

# CURRICULUM VITAE

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## Education

PhD in Biostatistics from the Department of Epidemiology and Biostatistics at the University of Western Ontario, London ON, 1979.

MSc in Statistics from Queen's University, Kingston ON, 1976.

BEd in Mathematics and Physical Education from Queen's University, Kingston ON, 1972.

BA in Economics and Mathematics from York University, Toronto ON, 1970.

## Present Positions

Biostatistician/Clinical Trials Methodologist, SickKids Research Institute,  
Toronto  
Professor, Dalla Lana School of Public Health, University of Toronto  
Senior Scientist Emeritus, SickKids Research Institute, Toronto  
Professor Emeritus, Clinic Epidemiology and Biostatistics, McMaster University

## **Awards**

Co-author on a paper receiving the International Society for Pharmacoeconomics and Outcomes Research Award for Methodology Excellence, awarded May 2003.

Co-author on a paper receiving the International Society for Pharmacoeconomics and Outcomes Research Award for Methodology Excellence, awarded May 2002.

First author on a paper receiving the International Society for Pharmacoeconomics and Outcomes Research Award for Methodology Excellence, awarded May 2000.

Co-author on a paper receiving the Best Paper Award from the Society for Medical Decision Making, 1995.

NHRDP Graduate Fellowship, 1977-1980.

## **Experience**

July 2002 to October 2014 – Senior Scientist, Child Health Evaluative Sciences, SickKids Research Institute, Toronto ON

September 1993 to June 2002 - Professor, Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton ON

September 1990 to June 1993 - Associate Professor, Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton ON

January 1989 to May 1990 - Head, Division of Clinical Trials and Epidemiology, Sunnybrook Health Science Centre, Toronto ON

March 1989 to October 1991 - Associate Professor, Department of Preventive Medicine and Biostatistics, University of Toronto, Toronto ON

September 1987 to February 1989 - Associate Professor, Department of Population Medicine, University of Guelph, Guelph ON

April 1985 to August 1987 - Head of Biometry with the Clinical Trials Group, National Cancer Institute of Canada, Queen's University, Kingston ON.

September 1981 to August 1987 - Assistant Professor, Department of Community Health and Epidemiology, Queen's University, Kingston ON.

October 1980 to March 1985 - Biostatistician with the Clinical Trials Group, National Cancer Institute of Canada, Queen's University, Kingston ON

December 1979 to September 1980 - Biostatistician with the Division of Epidemiology at the Cancer Control Agency of British Columbia, Vancouver BC

January 1980 to September 1980 - Assistant Professor, Department of Mathematics, University of British Columbia, Vancouver BC

September 1976 to November 1979 - Statistical consultant for numerous research projects, covering the fields of Pharmacology, Epidemiology, Physiology, Dentistry and Occupational Therapy, University of Western Ontario, London ON

September 1974 to April 1976 - Instructor of Mathematics at Queen's University, Kingston ON

January 1974 to June 1974 - Teacher of Mathematics at Palmers College, Grays, Essex, England

September 1970 to June 1971 - Teacher of Mathematics at Glendale Secondary School, Hamilton ON

### Journal Articles

(**PA**—Principal Author; **CPA**—Co-principal Author; **SRA**—Senior Responsible Author; **C**—Coauthor) (Research trainees underlined)

1. **Willan A**, Watts D. Meaningful multicollinearity measures. *Technometrics* 1978;**20**:407-412. **PA**
2. Posthuma B, **Willan A**. Academic performance and job satisfaction. *Can J Occup Ther* 1981; **48**:83-86. **CPA**
3. **Willan A**. Relative efficiency in survival analysis. *J Chron Dis* 1983; **36**:183-192. **PA**
4. Fried P, Watkinson B, **Willan A**. Marijuana use during pregnancy and decreased length of gestation. *Amer J Obstet Gynaecol* 1984; **150**:23-27. **C**
5. Stewart T, Shelley W, **Willan A**, Hollingshead A. An evaluation of the role of tumour specific antigens in lung cancer. *Annual Clinical Conference on Cancer* 1984; **28**:351-374. **C**
6. Pater J, **Willan A**. Clinical trials as diagnostic tests. *Control Clin Trials* 1984; **5**:107-113. **CPA**
7. Pater J, **Willan A**. Methodologic issues in trials of antiemetics. *J Clin Oncol* 1984; **2**:484-487. **CPA**
8. **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. **PA**

9. Rhedda A, McCans J, **Willan A**, Ford P. A double-blind placebo controlled crossover randomized trial of diltiazem in Raynaud's phenomenon. *J Rheumatol* 1985; **12**:724-727. **C**
10. Feld R, Louie TJ, Mandell L, Bow EJ, Robson HG, Chow A, Belch A, Miedzinski L, Rachlis A, Pater J, Willan AR. A multicenter comparative trial of tobramycin and ticarcillin vs moxalactam and ticarcillin in febrile neutropenic patients. *Arch Int Med* 1985; **145**:1083-1088. **C**
11. Anderson J, **Willan A**, Gancher W. The negative binomial model and the denominator problem in rural family practice. *Fam Pract* 1986; **3**:174-183. **CPA**
12. Osoba D, Erlichman C, **Willan A**, Levitt M, Pater J. Superiority of methylprednisolone sodium succinate over conventional dose metoclopramide hydrochloride in the prevention of nausea and vomiting produced by cancer chemotherapy. *Clin Invest Med* 1986; **9**:225-231. **CPA**
13. Evans W, Feld R, Murray N, Pater J, Shelley W, **Willan A**, Osoba D, Levitt M, Coy P, Hodson I, Payne D, MacDonald A. The use of VP-16 plus cisplatin during induction chemotherapy for small-cell lung cancer. *Semin Oncol* 1986; **13**(Suppl 3):10-16. **C**
14. Pater J, Eisenhauer E, Shelley W, **Willan A**. Testing hypotheses in clinical trials: The National Cancer Institute of Canada Clinical Trials Group Experience. *Cancer Treat Rep* 1986; **70**:1133-1135. **CPA**
15. **Willan A**, Pater J. Carryover and the two-period crossover clinical trial. *Biometrics* 1986; **42**:593-599. **PA**
16. **Willan A**, Pater J. Using baseline measurements in the two period crossover clinical trial. *Control Clin Trials* 1986; **7**:282-289. **PA**
17. Pater J, Carmichael J, Krepart G, Fraser R, Roy M, Levitt M, Brown L, Wilson K, Shelley W, **Willan A**. Second-line chemotherapy of stage III-IV ovarian carcinoma: A randomized comparison of melphalan to melphalan and hexamethylmelamine in patients with persistent disease after doxorubicin and cisplatin. *Cancer Treat Rep* 1987; **71**:277-281. **C**
18. Shelley W, Carmichael J, Brown L, Fraser R, Kirk M, Krepart G, Levitt M, Roy M, **Willan A**, Wilson K. Adriamycin and cisplatin in the treatment of stage III and IV epithelial ovarian carcinoma. *Gynaecol Oncol* 1987; **29**:208-221. **C**
19. Carmichael J, Shelley W, Brown L, Fraser R, Kirk M, Krepart G, Levitt M, Roy M, **Willan A**, Wilson K. A predictive index of cure versus no cure in advanced ovarian carcinoma patients--replacement of second-look laparotomy as a diagnostic test. *Gynaecol Oncol* 1987; **27**:269-278. **C**

