

ELIZABETH L. TURNER

Department of Biostatistics & Bioinformatics and Duke Global Health Institute,
Duke University, NC, USA
E-mail: liz.turner@duke.edu

EDUCATION & TRAINING

Doctor of Philosophy 2002-2007
Department of Mathematics and Statistics, McGill University, Montréal, Canada

Master of Science 2000 – 2002
Department of Mathematics and Statistics, McGill University, Montréal, Canada

Bachelor of Science, First Class Honours 1996 – 2000
Department of Mathematics, Warwick University, Coventry, England
(Including an intercalated year at Faculté de Mathématiques Pierre et Marie Curie, Paris, France)

RESEARCH SYNOPSIS

My primary methodological focus is the statistical design and analysis of cluster randomized controlled trials (c-RCTs). With a specific focus on implementation in low and middle-income countries, my primary substantive interests are malaria and global mental health.

Through my experiences with more than 10 c-RCTs (6 as lead design statistician), I am well versed in the real-world challenges in conducting such studies. With additional experience in a broad range of experimental and epidemiological study design, my personal philosophy is to balance translation and pragmatism with methodological and statistical rigor.

PROFESSIONAL EXPERIENCE

Director 03/2012-present
Duke Global Health Institute Research Design and Analysis Core, Duke University, NC, USA

Assistant Professor 10/2013-present
Department of Biostatistics & Bioinformatics and Duke Global Health Institute (DGHI), Duke University

Director 09/2012-03/2014
Community and Family Medicine Biostatistics Core, Duke University

Medical Instructor 03/2012-10/2013
Department of Biostatistics & Bioinformatics and Duke Global Health Institute (DGHI), Duke University

Research Fellow 11/2007-02/2012
Department of Medical Statistics, London School of Hygiene and Tropical Medicine (LSHTM), UK

Research Team Member 2003-2007
Centre for Clinical Epidemiology & Community Studies, Lady Davis Institute for Medical Research, Montréal, Canada

RESEARCH SUPPORT

Co-investigator	Technology-enabled model of care to improve stroke management in resource-poor setting in China, <i>Research Councils UK</i>	2016-2019
Biostatistician	Investigating febrile deaths in Tanzania, <i>NIH R01, USD \$499,999</i>	2016-2020

Co-investigator	Reducing barriers to mental health task sharing: Stigma reduction in primary care, <i>NIH K01</i> , USD \$169,839	2014-2019
Biostatistician	Impact of perinatal depression treatment on child developmental outcomes, <i>NIH R01</i> , USD \$400,544	2014-2019
Biostatistician	Innovative partnership to target antimalarial subsidies in the retail sector, <i>NIH R01</i> , USD \$483,644	2014-2018
Consortium PI	Implementing and evaluating the impact of a peer-to-peer teaching model in Kenya, <i>Innovations for Poverty Action</i> , USD \$35,095	2014
Biostatistician	Development of mental health treatment for obstetric fistula patients, <i>NIH R21</i> , USD \$129,000	2013-2015

PUBLICATIONS IN REVISION

Turner EL, Li F, Gallis J, Prague M, Murray DM. Review of recent methodological developments in the design of group-randomized trials.

Turner EL, Prague M, Gallis J, Li F, Murray DM. Review of recent methodological developments in the analysis of group-randomized trials.

Proeschold-Bell RJ, **Turner EL**, Li XF, Yao J, Bennett GG, Meyer RA, Williams RB, Swift RY, Moore HE, Kolkin MA, Weisner CC, Rugani K, Hough HJ, Williams VP, Toole DC. Impact of a two-year multi-component health and stress management intervention for clergy: A randomized controlled trial.

Laktabai J, Lesser A, Platt A, Maffioli E, Mohanan M, Menya D, O'Meara WP, **Turner EL**. An innovative public-private partnership to target subsidized antimalarials: a study protocol for a cluster randomized controlled trial to evaluate a community intervention in Western Kenya.

SUBMITTED PUBLICATIONS

Li F, **Turner EL**, Heagerty PJ, Murray DM, Volmer WM, DeLong EL. An evaluation of constrained randomization for the design and analysis of group-randomized trials with binary outcomes.

Gallis J, **Turner EL** The risky business of odds ratios: Misuses and misinterpretations.

Maffioli E, O'Meara WP, **Turner EL**, Mohanan M. Can individuals' beliefs help us understand non-adherence to malaria test results? Evidence from rural Kenya.

PUBLICATIONS

Mehta R, Platt AP, Sun X, Desai M, Clements D, **Turner EL**. Efficacy of iron supplement bars to reduce anemia in urban Indian women: A cluster randomized controlled trial. In press at *American Journal of Clinical Nutrition*.

