

PIPS PROJECT, 6th FP, IST 507019

SUMMARY

It is well known the increasing importance of Primary and Secondary Prevention to preserve the well - being of the Citizen.

Several diseases could greatly benefit from an integrated approach that encompasses all aspects: from lifestyle, exercising and food to clinical parameters and drug compliance.

Moreover, the importance of a personalized approach to healthcare is becoming crucial to widen an interaction with the Citizens based on preventive and predictive medicine approach.

An appropriate combination of available information and communication technologies can offer a suitable operational platform.

In the 6th Framework Programme funded by the European Commission, it has been developing the Project PIPS (Personalised Information Platform for Life and Health Services).

PIPS aims to create a new Health and Life Knowledge and Services Support Environment, improving current healthcare delivery models. The main objective is encompassing the entire set of business processes, professional practices and products applied to the analysis and preservation of the Citizen's well-being using the latest innovations in Information Technologies. The project joins Healthcare Suppliers, Citizens, Public Organizations, Food/Drug Industry, Researchers, Health Policy Makers, affected by the health status of individuals. The scope is creating a dynamic knowledge environment giving added value feedback for personalized knowledge and services to improve public's welfare. PIPS results will enable:

- Citizens to make informed decisions about therapies and nutrition at any time/place according to the real-time evaluation of their health state
- Professionals to deliver just-in-time personalized and prevention-focused Healthcare services compliant with the Citizen's personal health state, preferences and ambient conditions
- Healthcare Authorities to improve risk management of Healthcare systems
- Actors in the Healthcare delivery value chain to get access to and generate valuable information, assuring the global sustainability of the system

The comprehensive system proposed by PIPS provides a web portal for patients and for physicians, a knowledge base on medical conditions, lifestyle modification and risk factors correction and a food profile / shopping advice system. The overall system relies on an easy to use content management system running as front – end and on the database via standard agents and a knowledge base management tool and application server.

Patients enter their health status on a personal web page of the Project portal: symptoms, weight, food consumption, daily physical activities and exercising, along with appropriate measurements of vital parameters. These data are then forwarded to their physicians who, in turn, can add comments, suggestions, prescribe drug changes and request for appointments. This enables a better and constant patient – physician communication resulting, in turn, in a better health care delivery.

For the food / shopping support, the Citizen can choose from a set of foods and can then automatically query the knowledgebase to know whether the food item (e.g., bought at the supermarket) is appropriate to her/his dieting profile (i.e. too much sugar or salt, etc.) and receives a response from the PIPS platform on their mobile browser. In conclusion, the PIPS platform is, to date, the first solution that encompasses all the aspects of a complete health and nutritional program, health check symptoms reporting, drug adjustment compliance verification and on the spot dietary advice.

PIPS PROJECT: DETAILED TECHNICAL APPROACH, RESULTS AND IMPACTS

In the detail, PIPS Project supports:

- *Health and Life domain*: act on prevention and preservation of the well-being of the Citizen, considering psychological/social and physical dimensions
- *Early prevention*: PIPS enables continuous self-monitoring via home medical devices connected to the system and recognizes patient health deterioration. PIPS provides prevention-oriented information dealing with attitudes and behaviour (balanced nutrition, periodic health revision, etc.)
- *Primary prevention*: after a disease, PIPS contributes to reduce risk of other acute events, supporting:
 - o Professionals in the definition of prevention plan tailored on the patient, including nutrition guidelines, physical activity planning, special behaviours, prescribed/suggested drugs or foods, helping doctors in collecting and using updated information
 - o Citizens to follow prevention indications, at home and on the move, where the Citizen lives her/his everyday life. PIPS supports Users providing warning/alert messages about drug or food or the non-compliance of the User and gives the possibility to monitor biomedical signs prescribed by the doctor.
- *Secondary prevention*: the secondary prevention intends reducing the risk of relapse or the appearance of other collateral disease. The principles of working of PIPS are similar than for the primary prevention, however the alarm level of the control prescribed by the doctor will be higher.

The *technical infrastructure* presents these significant core parts:

- *Knowledge Management*: the aim is transforming heterogeneous information sources in a trusted homogeneous valuable knowledge base
- *Decision Support*: the aim is using intelligent agents technology to generate new personalised user-oriented knowledge and support action
- *Trust infrastructure*: the aim is integrating security protocols to protect sensible information
- *User interaction*: the aim is integrating state of the art and new generation of multimedia personal assistance devices (e.g., home telecare equipment, internet enabled home appliances).

Expected Results and Impacts

- PIPS healthcare delivery model addresses societal challenges by facilitating the shift from treatment oriented medicine to prevention-oriented healthcare for Individuals
- PIPS develops a health and life knowledge and service environment
- PIPS approach supports a dependable infrastructure to provide privacy and continuity of care
- PIPS helps to match the compliance issue by providing support tools to act over the prevalent causes of non-compliance (non-voluntary, voluntary, abandoning treatment before completion), acting on motivation leverage
- PIPS provides a wide set of services to all the stakeholders to guarantee the integration across the healthcare value chain and the sustainability of all the system

PIPS system validation: the system and its usage scenarios will be validated by three levels of Users:

- Professionals knowing PIPS approach, that will lead the key – choices in order to match in the best way the expectations of those categories that will work with PIPS platform
- External Experts and Professionals, that, independently from the project team will see and analyze the system , highlighting the strength and generating elicitation within professional and social categories