MEDICAL RECORD SCANNING

An exemplary step for hospitals to achieve EMR status in a shorter timeframe.

INTRODUCTION

Electronic Medical Records (EMR) is synonymous with quality of patient care. EMRs are increasingly positively impacting patients and is good news for healthcare providers who are focused on delivering improved patient experience. In today's accelerated transformation to digital healthcare, having EMR is integral to patients taking an active role in managing their health. Providers and doctors using EMRs are believed to enhance their delivery of quality care that is based on evidence and good historical information.

It is becoming a necessity for healthcare providers to have a comprehensive EMR of their patients, which improves the communication with their patients, enables better coordination of care and makes it more inclusive in the care provided.

Patients too consider EMR access when choosing a healthcare provider. Having a comprehensive EMR of the patient is no more a privilege but a necessity for good patient care. It is the basis to good, quality patient care that minimizes medical errors and improves care.

CHALLENGES IN DIGITIZING MEDICAL RECORDS

Globally the trend for hospitals and clinics is to embrace digitalization for patient care. However, this hinges on many factors which can be challenging. It includes the costs of digitalization, the change management to get the clinicians to use the system and very often the biggest issue is choosing the right vendor for the implementation and persevering through the processes. Malaysia embarked more than 25 years back on this journey to create our first paperless hospital. Even then, we have not achieved the aspiration to transform all our hospitals, especially public hospitals, to be fully electronic. The challenge is telling but is surmountable with good solutions and implementations.

Then the other bigger challenge is the past medical records which are voluminous. How do we convert these records to electronic and make them part of the patients EMR? One hospital has done it successfully, and we wish to find out more about their implementation and the benefits that have ensued. For the successful implementation of a digital solution, many factors must come together cohesively. This involves the solution provider, the solution and support, the implementation, and the change management for acceptance and usage of the solution. Only collaborative efforts between the vendor and client will result in a successful implementation as intended.

THE IMPORTANCE OF EMR IN PATIENT CARE AND EFFICIENT OPERATIONS

Data in healthcare saves lives. It governs our lives more than ever. Collecting data on disease, tracking trends, helps address a medical concern by availing a comprehensive view of patient's health. Having a comprehensive EMR is considered as customer engagement best practices and is now more pronounced in the era of pandemic. Traditional care model must evolve to meet the consumer needs, where they are, the channel that they prefer, and at the very moment when they need it. This is only possible if we have the electronic medical records (EMR) to support the care which is more consumer centric.

The best possible patient outcomes require having the right communication infrastructure and engagement practices. For evidence-based care, the providers of care need to have the complete view of the patient's past medical records before diagnosing and prescribing the treatment to ensure better patient outcomes.

Healthcare is personal and patients do not want to have repeat information which they may not remember or are unable to communicate with each new encounter with the doctor. Best practice ensures the information is correct, complete, and current at the time of the interaction with the doctor.

Thus, EMR plays a vital role in achieving a patient-centric model of care considered best practice in medicine that improves good outcomes. Island Hospital in Penang had recently embarked on this journey to make every effort to create EMR for its patients. The hospital collaborated with Docu Arch Sdn Bhd to achieve their objective.

InfoMed was pleased to interview the Managing Director of Docu Arch Mr Simon Chew and Island Hospital Chief Operating Officer Ms Stephanie Lee to get their perspectives on the project, its implementation, and the outcome.

Simon Chew, MD Docu Arch Sdn Bhd

InfoMed: How does your solution (Medical record scanning services) help hospital and the EMR project?
Simon: Docu Arch is not a Hospital Information System (HIS), and we are neither an Electronic Medical Record (EMR) System provider. We provide Medical Record Scanning Services and Medical Record Management System to enhance the clinical process and EMR process. By actively scanning medical records into a digital version, it allows consultants to view past medical records from the system directly. Thus, there is no waiting time, as in the case of physical medical records.