O'Meara WP, Mohanan M, Laktabai J, Lesser A, Platt A, Maffioli E, **Turner EL**, Menya D (2016). Assessing the independent and combined effects of subsidies for antimalarials and rapid diagnostic testing on fever management decisions in the retail sector: Results from a factorial randomized trial in western Kenya. *BMJ Global Health*. 1(2), e000101. DOI: 10.1136/bmjgh-2016-000101. PMCID: N/A

Turner EL, Sikander S, Bangash O, Zaidi A, Bates L, Gallis J, Ganga N, O'Donnell K, Rahman A, Maselko J. The effectiveness of the peer-delivered Thinking Healthy PLUS (THPP+) Program for maternal depression and child socioemotional development in Pakistan: study protocol for a randomized controlled trial. *Trials*. 17:442. DOI: 10.1186/s13063-016-1530-y. PMCID: PMC5017048.

Jukes MJ, **Turner EL**, Dubeck MB, Halliday K, Zuilowski S, Inyega H, Brooker SJ (2016). Improving literacy instruction in Kenya through teacher professional development and text messages support: A cluster randomized trial. *Journal of Research on Educational Effectiveness*. DOI: 10.1080/19345747.2016/1221487. PMCID: N/A.

Smith AJ, **Turner EL**, Kinra S (2016). Universal cholesterol screening in childhood: A systematic review. *Academic Pediatrics*. 16(8): 716-725. DOI: 10.1016/j.acap.2016.06.005. PMCID: TBD.

- Dow DE, **Turner EL**, Shayo AM, Mmbaga B, Cunningham CK, O'Donnell K (2016). Evaluating mental health difficulties and associated outcomes among HIV-positive adolescents in Tanzania. *AIDS Care*. 28(7): 825-833. DOI:10.1080/09540121.2016.1139043. PMID: PMC4905805.
- Ryser MD, Worni M, **Turner EL**, Marks JR, Durrett R, Hwang ES (2016). Outcomes of Active Surveillance for Ductal Carcinoma in Situ: A Computational Risk Analysis. *Journal of the National Cancer Institute*. 108(5): djv372. DOI:10.1093/jnci/djv372. PMID: PMC4849804.
- Stanifer JW, Egger JR, **Turner EL**, Thielman N, Patel UD (2016). Neighborhood clustering of non-communicable diseases: results from a community-based study in Northern Tanzania. *BMC Public Health*; 16:226. DOI: 10.1186/s12889-016-2912-5. PMID: PMC4779220.
- Stanifer JW, **Turner EL**, Egger JR, Thielman N, Karia F, Maro V, Kilonzo K, Patel UD, Yeates K (2016). Knowledge, Attitudes, and Practices Associated with Chronic Kidney Disease in Northern Tanzania: A Community-Based Study. *PloS One*; 11(6): e0156336. DOI: 10.1371/journal.pone.0156336. PMID: PMC4900616.
- Pence BW, Gaynes BN, Thielman NM, Heine AD, Mugavero MJ, **Turner EL**, Quinlivan EB (2015). Balancing contamination and referral bias in a randomized controlled trial: An application of pseudo-cluster randomization. *American Journal of Epidemiology*; 182(12): 1039-1046. PMID: PMC4675661.
- Doig D, **Turner EL**, Dobson J, Featherstone RL, Lo RTH, Gaines PA, Macdonald S, Bonati LH, Clifton A, Brown MM, on behalf of ICSS Investigators (2016). Predictors of stroke, myocardial infarction or death within 30 days of carotid artery stenting: results from the International Carotid Stenting Study. *European Journal of Vascular and Endovascular Surgery*; 51(3): 327-334. DOI: 10.1016/j.ejvs.2015.08.13. PMID: PMC4786052.
- Doig D, **Turner EL**, Dobson J, Featherstone RL, de Borst JG, Stansby G, Beard JD, Engelter ST, Richards T, Brown MM, on behalf of ICSS Investigators (2015). Risk factors for stroke, myocardial infarction, or death within 30 days of carotid endarterectomy: results from the International Carotid Stenting Study. *European Journal of Vascular and Endovascular Surgery*; 50(6): 688-694. DOI: 10.1016/j.ejvs.2015.08.006. PMID: PMC4684145.
- Pastva A, Lowers S, Sibley AB, Lian H, Pierson D, **Turner EL**, Patel M (2016). A physical therapy-based outpatient rehabilitation program for older adults with heart failure: A retrospective analysis of changes in functional performance. *Cardiopulmonary Physical Therapy Journal*; 27(1): 11-19. DOI: 10.1097/CPT.0000000000000022. PMID: Not applicable.
- Pence BW, Gaynes BN, Adams JL, Thielman NM, Heine AD, Mugavero MJ, McGuinness T, Raper JL, Willig JH, Shirey KG, Ogle M, **Turner EL**, Quinlivan EB. The Effect of Antidepressant Treatment on HIV and Depression Outcomes: The SLAM DUNC Randomized Trial. *AIDS*; 29(15): 1975-1986. DOI: 10.1097/QAD.0000000000000797. PMID: PMC4669218.
- Stanifer JW, Karia F, **Turner EL**, Maro V, Shimbi D, Kilawe H, Lazaro M, Patel UD (2015). Development and validation of a cross-cultural knowledge, attitudes and practices survey instrument for chronic kidney disease in a Swahili-speaking population. *PLoS One* 10(3): e0121722. DOI: 10.1371/journal.pone.0121722. PMID: PMC4374886.
- Stanifer JW, Maro V, Egger J, Karia F, Thielman N, **Turner EL**, Shimbi D, Kilaweh H, Matemu O, Patel UD (2015). The epidemiology of chronic kidney disease in Tanzania: A population-based survey. *PLoS One* 10(4): e0124506. DOI: 10.1371/journal.pone.0124506. PMID: PMC4401757
- Doig D, **Turner EL**, Dobson J, Fetherstone RL, de Borst GJ, Brown MM, Richards T, on behalf of the ICSS Investigators (2014). Incidence, impact and predictors of cranial nerve palsy and haematoma following carotid endarterectomy in the International Carotid Stenting Study. *European Journal of Vascular and Endovascular Surgery*; 48(5): 498-504. DOI: 10.1016/j.ejvs.2014.08.002. PMID: PMC4225222.
- Sumner SA, Pallangyo AJ, Reddy E, Maro V, Lynch C, Pence B, **Turner EL**, Egger J, Thielman NM (2014). Effect of Free Distribution of Safety Equipment on Usage among Motorcycle-Taxi Drivers in Tanzania—A

