

# Chapter 28

## Adolescence Surveillance System for Obesity Prevention (ASSO) in Europe: A Pioneering Project to Prevent Obesity Using E–Technology

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### ABSTRACT

*Adolescents' obesity is a major concern in our modern life that could lead to significant increase in the rate of obese future generations and consequently in the health budget. The ASSO (Adolescence Surveillance System for Obesity prevention) project in Italy is tackling this new pandemic using the new e-technology through a multi facets monitoring system on life style including food consumptions, meal patterns and habits, alcohol, smoking, physical activity, fitness and sedentariness, and biological/genetic, and socio-cultural/environmental characteristics of adolescents. The project has been recently piloted in the South of the country. This chapter summarizes the design and structure of the ASSO system, its implementation and the results of an evaluation process for its possible extension to the whole Italian territory and to other European realities as a national surveillance system.*

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## **1. INTRODUCTION**

The world's population is facing an unprecedented obesity pandemic (Gortmaker, 2011; Swinburn, 2011; WHO, 2006; WHO 2014). Not only are the rich and occidental countries struggling with alarming numbers of obese people but also poorer countries are also reporting an increasing number of deaths directly or indirectly related to obesity (Bhurosy & Jeewon, 2014; Popkin, 2012). The World Health Organization (WHO) showed that the main cause for mortality is cardiovascular disease (WHO 2014), with obesity one of the major determinants.

Longitudinal studies in all countries since the early 2000s have found increasing rates of overweight specifically in children and adolescents (UNICEF-WHO-World Bank, 2015). Recent data show that in Europe 8-29% of adolescents are overweight/obese, with a growing gradient from Northern to Southern countries (HBSC, 2016a). The HBSC study in Italy (HBSC, 2016b) shows that the prevalence of overweight/obesity in adolescents is on average around 19%.

It is well known that obesity and its associated non communicable diseases are common illnesses of childhood and adolescence representing an emergent public health issue (Ng, 2014; WHO, 2014). There is at least a moderate correlation between weight in childhood and adulthood, as well as obesity in childhood and later health problems (Freedman, 2005; Hills, 2007).

Collecting data on adolescents' health and behaviours through a standardized surveillance system is essential to understand diet- and physical activity-related health problems, in order to implement appropriate, effective and sustainable action plans. Data collected through a public health surveillance system represents a source that can be used for action, planning, evaluation, and formulating research hypotheses (German, 2001).

Few national surveillance systems have been established worldwide in the field of adolescents' obesity and lifestyles, such as the Youth Risk Behavior Surveillance System (YRBSS) in the USA (Brener, 2013) and the Health Behavior in School-aged Children Study in Europe (Currie, 2009). In Italy, the paper-based HBSC system is currently being up-taken every two years to collect health behavior information in adolescents, but the need for a web-based, user-friendly, low cost, valid and obesity/fitness-focused instrument has been highlighted recently (Tabacchi, 2014).

The Project "An innovative surveillance system for obesity and lifestyles in adolescents applied to the public health service", acronym "ASSO" (Adolescence Surveillance System for the Obesity prevention), was funded by the Italian Ministry of Health, involved different national and international partners, and was recently piloted in a Southern area of the Italian territory. It was launched with the aim of developing an innovative web-based system for a standardized and continuous collection of data on obesity and lifestyles among adolescents. To this purpose, different instruments included in an ASSO-toolkit were developed within the Project, and a software called ASSO-NutFit (Nutrition and Fitness assessment) was developed to allow for a web-based data collection.

The objective of the present chapter is to provide an overview of the ASSO Project architecture, with detailed descriptions of the design and structure, the actors involved, the tools developed, as well as the procedures used for sampling, recruiting, training, collecting and analysing data. Moreover, the project implementation is shown, together with a technical and procedural feasibility assessment. An assessment of the different steps of the Project is also performed to weigh how well it operates to achieve its objectives (Buehler, 1998; Teutsch & Thacker, 1995). The evaluation of the surveillance system as a whole is shown finally, with the purpose of assessing its suitability to be adopted as an effective, sustainable

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