



Strategic Priorities in Paediatric Research: Gastroenterology, Hepatology, and Nutrition

Background

Paediatric gastrointestinal diseases affect one in four children in Europe, constituting a public health challenge of great magnitude.¹ A recent WHO European Childhood Obesity Surveillance Initiative (COSI) study, for example, shows that across participating countries, one in four children (25%) aged 7–9 was living with overweight (including obesity), and one in ten (11%) with obesity.² Also, celiac disease, inflammatory bowel diseases and liver diseases are becoming increasingly common in young children, both representing a rising problem with significant impact on public health.

These and other widespread paediatric digestive and liver conditions require tailored care protocols based on robust evidence, as well as harmonised professional training, to prevent long-term morbidity.³ Research can play a modifying role through the collection of data and the development of new diagnostic and treatment methods tailored to the needs of children and young adults.

Paediatric Research as a Pathway to Sustainable Health System

The paediatric age, and specifically the first few years of life offers a unique window of opportunity for primary prevention of future diseases which may affect both children and adults. Scientific evidence demonstrates that many of the leading causes of morbidity and mortality in adulthood have their roots in childhood.⁴

Prioritising research in the paediatric population is not merely a matter of equity, but also of biological efficacy and healthcare system efficiency. Conducting research during stages of high biological plasticity—such as the perinatal period and early childhood—allows for the identification of early risk biomarkers and the ability to intervene in disease trajectories before amage becomes permanent.⁵

Whilst research in adult gastrointestinal diseases predominantly seeks to halt the progression of pathologies such as colorectal cancer or liver failure, paediatric research in areas like the gut microbiota and personalised nutrition offers the possibility of 'programming' the immune and metabolic systems, thereby reducing the risk of these diseases decades later.⁶

Centring research efforts on paediatrics implies a structural shift in the healthcare model: from a predominantly reactive one, aimed at treating established disease, to a proactive one, focused on promoting health trajectories throughout the life course. Advances in early diagnosis and paediatric intervention not only add years to life, but also life to years, reducing the global burden of disease in European society and contributing to the sustainability of healthcare systems by preventing today's children from becoming complex chronic patients later in life.³



¹ **ESPGHAN. (2023).** *Position Paper: The role of the paediatrician in the management of obesity and its complications.* *Journal of Pediatric Gastroenterology and Nutrition (JPGN).*

² **WHO Europe. (2025).** *WHO European Childhood Obesity Surveillance Initiative (COSI): Report on the sixth round of data collection, 2022–2024*

³ **OECD/European Union. (2024).** *Health at a Glance: Europe 2024: State of Health in the EU Cycle.* Paris: OECD Publishing.

⁴ **DOHaD Society. (2023).** *The Developmental Origins of Health and Disease: Global perspectives on prevention.*

⁵ **ESPGHAN/ESPR/ESPEN/CSPEN. (2022).** *Research priorities in paediatric parenteral nutrition*

⁶ **ISAPP. (2024).** *Gut Microbiome and Immune Programming in Early Life.*



The economics behind paediatric

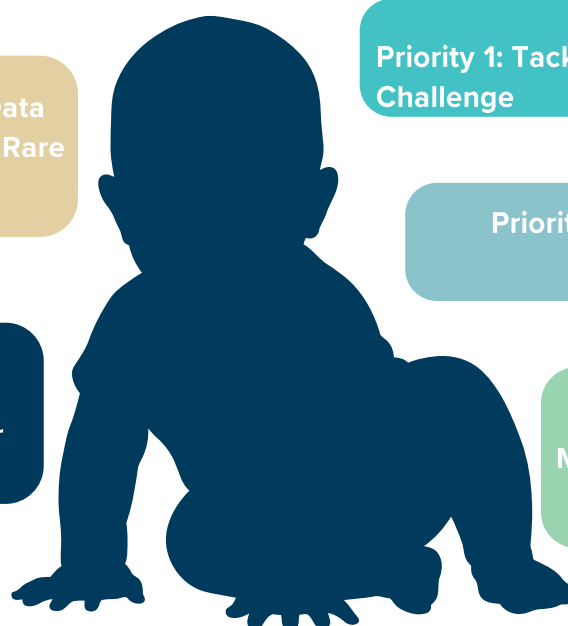
The economic footprint of untreated or poorly managed paediatric gastrointestinal diseases is unsustainable for the EU. For instance, failure of obesity prevention or delayed intervention generate billions in direct medical costs and indirect productivity losses in future adulthood. Shifting the investment towards early diagnostic markers and standardised care pathways is not only a health priority but an economic necessity to ensure the future productivity of the European workforce.⁷



