

United Kingdom, item 14

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Chair, Distinguished Delegates

Space applications are playing a vital role in the advancement of global health. This is an area where the public can see a truly tangible benefit in their daily lives from space exploration, space derived technologies and applications. There are a number of developments in the UK that are improving healthcare through the adoption of space applications.

Bowel cancer is the second most common cause of cancer related deaths in the UK and detecting it using traditional colonoscopy methods can be challenging for doctors. With a survival rate of 90% through early diagnosis, new ways of identifying and diagnosing cancerous growths sooner are vital. One project being developed in the UK improves early detection and diagnosis of bowel cancer through a revolutionary artificial intelligence (AI) system that identifies and characterises polyps by analysing live colonoscopy video, leading to early treatment and saved lives.

The project uses secure, high speed satellite communications combined with bespoke data compression software, which is normally used for

operating space missions, creating a cloud-based AI system that can support doctors when identifying cancer in patients. Through the use of this space technology, the system can be deployed reliably anywhere on Earth, giving patients a consistent, high level of care.

Another example of how space applications can improve healthcare in use in the UK is the development of using fixed wing drones to collate medical test samples from isolated areas with limited access to hospitals and medical practices. The drones use mobile connectivity, satellite communications and navigation, and Earth observation data, to chart course to their intended destinations. This service began during COVID in the Scottish Hebrides using drones transporting patients' samples for testing and analysis at the pathology lab. The drone was able to collect the samples in less than an hour and half versus the traditional method of van services that took 24 hours. This started with just COVID samples but has now expanded.

In the three-month trial, this eliminated over 9,000 hours of pathology sample waiting time, reducing the time patients were waiting for their results. The nurses at the doctors' surgeries request a pickup when needed instead of waiting until the daily van collection arrives, allowing multiple collections per day vastly improving services to their patients. They are now able to get a sample to the pathology lab, tested and results delivered to the surgery in 4 hours instead of the previously 24hrs.

These quicker delivery times bring real benefits to the patient allowing for treatment to start much earlier. For one patient, this quicker diagnosis contributed to saving the patients eyesight, vastly improving their quality of life. The service is working with the CAA to design new routes and plan a future fully commercial programme working with the NHS.

These examples illustrate the clear benefits space derived technology can have on healthcare. The UK is committed to the continued advancement of space applications that have a real-world impact of people's healthcare.