

European Human Exposome Network



Advancing Tools for Human
Early Lifecourse Exposome
Research and Translation

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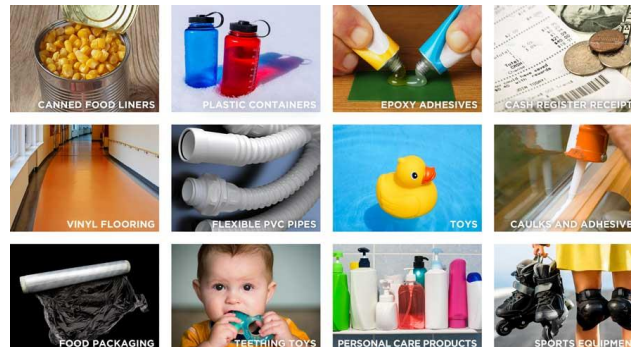
ISGlobal Barcelona
Institute for
Global Health



What is **ATHLETE** about?

“Better understanding and preventing health damage from **multiple** environmental agents and their mixtures, from the **earliest parts of the life course** onward”

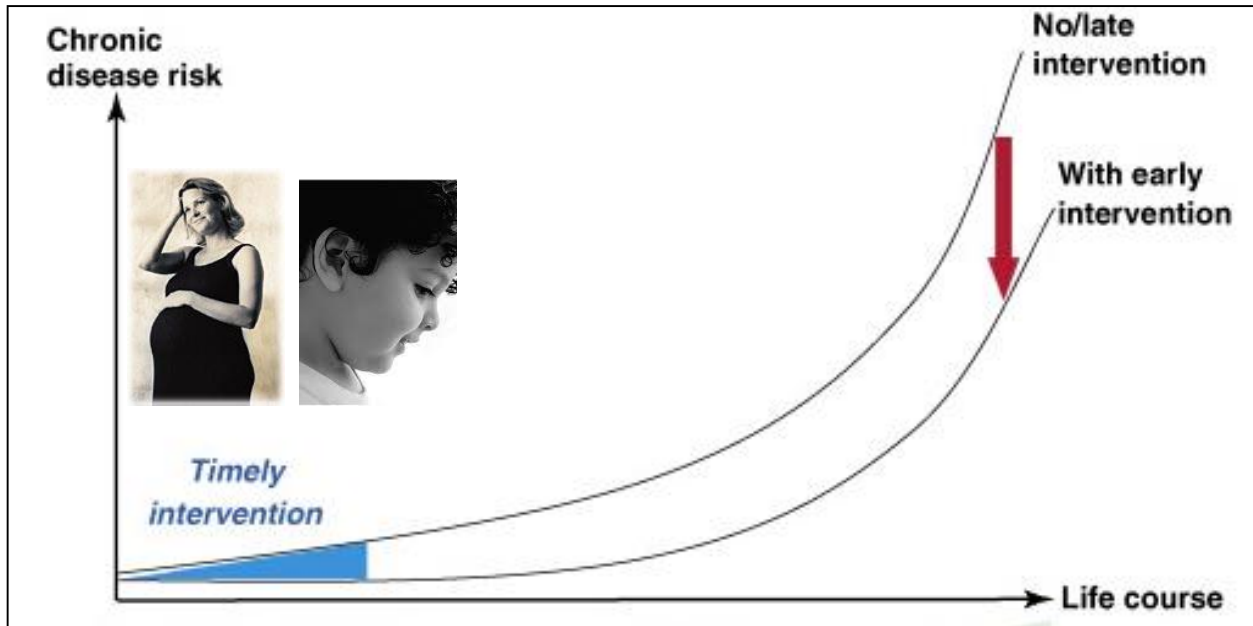
- ✓ Developing exposome **tools, data** and a **prospective exposome cohort**
- ✓ Providing new longitudinal **evidence** linking the exposome to health and biological pathways during the first 2 decades of life
- ✓ Implementing **interventions**
- ✓ **Translating** knowledge



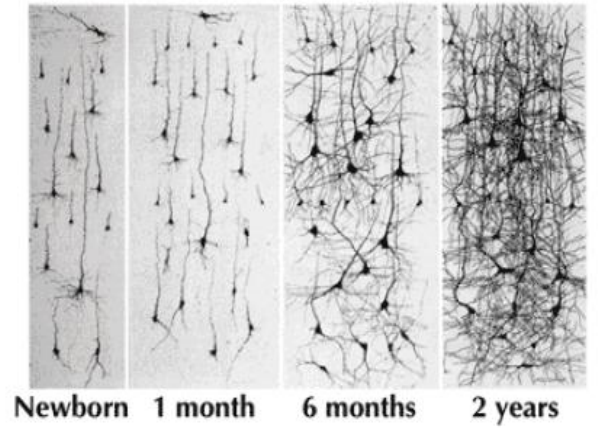
Why is this important?

