

Staff Antigen-Rapid-Testing Automated Submission System

Improving our ART submission workflow with automation

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1. Context

To ensure safety and well-being of our residents during the COVID-19 pandemic, all personnel in our nursing home were required to self-administer Antigen-Rapid-Testing (ART) twice a week. Documentation was required and management had to ensure all staff are complying with the regime.

2. Problem Analysis

Original process of documenting staff's ART submission manually on Excel consumes too much time and is prone to human error, as multiple visual checks are required to ensure timely and error-free input.

Errors in documentation or delays in notification to relevant personnel can potentially result in astronomical costs in terms of medical safety.

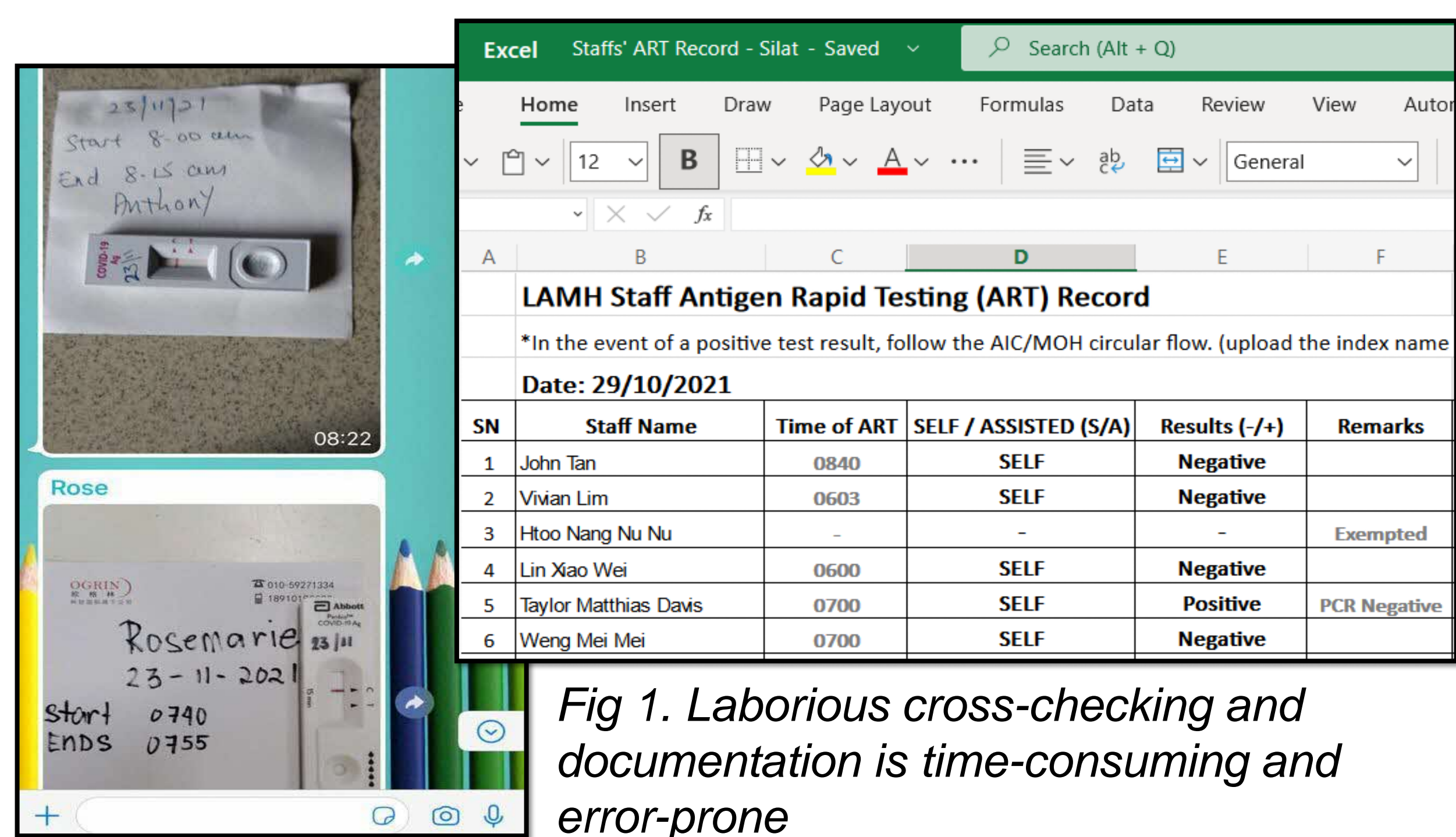


Fig 1. Laborious cross-checking and documentation is time-consuming and error-prone

3. Strategy for Change

Planning Phase

While the back-end automated system and form submission interface was being built, the team compiled a staff database (including close-collaborative partners e.g. Doctors, Therapists, Cleaners) for automated cross-verification.