20. Evans W, Feld F, Murray N, **Willan A**, Coy P, Osoba D, Sheppard F, Clark D, Levitt M, MacDonald A, Wilson K, Shelley W, Pater J. A Canadian multicentre randomized trial comparing standard and alternating administration of two non-cross resistant chemotherapy combinations in patients with extensive small cell lung cancer. *Ann Intern Med* 1987; **107**:451-458. **C**
21. Wilson K, Shelley W, Belch A, Brandes L, Bergsagel D, Klimo P, White D, **Willan A**. Weekly cyclophosphamide and alternate day prednisone: An effective secondary therapy in multiple myeloma. *Cancer Treat Rep* 1987; **71**:981-982. **C**
22. Burnett R, **Willan A**. Linear rank tests for randomized block designs. *Communications in Statistics A* 1988; **17**:2455-2470. **CPA**
23. **Willan A**. Using the maximum test statistic in the two period crossover clinical trial. *Biometrics* 1988; **44**:211-218. **PA**
24. **Willan A**, MacKenzie T. The severity of illness and laboratory testing. *Can J Public Health* 1988; **79**:435-439. **PA**
25. Cuess A, **Willan A**, Canny C, Gomolin J, Harvey P, Gonder J, Britton W, Howcroft M, Leonard B, Chew E, Mandelcorn M, Martin J, Chisholm L, Moffat K, Desroches G, Siebert L, Schwartz C, Boucher C, Dumas J, Labelle P, Kozousek V, Grant G, Schindler R, Marcil G, Shea M, Williams J. Argon (green) versus krypton (red) laser photocoagulation of subretinal neovascularization. *Retinal Dis* 1988; **2**:19-25. **CPA**
26. Belch A, Shelley W, Bergsagel D, Wilson K, Klimo P, White D, **Willan A**. A randomized trial of maintenance versus no maintenance melphalan and prednisone in responding multiple myeloma patients. *Br J Cancer* 1988; **57**:94-99. **C**
27. Burns B, Comrie W, **Willan A**, McCaughey E. Observer variation in the pathological diagnosis of malignant lymphoma in Canada. *Cancer* 1988; **62**:314-318. **C**
28. Anderson J, **Willan A**. Estimating the size of family practice population: Quadratic odds estimation. *Med Care* 1988; **26**:1228-1233. **CPA**
29. Rapp E, Pater J, **Willan A**, Cormier Y, Murray N, Evans W, Hodson I, Clark D, Feld R, Arnold A, Ayoub J, Wilson K, Latreille J, Wierzbicki R, Hill D. Chemotherapy can prolong survival in patients with advanced non-small cell lung cancer: Report of a Canadian multicentre randomized trial. *J Clin Oncol* 1988; **6**:633-641. **C**
30. Osoba D, Erlichman C, **Willan A**, Brigden M, Geggie P, Pater J, Rusthoven J, Wilson K. Failure of methylprednisolone acetate to prolong the antiemetic effect of intravenous methylprednisolone sodium succinate in patients receiving chemotherapy. *Clin Invest Med* 1988; **11**:377-379. **C**

31. Klaassen D, Shelley W, Starreveld A, Kirk M, Boyes D, Gerulath A, Levitt M, Fraser R, Carmichael J, Methot Y, **Willan A**. Early stage ovarian cancer: A randomized clinical trial comparing whole abdominal radiotherapy, melphalan and intraperitoneal chronic phosphate. *J Clin Oncol* 1988; **6**:1254-1263. **C**
32. Ryan C, Wherrett B, **Willan A**. Home Nebulizers in Childhood Asthma: Parents Perceptions and Practices. *Clin Pediatr (Phila)* 1988; **27**:420-424. **C**
33. Whiting T, Viel L, McDonell W, **Willan A**, Tesarowski D. Repeatability of the partial expired flow-volume loop in horses with exercise induced pulmonary haemorrhage. *Am J Vet Res* 1988 (accepted for publication). **C**
34. Waltner-Toews D, **Willan A**. Seasonal variation of transmission risk of Lyme disease and human babesiosis. *Am J Epidemiol* 1988; **128**:1383-1384. **C**
35. Cruess A, Williams J, **Willan A**. Argon green and krypton red laser treatment of diabetic macular edema. *Can J Ophthal* 1988; **23**:262-266. **CPA**
36. Lissemore K, Leslie K, McBride K, Burton J, **Willan A**, Bateman K. Observations on intramammary infection and somatic cell counts in cows treated with recombinant bovine somatotropin. *Can J Vet Res* 1990; **55**:196-198. **C**
37. Holberg D, Palmer N, Vanpelt D, **Willan A**. A comparison of manual and power-assisted thoracolumbar disc fenestration in dogs. *Vet Surg* 1990; **19**:323-327. **C**
38. MacKenzie T, **Willan A**, Cox M, Green A. Indirect costs of teaching in Canadian hospitals. *Can Med Assoc J* 1991; **144**:149-152. **CPA**
39. Warr D, **Willan A**, Fine S, Wilson K, Davis A, Erlichman C, Rusthoven J, Osoba D, Laberge F, Latrielle J, Pater J. Granisetron is superior to dexamethasone plus prochlorperazine in the prevention of chemotherapy-induced emesis. *J Natl Cancer Inst* 1991; **83**:1169-1173. **CPA**
40. **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. **PA**
41. Guyatt G, Oxman A, Ali M, **Willan A**, McIlroy W, Patterson C. Laboratory diagnosis of iron deficiency anaemia-An overview. *J Gen Intern Med* 1992; **7**:145-153. **C**
42. Quirt IC, Shelley WE, Pater JL, Bodurtha AJ, McCulloch PB, Mcpherson TA, Paterson AHG, Prentice R, Silver HKB, **Willan AR**, Wilson K, Zee. Improved survival in patients with poor-prognosis malignant-melanoma treated with adjuvant levamisole - a phase-iii study by the national-cancer-institute-of-canada clinical-trials group. *J Clin Oncol* 1991; **9**:729-735. **C**

