

Sharon Chen, Operations, NHGP

Mission Statement

Transforming and Re-designing patient journey through IT Innovations

- Create a seamless and efficient check-in and check-out journey through IT innovations.
- Improve patient safety through IT innovations.

Team Members

	Name	Designation	Department
Team Leader	Sharon Chen	Director	Operations
Team Member	Wong Mei Yin	Senior Manager	Operations

Evidence for a Problem Worth Solving

1. Manual Directing, Screening, Registration at the onset of Covid-19

- Prior to the pandemic & endemic logic build, **1 PSA per clinic** had to be deployed to manually screen and direct patients to the relevant zones (green, orange, red). URTI patients had to be manually registered and checked-in. About 134,000 URTI patients per year **≈ 22,333 hrs** of wait and appointment booking time.

2. Manual Check-in at Dental Counters

- All dental patients had to queue to manually check-in their appointments. About 95,000 patients a year **≈ 15,833 hrs** of wait and check-in time.

3. Manual Registration Processes

- Patient particulars had to be updated at the counters after NGEMR, **≈ 10 mins** of wait time and manual update needed **per patient**.
- Patients without valid Singaporean IDs (eg. Newborns, foreign workers without work permit) were not able to obtain a queue number without PSAs' assistance to key in an invalid ID. **≈ 9,600 patients** needed manual intervention per year.

4. Manual Collection of Outstanding Bills and Foreigner Deposits

- Patients can only pay for their outstanding bills or foreign deposits at the counter. **≈ 15 mins** of wait time and completion of a manual payment transaction per patient. About 35,721 patients needed to make these payments last year, **≈ 8,930 hrs** of wait time and monies collection.

5. Manual Transaction for Next of Kin's Medisave Account

- patients who would like to use their Next of Kin's medisave or not to use medisave for a visit can only complete their transactions at the counter. Many have feedback on the inconvenience. About 17,500 patients falls into this category last year, each took 15 mins, **≈ 4,375 hrs** of wait and transaction time.

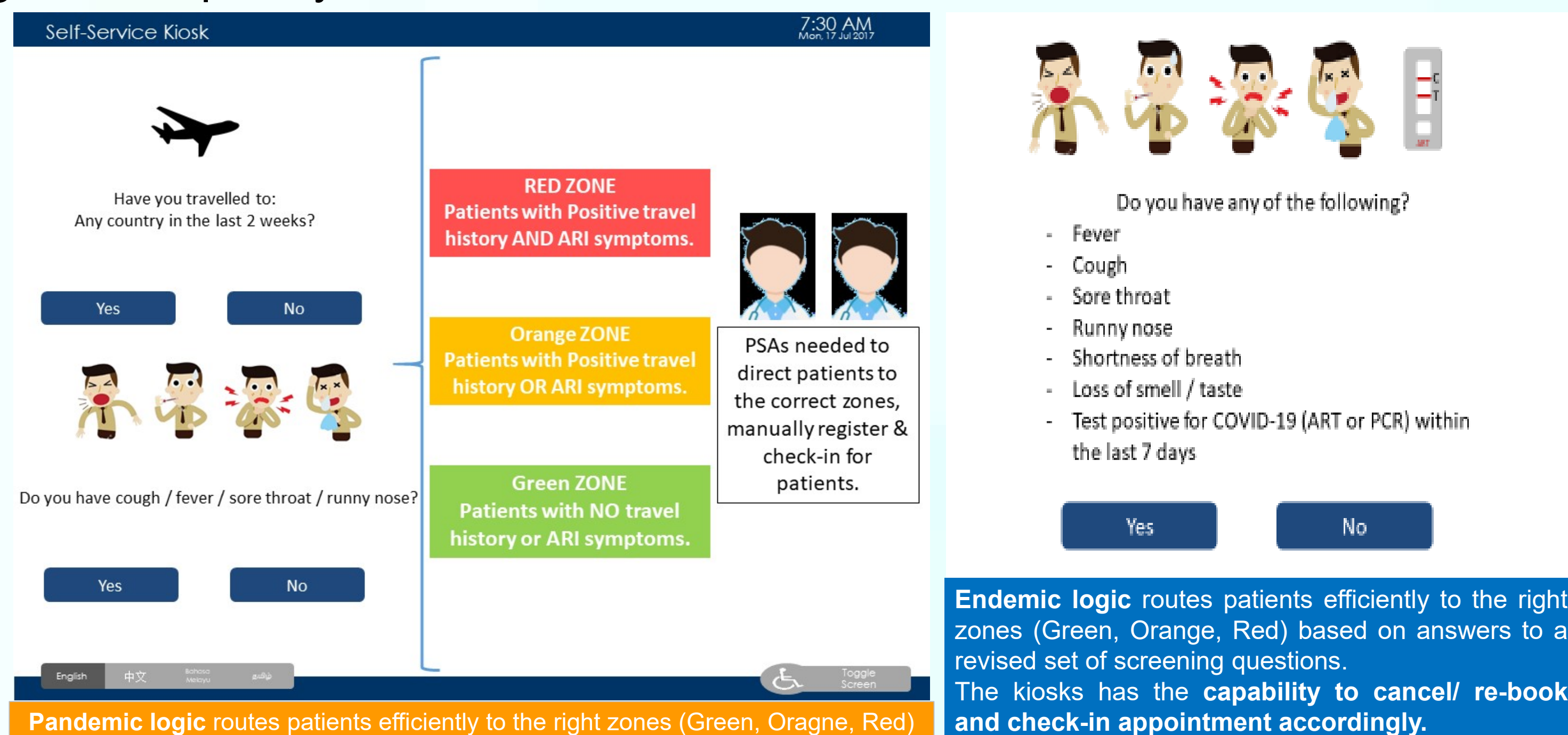
6. Separate Domains for Medical and Dental Bills