Implementation Phase

Within 2 weeks, we scoped out the requirements and built a digital form interface.

To ensure a balance of time versus successful transition, a few parallel runs were conducted to ensure accuracy of documentation and smooth out any operational hiccups.

A picture guide was also issued to all staff before test-run, and team members conducted walkabouts on-site during launch at each branch to help answer any queries.

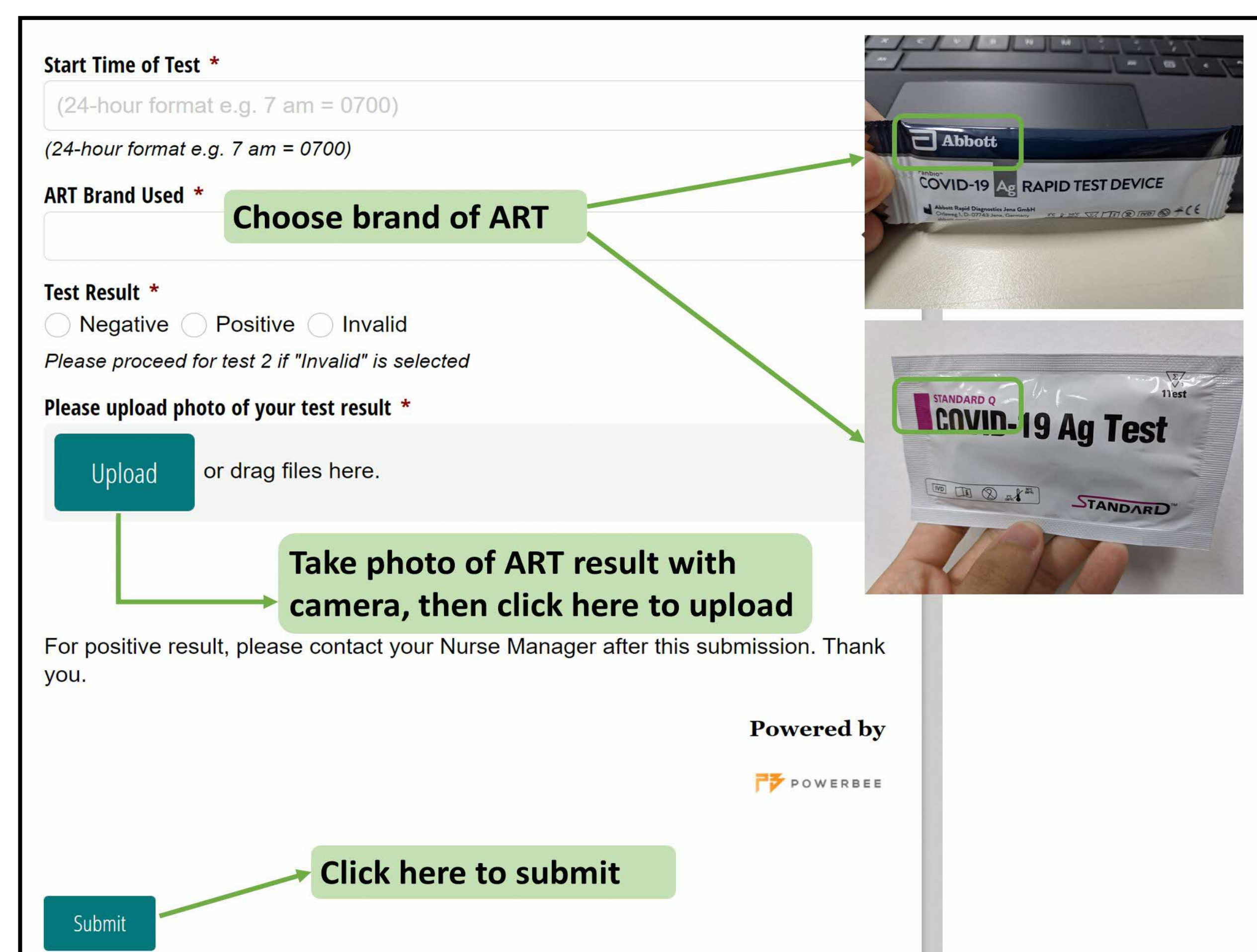


Fig 2. Part of the online submission picture guide shared with relevant stakeholders

