
Ehealth MaskHelper Tool - a novel strategy using QnFIT testing to inform AI based facial recognition

Initiative Type

Service Improvement

Status

Deliver

Added

03 August 2021

Last updated

29 November 2024

URL

<https://cnxp3cuvtvrn68yjaibaht5ywrxspj7m.clinicalexcellence.qld.gov.au/improvement-exchange/ehealth-maskhelper-tool-novel-strategy-using-qnfit-testing-inform-ai-based>

Summary

Townsville University Hospital (TUH) evolved the first Quantitative fit testing (QnFIT) for N95 masks in Queensland and working with the University of Queensland (UQ) and COVID-19 analytics division

have created a novel eHealth Maskhelper tool. This has now been endorsed by Queensland Health's COVID-19 Response Group to allow for operational standardisation, minimise wastage, inform manufacturers of mask requirements and potentially create a mathematical model that uses facial recognition software to obviate the need for the estimated 100,000 annual fit testing requirements throughout Queensland as part of employment safety law.

The program will also provide data capture for Queensland Health and Queensland Ambulance Service supporting a universally acceptable Fit Test Passport.

Key dates

Aug 2021

Aug 2021

Implementation sites

Townsville University Hospital

Partnerships

Phase 1: THHS, Queensland Department of Health, University of Queensland. Phase 2: THHS, Q Health, Griffith University

Key Contacts

Dr Arjun Chavan

2801

william.vanheerden.ced

Senior Staff Specialist PICU

Townsville Hospital and Health Service

07 44334071

Aim

To leverage facial recognition analysis gained during employer mandated Quantitative Fit Testing to achieve operational standardisation and cost efficiency by reducing wastage and enabling smarter central procurement.

Benefits

- achieve uniformity, standardisation and ensuring repeatability across Queensland Health through a comprehensive package
- cost saving via central procurement and has further ability to inform mask design through innovation
- preparedness for future airborne pandemics
- minimising annual fit-testing requirement using AI based evaluation
- ability to create a Fit Test Passport between HHSs.

Background

Maintaining safe and high-quality care systems and services during COVID-19 has been a major challenge for health providers. The use of technology has been a driving force in improving health outcomes, for Queensland's First Nations people in particular.

Solutions Implemented

- More than 1,200 participants were fit tested via a research methodology capturing facial characteristics (September 2020 to March 2021)
- Tripartite collaboration with COVID-19 analytics team and University of Queensland to develop an AI based tool to reduce mask wastage and improve efficiency
- First HHS in the state to take a scientific research based approach
- AS1715:2009 standards were applied, using a four-test protocol to remove individual bias
- Creation of a ehealth MaskHelper tool, hosted on the Queensland Health intranet with current expressions of interest from 10 HHSs, the Queensland Ambulance Service and Mater

Evaluation and Results

Phase 1 proof of concept study has been completed across 1,200 participants at the Townsville Hospital and Health Service (THHS) site.

The results have been presented as part of the Statewide PPE working group, endorsed by the Deputy Director-General, Clinical Excellence Queensland and also as of 8 June; the COVID-19 Response Group.

Lessons Learnt

Even though the project commenced in Townsville, we learnt to steadfastly drive an inherently sound and innovative idea with patience and determination by bringing all aspects of our diverse healthcare areas together. We have shown that by uniting and collaborating together we can aim for a greater goal that has game changing potential.

Open minded discussions, keeping the sanctity of the process uppermost, listening and acknowledging challenges across a massive organisation such as Queensland Health, leaning on local champions and some wonderful people especially when chips are down have been some of the other amazing lessons.

References

Further Reading

https://emarketing-au.s3-ap-southeast-2.amazonaws.com/32404/U7VJi7XIMqcHqWhwDWYKK5zjjBxgqW7l41s4ZnD7_8w/3442589.pdf

