BIOGRAPHICAL SKETCH

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NAME Willan, Andrew Roger	POSITION TITLE Senior Scientist Professor of Biostatistics
eRA COMMONS USER NAME NA	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
York University, Toronto ON	B.A.	1970	Economics/Mathematics
Queen's University, Kingston ON	B.Ed.	1972	Education
Queen's University, Kingston ON	M.Sc.	1976	Statistics
University of Western Ontario, London ON	Ph.D.	1979	Biostatistics

A. Positions and Honors.

Positions and Employment

1989-1991 Head, Clinical Trials & Epidemiology, Sunnybrook Health Sciences Centre, Toronto ON
1991-2002 Professor, Clinical Epidemiology and Biostatistics, McMaster University, Hamilton ON
2002-present Senior Scientist, CHES, SickKids Research Institute, Toronto ON
2002-present Professor, Dalla Lana School of Public Health, University of Toronto, Toronto ON

Honors

1977-1979 NHRDP Graduate Fellowship
1995 Best Paper Award from the Society for Medical Decision Making, co-author
2000 Research Award for Methodology Excellence, ISPOR, primary author
2002 Research Award for Methodology Excellence, ISPOR, co-author
2003 Research Award for Methodology Excellence, ISPOR, co- author

B. Selected peer-reviewed publications (in chronological order).

(Publications selected from 254 peer-reviewed publications)

1. **Willan A**, Watts D. Meaningful multicollinearity measures. *Technometrics* 1978; **20**:407-412.
2. **Willan A.** Relative efficiency in survival analysis. *J Chron Dis* 1983; **36**:183-192.
3. Pater J, **Willan A**. Clinical trials as diagnostic tests. *Control Clin Trials* 1984; **5**:107-113.
4. Pater J, **Willan A**. Methodologic issues in trials of antiemetics. *J Clin Oncol* 1984; **2**:484-487.
5. **Willan A**, Pater J. Hypothesis testing and sample size for bivariate binomial response in the comparison of two groups. *J Chron Dis* 1985; **38**:603-608.
6. **Willan A,** Pater J. Carryover and the two-period crossover clinical trial. *Biometrics* 1986; **42**:593-599.
7. **Willan A,** Pater J. Using baseline measurements in the two period crossover clinical trial. *Control Clin Trials* 1986; **7**:282-289.
8. Burnett R, **Willan A**. Linear rank tests for randomized block designs. *Communications in Statistics A* 1988; **17**:2455-2470.
9. **Willan A**. Using the maximum test statistic in the two period crossover clinical trial. *Biometrics* 1988; **44**:211-218.