Our GloboCare Medical Record Management System allows integration with the HIS and EMR systems, thus facilitating the consultants' easy access to the scanned medical record and smoothens the EMR process.

InfoMed: In total, how many medical records were scanned in this project?
Simon: We scanned a total of 24 million pages and about 645,000 medical record folders.

InfoMed: What were the resources Docu Arch applied for this project?
Simon: We have allocated 12 scanning teams which consist of Project Manager, Project Consultant, Site Supervisor, Project Reporting Manager, and more than 50 experience staffs. The investment in hardware and software costs more than RM550,000 including Heavy Duty Document Scanners, Large Format Scanners, Servers, Computers, Medical Record Inventory Software, Quality Checking Software Capturing and Indexing Software.

InfoMed: What is the accuracy of the scanned documents/ records?
Simon: The accuracy rate is 99.5%. Docu Arch scanning has two layers of quality checking. The first layer is eyeball checking, to ensure 100% it tallies with the physical document scanned image.

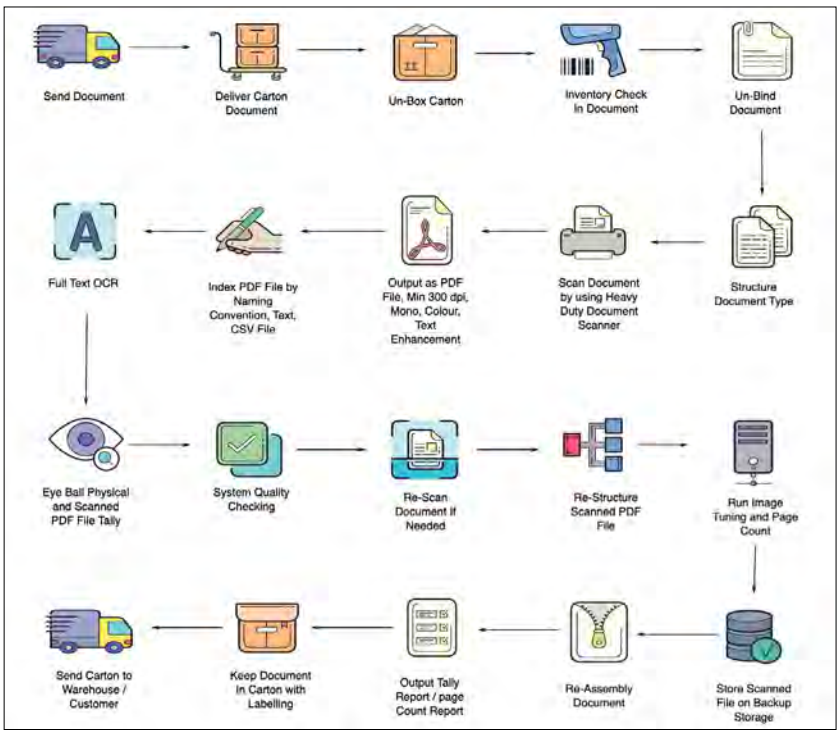
The second layer is tally reporting on every stage. The stages are from collecting medical records, unbinding and structure the medical records, scanning the medical records, indexing the file, and return the medical records.

InfoMed: How fast can the scanned records be made available in the EMR for a consultation?
Simon: GloboCare system responds immediately, as the size of the scanned files are small, and the quality is high.

InfoMed: Do you deploy the scanning services centrally in the hospital or is distributed to individual floors or clinics?
Simon: The full medical record and loose note scanning services are located centrally in the medical record department.

InfoMed: Indexing is a critical step in the abstraction of patient information. How is the indexing done for the documents scanned?
Simon: Different customers have different requirements, e.g.

- One medical record folder as one pdf file.
- In-patient admission and discharge



Medical Record Scanning Process

summary and out-patient having multiple categories.

InfoMed: Do you scan the image files like x-rays, MRI etc.?
Simon: We suggest only to scan the x-ray report, ECG report, and ultrasound report.