43. Yelle L, Bergsagel D, Basco V, Brown T, Bush R, Gillies J, Israels L, Miller A, Rideout D, Whitelaw D, **Willan AR**, Pater J. Combined modality therapy of hodgkins-disease - 10-year results of national-cancer-institute-of-canada clinical-trials group multicenter clinical-trial. *J Clin Oncol* 1991; **9**:1983-1993. **C**
44. Molloy W, Guyatt G, Alemayehu E, McIlroy W, **Willan A**, Eisemann M, Gergrehiwot A, Basile J, Penington G, McMurdo M, Finucane P, Zelmanowicz A, Hyland M. Factors affecting Physicians' decisions on caring for a incompetent elderly patient: An international study. *Can Med Assoc J* 1991; **145**:947-952. **C**
45. Hannah M, Hannah W, Hellman J, Hewson S, Milner R, **Willan A**. Induction of labour vs serial antenatal monitoring in postterm pregnancy: A randomized controlled trial. *N Engl J Med* 1992; **326**:1587-1592. **C**
46. Cook DJ, Ali MAM, Allen C, Baxter F, Bradley C, Davis C, Egier B, Gibson J, Guyatt G, Hamielec C, Hewson J, Jaeschke R, Killian K, Lindblad T, Mcilroy W, McLellan A, Morse J, Panju A, Powles P, Puksa S, Ryley A, Stallwood G, Stubbing D, **Willan AR**. Physicians' perception of laboratory costs in the intensive care unit. *Clin Invest Med* 1992; **15(5)**:476-481. **C**
47. Hoffman A, Staempfli H, **Willan A**. Prognostic variables for survival of neonatal foals under intensive care. *J Vet Med* 1992; **6**:89-95. **C**
48. Warr D, **Willan A**, Venner P, Pater J, Kaizer L, Laberge F, Latreille J, Stewart D, O'Connell G, Osoba D, Wilson K, Davis A, Johnston D. A randomized, double-blind comparison of Granisetron with high-dose metoclopramide, dexamethasone and diphenhydramine for Cisplatin-induced emises. *Eur J Cancer* 1993; **29A**:33-36. **CPA**
49. Cook D, Guyatt G, McIlroy W, Reeve B, **Willan A**, Pearl R. Serum Cortisol: A predictor of mortality in sepsis? *J Intens Care Med* 1993; **7**:84-89. **C**
50. Jaeschke R, Guyatt G, Cook D, Morris J, **Willan A**, McIlroy W, Harper S, Ramsdale H, Haddon R, Fitzgerald M, Newhouse M. The effect of increasing doses of  $\beta$  agonists on airflow in patients with chronic airflow limitation. *Respir Med* 1993; **87**:433-438. **C**
51. Cruess A, **Willan A**, Ballantyne M. Argon green versus krypton red laser photocoagulation for extrafoveal choroidal neovascularization: One-year results in age related macular degeneration. *Arch Ophthalmol* 1993; **111**:181-185. **CPA**
52. O'Brien BJ, Drummond MF, Labelle RJ, **Willan A**. In search of power and significance: Issues in the design and analysis of stochastic cost-effectiveness studies in health care. *Med Care* 1993; **32(2)**:150-163. **C**
53. Cook D, Guyatt G, Ryan G, Clifton J, **Willan A**, McIlroy W, Oxman A. Publication bias in meta-analysis: current convictions and controversies. *J Amer Med Assoc* 1993; **269**:2749-2753. **C**

54. Guyatt G, Nishikawa J, **Willan A**, McIlroy W, Cook D, Gibson J, Kerigan A, Neville A. A measurement process for evaluating clinical teachers. *Can Med Assoc J* 1993; 149(8): 1097-1102. **C**
55. Molloy W, Guyatt G, Standish T, **Willan A**, McIlroy W, D'Souza J, Brown G, Mondadori C. Effect of a new onotropic agent, CGS 5469B on cognition, function and behaviour in Dementia. *J Gen Intern Med* 1993; 8(8):444-7. **C**
56. Cook D, Guyatt G, Davis C, **Willan A**, McIlroy W. A diagnostic and therapeutic N of 1 randomized trial. *Can J Psychiatry* 1993; **38**:251-254. **C**
57. Cook D, Juniper E, McIlroy W, **Willan A**, Jaeschke R, Guyatt G, Epstein R. Interviewer versus self-administered questionnaires in developing a disease-specific, health-related quality of life instrument for asthma. *J Clin Epidemiol* 1993; **46**:529-534. **C**
58. Guyatt G, Eagle J, Sackett B, **Willan A**, McIlroy W, Patterson C, Turpie I. Development and testing of a questionnaire to measure the quality of life in the frail elderly. *J Clin Epidemiol* 1993; **46**(12):1433-44. **C**
59. Haynes RB, Johnston ME, McKibbon KA, Walker CJ, **Willan A**. A program to enhance clinical use of Medline: A randomized controlled trial. *Cur Clin Trials* **1993**: Doc No 56. **C**
60. Collins J, Burrows E, **Willan A**. Occupation and the follow-up of infertile couples. *Fertil Steril* 1993; **60**:477-486. **C**
61. **Willan A**. Power function arguments in support of an alternative approach for analyzing management trials. *Control Clin Trials* 1994; **15**:211-219. **PA**
62. Juniper EF, Guyatt GH, **Willan A**, Griffith LE. Determining a minimal important change in a disease-specific quality of life questionnaire. *J Clin Epidemiol* 1994; **47**:81-87. **C**
63. Haynes B, Walker C, McKibbon A, Johnson M, **Willan A**. Performance of 27 MEDLINE systems tested by searches on clinical questions. *J Amer Med Informatics Assoc* 1994; **1**:285-295. **C**
64. Cook DJ, Fuller HD, Guyatt GH, Marshall JC, Leasa D, Hall R, Winton TL, Rutledge F, Todd TJR, Roy P, Lacroix J, Griffith L, **Willan A**. Risk factors for gastrointestinal bleeding in critically ill patients. *N Engl J Med* 1994; **330**:377-381. **C**
65. Collins JA, Burrows EA, **Willan A**. Occupation and the clinical characteristics of infertile couples. *Can J Public Health* 1994; **85**:28-32. **C**
66. Juniper EF, Guyatt GH, **Willan A**, Griffith LE. Determining a minimal important change in a disease-specific quality of life questionnaire. *Qual Life Res* 1994; **3**:43-48. **C**



