Project Title

Streamlining the Process of Medication Counselling for Patients at Community Care Facility (CCF) @ EXPO through deployment of TEMI robot

Project Lead and Members

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Organisation(s) Involved

Singapore General Hospital

Project Period

Start date: May 2020

Completed date: July 2020

Aims

To implement a solution to resolve challenges faced during medication counselling at CCF, which will streamline the pharmacists' counselling process, whilst providing safe and effective counselling

Background

See poster attached/ below

Methods

See poster attached/ below

Results

See poster attached/ below

Lessons Learnt

After the roll-out of the new workflow, several changes were made based on feedbacks from the CCF pharmacists. To ensure sustainability of the project over time, a clear and precise set of standard work processes was implemented. This ensured that the new work flow can be implemented by different rostered pharmacists. A step-by-step instruction and guide was created to facilitate the training process on operating the TEMI robot. Our staff also included commonly encountered technical issues in the guide to enable pharmacists to troubleshoot independently. Staffs' satisfaction survey was administered to capture feedback and monitor the staffs' acceptance rate.

Potential Challenges

- Overcoming TEMI navigation issues in a highly dynamic ward set-up
- Unstable network connectivity resulting in poor call quality

Social Challenges

- Convincing staff to embrace the new service delivery model (e.g. contactless counselling)

If there was a chance to start over again with sufficient time for planning, we would like to incorporate a patient and staff survey to attitudes, beliefs and acceptance of patients and staff in a tertiary hospital towards medication video counselling.

Conclusion

See poster attached/ below

Project Category

Technology, Automation, IT & Robotics Innovation

Keywords

Technology, Automation, IT & Robotics Innovation, Care & Process Redesign, Community Health, Quality Improvement, 5 Whys, Telehealth, Pharmacy, Singapore General Hospital, Medication Counselling, COVID-19, Community Care Facility, TEMI Robot

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Background of the problem

SGH Pharmacy supported Pharmacy operations at the Community Care Facility (CCF)@ EXPO. The CCF pharmacists performed medication counselling via phone, after the residents received their medications. However, there were numerous problems encountered with phone counselling, such as multiple call attempts, inability to demonstrate drug administration techniques and ascertaining residents' understanding.

As a result, the pharmacist would then need to call residents multiple times or enter the hall to counsel, resulting in delayed patient medication counselling and increased risks of exposure to COVID-19 for the pharmacist.
In addition, the patient may call back at unpredictable timings after receiving the missed call, thereby disrupting the pharmacist's other duties, such as answering drug information questions/ordering stock, receiving stock of medications. These contributes additional workload to the CCF pharmacists who are already operating on very lean manpower.

Mission Statement

In 1.5 months for patients who are warded in Singapore Expo for COVID-19, we aim to:
1. Reduce proportion of patient cases who require multiple (≥1) contact attempts for medication counselling by pharmacists by 90%
2. Reduce the average call attempts made per patient for medication counseling by pharmacists by 30%

The secondary objective is to achieve 0% need for pharmacists to enter RED zone to provide face-to-face medication counselling to COVID-19 patients, without compromising on quality of medication counselling

