The Environmental Health Language Collaborative (EHLC) Brainstorm: Generating Ideas to Harmonize Toxicology Data Use and Sharing

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NIH National Institute of Environmental Health Sciences

EHLC The Environmental Health Language Collaborative

What is EHLC?

EHLC was created to facilitate a public, community-driven effort to advance the development and adoption of harmonized language approaches within toxicology and environmental health science fields.

- The availability of data is rapidly advancing opportunities to answer large-scale, complex questions in toxicology and environmental health sciences. However, a significant challenge remains around the development and use of a harmonized language to allow for streamlined workflows to find, share, and reuse this data.

Value of a Shared Language

- Increases the **findability** of data
- Facilitates **consistent interpretation** of data & metadata
- Permits data **integration** and promotes **interoperability** of data and databases
- Enables the assembly of datasets for computational modeling and **knowledge discovery and transfer**

EHLC Vision and Mission

EHLC's vision is to enhance the value of environmental health research data for translation and knowledge discovery to improve personal and public health.

EHLC's mission is to advance integrative environmental health research by promoting access, use, and harmonization of data through interoperable terminologies and best practices.

Harmonizing Data → Connecting Knowledge → Improving Health

References and Resources

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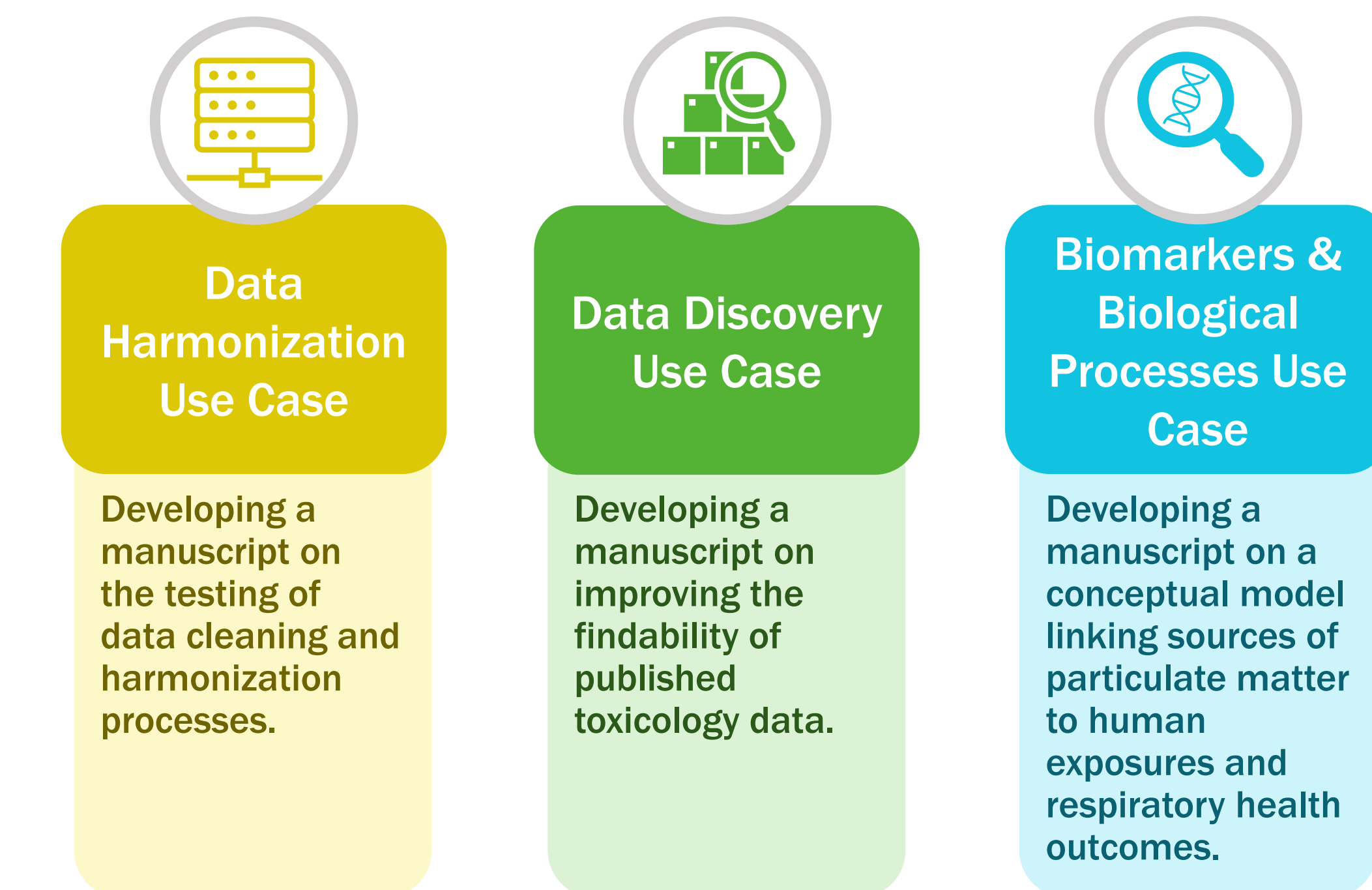- EHS Domain Specific Data Repositories. (n.d.). National Institutes of Environmental Health Sciences. https://public.tableau.com/app/profile/ntp.visuals/viz/ODSDomainSpecificDataRepositories/NewDashboardLandingPage

