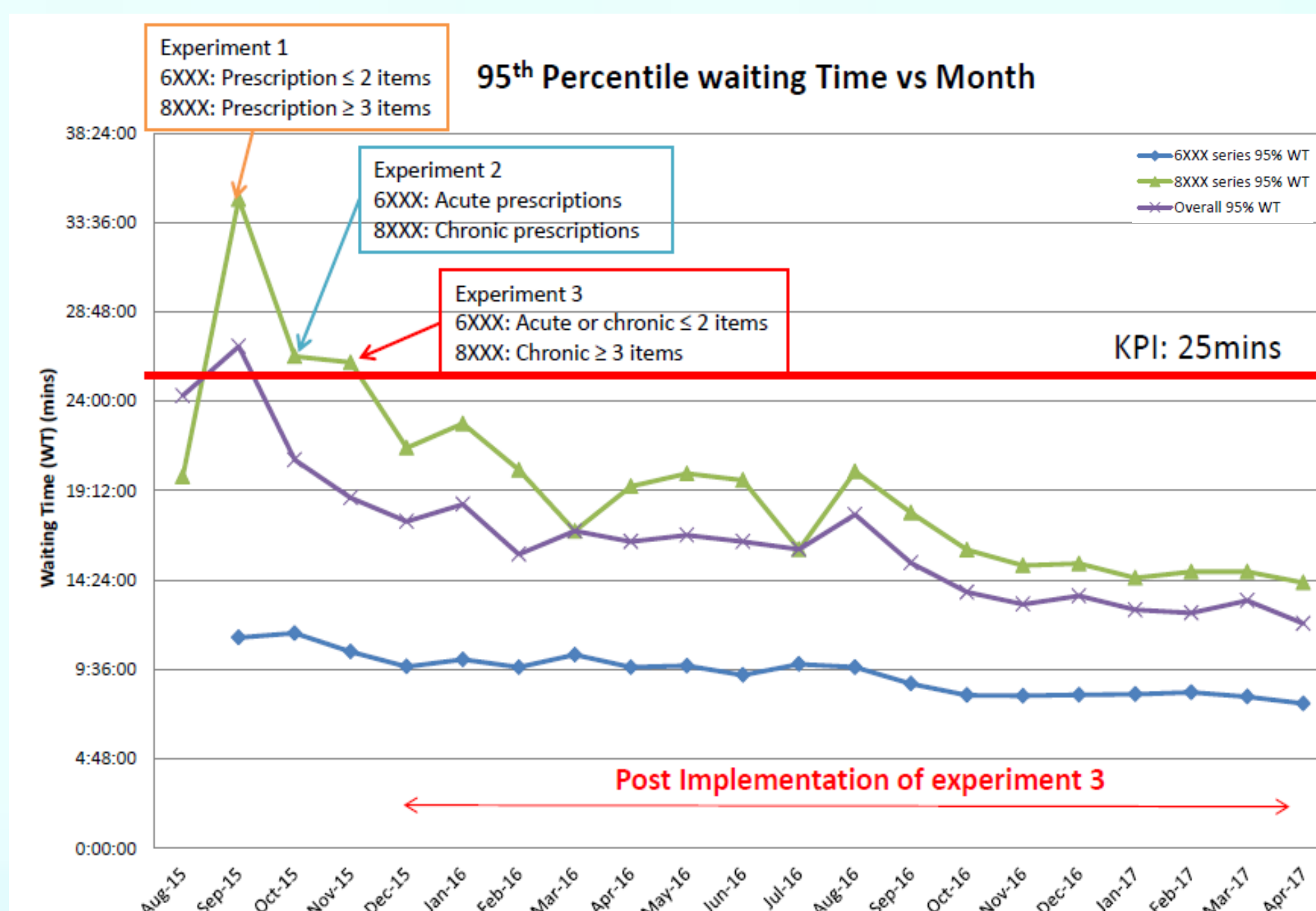
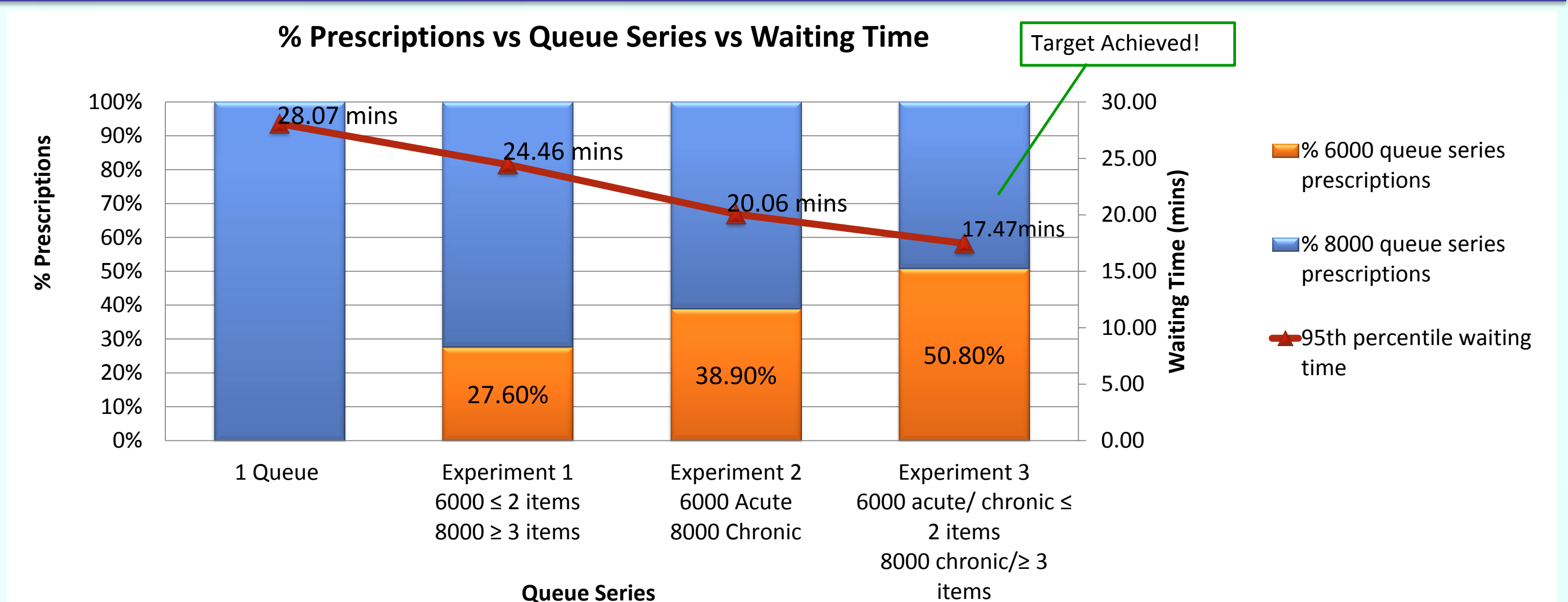
Description	Pre-intervention	Experiment 1	Experiment 2	Experiment 3
6000 series queue criteria	-	Rx* with $\leq$ 2 line items	Acute Rx	Acute Rx + Chronic Rx $\leq$ 2 line items
8000 series queue criteria	All Rx	Rx $\geq$ 3 line items	Chronic Rx	Chronic Rx $\geq$ 3 line items

Table 1: Criteria for 6000 and 8000 queue series

\*Rx = prescription



### Results



- Sustained results over the past 15 months with further significant improvements in our 95th percentile waiting time
- Stabilised over the past few months to a waiting time average of around 12 to 13 minutes

- Percentage of patients who are cleared by each queue series remained stable over the past few months, averaging at about 50% of the patient load per queue series.

### Problems Encountered

- As 3 different criteria were tested within 3 months, some pharmacy staff may have difficulties adapting to the changes within such a short period of time

### Strategies to Sustain

No.	Purpose	Task	Who	When/How Often
1	Sustaining split queue series	Enforce countermeasures through training and reminders during roll calls	Pharmacists	Ongoing