Scientific Methodology aiming Systems Interoperability in Complex Healthcare Infocommunication with Regard to Cross-Platform Integration of Distinct Telemedicine Appliances

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Due to improvements in healthcare service system, Telemedicine and Telecare solutions are on their way to be implicated in everyday life. Regarding the forthcoming extensive shortages of skilled medical staff within the aging western societies, the emerging need for flawless operational stability in healthcare systems with the demand of feasibility, quality and availability is expected to meet precisely elaborated underlying healthcare infocommunication systems. Cross-platform interoperability represents a key success factor for the successful performance of healthcare IT-ecosystems (HIE). International health organizations, national health and social care centers, social security bodies, hospitals, general practitioners, patient telemonitoring systems, diagnostic laboratories, pharmacies, nursing homes, insurance companies, emergency services and ambulances share their medical information in different forms. Data representations and methods of transmission differ from institute to institute and from country to country. For overall effective operation in healthcare information system, international industry-wide standards are needed in order to enable interoperability of the different healthcare IT clusters and thus support too, the integration of emerging personal telemedicine and telemonitoring devices, applications. Telemedicine systems deal with different forms of data from different sources (e.g. body area networks, thermometers, auriscopes, tympanometer, ophthalmoscopes, stethoscopes, weighting scales, webcams, cardiotachometers, sphygmomanometers), and integrate the information received into existing healthcare systems. A great deal of recommendations, policies, guidelines, standards and regulations exist for the methodology of healthcare data and information exchange at international, regional (i.e. EU) and national levels. The massive spread of personal telemedicine and telemonitoring appliances supported by the global landline, GSM and the satellite telecommunication interoperability all, require new standards in data-description methodologies for the meaningful integration of existing and emerging systems and techniques. The contemporary standards of the western hemisphere (e.g. HL7) thoroughly will be analyzed with respect to interoperability of overall telemedicine-healthcare systems and, recommendations will be made for the development of the present collection of standards in use.

References

[1] Fong, Bernard; Fong, A. C. M; Li C. K. Telemedicine Technologies. Chichester, Wiley, 2011.

[2] Soman, A. K. Cloud-based Solutions for Healthcare IT. Enfield: Science Publishers, 2011.