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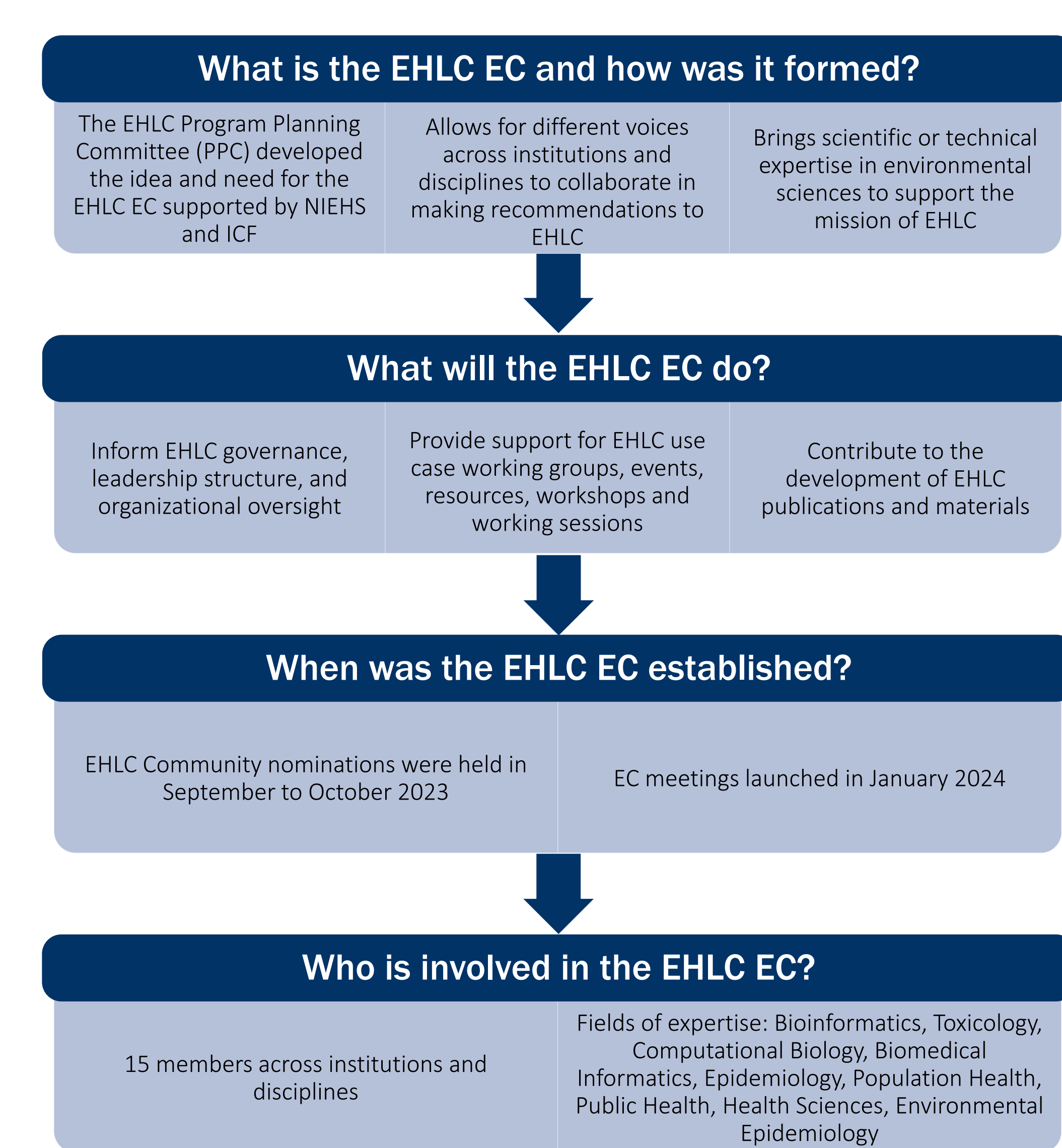
EHLC Community-Led Use Cases

EHLC use cases advance the adoption of a shared language.

