



India PKI Forum

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CASE STUDY

Healthcare Institution goes Paperless by
Automating its Patient Onboarding and
Discharge Process

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Helping Healthcare Institutions go Paperless in their Patient Onboarding and Discharge Process

Industry

Healthcare Industry

Business Matters

One of the largest healthcare brands in India having international presence goes completely paperless by signing consent forms, pathological test reports, cash memos from chemist etc. using Digital Signature and Workflow capabilities and integrated it with the hospital's existing Hospital Information System (HIS).

Business Needs

Hospital wanted to streamline its patient onboarding and discharge process so as to reduce time spent by patients in doing paper-based formalities. This was achieved by eliminating manual paper-based processes by a digital solution that allowed all the stakeholders to sign digitally.

Approach

Deploy an integrated solution to digitally sign and encrypt documents that are legally binding and guarantee authenticity, integrity and confidentiality of data.

The company should be able to use the solution with the capability of having multi-party and real-time signing of documents such as discharge summary, cash memos from Hospitals/Chemists, pathological test report, certificate stating nature of operation performed etc. In a phased manner the organisation would integrate all its internal as well as external applications with to facilitate the signing of documents.



Background

For a patient, the hospital had to maintain a multitude of documents such as consent form, certificate from attending medical practitioner, cash memos from the chemist, surgeon certificate stating nature of operation, pathological test report etc. manually signed in the physical form.

In addition to that, health insurance claim process was even more convoluted, time-consuming, error-prone and paper intensive. Generally, at the time of hospitalization, a preauthorization form was printed, signed and scanned multiple times. The same process was repeated with even more ancillary documents during the patient's discharge process. *Thus patient admission and discharge was a lengthy and time-consuming process.*

Outlined below are key areas where significant improvement to streamline document workflows with respect to Hospital Information System would be made:

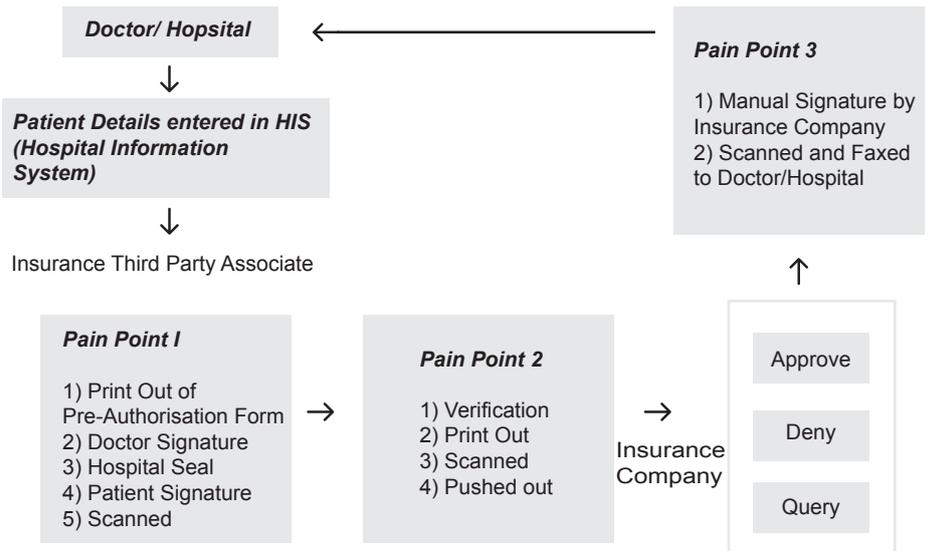
- Doctors would be able to sign preauthorization forms digitally and same would be forwarded directly to Insurance's third party associates.
- The hospital would be able to encrypt and decrypt sensitive documents such as patient's medical records, sexual orientation, physical, psychological and mental health condition etc. as required under electronic Protected Health Information (ePHI) using eVault service.
- The solution would be integrated with Hospital Information System using Web service APIs.
- The hospital would be able to send digitally signed documents and reports as necessitate by insurance companies in a smooth and efficient manner. This will lead to faster claim settlement.
- Digitally signed documents would be instantly archived and retrieved as and when required. This would prevent manual intervention and misplacement of documents.

Digital Signature Technology

The Digital Signature Technology works on the Public Key Infrastructure framework which uses a Cryptographic Key Pair – Private and Public Key for secure access and transmission of Information.

Digital Signatures are generated by the issuer for the client in a secure device.

The following flowchart depicts pain points of cashless but paper intensive claim process



Benefits

The Hospital reaped significant benefits by implementing digital signature based workflow signing.

These include:

- Faster Insurance claim processing
- Better visibility and accessibility of documents for patients
- Legal non-repudiation thereby reducing frauds
- Signing and approving documents anywhere, anytime
- Faster turnaround time, increased employee efficiency, productivity and transparency
- Meeting compliance & regulatory requirements
- Online and Offline signing capabilities
- Importing files from multiple clouds and file storage services like drop-box, Google drive
- Tracking real-time signature progress on documents initiated for signing

Solution

The Secure Paperless Office solution was implemented to enable Digital Signature based approvals for the following workflows:

- External flows for patient admission & discharge
- Internal flows between finance and billing department

The solution was integrated with the HIS application over Webservice APIs for digital signing of documents

Deployment was done on premise which allowed the company greater degree of control and customization and also allowed the company to retain data on premise to maintain confidentiality

- For individual signing, individual digital signature certificates were issued to Authorized Signatories
- For Bulk Signing, Class 3 Document Signer Certificate was used which gave a higher risk assurance to relying parties for a critical use case such as Invoice Signing
- From a security and risk standpoint, a Hardware Security Module was used to store the Class 3 Document Signer certificate

The paperless office solution uses the following broad modules:

- On-premise Digital Signature enabled workflow management solution used for defining paperless workflows
- **Hardware Security Module:** Protect the cryptographic infrastructure of some of the most security-conscious organizations in the world by securely managing, processing, and storing cryptographic keys inside a hardened, tamper-resistant device
- **Class 3 Document Signer Certificate** To sign critical documents such as invoices
- **Authentication server** to automatically validate the signed documents that was received by the organization