

## CardMedic: overcoming communication barriers between healthcare staff and patients on the frontline

### Summary

Dr Rachael Grimaldi, an NHS Anaesthetist at Great Ormond Street Hospital NHS Foundation Trust, was inspired to create CardMedic after seeing an interview in the first wave of the pandemic with a UK patient who had survived COVID-19 and felt terrified at not being able to understand healthcare staff through Personal Protective Equipment (PPE).

It illustrated longstanding barriers to good communication in healthcare and the huge gaps in service provision. How could these be overcome? What if clinical conversations were made available on an app or website and staff could instantly flex the content to different languages, with sign language, videos, easy read, or read-aloud options? From concept to launch in 72 hours, CardMedic has had over 55K users in 120 countries and 22K app downloads since April 2020, garnering government support, awards, grants, investment and international press coverage.

### The challenge

Additional communication needs, including language barriers, visual, hearing and cognitive impairment, and literacy issues, affect access to healthcare and impact between 35-50% of populations (35% in the UK). This is disproportionately exacerbated by socioeconomic inequality. Lack of understanding of healthcare information increases morbidity, mortality and mental health issues, and reduces compliance with medication, worsening outcomes and further burdening healthcare systems. Failures in communication are the most frequent source of patient dissatisfaction and directly contribute to 30% of medical litigation in the US.

### The solution

CardMedic is a unique, cost-effective and multi award-winning app-based 'Software as a Service' platform designed to reduce health inequalities secondary to communication challenges through improving communication between healthcare staff and patients, across any barrier – including foreign language, deafness, blindness, cognitive impairment, poor literacy levels, or PPE.

With content globally crowd-sourced from a multi-disciplinary team of frontline clinicians, CardMedic hosts an A-Z library of pre-written scripts replicating common clinical conversations between healthcare staff and patients, simply and succinctly. Staff choose the topic and display the screen (mobile, tablet or desktop) to the patient to guide the clinical interaction. The content can be flexed at the point-of-care, to different languages, sign language videos, easy read with pictures for patients with learning disabilities or cognitive impairment or read-aloud for visually impaired or illiterate. An integrated speech-to-text translation tool supports conversations expanding beyond the content of scripts. CardMedic helps streamline patient care and improve staff efficiency; patients are better informed and feel empowered to engage in the shared decision-making process.

Clearer communication helps reduce the risk of misdiagnosis, mistreatment, mismanagement, prolonged length of stay and potential litigation. Involving patients in managing their healthcare improves medication compliance, reduces incidence of mental health issues and lowers morbidity and mortality. By making healthcare information more accessible and understandable, CardMedic gives a voice to those huge, underserved populations with communication challenges, reducing health inequities and improving health literacy.

### **Impact**

CardMedic has recently signed a five-year contract with University Hospitals Sussex NHS FT, as its beacon site for acute secondary care. Other clients include Norfolk and Waveney ICS, Mid and South Essex ICS, Lewisham and Greenwich, East Suffolk and North Essex Foundation Trust, Kent Surrey Sussex Air Ambulance, with a number of other trials and proposals with Trusts and ICSs underway across the UK, and US. CardMedic are delighted to have just signed a rural hospital beacon site contract with Nor-Lea Hospital District in New Mexico USA, a relationship fostered through the support of ScaleHealth. They will be undertaking a trial with Brigham and Women's Hospital in Boston USA and with Chelsea and Westminster Hospital NHS FT following winning the recent Digital Health Rewired national Pitchfest competition.

An independent academic service evaluation in the UK by University Hospitals Sussex NHS FT and the University of Brighton using simulated patients demonstrated a 28% increase to 95% of patient confidence in understanding a healthcare worker in PPE with CardMedic than without. Results likely significantly higher for unwell patients, or those with additional communication needs.

CardMedic has received numerous prestigious awards both in the UK and abroad, as well as winning Innovate UK grants and being recruited by the Department for International Trade for inclusion in their Digital Health Export Offer Top 100 Playbook and being fast-tracked through the Ministry of Defence's Clinical Research and Innovation Gateway COVID-19 Taskforce for rapid dissemination across the UK. It has been endorsed by NICE against their Rapid COVID-18 guidelines and by The Royal College of Speech and Language Therapists, ORCHA (the NHS app library), and two national patient safety bodies – Patient Safety Learning (UK) and Patient Safety Movement Foundation (USA). CardMedic has undergone NHS Digital Clinical Safety Standards, Data Security Protection Toolkit and DPIA clearance and is in the final stages of DTAC security clearance. It has been part of two accelerator programs run by Oxford University and Oxford University Hospitals NHS Foundation Trust.

Dr Rachael Grimaldi is part of the coveted NHS Clinical Entrepreneur program and recently won the global finals for She Loves Tech – the world's largest competition for women and technology.

### **Contact**

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