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your  
thoughts



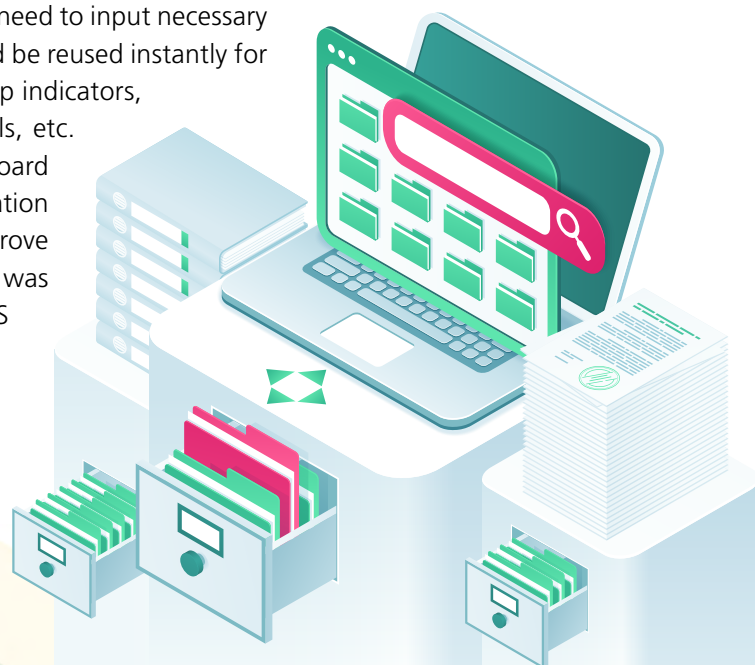
## Transformation of Accident & Emergency Department (AED) – from Paper-based to Electronic AED (eAED)

