THU0625

DESIGN OF AN INFORMATION AND COMMUNICATIONS TECHNOLOGY PLATFORM TO SUPPORT COORDINATION OF CARE FOR RHEUMATOID ARTHRITIS PATIENTS WITH CARDIOVASCULAR CO-MORBIDITIES – FIRST EXPERIENCES

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BACKGROUND

Coordination of care plans between healthcare sectors and efficient management of patients with co-morbidities is of large demand. Rheumatoid arthritis (RA) patients are at increased risk of cardiovascular diseases (CVD). Different stakeholders are potentially involved in the EULAR recommended management processes. Optimized orchestration of accumulated information is of major importance to ensure data quality, meaningful management processes and cost effectiveness. A newly developed information and communications technology (ICT) platform within the Horizon2020-funded PICASO-project (www.picaso-project.eu) will support a continuum of care from hospitals and outpatient clinics to the home.

OBJECTIVES

Our objective was to explore challenges to provide an efficient ICT integrated solution across different healthcare professionals working for various organisations and potentially crossing national borders that complies to privacy and regulatory constraints allowing more efficient care management. Suitable system architecture and appropriate features require identification of target users' user requirements. PICASO platform will be developed and trialed with patients and clinicians. The proposed system architecture will be evaluated for suitability for a larger scale rollout.

METHODS

Projects' pre-defined clinical and technological driven work packages started. Various stakeholders (e.g. pts, local data security and IT representatives, health care insurances' representatives, clinicians) were integrated in the design phase. A PICASO ethical board including external members (e.g. Chair of the Standing Committee of PARE) addressed ethical and legal concerns. UDUSs' ethical committee and data security officer are involved.

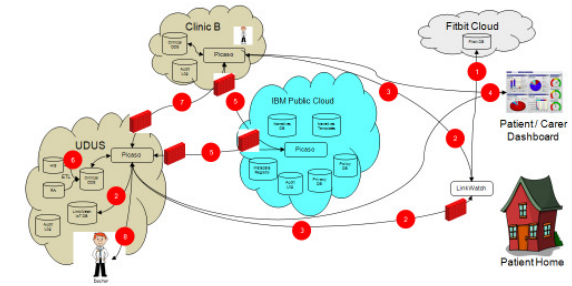

Figure 1: The PICASO architecture

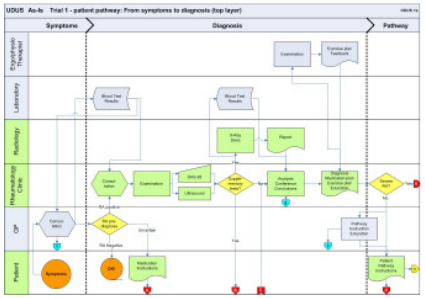

Figure 2: Part of current patient flow at UDUS

RESULTS

Current work-flows for the care plan management including stakeholders' hand-over procedures were elaborated. Vision scenarios (n=11) and As-Is and To-Be Use Cases (n=18) addressing solutions including home monitoring were developed (1), the approach taken is depicted in Figure 2. A comprehensive list of user requirements (currently n=87) resulted. Eg. they cover Data protection and security n=7, Patient Dashboard n=16, Clinician Manager n=22, Care Plan Manager n=7 and Clinical Decision Support n=6 (Risk Manager n=4, Goal Optimizer n=2). Detailed system architecture descriptions are stipulated. Ethical issues and how to handle these, in particular data-protection and -privacy challenges were pre-assigned as these affect platforms' architecture. PICASO ethical principles and guidelines were stated (2). The platform is still under development see Figure 3 and 4. The overall architecture is depicted in Figure 1. The first trial running over nine months including RA-patients will start after implementation of all the requirements of high priority and is suspected to start in summer 2017.

Figure 3 Part of the patient dashboard

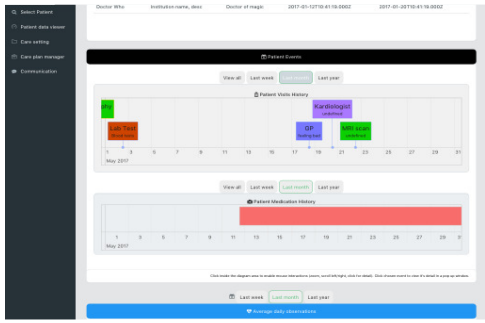

Figure 4 Part of the physician dashboard

Recently data export from the preexisiting hospital information system and patient documentation system DocuMed.rh at Heinrich-Heine-University of Duesseldorf was pepared providing an exemplary gateway for integration of clinical data in the PICASO platform. Therefore, an Operational data storage was build,and set up, and filled with RA patients' demo data being prerequisits for further tests ahead of clinical trials start.

CONCLUSIONS

Considering the needs of a highly valued, specialised health care system relevant To-Be Use Cases, numerous user requirements and EU-wide ethical and legal issues were gathered to serve as basis for appropriate design, development and implementation of the ICT platform. Software development will take place in iterative cycles followed by prototypes' thoroughly evaluated by real end users investigating usability and acceptance. The platform will become available for RA-patients in routine care but also for wider applicability in Rheumatology and other chronic diseases.

REFERENCES

(1) PICASO Consortium (2016), D2.1 Scenarios and Use Cases for Integrated Care. http://www.picaso-project.eu/download/489/
(2) PICASO Consortium (2016), D3.3 PICASO Ethical Guidelines. http://www.picaso-project.eu/download/520/; both last accessed 26/04/2017

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