

Requirements Specification Document for eSIM-MR 1.0

1. Overview:

This document describes the requirements for the eSIM-MR system, version 1.0.

1.1 Current System

The current system used by most doctors in clinics & hospitals of USA for keeping medical records has following challenge:

- Documenting all medical records in electronic format is the need of an hour by law.
- If records are not kept claims will not pass which results in court cases or law problems.
- It is now clear that patients will go more to low cost clinics and will minimize the use of costly hospitals. So there is a huge requirement for small clinics for such system in USA
- Coding for insurance billing is major problem. Coding is manual, slow & costly.
- Forms such as 1500 for Hospitals & UB92 for clinics are prepared manually.
- There is a manual workflow of physical as well as electronic documents. All documents are generated by doctors in form of sound files in tape recorders which is then Medical Transcribed to text file, other documents like x-rays etc. are stored in physical form in form of medical records. It is quite cumbersome to keep, search or retrieve these records.
- The medical record documents are used to prepare insurance bills by coding/billing person and then send to clearing house for presenting to insurance companies. Entire cycle lasts for 90 days. This huge cycle time creates big Accounts Receivable problems.

1.2 Objectives of the Proposed System

The aim of the proposed system is to address the limitations of the current system. The requirements for the system have been gathered from feedback obtained from Mr. Prakash Desai of Simplify MT Inc. USA during his visit to India. Following are the objectives of the proposed system:

- The system should provide facility to record, store, retrieve & search medical records in electronic mode which can be accessed using web technology
- The system should provide coding and billing facility in standard formats like UB92 for clinics and 1500 for hospitals
- The system should provide workflow facility so that documents travel as and when required between different users like Doctors, Nurses, Patients, Admin staff, Clearing House and Insurance Companies
- The system should provide admin facility to control Roles, Rights & duties for end users.
- The system should be flexible enough so that it can be modified without programming.
- Entire system should be available on the web (Intranet/Internet/Extranet).
- System should accommodate a wide variety of clients in different geographical areas.
- System should provide flexible deployment on client side with net connectivity by limiting resource requirements to Browser, System URL, and Username & Password only.
- The system should be built so as to make components reusable for future developments.
- The system should provide highest security using latest technologies
- The system should reduce existing cycle time by at least 20%.

2. FUNCTIONAL REQUIREMENTS

2.1 System Requirements

- System should provide Self Registration facility to Patients online via web or from Clinic based Kiosks or front office admin staff.

- System should provide Self Appointment facility to Patients online via web or from front office admin staff via phone
- System should provide waiting room check-in facility as patient self-check-in facility via Kiosks
- Systems also allows facility of Prescription Refill to patients via online web & Kiosks.
- System should provide Patient vital statistics entry screen to Nurses to enter vital statistics for each patient before encounter.
- Nurses should make patients ready for encounter & doctors can see encounter ready patients list and should be able to call each patients as per their turn.
- System should provide facility to Doctors for entering diagnosis or encounter SOAP data.
- System should also allow doctors to enter/order Prescription, Lab test or Referrals.
- System should also allow doctors to do Prescription refill approval or rejections.
- System should allow billing staff to prepare bills as per UB92 format for clinics.
- System should allow entry of codes automatically as well as manually in the bills
- System should provide bill-printing facility as per requirement standards.
- System should provide role based user defined menu based portals for each users like Doctors, Nurses, Admin staff, Patients etc. with standard portal facilities like News, Events, Links, Workroom or Clinic Guidelines etc.
- System should provide necessary reports as per requirements yet to be mentioned.
- System should maintain coding database as per requirements yet to be mentioned.

2.2 **Screens:** Following screen templates was designed and approved at the time of requirement study. This screens fixes color scheme, navigation scheme & overall operation guidelines for entire application.

Login Screen: Used to login. This is the 1st startup screen.

The login screen header features the 'esim MR' logo on the left. To the right of the logo are three input fields labeled 'User Name', 'Password', and 'Institutions'. A blue circular button with the text 'GO' is positioned to the right of the 'Institutions' field.



The splash screen will go after a delay of 10 sec. The next screen will be general portal screen like News, Events & Links. The second screen is not shown in this page.