InfoMed: What were your biggest challenges in executing this project?
Simon: Our most significant challenges for this project were:

- To ensure that we meet the daily KPI for the scanning process while minimizing the output error rate.
- Tracing and tracking of the mistakes done by the scanning team. We had our reporting team to monitor daily and keep track of the scanning team's output.

InfoMed: Why did Island Hospital select Docu Arch as the solution provider?
Stephanie: Docu Arch is a trusted company with a proven track record in managing similar projects in the healthcare industry involving sensitive and confidential information.

InfoMed: For your patients, do you consider this project enhances your patient-centric care?
Stephanie: The medical records digitization and electronic medical records (EMR) project are due for completion in just over a year. This is crucial for the hospital so as not to spend our precious time, money, and resources with unnecessary administrative work. Moreover, the mobilization of staff is a challenge given the hospital expansion and extension. The EMR project is essential in ensuring that our medical team, nursing support function and our front-liners are not overwhelmed with the administrative tasks that come with managing paper medical records. They can devote more time to our patients and ultimately positively improve patient care.

Additionally, with EMR, consolidated records of our patients would mean better accessibility, that is timely and offers a comprehensive overview of their health conditions, and to eventually tailor the treatment for a better clinical outcome.


Stephanie Lee,
COO Island Hospital

InfoMed: What were the challenges in the project, and how did you manage them?
Stephanie: A small IT team

Unable to deploy consistent IT support to every department, we used a tiered system support approach where the training is cascaded down the line. The so-called "super users" are trained by IT and they would in turn train the staffs who report to them.

Managing change

It is inevitable to have users who are used to the paper-based system opine that, "if it is not broken, why fix it?" Therefore, it was quite a feat to convince users to adjust to the new system. However, the pandemic, resulting in lower patient load actually allowed our staffs to learn at a less-hasty pace, and we had more time for training. We also had a chance to deploy our IT staff on-site to train our clinicians with their first patient using EMR.

Interface with FIS, PACS and LIS

We went through many rounds of report verification and worked closely with each vendor ensuring the systems interfaced with our EMR. We were able to stabilize the interface within a month of going live.

On-site support and the pandemic

The cross-border restrictions during this pandemic denied us the on-site support from our vendors. Thus, we had to resolve any arising issues on our own and with remote assistance from our vendors.

User familiarization and finally acceptance

Users were unfamiliar to navigate around the system, and this required time, hands-on usage, and repeated training. It needed a change in the mindset, and a little struggle at the beginning until they got familiarized with the system.

InfoMed: How was the support from your clinicians and their feedback as you now have the project completed successfully?
Stephanie: Clinicians fully supported the project. They have tried and tested the system, which evidently is more convenient and effective in patient-management. Our clinicians are now able to conduct teleconsultation with few clicks and do not have to prepare in advance the patient's files and records. They can remotely monitor and evaluate their inpatients' conditions way before their ward rounds, which saves their time.

InfoMed: How it has changed your operations and its efficiency?
Stephanie: Reducing our dependence on paper and moving towards a paperless environment is the future that will improve the overall safety and reliability of our hospital in patient care. The increased mobility of our patients' information (and reduced reliance on paper records and physical labour) enables the hospital to:

- Reduce the margin for human error by reducing the reliance on human handwriting and mathematical errors.
- Pick up errors in the system when overlooked by staff. The system immediately alerts, e.g. over-dosage of medicines prescribed or allergies.
- Reduce the time patients spend in the hospital through faster and more efficient workflows.
- Conduct teleconsultation conveniently. Doctors can now access the patient files and information on the spot rather than wait for the physical reports.

InfoMed: Waiting time is a perennial issue in patient care, and how has the project benefited the hospital?
Stephanie: Reducing reliance on human handwriting

Our doctors' handwriting may, at times be illegible. This consumes their own time when reviewing past notes, and at times the pharmacists too need to call the clinics to reconfirm the prescriptions. By reducing the reliance on handwritings, it has translated to a quicker visit for our patients from consultation to going home.