EARLY LIFE as a key target period for solid, cost-effective preventive actions and policies related to multiple adverse environmental exposures

- ✓ Vulnerable periods of rapid organ development
- ✓ Chronic diseases have part of their origin in early life
- ✓ Lifetime influence
- ✓ Effective prevention

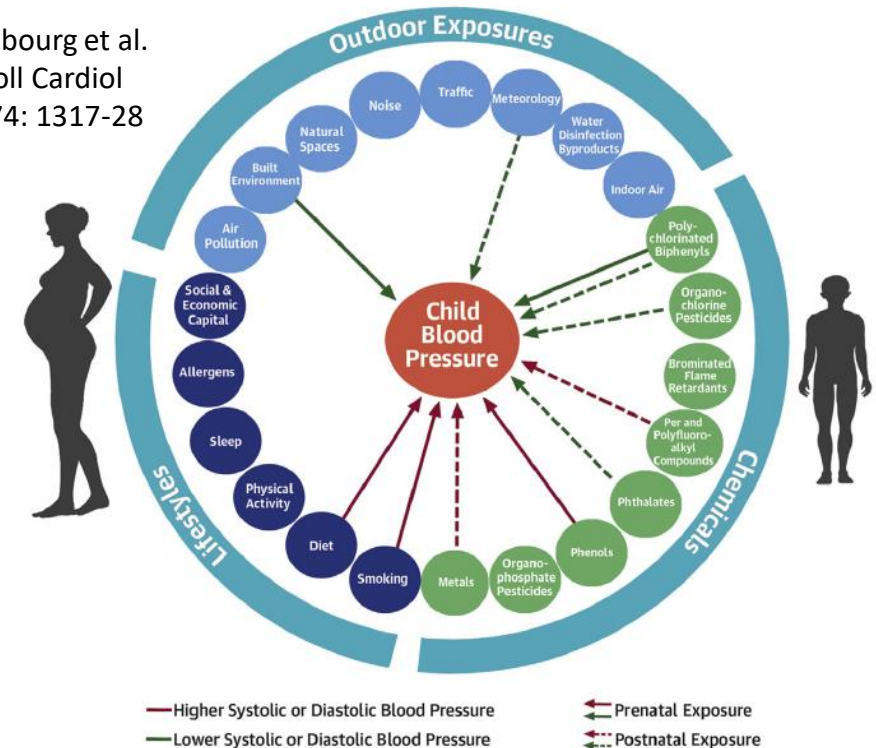


Brain Development Over Time

