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Data Integration in Cardiac Surgery Health Care Institution: Experience at G. Pasquinucci Heart Hospital

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During last ten years the Hospital Information System (HIS) was developed at Institute of Clinical Physiology of National Research Council (IFC-CNR), recently reorganized on clinical side into the OG. Monasterio Foundationo (FGM) by joint efforts of CNR, Tuscany Region and Universities. G. Pasquinucci Heart Hospital (GPH) in Massa, currently one of the two FGMœs sections, is specialised in Cardiology and Cardiac Surgery (adult and pediatric). Extension at GPH of the HIS, previously set up at IFC-CNR by the SPERIGEST project (supported by Italian National Health Ministry, 1995-98) for the integration of resources in Cardiology, required to adapt existing systems and to develop new ones, related to Cardiac Surgery and Pediatric Cardiology. HIS architecture is based on three levels of data archiving (administration, clinical system and functional units, such as diagnostic laboratories, care units, operating rooms) and on two modalities for data exchange (middleware data integration into the central clinical database and Web distribution of health care information over the HIS network). Using Open-Source utilities the PACS for different DICOM modalities (RX, echo, angiography, CT) and viewer/processing workstations were set up in clinical settings. The computer-network infrastructure, interconnecting GPH with the head institution in Pis a, allows achieving full access to patient information from any workstation. Secure Web technology was applied for distribution of health care information within hospital Intranet and also outside by Extranet. Recently telemedicine applications were implemented by on-line secure transmission of echocardiography and angiography images over public network (project for tele-diagnosis between Balkan countries and GPH O Massa). Information systems for administering and reporting all diagnostic, care and cardiac surgery activities were first developed, gradually achieving full integration of health care patient information into HIS clinical repository (SQL IBM DB2/2). International nomenclatures were adopted to develop standard clinical registers aimed at research and outcome evaluation. Integrated Java-based system for Electronic Medical Record was developed and since 2005 daily used at patient bed by wireless workstations. So far 3297 inpatient and 148663 outpatient medical records have been processed and archived, including 724 adult and 2521 pediatric cardiac surgery reports.

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