



MphasiS Healthcare Service Highlights

- Worked with Global Top 10 customers across various areas in Healthcare and Life Sciences
- Around 23 global clients across Applications, BPO and ITO
- Deliver Applications services in government, commercial, pharma, instrumentation, hospital management, life sciences, benefits administration across US, UK, Canada, Sweden and India
- Handles over 2.5B Healthcare transactions per annum in BPO including 1.9B Healthcare claims, 200M pharmacy and 372M eligibility transactions as well as over 20M provider calls and enquiries, interacting with over 500K doctors, pharmacists and hospitals*
- Provides Workplace, Data Center, Managed Security, Command Center services and Service Desk support
- Rich experience in conceptualizing and developing bespoke and product based Hospital Information Management solutions
- Strong and large pool of certified HL7/HIPAA subject matter experts providing quicker response and efficient requirements solutioning

*Includes HP Enterprise Services capabilities also

Technology Renaissance in Healthcare Industry

The world witnessed technology percolation at an extremely rapid pace in all industries. Healthcare industry has been no different. With the advent of information technology tools like Hospital Information Management System (HIMS), online transactions through web have revolutionized the service delivery parameters. Every country has seen and is seeing many hospitals fall in line with enthusiasm. The complete automation exercise is aimed at improving its efficiency.

Today, hospitals need to be self sufficient to meet their own needs for sustenance. Corporates entering the healthcare provider space want to have value for the money invested and have made it imperative for the healthcare providers to envisage a plan to accept HIMS as a necessity. This drives the need to improve efficiency and work towards delivering high quality patient care at optimal costs to the patient.

An information system providing patient data and information at the click of a button can help improve efficiency and optimize costs. Certain factors such as outsourcing in healthcare, development of standards, overseas patients seeking medical care (medical tourism) have prompted hospitals to have information systems that are in compliance with international healthcare standards.

MphasiS' HIMS Solution – Hygea

MphasiS is committed to providing a full suite of solutions for the hospitals and medical profession. MphasiS' mission to bring about 'digitalization of hospitals in the 21st century' has provided a global HIMS solution, Hygea, in healthcare provider space.

MphasiS has successfully explored new frontiers in medical services based applications. MphasiS' vast domain and technology experience on healthcare payers, life sciences and pharma, medical equipment instrumentation space, and device integration with applications form the foundation for delivering solution infrastructure to a digitalized hospital.

MphasiS has strong software developing capability and long-time work experience of hospital operations and workflow. This application leverages Microsoft's contemporary .NET technology in providing a web based HIMS solution. The user-friendly front-end environment and large database platforms support MS SQL 2008, Oracle, and Open Source PostgreSQL. The application also enhances the operational efficiency of the hospital which in turn leads to optimum utilization of available resources generating maximum revenue.

MphasiS Hygea solution is productized under three versions which meets the healthcare delivery needs of small and medium hospitals on one side, and tertiary and speciality care hospitals on the other side. All these solutions are built on scalable, modular and flexible architecture, and a framework that can be easily customized to meet the unique service requirements of small, medium, large, and super speciality chain of hospitals.

Hygea Value Proposition for Doctors

- Doctors dashboard for ease of navigation
- Doctor Schedule: Set up activities and plan absence
- Alerts on mobile / PDA messaging
- Single mouse click to access entire clinical history of patient encounters
- Clinical templates for specialties with integrated drawing tool
- Favorites creation (diagnostics and prescription)
- Drug database integration for allergies, drug to drug interaction, health issues
- Online stock verification for availability of medicines

Hygea Lite facilitates the needs of front-office, billing, collection & refund, and patient centric clinical information to manage the automation needs of small and medium size hospitals.

Hygea Professional comprises the Lite version modules and includes enhanced features of billing, collection & refund, pharmacy, and store management needs of small and medium sized hospitals.

Hygea Enterprise comprises the professional version modules and provides a complete suite of revenue cycle management, material and financial management, tax modules to meet the enterprise level needs of medium to big size hospitals.

Optional Modules: The facility support modules like CSSD, diet & kitchen, laundry & linen, blood bank, housekeeping, patient relationship, HR, asset management, and roster. Other modules can be easily integrated with the above editions based on the client's requirements.

Meeting Your Business Needs

In today's scenario, hospitals suffer economic thrash in four main areas: long waiting time, lengthy processing time, increased inventory costs with lack of proper tracking mechanism, and loss and theft of patient clinical data. In hospitals, IT is generally used for administrative purpose, patient registration, billing or back-office activity, and inventory management. Good IT solution improves clinical process, service measures and tracks resource utilization in an efficient manner.

