

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

datamed systemsintegration &consultingservices



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www.childhood-obesity.gr

**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:

#### P-0 0000 😸 http://app.childhood-obesity.gr/user/login?ReturnUrl=%2 Childhood Obesity | Σύνδεση × ΒΡΕΙΤΕ ΜΑΣ ΣΤΟ 🌇 🧰 눝 🧐 Εξυπηρέτηση Χρηστών www.childhood-obesity.gr 213-2013-666 childhood-obesity@med.uoa.gr datamed Παρακαλώ δώστε όνομα χρήστη και κωδικό. Γενικές Πληροφορίες Όνομα χρήστη: Κωδικός παραιτητος Εξόπλισμός Χ Ακύρωση 🔒 Σύνδεση LUYVEC Ερωτήσεις Πατήστε Εγγραφή αν δεν έχετε λογαριασμό. Αν έχετε ξεχάσει τα στοιχεία πρόσβασης παρακαλώ πατήστε Ξέχασα τον κωδικό μου για να ειδοποιηθεί ο διαχειριστής.

## http://app.childhood-obesity.gr/

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:



Το "Εθνικό Μητρώο Πρόληψης και Αντιμετώπισης της Υπερβαρότητας και Παχυσαρκίας" υλοποιείται στο πλαίσιο της ενταγμένης Πράξης "Ανάπτυξη Εθνικού Συστήματος Πρόληψης και Αντιμετώπισης της Υπερβαρότητας και Παχυσαρκίας κατά την Παιδική και Εφηβική Ηλικία", (MIS 370545). του Επιχειρησιακού Προγράμματος "Ανάπτυξης Ανθρώπινου Δυναμικού" (ΕΠ.ΑΝ.Α.Δ) 2007-2013 και συγχρηματοδοτείται από το Ευρώπαϊκό Κοινωνικό Ταμείο (Ε.Κ.Τ.) και από Εθνικούς Πόρους

#### Figure 1. Login to the National e-Health System

- (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.



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





