

Project Title

Transforming Patient Experiences: Facilitating Smart Healthcare

Project Lead and Members

Project lead: Sharon Chen

Project members: Wong Mei Yin and Eileen Kah

Organisation(s) Involved

National Healthcare Group Polyclinics

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Operations

Project Period

Start date: July 2020

Completed date: March 2021

Aims

To create a seamless and efficient teleconsultation journey, facilitate smart healthcare and transform patient experiences through IT Innovation

Project Attachment

See poster attached/below

Background

See poster attached/below

Methods

See poster attached/below

Results

See poster attached/below

Conclusion

See poster attached/below

Additional Information

Accorded the NHG Quality Day 2021 (Category B: Service Redesign & Delivery) Merit Award

Project Category

Technology

Digital Health, Mobile Health

Care & Process Redesign

Quality Improvement, Time and Manhour Saving

Keywords

Smart Healthcare, IT innovation, Tele-consultation

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Sharon Chen, Operations, NHGP

Mission Statement

To create a **seamless and efficient** tele-consultation journey, facilitate smart healthcare and transform patient experiences through IT Innovation

Team Members

| | Name | Designation | Department |
|-------------|--------------|----------------|------------|
| Team Leader | Sharon Chen | Director | Operations |
| Team Member | Wong Mei Yin | Senior Manager | Operations |
| Team Member | Eileen Kah | Executive | Operations |

Evidence for a Problem Worth Solving & Current Performance of a Process

1. Manual Check-in of Appointments

Staff have to manually actualise tele-consult appointments for patients one at a time given that they would not be present in the clinics to check-in themselves. This manual process took 1 staff \approx **60 minutes per day, per clinic** to complete.

2. Manual Check-out of Appointments

Staff have to manually book upcoming appointments for tele-consult patients one at a time since they would not be present at the clinic to utilize the auto-generation feature on kiosk to check-out. Staff had to also manually key in these appointment details through a separate system in order to send the appointment details to patients via SMS. With a current load of 30 patients a day, this took 1 staff \approx **300 minutes per day, per clinic** to complete.

3. Physical Collection of Medication at Pharmacy

Patients have to wait for \approx **15 minutes** for their medication as pharmacists needed to confirm doctors' e-prescriptions, then pick, pack and dispense. This waiting prolonged our patients' journey and added to the crowding issue at the pharmacy. With **longer dwell time** in the clinic, patient's risk of exposure to infection correspondingly increased.

These gaps and opportunities for improvement had been identified as areas where staff productivity and patient experiences can be improved.