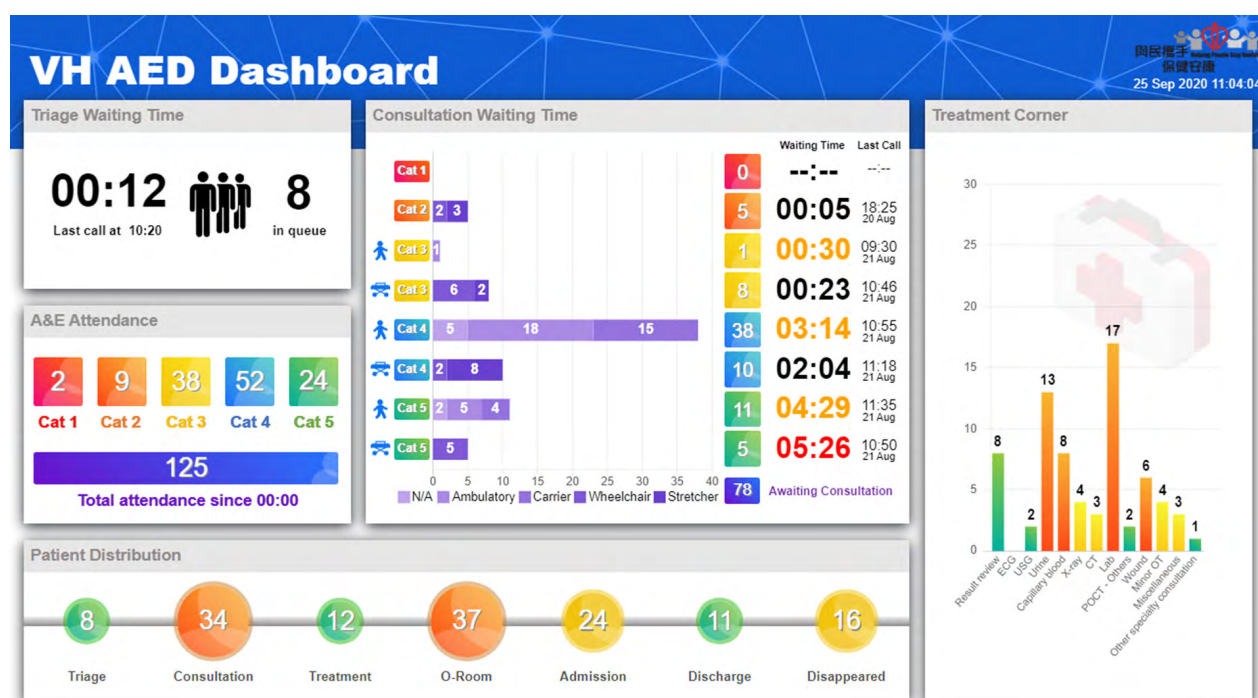
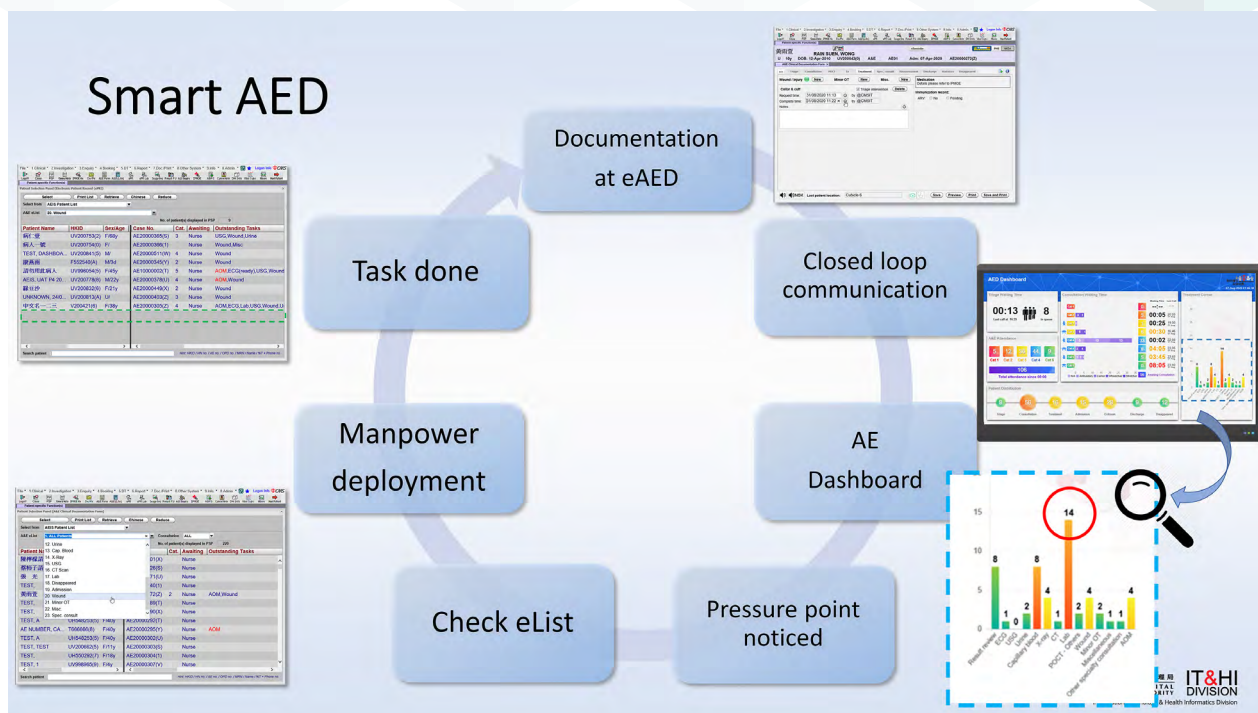
By Ms Winnie WONG<sup>1</sup>, Dr Anna TONG<sup>1</sup>, Dr Joyce CHAN<sup>1</sup>, Coordinating Committee (COC) in A&E

<sup>1</sup>Information Technology and Health Informatics (IT&HI), HAHO

AED is a highly dynamic clinical area, having patients with diversified conditions requiring frontline staff's swift response and attention. However, AED patients' clinical details could only be documented and accessed on paper record, the AED card, which is placed in different AED areas according to traditional AED workflow, e.g. triage station, consultation cubicle, observation room, etc. Colleagues need to search for the AED card to access patients' clinical details, which is time-consuming.

