

Wilfried Karmaus

His projects provide many opportunities for graduate students to analyze data and to write scientific papers. Between 2015 and 2016, 14 of 37 publications of Dr. Karmaus were co-authored by graduate assistants (see the picture). Graduate assistants have the chance to present at scientific conferences and to collaborate with many investigators at other Universities. These opportunities train students by laying a solid scientific foundation in Public Health that paves the way to a successful career ahead (from knowledge to competencies).

Isle of Wight birth cohort studies

The National Institutes of Health currently funds two projects: Dr. Hongmei Zhang acting as the Principal Investigator (PI) for one and Dr. Karmaus as PI for the other. Both projects cooperate with the University of Southampton, Michigan State University, Kuwait University, the David Hide Asthma and Allergy Research Centre on the Isle of Wight, the University of Bristol, and the Hokkaido University.

There is a need to identify etiologic factors that could generate novel preventive strategies. Genetic variations alone add little explanations; however, the combined effects of genes and the environment are strongly associated with diseases. These interactions seem to act via epigenetic changes. One is DNA-methylation (DNA-m) that can improved by improving environmental conditions.

To provide critical information on DNA-m related to allergic diseases, Dr. Karmaus' team conducts a multigenerational study on the Isle of Wight birth cohort. The cohorts include the grand-maternal F0 generation, the F1 parental generation (n = 1,456, now 26 years old), and the offspring-generation (F2, n~400). To address environmental conditions *in utero*, his team investigates metabolites, nutrients, and toxins (MNTs) in maternal serum at birth. Hence, this work is combining MNT-wide environmental data with epigenome-wide data, providing critical data on the developmental origins of diseases.

The Michigan Fisheater Study

Together with investigators at Michigan State University and Kansas State University, the health of three generations (grandparents, parents, and children) is investigated. The first two generations were exposed to higher PCBs and DDE (a metabolite of the insecticide DDT) levels from consumption of fish from the Great Lakes. In these investigations, Dr. Karmaus mainly focuses on PCB and DDE exposures, gene expression and reproductive outcomes.

Breastfeeding and child health

Dr. Karmaus' research on breastfeeding is supported by a grant from the Health Resources and Services Administration. The study analyzes data from the Infant Feeding Practice Study 2 and its 6-year follow-up. The research interest is to determine whether direct feeding at the breast provides more protection against asthma, eczema, food allergy, and obesity compared to pumping and feeding, and mixed feeding of formula and/or solid food.

The Narodichi Children Study

Dr. Karmaus cooperates with National Research Center for Radiation Medicine at the National Academy of Medicine Sciences of Ukraine and the Medical University of South Carolina. The aim is to determine in a cohort of about 1,000 children, born after the Chernobyl accidents in 1986 and followed for many years, whether radioactive exposure is still associated with adverse health outcomes.

More at https://www.researchgate.net/profile/Karmaus_Wilfried