



The Exposome Alliance Manifesto

What is the Exposome?

Where you live, how you live, where and how you work, the pollutions and dangerous products you are exposed all have an impact on your health. The exposome is everything in our environment and daily lives that affects our health – apart from our genes. It includes the air we breathe, the food we eat, the chemicals we are exposed to, our housing and working conditions, noise, stress, and social factors like income or education. These exposures, including their combined «cocktail effects», contribute to the rise of non-communicable diseases (NCDs).

Chronic diseases such as cancer, heart disease, diabetes, and respiratory conditions account for most healthcare costs and economic burdens in Europe. While genetics plays a role, research shows that up to 90% of disease risk is linked to environmental and lifestyle factors – many of which are poorly measured, weakly regulated, or entirely preventable*. The explosion of NCDs is a major driver of accelerating healthcare spending in Europe, making investment in the exposome and prevention increasingly urgent.

The science that studies these influences is called exposomics. Instead of focusing on one risk factor at a time, it looks at how multiple environmental, social, and behavioural exposures combine, accumulate, and affect our health over a whole lifetime.

Understanding the exposome can help shift health policy away from reacting to illness and towards preventing disease before it starts. It can inform smarter decisions on chemical safety, urban planning, climate adaptation, workplace health, and healthcare guidelines, ultimately reducing disease, costs, and inequalities.

The European Union is already a global leader in exposome research. Scientists are now calling for larger population studies, better data sharing, and the responsible use of AI to turn exposome science into real-world health protection.

Why we must act now

Chronic diseases account for 86% of deaths and nearly 80% of health spending, while inequalities cost 9% of the EU GDP. The scientific and technical conditions to act are in place: research infrastructures such as [EIRENE](#) are operational, data tools are mature, and harmonised frameworks for linking health and environmental data are ready to scale. Political momentum is also growing across the European Parliament. Europe has everything it needs to build a coordinated prevention system based on exposome science – what is needed now is the political commitment to do so.

*Rappaport SM, Smith MT. *Epidemiology. Environment and disease risks. Science. 2010 Oct 22;330(6003):460-1. doi: 10.1126/science.1192603. PMID: 20966241; PMCID: PMC4841276.*

To seize this moment, the Exposome Alliance is calling for action on three fronts:

Our Three Pillars for Action

A Mission Exposome under Horizon Europe, with a €1 billion dedicated budget and the initiation of a longitudinal cohort of 10 million participants tracking environmental, chemical, biological, and social exposures throughout the life course. This initiative would position Europe alongside major international efforts in the United States and China, generating unprecedented population-specific evidence to inform EU prevention policies, support AI-driven risk prediction, and advance personalised and precision medicine. Combined with the European Genome Programme as part of the 1+Million Genomes (1+MG) Initiative, it would create a powerful integrated knowledge base linking genetic, environmental, and social determinants of health – catalysing biotech development and strengthening Europe’s research and innovation ecosystems.

A European Exposome Data Space enabling the systematic, secure, and interoperable linkage of health, environmental, behavioural and social data across the EU. Inspired by national models such as France’s [Health–Environment Data Hub](#), this framework would connect Member States’ data infrastructures in a harmonised way, moving Europe beyond treating disease toward understanding and preventing it. Fully integrated with the European Health Data Space and the EU Life Sciences Strategy, it would support more effective prevention strategies, better risk identification, and targeted public health interventions for non-communicable diseases.

A Common Prevention Pillar building on the EU Healthier Together NCD Initiative to enhance coordination and coherence across existing EU prevention efforts. Using the exposome approach, this pillar would link and reinforce initiatives across cancer, diabetes, cardiovascular health, environment, chemicals, food systems, urban planning, transport, and social inclusion — with particular attention to upstream determinants such as early-life exposures, environmental pollution, occupational risks, and social inequalities. EU action would deliver added value through coordination, knowledge sharing, joint tools, and supportive funding under the next Multiannual Financial Framework.

Our Call

We call on the **European Commission** and **Member States** to embed the Exposome Mission, the Exposome Data Space and the Common Prevention Pillar in the next Multiannual Financial Framework; to integrate exposome-based prevention into European health, research, digital and industrial policies; and to commit to healthy longevity and to reduce NCDs.

EU action should be guided by a commitment to human rights, ensuring that prevention and health policies protect the dignity, safety and well-being of all individuals.

We commit to building a Europe where prevention, equity, health and competitiveness reinforce one another.

Signatories

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