Cluster Randomized Controlled Trial. *Injury*. 45(11): 1681-1686. DOI: 10.1016/j.injury.2014.04.034. PMID: PMC4213314.

Sangoro O, **Turner EL**, Simfukwe E, Miller JE, Moore SJ (2014). A cluster-randomized controlled trial to assess effectiveness of using 15% DEET topical repellent with long-lasting insecticidal nets (LLINs) compared to a placebo lotion on malaria transmission. *Malaria Journal* 2014; 36:324. DOI: 10.1186/1475-2875-13-324. PMID: PMC4247706.

Gaines AR, **Turner EL**, Moorman PG, Freedland SJ, Keto CJ, McPhail ME, Grant DJ, Vidal AV, Hoyo C (2014). The association between race and prostate cancer risk on initial biopsy in an equal access, multiethnic cohort. *Cancer Causes and Control*. 25(8);1029-35. DOI 10.1007/s10552-014-0402-6. PMID: PMC4117308.

Clayton TC, Meade TW, **Turner EL**, DeStavola BL (2014). Peak-flow rate and death due to coronary heart disease: 30-year results from the Northwick Park Heart cohort study. *Open Heart*. 1(1): e000164. DOI: 10.1136/openhrt-2014-000164. PMID: PMC4195218

Xie G, Laskowitz DT, **Turner EL**, Egger JR, Shi P, Ren F, Gao W, Wu Y (2014). Baseline health-related quality of life and 10-year all-cause mortality among 1739 Chinese adults. *PLoS One*. 9(7): e101527. DOI:10.1371/journal.pone.0101527. PMID: PMC4090174.

Halliday KE, Okello G, **Turner EL**, Njagi K, Mcharo C, Kengo J, Allen E, Dubeck MM, Jukes MCH, Brooker SJ (2014). Impact of intermittent screening and treatment for malaria among school children in Kenya: a cluster randomised trial. *PLOS Medicine* 11(1): e1001594. DOI: 10.1371/journal.pmed.1001594. PMID: PMC3904819.

Turner EL, Sweeting MJ, Lindfield R, DeAngelis D (2014). Incidence estimation using a single cross-sectional age-specific prevalence survey with differential mortality. *Statistics in Medicine*, 33(3): 422-435. DOI: 10.1002/sim.5942. PMID: Not available.

Maia MF, Onyango SP, Thele M, Simfukwe ET, **Turner EL**, Moore SJ (2013). Do topical repellents divert mosquitoes within a community? – Health equity implications of topical repellents as a mosquito bite prevention tool. *PLOS ONE*, 20; 8(12). e84875. DOI: 10.1371/journal.pone.0084875. PMID: PMC3869929.

Lorenz LM, Keane A, Moore JD, Munk CJ, Seeholzer L, Mseka A, Simfukwe E, Ligamba J, **Turner EL**, Biswaro SL, Okumu FO, Killeen GF, Mukubana WR, Moore SJ (2013). Taxis assays measure directional movement of mosquitoes to olfactory cues. *Parasites and Vectors*, 6:131. DOI:10.1186/1756-3305-6-131.