Main Menu Screen / Patient Register / Patient Search Screen: This screen shows main menu, which will enable or disable as per user roles. Below menu is screen for Patient Register. # sign is used to show encounter data for selected patient. + sign can help you to edit that patient record, - sign can help you to delete the patient record. Screen also has facility to provide wild card search for patients and directly go on encounter screen. You can also navigate Patient Register page wise. SortASC & SortDESC provide sorting facility. Plus there is facility to add new patient. All the functions #, +, -, Add are controlled by system admin at the time of designing user roles. They are provided as per requirements of each user.

The screenshot displays the 'Patient Register' web application interface. At the top left, there is a logo for 'esim MR'. To its right is a search bar labeled 'Search Patient' with a 'GO' button. Further right are navigation buttons for 'Schedule', 'Register', 'Encounter', 'Help', and 'Home'. Below the search bar, the page title 'Patient Register' is shown. A status bar indicates '8 records found' and 'Register Index page 1 of 1'. The main content area is a table with columns: Patient ID, Last Name, First Name, Nick Name, Email, City, State, Employer, and Tools. The 'Tools' column contains icons for search (#), edit (+), and delete (-). Below the table, there is a 'Notes' section, a date and time stamp '10 / 1 / 02 7 : 23 27 pm', and an 'ADD' button. At the bottom, there is a search bar with 'Search' and 'in Column' fields, a 'GO' button, and a 'Select Page Number' field with a 'GO' button. Finally, there are buttons for 'Sort ASC', 'Sort DESC', and 'Home / Refresh'.

Encounter Screen: This screen provides all data regarding medical records of patients

esim MR Schedule Register Encounter Help Home

Encounter

Encounter Data Management Expand **Patient Record navigation**

| Demographics / Patient Summary | | | | Record No. | Record Date | Description | Format |
|--------------------------------|--|----------------|--|------------|-------------|-------------|--------|
| Name | | Age | | | | | |
| Sex | | Street Address | | | | | |
| City | | State | | | | | |
| Zip | | Insurance Plan | | | | | |
| Multiple Plan | | Policy No. | | | | | |
| Resp. Party | | Expire Date | | | | | |

Patient Registration: This screen provides facilities to enter new patient records

esim MR [Schedule](#) [Register](#) [Encounter](#) [Help](#) [Home](#)

Edit Patient Document

Header Notes

| | | |
|------------|----------------------|-----------------|
| Patient ID | | |
| Last Name | <input type="text"/> | (Select Only) |
| First Name | <input type="text"/> | (Date Only) |
| Address | <input type="text"/> | (Text Only) |
| Email | <input type="text"/> | (Text Only) |

Update Document

| Insurance Co. | Street Address | City | Tel. No. | Card Holder | Relationship | |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|------------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | Delete |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | Delete |

[ADD](#)

2.3 **Reports:** Detailed requirements pending

3. EXTERNAL INTERFACE REQUIREMENTS

- **Interface with HIPAA & HL7 Standards**

4. OPERATING ENVIRONMENT REQUIREMENTS

4.1 Hardware:

Minimum P4 based server with 256MB RAM and 10 GB Hard disk
Clients with Celeron or P2 with 64MB RAM and 10 GB Hard disk

4.2 Software:

Server: IIS & SQL Server 2000 on Windows NT or 2000 server
Client: Internet Explorer 5.0 or above on Windows 98, NT, 2000 or XP

4.3 Network:

At least 10 Mbps TCP/IP Network for the desired response time.

5. PERFORMANCE REQUIREMENTS

- Time to open up 50KB eSIM MR document should not exceed 15 seconds (Performance of software highly depends on hardware used by clients & server & entire network bandwidth)

6. ACCEPTANCE CRITERIA

All requirements related to entry, review and report should be available for acceptance of this system.

7. STANDARDS REQUIREMENTS

All security standards for web like SSL etc. should be maintained in product. Plus all CMM Level 5 management standards of software engineering should be maintained to carry out activities of this project. Plus HIPPA & HL7 Standards should be maintained for system.

8. SPECIAL USER REQUIREMENTS

- Security and Authorization
- Audit Trail
- Reliability
- Transaction Volume and Data Volume
- Backup and Recovery
- Integrated Database
- Data Migration
- Data Retention
- User Training
- User Manual and Help
- Automated and Manual Function

9. CONSTRAINTS

Not applicable