



EXPOSOME ALLIANCE

Core Initiatives

The Exposome Alliance aims at positioning the exposome at the heart of Europe's future health, research and prevention agenda: (A) launching a Mission Exposome to transform life-course health research and innovation; (B) building a European Exposome Data Space; and (C) establishing an EU Prevention Action Plan to address the root causes of non-communicable diseases and mental health across all policies. The objectives of the Alliance are fully aligned with the ambitions of the next Multiannual Financial Framework and should be firmly anchored within EU health spending under the new budget, while Priority B should be supported through the EU's digital leadership and data infrastructure envelopes. Together, these three pillars provide a coherent framework for making prevention, data and exposome science a core driver of EU's health, competitiveness and societal resilience.

A. Support research on exposome and launch a Mission Exposome



To fully leverage the exposome for prevention, innovation, and public health, the EU should establish a **Mission Exposome in Horizon Europe**, with its central pillars being a €1 billion budget dedicated to research on the exposome, and a longitudinal cohort of 10 million participants across the EU, tracking environmental, chemical, biological, and social exposures throughout the life course.

This large-scale initiative would position Europe alongside major international efforts – notably in the United States and China – and would generate unprecedented, population-specific evidence to inform EU prevention policies, support AI-driven risk prediction, advance personalised and precision medicine, and catalyze biotech development.

Combined with the Genome of Europe initiative, a Mission Exposome would create a powerful integrated knowledge base linking genetic, environmental, and social determinants of health. This would significantly strengthen Europe's health, medical research, and biotechnology ecosystems, while supporting the social and economic competitiveness of the EU population.

B. Build a European Exposome Data Space for Prevention



The Exposome Alliance will call on the Commission to establish a **European exposome data space** that enables the systematic, secure, and interoperable linkage of **health, environmental, social and behavioural data** across the EU in support of **disease prevention, public health, and evidence-based policy**. Inspired by national initiatives such as France's Health–Environment Data Hub, the Alliance will promote a coordinated European framework allowing Member States to connect their health and environmental data infrastructures in a harmonised way.

By making exposomic data visible, usable and interoperable, the Alliance will enable Europe to move beyond treating disease toward **understanding and preventing it**; by analysing how real-world environmental, occupational, lifestyle and social exposures interact with biological and genomic factors across the life course. This will support more effective prevention strategies, better risk identification, and more targeted public health interventions for non-communicable diseases and environmentally driven health risks.

The European Health Data Space (EHDS) and the EU Life Sciences Strategy will serve as key instruments to deliver this objective. The EHDS provides the legal and technical foundation for secure, cross-border use of health data; the Alliance will advocate for the explicit inclusion and operationalisation of **exposomic and environmental datasets** within EHDS implementation, including interoperable standards for linking them to health and genomic data. At the same time, the Life Sciences Strategy's investments in **data infrastructure, AI, genomics and cross-sector data governance** provide a powerful platform to scale up exposome science and integrate it into Europe's research and innovation ecosystem.

C. A common prevention pillar to strengthen prevention



Building on the EU Healthier Together NCD Initiative and other established policy frameworks, this proposal calls on the Commission to **enhance the coordination, coherence, and implementation of existing EU initiatives aimed at preventing non-communicable diseases (NCDs)**. This approach would focus on better aligning current instruments, facilitating synergies across sectoral policies, and supporting Member States in the effective delivery of prevention measures.

While the EU has disease-specific plans and flagship initiatives, it still lacks a framework to **coordinate and support Member States in their efforts to step up prevention** against the combined, lifelong exposures driving all major NCDs. Such coordination should address remaining gaps, including the need to strengthen attention to upstream determinants of health, such as early-life exposures, environmental pollution, unhealthy food environments, housing conditions, occupational risks, and social inequalities, while respecting the national competences in health policy. EU actions should therefore provide added value mainly through coordination, knowledge sharing, joint tools, and supportive funding,

Within this framework and using the exposome approach, the Commission could facilitate a **common prevention pillar** that links and reinforces existing initiatives (including those on cancer, cardiovascular health, environment, chemicals, food systems, urban planning, transport, and social inclusion), ensuring greater policy coherence and more effective use of available resources. By **improving coordination across programmes funded under the next Multiannual Financial Framework** and strengthening implementation support for Member States, the EU would help maximise the impact of current strategies and advance a more preventive, cross-sectoral approach to NCDs.