

## Module 211 Minor B: Chronic disease epidemiology

Module : 211	Chronic disease epidemiology
<b>UE coordinator</b>	Moise DESVARIEUX
<b>Dates</b>	24 <sup>th</sup> to 28 <sup>th</sup> October 2016
<b>Credits/ECTS</b>	3
<b>Duration</b>	Number of days: 5 Number of hours : 30
<b>UE description</b>	<p>This minor will provide a more detailed overview of design, method, substantive and analytical issues pertaining to chronic disease epidemiology. It will cover: Infectious causes versus chronic slow causes Implications for causal thinking and analysis Issues of time And the epidemiology of risk factors. Specific issues will also be covered ,such as Epidemiology of cancer: breast cancer risk among women; computation of risk; population versus individual risk; cancers in the western world; cancers and diet; trends in cancer; risk factors for cancer; Epidemiology of Cardiovascular diseases (CVD); CVD trends ; CVD in the world; CVD and diet; risk factors</p> <p><b>Learning objectives:</b> <i>at the end of the module, the students should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Discuss the key concepts of chronic diseases and identify their related risk factors</li> <li>2. Specify the role of the genetic approach for chronic diseases</li> <li>3. Apply epidemiologic tools and methodologies for chronic diseases, such as cancers and CVD</li> <li>4. Identify key steps for implementing meta analysis and systematic reviews</li> <li>5. Apply pharmaco epidemiology tools to chronic conditions and treatment</li> <li>6. Critically assess and interpret the findings of chronic disease epidemiology papers</li> </ol>
<b>Prerequisites</b>	Prior coursework in Epidemiology and Statistics is strongly encouraged.
<b>Course learning objectives</b>	
<b>Course requirement</b>	
<b>Grading and assessment</b>	At the conclusion of the course, an examination will be assigned covering course content. The examination will be a combination of multiple choice, true/false and essay questions.
<b>Location</b>	George Sand EHESP Campus in Paris

Session Title	<b>Introduction to Chronic Disease: Global Epidemiology, Definitions and Myths Introduction to the Epidemiology and Control of Cardiovascular Disease</b>
Speakers	Moise DESVARIEUX Columbia University, INSERM, EHESP
Learning Objectives	At the end of the session, the students will be able to: <ul style="list-style-type: none"> <li>- Define a "chronic disease" and appreciate the complexities of forming a definition</li> <li>- Be aware of the leading causes of death globally</li> <li>- Identify the most important chronic disease risk factors</li> <li>- identify common chronic disease myths</li> <li>- To be familiarized with the Epidemiology of cardiovascular Disease globally as well as important risk factors</li> </ul>
Duration	3 hours
Date	October 24 <sup>th</sup> 2016
Readings	WHO Chronic Disease Report

Session Title	<b>Introduction to Interpretation of Diagnostic Data for Chronic Disease</b>
Speakers	Moise DESVARIEUX Columbia University EHESP INSERM
Learning Objectives	At the end of the session, the students will be able to: <ul style="list-style-type: none"> <li>- Identify the phenomena and assumptions behind the interpretation of laboratory data as they relate to chronic disease</li> <li>- Calculate positive and negative predictive values, and interpret</li> <li>- Be aware of the likelihood ratio and its utility and be able to link the different metrics for clinical use and utility</li> </ul>
Duration	3 hour
Date	October 24 <sup>th</sup> 2016
Readings	Sackett et al. The interpretation of Diagnostic Data.

Session Title	<b>Pharmacoepidemiology</b>
Speakers	Joseph KIM Roche, UK & Department of Medical Statistics, London School of Hygiene and Tropical Medicine
Learning Objectives	At the end of the session, the students will be able to: <ul style="list-style-type: none"> <li>- Identify the role of epidemiology in drug development and post-marketing activities</li> <li>- Differentiate between pharmacoepidemiology and pharmacovigilance</li> <li>- Provide examples of large data sources for conducting pharmacoepidemiology and pharmacovigilance studies</li> <li>- Use basic methods of signal detection and data mining in pharmacovigilance</li> </ul>
Duration	3 hours
Date	October 25 <sup>th</sup> 2016
Readings	European Medicines Agency, Science Medicines Health: New EU Pharmacovigilance Legislation – Key Concepts Robinson NJ. Epidemiology in the pharmaceutical Industry: a perspective for infectious diseases. <i>Statist. Med.</i> 2000; 19:3193-3198. Van Manen RP, Fram D, and DuMouchel W. Signal detection methodologies to support effective safety management. <i>Expert Opin. Drug Saf.</i> (2007) 6(4):451-464. Talbot, J. et al. Pharmacovigilance in the Pharmaceutical Industry Rodriguez G. et a. Use of the UK General Practice Research Database for Pharmacoepidemiology. Evans, S. et al. Use of proportional reporting ratios (PRRs) for signal generation from spontaneous adverse drug reaction reports.