Flow Chart of Process

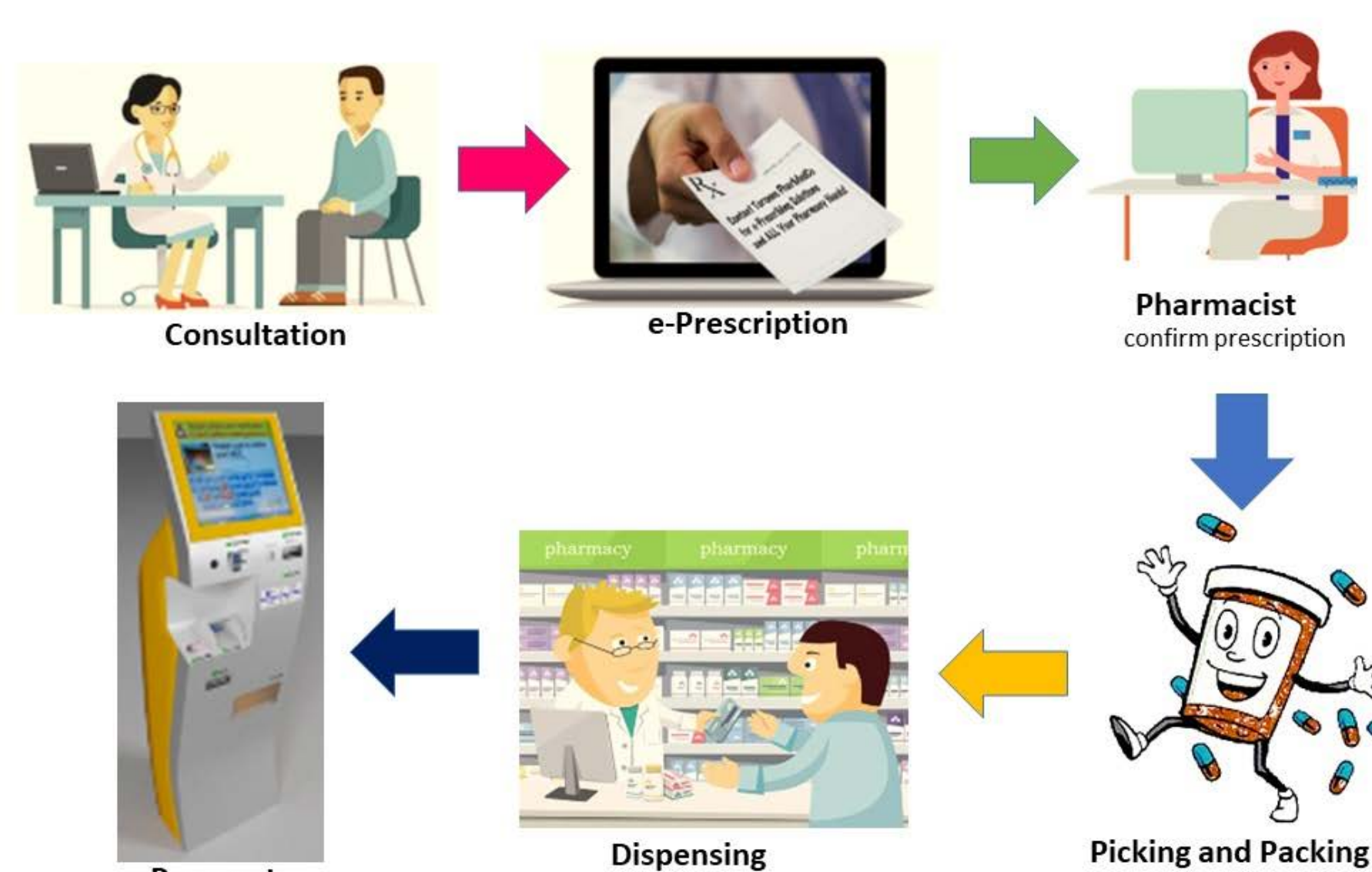
FIG 1: EPOS Appointment Booking Screen

- Staff manually check-in appointments one at a time in EPOS system.
- Staff manually book follow up appointments one at a time in EPOS after their tele/video consults.

FIG 2: Stand Alone SMS System

- Staff manually sends SMS using a messaging portal to inform patients of their upcoming appointments.