10. **Willan A**, MacKenzie T. The severity of illness and laboratory testing. *Can J Public Health* 1988; **79**:435-439.
11. **Willan A**, Ross W, MacKenzie T. A comparison of in-patient classification systems: A problem on non-nested regressions. *Stat Med* 1992; **11**:1321-1331.
12. **Willan A**. Power function arguments in support of an alternative approach for analyzing management trials. *Control Clin Trials* 1994; **15**:211-219.
13. **Willan A**, Cruess AF, Ballantyne M. Argon green vs krypton red laser photocoagulation of extrafoveal choroidal Neovascular Lesions: Three-year results in age-related macular generation. *Can J Ophthalmol* 1996; **31**:11-17.
14. **Willan A**, O'Brien BJ. Confidence intervals for cost-effectiveness ratios: An application of Fieller's Theorem. *Health Economics* 1996; **5**:297-305. Addendum 1999; **8**(4).
15. Cook RJ, **Willan A**. Design considerations in crossover trials with a single interim analysis and serial patient entry. *Biometrics* 1996; **52**:732-739.
16. **Willan A**, O'Brien BJ, Cook DJ. Benefit-risk ratios in the assessment of the clinical evidence of a new therapy. *Control Clin Trials* 1997; **18**:121-130.
17. **Willan AR**, O'Brien BJ. Sample size and power issues in estimating incremental cost-effectiveness ratios from clinical trials data. *Health Economics* 1999; **8**:203-211.
18. **Willan AR**, Lin DY. Incremental net benefit in randomized clinical trials. *Stat Med*. 2001; **20**:1563-1574. **PA**
19. **Willan AR**, Analysis, sample size and power for estimating incremental net health benefit from clinical trial data. *Control Clin Trials.* 2001; **22**:228-237.
20. **Willan AR**, O'Brien BJ. Cost prediction models for the comparison of two groups. *Health Economics* 2001; **10**:363-366.
21. **Willan AR**, O'Brien BJ, Leyva RA. Cost-effectiveness analysis when the WTA is greater than the WTP. *Stat Med* 2001; **20**:3251-3259.
22. **Willan AR.** On the probability of cost-effectiveness using data from randomized clinical trials. *BMC Med Res Meth* 2001;1:8. (www.biomedcentral.com/1471-2288/1/8/)
23. Hoch JS, Briggs AH, **Willan AR**. Something old, something new, something borrowed, something blue: a framework for the marriage of health econometrics and cost-effectiveness analysis. *Health Economics* 2002; **11**:415-430.
24. **Willan AR**, Lin DY, Cook RJ, Chen E. Using inverse-weighing in cost-effectiveness analysis with censored data. *Statistical Methods in Medical Research* 2002; **11**:539-551.
25. **Willan AR**, Chen E, Cook RJ, Lin DY. Incremental net benefit in randomized clinical trials with qualify-adjusted survival. *Statistics in Medicine* 2003; **22**:353-362.
26. **Willan AR.** Incremental net benefit in the analysis of economic data from clinical trials with application to the CADET-Hp Trial. *European Journal of Gastroenterology and Hepatology* 2004; **16**:543-549.
27. **Willan AR**, Briggs AH, Hoch JS. Regression methods for covariate adjustment and subgroup analysis for non-censored cost-effectiveness data. *Health Economics* 2004; **13**:461-475.
28. **Willan AR**, Lin DY, Manca A. Regression methods for cost-effectiveness analysis with censored data. *Statistics in Medicine* 2005; **24**:131-145.
29. **Willan AR**, Pinto EM, O'Brien BJ, Kaul P, Goeree R, Lynd L, Armstrong PW. Country specific cost comparisons from multinational clinical trials using empirical Bayesian shrinkage estimation: the Canadian ASSENT-3 economic analysis. *Health Economics* 2005; **14**:327-328.
30. **Willan AR**, Pinto EM. The expected value of information and optimal clinical trial design. *Statistics in Medicine* 2005; **24**:1791-1806.
31. Pinto EM, **Willan AR**, O'Brien BJ. Cost-effectiveness analysis for multinational clinical trials. *Statistics in Medicine* 2005; **24**:1965-1982.
32. **Willan AR**, Goeree, R, Pinto EM, McBurney C, Blackhouse G. Economic evaluation of rivastigmine in patients with parkinson's disease dementia. *Pharmacoeconomics* 2006; **24**: 93-106.