MphasiS solution aims at addressing your hospital's business needs. Enhancing the transparency of hospital processes to patients creates a bond of trust which goes a long way in creating and spreading the goodwill of the provider set up.

On the clinical side, doctors can instantly view diagnostic results as well as images and examination reports at their desktop, thus accelerating the pace of diagnosing, providing treatment to patients.

Key Benefits of Hygea HIMS

- Convergence of IT, clinical processes, healthcare international standards and business processes into an integrated solution
- Workflow improvement and enhanced efficiency levels of hospital staff
- Reduced patient turnaround time resulting in increased revenues
- Transparent processes critical to meeting medico-legal requirements, eg. maintaining patient records
- Easy access to patient's diagnostic and medical records
- Enhanced comfort levels for doctors to check and compare a patient's past record with current ones on their desktops
- Powerful and easy to parameterize tools for scheduling and monitoring of surgical activity
- Enables a paperless digital hospital
- Reduction in planned / unplanned admission time
- Reduction in OPD transaction time and discharge time
- Improved patient satisfaction through efficient processes

- Reduced medical errors
- Electronic Medical Record (EMRD) for patient data storage and retrieval
- Track the seepage of revenues that occur due to inventory costs, pilferage, etc.
- Implementation of transparent and ethical practices
- Better manpower utilization with better control
- Driver for business growth
- Efficient workflow and sophisticated features for nurse activities

Hygea Lite - Module Overview

The Hygea Lite comprises over 16+ integrated functional modules covering Front-office, Clinical, and Billing service functions. The Lite version supports integration of third party supplied Finance, Material Management and other Operations/Facility Support systems through standard interfaces.

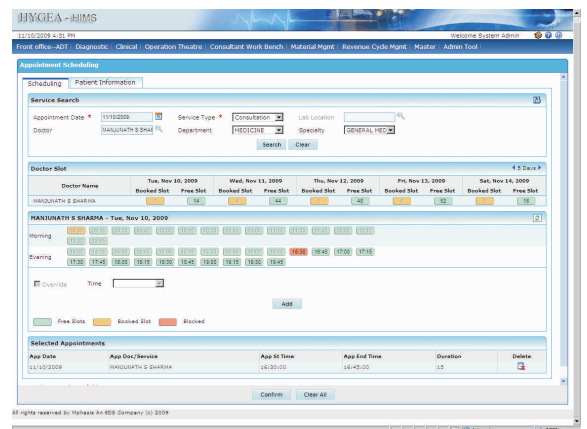
Front Office

Admission Discharge Transfer (ADT)

The ADT module of HIMS application maintains admission, transfer and discharge related patient information in a hospital.

Appointment Scheduling

Old and new patient appointment can be created from this module. The patient provides their basic demographic information and gets appointment. Appointment can be for consultation, laboratory or radiology service. The doctor's availability can be searched based on department, specialty or by name. Provision to search appointment list is based on appointment date, unique patient identifier, and doctor. Automated reminders are sent through e-mail and SMS.



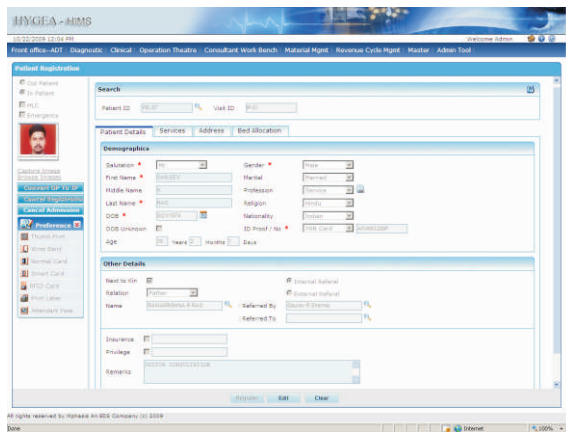
Patient Registration

This module carries out the registration of new and existing patients handled in the hospital admissions area. It enables time tracking from the time a patient arrives in the area till he/she leaves the hospital. It is powered by myriad of functional features to facilitate scenarios/processes involved in outpatient to inpatient registrations, and caters small and big hospitals.