Process Flow BEFORE Medication Delivery Option at Kiosks



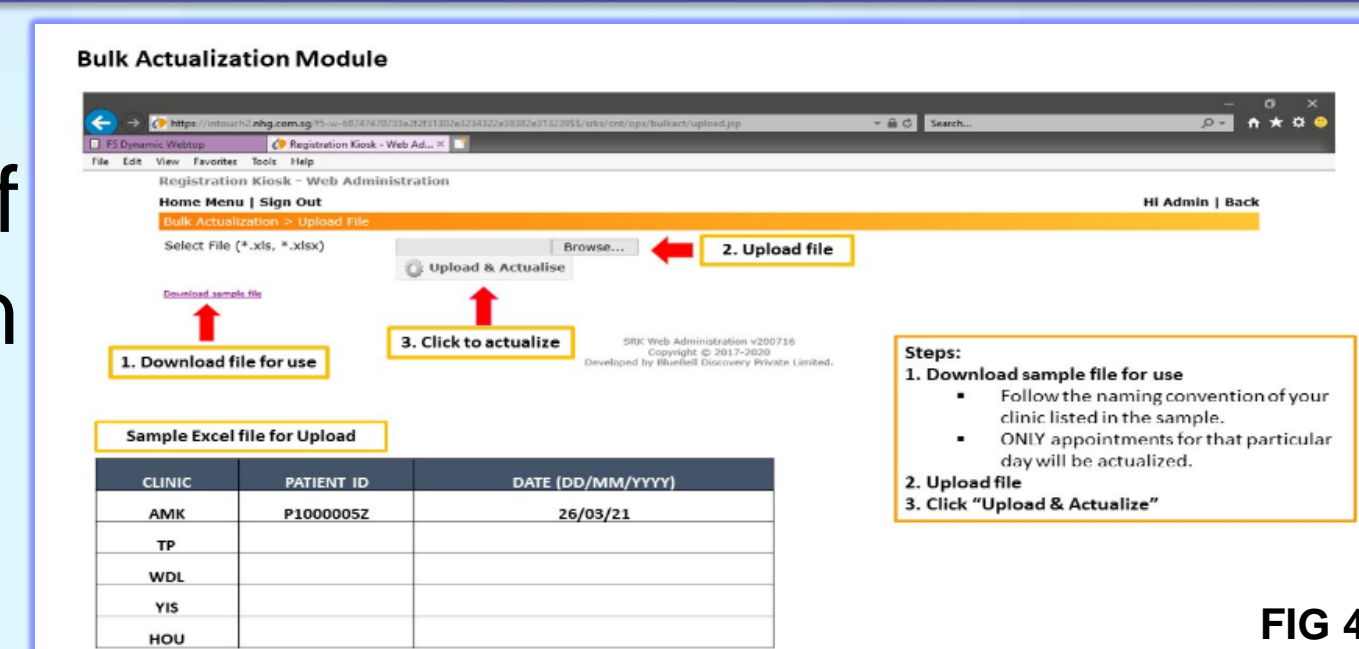
BEFORE Medication Delivery Service at the Kiosks:

- Pharmacists need to confirm doctors' e-prescriptions before they could start to pick, pack and dispense medication for patients.
- Patients have to wait for about 15 minutes at the crowded pharmacy waiting area for their medication before proceeding to pay and check out at the Self Payment Kiosks.