Prevention must be the cornerstone of the European health strategy. This focus should rely not on increased medication, but on nutrition as a primary preventive tool. By gaining a deeper understanding of biological mechanisms—such as the gut microbiome and nutrient signalling—we can prevent the onset of multi-systemic diseases before they require pharmacological intervention. Investing in 'Nutrition-First' research is the most effective way to reduce the long-term pharmaceutical burden on Member States.⁸

Research priorities

At a time when European health systems face growing pressures—from demographic change and chronic disease to health inequities and climate-related challenges—investing in paediatric research is both a scientific necessity and a strategic imperative. Strengthening the evidence base for child health enables earlier interventions, more effective treatments, and healthier transitions into adulthood, ultimately supporting more sustainable and equitable health systems across Europe. Against this background, we will outline key paediatric research priorities for Europe, highlighting areas where targeted investment can deliver lasting benefits for children, families, and society as a whole.



Priority 5: Strengthening Data Infrastructure for Paediatric Rare Digestive Diseases

Priority 1: Tackle the Obesity Challenge

Priority 2: Nutrition and child development

Priority 4: Improve equity in Europe for treatment of paediatric digestive and liver diseases

Priority 3: Chronic Immune-Mediated Diseases and Nutritional Prevention

⁷European Commission. (2026). *The Socio-Economic Impact of Chronic Pediatric Diseases on the European Health Union*.

⁸World Health Organization (Europe). (2026). *Nutrition as a primary preventive mechanism for non-communicable diseases*.



From a European affairs perspective, paediatric research in gastroenterology, hepatology, and nutrition must be aligned with strategic priorities that reflect its long-term social, economic, and healthcare impact. Childhood obesity, diet-related digestive disorders, and emerging metabolic diseases are placing an increasing burden on Member States and threatening the sustainability of healthcare systems. A clear example is the rise in paediatric metabolic dysfunction-associated steatotic liver disease (MASLD), reflecting the early impact of obesogenic environments. No longer merely a metabolic by-product, MASLD is emerging as a leading cause of liver transplantation in young adults. Across Europe, progression from simple steatosis to fibrosis is accelerating in children, yet screening practices remain inconsistent among Member States.⁹

Addressing these challenges from early childhood enables intervention at the most effective and cost-efficient stage of the life course. Such an approach directly supports the non-communicable disease prevention objectives promoted by the European Union and contributes to the long-term sustainability of European healthcare systems. Obesity-related conditions alone are estimated to account for up to 7–8% of total national healthcare budgets across EU Member States,⁹ highlighting not only a clinical challenge but also a systemic failure with significant economic repercussions.

The impact of ultra-processed foods (UPFs) on early metabolic programming is particularly concerning. Evidence indicates that high UPF consumption during the first 1,000 days of life may permanently alter insulin response and satiety signalling, thereby increasing long-term metabolic risk.¹⁰ At the same time, disparities in protein quality between infant formulas and breast milk remain insufficiently understood, underscoring the need for more precise biomarkers to predict long-term obesity risk and guide evidence-based nutritional strategies from the earliest stages of life.¹¹

Research priorities:

- Paediatric research into the prevention, early diagnosis, and comprehensive management of MASLD is fundamental to preventing its progression towards advanced liver disease in adulthood. Although it does not, on its own, eliminate the population's metabolic burden, this research enables the development of more effective clinical guidelines and care models that reduce future complications and associated costs for European healthcare systems.
- We must obtain a better understanding of optimal feeding patterns and composition in infants and toddlers' diets, the role of ultra-processed foods in early childhood and long-term metabolic outcomes of these patterns.
- We must gain a deeper understanding of how dietary ingredients in infants and toddlers' diets influences the microbiota-gut-brain axis and long-term metabolic health.
- Evaluate the impact of UPFs in early childhood, analysing not only their nutritional value but also the effects of industrial additives and processing on long-term metabolic outcomes across different European dietary patterns.
- Develop robust models to quantify potential savings in national health budgets by implementing evidence-based nutritional interventions during early childhood.