67. Hillers TK, Guyatt GH, Oldridge N, Crowe J, **Willan A**, Griffith LE, Feeny D. Quality of life after myocardial infarction. *J Clin Epidemiol* 1994; **47**:1287-1296. **C**
68. Gilbert R, **Willan A**, Richardson S, Sellick S. Survey of family physicians: what is their role in cancer patient care? *Can J Oncol* 1994; **4**:285-290. **CPA**
69. Cruess A, **Willan A**, Ballantyne M. Argon green versus krypton red laser photocoagulation for extrafoveal choroidal neovascularization: One-year results in Ocular Histoplasmosis. *Arch Ophthalmol* 1994; **112**:1166-1173. **CPA**
70. Jaeschke R, Guyatt G, **Willan A**, Cook D, Harper S, Morris J, Ramsdale H, Haddon R, Newhouse M. Effect of increasing doses of beta-agonists on spirometric parameters, exercise capacity, and quality of life in patients with chronic airflow limitation. *Thorax* 1994; **49**:479-484. **C**
71. Kozousek V, Smith S, Gomolin J, Cruess Af, Henry T, Boucher M, Dumas J, Labelle P, Lalonde D, Mandelcorn M, Fischer M, Britton W, Desroches G, Leonard B, Currie C, Grant G, Plant J, Siebert L, Howcroft M, Shea M, Giavedoni L, Magyarosi M, Chew E, Ridley M, Moffat K, Devenyi R, Mezei S, Harvey P, Chisholm L, Kaus L, Canny C, Schneidmiller B, Gonder J, Hooper P, Hebrang M, **Willan AR**, Ballantyne M, Howitt C. Argon Green Vs Krypton Red Laser Photocoagulation For Extrafoveal Choroidal Neovascularization - One-Year Results In Ocular Histoplasmosis. *Arch Ophthal* 1994; **112**:1166-1173. **CPA**
72. Cook DJ, Guyatt G, Jaeschke R, Reeve J, Spanier A, King D, Molloy W, **Willan A**, Striener D. Determinants in Canadian health care workers of the decision to withdraw life support from the critically ill. *J Amer Med Assoc* 1995; **273**:703-708. **C**
73. Dawson S, Irwin L, Aaron E, **Willan A**, Barr RD. Minimizing blood loss in the use of indwelling central venous catheters in children with cancer. *Can J Med Technol* 1995; **57**:102-107. **C**
74. Collins J, Burrows E, **Willan A**. The prognosis for live birth among untreated infertile couples. *Fertil Steril* 1995; **64**:22-28. **C**
75. Levine MN, Gent M, Hirsh J, Weitz J, Turpie A, Powers P, Neemeh J, **Willan A**, Skingley P. Ardeparin (low-molecular-weight heparin) vs graduated compression stockings for the prevention of venous thromboembolism: a randomized trial in patients undergoing knee surgery. *Arch Intern Med* 1996; **156**:851-856. **C**
76. Mitchell-DiCenso A, Guyatt G, Marrin M, Goeree R, **Willan A**, Southwell D, Hewson S, Paes B, Rosenbaum P, Hunsberger M, Baumann A. A controlled trial of nurse practitioners in neonatal intensive care. *Pediatrics* 1996; **98**:1143-1147. **C**

77. **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. **PA**
78. Savilo E, Harnish DG, deSa D, **Willan A**, Barr R. Comparison of the prognostic significance of the Shimada classification and N-myc copy number in neuroblastoma: A prospective study. *Int J Oncol* 1996; **8**:342-347. **C**
79. Mohide EA, Whelan T, Rath D, Gafni A, **Willan A**, Czukar D, Campbell I, Akawara G, Neimanis M, Levine M. A randomized trial to evaluate two information packages mailed to new patients prior to their initial appointment at a regional cancer centre. *Br J Cancer* 1996; **73**:1588-1593. **C**
80. Hannah M, Ohlsson A, Farine D, Hewson S, Hodnett E, Myhr T, Wang E, Weston J, **Willan A**. A comparison of induction of labor with expectant management for prelabor rupture of membranes at term. *N Engl J Med* 1996; **334**:1005-1010. **C**
81. Levine M, Gent M, Hirsh J, **Willan A**. A randomized trial of low molecular weight heparin administered primarily at home compared with in-hospital unfractionated heparin in the treatment of patients with proximal deep vein thrombosis. *N Engl J Med* 1996; **334**:677-681. **C**
82. **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). **PA**
83. Cook RJ, **Willan A**. Design considerations in crossover trials with a single interim analysis and serial patient entry. *Biometrics* 1996; **52**:732-739. **CPA**
84. Clark R, Whelan T, Levine M, Roberts R, **Willan A**, McCulloch P, Lipa M, Wilkinson R, Mahoney L. Randomized clinical trial of breast irradiation following lumpectomy and axillary dissection for node-negative breast cancer: an update. *J Nat Cancer Inst* 1996; **88**:1659-1664. **C**
85. Johnson M, Harrison L, Moffat K, **Willan A**, Hirsh J. Reliability of the INR for monitoring the induction phase of warfarin: Comparison with the prothrombin time ratio. *J Lab Clin Med* 1996; **128**:214-217. **C**
86. Belisle S, Collins J, Burrows E, **Willan A**. The value of laparoscopy among infertile women with tubal patency. *J Soc Obstet Gynecol Can* 1996; **18**:326-336. **C**
87. Mitchell-DiCenso A, Thomas H, Devlin C, Goldsmith C, **Willan A**, Singer J, Marks S, Watters D, Hewson S. Evaluation of an educational program to prevent adolescent pregnancy. *Health Ed Quart* 1997; **24**:300-312. **C**

