Integrated network-based medical information systems are in continuous development and evolution, furthered by the ongoing technology: the aim is to limit healthcare expenditure, while facing the increase of the demand of health services, as a result of the improvement of social-economic conditions, ageing of the population, and progress in medical knowledge and technologies. Today the discipline of OHealth Informatics takes care of the design and the implementation of information systems, to provide to the organization, processing, integration, storage, distribution and management, of the clinical and administrative data. Information and communication technology (ICT) guarantees a coordinate activity, by enhancing the efficiency of the healthcare global and local systems, as well as by improving the medical decision-making. The model of network-centered information system, implemented in the past ten years at the CNR Institute of Clinical Physiology, among the technical challenges of the project, faced the following issues: the definition of a system architecture able to conjugate a centric view, as required by data integration needs, and modularity, in order to satisfy the different laboratory or healthcare environments; the creation of a suitable network to exchange information both inside and outside the hospital; the overcoming of safety and security issues in the treatment of healthcare data; the data processing for extracting knowledge from the archived data and for supporting the diagnostic/treatment process; the education of healthcare personnel; the adoption of standards for both storage and distribution of data. Imaging data sources (gamma cameras, PET, PET/CT, MRI, Digital Radiology) are functionally considered as part of local Information Systems, devoted to peculiar clinical activity or specialization (“functional island”). Different models have been studied and applied to plan the integration and the operative protocols, by harmonizing different clinical practices, instrumental resources and human expertise. Significant images, integrated into the diagnostic report documentation of salient findings and results, feed, through a middleware channel, the clinical document in the central database; the original sets of images are available in suitable local archives, to improve the behavior and the efficiency of the whole system. Problems of safety and security of the clinical data have been faced too, by giving also directives for their storage and distribution which can easily harmonize with the clinical practice. Actual efforts are directed to the creation of standard, structured architecture of the clinical documents, by integrating and expanding all consolidated standards.

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