St Vincent’s University Hospital wanted to create a more modern and efficient way of running its emergency department (ED), to support clinicians in safely and effectively managing patient pathways throughout the department. The hospital, which has a mission to continue to achieve excellence and relevance in healthcare delivery, partnered with IMS MAXIMS to implement a functionally rich, easy-to-use ED system that fully integrates with other hospital systems and provides a comprehensive suite of reporting analytical tools. The new software, live since November 2015, allows real-time tracking of a patient journey and provides an instant overview of a patient’s status, while improved reporting now measures key performance targets set by the Health Service Executive (HSE).

The challenge
The rise in demand of healthcare services in Ireland has heightened the immediate requirement to coordinate care as effectively and efficiently as possible. As one of the country’s busiest EDs, St Vincent’s identified technology as a key enabler for transforming the care delivery and looked to upgrade its existing IMS MAXIMS ED system, which had been in place for 14 years. The software had served the department well, but the hospital had since outgrown its functionality and needed something that would give consultants and their teams the capability to maximise the operation of the ED.

Becoming more efficient would allow clinicians to reduce the time spent on unnecessary administrative tasks and increase contact time with patients. It would also help to facilitate communication between departments, with patients and other healthcare providers, such as GPs, while further saving staff time.

At the time, the ED was planning to become a much larger department, having experienced significant rises in emergency admissions. It had grown from just over 33,500 attendances back in 2002, when the original IMS MAXIMS system was installed, to around 50,000 in the last two years. This move to a larger location presented an ideal opportunity to change to a more powerful, modern and flexible ED system that could share information across departments and would underpin the department for many years to come.

The solution
St Vincent’s worked closely with IMS MAXIMS to install and test new functionality of the ED system which would go on to transform the way the department operated.

Clinically-led Change
A multidisciplinary team involving consultants, senior nursing staff and administrative staff ensured the
system would meet the hospital’s needs, while dedicated project managers at both St Vincent’s and IMS MAXIMS worked alongside each other to ensure the project met the clinical requirements of users.

Both teams recognised that faster access to patient information along with streamlining and improving pathways could help gain vital seconds and minutes, and reduce delays on a patient’s progress through the ED, supporting more timely clinical care. Professor John Ryan, Consultant in Emergency Medicine at St Vincent’s said: “Access to demographic data on our patients allows us to deliver timely critical care to injured and ill patients that attend our department with emergencies.”

**Usability**

Usability was a major requirement and teams focused on reducing clicks and increasing software integration to lower the number of times staff had to log-in to disparate systems. In addition, hospital reports, training videos and links to third party systems were integrated into the solution to provide all resources in one place.

**Improved resource planning and reporting**

By enhancing the previous system’s reporting facilities, St Vincent’s has greater visibility of trends in admissions from ED, which can produce useful insights into improving areas of the patient experience. Professor John Ryan said: “The tracking system is highly valuable for ourselves and visiting physicians in locating patients in an environment where there can at times be in excess of 100 patients being cared for. In a data driven department where we place so much emphasis on audit and research, the search facilities and report generation gives us comprehensive access to information on our business, allowing us to plan staffing and resources that matches the demand.”

Reporting to local and national requests to provide new patient pathway information is an important function to help measure the ED’s performance. The hospital can now run Patient Experience Times reports for the HSE or reply to ED task force requests quicker and more easily, by linking the reporting functionality directly to the discharge process.

**Seamless data migration**

The hospital chose to upgrade to IMS MAXIMS latest ED module and implement, what in practice,

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**The new system provides**

- Real-time, configurable patient tracking, including display of breach time indicators, KPIs, alerts, re-attendance, prioritisation of patients
- Triage work-list and assessment, supporting multiple triage protocols, highlighting urgency levels, allocating nursing staff and providing decision support to define pathways
- Notification of new results and clinical notifications, previous history, incoming arrivals
- Clinician work-list and assessments, support the streamlining of patients for clinician intervention
- Discharge summaries that include future care plans, support network, medication, outpatient booking and clinical outcomes

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**Professor John Ryan, Consultant in Emergency Medicine**

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was a completely new application. This involved migrating 16.5 million records from the previous system, creating new interfaces and a large amount of data mapping testing.

The project team built a new bi-directional interface for the ED, to ensure clinical and administrative data could move seamlessly between the hospital’s Patient Administration System (PAS) and other hospital systems, and be available for clinical use at the point-of-care. In addition to reducing the amount of manual processes performed by administration staff, the interface updates Patient Master Index and Admission Discharge and Transfer activity in real-time, to help coordinate care more efficiently, and reduce the risk of any unnecessary delays in transfer or medical errors.

“Without this system it would be impossible to treat and care for patients across the different zones of the ED. As an extremely busy department, we required an IT system that was flexible to adapt to the evolving needs of emergency medicine. From the start we had the confidence that IMS MAXIMS could deliver the system,” explained Dermot Cullinan, Director of ICT at St Vincent’s University Hospital.

The benefits

More efficient care

The new system ensures St Vincent’s can manage the demands on the department 24/7; the tool is rapidly becoming the eyes and ears of the department. Senior consultants remain in control wherever they are in the hospital, accessing the system on iPads to gain an overview of staff movements and using it to deliver care to patients within specific timeframes. This real-time view of the department means issues can be identified quickly and steps taken to avoid them or respond.