With the lead by COC in A&E and IT&HI, all AEDs achieved a key milestone of accomplishing eAED transformation in 2023, along with the planning of AED redevelopment. AED teams seized the opportunity to re-engineer the clinical workflow to integrate with an electronic platform while migrating into a new clinical setting. A&E Clinical Documentation Form (AE eForm) was developed under Clinical Management System (CMS) as a core product, interfacing with various CMS functions, e.g. GCRS, IPMOE, RIS, LIS, etc. Colleagues just need to input necessary clinical documentation into AE eForm and the information could be reused instantly for multiple purposes, e.g. patient progress tracking with close-loop indicators, timely prompting of alerts, reminders or standardised protocols, etc. Such real-time information could also be visualised in AE Dashboard and AE eList, which enable earlier identification of operation bottlenecks, thus far facilitating manpower deployment to improve AED services. Besides, the accessibility of patient's details was enhanced so that colleagues could review the case through CMS anywhere instead of searching around for AED card.





The transformation indicated AED was entering into a new era, and that is the very beginning of the chapter. There will be more potential to be unleashed for improving AED services, as well as more timely monitoring of the community with the data gathered in eAED.

## Editorial Comments

The introduction of eAED advances A&E services, not only simplifying the workflow of healthcare professionals, but also transforming handwritten records into electronic data that can be easily traced and used for various purposes. Thanks to information technology advancement, and the continuous development of A&E services, the innovation can ensure a high standard of care for patients in urgent need of medical attention.

Dr Jeffrey LAI, Chief Manager (Quality & Standards), HAHO





# Enhancing Efficiency and Safety in AED through the Real-Time Location Tracking Systems (RTLS)

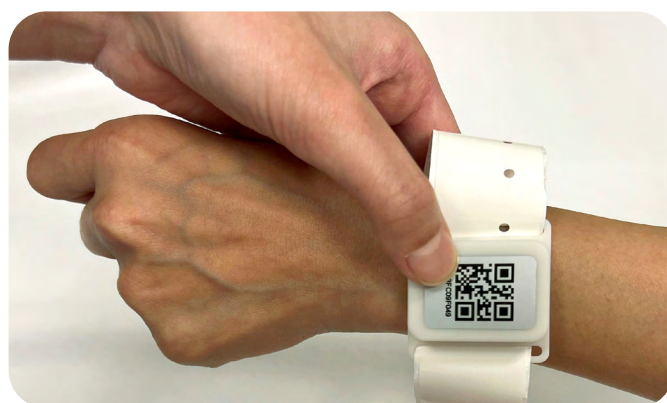
By Mr Siu On LAI, Dr Chun Tat LUI

Accident & Emergency Department, Tin Shui Wai Hospital

TSWH has implemented the RTLS in AED since September 2023. This system is riding on the Bluetooth Low Energy (BLE) technology and Wi-Fi to locate both high-risk patients and medical equipment. Once the nurse identifies the high-risk patients, including those with dementia, visual or hearing impairments, or at risk of self-harm, the BLE bracelet will be applied. This allows nurses to search for their locations through the system. Geofencing alerts are triggered if a patient leaves the emergency department, activating alarms on the nursing station dashboard and alerting on-duty nurses via mobile messaging in HA Chat.

During the triage process, the use of BLE bracelet is explained to patients, with informative pamphlets provided to ensure their understanding. The utilisation of BLE bracelet assists staff in locating patients more efficiently and ensuring their safety. A survey conducted among colleagues demonstrated significant time savings, improved workflow efficiency, and enhanced patient safety. Since the implementation, 99 patients triggered the alarm, and nurses successfully brought them to the designated area.

Moreover, RTLS offers significant benefits in medical equipment management. In emergency departments where time is critical, the ability to locate essential equipment such as defibrillators and ventilators can make a tremendous difference in patient care. By reducing the time spent on stocktaking and searching of medical equipment, healthcare professionals can concentrate more on patient care.