88. Parkin P, Kirpalani H, Rosenbaum P, Fehlings D, Van Nie A, **Willan A**, King D. Development of a health-related quality of life instrument for use with children with spina bifida. *Qual Life Res* 1997; **6**:123-132. **C**
89. O'Brien B, Goeree R, Hunt R, Wilkinson J, Levine M, **Willan A**. Cost-effectiveness of alternative H. pylori eradication strategies in the management of duodenal ulcer. *Can J Gastroenterol* 1997; **11**(4):323-331. **C**
90. Hannah M, Ohlsson A, Wang E, Matlow A, Foster G, **Willan A**, Hodnett E, Weston J, Farine D, Seaward G. Maternal colonization with group B streptococcus and prelabor rupture of membranes at term: The role of induction of labor. *Amer J Obstet Gynaecol* 1997; **177**:780-785. **C**
91. **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. **PA**
92. Gafni A, Goeree R, Myhr T, Hannah M, Blackhouse G, **Willan A**, Weston J, Wang E, Hodnett E, Hewson S, Farine D, Ohlsson A. Induction of labor compared with expectant management for prelabor rupture of the membrane at term: An economic evaluation. *Can Med Assoc J* 1997; **157**:1519-1525. **C**
93. Whelan T, Mohide A, **Willan A**. The supportive care needs of newly diagnosed patients attending a regional cancer center. *Cancer* 1997; **80**:1518-1524. **C**
94. Hodnett E, Hannah M, Weston J, Ohlsson A, Myhr T, Wong E, Hewson S, **Willan A**, Farine D. Women's evaluations of induction of labour versus expectant management for prelabour rupture of the membranes at term. *Birth* 1997; **24**:214-220. **C**
95. Barr RD, Halton J, **Willan A**, Cockshott WP, Gill G, Atkinson S. Impact of age and cranial irradiation on radiographic skeletal pathology in children with acute lymphoblastic leukemia. *Med Pediat Oncol* 1998; **30**:347-350. **C**
96. Melnikow J, Nuovo J, **Willan A**, Chan B, Howell L. The natural history of cervical squamous intra-epithelial lesions: A meta-analysis. *Obstet Gynecol* 1998; **92**:727-735. **C**
97. Bloomfield DJ, Krahn MD, Neogi T, Panzarella T, Warde P, **Willan AR**, Ernst S, Moore MJ, Neville A, Tannock IF. Economic evaluation of chemotherapy with mitoxantrone plus prednisone for symptomatic hormone-resistant prostate cancer: based on a Canadian trial with palliative endpoints, *J Clin Oncol* 1998; **16**:2272-2279. **C**
98. Whelan TJ, Rath D, **Willan AR**, Neimanis M, Czukar D, Levine M. Evaluation of a patient file folder to improve dissemination of written informational materials for cancer patients. *Cancer* 1998; **83**:1620-1625. **C**
99. **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. **PA**

100. Whelan T, Levine M, Gafni A, Sanders K, **Willan AR**, Mirsky D, Schnider D, McCready D, Reid S, Kobylecky A, Reed K. Mastectomy or lumpectomy? Helping women make informed choices. *J Clin Oncol* 1999; **17**:1727-1735. **C**
101. O'Brien BJ, Levine M, **Willan AR**, Goeree R, Haley S, Blackhouse G, Gent M. Economic evaluation of outpatient treatment with low molecular weight heparin for proximal vein thrombosis. *Arch Intern Med* 1999; **159**:2298-2304. **C**
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### Journal Articles Submitted

(**PA**—Principal Author; **CPA**—Co-principal Author; **SRA**—Senior Responsible Author; **C**—Coauthor) (Research trainees underlined)

### Presentations

(Presenter underlined)

1. Willan A. Relative Efficiency in the Analysis of Survival Data. Annual meeting of The Society for Clinical Trials, Pittsburgh PA, May 1982.
2. Willan A, Pater J. The Mixed Benefits of Subtracting Baseline Measurements in Crossover Trials. Annual Meeting of the Canadian Society for Clinical Investigation, Calgary AB, September 1983.
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80. Ungar WJ, Boydell K, Dell S, Feldman BM, Marshall DA, **Willan AR**, Wright J. The validity and reliability of a parent-child dyad approach to utility and quality-of-life assessment in children. ISPOR, Toronto, May 2008.
81. **Willan AR**. Using value of information methodology to determine the sample size for a randomized clinical trial from an industry perspective. ISPOR, Toronto, May 2008.
82. Boutis K, **Willan AR**, Babyn P, Georee R, Howard A. A randomised controlled trial of cast versus wrist splint in children with acceptably angulated wrist fractures. Canadian Orthopaedic Association Annual Meeting, Edmonton, June, 2010.
83. Boutis K, Keyserlingk C, **Willan AR**, Narayanan UG, Brison R, Grootendorst P, Plint AC, Parker M, Goeree R. Cost Consequence Analysis of Implementing the Low Risk Ankle Rule in Emergency Departments. Pediatric Academic Societies Annual Meeting, San Diego, CA, April, 2015.

### **Invited Presentations and Workshops**

1. **Willan AR**. Two-Period Crossovers: A Prescription for Use. Annual Meeting of the Biometric Society, ENAR, Boston MA, March 1988.
2. **Willan AR**. Using Fieller's theorem to estimate confidence intervals for cost-effectiveness ratios. Drug Information Association, New Orleans, LA, November 1997.
3. **Willan AR**. Cost-effectiveness assessment in clinical trials: issues related to statistical analysis and power. Drug Information Association, Hilton Head, SC, November 1998.
4. **Willan AR**. Incremental net benefit in clinical trials: issues related to statistical analysis and power. Drug Information Association, Orlando FL, November 1999.
5. **Willan AR**. The statistical analysis of cost-effectiveness data from clinical trials. American Public Health Association, Boston, MA, November 2000.
6. **Willan AR**. Censored Data and Incremental net benefit in clinical trials: issues related to statistical analysis and power. Drug Information Association, London, UK, February 2001.
7. **Willan AR**. Censored Data and Incremental net benefit in clinical trials: issues related to statistical analysis. Health Economics Research Centre, Oxford, UK, February 2001.

8. **Willan AR.** Incremental net benefit in randomized clinical trials. Joint Statistical Meetings, Atlanta, GA, August 2001.
9. **Willan AR.** Censored data in cost-effectiveness studies: two approaches. Health Economics Research Centre, Oxford, UK, December 2001.
10. **Willan AR.** Cost-effectiveness analysis when the WTA is greater than the WTP. Health Economics Research Centre, Oxford, UK, December 2001.
11. **Willan AR, O'Brien BJ, Leyva RA.** Cost-effectiveness analysis when the WTA is greater than the WTP. ENAR Biometrics Society, Arlington VA, March 2002.
12. **Willan AR.** Regression methods for censored cost-effectiveness data. Health Economics Research Centre, Oxford, UK, November 2002.
13. **Willan AR.** Economic evaluation methods: the statistician's viewpoint. Development of Economic Evaluation Methods, Bristol, UK, September 2003.
14. **Willan AR.** Statistical issues in Health Economics. ICES, Toronto ON, October 2003.
15. **Willan AR, Lin DY, Chen EB, Cook RJ.** Estimation in the presence of censoring in cost-effectiveness analyses. International Conference on Health Policy Research, Chicago IL, October 2003.
16. **Willan AR.** The expected value of information and optimal clinical trial design. Health Economics Research Centre, University of Oxford, UK, March 2004.
17. **Willan AR.** The expected value of information and optimal clinical trial design. Medical Statistics Unit, London School of Hygiene and Tropical Medicine, UK, March 2004.
18. **Willan AR.** The expected value of information and optimal clinical trial design. MRC Biostatistics Unit, University of Cambridge, UK, March 2004.
19. **Willan AR.** The expected value of information and optimal clinical trial design. Centre for Health Economics, University of York, UK, March 2004.
20. **Willan AR, Pinto EM.** Shrinkage estimators for individual countries in Multinational Cost-effectiveness RCTs. International Society for Pharmacoeconomics and Outcomes Research Meeting, Arlington VA, May 2004.
21. **Willan AR.** The statistical analysis of cost-effectiveness data from randomized clinical trials I. NHMRC CTC, University of Sydney, Sydney NSW, April 2005.
22. **Willan AR.** The statistical analysis of cost-effectiveness data from randomized clinical trials II. NHMRC CTC, University of Sydney, Sydney NSW, April 2005.