Implementation

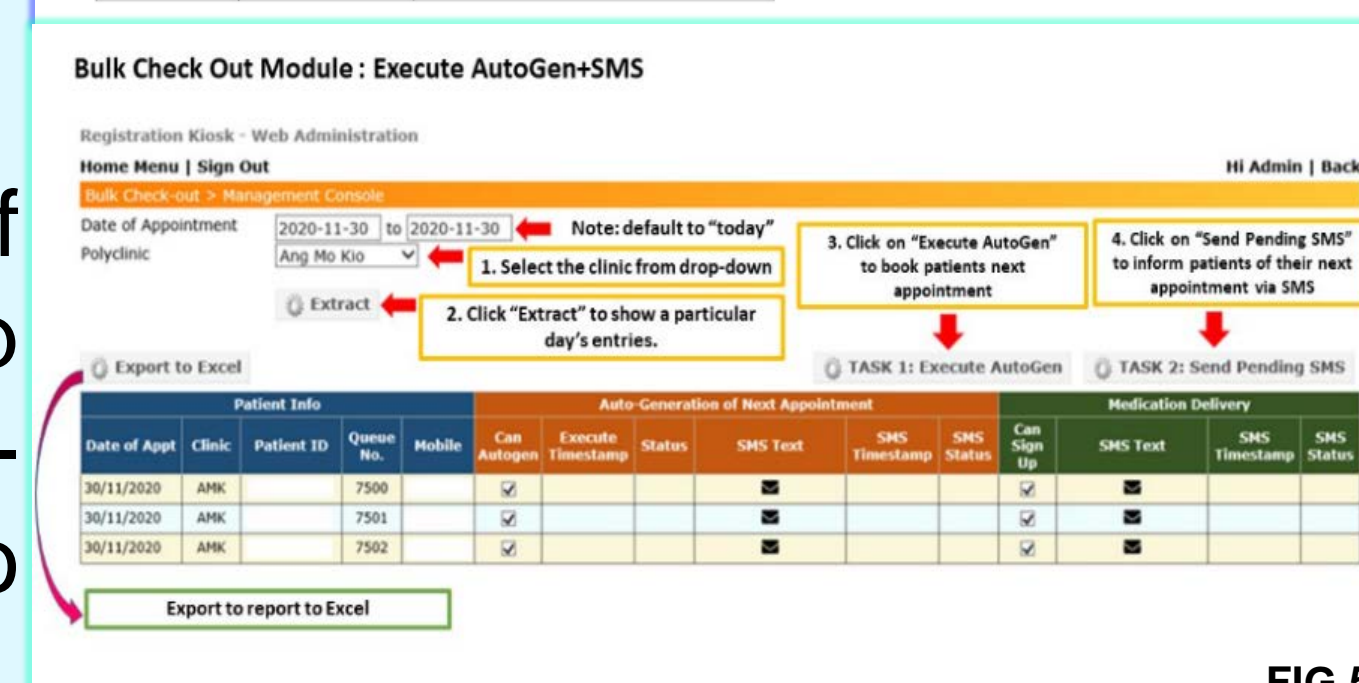
Bulk Actualisation Module

Allows for bulk checking in of appointments for hundreds of patients in just one click.