33. **Willan AR**. Statistical analysis of cost-effectiveness data from randomized clinical trials. *Expert Rev. Phamacoeconomics Outcomes Res*. 2006; **6**: 337-346.
34. Manca A, **Willan AR**. Lost in translation": accounting for between country differences in the analysis of multinational cost effectiveness data. *Pharmacoeconomics* 2006; **24**: 1101-1119.
35. Eckermann S, **Willan AR**. Expected value of information and decision making in HTA. *Health Economics* 2007; **16**: 195-209.
36. Pullenayegum EM, **Willan AR**. Semi-parametric regression models for cost-effectiveness analysis: improving the efficiency of estimation from censored data. *Statistics in Medicine* 2007; **26**:3274-3299.
37. **Willan AR**. Clinical decision making and the expected value of information. *Clinical Trials* 2007; **4**(2):.
38. Hossain A, **Willan AR**. Approximate MLEs of the parameters of location-scale models under type II censoring. *Statistics* 2007; **41**(5): 385-394.
39. Eckermann S, **Willan AR**. Time and EVSI wait for no patient. *Value in Health* 2008; **11**: 522-526.
40. **Willan AR**, Kowgier ME. Cost-effectiveness Analysis of a Multinational RCT with a Binary Measure of Effectiveness and an Interacting Covariate. *Health Economics* 2008; **17**:777-791.
41. Eckermann S, **Willan AR**. The option value of delay in health technology assessment. *Medical Decision Making* 2008; **28**:300-305.
42. Eckermann S, Briggs A, **Willan AR**. Health technology assessment in the cost-disutility plane. *Medical Decision Making* 2008; **28**:172-181
43. **Willan AR**, Kowgier ME. Determining optimal sample sizes for multi-stage randomized clinical trials using value of information methods. *Clinical Trials* 2008; **5**: 289-300.
44. **Willan AR**. Optimal sample size determinations from an industry perspective based on the expected value of information. *Clinical Trials* 2008; **5**:587-594.
45. Murphy KE, Hannah ME, **Willan AR** *et al*. Multiple courses of antenatal corticosteroids for preterm birth study (MACS): a randomised controlled trial. *Lancet* 2008; **372**:2143-2151. .
46. Eckermann S, **Willan AR**. Globally optimal trial design for local decision making. *Health Economics* 2009; **18**:203-216.
47. Schuh S, **Willan AR**, Stephens D, Dick PT, Coates A. Can Montelukast Shorten Prednisolone Therapy in Children with Mild to Moderate Acute Asthma? A Randomized Controlled Trial. *Journal of Pediatrics* 2009; **155**:795-800.
48. Eckermann S, Coory M, **Willan AR**. Indirect comparison: relative risk fallacies and odds solution. *Journal of Clinical Epidemiology* 2009; **62**:1031-1036.
49. **Willan AR**, Eckermann S. Optimal clinical trial design using value of information methods with imperfect implementation. *Health Economics* 2010 **19**:549-561.
50. Hossain A, Beyene J, **Willan AR**, Hu P. Approximate Likelihood ratio test for detecting differential expression in microarray data. *Computational Statistics and Data Analysis* 2009; **53**(10): 3685-3695.
51. Boutis K, **Willan AR**, Babyn P, Goeree R, Howard A. A Randomized Controlled Trial of Cast Versus Splint In Children with Acceptably Angulated Wrist Fractures. *Canadian Medical Association Journal* 2010; **182**(14):1507-1512.
52. Eckermann S, Coory M, **Willan AR**. Consistently estimating risk difference when translating evidence to jurisdiction of interest. *PharmacoEconomics*. 2011; **29**(2):87-96.
53. Eckermann S, Karnon J, **Willan AR**. The value of Value of Information: best informing research design and prioritization using current methods. *Pharmacoeconomics* 2010; **28**:699-709.
54. **Willan AR**. Sample size determination for cost-effectiveness trials. *PharmacoEconomics* 2011; **29**(11): 933-949.
55. Eckermann S, **Willan AR**. Presenting and summarizing cost and effect evidence to best inform inference and societal decision making when comparing multiple strategies. *PharmacoEconomics* 2011; **29**(7):563-577.