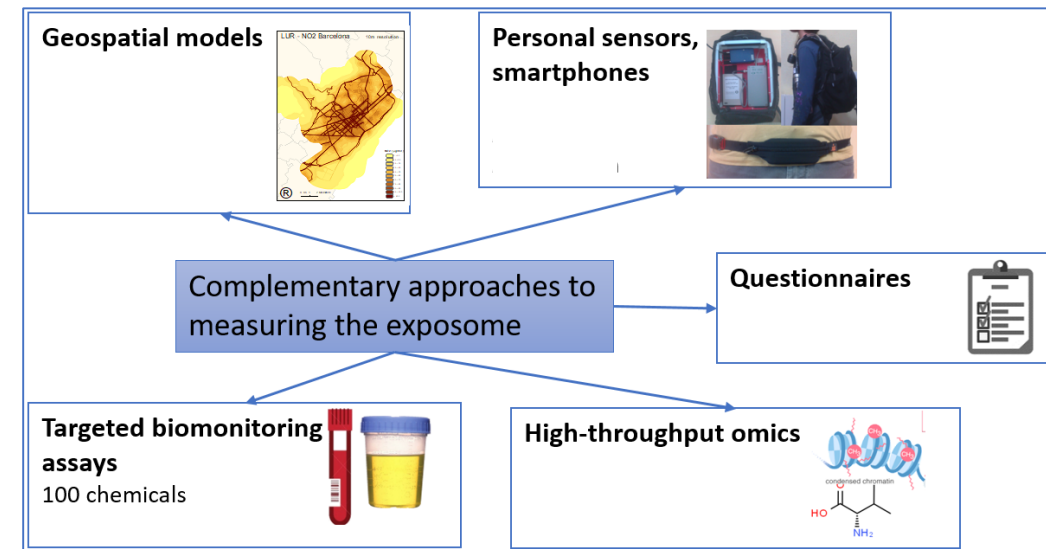
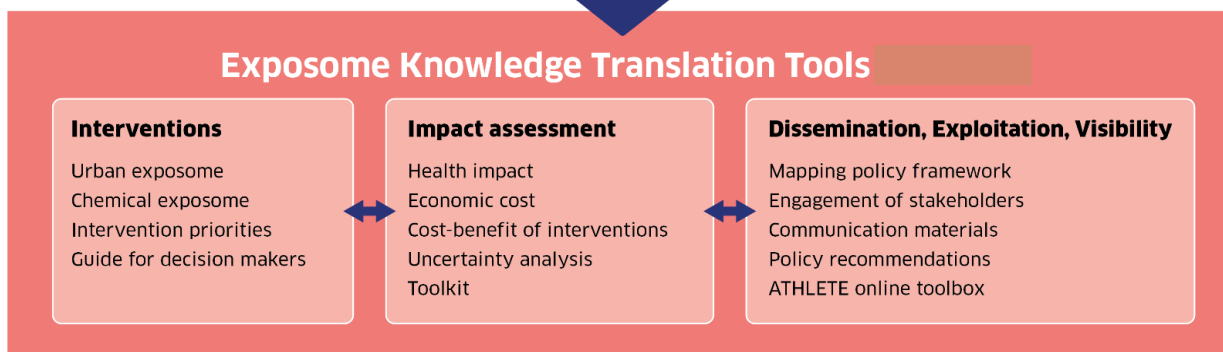
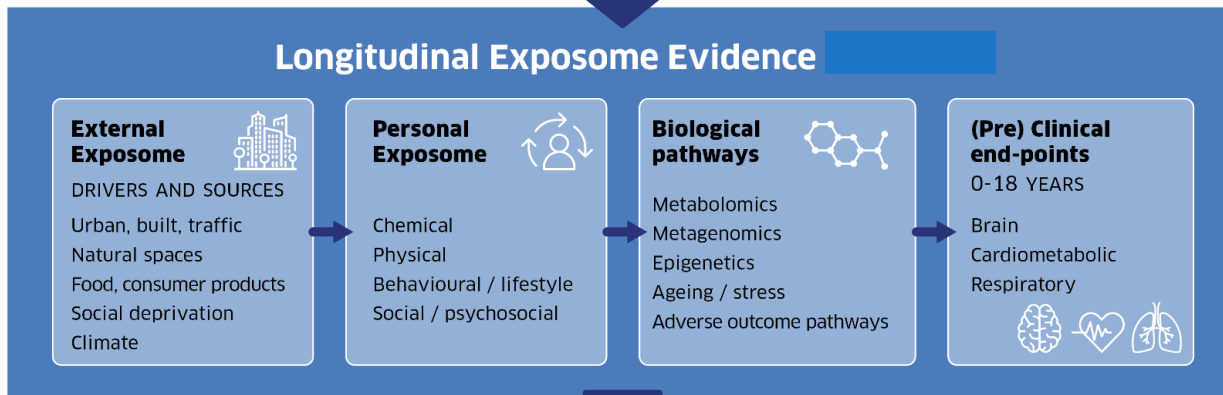
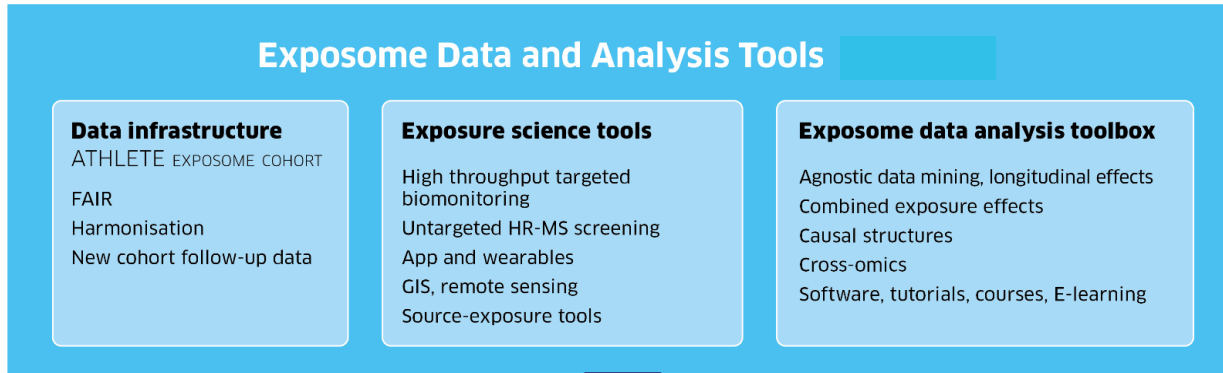
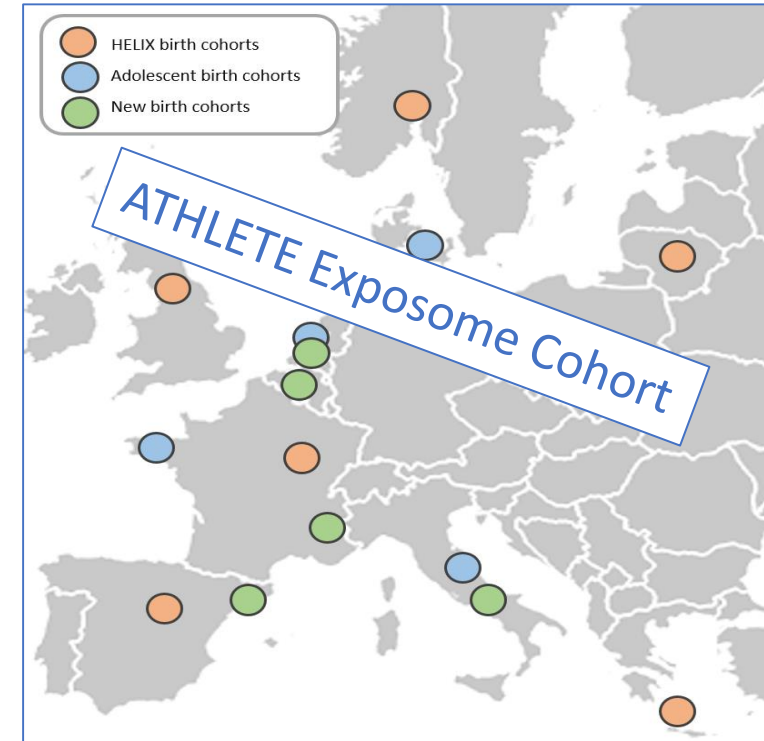