- EHLC Use Cases and Committees define what scientific questions would benefit most from development and adoption of a harmonized language standard.
- EHLC Use Cases and Committees are the foundation for EHLC's activities and help to advance EHLC priorities in a wide variety of areas.
- EHLC Use Cases are open, inclusive, and community-driven and are led by subject matter expert "champions".
- EHLC Use Case activities allow for cross-domain collaboration among researchers, system developers, regulators, and public health officials.
- Read full summaries of activities online: Environmental Health Use Cases

Data Harmonization Use Case
Developing a manuscript on the testing of data cleaning and harmonization processes.

Data Discovery Use Case
Developing a manuscript on improving the findability of published toxicology data.

Biomarkers & Biological Processes Use Case
Developing a manuscript on a conceptual model linking sources of particulate matter to human exposures and respiratory health outcomes.

SOT Brainstorm – Share Your Language Harmonization Ideas!

What data harmonization challenges do you encounter?
Add your ideas here

Add your ideas here

What resources, standards, and tools do you need?
Tools to standardize experimental data (e.g., artificial intelligence)

Standards for NAMs

Data dictionary development tools, which helps users describe, annotate, standardize, and define data and metadata to create data dictionaries.

Standards for pathology-based outcomes

What webinar and workshop topic ideas interest you?
Webinar: Emerging methods for data reuse and sharing

Workshop: Generating standardized lists of environmental health variables, endpoints, templates, and guidance for a generalist repository

What ideas for EHLC use case topics do you have?
In development use case: Climate and Environmental Health Data Standards

Development of standards or testing applications for Social Determinants of Health for Environmental Health

How Can I Get Involved after SOT? Share your ideas, questions, interest, and contributions for future use cases, webinars, and EHLC activities after SOT by joining the EHLC Listserv, emailing EHLC@icf.com, or joining a use case. Your ideas are always welcome!

EHLC Executive Committee (EC)

What is the EHLC EC and how was it formed?
The EHLC Program Planning Committee (PPC) developed the idea and need for the EHLC EC supported by NIEHS and ICF	Allows for different voices across institutions and disciplines to collaborate in making recommendations to EHLC	Brings scientific or technical expertise in environmental sciences to support the mission of EHLC

What will the EHLC EC do?
Inform EHLC governance, leadership structure, and organizational oversight	Provide support for EHLC use case working groups, events, resources, workshops and working sessions	Contribute to the development of EHLC publications and materials

When was the EHLC EC established?
EHLC Community nominations were held in September to October 2023	EC meetings launched in January 2024

Who is involved in the EHLC EC?
15 members across institutions and disciplines	Fields of expertise: Bioinformatics, Toxicology, Computational Biology, Biomedical Informatics, Epidemiology, Population Health, Public Health, Health Sciences, Environmental Epidemiology

Past and Future EHLC Activities

EHLC's initiative to harmonize language and standardize EHS and Toxicology data advances data discovery, integration, and use.

Spring 2023

Hosted 2023 Virtual Workshop and Shared Report

Review the 2023 Virtual Workshop Report, published online: 'Sharing Your Environmental Health (EHS) Data: Metadata, Standards, and Tools'

- Hosted a virtual, three-day EHLC Workshop focused on NIH's Data Management and Sharing (DMS) Policy and resources to help attendees understand and prepare DMS Plans
- Highlights 18 presentations on data management and sharing topics and provides an extensive list of data management and repository resources
- Shares community input from over 200 toxicology and EHS professionals from interactive events

Summer 2023

Updated the EHLC Website

Visit the EHLC Website

- Provides information on shared language resources to support your work, use cases updates, how to get involved with EHLC, upcoming webinars and workshops, and recordings of events

Published the EHS Repositories Dashboard

Visit the Dashboard on the Scientific Data at NIEHS Website

- Helps researchers identify discipline or data-type specific repositories for EHS data

Hosted EHLC Webinars

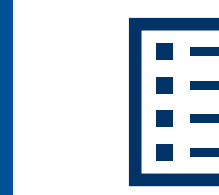Access all EHLC Event Recordings

- Hosted two webinars on Methods2AOP and data dictionaries

Fall 2023

Established EHLC Executive Committee (EC)

- Launched an inaugural EC that will develop a membership and governance model for EHLC

"The EHLC Executive Committee will shape the future of EHLC and contribute to framing and solving important problems in how the field collects, represents, and integrates data and knowledge and how emerging technologies such as AI and large language models can be applied for the benefit of toxicology and environmental health research."

– Dr. Charles Schmitt, NIEHS, Interim EHLC EC Chair

EHLC 2024 Plans

Upcoming Activities and Events

- Publish the three EHLC Use Case manuscripts
- Host webinars of interest to the EHLC Community
- Launch a new EHLC Use Case focused on climate and health
- Engage with students