Sumner SA, **Turner EL**, Thielman NM (2013). Association between Earthquake Events and Cholera Outbreaks: A Cross-Country 15-year Longitudinal Analysis. *Prehospital and Disaster Medicine*, 28(6):567-572. doi: 10.1017/S1049023X13008984.

Okumu FO, Mbeyela E, Ligamba G, Moore JD, Ntamatungiro A, Roman D, Kenward M, **Turner EL**, Lorenz L, Moore SJ (2013). Comparative field evaluation of combinations of long-lasting insecticidal treated nets and indoor residual spraying, relative to either method alone, for malaria prevention in an area where the main vector is *Anopheles arabiensis*. *Parasites and Vectors*, 6: 46. DOI: 10.1186/1756-3305-6-46.

Kotseva K, **Turner EL**, Jennings CS, Mead A, Connolly S, Jones J, Bowker T, Wood DA on behalf of the ASPIRE-2-PREVENT Study Group (2013). What is cardiac rehabilitation achieving for patients with coronary heart disease? The ASPIRE-2-PREVENT results. *British Journal of Cardiology*, 20(suppl. 3): S1-S19. DOI: 10.5837/bjc.2013.s04

Amber V, Kotseva K, **Turner EL**, Jennings CS, Atrey A, Jones J, Connolly S, Bowker TJ, Wood DA on behalf of the DYSIS Study Group (2013). Dyslipidaemia and atherosclerotic vascular disease: DYSIS results in the UK. *British Journal of Cardiology*, 20(suppl. 3): S1-S19. DOI: 10.5837/bjc.2013.s05

Limmathurotsakul D, **Turner EL**, Wuthiekanun V, Thaipadunpanit J, Suputtamongkol Y, Chierakul W, Smythe LD, Day NPJ, Cooper BS, Peacock SJ. (2012). Fool's Gold: Why imperfect reference tests are

undermining the evaluation of novel diagnostics: A reevaluation of 5 diagnostic tests for Leptospirosis. *Clinical Infectious Diseases*, doi: 10.1093/cid/cis403.

Halliday KE, Karanja P, **Turner EL**, Okello G, Njagi K, Dubeck MM, Jukes MCH, Brooker S (2012). *Plasmodium falciparum*, anaemia and cognitive and educational performance among school children in an area of moderate malaria transmission: baseline results of a cluster randomised trial on the coast of Kenya. *Tropical Medicine and International Health*, 17, 532-549.

Kotseva K, Jennings CS, **Turner EL**, Mead A, Connolly S, Jones J, Bowker T, Wood DA on behalf of the ASPIRE-2-PREVENT Study Group (2012). ASPIRE-2-PREVENT: A survey of lifestyle, risk factor management and cardioprotective medication in coronary patients and people at high risk of developing cardiovascular disease in the UK. *Heart*, 865-871. Doi: 10.1136/heartjnl-2011-301603

Turner EL, Perel P, Edwards P, Clayton TC (2012). Covariate adjustment increased power in randomized controlled trials: an example in traumatic brain injury. *Journal of Clinical Epidemiology*, 65(5): 474-481.

Mng'ong'o FC, Sambali JJ, Sabas E, Rubanga J, Magoma J, John A, **Turner EL**, Nyogea D, Ensink J, Moore SJ (2011). Repellent plants provide affordable natural screening to prevent mosquito house entry in tropical rural settings - Results from a pilot efficacy study. *PLoS ONE*, 6(10): e25927.

Shah SP, Gilbert CE, Rezzavi H, **Turner EL**, Lindfield RJ (2011). Variation in pre-operative visual acuity among cataract patients reflects levels of social deprivation at the population level: a global study. *Bulletin of the WHO*, 89: 749-756.

Connolly S, Holden A, **Turner EL**, Fiumicelli G, Stevenson J, Hunjan M, Mead A, Kotseva K, Jennings C, Jones J, Wood D A (2011). MyAction – an innovative approach to the prevention of cardiovascular disease in the community. *British Journal of Cardiology*, 18(4): 171-176.

Turner EL, Dobson, JA, Pocock, SJ (2010). Categorisation of continuous risk factors in epidemiological publications: a survey of current practice. *Epidemiologic Perspectives & Innovations*, 7:9.

Turner EL, Hanley JA (2010). Cultural imagery and statistical models of the force of mortality: Addison, Gompertz and Pearson. *Journal of the Royal Statistical Society, Series A*.173(3): 483-499.

Hanley JA, **Turner EL** (2010). Age in medieval plagues and pandemics: Dances of Death or Pearson's bridge of life? *Significance* 7(2): 85-87.

