THE USE OF VIDEO CAMERAS TO SUPPORT CRITICAL TRANSFERS IN A CONNECTED AMBULANCE.

The Adult Critical Care Transfer Service (ACCTS) and the Emergency Retrieval and Transfer Service (EMRTS) provide critical care across the whole of Wales. ACCTS developed a concept, for robust operational protocols for high quality video, supported by Warwick University. This is based on the principle that critically unwell adult patients should receive the same high standard of intensive care regardless of their location – from point of onset of illness or injury through to discharge from the Intensive Care Unit (ICU), including intra- and inter-hospital transfer.

ACCTS/EMRTS approached Tactical Wireless Ltd (TWL), as TWL has a collaboration agreement with EMRTS, for the development of telemedicine technologies.

Together, the team of clinicians, academics and engineers developed use cases and designed a solution that has been fully tested and meets the requirements for controlled access, hygiene, mechanical design (including 10G crash test safety), cyber security and ease of use.

Access is controlled, to ensure patient confidentiality and video sessions are at the request of the onboard clinicians, requiring support.

TWL has developed a relationship with Oncam, using 360-degree, wide-angle cameras that provide end-to-end video surveillance: AI-powered, IoT-based, direct-to-cloud security solutions, including Oncam Core VMS and Smart IP Cameras.

Three systems have been supplied for ACCTS' 3 ambulances. The key features of the system are:

- A mast-mounted IP camera on the bridge of the specialist stretcher, connected to the internet via a demountable communications box, mounted in a cradle on the side of the bridge. This allows the stretcher to provide full video capability when it is being used away from the ambulance, such as for transfers from a ward.
- The communications box has a 2-modem, 2-SIM's per modem, router, built in antennas and a battery to allow 4-6 hour operation. It can be used away from the stretcher, if bandwidth is required from an area that is inaccessible for the ambulance.
- Specialist stretchers in hospital wards can use the same system.
- A second camera, in the ambulance roof will use an onboard single-modem 5Grouter, with 2 SIM's and a satellite WAN, using Starlink. This can be bonded to the stretcher communications case or, if the specialist stretcher is not in use, it can provide a data / video capability.

Peter Morton, TWL's Chairman and CEO, understands the benefit of partnership:

Dr David Rawlinson, Clinical Informatics Lead at EMRTS, said:
"It is exciting to co-develop this technology and associated policy that will ultimately improve patient outcomes, ensuring that our service is at the forefront of leveraging technologies in a safe and reliable way. Designed from a starting point of clinical need, the system builds on years of joint working across Wales and beyond."

Dr Mike Slattery, Clinical Lead of ACCTS, said:
"The use of this immersive video technology enables high quality training and patient care, by providing high quality video that can be remotely managed."

Professor Jo Angouri, of Warwick University, said:
"Collaborating with EMRTS and ACCTS, we study complex decision-making in emergency response and translate real-world learning into policy development and training. This work sets a precedent for agile, co-produced frameworks that ensure safe, ethical integration of video technology in remote and transfer care, guiding sustainable and future-oriented care models".

Jon Marsh, Oncam's Chief Technology Officer, said:
"Oncam has been working alongside EMRTS & TWL throughout the development of this exciting new product that has applications far beyond its original purpose".

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