⁹European Commission. (2026). *Report on Health Inequalities in Pediatric Specialty Care: Achieving Equity in the European Health Union*.

¹⁰Monteiro, C. A., et al. (2024). *Ultra-processed foods, diet quality, and health in early childhood: A European multi-center study*.

¹¹Koletzko, B., et al. (2025). *Protein intake in infancy and later obesity risk: Update on the Early Nutrition Project*.



Priority 2: Nutrition and child development

Early nutrition and child development represent a strategic priority, given their decisive role in growth, neurodevelopment, and the future risk of digestive and metabolic diseases. The “first 1,000 days” constitute a critical window of high biological plasticity during which nutritional exposures can directly shape the epigenome and influence the establishment of the gut microbiome. Suboptimal nutritional support during this period may disrupt microbiome development and epigenetic programming, leading to adverse health outcomes later in life, with associated long-term social and economic costs for the EU. Therefore, understanding how modern dietary patterns interact with both the developing epigenome and gut microbiome is essential for the prevention of chronic disease across the life course.¹²

Research priorities:

- Strengthening research into breastfeeding, the introduction of solid foods, and dietary patterns in the first years of life will support evidence-based public policies and family support programmes. This approach not only improves child health outcomes but also contributes to reducing social and health inequalities between regions and socio-economic groups, in line with the EU’s cohesion objectives.¹³
- Strengthening research on breastfeeding, complementary feeding, and dietary patterns in the early years of life will underpin evidence-based public policies and family support programmes. This will not only improve child health outcomes but also provide a robust scientific foundation for harmonising infant feeding guidelines across Member States, ensuring that all children in the EU have access to optimised nutritional guidance regardless of geographical location.

Priority 3: Chronic Immune-Mediated Diseases and Nutritional Prevention



The European disease landscape is shifting, with a significant rise in chronic immune-mediated conditions that demand a strategic pivot toward primary prevention. Celiac Disease now affects up to 3-5% of the paediatric population in high-risk regions (e.g., Scandinavia) and screening-intensive areas as of 2025¹⁴, while Inflammatory Bowel Disease (IBD) affects ~1% of the total population, with a high proportion (15%-20%) of cases originating in childhood.¹⁵ Furthermore, Eosinophilic Esophagitis (EoE) has emerged as a major 'oesophageal allergy,' reaching to almost 0.1% of children in recent studies and becoming one of the most common emerging chronic conditions.¹⁶

Addressing these conditions requires an urgent emphasis on prevention through nutrition rather than medication. By understanding the biological mechanisms—such as the gut microbiome and nutrient signalling—we can prevent the onset of these diseases before they require lifelong pharmacological intervention. This shift is not only a clinical necessity but an economic one; untreated digestive disorders generate massive direct medical costs and indirect productivity losses for the EU. Investing in 'Nutrition-First' research is the most effective way to ensure the long-term sustainability of the European Health Union.¹⁸

¹² **ESPGHAN/ESPR. (2025).** *The First 1,000 Days: Epigenetic programming and long-term health outcomes in Europe.*

¹³ **European Commission. (2023).** *The European Child Guarantee: Monitoring and evaluation framework.*

¹⁴ **ESPGHAN. (2025).** *Celiac Disease Prevalence in Europe: 2025 Epidemiological Update.*

¹⁵ **ECCO/ESPGHAN. (2025).** *Pediatric-onset IBD: Long-term trends and healthcare burden.*

¹⁶ **Lucendo, A. J., et al. (2026).** *Eosinophilic Esophagitis: The growing epidemic of esophageal allergy in children.*

