



nutrishield

Welcome to the 8th
NUTRISHIELD e-Bulletin!

Issue 8 / April 2023

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Key Facts

Grant Agreement:

No 818110

Call:

H2020-SFS-2018-1

Start date:

01 November 2018

Duration:

48 months

Coordinator:

Alpes Lasers SA



Project Overview

NUTRISHIELD is an innovative solution, providing personalised nutrition advice and support that will assist people in achieving their optimal health and well-being and adopting long-term healthy and sustainable diets.

NUTRISHIELD aims to integrate laboratory techniques, methodologies, ICT devices & applications, algorithms and other components into one platform and validate it in clinical conditions.



The Challenge

To create a platform that

- promotes safe food for the population,
- enables consumers to make informed choices and
- ensures that the proposed choices will have good chances of being adopted

Assist consumers understand:

- why each food is being suggested,
- what implications each choice may have



Expected Impact

- Empowered consumers able to make healthy and sustainable dietary choices
- Personalised diets upon scientific-based dietary assessment and advice
- Increased consumer trust in personalised nutrition advice and/or support
- Prevention of diet-related and non-communicable diseases
- Quality-Of-Life, Health and Safety of the citizens





Clinical Studies – Publications

First Article

Title: Fact-based nutrition for infants and lactating mothers – The NUTRISHIELD study II

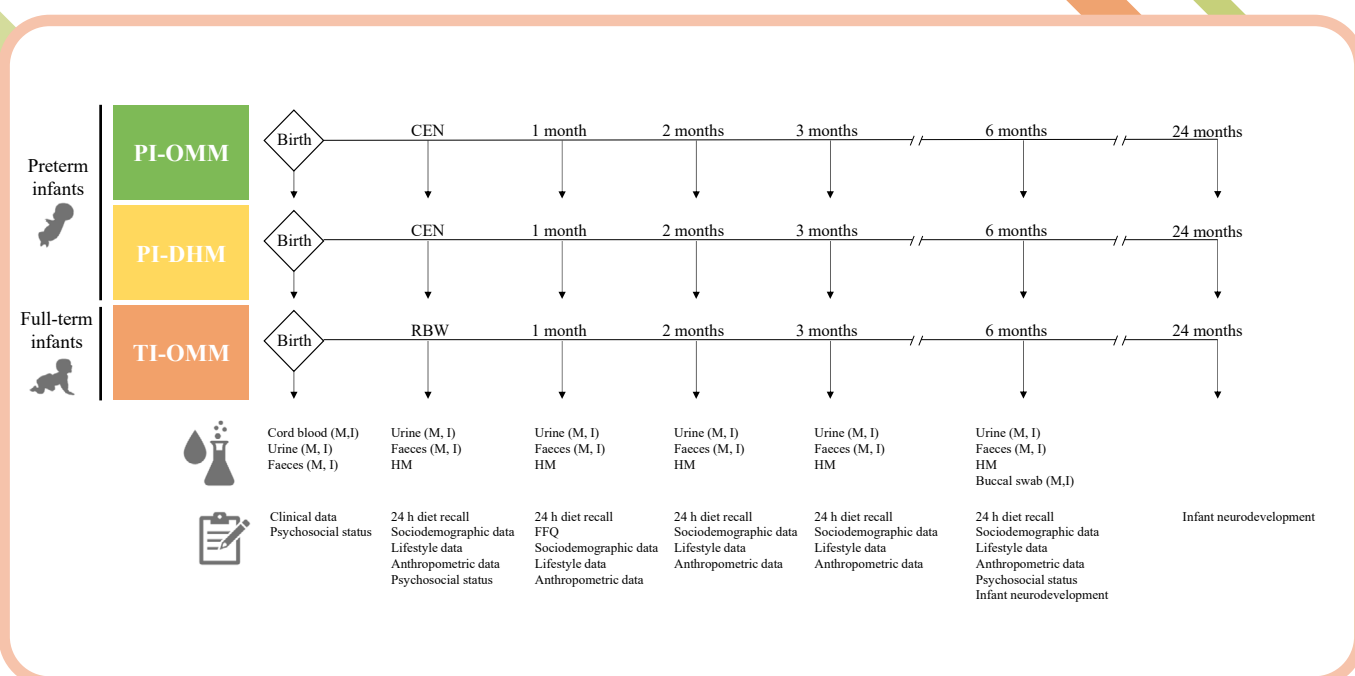
Authors: Victoria Ramos-Garcia, Isabel Ten-Doménech, Alba Moreno-Giménez, Laura Campos-Berga, Anna Parra-Llorca, Amparo Ramón, María J. Vaya, Fady Mohareb, Corentin Molitor, Paulo Refinetti, Andrei Silva, Luis A. Rodrigues, Serge Rezzi, Andrew C.C. Hodgson, Stéphane Canarelli, Eirini Bathrellou, Eirini Mamalaki, Melina Karipidou, Dimitrios Poulimeneas, Mary Yannakoulia, Christopher K. Akhgar, Andreas Schwaighofer, Bernhard Lendl, Jennifer Karrer, Davide Migliorelli, Silvia Generelli, María Gormaz, Miltiades Vasileiadis, Julia Kuligowski and Máximo Vento, on behalf of the NUTRISHIELD team

