

PROGRAMME

DAY 1 (Tuesday, 27 February 2018) – Katowice, Poland	
10:00 – 10:30	Introduction & Welcome (lecture) [MC] <i>Course, Faculty & software</i>
10:30 – 11:00	Definitions, Terminology & Publishing Research (lecture) [MC] <i>Statistics, parametric, non-parametric, randomization, independence, degrees of freedom, P-value, Editors, Reviewers & Journals.</i>
10:45 – 11:00	<i>Coffee break</i>
11:00 – 11:45	Data & Distributions, Descriptive Statistics – Samples (lecture) [SS] <i>Types of data, Gaussian distribution, parametric, non-parametric, Chi-square, F, Mean, SOS/DOF, variance, SD, Table 1 in RCT</i>
11:45 – 12:30	Inferential Statistics – Populations (lecture) [SD] <i>SE, 95%CI, P value, type I & II errors, differences, effect sizes</i>
12:30 – 13:15	<i>Lunch</i>
13:15 – 14:00	Sample Size & Power Calculations – (lecture) [MC] <i>Minimum difference or effect size, factors, post-hoc calculations, multiple comparisons</i>
14:00 – 14:45	Practical sample size calculations (exercise) [MC] <i>Empirical sample size calculations</i>
14:45 – 15:00	<i>Coffee break</i>
15:00 – 15:45	Normality & Transforms (exercise) [SD] <i>Assumptions, log transforms.</i>
15:45 – 16:30	Data Presentation & Plotting (exercise) [SS] <i>Precision, SD/SE/95%CI difference, Types of plots</i>
16:30 – 17:00	Round-Up Day #1

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DAY 2 (Wednesday 28 February 2018) – Katowice, Poland

9:00 – 9:45	Student <i>t</i>-tests, Wilcoxon & Mann-Whitney <i>U</i>-tests (lecture) [SS] <i>Unpaired & paired, variance assumptions</i>
9:45 – 10:30	Proportions – Chi-square & Fisher Exact tests (lecture) [SD] <i>Absolute Risk (NNT), Relative Risk, Odds Ratio</i>
<i>10:30 – 10:45</i>	<i>Coffee break</i>
10:45 – 11:15	Two-group analyses (exercise) [MC] <i>Continuous data & proportions</i>
11:15 – 12:00	Three or more group analyses: ANOVA (lecture) [MC] <i>ANOVA, RMANOVA, Kruskal-Wallis, Friedman, Chi-square, Expanded Fisher Exact</i>
12:00 – 12:45	Correlation & Linear Regression (lecture) [MC] <i>Assumptions & differences, least squares, residuals, 95%CI, 95% prediction intervals</i>
<i>12:45 – 13:30</i>	<i>Lunch</i>
13:30 – 14:30	Three or more group analyses, correlation & regression (exercise) [MC] <i>One-way ANOVA, post-tests with trend, chi-square trend</i>
14:30 – 15:15	Time to Event – Survival analysis (lecture) [SS] <i>Kaplan-Meier Analysis, right & left censored data, median survival, logrank tests</i>
<i>15:15 – 15:30</i>	<i>Coffee break</i>
15:30 – 16:15	Time to Event – Survival analysis (exercise) [SS] <i>Survival & hazard functions, Cox proportional hazards</i>
16:15 – 16:45	Diagnostic tests – (lecture) [SD] <i>Sensitivity, Specificity, PPV, NPV, LR, ROC</i>
16:45 – 17:00	Round-Up Day #2

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DAY 3 (Thursday, 01 March 2018) – Katowice, Poland	
09:00 – 09:45	Systematic Review & Meta-analysis (lecture) [SD]
09:45 – 10:30	Systematic Review & Meta-analysis (exercise) [SD]
10:30 – 10:45	<i>Coffee break</i>
10:45 – 11:30	Confounding & Interaction Exercise [SS]
11:30 – 12:30	Agreement Analyses (lecture) [MC] <i>Kappa (weighted), Intraclass correlation, Bland-Altman plots</i>
12:30 – 13:15	Misuses of Statistics (lecture) [MC]
13:15 – 13:30	Errors in Presentation (exercise) [MC] <i>Group exercises with examples to correct</i>
13:30	End of Course

Masterclass in Statistics & Research Methodology

27 Feb - 01 March 2018 – Katowice, Poland

Chair: Dr Malachy Columb [MC]

Malachy Oliver Columb is Consultant in Anaesthesia and Intensive Medicine at the University Hospital of South Manchester, Wythenshawe, UK, since 1996. He graduated from University College Dublin, Eire (1985), trained in Anaesthesia in Leeds, West Yorkshire and was a faculty member at the Department of Anesthesiology, University of Michigan, Ann Arbor, USA (1994-5). His research interests include the clinical pharmacodynamics of local anaesthetic agents where he developed the minimum local analgesic concentration (MLAC) model which has been replicated world-wide. He is an Editor at the *European Journal of Anaesthesiology*, is a member of the Associate Editorial Board at the *British Journal of Anaesthesia* and the Editorial Board of the *International Journal of Obstetric Anesthesia*. He acts the Research Methodology & Statistics Advisor at these journals. He has published over 120 scientific articles including, 80 original research articles, 40 review articles and 170 abstracts. His research has gained 21 national and international prizes.

Speaker: Dr Sergi Sabaté [SS]

Sergi Sabate graduated (MD) from Universitat Autònoma de Barcelona (UAB), Spain in 1992. He trained as an anaesthetist in Hospital de la Santa Creu i Sant Pau of Barcelona. He obtained a Master in 'Design and Statistics in Health Sciences' from Universitat Autònoma de Barcelona in 2003. He holds a physician degree (PhD) from Universitat de Barcelona (UB) in 2008 with the thesis: 'Anaesthesia practice in Catalonia: Results of the analysis of 23,136 anaesthetic procedures performed in 2003'. He is currently working in Fundació Puigvert (IUNA), Barcelona. His main focus of interest is on perioperative complications and risk factors.

In ESA, he has been involved in the PERISCOPE* study as a steering committee member and statistician.

**Observational study, to validate a score predicting postoperative pulmonary Complications.*

Speaker: Dr Salome Dell-Kuster [SD]

Salome Dell-Kuster graduated (MD) from University of Basel, Switzerland in 1999. She trained as an anaesthetist at the Bürgerspital Solothurn and the University Hospital Basel. In 2007, she obtained a Master degree in Medical Statistics from the London School of Hygiene and Tropical Medicine. She submitted her habilitation on 'Perioperative Patient Safety' in 2017. Salome is currently working as a consultant anaesthetist at the University Hospital Basel and as senior researcher at the Basel Institute for Clinical Epidemiology and Biostatistics. Her research interest focuses on perioperative patient safety. In ESA, she is involved in the MetRepair study* as a steering committee member and as a statistician.

** Prospective multicentre cohort study evaluating whether self-reported metabolic equivalents (METs) are predictive for major cardiovascular events*

Conflicts of interest:

Malachy Columb: Statistical & Research Methods Editor, *European Journal of Anaesthesiology*; Editorial Board roles: *British Journal of Anaesthesia*, *International Journal of Obstetric Anesthesia*

Sergi Sabaté: None

Salome Dell-Kuster: None