- Automatic generation of patient's ID to speed up the registration
- Capturing patient's personal and demographic information
- Facility to convert patient from outpatient to inpatient

Hygea Value Proposition for Nursing Staff

- User-friendly drug administration setup and drug administration with alert mechanism on status
- Supports Tablet PC for patient bedside activities
- Bar code device interface with Tablet PC for exact and easy identification of patient for caring and monitoring, thus reducing medical errors
- Pre-defined clinical charts and graphs for inpatient/ICU patient monitoring
- SMS alerts to doctors in case of an emergency



Discharge and Bed Transfer

These modules implement the requisite functional features for patient discharge process. The typical workflow implementation in a scenario like handling inpatient discharge process involves initiating discharge request from nursing station; entering discharge date and time, discharge reason and doctor's name; informing bed release to housekeeping; and relinquishing for new inpatient admission and physical patient discharge.

Enquiry Services

The enquiry services module under front-office helps the front-office staff to render the information pertaining to patients and hospital services viz. appointment enquiry, patient search, specialty and doctor's availability, service and tariff enquiry, inpatient location and bed status enquiry.

Clinical

Consultant Workbench

Consultant Workbench comprises doctor dashboard that facilitates the doctors who log in for the day to raise prescriptions and perform various activities like diagnosis, OT, and other care management activities for the reporting inpatient / outpatients through Electrical Medical Record (EMRD) panel. The Doctor Calendar Management and Favorite masters modules allow to configure the OPD timings and manage the frequently used Favorite Masters.

Doctor Calendar Management

Login doctors can configure their OPD timings, future days' activities and leave information. The integration with appointment scheduling and registration in turn controls the patient's appointments and registrations.

Doctor's Favorite Masters

This provide functionalities to doctors to create and maintain favorites to raise prescriptions and diagnostics requests thereby reducing the patient's turnaround time.

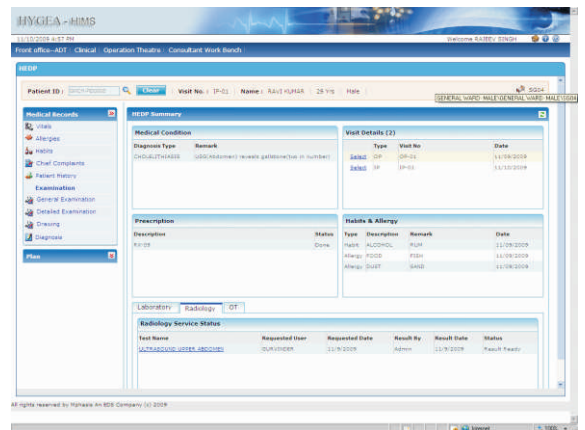
Patient Clinical Information

The clinicians and staff can access the Hygea's robust Patient Electronic Medical Record system (PEMR) that provides a comprehensive 360 degree view of medical records of a patient. The patient in context for EMRD system facilitates in documenting, monitoring, and managing healthcare delivery to patients. With History Examination Diagnosis Plan (HEDP) and inpatient observation modules, the doctors and nursing staff will get all clinical information about a patient in single view with facility for easy navigation and drill down features.

History Examination Diagnosis Plan (HEDP)

This module provides rich and complex functions to capture and view the patient data during an encounter. The following list provides features and patient clinical information captured in HEDP.

- Vitals
- Chief complaints
- Drawing tool
- Diagnosis
- Diagnostic result viewer
- Medical history viewer
- Allergies and habits
- Examination
- Plan for treatment
 - Diagnostic orders
 - Prescription
 - Referral
 - Follow up
 - OT scheduling

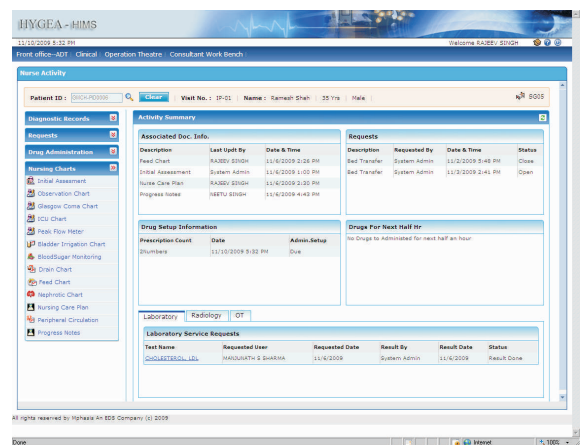


Inpatient Observation

A complex module provides myriad of functional features to nursing staff to administer and view the services extended to inpatients. The Nurse Queue list gives the complete inpatient view to nursing staff through EMRD panel. The color legends for the records give the complete visibility and tracking of the activity along with the status.

