

Project Title

Improving Process of COVID19 Test Ordering and Resulting (External Operations)

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Organisation(s) Involved

Changi General Hospital

Aims

To reduce time needed for data entry to avail the results in National Electronic Health Record (NEHR) / COVID Test Registry (CTR), and to reduce rate of data entry errors.

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Conclusion

See poster appended / below

Additional Information

Singapore Healthcare Management (SHM) Conference 2021 – Merit Award
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Project Category

Automation, IT & Robotics

Keywords

Automation, IT & Robotics, Infectious Diseases, Process Improvement, Plan Do Study Act, Healthcare Administration, Changi General Hospital, COVID-19, Operations, Test Ordering, PCR Test, Swab, Data Entry, Serology

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BACKGROUND

CGH External Operations team performed Swab PCR testing on migrant workers and other patients in isolation facilities as part of external deployment during the height of COVID-19 pandemic. CGH had to comply with MOH requirements to avail the results of these patients be in National Electronic Health Record (NEHR) / COVID Test Registry (CTR).

OBJECTIVES

1. To reduce time needed for data entry to avail the results in NEHR/CTR
2. To reduce rate of data entry errors

METHODOLOGY

1. Plan

Detailed discussions were held with regards to the end-to-end workflow with various stakeholders. Difficulties were highlighted by the lab team with regards to the hundreds of manual data entry for the processing of test results.

2. Do

IHIS was engaged to enable mass uploading of patient details and to mass create lab orders in the system via interface messages. The automation is achievable with the excel file prepared after obtaining the patients' personal particulars.

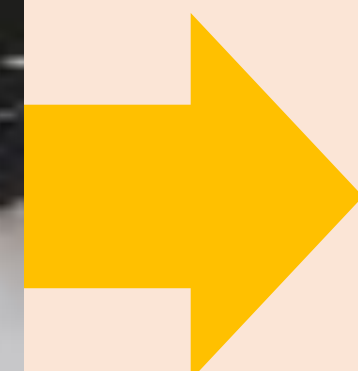
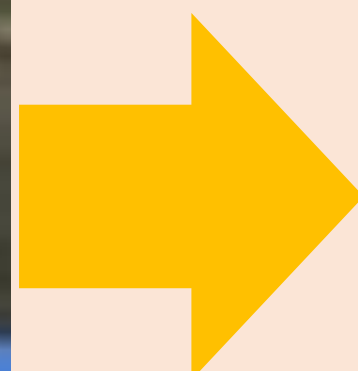
3. Study

The mass uploading of patient details and creation of lab orders through automation was piloted on 30 April 2020 during one of the swab operations. Feedback was collected from CGH lab staff to ascertain the impact of the pilot.

4. Act

The pilot helped to reduce man-hours needed for data entry and also minimize the rate of data entry error for processing of test results. The CGH Swab/Serology team continued to implement this initiative for subsequent operations.

BEFORE AND AFTER



Before

Admin support - writes patient FIN no., name, DOB, gender on lab order form for each specimen collected

Lab Staff - creates each patient record in Laboratory Information System (LIS) individually

Lab Staff - creates each lab order in LIS individually before processing the specimens

After

Specimen ID barcoded & printed, order ID uploaded & created in LIS
Admin support – finds patient labels for each specimen to be collected

Lab Staff – scans barcoded specimen ID and starts processing specimens

~~Transcribing Error~~

~~Data Entry Error~~

~~Data Entry Error~~

~~Need to write hundreds of forms~~

~~Need to do hundreds of data entry~~

~~Need to do hundreds of data entry~~

Results & Conclusion

No. of man-hours saved (based on average of 100 swabs/250 serology specimens were taken from each operation)

= Total time spent per entry x No. of specimens = 6 min x 9,234 = **55,404 min or 923.4hrs**

Data entry error rate = 0% (Need for data entry is eliminated)

Replacing manual data entry with automation has enabled a more accurate and efficient way in processing COVID-19 test results.