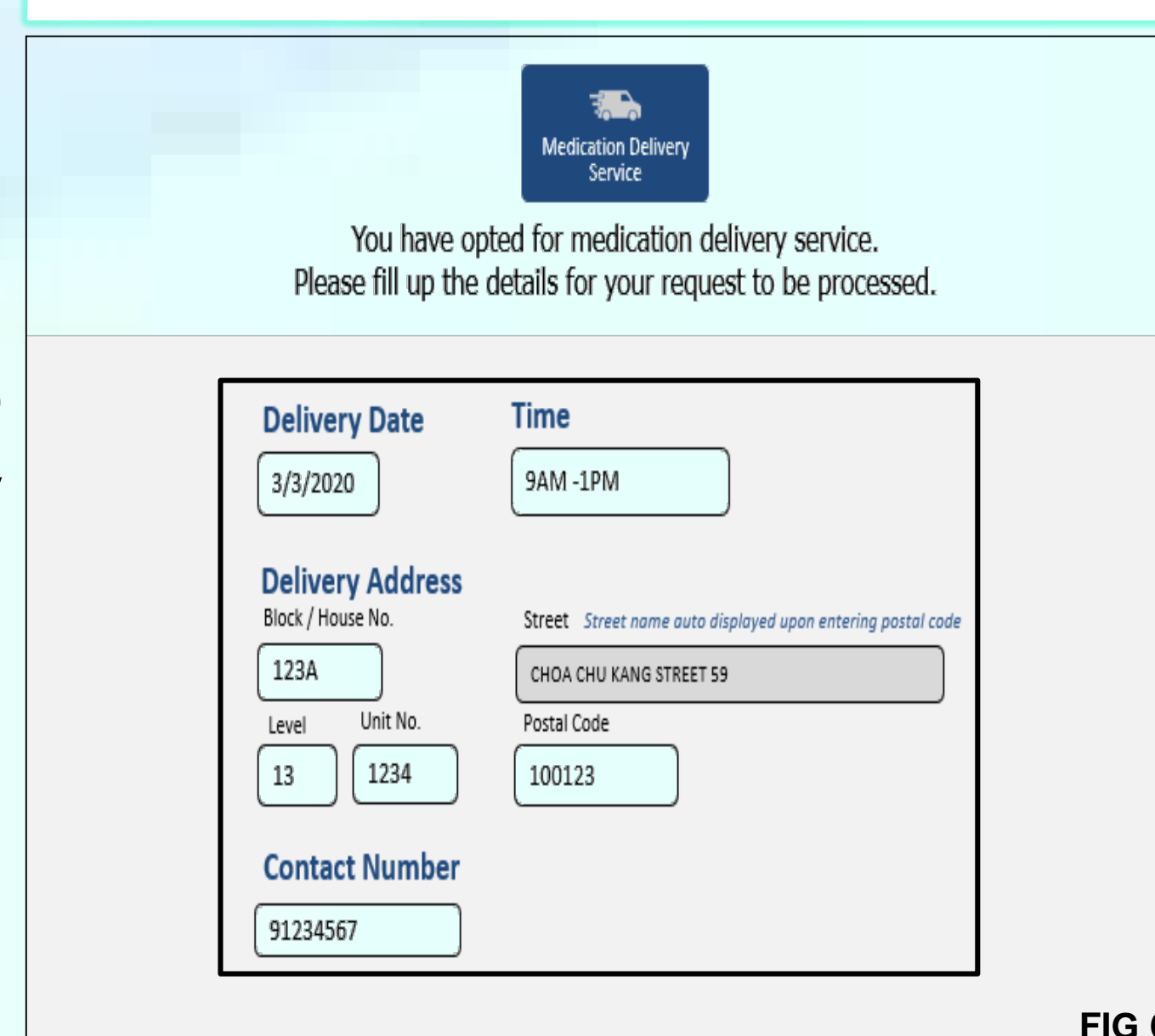
Bulk Check-out Module

Leverages on auto-generation of appointment logic to schedule follow-up appointments and auto-firing of follow-up appointment details via SMS to hundreds of patients in just two clicks.



Medication Delivery at the Kiosks

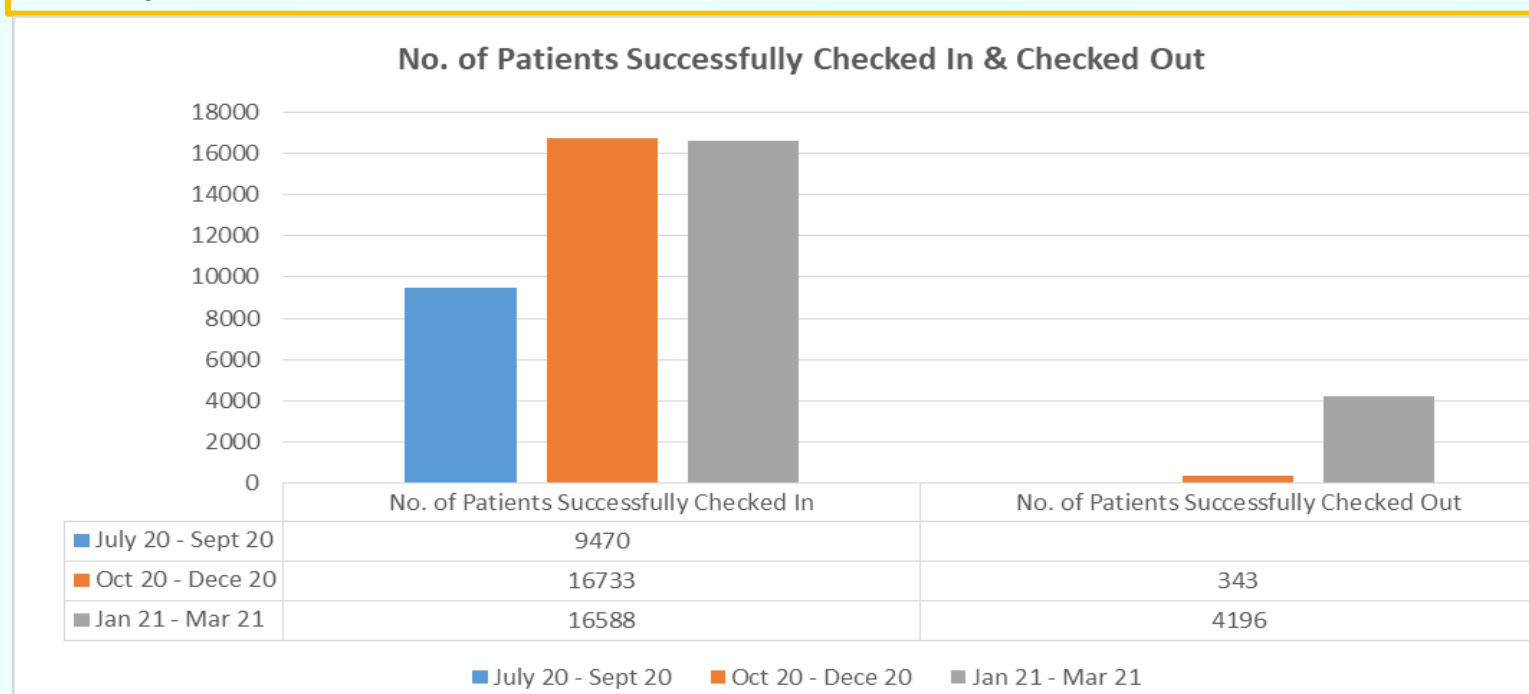
Patients can opt for their medication to be delivered on the next day, or any other date and time convenient to them, and, to their preferred delivery address.