- Patients with both medical and dental bills had to pay at different kiosks. This was an **inconvenience to patients**.

Implementation

1. Pandemic and Endemic Logic Build

The pandemic logic was deployed at the onset of covid-19 and the endemic logic subsequently to better suit the current climate.



2. Empowering Dental Patients to Self Check-in

- An enhancement was deployed to enable self-check-in, this also eliminated all manual registration work.

3. Enhancements to Improve Registration Processes

- **Auto-prompting** and **empowering patients** to update their particulars upon check-in was re-introduced after NGEMR.
- **New patients** without valid Singapore IDs can now register at the kiosks.

4. Enabling Collection of Outstanding Bills and Deposits at Kiosks

- An enhancement has now empowered patients to **pay their outstanding bills and deposits during check-in**, eliminating the need to queue and manual payment collection.

Implementation

5. Enhancing Payment Experiences

An enhancement allowed for both **medical and dental bills at the same kiosk**. Also, Patients can now leave the clinic and do a mobile payment on HealthHub.

6. Enhancement to allow for Medisave Account Selection at Kiosks

Patients can now **opt to use their own medisave** (default), **next-of-kin's medisave** or **not use any medisave** at the kiosks instead of the counter.

Results

These innovations **enhanced patients' experiences**, eliminated about 28,700 wait hrs and **saved about 22.5 PSA FTEs** [cost savings of \$914,760 per year.]

1. The Endemic routing logic at kiosks ensured safety, efficiency and **saved 7 FTEs** from the need to direct patients and/or perform manual registration.

2. About 95,000 dental patients per year can now self-check-in. Auto-prompting and empowering patients to update their particulars upon check-in ensured data accuracy and mitigated potential PDPA issues. New patients without valid Singapore IDs can now register at the kiosk, this had simplified processes for both staff and patients. These check-in enhancements **saved about 5 FTEs** and eliminated about 8,700 wait hours.

3. About 40% of patients with outstanding payment and deposits paid directly at the kiosks, amounting to \$1,459,994 in 2021. The monthly collection at the counters was \$52,800 prior to this automation, the effectiveness of outstanding payment and deposits collection had improved by 130%. This had also eliminated about 6,000 wait hours and **saved 7 FTEs**.

4. 17,500 patients opted to use their next-of-kin's medisave or not to use medisave last year, these patients would have to be served at the counters in the past. This had eliminated about 3,000 wait hours and **saved about 3.5 FTEs**.

5. The payment kiosks can now collect both dental and medical domain bills, providing greater convenience to our patients. Also, patients can also leave the clinic after their consult and do a mobile payment on HealthHub.

Problems Encountered

Cost Savings

These innovations **saved about 22.5 PSA FTEs** [cost savings of \$914,760 per year.]

Strategies to Sustain