56. Pullenayegum EM, **Willan AR**. Marginal models for censored longitudinal cost data: appropriate working variance matrices in inverse-probability-weighted GEEs can improve precision. *International Journal of Biostatistics* 2011; **7**(1), Article 14.
57. **Willan AR**, Eckermann S. Value of information and pricing new health interventions. *PharmaEconomics* 2012; **30**(6): 447-459.
58. **Willan AR**, Eckermann S. Accounting for between-study variation in value of information methodology. *Health Economics* 2012; **21**(10):1183–1195.
59. **Willan AR**, Boutis K, Goeree R. Value of Information methods for planning and analyzing clinical studies optimize decision making and research planning. *Journal of Clinical Epidemiology* 2012; **65**(8): 870-876.
60. Hossain A, **Willan AR**, Beyene J. An improved method on Wilcoxon rank sum test for gene selection from microarray experiments. *Communications in Statistics* 2013; **42**(7):1563-1577.
61. Eckermann S, **Willan AR**. Optimal global VOI trials: better aligning manufacturer and decision maker interests and enabling feasible risk sharing. *PharmacoEconomics* 2013; **31**(5):393-401.
62. Hossain A, **Willan AR**, Beyene J. A flexible nonparametric approach to find candidate genes associated to disease in microarray experiments. *Journal of Bioinformatics and Computational Biology* 2013; **11**(2):1250021 (19 pages).
63. Chen MH, **Willan AR**. Determining optimal sample sizes for multistage adaptive randomized clinical trials from an industry perspective using value of information methods. *Clinical Trials* 2013; **10**(1):54–62.
64. Barrett JFR, Hannah ME, Hutton EK, **Willan AR** *et al*. A randomized trial of planned cesarean or vaginal delivery for twin pregnancy. *NEJM* 2013; **369**(14):1295-1305.
65. Asztalos EV, Murphy KE, **Willan AR** *et al*. Multiple courses of antenatal corticosteroids for preterm birth study outcomes in children at 5 years of age (MACS-5). *JAMA Pediatr*. doi:10.1001/jamapediatrics.2013.2764. Published online October 14, 2013.
66. Chan KKW, **Willan AR**, Gupta M, Pullenayegum E. Underestimation of uncertainties in health utilities derived from mapping algorithms involving health related quality of life measures: Statistical explanations and potential remedies. *Medical Decision Making* 2014; **34**(7):863-872.
67. Chen MH, **Willan AR**. Value of information methods for assessing a new diagnostic test. *Statistics in Medicine* 2014; **33**(11):1801-1815.
68. Freedman SB, Williamson-Urquhart S, Schuh S, Sherman PM, Farion KJ, Gouin S, **Willan AR**, Goeree R, Johnson D, Black K, Schnadower D, Gorelick MH. Impact of emergency department probiotic treatment of pediatric gastroenteritis: randomized controlled trial (PROGUT Trial). *Trials* 2014; **15**:170.
69. Abrahamyan L, **Willan AR**, Beyene J, Mclimont M, Blanchette V, Feldman BM. Using value of information methods when the disease is rare and the treatment is expensive – The example of hemophilia A. *Journal of General Internal Medicine* 2014; **29**(3):767-773.

C. Research Support

Ongoing Research Support

1. Canadian Institutes of Health Research, The Twin Birth Study. Barrett J (Principal Investigator), Hannah M, **Willan A**, Ross S, Hutton E, *et al*., $8,608,045, 2003-2014.
2. National Science and Engineering Council, Expected Value of Information and Optimal Trial Design. **Willan AR** (Principal Investigator) $70,000, 2008-2013.
3. Canadian Institutes of Health Research, The Bedside Paediatric Early Warning System: a cluster randomized trial of mortality and processes of care. Parshuram C (Principal Investigator), **Willan AR**, *et al*. $3,959,716, 2010-2014.

4. Canadian Institutes of Health Research, Sustainability of a multidimensional knowledge translation intervention to improve paediatric pain practices and outcomes. Bonnie Stevens (Principal Investigator), **Willan AR**, *et al*. $998,061, 2011-2014.
5. Bill and Belinda Gates Foundation, Parathyroid-vitamin D axis dysregulation in early-onset infant stunting in resource-poor settings. Dan Roth (Principal Investigator), **Willan AR**, *et al*. $1,999,993, 2012-2016.
6. Canadian Institutes of Health Research, Impact of Emergency Department Probiotic Treatment of Pediatric Gastroenteritis: Randomized Controlled Trial. Stephen Freedman (Principal Investigator), **Willan AR**, *et al*. $2,231,300, 2013-2018.