Copernicus ™ is Eutech's Healthcare product suite and Accident & Emergency Information System (AEIS) is one of Copernicus ™ modules.

AEIS has a workflow tailored for the Accident & Emergency Department of a Hospital. It is a complete system that provides patient registration and detailed clinical system modules.

The clinical system consists of modules for:

- Triage
- Consultation
- Observation
- Pharmacy

The system simplifies routine processes like capturing the patient's vital signs (such as temperature, blood pressure, pulse rate & respiratory rate) by linking to measuring unit and automatically capturing the readings.

The patient's complete medical record is stored electronically and can be retrieved by authorized users by a click of a button any time.

AEIS provides extensive support to the doctor during the consultation process. The intuitive user interface allows selecting diagnosis codes, medication lists and standard procedures quickly and easily. Diagrams of the corresponding parts of the body are provided for the doctor to record the exact location and nature of the illness. This pictorial representation is extremely useful in medical records. In one of the implementations, over 1500 templates have been designed for the different illnesses. These templates help capture additional information.

Prescriptions, Lab orders, X-ray orders, Medical Certificates and Referral letters can be generated by the doctor within the system during the consultation process.

Modules in AEIS
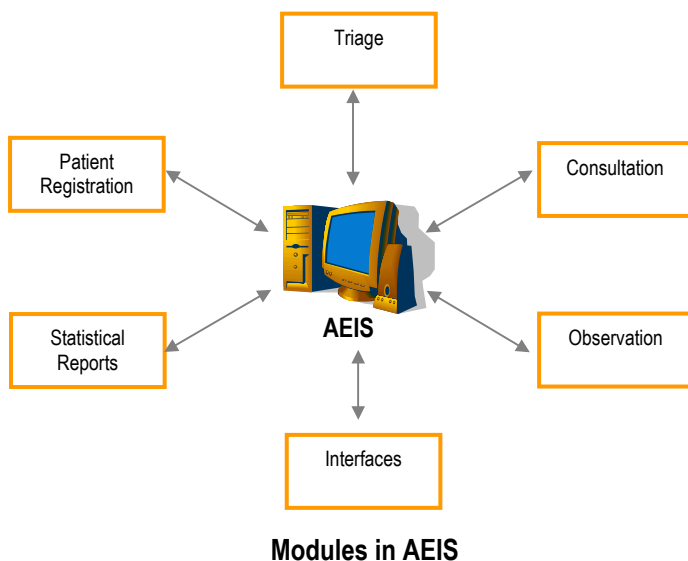
Patient Registration

Patient information is available to external systems via the HL7 interface. The clerk registers the patient by logging into the system. This module is used to capture all relevant identification details of the patient. Once the patient is registered, a unique Case Number is assigned to the patient and the patient's case is then sent to Triage queue.

Triage Queue

The Triage queue displays all cases, which have been sent by the Registration module. The nurse can log in and selects the patient that she would like to perform preliminary examination on to. Selection of a patient can be done by any order depending on the severity or any other criteria.

Triage

Triage module allows the nurse to administer preliminary examinations on the patient and records all relevant results. System allows marking Resuscitation indicator for patients with serious conditions and these cases are given higher priority in the doctor's queue. When the patient's case is closed (saved), AEIS sends it to the doctor's queue in Consultation module.
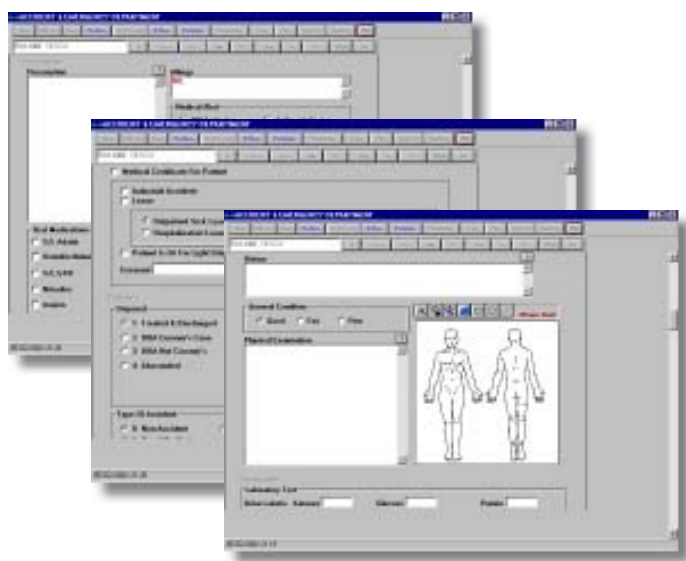
Some of the features of the Triage module includes:

- Triage queue is based on the order in which patients have been registered
- The nurse can however select any patient for triage based on the patient's condition.
- Vital signs such as temperture, pulse, blood pressure, SpO_2 and respiratory rate are captured by the system from the vital signs monitor.
- An indicator that denotes the seriousness or severity, of the patient's condition, is also present.
- The patient's complaint can be selected from a list or can be entered by the nurse in free text format to be seen by the doctor.
- Dug allergy information can be entered by the nurse
- Prelimianary treatments and medical procedures done by the nurse are captured
- Printing sticky labels

Consultation

This module allows the doctors to enter diagnosis, disposition & treatment information for the patient. The user interface of this module is specially designed so that doctors can easily, quickly and efficiently enter data with least number of mouse clicks and keystrokes while paying more attention to the patient rather than to the screen.

Some of the features of this module include:

- During examination, the doctor is provided with a standard list of illness from which he can select. The option to enter additional data is also provided.
- Diagrams of the parts of the body are available for the doctor to draw / indicate diagramatically the region of the illness and the description of the region.
- The Doctor can record his observations and results of examining the patient in the Doctors Notes section. A standard set of phrases, examinations and observations is available for the doctor to select from. Thus, reducing the amount of data entry and time required.
- Information pertaining to the type of accident and cause is also captured

- The doctor can make his diagnosis using the ICD9 and DRG codes that are present in the database.
- The doctor can order prescriptions by selecting medications from a standard list.
- Patient Allergies and medical conditions can also be entered by the doctor.
- The doctor can order medical procedures and lab tests by selecting from a standard list
- The results from lab tests, X-rays and ECG's can be entered into the system. This is through free text format.
- The system provides facilities to issue medical certificates & referral letters
- The consultation is concluded by entering the discharge summary for the patient. This indicates whether the patient has been asked to come for a follow-up, admitted to the hospital or discharged
- Statistics such as waiting time, that indicates time durations that patient had to wait for the different stages in the A&E is captured.

Observation

When the doctor sends a patient for further observations, the case is displayed in Observation module. The nurse picks-up the case. Doctor's instructions are shown in the screen. The nurse carries out procedures /tests and gives medications as per the orders in the screen. Some of the features of Observation module include:
- Information on orders (procedures & medications) is available on the screen for the nurse
- Nurse is able to enter procedure status (pending, completed etc.)
- Doctor can see the procedure status from his screen

Reopen Cases

Cases which have been saved can be opened within 48 hours. This facility allows the users to rectify or modify information to a case.

HL 7 Interfaces

The AEIS system is Health Level 7 enabled. Patient information and case information details can be sent and received from external systems. This is developed using Eutech's HL7 engine.