Lindfield R, **Turner EL**, John N, Gilbert C (2009). Cataract surgery and mortality (2009). *Br J Ophthalmol*, 2009; 93(7):985 (letter).

Hanley JA, **Turner EL**, Bellera C, Teltsch D (2003). How long did their hearts go on? A Titanic study. *British Medical Journal*; 327: 1457 - 1458. (Christmas Edition).

PROFESSIONAL ACTIVITIES

Director of Duke Global Health Institute Research Design and Analysis Core (2012-present)

- Worked with 40+ DGHI faculty and 6 Global Health fellows on a range of projects
- Advice on the design and analysis of individually- and cluster-randomized designs, including the design of natural experiments, including sample size and power calculations
- Co-investigator on funded NIH projects: R01 (3), K01 (1) and R21 (1) and mentor on funded K01
- Co-investigator on 1 UK MRC project & validation statistician on a second UK MRC project
- Supervised 3 MS-level Biostatisticians and 5 student interns

Director of Department of Community and Family Medicine Biostatistics Core (2012-2013)

- Worked with 5 faculty on a range of observational studies
- Supervised 2 MS-level Biostatisticians

Lead Design Statistician – Cluster Randomized Controlled Trials

Technology-enabled model of care to improve stroke management in China 2016-2018

Principal Investigator (PI): Dr. L. Yan

- Cluster randomized trial (c-RCT) of an mhealth intervention to improve stroke care in resource-poor settings in China

Addressing mental health (MH) difficulties in HIV+ Tanzanian youth 2016-2018

PI: Dr. D. Dow, DGHI

- Pilot feasibility stepped wedge c-RCT of *Sauti ya Vijana* (The Voice of Youth) to address MH difficulties in order to improve adherence to HIV medications

Reducing mental health stigma among healthcare providers (RESHAPE-mh) 2016-2018

PI: Dr. B. Kohrt, DGHI

- Pilot feasibility c-RCT of a program of training of non-specialist providers in mental health care services in Nepal

Innovative partnerships to target antimalarial subsidies in the retail sector in Kenya 2014-2018

PI: Dr. W. O'Meara, DGHI

- To evaluate the impact of a new approach to improve access to diagnosis for malaria amongst patients who seek malaria treatment in the informal health sector.
- c-RCT with three waves of data collection of 5000 people at each wave

Thinking Health Program Peer-Delivered - SHARE-Child Intervention Trial 2014-2019

PI: Dr. J. Maselko, DGHI and UNC-Chapel Hill

- c-RCT to evaluate the impact of a perinatal depression intervention on child outcomes
- Three-year follow-up of mother-child dyads in a c-RCT of 1400 women in rural Pakistan

Peer-to-Peer Teaching Intervention - Buddy Reading Trial 2013-2015

PI: Dr. M. Jukes, Harvard and Room to Read

- To evaluate the impact of peer-to-peer teaching on literacy outcomes of school children in Kenya
- One-year c-RCT in 3000 children in 101 schools
- Planning and execution of all interim & final analyses

Trial Statistician – Cluster Randomized Controlled Trials - Selected Examples

Mvomero Intervention Trial 2012-2014

PI: Dr. R. Kramer, DGHI

- To evaluate the impact of malaria control (larviciding) and early detection on malaria rates
- Two-year 2x2 factorial c-RCT in 900 people in 24 villages in Tanzania with a focus on under 5s
- Developed statistical analysis plan and supervised MSc Biostatistician in conducting analyses

Health and Literacy Intervention Trial 2011-2014

PI: Dr. S. Brooker, LSHTM

- To evaluate impact of malaria control and enhanced literacy instruction on health and educational achievement of school children in Kenya
- Two-year 2x2 factorial c-RCT in 6000 children in 101 schools
- Collaboration with Harvard Grad. School of Education & Kenyan Med. Research Institute
- Planning and execution of all interim & final analyses & member of data monitoring committee

Trial Data Monitoring Committee Statistician

TUMIKIA cluster randomized trial 2015-2017

PI: Dr. Rachel Pullan, LSHTM

- To evaluate impact of community and school-based interventions to interrupt transmission of soil-transmitted helminths

Trial Validation Statistician

2016-2019

Primary care strategies to reduce high blood pressure: A cluster randomized trial in rural Bangladesh, Pakistan and Sri Lanka.