CENTRAL ILLUSTRATION Early-Life Environmental Exposures and Blood Pressure in Children

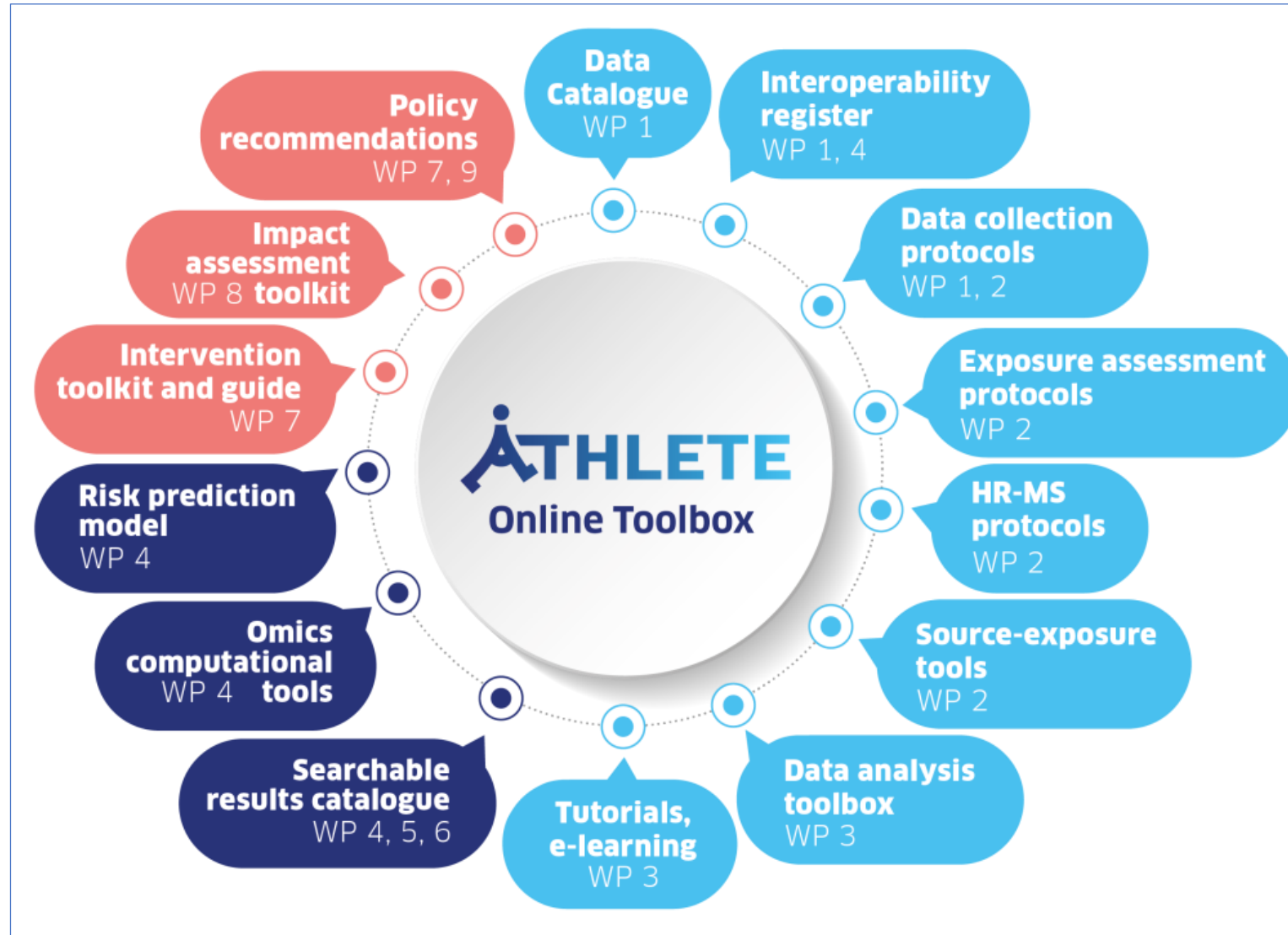
Warembourg et al.
J Am Coll Cardiol
2019; 74: 1317-28



How will ATHLETE reach that goal?



What will **ATHLETE** deliver in 5 years?