“The ED team has an integrated system that has facilitated mapping of the patient journey through the department from start to finish, and give a detailed view of what is happening with patients at any given time. The comprehensive tracking capability of the system allows medical staff to have a complete view of patients from anywhere in the department and beyond, ending the reliance that would have existed with a paper-based or white board oriented solution,” added Dermot Cullinan.

Reporting on department performance has also been significantly improved – St Vincent’s no longer has to use third party tools to generate reports and wait weeks for the results. The new system has its own reporting database which means detailed reports are created within hours. This allows staff to conduct a quick and efficient handover during the morning and evening patient assessments while externally, they allow St Vincent’s to report to the HSE on patient experience targets including wait time and triage time.

The project in numbers

- 50,000 ED attendances per year
- 24/7 real-time view of departmental activity
- 14 year-old system upgraded
- 90 staff trained
- 16.5 million records migrated within 4 hours

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The faster and detailed reporting function means St Vincent’s can predict trends and analyse admissions by the hour allowing hospital staff to identify areas of improvement for the patient experience, and implement appropriate and rapid changes in hospital practice.

“It’s a powerful tool for making sure we keep on top of what’s happening within the department. Its advanced reporting capability is helping us to energise our data, allowing us to move from reactive, historical reporting to proactive modelling of the ED, its relationship with the wider hospital and the community,” concluded Dermot Cullinan.

One example of the streamlined core activity is the generation of discharge notes, as Professor John Ryan explains: “We welcome the discharge letter facility which pulls together the presenting complaint, investigations, treatment and diagnosis into a functional letter for patients’ GPs on discharge.”

Reducing clinical risk

St Vincent’s now has a modern and effective solution that enables nurses and clinicians to better manage patient journeys through the department. The team has designed and built a number of Integrated Care Pathways (ICPs) in the new software including Waterlow, Sepsis, Falls, MEDEL, MITT. The extensive training St Vincent’s received from IMS MAXIMS means the hospital has built an in-house capability to quickly and comprehensively build and maintain existing ICPs, as and when required.

The new software arms clinicians with patient information securely, wherever and whenever it’s needed, including the urgency of each case, the length of wait and any risk factors. It provides everything that St Vincent’s needs to ensure patients follow the best possible pathway and helps avoid waiting time breaches with on-screen alerts. The information captured is readily available for HCPs should a patient re-attend in the future, reducing the likelihood that a patient will have to re-tell their medical history numerous times to different clinicians.

The move away from paper-based care has helped eliminate issues created by missing patient notes, mislaid orders or results and unreadable handwriting. St Vincent’s now has a much more complete patient record, accessible by all appropriate ED staff, supporting the delivery of safer, better care.

**Future plans**

In terms of future plans, the ICT team is already receiving requests and ideas from the ED for what it would like to see coming next – a positive move which will help the system remain in tune with business needs. Internally, St Vincent’s plan is to move the ED to a completely electronic health record in the next 12-18 months and has already started the process.

This move aims to significantly reduce the current clerical workload shared by the ED multidisciplinary team. Physicians will be able to record their notes electronically with tablet devices at the bedside and from these same notes automatically generate discharge letters and prescriptions – optimising the legibility and quality of medical records in the process.

The fully customisable software will allow the department to extend the functionality to include ICPs, nursing triage and assessment/reassessment documentation, early warning score functionality, patient notes and handovers, with the ultimate aim to become a paperless department in the future.

With a view to integrate care outside the hospital, the new ED module will be extended to St Michael’s in Dun Laoghaire later in 2016. Beyond this, St Vincent’s plan to generate electronic messaging of discharge summaries and clinical records to allow continuity of care into the primary sector.

“From the start, we had the confidence that IMS MAXIMS could deliver the system. The new system is the cornerstone of how the ED operates – it has simplified and sped-up many core activities and it would be impossible to manage the department without it”

Dermot Cullinan, Director of ICT

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About IMS MAXIMS

IMS MAXIMS is a pioneering clinical technology specialist committed to improving the coordination of patient care in healthcare environments. Its expert team works in partnership with healthcare organisations to identify and deliver tailored, sustainable, information sharing technology solutions, which support the provision of safer and more efficient care for current and future generations.

The organisation’s 30-year history of collaborating with clinicians has resulted in the development of proven, flexible, user-friendly, safe and interoperable open source electronic health record software.

With an ambition to meet today’s healthcare challenges, IMS MAXIMS makes its software available without a license fee and offers flexible options to support healthcare providers with implementation and maintenance. Its open technology has increased collaboration in the development of the software which has resulted in better clinical engagement and empowerment across hospital wards and departments.

Deployment times are fast, meaning clinicians and patients can benefit from efficiency and safety improvements in rapid time. It is used across 180 healthcare organisations and by 30,000 users each day to provide clinically-led technology solutions for over 13 million patients.

Pioneering approach

“St Vincent’s ED is one of the country’s busiest Emergency Departments, providing essential services to the local community and so its staff needed the best solution available for this mission critical project. Our pioneering approach to collaboration has been fundamental to the success of the project and can be easily replicated across Ireland, to help other hospitals in addressing the increasing demand on services. We look forward to helping our customers and the country as a whole advance digitally and reap the benefits of clinical transformation in this era of growing need on services.”

Shane Tickell, CEO of IMS MAXIMS