4. Feedback & Improvement Opportunities

Pre-launch chats by the LAMH team with ground staff helped the team establish that change management will be an area of concern for staff who are not as tech-savvy or require more assistance.

As part of LAMH's inclusive hiring policies, form interface includes visual samples of ART results to assist special needs employees in adapting quickly to the new process.

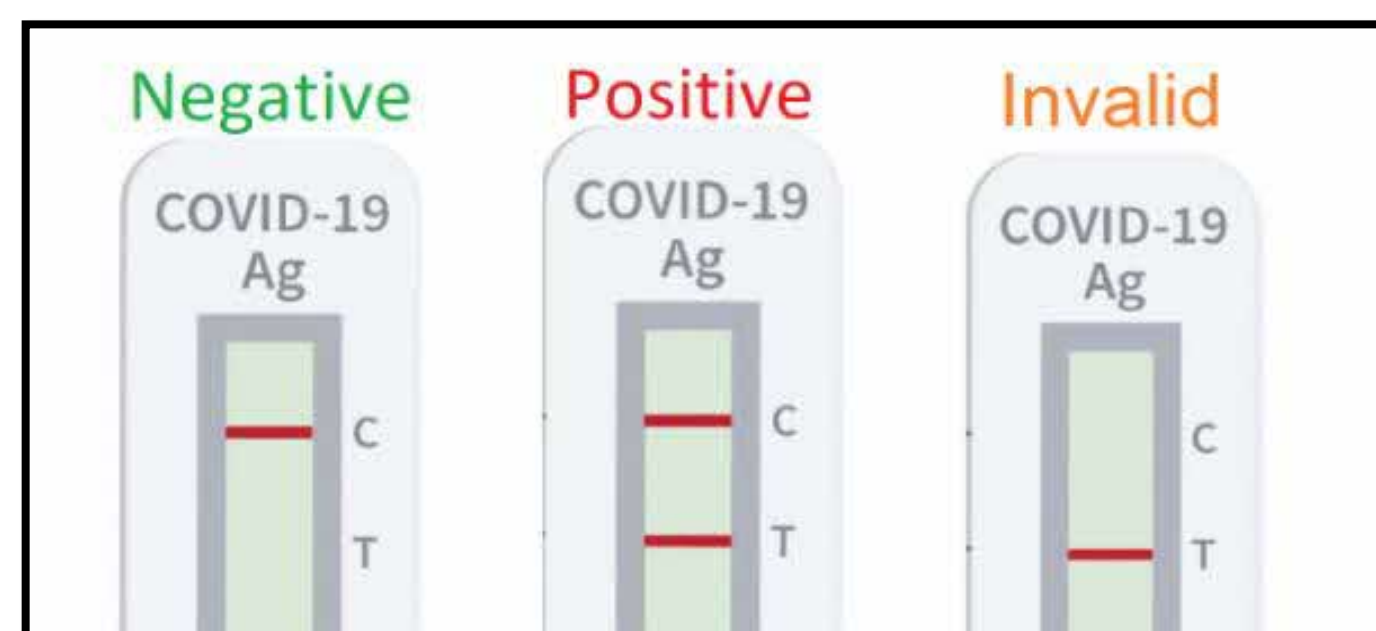


Fig 3. Visual ART result samples in digital form

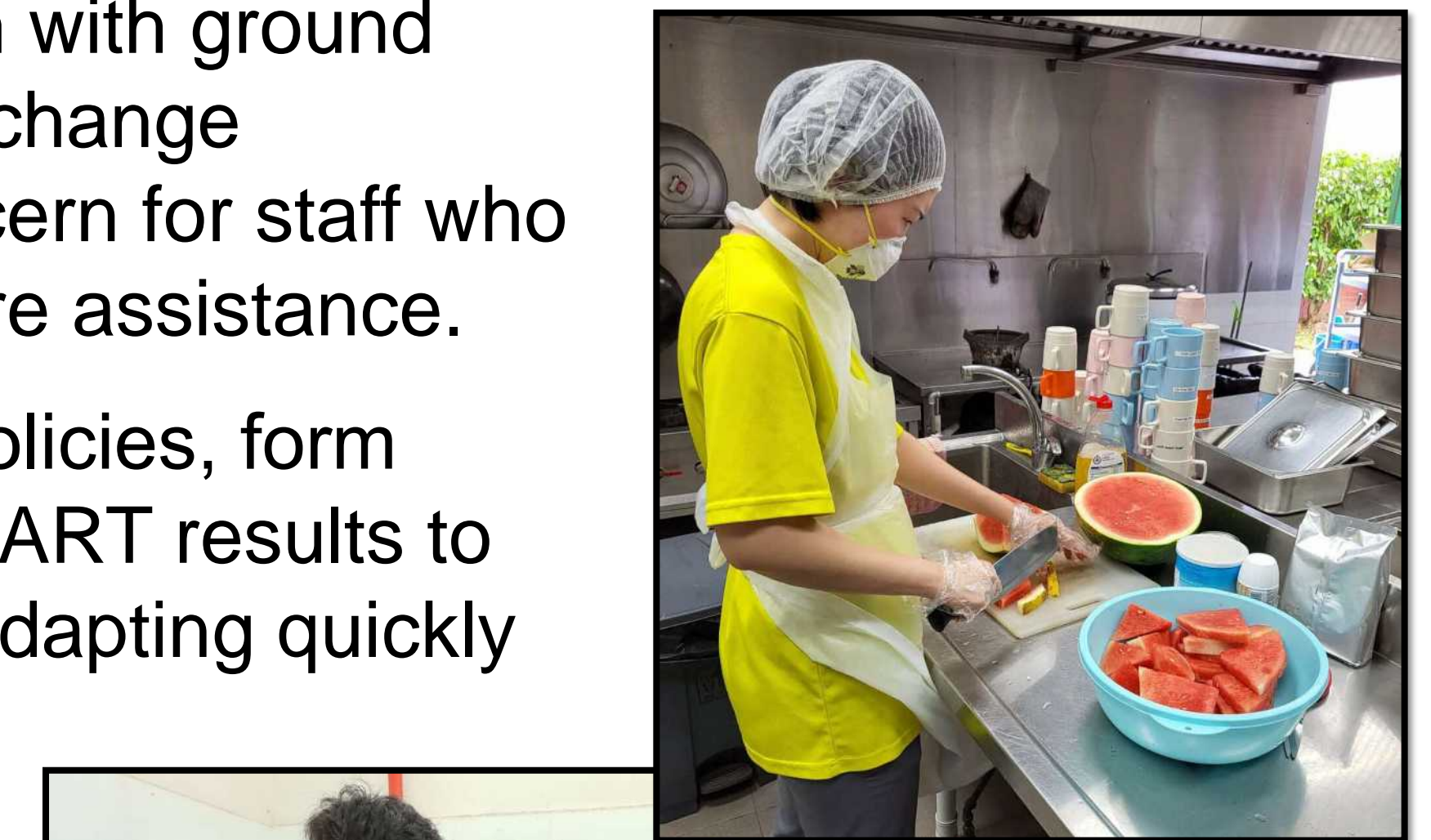


Fig 4. Employees with different needs are regarded during our planning and feedback process

5. Measure of Improvement

Baseline data on time used for each workflow was determined via interviews and time-motion studies. After project implementation, the time spent on documenting ART results dipped from around 60 mins worth of effort to just 5 minutes.

For ART-positive or twice-invalid cases where management needed to submit staff particulars, info retrieval was instant along with automatic notifications to relevant personnel.