Reports

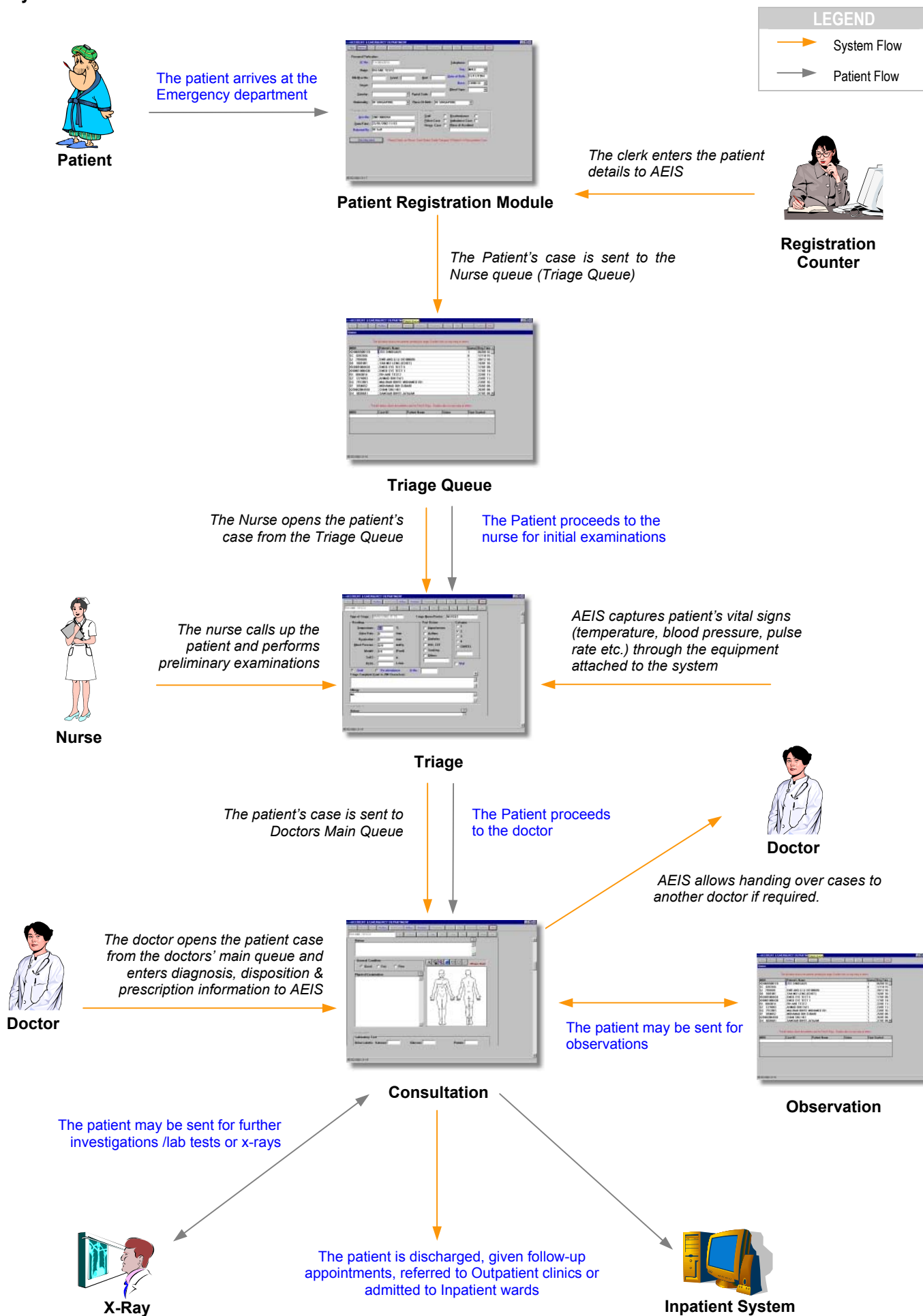### Patient Information
- Sticky Labels

Examination
- Query Lists

Consultation
- Medications & treatment procedure orders
- Medical Certificate
- Certificate of Attendance
- Prescription
- Admission Authorization form
- Emergency Department record
- GP Referral
- SAF Referral
- Polyclinic Referral
- Referral to Continuation Treatment

A & E System Workflow

LEGEND

→ System Flow

→ Patient Flow

Patient

The patient arrives at the Emergency department

Patient Registration Module

The clerk enters the patient details to AEIS

Registration Counter

The Patient's case is sent to the Nurse queue (Triage Queue)

Triage Queue

The Nurse opens the patient's case from the Triage Queue

The Patient proceeds to the nurse for initial examinations

Nurse

The nurse calls up the patient and performs preliminary examinations

AEIS captures patient's vital signs (temperature, blood pressure, pulse rate etc.) through the equipment attached to the system

Triage

The patient's case is sent to Doctors Main Queue

The Patient proceeds to the doctor

Doctor

AEIS allows handing over cases to another doctor if required.

Doctor

The doctor opens the patient case from the doctors' main queue and enters diagnosis, disposition & prescription information to AEIS

Consultation

The patient may be sent for observations

Observation

The patient may be sent for further investigations /lab tests or x-rays

The patient is discharged, given follow-up appointments, referred to Outpatient clinics or admitted to Inpatient wards

X-Ray

Inpatient System

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Key Features

Among the key features of the **AEIS** system are:

- Direct interfaces with vital sign measuring equipment
- Specific nursing input screens are provided in order to record initial syptoms (Triage)
- Tracking of patients' movements and timing around the department
- Template-based designs simplify the input of data from examination and consultation notes to diagnosis and prescriptions
- Easy naviagtion screens to locate standard diagnosis (DRG), ICD-9 codes and built-in library functions for general and physical examination
- Quick access to Patient Details for previous or current Accident and Emergency Attendances
- Statistical analysis of attendees
- Reporting and Enquiry facilities
- Alerts for drug allergies
- Restricts access to certain data and modules based on roles and access rights

Benefits

Some of the benefits of the **AEIS** system include:

- Improves patient care process by increasing the consistency of care
- Allows round the clock on-line storage and retrieval of historical patient medical record
- Helps to identify bottlenecks in patient waiting time in different stages of the workflow
- Saves doctors' time & minimizes manual input errors
- Provides accurate & complete medical records and improves security of patinet medcal information
- Decreases prescription errors
- Simplifies workflow within the department

Other products in Copernicus™ Suite

- Hospital Information System
- Specialist Outpatient Clinic Information System
- Pharmacy Management System
- Purchase Order & Inventory System
- Mammography System
- Operating Room Scheduling System
- Clinical Workstation System
- Electronic Medical Records
- Generic HL7 Engine

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