Session Title	<b>Psychiatric Epidemiology</b>
Speakers	Viviane Kovess
Learning Objectives	At the end of the session, the students will be able to <ul style="list-style-type: none"> <li>- Identify the diverse mental health problem types and know their prevalence in diverse populations around the world</li> <li>- Gain a perspective on the main scientific challenges in psychiatric epidemiology: measurement and risk factors evaluation</li> </ul>
Duration	3 hours
Date	October 25 <sup>th</sup> 2016
Readings	Demyttenaere K. et al. Prevalence, Severity, and Unmet Need for Treatment of Mental Disorders in the World Health Organization World Mental Health Surveys. <i>JAMA.</i> 2004;291(21):2581-2590. doi:10.1001/jama.291.21.2581.

Session Title	<b>Epidemiology of Diabetes</b>
Speakers	Tiffany GARY-WEBB
Learning Objectives	At the end of the session, the students will be able to <ul style="list-style-type: none"> <li>- To review the trends in the prevalence of diabetes and to understand the nuts and bolts of the disease</li> <li>- To review the landmark studies that shaped current diabetes care</li> </ul>
Duration	3 hours
Date	October 26 <sup>th</sup> 2016
Readings	<p>Diabetes Prevention Program Research Group. <i>Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin</i>. NEJM 2002, 346:393-403.</p> <p><b>Optional but Recommended:</b>  Engelgau MM, Geiss LS, Saaddine JB, Boyle JP, Benjamin SM, Gregg EW, Tierney EF, Rios-Burrows N, Mokdad AH, Ford ES, Imperatore G, Narayan KM. <i>The Evolving Diabetes Burden in the United States</i>. Ann Intern Med. 2004; 140:945-950.</p> <p>Wild S, Roglic G, Green A, Sicree R, King H. <i>Global Prevalence of Diabetes: Estimates for the year 2000 and projections for 2030</i>. Diabetes Care 2004; 27(5):1047-1053.</p> <p>Diabetes Control and Complications Trial Research Group. <i>The Effect of Intensive Treatment of Diabetes on the Development and Progression of Long-Term Complications in Insulin-Dependent Diabetes Mellitus</i>. NEJM 1993, 329:977-986.</p> <p>UK Prospective Diabetes Study Group. <i>Intensive blood glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type II diabetes</i>. Lancet 1998, 352:837-53.</p> <p>Diabetes Prevention Program Research Group. <i>10-yr follow-up of diabetes incidence and weight loss in the Diabetes Prevention Program Outcome Study</i>. Lancet 2009, 374:1677-86.</p>

Session Title	<b>Epidemiology of Obesity Social Inequalities in Chronic Diseases with a focus on Obesity</b>
Speakers	Tiffany GARY-WEBB
Learning Objectives	At the end of the session, the students will be able to: <ul style="list-style-type: none"> <li>- To review the trends in the prevalence of obesity and understand the nuts and bolts of the condition</li> <li>- To summarize the social/environmental determinants of chronic disease</li> </ul>
Duration	3 hours
Date	October 26 <sup>th</sup> 2016
Readings	<p>Diez-Roux A and Mair C. <i>Neighborhoods and Health</i>. Ann. N.Y. Acad. Sci.1186 (2010) 125–145.</p> <p>Flegal KM, et al. <i>Prevalence of Obesity and Trends in the Distribution of Body Mass Index among US Adults, 1999-2010</i>. JAMA 2012, 307(5):491-497.</p> <p><b>Optional but Recommended:</b>  Seidell JC. <i>The epidemiology of obesity: a global perspective</i>. Obesity Prevention and Public Health, edited by David Crawford and Robert W. Jeffery, Oxford University Press 2005, pg.3-19.</p>