Remove retrieval of information

Remote retrieval of information has significantly sped up with the use of EMR. It demands less time chasing for charts and reports and ensures legible content. Therefore, with EMR, we can provide faster treatments and better diagnosis. With a central repository of patient records, time (and cost) is significantly reduced by decreasing paperwork, less duplication of tests and improved, coordinated care. Retrieval of records is quick and easy, without having to depend on physical transportation of patient files which can be laborious and time-consuming, especially when it needs to be transferred, copied, and stored. Paper-based files are easily destroyed or manipulated and are impossible to track those who had accessed it. As such, besides reducing the waiting time for patients, we have also increased the safety and security of our patient data.

Billing system

The EMR is patient-centric and coordinates the entire journey for the patient from admission to discharge. With built-in medical billing, a patient's discharge process is considerably faster as we can quickly consolidate his/her charges for the final bill.

Integration of our online appointment-making system

Integration of our online appointment-making system and the hospital's EMR had enabled real-time online confirmation as opposed to when appointments were made offline. Through the EMR, the individual clinics can easily keep track, schedule a follow-up, set reminders, automatically notify patients, and view the doctor's schedule all in one easy glance.

The **in-built easy-to-use templates, pre-filled forms and shortcuts reduce the time needed to fill in** lengthy reports and documents, allowing our doctors more time to evaluate a patient's health condition. Easy accessibility with a single click has made it very much more convenient for our consultants.

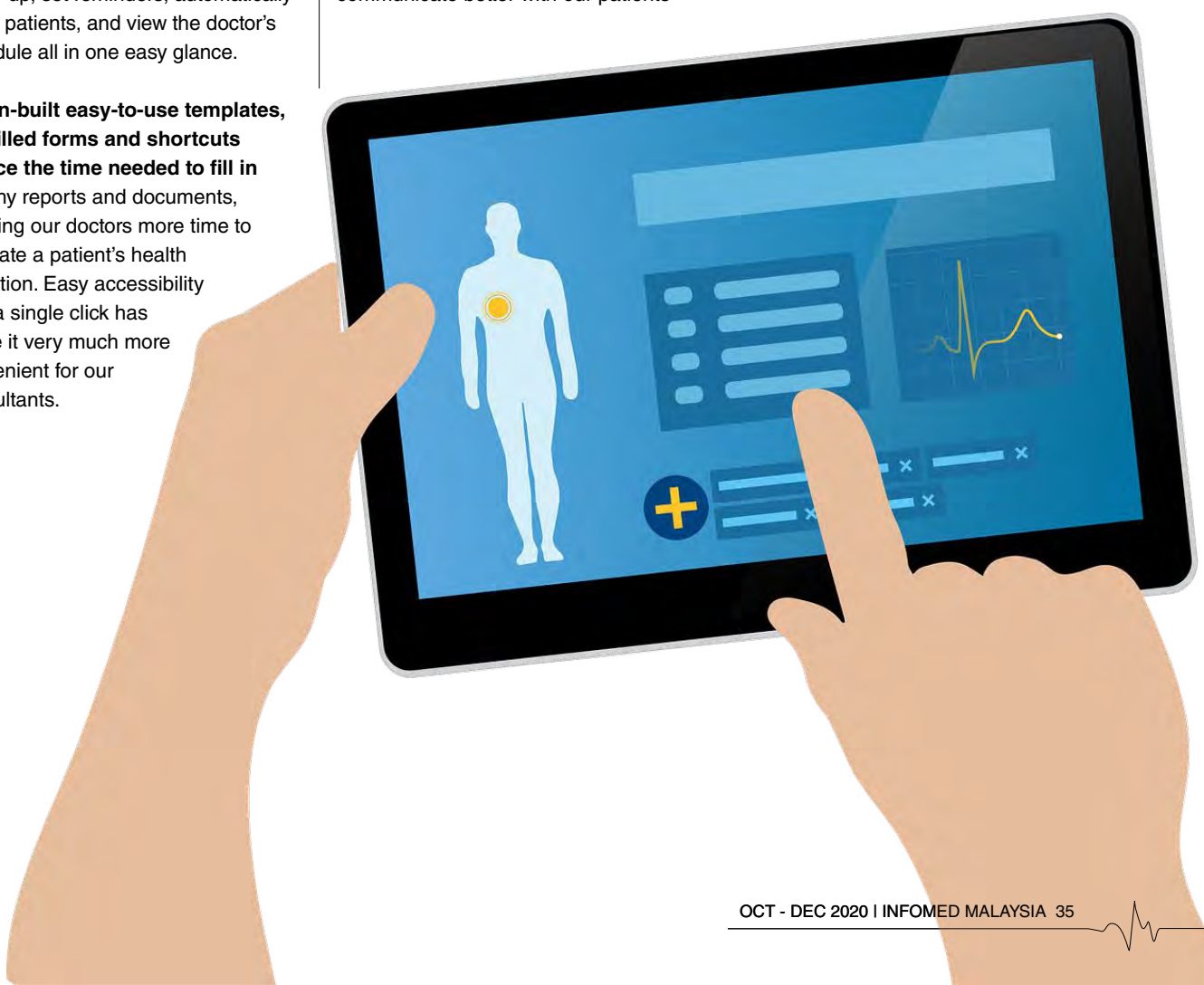
InfoMed: To what extend is Island Hospital paperless now post-project implementation?
Stephanie: We would say that we are more than 90% paperless. We are aiming to be significantly paper-less and not entirely paperless, as we still need to comply with statutory regulations on maintaining patient data. For now, all clinical notes and records are paperless, while consent forms which require patient's signature, are still on paper format.