With patient in context, the nurse can navigate to different screens like:

- Drug administration setup
- Medication charts
- Diagnostic, housekeeping, bed transfer and discharge, requests
- Diagnostic result viewer
- Medical history viewer
- Assessment forms and clinical charts/graphs like observation, code blue, bladder irrigation, ICU etc.
- Automated discharge summary



Diagnostic Management

Hygea provides a complete workflow based LIS and RIS modules tightly coupled with EMR to process the patient's diagnostic requests. The seamless integration with other clinical modules provide the authorized clinicians and staff to view the progress status. Facility to exchange data with other application also exists through HL7 interface.

Hygea Technology - Highlights

- Silver Light: Enables building robust rich internet applications
- AJAX: Enables building highly interactive and responsive web applications
- WCF: Provides a unified programming model for rapidly building service-oriented applications that communicate across the web and enterprise
- ASP .NET: Technology that creates dynamic and modern web applications
- Standards: HL7, ICD10, LOINC, SNOMED, DICOM

Laboratory Information System (LIS)

Laboratory Information System comprises lab dashboard and lab workflow modules that facilitate the implementation of complete processing cycle of patient lab requests.

- Laboratory dashboard
- Work order generation and status tracking
- Complete workflow process with proper authorization and validation in each stage of activity
- Sample collection and tracking
- Result entry and validation with standard range

Radiology Information System (RIS)

This module forms an integral part of HIMS helping the users of the radiology department in tracking, recording and distributing radiology reports.

- Radiology dashboard
- Work order generation and status tracking
- Complete workflow process with proper authorization and validation in each stage of activity
- Facility to store radiology results as an integral part of Electronic Medical Records that can be referred at any point of time
- Facility to define procedures with different radiology tests
- Integrated with inventory management with automatic tracking for reagents consumed

Operation Theatre Management

This application provides easy and powerful parameterizing tools that helps in the scheduling and monitoring of surgical activity. The system is also flexible to allow OT scheduling for planned and emergency surgery.

- Scheduling operations in OT and allocation of resources
- Generation of daily final lists
- Recording pre-operative, anesthetic, post operative notes
- Instant access of EMR module for any specific information of the patient undergoing surgery
- Access and recording of different clinical charts like ICU, observation, anesthesia, etc.

Billing

The various features offered in the Billing module include:

- Defining and applying dynamic discount price factors for private, corporate, and TPA patients during billing
- Providing sophisticated split bills for corporate and TPA patients on covered and uncovered service items in one go

- Automated functionality to capture the daily recurring service charges like room rent, nursing charges, etc., in patient bill
- Providing highly configurable operation flow like 'Pay and Avail Services' or 'Avail Services and Pay' facility to cater to the different needs of the business rules of the client
- Flexibility via debit note and credit note concept to correct any discrepancies in the bill
- Collection and refund features with option to adjust multiple deposits against multiple bill
- Facility to integrate the billing and collection data with any accounting package

Hygea Architecture & Technology

Hygea web application is a modular, multi-layered and multi-tiered architecture that meets the non-functional requirements of our clients. The features include:

- Highly scalable in terms of number of users and patient load
- Support multiple database
- Integrate with external applications
- Device integration
- Availability: Multi-tier HIMS architecture supports clustering that will ensure the redundancy and availability of the system
- Performance: The required performance level can be achieved by its design, by load balancing, highly configurable and customizable, multi-choice deployment options and implementation methodologies.
- Scalability: Stateless business layer and the ability to cluster to ensure scalability, vertically and horizontally

Client Side: IE 7.0 or compatible browser

Technology: ASP.NET 3.5, Windows Communication Foundation [WCF], C#, AJAX, Silver Light 3.0

Reporting: Crystal Reports Database: MS SQL Server, Oracle, PostgreSQL

About MphasiS

MphasiS is a leading Applications, Infrastructure Technology, and Business Process Outsourcing services provider. The company delivers real improvements in business performance for clients through a combination of technology know-how, domain and process expertise. With currently over 34,000 people, MphasiS services clients in Financial services, Manufacturing, Healthcare, Communications, Media & Entertainment, Transportation & Logistics, Energy & Utilities, Consumer & Retail industries and Governments around the world. To know more, visit www.mphasis.com

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