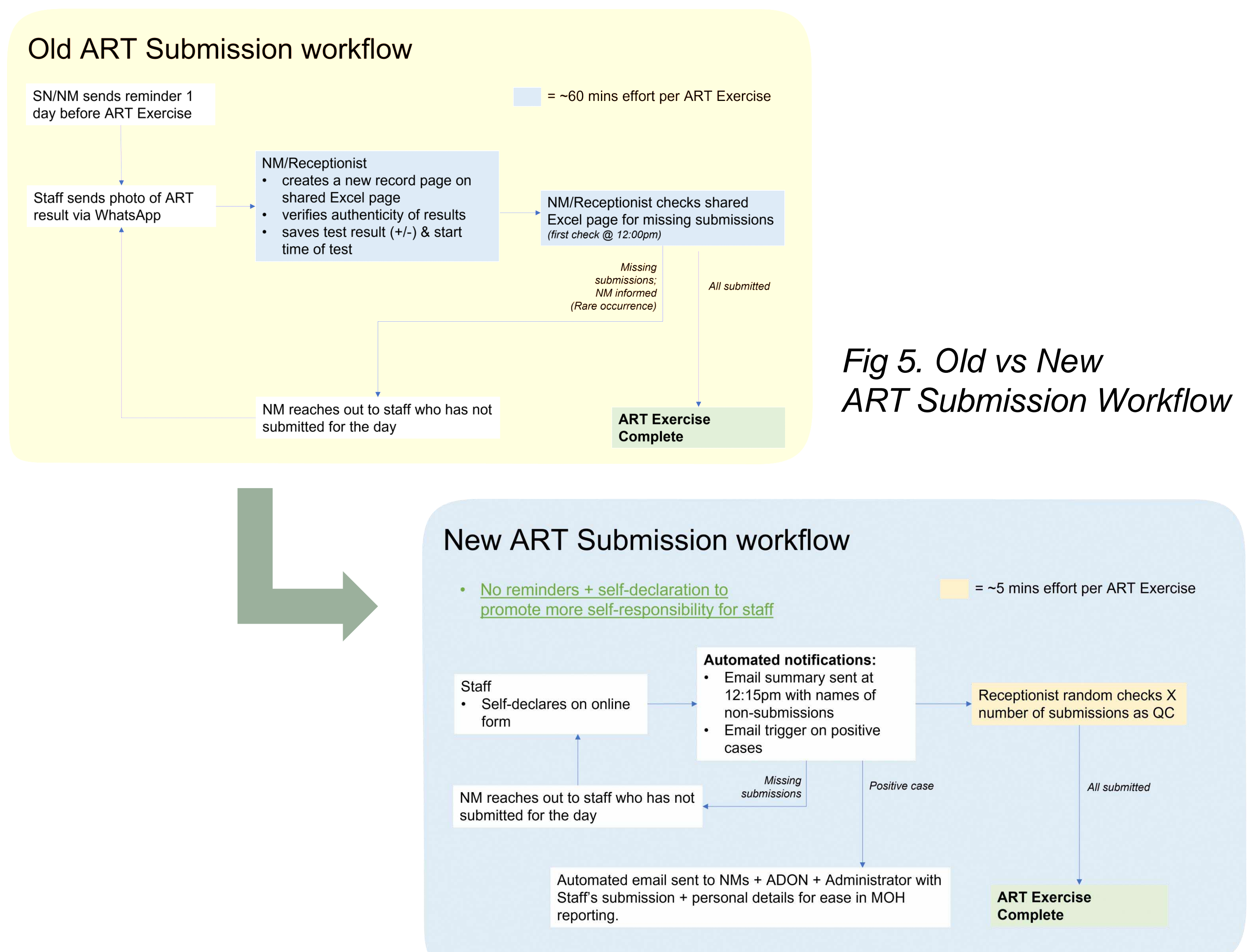


Fig 5. Old vs New ART Submission Workflow

6. Conclusion

The efficient use of automation allowed our staff to focus their time and energy on clinical care or other necessary tasks. Automated notifications also ensured that nothing was missed due to human error.

Although less tech-savvy staff faced difficulties transiting from sending via WhatsApp to submitting via a digital form and were generally resistant to the new process, eventually with time and practice the same staff remarked that the process was "very easy" and "takes less than a minute".

This experience shows that even during a global pandemic, the right mindset can enable us to convert crises to opportunities. By shifting to an AGILE methodology and making use of both top-down and bottom-up approaches, LAMH was able to be quick on her feet and figure out the best way to approach every curveball thrown.