PI: Dr. Tazeen Jafar, DGHI and Duke-NUS, Singapore

Research Fellow

2007-2012

Department of Medical Statistics, London School of Hygiene and Tropical Medicine (LSHTM), UK

Supervisors: Dr. C. Frost (2011-2012); Dr. S. Pocock (2007-2010)

Research Study Collaborative Statistician (2007-2012)

- European Huntington's Disease Network (2011-2012)
 - Development of optimal design of trials in Huntington's Disease using routinely collected registry data
- Disease and Vector Control Biology, LSHTM (2010-2012)
 - Research projects in public health entomology in Tanzania
 - Statistical analyses of experimental field trials to evaluate registered spatial repellents as potential replacements for DDT against malaria (Gates Foundation)
- International Centre for Eye Health, LSHTM (2008-2012)
 - Statistical work in a broad programme to tackle the VISION2020 goal to eliminate avoidable blindness by 2020
 - Development of Markov-transition model methods for estimation of disease incidence to estimate burden of disease due to cataract blindness (in collaboration with Drs D. DeAngelis and M. Sweeting, MRC Biostatistics Unit, Cambridge)
 - Analysis of survey data in collaboration with Orbis, Ethiopia
- Preventive Cardiology, Imperial College, London, UK (2007-2010)
 - Analysis of cross-sectional survey, cluster randomised trial and case-control study data
- Capture-recapture and associated methodology (2007-2011)
 - Further development of PhD research
 - Consultant: Completeness of Gambian cancer registry; Diagnostic testing in cervical cancer screening in Uganda; Prevalence of Encephalitis in the UK

Trial Statistician (2011)

- International Carotid Stenting Study; PI: Dr. Martin Brown, University College London, UK
 - To evaluate carotid artery stenting versus carotid endarterectomy for the long term prevention of stroke in patients with symptomatic carotid artery stenosis
 - Randomised controlled trial with up to 6 years of follow-up in 1700 patients
 - Planning and execution of all final analyses
 - Member of Carotid Stenting Trialists' Collaboration of 3 large international trials

Research Team Member

2003-2007

Latitude Project, Centre for Clinical Epidemiology and Community Studies,

Lady Davis Institute for Medical Research, Montréal, Canada

- Simultaneously coordinated grant proposals & personal scholarship application (Commonwealth)
- Succeeded in obtaining a three-year *Canadian Institutes of Health Research* grant (approx \$150,000) for a pre-design study of prevalence of multiple sclerosis in Québec
- Extensive experience in all stages of project development - inception to application
- Responsible, together with Dr. Alain Vandal (Principal Investigator), for development and implementation of new statistical methodology using capture-recapture techniques

Research Consultant

2004-2006

Dr. Marc Zerey, Department of Surgery, Jewish General Hospital

- Analysed administrative data from Saskatchewan via log-linear modelling using R
- Compared incidence of leukaemia in general population to that in colorectal cancer population

Dr. A. Lippman, Steering Committee, Women and Health Protection Group, Canada

- Conducted bibliographic search of inclusion and exclusion policies of women from clinical trials
- Assisted in background work for preparation of policy recommendation document entitled *The Inclusion of Women in Clinical Trials: Are We Asking the Right Questions?*
- Report available at: <http://www.whp-apsf.ca/pdf/clinicalTrialsEN.pdf>

TEACHING AND MENTORING EXPERIENCE

Course Instructor, Duke Global Health Institute 2013-ongoing

Biostatistics and Epidemiology (Formerly Quantitative Research Methods) for MSc in Global Health

- Content: Descriptive Statistics, Probability, Distributions, Sampling, Numerical Data Analysis, Categorical Data Analysis, Introduction to Study Designs, Introduction to Epidemiology, Incidence and Prevalence, Risk, Confounding, Mediation, Effect Modification
- Taught core course using a *flipped classroom* model with team-based learning in the classroom
- Delivered 2/week class sessions for the 15-week fall semester (2013, 2014, 2015, 2016)
- Prepared all course materials and assessments; graded assessments
- Supervised 2 TA's each semester
- Catered to needs & abilities of a diverse mix of 35-45 students from multiple backgrounds (engineering, anthropology, medicine, biology, policy and a range of others)
- Awarded Digital Education Grant

Faculty Visit Duke-NUS Feb 2016

- Visit to Duke-NUS and attendance at multiple flipped classroom sessions to draw lessons for Duke
- Intellectual exchange with senior educational team members

Flipped classroom Faculty Fellow 2013-2014

- Center for Instructional Technology, Duke
- Selected to participate in faculty fellowship with 8 other Duke faculty during academic year

Awarded Digital Education Grant (\$10,000), DGHI 2013-2014

- To develop course content and materials to be delivered using online digital (video) media in the context of a *flipped classroom* teaching model
- Supervised 2 MSc-level (Public Policy and Economics) to develop course materials during summer

PhD advisory committee member/ statistics advisor, LSHTM 2010-2012

Katherine Halliday, Department of Disease Control (completed)

Effectiveness of intermittent screening and treatment in primary schools in coastal Kenya, Western Kenya and Malawi: investigating heterogeneity, equity and externalities

