

ICUPIS[©] Intensive Care Unit Patient Information System

ICUPIS is an integrated clinical documentation and decision support system, managing the complexity of the information produced in an intensive care unit environment.

ICUPIS captures, stores, groups, and presents large amounts of data generated per patient inside the ICU. It creates an integrated electronic record covering the entire stay of a patient in the ICU and beyond. Moreover, it includes advanced features such as clinical decision support, presentation-quality clinical data reports, smart tools tracking a patient's progress and has the ability to exchange information with other hospital medical care systems.

ICUPIS enhances the workflow in the unit from the moment a patient is admitted until the discharge. It assists the clinical assessments and care planning by providing tools to monitor, design and apply treatments, while at the same time provides support for detailed clinical protocols and creates a rich pool of data for clinical trials.

Being convinced about the benefits of such information system, the ICU of University Hospital of Heraklion, proceeded with the implementation of its own intensive care unit patient information system (ICUPIS[©]). The system was implemented as a tool to boost ICU workflow and help clinicians respond more quickly to patient's medical events at any time and from any physical location.

Basic features

- Single point management of medical information.
- Flowsheets that easily capture and present patient data.
- Automatic refresh of flowsheet data
- Advanced management of fluid balance.
- Smart graphs for monitoring patient's progress.
- Ability for automatic data collection from medical equipment.
- Ability to exchange information with other hospital information systems (HL7 support)
- Offers access to medical data from anywhere.
- Designed to support touch screens.
- Full configurable to support the needs of an intensive care unit or any other hospital clinic.

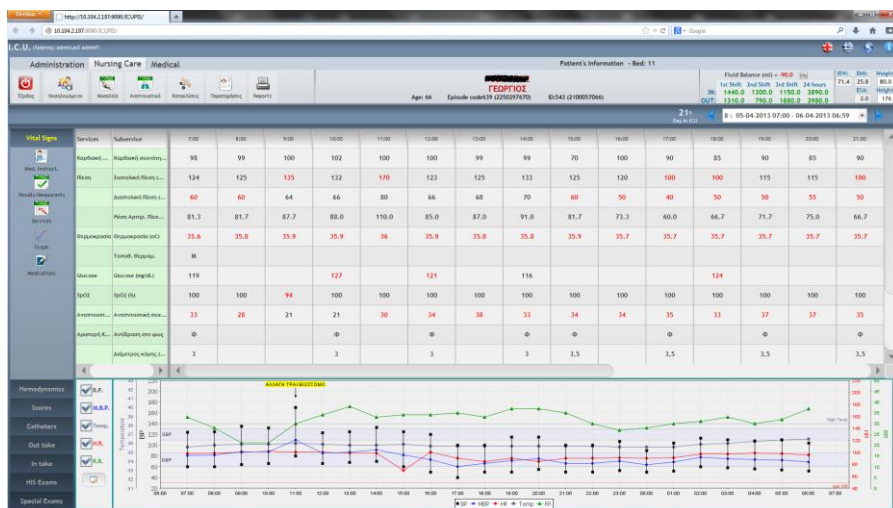


Figure 1. Vital signs flowsheet

Admissions

Demographics, allergies, etc. are inserted automatically by establishing communication with the Hospital Information System, resulting in saving time, reducing errors and freeing staff to focus on direct patient care.



A software for I.C.U. developed by an I.C.U.

Technical features

- Cross-browser compatibility.
- Open architecture.
- Integration with other hospital information system through Mirth Connect
- Windows or Linux platform.
- Based on MySql and JEE with a very rich client interface (CaptainCasa framework).
- International support.

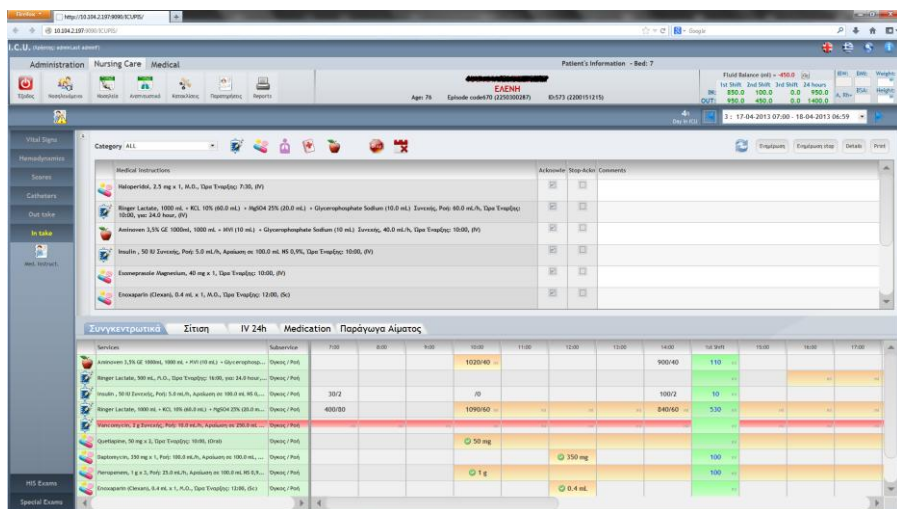
Medical monitoring - assessment

Through flexible displays enables the presentation of numerous medical data in a way that is easily accessible and understandable. Vital signs, managing catheters, fluid intake, lab results, special tests, scores, respiratory profile parameters, nursing observations, medical instructions and other critical information are readily available with a click.