Results

Bulk Actualisation Module

- Staff productivity increased by 5 times.** About 10 minutes per clinic per day is now required compared to 60 minutes in the past.
- Staff Satisfaction** increased with the use of this feature.
- An average of **4,750 patients** (and counting) were checked in using this bulk check-in feature each month from July 20 to March 21.



Bulk Check-Out Module

- Staff productivity increased by 19 times.** About 15 minutes per clinic per day is now required compared to 10 minutes per patient in the past.
- Staff satisfaction** increased.
- Automation eliminated human error resulting from manual booking and sending of SMSes, improving **patient safety and prevented PDPA issues.**
- An average of **1,400 patients** were checked out using this bulk check-out feature each month from December 20 to March 21.

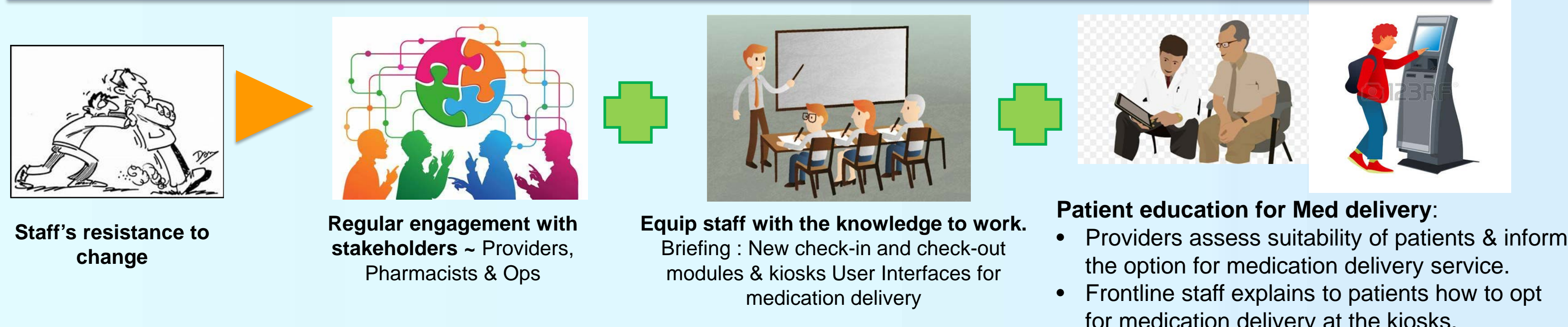
Medication Delivery Service

- An average of about **850 patients** subscribed to this service per month since its inception in June 2020.
- Patients experience improved** with the elimination of the wait time at the crowded pharmacy area. This also ensured safe distancing and minimized the potential of cross infection in the current pandemic climate.

Cost Savings

- \$142,240 savings** in man hours for 5 clinics per year. The use of the bulk actualization and check-out modules saved about 6,600 man hours per year.
- Patient experience improved with each patient saving \sim **15 minutes** per visit as there is no need to wait at pharmacy for medication collection.

Problems Encountered & Solutions



Strategies to Sustain