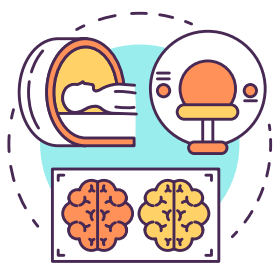
The implementation of the RTLS in the A&E department not only enhances patient safety but also empowers nurses to deliver more effective and timely care to patient. As Tin Shui Wai Hospital continues to refine the RTLS, it further improves patient safety and optimises operations.



## Editorial Comments

*The real-time location tracking systems are invaluable tools to improve patient safety at busy clinical settings as Accident and Emergency department. By providing real-time data on location of 'high-risk' patients (e.g. dementia, patients with suicidal risk, etc.), this can also enhance the staff's efficiency in delivering the services.*

**Dr Henry HUI, Deputy Service Director (Quality & Safety), HKEC**



# Assisted Analysis of Computed Tomography (CT) Brain by Artificial Intelligence (AI) in Accident & Emergency

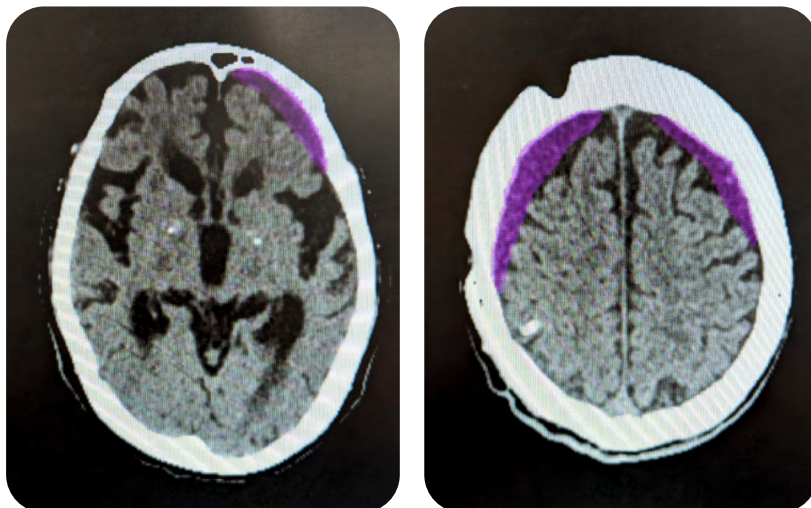
By **Dr LO Yat Hei Marcus**

Accident and Emergency (A&E) Department, Prince of Wales Hospital

AI is rapidly transforming every facet of medicine, with emergency medicine being no exception. In recent years, innovative AI solutions have been integrated into A&E to enhance the quality of patient care. Notable advancements include AI-assisted chest and hip X-rays analyses.

In cases of head trauma or patients experiencing sudden headaches, a critical condition to consider is intracranial hemorrhage. However, symptoms can be ambiguous, and signs subtle, particularly when the hemorrhage is small. Even with CT brain scans, bleeding can be obscure and easily missed, leading to misdiagnosis, treatment delays, unnecessary patient call-backs, and dissatisfaction.

To address these challenges, the COC(A&E) initiated the AI CT brain project, aimed at reducing diagnostic errors and improving the effectiveness of CT brain studies. Since April 2024, all CT brain scans performed in all HA A&E has been analysed through the AI CT brain portal. This system, designed for use by frontline doctors, acts as a clinical decision support tool internally and externally validated to detect intracranial hemorrhage and midline shift. Within minutes, the system highlights any target abnormalities, alerting doctors through CMS tagging. The AI CT brain portal has improved diagnostic accuracy, enhanced patient safety, and increased staff confidence.



*Abnormalities highlighted by the AI CT brain portal*

The continuous development of new AI tools promises to further revolutionise emergency medicine. A structured approach to integrating these technologies with existing systems and engaging frontline staff will maximise their benefits, driving advancements in clinical practice.

## Editorial Comments

*Artificial intelligence (AI) can rapidly assist clinicians in the analysis of CT Brain images to identify intracranial hemorrhage and midline shift which may be subtle or easily missed by human eyes. The integration of AI into the CT Brain imaging interpretation workflow represents a promising avenue for enhancing quality, safety, and efficiency in patient care.*

**Dr Victor IP, Service Director (Quality & Safety), KEC**

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