



Cross border Health care portal – Doctor Access

A project that shows the influence and importance of patient care



The search for care in a foreign country is growing

The project was performed within the AdriHealthMob's strategy to develop a cross border model of sustainable and efficient transport services for the health and care sector, in order to improve the mobility of patients and to improve the accessibility to health and care services in the whole Adriatic area. It included the participation of 15 partners from the 8 countries that constitute the Macro-Adriatic Region.

The number of people who travel for health reasons in Europe is increasing. It is estimated that each year 83% of adults and 90% of children are forced to travel for health reasons. Many of these journeys would be unnecessary with a better use of disseminated services and communication within the Health and Care sector.

Aiming to improve the mobility of patients

The general objective of the AdriHealthMob (AHM) project was to establish a web platform that would improve the mobility of patients and their access to Health and Care services inside and outside their homeland by implementing a tool for safe and effective exchange of information and documents between medical personnel in the Adriatic Region.

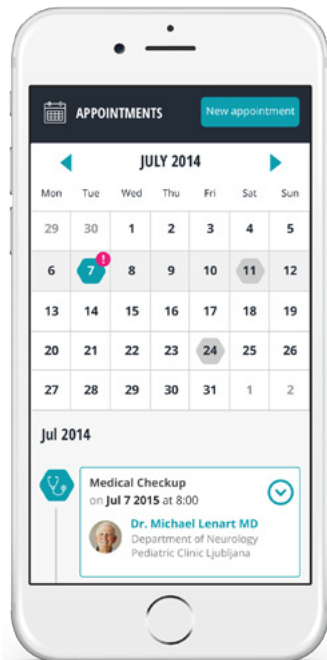
An answer to the market needs

The solution we provided is a specialized interoperable health care portal product - Vitaly that connects all medical institutions of the AHM project from the eight participating countries. The portal is a secure, user friendly web-based tool designed to allow medical specialists and others stakeholders in the care process (GPs, nurses, etc.) to become



In numbers

- **8 hospitals across the adriatic region**
 - **platform covers 100 million of inhabitants**
 - **processes up to 14.000 messages per hour**
 - **improved accessibility and mobility in Health and Care sectors**
 - **improved care results**
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more involved in patient's healthcare. It aims to increase the level of interaction between care teams through the ability to view data, documents, secure messages and results from different sources. It enables:

- Secure online conversations between authorized stakeholders in the healthcare process;
- Access to patient's data from different sources;
- Secure and personalized view of patient's information and personal configuration of portal modules for each medical specialist according to his/her privileges and roles;
- Access to interface and information in various languages;
- Access to information using a wide variety of web browsers and mobile devices.

Features

The portal platform consists of:

- Intuitive healthcare portal with open/public and closed/registration only part for the presentation of personal and medical data in a user friendly and secure way.
- Integration engine based on medicine standards (IHE and HL7) where medical and personal data is saved and processed.
- Standard IHE API based on international standard FHIR for the integration of remote patient monitoring devices.

The presentation module consists of open informative pages as part of the existing AdriHealthMob web page. It includes Information about the portal, intuitive help and instructions for the registration with a login/register link, contact information (support) etc. The portal owner can use public pages to promote benefits of the portal.

- The other part of the application can only be accessed by medical staff (doctor's access) and offers the following modules:
- Dashboard with an overview of the whole portal and quick access to other modules;
- Inbox – enables a secure and safe communication between the doctors and with patients;
- Patients module with a list of assigned patients and their medical data;
- Second opinion module – to connect with other medical professionals;
- My activities module – displays all planned activities (video appointments, second opinion requests etc.;

Benefits

- **User engagement**
 - **Responsive user interface**
 - **Patient centric care**
 - **Synergy with medical and social care institutions**
 - **Efficient care process**
 - **Remote access to medical data**
 - **Stimulates patient's self-management**
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Connecting with other doctors for a second opinion

One of the main portal features is the second opinion module that includes various useful features to support the second opinion workflow. It enables doctors to:

- create a second opinion form that needs to be addressed to another doctor;
- communicate with other doctors and medical experts from other participating countries, using an embedded secure messaging and numerous functionalities provided by Vitaly to exchange opinions on a specific case;
- create a report – conclusion and final second opinion that becomes a part of the patient's documents.