23. **Willan AR.** The expected value of information and optimal clinical trial design. NHMRC CTC, University of Sydney, Sydney NSW, April 2005.
24. **Willan AR,** The statistical analysis of cost-effectiveness data from randomized clinical trials I. Centre for Health Economics, Monash University, Melbourne VIC, April 2005.
25. **Willan AR,** The statistical analysis of cost-effectiveness data from randomized clinical trials II. Centre for Health Economics, Monash University, Melbourne VIC, April 2005.
26. **Willan AR.** The expected value of information and optimal clinical trial design. Centre for Health Economics, Monash University, Melbourne VIC, April 2005.
27. **Willan AR,** Pinto EM. Shrinkage estimation in the cost-effectiveness analysis of multinational clinical trials. iHEA World Congress, Barcelona, Spain, July 2005.
28. **Willan AR.** Statistical approaches for benefit-harm analysis. Joint Statistical Meetings, Minneapolis, MN, August 2005.
29. **Willan AR,** Lin DY, Manca A. Covariate adjustment in cost-effectiveness analysis with censored data. ENAR Biometrics Society, Tampa FL, March 2006.
30. **Willan AR,** Eckermann S, Fenwick E. Workshop in Cost-effectiveness Analysis. The Pharmacy Benefits Advisory Committee of Australia, Sydney, November 2006.
31. **Willan AR.** Using the expected value of information for sample size determination and assessing clinical trial results. School of Public Health, University of Sydney. November, 2006.
32. **Willan AR.** Statistical analysis of cost-effectiveness data from clinical trials. Workshop on Health Economics from Theory to Practice. Sponsored by Finders University, McLaren Vale, December, 2006.
33. **Willan AR.** The value of information to decision makers and principles for efficient trial design. Workshop on Health Economics from Theory to Practice. Sponsored by Finders University, McLaren Vale, December, 2006.
34. **Willan AR.** Bayesian adaptive designs and EVI. Workshop on Health Economics from Theory to Practice. Sponsored by Finders University, McLaren Vale, December, 2006.
35. **Willan AR.** Relaxing the Assumptions: EVI gets real. Workshop on Health Economics from Theory to Practice. Sponsored by Finders University, McLaren Vale, December, 2006.
36. **Willan AR.** The Value of information to decision makers and principles of efficient trial design. Li Ka Shing Knowledge Institute, St Michael's Hospital, September, 2007.

37. **Willan AR.** Statistical Analysis of Cost-effectiveness Data From Clinical Trials. Workshop on Health Economics: from Theory to Practice. McLaren Vale, South Australia, December 2007.
38. **Willan AR.** The Value of Information and Principles for Efficient Trial Design. Workshop on Health Economics: from Theory to Practice. McLaren Vale, South Australia, December 2007.
39. **Willan AR.** Bayesian Adaptive Designs and EVI. Workshop on Health Economics: from Theory to Practice. McLaren Vale, South Australia, December 2007.
40. **Willan AR.** Relaxing the Assumptions: EVI Gets Real. Workshop on Health Economics: from Theory to Practice. McLaren Vale, South Australia, December 2007.
41. **Willan AR.** Mentoring and collaboration in medical research. Statistical Society of Canada, May 2008.
42. **Willan AR.** Statistical analysis of cost-effectiveness data from clinical trials. Workshop on Health Economics from Theory to Practice, Lyndoch Hill Retreat, South Australia, December 2008.
43. **Willan AR.** The value of information to decision makers and principles for efficient trial design. Workshop on Health Economics from Theory to Practice, Lyndoch Hill Retreat, South Australia, December 2008.
44. **Willan AR.** Bayesian adaptive designs and EVI. Workshop on Health Economics from Theory to Practice, Lyndoch Hill Retreat, South Australia, December 2008.
45. **Willan AR.** Relaxing the assumptions: VOI gets real. Workshop on Health Economics from Theory to Practice, Lyndoch Hill Retreat, South Australia, December 2008.
46. **Willan AR.** Optimal trial design from an industry perspective. Workshop on Health Economics from Theory to Practice, Lyndoch Hill Retreat, South Australia, December 2008.
47. **Willan AR, Eckermann S.** Optimal clinical trial design using value of information methods with imperfect implementation. International Health Economics Association, Beijing, July 2009.
48. **Willan AR.** The use of value of information methods in the design and evaluation of clinical trials. International Health Economics Association, Beijing, July 2009.
49. **Willan AR.** Why a Bayesian Be? University of Wollongong, February 2010.
50. **Willan AR.** The value of information and the pricing of new health interventions. University of Wollongong, February 2010.

51. **Willan AR.** Why a Bayesian Be? SORA/TABA Workshop, Toronto ON, May 2010.
52. **Willan AR.** Why a Bayesian Be? University of Aberdeen, June 2010.
53. **Willan AR.** The value of information and the pricing of new health interventions. University of Aberdeen, June 2010.
54. **Willan AR.** The value of information and the pricing of new health interventions. Quality Improvement Scotland, National Health Service, June 2010.
55. **Willan AR.** Four sessions in Workshop on Health Economics from Theory to Practice, Coriole Gourmet Retreat, South Australia, July 2010.
56. **Willan AR.** Value of information: what is it good for? NIH/AHRQ Conference on Methodological Challenges in Comparative Effectiveness Research, Bethesda MD, December 2010.
57. **Willan AR.** The beauty and the beast: simple randomization, versus everything else. CHES Research Day, Toronto, Canada, February 2011.
58. **Willan AR.** Value of Information (VOI) Methods: What are They Good For? CHES Research Day, Toronto, Canada, February 2011.
59. **Willan AR.** Determination of trial size: How large should our RCT be? Society for Clinical Trials. Vancouver, Canada, May 2011.
60. **Willan AR.** Why a Bayesian Be? Statistical Society of Canada, Wolfville, Canada, June 2011.
61. **Willan AR.** Why a Bayesian Be? York University, Toronto, Canada, April 2016.

