

OPEN SOURCE PDMS DESIGN FOR INTENSIVE CARE UNIT.

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Patient Data Management System (PDMS) are needed in Intensive Care Units, by reason of the amount of data to be processed, the turnover of the patients and the need for review processes¹. To respond to the needs of our unit we developed a PDMS based on open source software² and components.

Methods:

The software was designed as a client-server architecture running on the operating system Linux (SUSE LINUX enterprise server 8.0), using the PostgreSQL³ relational database (v 7.2). The client software was developed in C using the GTK interface library⁴. Remote access from Windows PCs is implemented by virtual network connection (VNC) and VNC viewers.

Hardware: The hardware consists in 2 Intel servers (one master and one slave to assure the integrity of the database by replication), 14 medical grade panel (Advantech) connected via RS232 medical bus to the patient's monitoring devices and to the servers via a local Ethernet Network.

Software: The software, developed on the Linux platform, offers the following functions: medical notes with patient's history, observations and treatments, nursing charts and notes with medication's administration functionalities, scoring system possibilities for patient's classification, activity and beds administration and data reviewing. Interoperability between these modules is realized through access to the PostgreSQL data base and not through the use of local memory in the interface.

The software was developed to be open source in all its components and upgradeable to address evolving needs.

Results:

The PDMS System is in use in our unit from February 2004 and handled daily care and follow-up of 1677 patients representing 1873 ICU admissions. The system is continuously accessible at every bed through panel PCs and at desks or offices through VNC viewers on windows PCs. His ergonomic design allows an easy access to all the database's functionalities, with a high availability level (less than 5 hours of interruption over one year). The use of open source resources dramatically reduced IT costs and was effective to customize the solution to ICU's request.

Conclusions:

PDMS based on Open source software components are also effective and able to respond to the needs and evolution of the ICU environment.

References:

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