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Guidelines implementation

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iCARDEA: Personalized Remote Monitoring of Patients with Electronic Implanted Devices

E. ARBELO^{1,*}, E. TRUCCO², A. DOGAC³, C. LUEPKES⁴, C. CHRONAKI⁵, M. PLOESSNIG⁶, L. HINTERBUCHNER⁷, G. LALECI³, J. BRUGADA²

¹INSTITUT CLÍNIC DEL TÒRAX, HOSPITAL CLÍNIC UNIVERSITARI DE BARCELONA, BARCELON, ²INSTITUT CLÍNIC DEL TÒRAX, HOSPITAL CLÍNIC UNIVERSITARI DE BARCELONA, BARCELONA, Spain, ³Software Research, Development, Consultation Ltd., ANKARA, Turkey, ⁴OFFIS, OLDENBURG, Germany, ⁵INSTITUTE OF COMPUTER SCIENCE, HERAKLION, Greece, ⁶SALZBURG RESEARCH FORSCHUNGSGESELLSCHAFT, ⁷PARACELSUS PRIVATE MEDICAL UNIVERSITY, SALZBURG, Austria

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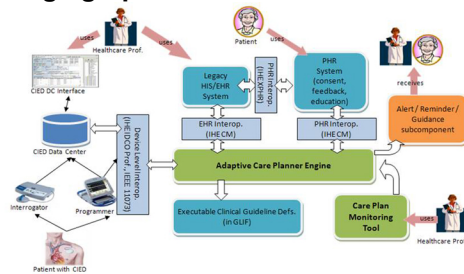
Introduction: Cardiac implanted electronic devices (CIEDs) have become part of the standard therapy in patients who are at risk of life-threatening cardiac arrhythmias. CIEDs require patients to follow regular scheduled hospital visits every 3 to 6 month to monitor device parameters, adverse events and anomalous device behaviour. Additionally, a substantial number of patients require extra non scheduled visits due to arrhythmic events or system-related complications. This calls for new methods of long-term surveillance with a view to optimizing patient safety and care, alleviating the burden of caregivers, and lowering health care costs through IT support.

Objectives: iCARDEA is a European Project that aims at developing an intelligent platform to semi-automate the follow-up of CIED patients using adaptable computer interpretable clinical guideline models.

Methods: Data from hospitals' electronic health records (EHR), from patient maintained personal health records (PHR) and the CIED device readouts, provided by the remote monitoring services, are collected and correlated. This abstract describes the system architecture of this project.

Results: In order to provide the Adaptive Care Planner, the CIED data obtained from the device's telemonitoring system is converted into a vendor independent standard format, and EHR and PHR data are converted to HL7 Clinical Document Architecture format, in order to be connected to the iCARDEA system. The data presented is enriched by automatically generated patient-specific warnings and suggestions based on statistically valid patterns extracted using state-of-the-art data analysis techniques applied to reference case knowledge bases. An adaptive care planner employing clinical guidelines automates risk assessment generating alarms as appropriate. Patients are empowered with integrated PHR that enable informed and responsible participation in their health care and education.

Image/graph 1:



Conclusion: Leveraging the remote management capabilities available in the latest generation of ICD/CRT-Ds heightens clinician awareness of device status and disease progression, allowing more timely and effective treatment for the patient, while also reducing the burden of in-office device follow-up visits. Remote monitoring in conjunction with iCARDEA is expected to reduce the time from a clinical event to a clinical decision in response to arrhythmias and device issues compared to patients receiving in office care only. A clinical trial is planned after completing all the system components.

Disclosure of Interest: None Declared