University of Victoria | Graduate Studies

Notice of the Final Oral Examination for the Degree of Doctor of Philosophy

of

ANDERS ERICKSON

MSc (University of Northern British Columbia, 2009)
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"Person, Place and Context: The Interaction between the Social and Physical Environment on Adverse Pregnancy Outcomes in British Columbia"

Interdisciplinary Studies

Friday, July 22, 2016
1:00PM
Medical Sciences Building
Room 150

Supervisory Committee:
Dr. Laura Arbour, Division of Medical Sciences, University of Victoria (Co-Supervisor)
Dr. Aleck Ostry, Department of Geography, UVic (Co-Supervisor)
Dr. Laurie Chan, Department of Biology, University of Ottawa (Outside Member)

External Examiner:
Dr. Ryan Allen, Faculty of Health Sciences, Simon Fraser University

Chair of Oral Examination:
Dr. Carmen Galang, Peter B. Gustavson School of Business, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies

Abstract

This study was a population-based retrospective cohort of all singleton births in British Columbia for the years 2001 to 2006. The purpose of this dissertation is to examine how social and physical environment factors influence the risk of adverse pregnancy outcomes and whether they interact with each other or with maternal characteristics to modify disease risk. The main environmental factors examined include ambient particulate air pollution (PM2.5), neighbourhood socioeconomic status (SES), neighbourhood immigrant density, neighbourhood level of post-secondary education level and the urban-rural context. Census dissemination areas (DAs) were used as the neighbourhood spatial unit. The data (N=242,472) was extracted from the BC Perinatal Data Registry (BCPDR) from Perinatal Services BC (PSBC). The main perinatal outcomes investigated include birth weight and indicators of fetal growth restriction such as small-for-gestational age (SGA), term low birth weight (tLBW), and intrauterine growth restriction (IUGR), preterm birth (PTB) and gestational age, gestational diabetes mellitus (GDM) and pregnancy induced hypertension (PIH).

Collectively, this dissertation contributes to the perinatal epidemiological literature linking particulate air pollution and neighbourhood SES context to adverse pregnancy outcomes. Assumptions about the linear effect of PM2.5 and smoking on birth weight are challenged showing that the effects are most pronounced between low and average exposures and that the magnitude of their effect is modified by neighbourhood and individual-level characteristics. These results suggest that focusing exclusively on individual risk factors may have limited success in improving outcomes without addressing the contextual influences at the neighbourhood-level. This dissertation therefore also contributes to the public health, sociological and community-urban development literature demonstrating that context and place matters.