Analysis of problem
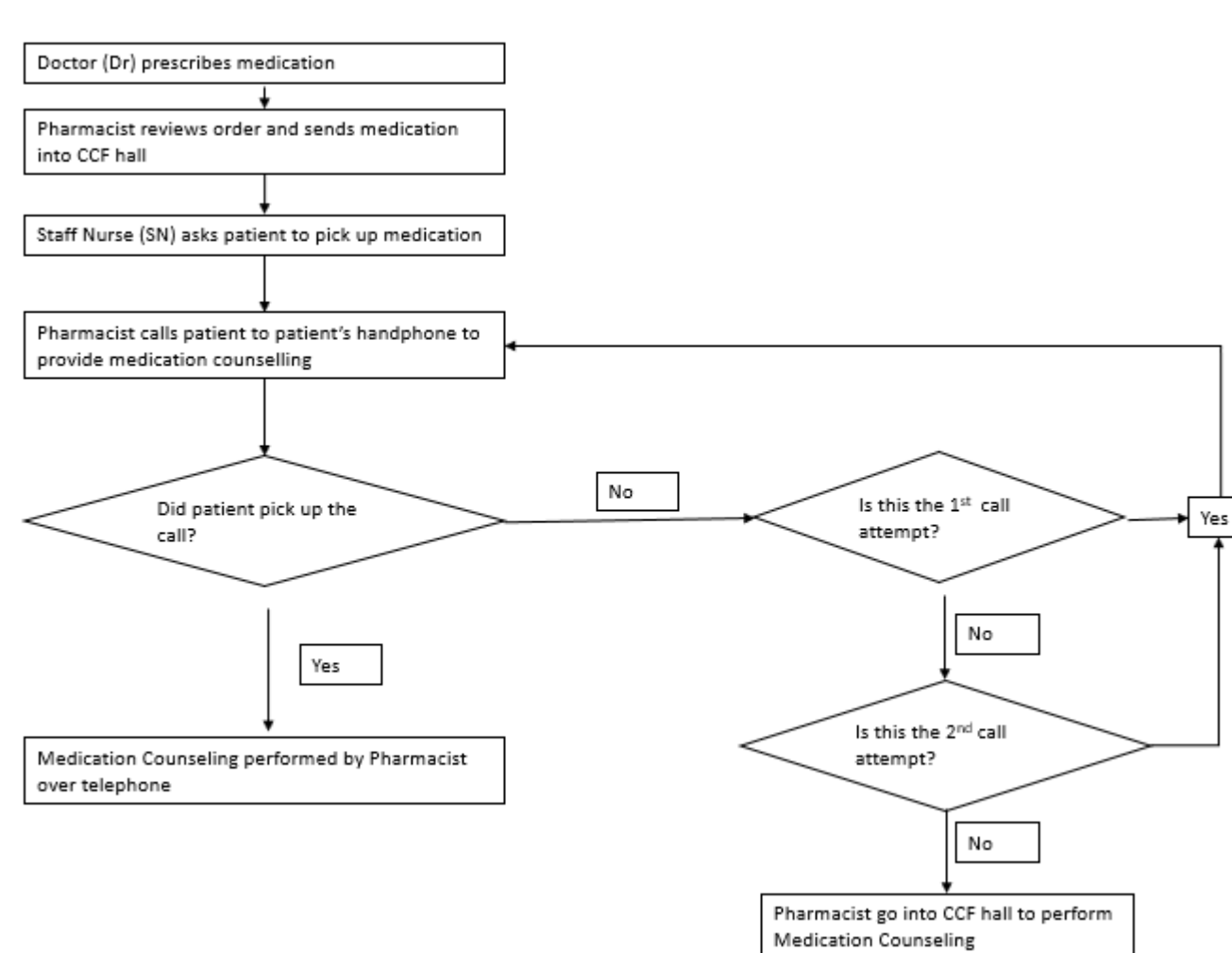
The existing workflow was delineated by team members and analyzed for inefficiencies, as per Figure 1.