Session Title	<b>Genetic Epidemiology</b>
Speakers	Ruth OTTMAN Columbia University
Learning Objectives	<p>At the end of the session, the students will be able to</p> <ul style="list-style-type: none"> <li>- Describe current concepts about genetic variation and how it influences disease risk at the individual and population levels</li> <li>- Elaborate a “pathway” of research questions used to investigate the genetics of a complex disease and the methods used in genetic epidemiology to address these questions</li> <li>- Define the “family history study” and “family study” approaches for collection of information on disease in families, and discuss the advantages and disadvantages of each approach</li> <li>- Define “sensitivity” and “specificity” in the context of family history data</li> <li>- Discuss the purpose, strengths, and limitations of familial aggregation studies in the context of genetic research on a complex disorder</li> <li>- Define the “case-control” and “reconstructed cohort” analytic approaches for analysis of familial aggregation, and describe their advantages and disadvantages.</li> </ul>
Duration	6 hours
Date	October 27 <sup>th</sup> 2016
Readings	<p>Burton PR, Tobin MD, Hopper JL. Key concepts in genetic epidemiology. <i>Lancet</i> 2005;366:941-951.</p> <p>Rao DC. An overview of the genetic dissection of complex traits. <i>Adv Genet</i> 2008;60:3-34.</p> <p>Feero WG, Guttmacher AE, Collins FS. Genomic medicine—an updated primer. <i>N Engl J Med</i> 2010;362:2001-2011.</p> <p>Hudson KL. Genomics, health care, and society. <i>N Engl J Med</i> 2011; 365: 1033-41.</p> <p>Susser E and Susser M. Familial aggregation studies: a note on their epidemiologic properties. <i>Am J Epidemiol</i> 1989; 129:23-30.</p> <p>Elbaz A, McDonnell SK, Maraganore DM, et al. Validity of family history data on PD: evidence for a family information bias. <i>Neurology</i> 2003;61:11-17.</p>

Session Title	<b>Cancer Epidemiology</b>
Speakers	Alfred NEUGUT Columbia University
Learning Objectives	At the end of the session, the students will be able to: <ul style="list-style-type: none"> <li>- Describe basic concepts of carcinogenesis and cancer pathology and appreciate their roles in cancer causation studies</li> <li>- Demonstrate understanding of issues in cancer screening and its complexities as well as current approaches to screening</li> <li>- Discuss key biases and issues in study design that are important in chronic disease epidemiology, especially cancer epidemiology</li> <li>- Summarize basic risk factors and their putative roles in cancer etiology and prevention, as well as how to study them in chronic disease epidemiology</li> </ul>
Duration	6 hours
Date	October 27 <sup>th</sup> 2016
Readings	<p>Shapiro, S. Evidence on Screening for Breast Cancer from a Randomized Trial. <i>Cancer</i>, 1977.</p> <p>Schroder, FH. et al. Screening and Prostate-Cancer Mortality in a Randomized European Study. <i>NEJM</i>, 2009.</p> <p>Herbst A. et al. Adenocarcinoma of the Vagina. <i>NEJM</i>, 1971.</p> <p>Beasley, R. et al. Hepatocellular Carcinoma and Hepatitis B Virus. <i>The Lancet</i>, 1981.</p> <p>Heinonen, O &amp; Albanes, D. for the Alpha-Tocopherol Beta Carotene Cancer Prevention Study Group. The Effect of Vitamin E and Beta Carotene on the Incidence of Lung Cancer and Other Cancers in Male Smokers. <i>NEJM</i>, 1994.</p> <p>Neugut, A.I. <i>Epidemiology and Prevention</i>.</p> <p>Horwitz, R. &amp; Feinstein, A. Alternative Analytic Methods for Case-Control Studies of Estrogens and Endometrial Cancer. <i>NEJM</i>, 1978.</p> <p>Block, G. A Review of Validations of Dietary Assessment Methods. <i>American Journal of Epidemiology</i>, 1982.</p> <p>Schatzkin, A. Lack of Effect of a Low-Fat, High-Fiber Diet on the Recurrence of Colorectal Adenomas. <i>NEJM</i>, 2000.</p>