

Assignment 1
Design and Development of a Health Management Information System (HMIS)
SOEN 6461 Winter 2025

Group – 7

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System Vision Document

Problem Description –

Metro Health Services is a mid-sized healthcare provider with multiple departments, including Emergency, Outpatient, Inpatient, and Surgical services. Currently, they struggle with managing patient records, scheduling appointments, handling billing, and tracking medical supplies. Different departments use separate systems, making it hard to share information smoothly.

Because of this, hospital staff spend extra time on paperwork, and mistakes can happen in patient records. Billing and insurance claims take longer to process, and keeping track of medicine stock is difficult. Additionally, scheduling staff shifts is challenging.

To solve these issues, Metro Health Services needs a single system that connects all these tasks. This system should be easy to use, ensure data security, and follow healthcare regulations like HIPAA (Health Insurance Portability and Accountability Act). It should also be able to handle a large number of users at once and be ready for future growth.

System Capabilities –

The HMIS will provide the following capabilities:

Appointment Scheduling:

- Easy booking, rescheduling, and cancellation of patient appointments.
- Automated reminders for patients and healthcare staff.

Patient Record Management:

- Easy registration of new patients and updating their details.
- Quick retrieval of medical history and secure storage.

Monitoring Bills and Insurance Claims:

- Accurate medical bill generation
- Managing and processing of insurance claims.
- Integration with third-party insurance providers.

Staff Schedule Management:

- Organizing work shifts for doctors, nurses, and other staff.
- Tracking staff availability and work hours efficiently.

Drug Inventory Management:

- Real-time tracking and management of medication stock levels.
- Automated alerts for low inventory and expired medications.

Security:

- Protecting sensitive patient information by following HIPAA regulations.
- Restricting access based on user roles to enhance security.

Scalability and Performance:

- Supporting up to 1000 users at the same time without slowdowns.
- Maintaining system uptime of 99.9% to ensure availability.
- Designed to grow with the hospital's needs by accommodating new features and users.

Business Benefits –

Implementing the HMIS will bring several advantages to Metro Health Services:

- **Better Patient Experience:** With smoother appointment scheduling, quicker service, and accurate medical records, patients will have a much better experience when visiting the hospital.
- **Faster and Efficient Operations:** More Digitized work which will minimize errors, and help staff work more effectively, allowing them to focus on patient care instead of administrative tasks.
- **Improved Inventory Management:** Hospitals will always know what medications are in stock, preventing shortages and reducing waste from expired drugs.
- **Easier Billing and Insurance Processing:** The system will streamline billing and insurance claims, reducing delays and ensuring payments are processed correctly.
- **Better Staff Management:** Automated scheduling will help staff work more efficiently, ensuring the right number of people are available at the right times.
- **Stronger Security and Compliance:** Patient data will be protected, reducing risks of data breaches, and ensuring compliance with healthcare regulations.
- **Room for Growth:** As the hospital expands, the system will be able to handle more patients, staff, and new features without needing a major overhaul.