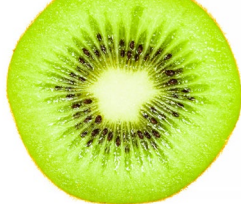
Link: <https://www.frontiersin.org/articles/10.3389/fped.2023.1130179/abstract>

Abstract

Human milk (HM) is the ideal source of nutrients for infants. Its composition is highly variable according to the infant's needs. When not enough **own mother's milk (OMM)** is available, the administration of pasteurized **donor human milk (DHM)** is considered a suitable alternative for preterm infants. This study protocol describes the NUTRISHIELD clinical study. The aims of this study are multiple, comprising the evaluation of the influence of diet, lifestyle habits, psychological stress, and pasteurization on the milk composition, and how it modulates infant's growth, health, and development.

Clinical trial registration: <https://register.clinicaltrials.gov>





Second Article

Title: Visualization of Nutrient-Related Clinical Practice Guidelines in Childhood

Authors: George Antonogeorgos, Eirini Bathrellou, Matina Kouvari, Eirini Mamalaki, Dimitrios Poulimeneas, Mary Yannakoulia, Demosthenes B. Panagiotakos

Link: https://www.researchgate.net/publication/354260025_Visualization_of_Nutrient-Related_Clinical_Practice_Guidelines_in_Childhood

Abstract

Obesity and diabetes rates have been rising to epidemic levels during the last decade, especially among young populations. Recommendations for clinicians and primary healthcare providers concerning the improvement of childhood nutrition and the healthcare of childhood nutrition-related diseases are of major interest. **Clinical Practice Guidelines (CPGs)** of the most updated evidence-based recommendations are useful tools that help clinicians in their practice. However, a gap has been observed between the suggested CPGs and their implementation in the context of everyday clinical practice. This could be merely attributed to

the text format that is usually presented. In this review article, all the CPGs about the best dietary advice regarding energy and macronutrient intake in childhood and the most common chronic nutrition-related childhood diseases, i.e., obesity, dyslipidemia, and diabetes mellitus type 1 and 2, are summarized and visualized in an algorithmic format and practical examples are given. This could help healthcare providers to achieve a higher adoption rate of CPGs in clinical practice, thus, resulting in better management of children's health and improved clinical outcomes.

Keywords: nutrition, guidelines, algorithm, children.





Clinical Studies - Testing the pH sensor

The NUTRISHIELD pH sensor prototype, which includes a 6 CHs potentiostat with its own personalised **graphical user interface (GUI)** and the screen-printed pH sensors, was tested in the research laboratory by HULAFE (Fundacion Para La Investigacion Del Hospital Universitario La Fe) as well as in the NICU (Neonatal Intensive Care Unit) of the University and Polytechnic Hospital La Fe. The benchtop pH sensor prototype does not require any specific installation and is portable, hence measurements could be performed in both locations, the research laboratory and the NICU easily and without the need of specialised personnel.

