



inDemand: Demand driven co-creation for public entities

CHALLENGE 2: MENUDO (Child obesity support solution for healthcare providers and families)

Pitch

Use mobile digital technologies to treat child obesity within Healthcare public organizations through education, motivation and adherence

Motivation and description

Obesity is the most serious public health threat in developed countries, because of sedentary lifestyles and high caloric diets. Overweight and obesity have their origin in a positive balance gain between ingestion and physical activity, in favour of the first. The high prevalence of overweight and obesity has serious consequences for health as it is a major risk factor for diseases such as high blood pressure, heart disease, type 2 diabetes and many cancers (e.g. colorectal, renal and esophageal).

More than 40% of Spanish children between 6 and 9 years old are overweight or obese (see [ALADINO study](#)) with an increasing tendency that could not be reversed despite the interventions made by governments ([NAOS strategy](#)). This makes the Challenger suspect that current strategies deployed are ineffective or, at least, insufficient.

Among the possible **causes of this health failure** in the management of childhood obesity are:

- Little time in the appointment to explore the feeding behaviour of each patient, correct incorrect habits and design individual approach strategies adapted to the patient's environment.
- Inability for more frequent appointments: patients with overweight/obesity require closer follow-up to quantify progress and correct habits.
- Demotivation on the part of the patient and of the families in the absence of short-term rewards.
- Ignorance of effective dietary actions and false myths about nutritional habits.

The Challenger -Servicio Murciano de Salud (SMS)- has the need to create a new intervention focused on the child and his family (responsible for their life habits) that address the key aspects: education, motivation and adherence.

Main success indicator of a clinical obesity/overweight program is the [Body Mass Index](#), that relates current weight to patient height.

Main objective

1. Demonstrate that a digital solution, in the context of a regional public health service, is effective in the management of children obesity.
2. As a secondary objective, Servicio Murciano de Salud (SMS) also wants to learn how to easily integrate 3rd party patient facing mobile solutions via its corporate systems.

Pilot functional scope

Compulsory requirements

1. Collect and exchange information between healthcare professionals and patients, together with their families, in a secure and privacy-aware channel.
2. Be useful and appealing for the end users, especially the children. Usability is a must.
3. Be adherent and engaging, meaning the users (patient and families) regularly keep on using it over time.
4. Support the correct nutritional training/coaching at individual and family level, with content provided and/or supervised by SMS
5. Effectively encourage physical exercise.

6. Enable the intuitive access to information from healthcare professionals, both at aggregated and granular level.
7. Be able to show progress over time, in particular in [Body Mass Index](#), [Body Fat Percentage](#). Also, collect data from satisfaction and empowerment ([ALADINO test](#)) surveys.
8. Track exercise with external devices (like Fitbit bands, Bluetooth scales or similar)

Desirable requirements

1. Innovative gamification approaches that engage all end users over time.
2. Be pro-active when users do not respond as expected.

Pilot set up (requirements and compliance)

A total of 77 users are expected to be recruited by the Challenger before start of the intervention and participate in the pilot: 30 children and their related parents (estimated at 40), together with 7 healthcare professionals from the SMS.

Clinical and Ethical and Data Protection

The approach of the pilot must be previously validated by an Ethics Committee of the Servicio Murciano de Salud. The Committee will pay special attention to the permission of children who are minors, the informed consents of the patients and parents participants and the protection of personal data, observing the requirements established by the new European data protection [Regulation \(EU 2016/679\)](#) and the Spanish law. Among others an Impact Analysis document, with identified risks and proposed measures, will be required to the Solver.

If deemed necessary, the Solver will be asked to anonymize the data according to mechanisms established by the Challenger. At any case, the Solver cannot exploit or make use of the data for different purposes than the ones agreed with the Challenger and, after pilot end, all copies of the data must be transferred back to the Challenger or deleted.

Technological

If solver proposes an App to be installed in smartphones, it must be called from the SMS Official App. The user identification will be then provided through the SMS Official App, using the OAuth standard.

The solution will notify SMS systems about certain events and situations. Ideally via 'HL7' messaging, but web services could also be an option. This information may include registration status, activity, progress and periodic (summarized) clinical information.

The IT systems needed for running the solution will be hosted by the solver. If the complexity of the connections is too high or the personal data could be at risk, these systems could be hosted in local servers of the SMS. This will be established in a technical session at the beginning of the project. Anyway, the solver will provide mechanisms to guarantee that the Servicio Murciano de Salud can exploit the data.

Data

No prior Challenger data is expected to be available, meaning all users will start as new users in the system. The repository of documents and resources to be shared with the end users will be supplied and / or validated by the SMS.

Expected impact and KPIs

- Improvement of nutritional knowledge and healthy lifestyle habits through at least a 20% increase in the [ALADINO questionnaire](#) score at the end of the intervention.
- Decrease in BMI by 0.1 for each month of intervention.
- Decrease in fat mass index by 0.1% for every 2 months.
- Satisfaction survey of to all the users in their different roles (children, parents, professionals) measuring usability and usefulness. The objective is at least 80%.
- Adherence: number of users who continue to use / access the application at least once a week at the end of the pilot. Objective: 80% of the families.

The SMS will study the possibility of developing an analysis of the economic impact by the methodology of Social Return of Investment (SROI) to take the decision to scaling-up this solution. This method estimates the total impact on society of any intervention including indirect savings, something that until now was difficult to demonstrate in preventive interventions.

Business opportunity

In a [study conducted in 2012](#) with children between the ages of 2 and 14 years, in the Region of Murcia there were 71,400 children with overweight. Prevention should be a priority investment in health for all insurers, whether public or private, because both are interested their population being as healthy as possible to make their insurance more efficient. This pilot aims to demonstrate the efficiency of a preventive intervention, quantifying the saving of future costs, extrapolating and comparing both scenarios (with and without intervention).