SOFTWARE

ANY FUTURE FOR EPIDEMIOLOGY?

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Muin Khoury summarized recently the few major discoveries of epidemiology, to be exact just one from 1965

> Epidemiology has contributed to major scientific discoveries such as the relationship between cigarette smoking and common diseases including cancer and heart disease, and chronic obstructive pulmonary disease. Yet, epidemiologic research continues to attract criticism, including “excess expense, repudiated findings, studies that offer small incremental knowledge, inability to innovate at reasonable cost, and failure to identify research questions with the greatest merit.”

In the big data era, we can now compute associations of everything with everything – the most recent trend that is definitely leading into nowhere. Nevertheless the Precision Medicine Initiative PMI announced by Barack Obama will establish now a large longitudinal cohort of a million participants to study genetic and environmental determinants of a wide variety of human diseases.
Given the fact that all GWAS studies together has not provided any useful medical out-come, there must be a strong lobby for the PMI cohort in the CDC, the NCI and the NHLBI and a lot of existing resources that cannot be shut down.

And this is how science ends in 2015, 50 years later, some nice words with no meaning

Leveraging existing infrastructures, including complex data sets and biobanks, by integrating information collected across diverse study designs, methodological approaches, and technology platforms.
Forging collaborations across scientific domains (e.g., systems biology, epidemiology, genetics, bioinformatics, clinical sciences, health behavior) by establishing an integrative and transdisciplinary scientific endeavor buttressed in part by the principles of team science. Applying the practices of data science (an emerging discipline representing a nexus of statistics, computer science, machine learning, data visualization, informatics, bioinformatics, and computational biology) and knowledge integration to aggregate, synthesize, and interpret the diverse and high-dimensional data accrued through these collaborations.