

PEDOBESITY: Development of Intelligent Multi-level Information Systems and Specialized Artificial Intelligence Algorithms for Personalized Management of Obesity in Childhood and Adolescence

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Background: Obesity in childhood and adolescence represents a major health problem of our century. In Greece, more than 30-35% of children and adolescents are currently overweight or obese.

Objective: To evaluate and further develop the 'National Registry for the Prevention and Management of Overweight and Obesity in Childhood and Adolescence' in order to provide personalized intervention programs for overweight and obese children and adolescents using intelligent information systems and support systems.

Methodology: The project is part of the Operational Program "Competitiveness, Entrepreneurship & Innovation, EPAnEK 2014-2020" (project code: T1EDK-01386, MIS: 5030543, Acronym: PEDOBESITY), which is co-funded by Greece and the European Union, and represents continuation of the Program "Development of a National System for the Prevention and Management of Overweight and Obesity in Childhood and Adolescence in Greece". The main innovative actions include:

- (1) Collection and analysis of clinical, hematological, biochemical, endocrinologic and genetic data of overweight and obese children and adolescents;
- (2) Detection of polymorphisms associated with obesity, diabetes type 2, antioxidant capacity and body mass index;
- (3) Development of a specific obesity-risk algorithm by linking each genotype to the patient's data, as well as published information on how it affects body weight at clinical or genetic level;
- (4) Development of interconnected online and mobile applications to integrate the ecosystem of applications for childhood obesity. Applications will include development and expansion of the Electronic Health File (EHR) of the "National Registry for the Prevention and Management of Overweight and Obesity in Childhood and Adolescence", Patient Access Subsystem and Online Support, as well as mobile application for children, adolescents and their parents;
- (5) The development of an intelligent data management platform (in full interoperability with the "National Registry for the Prevention and Management of Overweight and Obesity in Childhood and Adolescence") using the innovative methodology of Fuzzy Cognitive Maps and modeling techniques from medical data analysis in order to provide personalized management guidelines.

Results: Our goal is to reduce overweight and obesity rates in Greece by at least 20% within 5 years following implementation of the project.

Conclusions: These research actions are expected to play an important role in the management of overweight and obesity in childhood and adolescence.

<http://app.childhood-obesity.gr/>

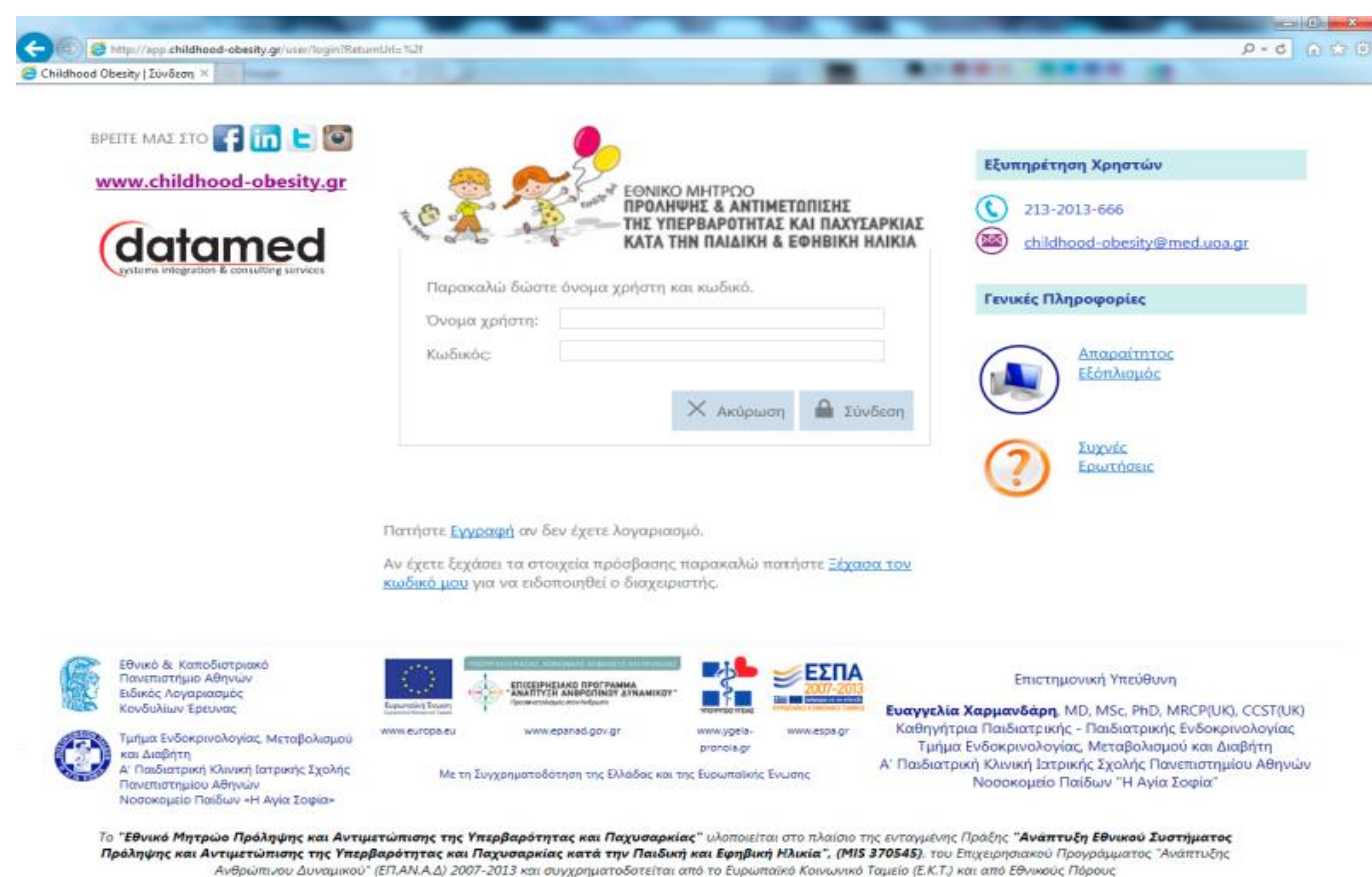


Figure 1. Login to the National e-Health System



The authors have no financial relationship(s) to disclose relevant to this presentation