Fig 1. Original workflow

To identify key root causes of the problem, the 5-why method was used to brainstorm and identify potential root causes contributing to multiple call attempts for medication counselling, as detailed below:
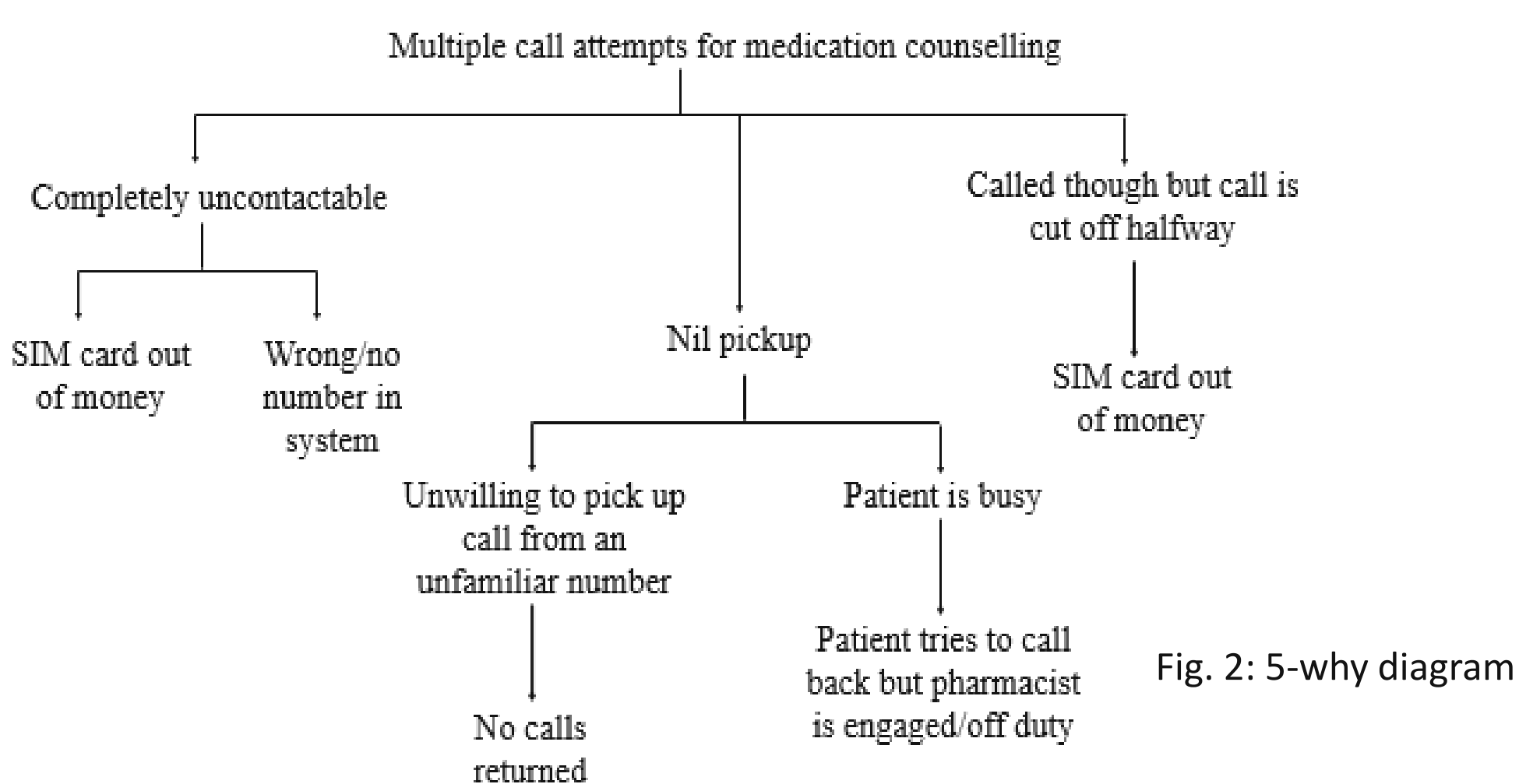
Fig. 2: 5-why diagram

From this analysis, majority of the root causes were identified to be patient-related factors due to the mode of contact (by Telephone), which requires the patient to have a functional, charged and stable telephone line. However, at the peak of COVID-19 during the circuit breaker period, majority of the patients warded at CCF were foreign workers who may run into financial difficulties in renewing their phone cards or simply do not have relatives or friends who could provide them with a functioning phone. As such, a more viable mode of tele-counselling needed to be sought.