Automatic calculation of scores (Apache II, GCS, CPIS, MODS, SAPS II, RASS, CPOT, NCIS, PRE-DELIRIC, SID, etc.), as well as a range of intuitive graphical tools such as the infection monitoring chart contribute to the patient's evaluation progress and decision taking.

Medical instruction and medication plan

Medical instructions generate automatically flowsheets for nutrition dietary, 24-hour iv infusions and medication to be administered, while at the same time appropriate reminders are created informing the nursing staff for the timely administration of medication and intake fluids.



Medical instructions and medication flowsheets

Medical history

Diagnosis based on ICD10, medical history, medication, presence of disease, differential diagnosis and actions, observations of clinical examination, laboratory and imaging examinations results construct the medical history of each episode in the system accessible any time and from any point.



Smart graphs assisting the medical monitoring-assessment

ICUPIS[®] With the scientific support from the ICU of University Hospital of Heraklion - Crete

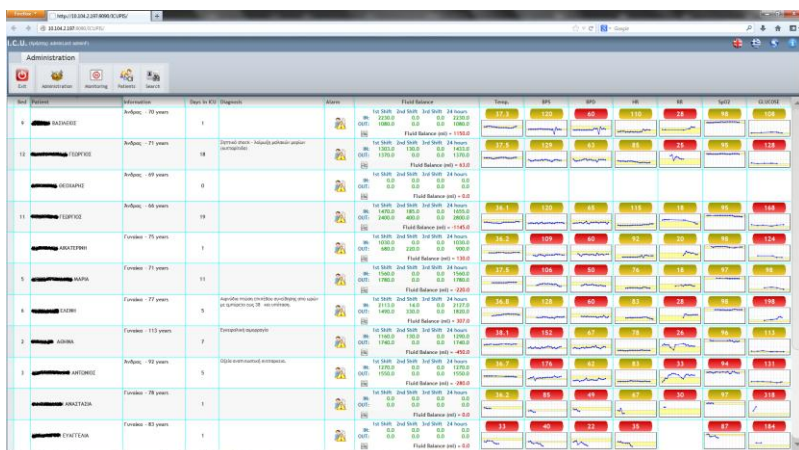
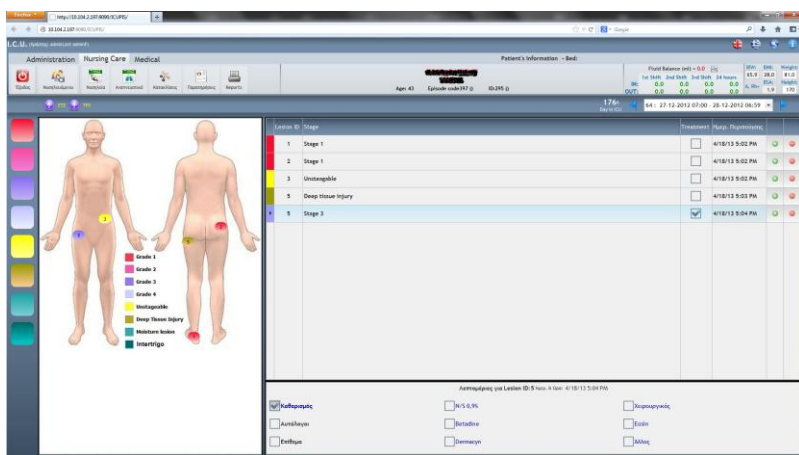
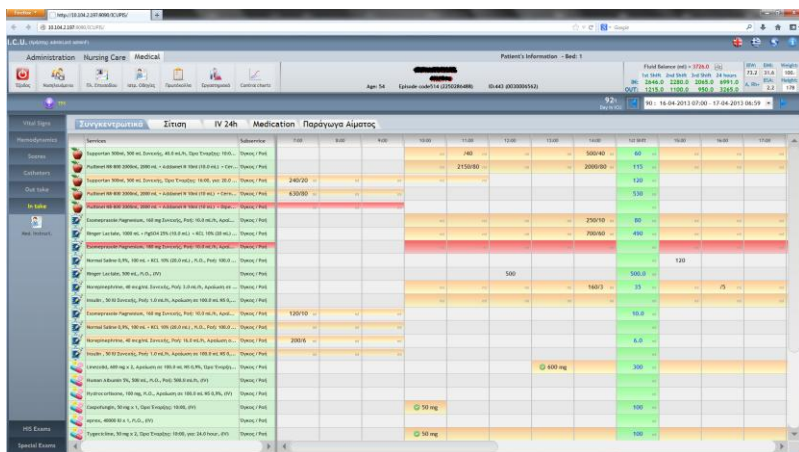
The system allows the operation of a paperless environment, eliminating the cumbersome and error-prone data recording on paper. Patient data, nursing observations and medical treatment instructions can easily be shared immediately throughout the intensive care unit and beyond. Clinical notes, forms and reports can be automatically populated with data from the patient's flowsheets, saving thus considerable time from their daily documentation.