### **Past Research Funding**

1. Canadian Medical Association, International Health Study. MacKenzie T (Principal Investigator), **Willan A**, Roberts J, Lees R. \$30,000, March 84 to June 85.]
2. Canadian Medical Association, Satisfaction with Obstetrical Care. MacKenzie T (Principal Investigator), **Willan A**, Roberts J, Lees R. \$62,700, May 86 to November 86.
3. Ontario Medical Association, Disease Severity and Hospital Resource Utilization. **Willan A** (Principal Investigator), MacKenzie T. \$12,000, November 85 to September 86.
4. Environmental Protection Branch, Health and Welfare Canada, The Health Effects of Indoor and Outdoor Air Pollution. **Willan A**. \$51,000, January 86 to March 88.

5. National Health Research and Development Program, Student Fellowship No. 6606-1382-47, University of Western Ontario. **Willan A.** \$18,000, January 77 to December 79.
6. National Cancer Institute of Canada, Clinical Trials Program, Pater J (Principal Investigator), Eisenhauer E, Shelley W, **Willan A.** \$6,324,000, April 82 - March 88.
7. Medical Research Council, Argon vs Krypton Laser in the Treatment of Age Related Macular Degeneration and Presumed Ocular Histoplasmosis. Cruess A (Principal Investigator), **Willan A.**, Canny C, Gomolin J, Harvey P, Gonder J, Britton W, Howcroft M, Leonard B, Chew E, Mandelcorn M, Martin J, Chisholm L, Moffat K, Desroches G, Siebert L, Schwartz C, Boucher C, Dumas J, Labelle P, Kozousek V, Grant G, Schindler R, Marcil G, Shea M. \$650,000, April 86 - December 92
8. Health Care Financing Administration (U.S.) Patient Classification Systems: An Evaluation of the State of the Art. MacKenzie T (Principal Investigator), **Willan A.** \$2,200,000, June 87 - May 89.
9. Florida Hospital Medical Centre, Costs in Tertiary Non-teaching Hospitals. MacKenzie T (Principal Investigator), **Willan A.** \$135,000, November 87 - April 89.
10. Health Care Financing Administration (U.S.), Sensitivity and Specificity of Severity Systems in Monitoring Quality of Care. MacKenzie T (Principal Investigator), **Willan A.** \$950,000, March 89 - September 90.
11. National Health Research and Development Program, Patient Classification Systems: An Evaluation of the State of the Art: Pilot Project. MacKenzie T (Principal Investigator), **Willan A.** \$59,820, November 87 - May 88.
12. Natural Sciences and Engineering Research Council of Canada, Infrastructure Grant, Statistical Services. Allen B (Principal Grantee), **Willan A.** \$108,000, April 88 - March 91.
13. Association of Canadian Teaching Hospitals, Indirect Costs of Teaching. MacKenzie T (Principal Investigator), **Willan A.** \$55,000, January 88 - January 89.
14. Natural Sciences and Engineering Research Council of Canada, Operating Grant, Test of Hypothesis in non-nested regressions. **Willan A.** \$23,100, April 88 - March 91.
15. Physicians Services Incorporated, Detection of Minimal Disease in Non-Hodgkin's Lymphoma by Polymerase Chain Reaction Amplification of t(14:18). Berinstein N (Principal Investigator), **Willan A.** \$345,000, July 89 - June 92.
16. Medical Research Council, Biological Prognostic Factors in Non-Hodgkins Lymphoma. Sawka C (Principal Investigator), Berinstein N, **Willan A.** \$471,000, July 90 – June 93.

17. Canadian Council on Health Facilities Accreditation, Assessment of Health Outcomes Monitoring. MacKenzie T (Principal Investigator), **Willan A**, Greenaway-Coates A. \$1,500,000, February 90 - August 91.
18. Medical Research Council, Canadian multicentre randomized controlled trial of prophylactic induction of labour and serial antenatal monitoring in the post-term patient. Hannah M (Principal Investigator), Hannah W, Milner R, Ohlsson A, **Willan A**, \$1,800,000, July 1 86 - March 31 92.
19. Ontario Mental Health, Measuring Processes of Care and Parental Psychosocial Well-being. King G (Principal Investigator), Rosenbaum P, **Willan A**. \$150,000, June 91 - May 93.
20. Ontario Ministry Health, Lower extremity splinting for children with cerebral palsy. Evans C (Principal Investigator), Gowland C, Rosenbaum P, **Willan A**, Russell D, Weber D. \$200,000, June 91 - May 93.
21. Alzheimer Association of Ontario, Development and evaluation of decisional aid to screen from competency to complete a health care directive. Molloy M (Principal Investigator), Silberfield M, Guyatt G, **Willan A**, Singer P. \$70,000, April 1, 1992 - March 31, 1993.
22. Medical Research Council, A Double-Blind Randomized Trial of Sucralfate Versus Ranitidine - the Incidence of Nosocomial Pneumonia. Cook D (Principal Investigator), Guyatt G, **Willan A**, Fuller H, Hall R, Winton T, Noseworthy T, Leasa D, Rutledge F, Powles P. \$380,165, July 1, 1992 - June 30, 1994.
23. Ontario Ministry Health, The withdrawal of life support in critically ill patients. Cook D (Principal Investigator), Jaeschke R, Ali M, Guyatt G, **Willan A**. \$13,226, August 1, 1991 - April 30, 1992.
24. Ontario Ministry Health and National Cancer Institute of Canada, A randomized trial of different strategies for the investigation of metastatic disease in potentially operable lung cancer. Guyatt G (Principal Investigator), Goldberg M, Shamji F, Inculet R, Finley R, Deslauriers J, Bethune D, **Willan A**. \$1,073,390, October 1, 1991 - March 31, 1995.
25. Ontario Ministry of Health, Neurodevelopmental Clinical Research Unit, Health-system linked research infrastructure grant to do research relevant to the Association of Treatment Centres of Ontario. Rosenbaum P (Principal Investigator), Law M, King G, Gowland C, **Willan A**. \$2,500,000, June 1, 1989 - May 31, 1994.
26. Ontario Ministry of Health, Supportive Cancer Care Research Unit, Health-system linked research infrastructure grant to do research relevant to supportive care in cancer patients. Whelan T (Principal Investigator), Browman G, Gafni A, Gilbert R, Levine M, Sellick S, **Willan A**, Willms D. \$1,760,000, June 1, 1991 - April 30, 2001.