¹⁷ **European Commission. (2026).** *The Socio-Economic Impact of Chronic Pediatric Diseases on the European Health Union.*

¹⁸ **WHO Europe. (2026).** *Nutrition as a primary preventive mechanism for non-communicable diseases.*

Research priorities:

- Understand the early mechanisms of gut inflammation to allow for targeted dietary interventions before clinical symptoms arise.
- Develop non-invasive biomarkers and screening modalities for IBD and EoE to enable personalized non-invasive therapeutic approach for these conditions
- Investigate the gut-microbiome and metabolic pathways to identify how specific nutritional approaches in the first 1,000 days can 'switch off' genetic predispositions to IBD and other inflammatory conditions.
- Create standardized EU models to quantify the Return on Investment (ROI) of prioritizing paediatric nutritional health over long-term pharmaceutical spending, specifically in the context of chronic diseases.



Priority 4: Improve equity in Europe for treatment of paediatric digestive and liver diseases

Marked differences in access to and organisation of paediatric digestive care across EU countries and regions, underscore the need for targeted research into care models and clinical pathways. Variability in referral systems, availability of specialised paediatric gastroenterology and hepatology services, multidisciplinary team structures, and integration between primary, secondary, and tertiary care contributes to unequal health outcomes and inefficiencies in service delivery. Research aimed at identifying, evaluating, and harmonising effective models of care would support more equitable access, improve continuity of care, and optimise resource use, ultimately reducing avoidable hospitalisations and long-term societal costs across the EU.¹⁹

Research priorities:

- Studies analysing how services are organised, how care is coordinated between levels, and which models offer the best results allows for the identification of transferable and realistic solutions.²⁰ This knowledge is essential to enhance equity, optimise resource use, and ensure that all children in Europe benefit from high-quality paediatric digestive care, regardless of their place of residence.
- The 'postcode lottery' in paediatric care remains a major barrier to the European Health Union's goals. Disparities in access to specialized nutrition and biologics are widening between Member States, risking a fragmented health landscape. Research is needed to map these gaps and implement digital health solutions (e-Health) to ensure medical innovation reaches every child equally, regardless of their place of residence.²¹

¹⁹ Kral J, et al. (2023) "Significant Differences in IBD Care and Education across Europe: Results of the Pan-European VIPER Survey." *Digestive Diseases*

²⁰ OECD/European Union. (2024). *Health at a Glance: Europe 2024: Access and organisation of care.*

²¹ European Commission. (2026). *Report on Health Inequalities in Pediatric Specialty Care: Achieving Equity in the European Health Union.*

Priority 5: Strengthening Data Infrastructure for Paediatric Rare Digestive Diseases



Paediatric rare digestive diseases — including rare congenital malformations, inherited metabolic and cholestatic liver disorders, severe motility disorders, rare inflammatory conditions, and genetic enteropathies — collectively represent a substantial burden of morbidity, mortality, and lifelong disability.²²²³²⁴ Although individually rare, together they affect thousands of children across Europe and globally. Despite advances in genomics, precision medicine, and targeted therapies, progress in this field is significantly constrained by fragmented, incomplete, and non-standardised data. Most paediatric rare digestive diseases for example lack reliable epidemiological data, harmonised diagnostic criteria and longitudinal natural history datasets.

Research priority:

- Build a European Data and Research Infrastructure for Paediatric Rare Digestive Diseases. Current fragmented datasets, inconsistent registries, and limited cross-border interoperability prevent meaningful epidemiological surveillance, natural history studies, and efficient clinical trials.

²² **Xi Luo et al. (2024).** *Burden of digestive congenital anomalies among children aged 0-14 years in 204 countries and territories, 1990-2021: results from the Global Burden of Disease Study 2021*

²³ **J Köglmeier and K.J. Lindley (2024).** *Congenital Diarrhoeas and Enteropathies*

²⁴ **Yi-Gui Zou et al. (2023).** *Challenges in pediatric inherited/metabolic liver disease: Focus on the disease spectrum, diagnosis and management of relatively common disorders*