The **testing** of the pH sensor prototype was performed on a weekday between 8.30 and 14:00 without interfering with any activities in both environments, i.e., the research laboratory and the NICU. The screen-printed pH sensors were calibrated, repeated measurements were conducted (at least 10 measurements per calibration), and washing steps were performed with no specific incidences or errors.

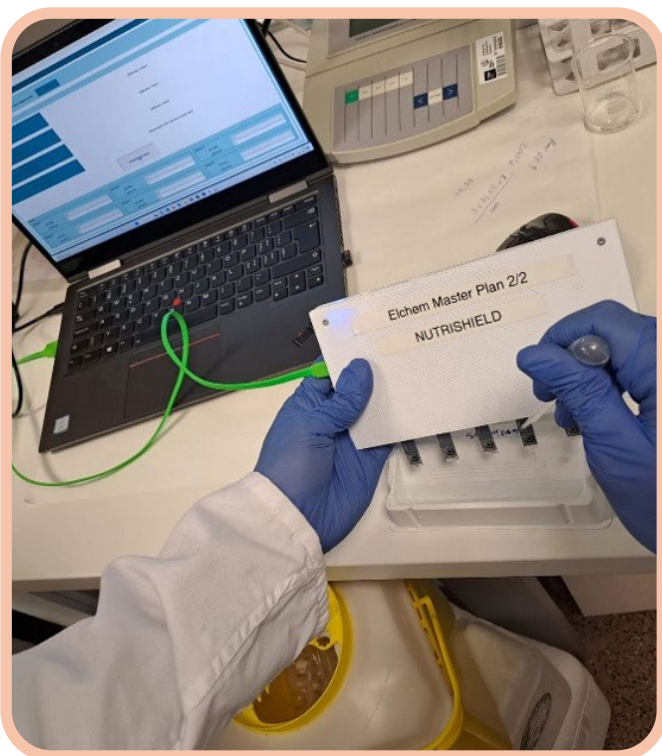


Figure 1. Testing of the pH sensor in the research laboratory at HULAFE by laboratory staff.



Figure 2. Testing of the pH sensor at the NICU by physicians and healthcare professionals.

A survey was carried out at HULAFE (Hospital University of La Fe) aiming to collect feedback from the users that participated during the demonstration activities. Physicians and healthcare professionals, as well as laboratory staff participated in the demo in the laboratory and/or NICU environments. The results of the survey showed that there is a high interest expressed by all the respondents to use or suggest the use of the NUTRISHIELD pH sensor in the routine practice, while the cost, the analysis time, and the employed sample volume are all highly important variables determining the usability of such an analysis device.

The NUTRISHIELD pH sensor was successfully benchmarked in a laboratory environment as well as the NICU operated by laboratory and medical personnel. In general, good agreement between measurements performed by CSEM (Csem Centre Suisse D'électronique Et De Microtechnique Sa – Recherche Et Développement) and HULAFE as well as between the screen-printed pH sensor and a conventional pH meter were obtained.

Latest Events

First Event

NUTRISHIELD at Panhellenic Working Groups Cardiology Conference 2023

The Panhellenic Working Groups Cardiology Conference was held in Thessaloniki, Greece between February 16-18, 2023.

NUTRISHIELD has been represented in this conference by our partner Harokopio University of Athens (HUA) to highlight the need for a personalised approach in the prevention of cardio-metabolic diseases, including obesity.

Moreover, the need for developing modern and efficient personalised **e-approaches** for the prevention of obesity, other metabolic disorders and cardiovascular diseases has been underlined.



Second Event

NUTRISHIELD at DITID 2023

The DITID 2023 conference was held in San Raffaele Hospital, Milan, Italy between 15-16/02/2023.

NUTRISHIELD has been represented in this event by our partner OSR with a poster presentation entitled: The Nutrishield EU-Project: a personalized platform to link diet to microbiota composition, intestinal inflammation and beta cell autoimmunity in children with T1D and Obesity.



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