Peter Sangoro-Ongaro, Department of Infectious Diseases (completed)

Can topical repellents prevent malaria in Africa by preventing early evening biting? A cluster randomised trial in a village in rural Tanzania

Fredros Okumu, Department of Disease Control (completed)

Evaluation of synergies and redundancies between indoor residual spraying and insecticide treated nets when the two methods are used together to control African malaria vectors

MSc project and thesis advising and mentoring 2008-ongoing

MSc-Biostatistics and Bioinformatics, Duke University (CM: Committee Member, A: Advisor)

Hengshi Yu	<i>Use of quadratic inference function for estimation of marginal intervention effects in cluster randomized trials</i>	A	2017
Avery Yuan	<i>Longitudinal associations between serum micronutrient levels and anthropometric measurements in children of Baktapur, Nepal</i>	A	2017

Jessica Liang	<i>Balance metrics in constrained group randomization</i>	A	2016
Xin Liu	<i>Features and challenges in the statistical analysis of stepped wedge RCTs: The Spirited Life Intervention for NC clergy</i>	A	2016
Stephanie Sun	<i>Comparisons of methods to analyze right-truncated data from a longitudinal quasi-experimental study of anemia in India</i>	A	2015
Ryan Simmons	<i>Methods for non-response in longitudinal cluster randomized trials for rare binary outcomes. Student Leadership Award</i>	A	2015
Rui Dan	<i>Latent class analysis on the effect of neighborhood SES and biological status on breast cancer survival</i>	CM	2015
Hannah Vernia	<i>Analysis of Experimental Studies with Repeated Measures and Rare Binary Outcomes</i>	A	2014
Zhiping Zhang	<i>The effect of marriage and children on midlife body weight: Results from the Longitudinal Survey of Youth</i>	CM	2014
Huizi Lian	<i>Evaluation of long-term and short-term clinical outcomes for early stage non-small cell lung cancer patients</i>	CM	2014
Tao Wu	<i>Dimensions of Health and Aging in Sri Lanka. Student Initiative Award</i>	A	2013
Pu Huang	<i>Measurement of physical activity among obese workers: Agreement between IPAQ-L and Actical accelerometer data</i>	CM	2013
<u>MSc-Global Health, Duke University (CM: Committee Member, A: Advisor)</u>			
Chen Liu	<i>Panel study in Beijing: The effects of PM2.5 in Pre-diabetic population</i>	CM	2015
Christina Chao	<i>Air Pollution, fuel usage and health outcomes in Madre De Dios, Peru: A comparative cross-sectional study.</i>	CM	2015
Sylvia Sable	<i>Validity of 24-hour dietary recall in children aged 8 to 16 in Western Kenya</i>	CM	2013
Alexis Gaines	<i>Health disparities & prostate cancer: Can educational status, race and distance to care facilities impact risk and severity on initial biopsy?</i>	CM	2013
<u>MSc Medical Statistics, LSHTM (CM: Committee Member, A: Advisor)</u>			
Kashfia Chowdhury	<i>Incidence of prostate cancer in two occupational cohorts</i>	CM	2013
Emma Powell	<i>Inconsistency in the use of visual analogue scales</i>	Co-A	2010
Brennan Kahan	<i>A matched-pair cluster randomised trial of a family-based CVD rehabilitation programme vs. usual care for coronary patients</i>	A	2009
<u>MSc in Preventive Cardiology, Centre for Circulatory Health, Imperial College, London</u>			
Co-supervisor (statistics) of five projects based on observational and trial data			
Course Instructor, Ifakara Institute of Health (IHI), Tanzania			2009
Analysis and Design of Research Studies			
- Condensed a one-term LSHTM course to one week to be delivered to researchers at a partner institution in Tanzania			
- Co-taught with a member of IHI			
Course Instructor, Centre for Circulatory Health, Imperial College			2008-2010
Research Methods for MSc in Preventive Cardiology			
- Content: Sampling, Linear Regression, Categorical Data Analysis & Principles of Survival Techniques			
- Prepared and delivered 6 full days of teaching each comprising 2 lectures and 2 practicals per day			
- Catered to needs & abilities of a diverse mix of twenty students (age range: 20s to 50s; professional backgrounds: cardiology, GP, physiotherapy, nursing, "just-finished-undergraduate")			
Teaching Assistant, Epidemiology and Population Health, LSHTM			2008-2011
Analytical Techniques; Regression; Survival Analysis; Design and Analysis of Epi Studies; Bayesian Statistics; Cluster Randomised Trials (Distance Learning)			