Interventions / Initiatives

The TEMI robot was sought as a solution to perform medication counselling upon dispensing. With the deployment of TEMI robot, the process of initiating medication counselling was streamlined, as uncontrollable patient-related factors (e.g. Telephone SIM card running out of money) were eliminated. In the new workflow, the Staff Nurse (SN) also informs pharmacists as soon as the patient is ready for medication counselling at the point when the patient picks up his or her medication. In addition, the video-enabled function in TEMI allowed pharmacists to perform virtual face-to-face counselling.
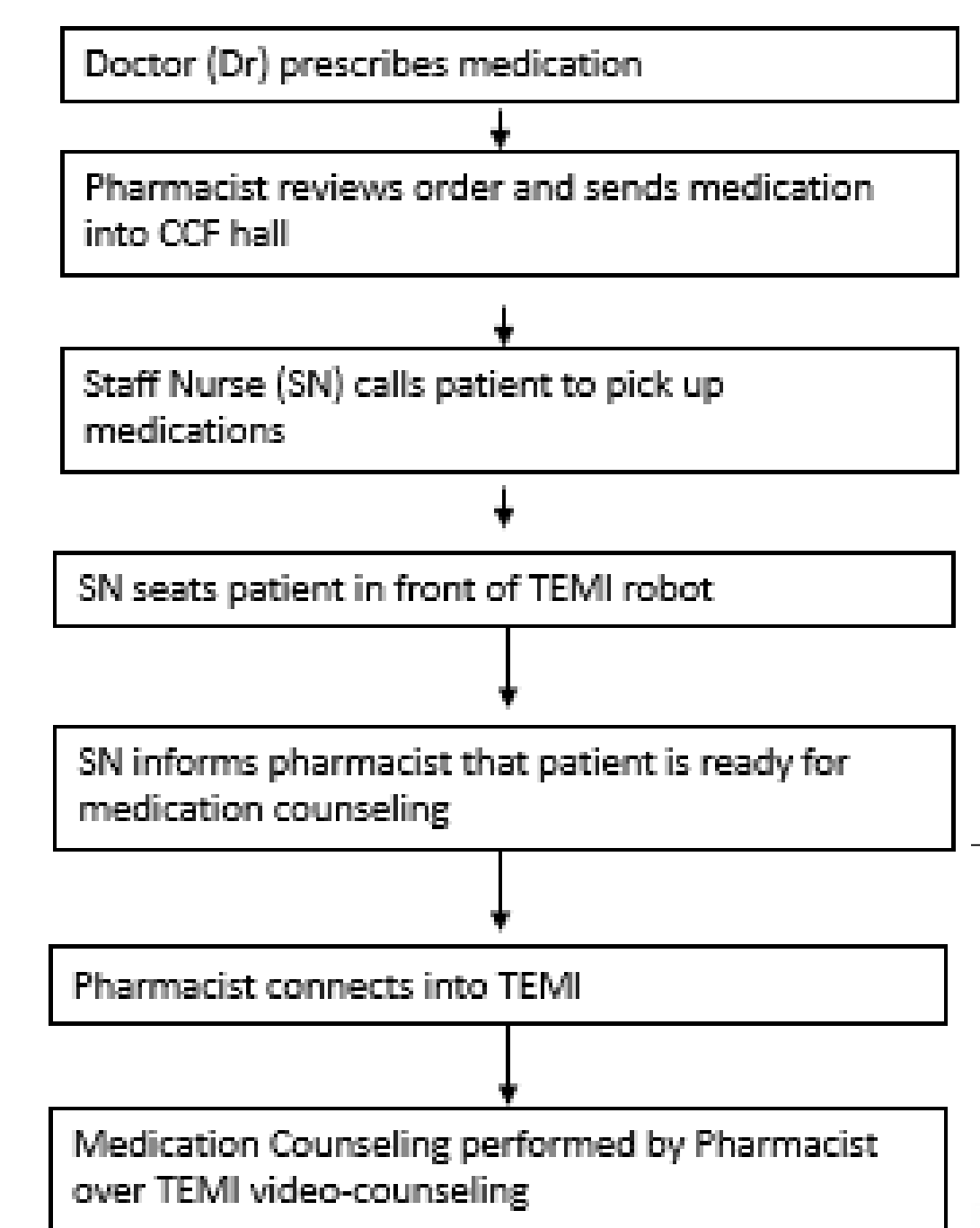
Fig. 3: Streamlined workflow using TEMI

