



ECHO

Environmental influences
on Child Health Outcomes

A program supported by the NIH

Study Summary

Communication, Collaboration, and Team Science Are Central to the Success of Large, Multi-Site Research Programs

Authors: Elissa Faro, et al.

Who sponsored this study?

The Environmental influences on Child Health Outcomes (ECHO) Program, Office of the Director, National Institutes of Health supported this research.

Why was this study needed?

Large research collaboratives often have more success than single investigators conducting research alone. They produce more publications in journals with higher impact factors that result in more citations and continued research opportunities. As a result, funding agencies continue to increase their support for large, transdisciplinary research groups to address complex and challenging health problems.

The National Institutes of Health's (NIH) Environmental influences on Child Health Outcomes (ECHO) Program developed multi-site collaboration strategies to promote high-impact, collaborative, observational research on child health. However, few studies have investigated the perspectives of researchers and staff of large research projects like ECHO. Many questions remain about team science, including the effects of research structures and funding mechanisms on team functioning. To address these questions, ECHO researchers sought to develop an in-depth understanding of the elements and conditions that influence the implementation of observational research in the ECHO Program.

What were the study results?

Researchers interviewed 24 ECHO investigators and staff and found that communication and working as a team were important for successful collaborations. Most interviewees expressed a desire for more opportunities for direct connection, learning, and sharing with their colleagues. While respondents mostly spoke positively about ECHO's investigative network and opportunities to collaborate, researchers learned that some respondents felt the network could benefit from engaging more team members across various roles in decision-making processes.

Some interviewees also expressed that communication and the decision-making process within the program may need improvement, but they shared that they had observed the ECHO Program improving in this regard. They also recognized that the size of the program might contribute to delays with timely, clear, and efficient communication. Overall, respondents felt the ECHO Program excels at conducting solution-oriented, high-impact child health research, but also that the Program has an

opportunity to further improve communication, collaboration and decision-making across its vast network of sites and components.

What was the study's impact?

This study contributes insight on the implementation of a large, multidisciplinary research consortium, and these lessons may be transferable to other large research consortia. The findings also offer an in-depth understanding of why and how research stakeholders collaborate, and what strategies work better to produce high-impact science.

The study found that ECHO researchers highly valued team science, co-learning, and collaboration. The diversity of experiences across the program suggests that best practices for large research ventures like ECHO may not be one-size-fits-all but may instead need to be tailored for different groups. However, the collected responses may inform new methods to enhance communication and collaboration across large research consortia in the future.

This study will benefit a variety of research stakeholders, including government agencies and other funding organizations, when they support and design large research projects.

Who was involved?

Researchers conducted 24 interviews with ECHO researchers and staff. Most interviewees were affiliated with a study site, but the research team was also able to gather the perspectives of all ECHO Program components except for the Human Health Exposure Analysis Resource (HHEAR)—the ECHO component responsible for testing samples from ECHO participants to help researchers assess the effects of chemical exposures—and the NIH.

What happened during the study?

In early 2022, researchers conducted 24 virtual interviews. The research team interviewed internal stakeholders from the ECHO study sites and components, seeking broad representation of research and administrative roles across ECHO. All internal stakeholders were informed of the study via email, and those interested were able to contact the research team and schedule an interview via Zoom. From the respondents, researchers selected a sample to maximize variation and represent diverse perspectives from across ECHO.

The research team developed a semi-structured interview guide, and analyzed both the quantitative and qualitative data collected to understand how individual researcher's experiences and perspectives reflect the overall implementation of the ECHO Program. As part of this analysis, the researchers tracked metrics organized around four central goals: (1) enrolling and retaining a large and diverse group of participants in ECHO to answer key scientific questions; (2) collecting high-quality data and making it available for analysis; (3) collecting, storing, and using biospecimen samples and data; and (4) publishing and disseminating high-quality, impactful science. These metrics provide complementary, quantitative assessment of ECHO implementation and progress toward key goals and priorities.

What happens next?

Future studies are needed to understand how collaborative research affects the experiences of ECHO study participants as well as the perspectives of external stakeholder groups.

Where can I learn more?

Access the full journal article, titled “A Mixed-Methods Analysis to Understand the Implementation of a Multi-stakeholder Research Consortium: Environmental influences on Child Health Outcomes (ECHO),” in the [Journal of Clinical and Translational Science](#).

The content is the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.