

PART 2 – DENMARK

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

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

Monday 28 January 2019 (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." <i>Scand J Public Health</i> 45 (17_suppl): 5-13.
11.15-12.00	Exercises	For a given disease, calculate trends in incidence	
12.00-12.45	<i>Lunch</i>		
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 (Magne Solheim and Øystein)		
14.45-17.00	Present four home assignments	Discussions	
	Homework	Read literature on causal inference. It is not important to understand all the mathematics and formulas in these papers. Try to understand the concepts.	- VanderWeele & Ding (2017). Sensitivity Analysis in Observational Research: Introducing the E-Value. <i>Ann Intern Med.</i> 2017;167:268-274. - Keele (2015). The Statistics of Causal Inference: A View from Political Methodology. <i>Political Analysis</i> (2015) 23:313–335

Tuesday 29 January 2019 (day 7)

	Title	Scientific content	Literature
9.15-10.00	Causal inference in register-based research (Magne Solheim og Øystein)	Matching and adjustment in regression models, natural experiments, and sensitivity analyses with the E-value.	
10.15-11.00	Exercise		
11.15-12.00	Causal inference in register-based research continued (Magne Solheim og Øystein)		
12.00-12.45	<i>Lunch</i>		
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." <i>Intelligent Data Analysis</i> 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 four 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." <i>Br J Cancer</i> 102(12): 1786-1790.

Wednesday 30 January 2019 (day 8)

	Title	Scientific content	Literature
9.15-10.00	Cross-Nordic studies in cancer epidemiology (Eero Pukkala)		
10.15-12.00	Exercise		
12.00-12.45	<i>Lunch</i>		
12.45-14.00	Using register data to study socio-economic difference in health, morbidity and mortality (Mika Gissler)		
14.15-15.00	Exercise	On planning of a register-based study e.g. on migrant health or SES difference	
15.15-17.00	Present four home assignments	Discussion	
	Homework	Literature about important biases in register-based studies	<p>- Uddin (2016). "Methods to control for unmeasured confounding in pharmacoepidemiology: an overview." <i>Int J Clin Pharm</i> 38(3): 714-723.</p> <p>Additional:</p> <p>- Dans (1993). "Looking for answers in all the wrong places." <i>Ann Intern Med</i> 119(8): 855-7.</p> <p>- Frank (2000). "Epidemiology. When an entire country is a cohort." <i>Science</i> 2000;287:2398-9.</p> <p>- Thygesen (2017). "When is a null finding in register-based epidemiology convincing?" <i>Journal of clinical epidemiology</i> 2017.</p> <p>- Ehrenstein (2016). "Helping everyone do better: a call for validation studies of routinely recorded health data." <i>Clin Epidemiol</i> 8: 49-51.</p> <p>- Krebs & Langhoff-Roos (2014). "Validation of registries: a neglected, but indispensable investment." <i>Paediatr Perinat Epidemiol</i> 28(5): 351-352.</p> <p>- Rider (2016). "Trouble in Paradise: Unmeasured Confounding in Registry-based Studies of Etiologic Factors." <i>Eur Urol</i> 69(5): 883-884.</p>

Thursday 31 January 2019 (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	<i>Lunch</i>		
12.45-14.00	Bias in register-based studies continued (Lau)		
14.15-15.00	Exercise on unmeasured confounding		
15.15-17.00	Present four home assignments	Discussion	
	Homework	More literature on health geography	<ul style="list-style-type: none"> - 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 1 February 2019 (day 10)

	Title	Scientific content	Literature
9.15-10.00	Health geography (Annette Kjer Ersbøll)	How to do inference from registries based on geographical differences in behavior and services.	<ul style="list-style-type: none"> - 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.
10.15-11.00	Combining register-information with other data sources (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.	
11.15-12.00	Exercise		
12.00-12.45	<i>Lunch</i>		
12.45-13.00	Course evaluation	Students spend 15 minutes to answer online questionnaire.	
13.15-14.30	Applying for data in the Nordic countries (Tone and Lau)	Enable students to design study and apply for registry data	
14.45-16.15	Present three home assignments	Discussion	
16.15-16.30	Wrapping up (Tone and Lau)		