

Report 86: Promoting Technology Development in Environmental Health Sciences

Convener: Tom Begley

Brief History: New technologies that include deep sequencing, mass spectrometry tools, the internet and hand held PDA's have not only transformed research but everyday life. Technology development has previously played an important role in the growth of environmental health research.

Discussion Highlights: Why technology development is needed:

- 1) To decrease the cost of research; To increase the speed and throughput of research.
- 2) To help integrate diverse scientific disciplines and scientists under the NIEHS umbrella.
- 3) Technology development has the potential to interface the environmental health sciences with industrial partners and lead to research commercialization and EHS products for the public.
- 4) To promote new discoveries that improve our understanding of human health.

What types of new tools are needed:

- 1) Technology development to generate cheap, robust and highly reproducible tools for epigenetic research.
- 2) Mass spectrometry developments to bring proteomics, lipidomics, RNAomic and small molecule analysis to the masses.
- 3) Miniaturization of basic laboratory equipment, population testing, sensor, environmental medicine and field testing tools.
- 4) New and readily accessible resources for population studies, as this will speed the translation of new findings to preventions, interventions and policies.

Recommendations:

- 1) Embrace technology development, utilization and access as component of the strategic plan.
- 2) Mandate technology development as a component of some new RFA's or intramural research programs.
- 3) Promote public-private partnerships to develop new technologies and platforms for EHS research.
- 4) Develop workshops on technology development for EHS scientists, to address needed technologies, team building components, intellectual property, cost and perception issues associated with technology development.

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