Patient monitoring

Vital signs, hemodynamic, catheters, administered medication, care of lesions, blood gases, nursing observations per shift etc., are all recorded either by nurses through touch screens monitors at bed side or automatically by collecting the data from the connected medical equipment contributing to the assessment of a patient's clinical state.

Coded values, automatic fluid balance calculations as well as a series of automated checks protect against erroneous data entered in the system coupled with audible and visual alarms to alert the nursing staff when required.

Homogeneous display screens and data entry procedures minimize the time required by the nursing staff to become familiar with the system, ensuring accuracy while saving time which can be spent for the care of patients.





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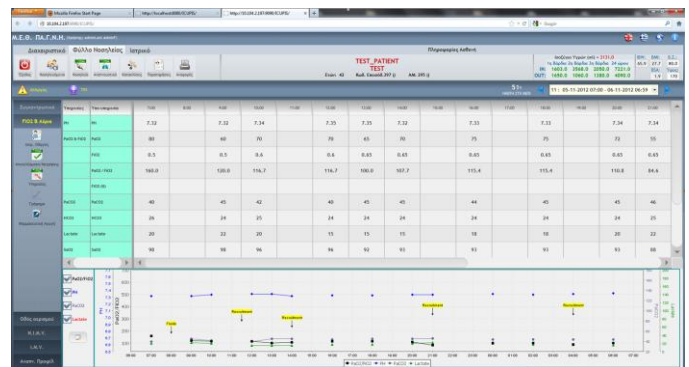
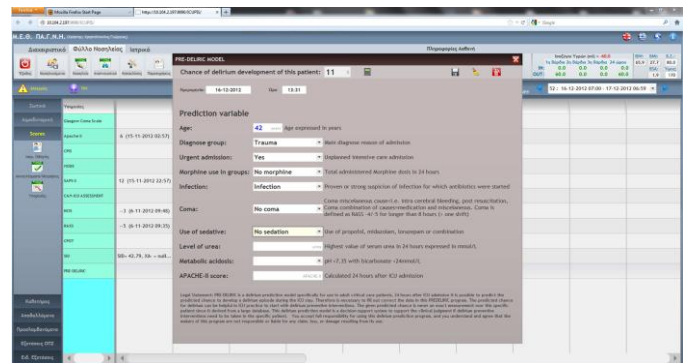
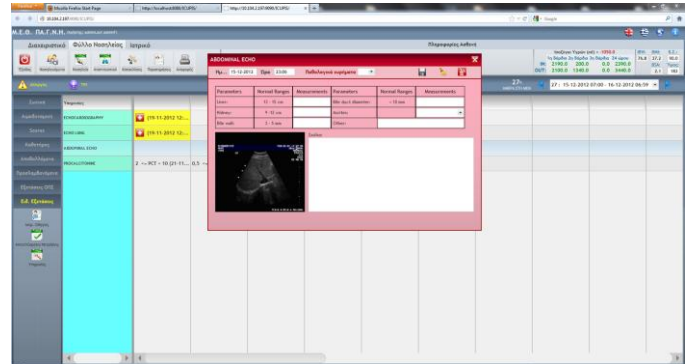
Additional features and benefits

The icu is the most complex environment in the health sector - characterized by complex records and data representations, complex calculations, and interconnections with a large number of medical devices. ICUPIS brings all types of data together to form the backbone of a complete electronic medical record, and since runs from a web browser it can be accessed from anywhere within or outside the hospital.

ICUPIS offers a highly configurable environment for monitoring the progress-assessment of patients and can be easily integrated with existing HIS or auxiliary hospital systems. At the same time since it is easily customizable could easily be adapted to support other units or clinics within the hospital.

The benefits of automating the icu is expected to have a direct impact on the improvement of operating expenses. This can be achieved through:

- Reduction of disease complications and associated costs
- Reduction of paper related costs.
- Reduction in diversity of services offered and adopted procedures.
- Improve the recording of expenses.
- Decongestion of other hospital departments (eg Medical records department).



Finally, to ensure a successful implementation in a hospital intensive care unit the goals and objectives of the project should clearly be defined from the beginning. The ICUPIS support team can provide help to quantify the potential benefits and to customize the system according to the needs of the clinic and users, and define a roadmap for the full clinical implementation of the system.

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