

IEA names Prof. Deborah Lawlor the 2024 Richard Doll Prize recipient.



IEA is pleased to announce that the recipient of the 2024 Richard Doll Prize in Epidemiology is Professor Deborah Lawlor, Professor of Epidemiology, MCR Integrative Epidemiology Unit, University of Bristol. Lawlor's commitment to undertaking high quality impactful epidemiological science to improve reproductive, pregnancy and perinatal health and her contributions to the field through an extensive body of epidemiological work will be acknowledged during the opening session of the World Congress of Epidemiology, 24-27 September 2024 in Cape Town, South Africa.

The Richard Doll Prize in Epidemiology is the Association's highest honour and includes a cash prize of USD \$5,000. The prize is given to an epidemiologist of the highest scientific standard and the recipient must demonstrate scientific achievements that have advanced the understanding of the determinants of a disease of importance for health in populations through a body of research that may involve a series of studies, rather than a single publication. Lawlor is notably the first female epidemiologist to be awarded the Richard Doll Prize.

Professor Lawlor pioneered **the use of triangulation of evidence to improve causal inference in epidemiology**. She wrote the definitive paper defining triangulation of evidence in epidemiology, which demonstrated how integrating data from different approaches could improve causal understanding. These different approaches include, for example, conventional multivariable regression, within sibship analyses, negative controls, and instrumental variable analyses, such as genetic instrumental variables in Mendelian randomization, etc. For the first time, criteria for triangulation in epidemiology were defined, with an emphasis on *a priori* identifying different approaches that had different unrelated key sources of bias.

Lawlor's motivation for improving causal inference in epidemiology comes largely from her recognition that in the field where she works, improving reproductive, pregnancy and perinatal health, and in other areas such as environmental and social epidemiology, determining causal effects is essential but RCTs are often difficult or impossible. Moreover, in these difficult areas of research, usually no single observational study can establish causality, and therefore a triangulation approach is required.

Her work on triangulation and causal understanding is exemplified by her research in reproductive health, particularly into the effects of Artificial Reproductive Technology, ART, which is now used widely and increasingly across the world. Her work has shown that transfer of three embryos in an ART cycle (which at the time of that research was supported by UK policy), did not result in a higher live-birth rate compared with transfer of one or two embryos; however, it did increase the risk of preterm birth and small for gestational age. In women aged 40, or older, double embryo transfer optimized live-birth rates and lower risk of adverse outcomes, whereas in younger women a single embryo transfer was optimal. In further research that she led, it was shown, for the first time, that cumulative live-birth success continued to increase up to the 9th repeat ART cycle, with 65% of all women and 68% of those who were younger than 40, or using donor oocytes, achieving a live birth after 6 ART cycles

A second key application of triangulation by Lawlor has involved studies of pregnancy and perinatal health, including exploring causal effects in developmental origins of health and disease. Through triangulating evidence across conventional multivariable regression, within sibling analyses, negative control and Mendelian randomization, she has demonstrated that incrementally greater maternal early pregnancy BMI and fat mass do not result in greater adult adiposity in offspring. Furthermore, triangulating evidence suggests that exposure to higher maternal adiposity in pregnancy does not affect offspring metabolic profiles in childhood or early

adulthood. She has also contributed to developments of Mendelian randomization methods to assess cross-generation effects, which suggest that maternal intrauterine factors that affect birthweight do not result in future offspring adverse cardiovascular health.

Says Lawlor, "Being awarded the Richard Doll Prize is at the same time an honour and humbling – all of my research is team- work and its humbling to be given a prize for doing a job that I love, when that is not the case for so many people. I look forward to meeting many friends and colleagues and making new friends and colleagues in Cape Town in September.'

Please join IEA in congratulating Professor Lawlor on her award of the Association's most prestigious prize.