Course Instructor, Department of Mathematics and Statistics, McGill University

Principles of Statistics II

Winter 2004

- Content: Linear Regression, Categorical Data Analysis, Nonparametric Statistics
- Delivered three lectures per week for one semester (15 weeks) to 80 undergraduate students

Teaching Assistant, Department of Mathematics & Statistics, McGill University

2001 & 2002

Teaching Assistant, Department of Epidemiology and Biostatistics, McGill University

2001 & 2002

Peer Tutor, Department of Mathematics, Warwick University

1997

FELLOWSHIPS

Commonwealth Scholarship, Canada \$25,000/year	2003-2005
McGill Major Scholarship, \$10,000/year (declined first two years)	2003-2006
Institut des Sciences Mathématiques Scholarship, Montréal, \$4,000/year	2001-2003
Canada Memorial Foundation Scholarship, U.K. \$24,000	2000-2001
Entente Cordiale Scholarship, France, €12,000/year (declined)	2000-2001

SELECTED AWARDS

<i>DGHI Award for Excellence in Graduate Teaching and Mentoring</i>	2016
<i>Duke-NUS academic leave, one month salary</i>	2016
<i>Duke Global Health Institute Digital Education Award, \$10,000</i>	2013
<i>Duke Global Health Institute Travel Award, \$5,000</i>	2012
<i>Award for One of Top Three Presentations, Research Students Conference (RSC), Cambridge</i>	2005
<i>Teaching Assistant of the Fall 2002 and Fall 2001 Semesters Award</i> Department of Mathematics and Statistics, McGill University	2001 & 2002

SELECTED PRESENTATIONS

- Challenges in the Design and Analysis of Cluster Randomized Trials
Duke-NUS, Singapore, 2016, and, AMPATH, Eldoret, 2015
- Mediation in c-RCT: Insights from modern causal inference vs. traditional approaches
Joint Statistical Meetings Conference, Boston, 2014
- Multiple mediation in cluster-randomized trials
Eastern North American Region Biometrics Society Conference, Florida, 2013
- Use of longitudinal registry data for optimal design of clinical trials: An example in Huntington's Disease
Eastern North American Region Biometrics Society Conference, Washington DC, 2012
- Cultural imagery and statistical models of the force of mortality
Statistical Society of Canada Conference, Vancouver, Canada, 2009
- Marginal capture-recapture modelling
Recent Developments in Capture-recapture Methods, Reading, England, 2007
Royal Statistical Society Conference, Belfast, Ireland, 2006
International Biometrics Conference, Montreal, Canada, 2006
- Marginal modelling for epidemiologic capture-recapture studies, with application to prevalence estimation of Multiple Sclerosis in Quebec, Canada
European Meeting of Statisticians, Oslo, Norway, 2005
Research Students Conference, Cambridge, England, 2005
Young Statisticians Meeting, Dublin, Ireland, 2005

Augmented marginal log-linear models for capture-recapture studies
 Joint Statistical Meetings, Toronto, Canada, 2004

A covariate-based coefficient of source dependence for capture-recapture models applied to
 epidemiologic studies
 Statistical Society of Canada Conference, Montréal, Canada, 2004

Analysis of ten-year PSA “trajectories” after prostate cancer surgery
 International Biometric Society Eastern North America Region, Tampa, Florida, 2003

SERVICE TO THE SCIENTIFIC COMMUNITY AND UNIVERSITY

Peer reviewer (ad hoc) 2007 - ongoing
 BMC Research Methodology, BMJ Open, Clinical Trials, Epidemiology, Journal of Clinical Epidemiology,
 Malaria Journal, Research Methods Synthesis, Tropical Medicine and International Health

Member, Duke Global Health Institute MSc-GH Committee 2015-ongoing

Examiner, Biostatistics and Bioinformatics PhD Data Analysis Exam 2015

Organiser, Duke Global Health Institute Causal Inference Reading Group 2012

Organiser, 40th Anniversary Meeting of the MSc in Medical Statistics 2009

London School of Hygiene and Tropical Medicine

- Successfully organised 20 volunteers for the two-day meeting via a year’s planning activities

Organiser, Bayesian Discussion Group 2008-2009

London School of Hygiene and Tropical Medicine

Volunteer, International Biometrics Conference 2006

Montreal, Canada

Organiser, Journal Club for Statistics Graduate Students 2004-2006

Department of Mathematics and Statistics, McGill University, Montréal, Canada

Student Representative 2002-2003

Executive Committee, Statistical Society of Montreal

Womens’ Representative, Committee for Graduate Student Support 2000-2002

Post-Graduate Student Society, McGill University

Representative, Department of Mathematics and Statistics, Council 2000-2002

Post Graduate Students Society, McGill University

ADDITIONAL SKILLS

- Languages: English and French (Fluent)
- Programming skills: Stata, R/Splus, WinBUGS, SAS