PHILIPS

capsule

Case study

Striving to drive care quality, efficiency and safety through medical device integration at Cambridge University Hospitals NHS Foundation Trust

NHS

Cambridge University Hospitals
NHS Foundation Trust

Cambridge University Hospitals NHS Foundation Trust (CUH) has long been focused on creating a digital healthcare environment to improve the lives of patients

At the center of their strategy is a fully integrated electronic patient record (EPR) and a comprehensive medical device integration (MDI) strategy. As a leading academic and clinical research centre, it is critical to create an environment where all patient information collected, including medical device data, is available and accessible within one record.

Integration complexity

CUH wanted a single solution for medical device connectivity and data management to inform clinical decision making — from the intensive care unit and surgical theatres, to the general ward and post-acute care areas. CUH was looking to use device data for multiple purposes — first to automate EPR documentation, and then to supply data to clinical research systems, and beyond. This required a system that could capture inbound connections, but also parse the outbound data into multiple, customizable feeds to meet the requirements of other systems. Cambridge University Hospitals needed an experienced partner to help navigate the nuances of device integration and create an overall plan.

Cambridge University Hospitals NHS Foundation Trust (CUH) is one of the most well-known healthcare trusts in the UK. Comprised of Addenbrooke's Hospital and The Rosie Hospital, CUH's vision is to improve people's quality of life through innovative and sustainable healthcare.

In 2017, 99% of the Trust became paperless as a result of its eHospital digital programme and implementation of a Trust-wide EPR. Medical device integration (MDI) was a key component of this initiative.

Areas implemented

ICU and ICU contingency unit, surgical theatres and anesthesia.

Devices integrated

Cardiac monitors, ventilators, anesthetic devices and C02 monitors.

Integration to

Electronic patient record, clinical research and future deployments to analytics applications.

Results*

- Documentation time savings in critical care equivalent to £2.6m annual staff time
- Increased number of anaesthesia theatre cases by 225 a year
- Decreased theatre turnaround time by 3 minutes per case

*Based on the outcomes stated by the Cambridge University Hospitals, UK - https://www.cuh.nhs.uk/documents/178/Brochure_eHospital_Website_Version_September_2019.pdf. Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions.

> "With the Capsule solution, medical device data is automatically and immediately transferred into our EPR. We are very proud of this approach, which supports our move towards becoming a paperless organisation. This approach has been key to enhancing data accuracy whilst at the same time freeing up our nurses for more patient-centered care."
>
> **— Dr Afzal Chaudhry, Chief Medical Information Officer**
> Cambridge University Hospitals

Phased, enterprise strategy

In parallel with the EPR implementation, CUH chose Capsule's Medical Device Information System to support its medical device integration (MDI) initiative. The phased implementation approach began with the intensive care unit and surgical theatres. Phase two expanded MDI across remaining high acuity care areas and additional device types, and expanded the use of data into clinical research. Phase three will include MDI for the general wards, the emergency department, and the use of data for decision support analytics.

Continuous value

As CUH continues to expand and strengthen its digital strategy into other care areas and analytics, the demand on medical device information as a data resource will grow. CUH is currently evaluating analytics within the Capsule system that can help ensure connectivity uptime, improve battery management, and optimise device utilisation.

Striving to improve efficiency and patient safety*

As a result of MDI, Cambridge University Hospitals believes that it is experiencing improvements to clinical efficiency, accuracy of information and time redirection to activities intending to support patient care and safety. Clinicians no longer spend time on manual charting, often making unintended transcription errors. Overall clinical documentation is faster, more accurate and resulted in many improvements:

- Documentation time savings in Critical Care equivalent to £2.6m annual staff time
- Increased number of Anaesthesia/Theatre cases by 225 a year
- Decreased Theatre turnaround time by 3 minutes per case
- Support patient safety improvements through
  - Returned focus on direct patient care, not on documentation
  - Appropriate clinical interventions based on accurate, quality data
  - Reduced treatment delays
- Improved data availability for EPR documentation, clinical research, and in the future, analytics and clinical decision support such as NEWS2 (UK National Early Warning Score)

CUH was awarded HIMSS EMRAM Stage 6 status for its digital innovation efforts, and MDI was a key factor in its designated as an NHS Global Digital Exemplar.

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