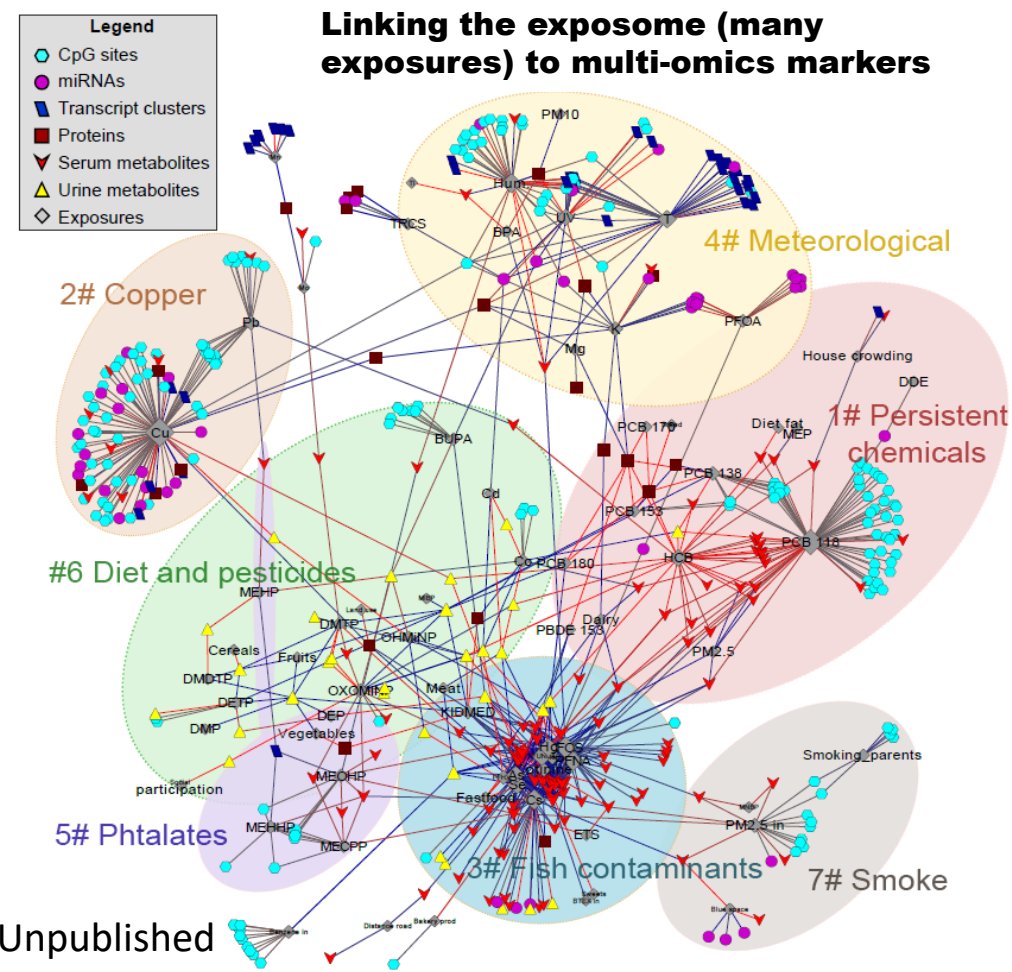


How will **ATHLETE** elucidate the biological effects of the exposome?

“Integrating knowledge on biological responses and pathways related to the exposome will help to better understand the **early molecular events leading to later adverse health**, and the early part of the life course is crucial to this.”

Building on first results:

- ✓ Replication, tissue specificity, dynamics
- ✓ Microbiome-metabolome
- ✓ Composite scores/pathways (e.g. stress axis)
- ✓ Poly-environmental/omics prediction scores
- ✓ Adverse outcome pathways



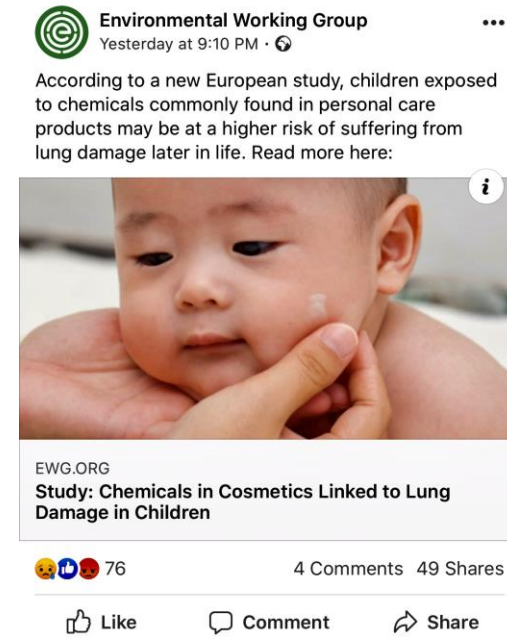
What are the critical needs for success?

➤ What interaction with stakeholders do you need to make your project a success?

Who?	Example
Study participants and communities/citizens	Co-production of interventions Engaging cohort participants (adolescents)
Local policy and decision makers	Identifying barriers and enablers to intervention adoption → practical guides to modifying personal exposomes
European policy and decision-makers, international forums	Targeted events
Industry	Metabolomic profiling and smartphone APP development
Wider society	Engagement activities, social media, etc

What interaction with other projects is needed to make the network a success?

- **Share expertise** → working groups
- **Make tools easily accessible** → one common toolbox
- **Common strategy for dissemination & stakeholder engagement**



22 partners
from 11 countries



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