Title	Hospital and Emergency Centre Tracking Information System (HECTIS)
Organisation	Department of Health and Wellness, Western Cape
Innovation	The initial proposed solution was to assess the current manual paper-based registers and how it relates to the business process flow of an emergency centre patient, map it to an electronic application with additional value-based functionality for both patients and users, and lastly to iterate with Subject Matter Experts and Clinical Specialists working within the Emergency Centre (EC) environment. The HECTIS application has managed to achieve this initial brief and more. It follows the flow of a patient from the time of entry into the EC until the patient leaves the EC with further ability to extend into in-patient care. It has active daily users that range from Admin Clerks, Nurses, Clinicians as well as Hospital Managers. For each user base the application provides value-based functionality for management of patients in the EC. This ranges from clinical decision support to automated algorithms for triage. Over and above the direct management within the emergency centre it also provides a one-of-a-kind global view of EC pressures across the platform at a sub-district, district, or provincial level. This allows for real-time adjustment and equitable support across the acute emergency care environment. The 5 main facets of the application viz patient, clerical, nursing, clinician, and managerial interface provide, for the first time in the public sector, a concrete platform for extracting both historical and real-time transactional data and therefore acts as a basis for decision-making at every level – patient, EC unit, hospital and provincial departmental.
Impact	In terms of impact, HECTIS has managed to autogenerate a wealth of computable data that influences the operations, planning and manages the needs and requirements of any Emergency Centre. There are more than 50 operational reports instantly available within the application. Examples of some of the reports include Waiting Times, Triage accuracy, Nursing Shift Handover Report, and Disease Burden (ICD coded). To date there have been more than 2,000,000 patients that have been processed through the application, with a current average of ~80,000 patients now being processed every month. The application was rolled out in an opt-in manner and has been welcomed and subsequently entrenched in the business process flow of more than 30 emergency centres across the province, with more coming on board every month. For administrative staff it allows for rapid admission due to direct interoperability with the hospital administration system, clear overview in terms of who is in the facility and where they are located (particularly important to support family members of patients), and in-app communication as to who is waiting for a bed or for transport and how long they have been waiting for. For nursing staff, it simplifies the entire workflow process, automates the calculation of triage scoring, and even provides clinical decision support functions based on initial observations.

	For clinical staff, it immediately stratifies patients according to acuity and waiting time, has built-in functionality for flagging elderly, paediatric and vulnerable patients, and clearly highlights process delays. Furthermore, it also ensures real-time visibility of patient distribution and location and allows for multiple digitised forms to be generated. This essentially reduces the amount of time clinicians spend performing administrative duties due to the intuitive user experience design of the application and allows for more focus on the clinical aspects of care. The digitisation of these processes has resulted in a significant reduction in time spent performing manual capture. An example of this is the nursing handover report which historically demanded up to an hour of a nurse's time (twice a day) and now only takes approximately 30 seconds to generate. Over and above the digitisation of processes, the aggregate data emanating from reports within the application has been utilised for key quality improvement projects at a local facility level. These include improvements in waiting times by understanding and responding to where bottlenecks exist, improved triage accuracy by identifying nurses requiring further training, transparent communication between nurses and clinicians regarding patient acuity, and continuous adequate monitoring and evaluation. Another example would be the ability to understand and highlight the delay in admission from ECs towards resulting in fewer boarder patients waiting for prolonged periods. These service improvements would not have been possible without a real-time and ongoing digital system that manages the patient throughout the emergency centre and beyond.