

**Report 10:** Define translational research and its role in EHS

**Convener:** John Groopman

**Brief History:**

Translational research is a multidimensional set of strategies used to address the application of a spectrum of basic and applied science findings to impact human health. This work is bidirectional that informs and uses basic science findings to disease and health and the findings from disease and health studies to focus and prioritize basic science studies. NIEHS has a central role to play as a facilitator and convener of the translational research paradigm.

**Discussion Highlights:**

- The impact of translational research should be manifest in outcomes affecting public health policy and regulation, clinical investigations both in patient and in communities, should inform environmental medicine and have an evaluation component to assess the efficacy of these investigations. Metrics for success are also needed as a tool.
- The field of translational research in EHS is propelled by the convergence paradigm that brings the physical, engineering and life sciences together to focus on the multidisciplinary problems of EHS and help to propose alternative solutions to these problems.
- Translational research is a multidirectional continuum that spans the universe of health and integrates different types of research from basic mechanistic and applied studies to intermediate investigations to impact on health.
- This work runs across the life span. Translational research needs to capture information needs for translational efforts aimed at all stages of life, health and disease.
- There is a preeminent role for NIEHS in this work. These studies inform regulatory policy and decision making and the application of results from NTP. This work informs policy setting priorities. There is a critical need for NIEHS to engage in the broad education of state/local, government, academic, industry and other stakeholders. To achieve a research workforce with the broad perspective required for translational research, training of students in the environmental underpinnings of health and disease (both medical students and public health professionals) are critically needed.
- The economics of translational research and its impact on EH was raised as a need and the need to have these studies funded was also discussed. There are issues raised by the current state of health care economics and the structure of the health care delivery system that have profound impacts on our ability to design, test and fund translational and prevention research.
- Overall a need to expand and develop a toolkit of biomarkers for translational research needs to be developed both for national and international investigations. This work has major global

health opportunities for NIEHS since many environmental exposures are trans-border affecting the health of people at great distance from their sources.

- Translational research includes intervention research, and these interventions and prevention trials can be for individuals, high-risk groups and communities.

**Recommendations:**

NIEHS needs to develop and build a convening or connector group to facilitate the communication and translation of the basic, applied and population sciences to the broad needs of the EHS community (scientists, policymakers, and the public). We very much need to move beyond the ad hoc strategies that have been historically used and we should think about using the “cooperative group” model that has facilitated the translation of basic findings to drug efficacy trails. In environmental health this would be conceived to facilitate the translation of basic and applied work to human validation studies. At the same time this cooperative group would raise research opportunities for the basic and population community for further investigations. In summary, there is an evident opportunity to put an ‘E’ (environment) into the new National Institute for Clinical Translational Research that broadens this new endeavor beyond the bench to bedside paradigm to a bench to community structure.

**Discussion Participants:**

Bird, Brody, Conti, Fessler, Froines, Garantziotis, Groopman, Hall, Hanawalt, Holsapple, Howard, Leikauf, Miller R, Newton, Sandler, Sinks, Suk, Taylor, Vogt, Walker N, Woodruff, Zeldin, Thompson, Sinks