InfoMed: What is your significant achievement on completion of this transformative project?
Stephanie: Patient experience

Overall, we have been able to communicate better with our patients and have their essential information readily and easily accessible.

The waiting time at clinics has significantly improved as the retrieval of patient's health records can now be accessed within a click compared to physically retrieving it. Considering the time saved, clinics are now able to slot in walk-in patients without prior appointments.

As the records are accessible to multiple doctors our patients consult, we have managed to decrease duplication of tests which may place an unnecessary burden on our patients. Importantly, all the patient's tests, imaging results, as well as allergies, are easily accessible in the



system. This allows the consultants to have a holistic overview of their patients.

Now by having improved communication with our patients, we can reduce our turn-around time responding to queries, be it clinical or billing inquiries. The discharge and payment processes have also seen shorter waiting time.

Better clinical and medical outcome

The EMR has improved communication between our clinicians and their patients' medical history as a whole, rather than a snapshot preview. Thus, enabling a more in-depth evaluation across different disciplines, to achieve a more accurate diagnosis, better clinical and medical outcome.

Additionally, the EMR has empowered our doctors to easily follow-up with their patients and provide continuity of care. Altogether, our doctors are entirely in control, being able to pull up the test results of patients for review during the consultation. This saves a lot of our doctors' as well as patients' waiting time.

Accessibility to clinical notes and records has also improved the quality of our doctors ward rounds for their patients, by having the information readily available to make a better and clearer judgement on the patients' conditions.

Compliance

Patients' records contain personal information, therefore, compliance with the PDPA regulations is an absolute necessity for any healthcare organization. By digitizing medical records, we are in total compliance with PDPA regulations as per the accessibility to patients medical records which are restricted to authorized users only.

Savings

Digitizing the documents has freed up our physical storage which we can be utilized for clinical purposes and the wellbeing of staff and patients.

The ongoing costs for storage, retrieval and filing of paper documents has been significantly reduced by changing the processes and digitizing medical records. IM