Fig. 4: Image of TEMI robot

Results

In 1.5 month, the deployment of the TEMI robot for medication counselling reduced the proportion of patient cases who require multiple (≥1) contact attempts by 96.7%, from a baseline of 30% to only 1% (Two-tailed Z-score test, $p<0.00001$). This has exceeded the project's stretch goal of reduction of 90% in proportion of cases who require multiple contact attempts.
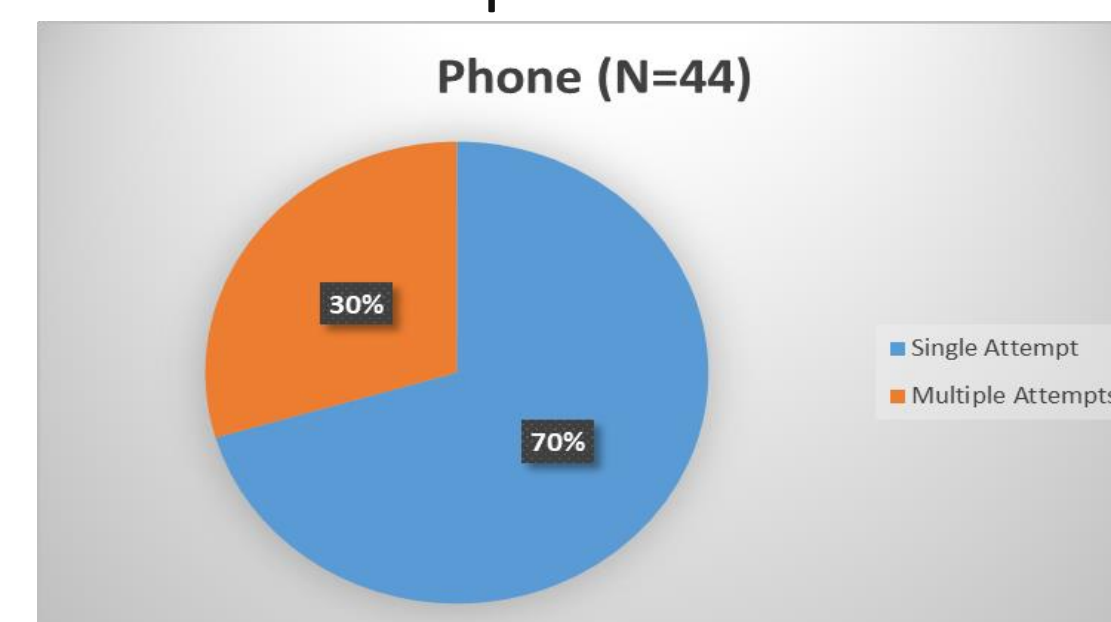
Fig 5. Pie chart of percentage of multiple call attempts required before implementation of TEMI robot
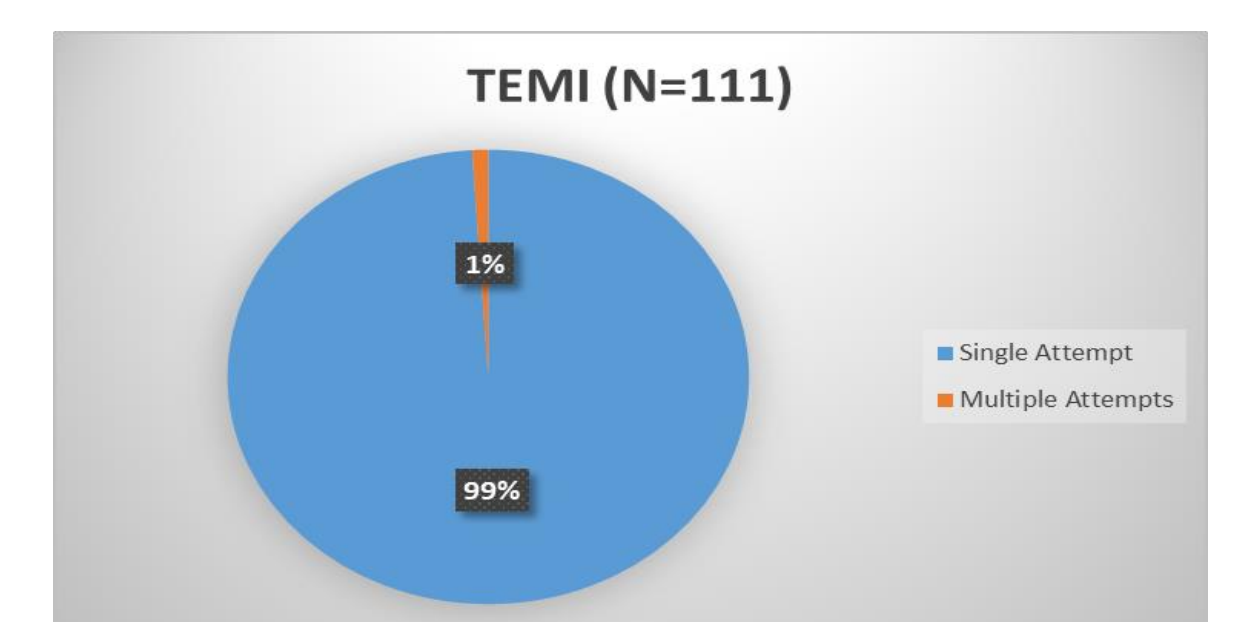
Fig 6. Pie chart of percentage of multiple call attempts required after implementation of TEMI robot