ICT map – helping patients in search for a clinic

The ICT map is an online application, integrated into the AdriHealthMob open pages as an iframe. It uses Google maps API to display locations. The application enables users to search for a medical clinic or pharmacy, either by typing a name, address or city in the input field or simply by choosing from the listed options in the dropdown menu. The advanced filtering returns even more specific results according to the search parameters that a user enters.

The solution supports

- **standard security and safety procedures**
 - **certified IHE API**
 - **ISO 13485 compliant**
 - **Video consultation**
 - **Healthcare standards (IHE, HL7)**
 - **Virtualisation**
 - **standard integration engine**
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Remote Patient Monitoring (RPM)

The RPM displays all the most important patient's health indicators like weight, height, BMI, blood pressure, oxygen saturation, body temperature etc. It offers an overall view of the patient's health status, by monitoring and displaying all the data in conceded charts or as a numeric value. By analyzing and managing the acquired data it helps understand patient's condition, define a diagnose and make better clinical decisions for a better patient care.

The portal platform enables to collect and present vital parameters from different sources. Within this project Vitaly was integrated with the medical monitoring data aggregator that provides the ECG data associated with a specific patient via an ID that's generated by the portal. These data are than displayed in the Vitaly portal in a DICOM format.



Environmental sensor data

Additionally, we integrated with environmental monitoring devices from where the application receives measurements, such as ambient temperature, humidity, illuminance, CO2, Volatile Organic Compounds etc.

E-learning platform

The portal solution contains also a module that is integrated with an e-learning platform via REST API. When the portal passes the correct credentials to the e-learning platform, it returns a list of upcoming e-learning events, with links to the external system where users can access the provided content. The integration communication passes through a secure tunnel between the portal application server and the e-learning platform.

Ready to integrate with partners and medical institutions

The portal platform is compliant with FHIR (Fast Healthcare Interoperability Resources), which is the next generation standards framework created by HL7 that enables unified, secure and simple interoperability integrations between partners and exchange of medical documentation. It is designed to enable in-

Coverage

- **Italy**
 - **Slovenia**
 - **Croatia**
 - **Bosnia and Herzegovina**
 - **Serbia**
 - **Montenegro**
 - **Albania**
 - **Greece**
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tegration with additional partners and medical institutions anytime in the future. Moreover it can provide possible upgrades in automatic translations of medical documentation if partners of the project can define and align standard international registries and create structured medical documents.

Cost efficient solution

The portal platform is based on open source technologies with no additional license fees, so it can be established and configured with an overall flexibility and low total cost of ownership. It also perfectly realizes the non-functional requirements of audit, role-based security, and mission critical high availability.

Results and future upgrades

We established a modular and intuitive interoperable platform that assures a comprehensive and detailed access to patient's records and effective communication and cooperation between medical workers and patients. It strengthens and integrates the infrastructure of private and public care centers and promotes the accessibility of Health and Care services on all levels of care. Thus, we achieved all project goals and set an excellent foundation to upgrade and expand it with national and regional cross border healthcare solutions.

Certification

Vitaly includes all standard security and safety procedures as required by international organizations for a medical grade device. Standard IHE API was successfully tested and certified on international European IHE events. The healthcare portal platform is compliant with ISO 13485 guidelines and with national legislation (especially legislation covering traceability, auditing and access to user data).

Project Methodology

The project started by preparing a detailed project plan with an overview of all project steps. A special focus was put on the integration with partners and medical institutions and on the configuration of information architecture. Within the analysis phase we prepared a technical implementation plan, use cases, quality assurance protocol, security policy plan and testing protocol. An extensive testing was performed on a demo version of the application, followed by all corresponding project documentation and user manuals. The project was completed by professional user training and installation of the application in the production environment.



Parsek has been providing eBusiness solutions in Healthcare, Insurance and Telco domains for more than a decade. To satisfy the needs of our international customers we use a set of enterprise grade technologies and established online products that allow significant diversification from other important players on the market. Our value proposition is founded in the successful digital transformation process implementation with our customers and partners.

During the development of our own products we established a proactive relationship with technology partners who operate throughout the EMEA region, such as: Cisco Systems, Oracle, Liferay etc.

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