Project Title

Utilising smart glasses technology to improve nursing workflow at the Alexandra Hospital Urgent Care Centre (UCC)

Project Lead and Members

Project Lead: Dr Alexander Yip Wen Jun

Project Members:

- Dr Koh Tsingyi, Head, Healthcare Redesign
- Chong Jia Foong, Senior Assistant Manager
- Emily Chew Hwee Hoon, Senior Assistant Manager
- Gregory Zhou Mingjie, Assistant Manager
- Nur Hidayah Binte Elias, Associate Executive
- Ruhana Binte Sudin, Nurse Clinician
- Nurnasiha Sakinah Binte Mohamed, Principal Enrolled Nurse
- Annie D/O S Karvell, Senior Enrolled Nurse
- Thandar Win, Senior Enrolled Nurse
- Madhumita D/O Mahyandran, Enrolled Nurse
- Nurhanisah Bte Hashim, Enrolled Nurse
- Li Ruihuan, Nurse Clinician
- K Nitiah, Nurse Clinician
- Teh Chin Shim, Assistant Nurse Clinician
- Sanjeev Naidu, Senior Staff Nurse
- Jessica Goh, Senior Staff Nurse
- Lau Chui Fong, Senior Staff Nurse
- Li Nan, Senior Staff Nurse
- Ooi Siew Chin, Senior Staff Nurse
- Tunac Carlo, Senior Staff Nurse
- Venvic Concepcion, Senior Staff Nurse
- Zhang Lili, Senior Staff Nurse
- Sun Chun Yao, Senior Staff Nurse

- Angela Lim, Senior Staff Nurse
- Angelita Alvarez, Senior Staff Nurse

Organisation(s) Involved

Alexandra Hospital

Healthcare Family Group(s) Involved in this Project

Nursing

Applicable Specialty or Discipline

Urgent Care Centre

Aim(s)

To implement a change in workflow by utilizing smart glasses to enable Registered Nurses to conduct remote triaging with the help from Enrolled Nurses

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

We have learnt that the implementation of innovative projects especially in the healthcare system should always be based on calculated risk. It is imperative to map out all potential risks and barriers that could surface during the implementation phase and to clearly pen-down the contingencies to overcome them.

Comprehensive internal product testing, simulation and dry-runs of intended use cases in the real-life environment with the users are crucial to identify these gaps prior to project implementation. Information from these tests produces accurate user manuals, standard workflow, escalation protocols, and evaluation criteria should all be spelt out in a project document.

It is important to understand that the introduction of changes to their daily nursing practice induces anxiety among the care team members. If we could start over again, we would ensure the project document and materials are well disseminated to all team members involved. Both softcopies and hardcopies should be placed in easily accessible areas while ensuring all nurses involved in the project are well informed of the material placements.

Conclusion

See poster appended/ below

Additional Information

A timely implementation of an innovative solution to a pressing problem is an opportunity to introduce changes to the usual practice within the healthcare system. Positive user experience coupled with tangible outcomes measured from the utilisation of smart glasses in UCC provide assurance to other healthcare professionals to adapt the technology into their various workflows.

Project Category

Technology, Digital Health, Telehealth, Tele-Collaboration

Keywords

Smart Glasses, Tele-Supervision

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Alexandra Hospital

UTILISING SMART GLASSES TECHNOLOGY TO IMPROVE NURSING WORKFLOW AT THE ALEXANDRA HOSPITAL URGENT CARE CENTRE (UCC)

The COVID-19 safety measures such as team segregation and the setup of the Extended Screening Area (ESA) / fever tent pose challenges to manpower staffing in the Urgent Care Centre (UCC). When there are limited number of Registered Nurses (RNs) on duty, only one RN is assigned to cover both triage counter (clean area) & ESA. Enrolled Nurse(EN) are assigned to ESA to carry out basic nursing care for patients at ESA.

⚠ THE PROBLEM

When it comes to triage and dispensing of medication, EN is unable to perform the tasks independently. EN needs to wait for RN to gown up and to enter the ESA to continue with the respective procedures.

During busy times, when RN at the triage counter is unable to enter ESA, EN will need to relay patient's information over phone calls with RN to complete the triage process involving back & forth information relay which lengthened the waiting time for patients and ENs.

💡 THE SOLUTION

We introduced a novel, safe and efficient method for RNs to remotely supervise ENs when they are performing triage and medication dispensing in the ESA.

EN wears a smart glass with live streaming capability, which acts as a visualisation tool for RN to conduct remote assessment confidently and safely.

EN wearing smartglasses while performing triage in ESA and receiving inputs from RN

RN remotely supervising EN from the triage counter via videofeed from smartglasses to tablet

Credits: The Straits Times

THE IMPLEMENTATION JOURNEY

Conduct User Engagement
- Walk through with UCC nurses
- Understand Care Needs and Potential Use cases
- Collectively Agreed to Use Smartglasses

Ideation and Testing
- Conduct Internal product testing, simulations and dry-runs in real-life environment to identify gaps.
- Mapped out risk and barriers, plan for contingencies
- Develop accurate and accurate user manuals, standard workflow, escalation protocols, and evaluation criteria in project document

Implement
- Timely Implementation
- Provide Go-Live Technical Support

Evaluate

Understand the value and drawbacks of the technology solution implemented through Regular monthly feedback sessions with users in the initial phase

IMPACT

HIGH LEVEL OF SOLUTION ACCEPTANCE

Patients acceptability:

Of patients interviewed,

100%

feels comfortable with nurses using smart glasses

Clinical User Acceptability:

92%

were satisfied with the system & would recommend it to their colleagues.

Smart Glass Utilization

Since Oct' 21, smart-glasses has been utilised

154

times

to facilitate triage and medication dispensing processes in the ESA

Time Saving of

38mins

For P2 & P3 patients

Average Visit Duration Time

160.79

122.43

Standard UCC Workflow Visits

Smartglass Facilitated Visits

Estimated total cost savings

S$480.48

from the reduction of PPE usage by SN in the ESA for 154 times