In addition, the average call attempt made per resident was also reduced by 39%, from a baseline of 1.65 to 1 call attempt per resident as shown in the run chart below, exceeding the target of 30% reduction:
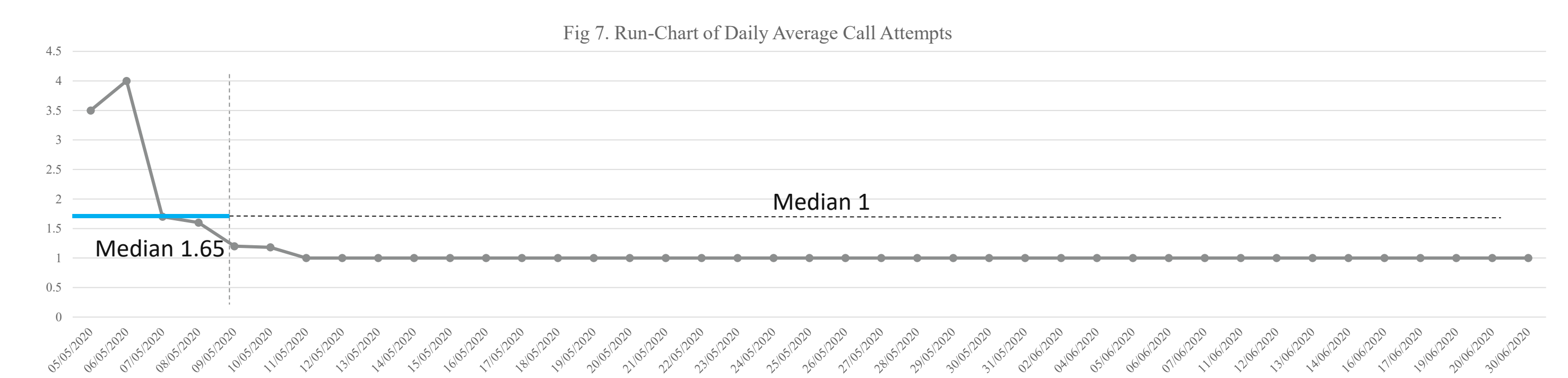
Fig 7. Run-Chart of Daily Average Call Attempts

With the implementation of TEMI virtual tele-counseling, the calculated man-hours saved for the project in the 1.5 months was 6 hours due to the reduced need to contact the patient, with a projected manhour savings of 48 hours annually. There was also 0% need for the pharmacist to enter the RED zone to provide face-to-face medication counselling to COVID-19 patients, thereby reducing occupational hazard. The estimated cost savings per year is therefore $6321.

In addition, more patients were started on medical devices (e.g. inhalers, nasal sprays and ear drops) which requires them to learn to operate for use. Prior to the implementation of TEMI virtual tele-counseling, instructions to use were purely conveyed verbally. Inaccurate techniques of use may result in subtherapeutic delivery of medication doses. However, patients were not able to demonstrate understanding of technique in return for assessment and rectification of any inaccurate techniques. With the implementation of TEMI virtual tele-counselling, patients were able to understand and be assessed for medication device techniques visually; this has benefited 47% (N=111) of the patients. Although specific quantitative feedback from patients was able to be garnered due to language barrier and isolation requirements, pharmacists also reported greater confidence in patients' ability in understanding medication related counseling with the use of TEMI virtual tele-counseling.

Sustainability Plans

With the successful implementation of TEMI at CCF, the model was adapted for deployment at these OCH wards for virtual tele-counselling. A patient satisfaction survey conducted during the pilot phase (N=21), showed that 90% of patients opined that virtual counselling is as effective as face-to face medication counselling, with 80% of patients indicating that they would choose video counselling over collecting medications in person at the pharmacy.

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