PART 2 – DENMARK

Address (course): National Institute of Public Health, University of Southern Denmark, Studiestræde 6, Copenhagen K https://goo.gl/maps/ExzCEfKCDN52.

Address (hotel): Ibsens Hotel, Vendersgade 23, 1363 Copenhagen K. https://goo.gl/maps/bgFUX2TZt2T2.

Monday 27 January 2020 (day 6)

	Title	Scientific content	Literature
10.00-10.15	Welcome back (Øystein and Lau)	Introduction to week 2	
10.15-11.00	Incidence studies, time trends analyses and projections (Lau)		Modig et al. (2017). "Estimating incidence and prevalence from population registers: example from myocardial infarction." Scand J Public Health **45**(17_suppl): 5-13.
11.15-12.00	Exercises	For a given disease, calculate trends in incidence	
12.00-12.45	*Lunch*		
12.45-13.30	Open science in registry research (Øystein)	Sharing of anonymous data, syntax describing data handling and analyses, and research results	
13.45-14.30	Introduction to causal inference in register-based research (Øystein)		
14.45-17.00	Present five home assignments	Discussions	
	Homework	Read literature on causal inference	- Romundstad et al. (2008). "Effects of technology or maternal factors on perinatal outcome after assisted fertilisation: a population-based cohort study." Lancet 372(9640): 737-743. - Irgens et al. (1995). "Sleeping position and sudden infant death syndrome in Norway 1967-91." Arch Dis Child 72(6): 478-482. - Sund (2003). "Utilisation of administrative registers using scientific knowledge discovery." Intelligent Data Analysis 7: 501-519. Additional readings: - Davies et al. (2013). "Physicians' prescribing preferences were a potential instrument for patients' actual prescriptions of antidepressants." J Clin Epidemiol 66(12): 1386-1396.

Tuesday 28 January 2020 (day 7)

	Title	**Scientific content**	**Literature**
9.15-10.00	Causal inference in register-based research (Øystein)	Matching and adjustment in regression models, regression discontinuity, differences in differences, and instrumental variable analysis. Sensitivity analyses with the E-value.	
10.15-11.00	Exercise		
11.15-12.00	Causal inference in register-based research continued (Øystein)		
12.00-12.45	*Lunch*		
12.45-14.00	Data quality (Mika Gissler)	Causes of variation in quality across variables. Assessing the quality of variables, e.g. using validation studies.	Sund (2003). "Utilisation of administrative registers using scientific knowledge discovery." Intelligent Data Analysis 7: 501-519.
14.15-15.00	Exercises data quality (Mika Gissler)	How does data quality influence your study – focus on exposure and outcome	
15.15-17.00	Present five home assignments	Discussions	
	Homework		Eero Pukkala (2011). "Nordic Biological Specimen Bank Cohorts as Basis for Studies of Cancer Causes and Control: Quality Control Tools for Study Cohorts with More than Two Million Sample Donors and 130,000 Prospective Cancers" Hemminki et al. (2010). "Familial risks in nervous system tumours: joint Nordic study." Br J Cancer 102(12): 1786-1790.

Wednesday 29 January 2020 (day 8)

	Title	**Scientific content**	**Literature**
9.15-11.00	Using register data to study socio-economic difference in health, morbidity and mortality (Mika Gissler)		
11.15-12.00	Exercise		
12.00-12.45	*Lunch*		
12.45-13.45	Present two home assignments		
14.00-15.45	Cross-Nordic studies in cancer epidemiology (Eero Pukkala)	On planning of a register-based study e.g. on migrant health or SES difference	
16.00-17.00	Present three home assignments	Discussion	
	Homework	Literature about important biases in register-based studies	- Uddin (2016). "Methods to control for unmeasured confounding in pharmacoepidemiology: an overview." Int J Clin Pharm 38(3): 714-723. - Thygesen, Ersboll (2014). "When the entire population is the sample: strengths and limitations in register-based epidemiology." Eur J Epidemiol 29(8): 551-558. **Additional readings:** - Dans (1993). "Looking for answers in all the wrong places." Ann Intern Med 119(8): 855-7. - Frank (2000). "Epidemiology. When an entire country is a cohort." Science 2000;287:2398-9. - Thygesen (2017). "When is a null finding in register-based epidemiology convincing?" Journal of clinical epidemiology 2017. - Ehrenstein (2016). "Helping everyone do better: a call for validation studies of routinely recorded health data." Clin Epidemiol 8: 49-51. - Krebs & Langhoff-Roos (2014). "Validation of registries: a neglected, but indispensable investment." Paediatr Perinat Epidemiol 28(5): 351-352. - Rider (2016). "Trouble in Paradise: Unmeasured Confounding in Registry-based Studies of Etiologic Factors." Eur Urol 69(5): 883-884.

Thursday 30 January 2020 (day 9)

	Title	**Scientific content**	**Literature**
9.15-10.00	Utilization of multigenerational data (Eero Pukkala)	Unique possibilities in Nordic registries because family members can be linked	
10.15.11-00	Exercise		
11.15-12.00	Bias in register-based studies (Lau)	Information bias, selection bias, and confounding in register-based studies. Effect of suboptimal validity on results. Unmeasured confounding.	
12.00-12.45	*Lunch*		
12.45-14.00	Bias in register-based studies continued (Lau)		
14.15-15.00	Exercise on unmeasured confounding		
15.15-17.00	Present five home assignments	Discussion	
	Homework	More literature on health geography	- Dummer. (2008). "Health geography: supporting public health policy and planning." CMAJ 178(9): 1177-1180. - Knudsen et al. (2017). "Lithium in Drinking Water and Incidence of Suicide: A Nationwide Individual-Level Cohort Study with 22 Years of Follow-Up." Int J Environ Res Public Health 14(6). - Kjaerulff et al. (2016). "Geographical clustering of incident acute myocardial infarction in Denmark: A spatial analysis approach." Spat Spatiotemporal Epidemiol 19: 46-59.

Friday 31 January 2020 (day 10)

	Title	**Scientific content**	**Literature**
9.15-11.00	Health geography (Annette Kjær Ersbøll)	How to do inference from registries based on geographical differences in behavior and services.	- Dummer. (2008). "Health geography: supporting public health policy and planning." CMAJ 178(9): 1177-1180. - Knudsen et al. (2017). "Lithium in Drinking Water and Incidence of Suicide: A Nationwide Individual-Level Cohort Study with 22 Years of Follow-Up." Int J Environ Res Public Health 14(6). - Kjaerulff et al. (2016). "Geographical clustering of incident acute myocardial infarction in Denmark: A spatial analysis approach." Spat Spatiotemporal Epidemiol 19: 46-59.
11.15-12.00	Combining register-information with other data sources including exercise (Tone)	The lecture will show examples on how register data can be combined with other data sources such as biobanks and surveys and thereby create possibilities for extended use of register data.	
12.00-12.45	*Lunch*		
12.45-13.00	Course evaluation	Students spend 15 minutes to answer online questionnaire	
13.15-14.45	Present four home assignments	Enable students to design study and apply for registry data	
14-45-15.00	Wrapping up (Tone and Lau)		