27. Medical Research Council, A Multicentre Randomized Controlled Trial of Induction of Labour in Term Pregnancies With Premature Rupture of the Membranes, Hannah M (Principal Investigator), Ohlsson A, Hodnett E, Wang E, **Willan A**. \$1,500,000, June 1, 1991 - May 31, 1995. Renewed, June 1, 1995 - April 30, 2001.
28. National Health Research and Development Program, Systematic Overviews of the Predictors of Adolescent Pregnancy and the Effectiveness of Adolescent Pregnancy Prevention Interventions. Mitchell A (Principal Investigator), Oxman A, Guyatt G, Farewell V, Cameron R, **Willan A**, Scott F, Underwood J. \$49,225, June 1992 - May 1995.
29. National Cancer Institute of Canada, The effect of smoking cessation on response to radiation in head and neck cancer patients. Browman G (Principal Investigator), Hodson I, **Willan A**, Sellick S. \$278,000, May 1993 - April 1996.
30. Ontario Ministry of Health, The analgesic prescription self-evaluation tool. Browman G (Principal Investigator), **Willan A**, Sellick S. \$68,379, October 1993 - March 1996.
31. Medical Research Council of Canada, Canadian implantable defibrillator study. Connolly S (Principal Investigator), Gent M, **Willan A**. \$1,193,000, September 1990 - June 1995.
32. Medical Research Council of Canada, Canadian trial of physiologic pacing. Connolly S (Principal Investigator), Gent M, **Willan A**. \$2,200,000, July 1993 - June 1996.
33. Agency for Health Care Policy & Development, Systematic application of a health care directive. Molloy W (Principal Investigator), Guyatt G, **Willan A**. \$1,225,476, June 1994 - May 1997.
34. National Cancer Institute of Canada, The development of a decision aid for early breast cancer. Whelan T (Principal Investigator), **Willan A**. \$31,114, July 95 - June 96. (#006282).
35. National Cancer Institute of Canada, RCT of a decision aid in non-negative breast cancer. Whelan T (Principal Investigator), **Willan A**, Gafni A, Browman G. \$144,332, July 95 - June 97. (#006296).
36. Medical Research Council of Canada, Canadian health economic assessment of physiologic pacing. O'Brien B (Principal Investigator), **Willan A**, Connolly S, Gent M. \$388,330, July 1995 - June 1999.
37. Medical Research Council of Canada, The Term Breech Trial. Hannah M (Principal Investigator), Milne K, Saigal S, **Willan A** \$1,948,176, January 1997 - September 2001.
38. Canadian Breast Cancer Research Initiative, Caring at Home for Women with Advanced Breast Cancer. Grundfeld E (Principal Investigator), **Willan A**, Crooks D, Angus D. \$466,664, June 1997 - Sept 2001.

39. Canadian Breast Cancer Research Initiative, Identification of Factors for Repeat Biennial Breast Screening. Rand C (Principal Investigator), McAuley R, Charles C, **Willan A**. \$160,000, June 1997 - May 1999.
40. National Institute of Health–US, The Nursing Supportive Care in Labour Trial (NSCIL). Hodnett E (Principal Investigator), Hannah M, **Willan A**. \$1,312,929, September 1998 - August 2001.
41. Canadian Institutes of Health Research, Effect of Exercise on Women with Polycystic Ovarian Syndrome (PCOS). Hannah ME (Principal Investigator), Laredo S, Librach C, Feig D, Rodgers C, **Willan A**, Casper R, Leiter L. \$902,237, 2000-2002.
42. Canadian Institutes of Health Research, Labour Position Trial. Hodnett ED (Principal Investigator), Stremmer R, Hannah ME, Petryshen P, Stevens BJ, **Willan A**. \$206,868, 2001-2003.
43. Canadian Institutes of Health Research, Two-year outcomes of infants and mothers enrolled in the Term Breech Trial. Whyte H (Principal Investigator), Hannah ME, Hodnett E, Amankwah K, King R, Hannah W, Saigal S, **Willan A**, Gafni A. \$321,955, 1999-2004.
44. Canadian Institutes of Health Research, Multiple vs single courses of antenatal corticosteroids for preterm birth. Murphy K (Principal Investigator), Hannah M, Ohlsson A, Amankwah K, Matthews S, Kelly E, Aghajafari F, **Willan A**, Saigal S, Gafni A. \$3,428,405, 2000-2006.
45. Physician's Services Incorporated Foundation, An Investigation into Interactions Between COX-2 Selective NSAIDs and Warfarin and the Risk of Bleeding in Patients who are Receiving these Drugs Concomitantly. Douketis J (Principal Investigator), Holbrook A, Crowther M, **Willan A**. \$79,376, 2000-2001.
46. Physician's Services Incorporated Foundation, Randomized control trial of casting vs Air-Stirrup ankle brace in children with acute low-risk fractures. Boutis K (Principal Investigator), Schuh, S, **Willan A**. Narayanan U. \$150,500 2003-2005.
47. Child Neurology Society/Child Neurology Foundation, Towards the Establishment of Standards of Practice and the Initiation of Multi-Centre, Multi-National Clinical Trials for Neonates and children with Stroke. deVeber G (Principal Investigator), **Willan A**. \$75,000, 2002-2004.
48. Canadian Institutes of Health Research, SELAN (Structured Early Labour Assessment and care by Nurses) Trial. Hodnett ED (Principal Investigator), Stremmer R, **Willan A**, Fraser W, Gafni A, \$2,662,672, 2003-2007.
49. National Science and Engineering Council, Development of Statistical Methodology in Cost-Effectiveness Analysis. **Willan AR** (Principal Investigator) \$55,000, 2003-2008.

50. Canadian Institutes of Health Research, A conceptual framework for outcome measurement in children: Consequences for health economic evaluation and decision- making. Ungar W (Principal Investigator), **Willan A**, Marshall D, Feldman B, Wright J. \$225,000, 2003-2006.
51. University of Toronto, Dean's Fund. Goldman R (Principal Investigator), Mikrogianakis, **Willan A**, Koren G. Sublingual versus oral midazolam for laceration repair in the pediatric emergency department. \$10,000, 2003-2005.
52. Canadian Institutes of Health Research, Conventional versus liposomal amphotericin: an economic evaluation. Parshuram C, Upton A (Principal Investigators), Ungar W, Doyle J, **Willan A**. \$50,828. 2004-2005.
53. Physician's Services Incorporated Foundation, Emergency Department Rapid Intravenous Rehydration for Pediatric Gastroenteritis: A Randomized Controlled Trial. Freedman S (Principal Investigator), Parkin P, Schuh S, **Willan A**. \$156,000, 2006-2007.
54. Bloorview Research Institute, Functional Outcomes Following Orthopaedic Surgery Based On Gait Laboratory Versus Observational Gait Analysis In Ambulatory Children With Cerebral Palsy: A Pilot Randomized Controlled Trial. Narayana U (Principal Investigator), **Willan AR**, *et al.* \$25,015, 2007-2008.
55. Canadian Institutes of Health Research, Early External Cephalic Version 2 Trial. Hutton E (Principal Investigator) Hannah, M, **Willan AR**, Ross S, Gafni A, \$2,853,717, 2003-2009.
56. Canadian Institutes of Health Research, The Tips for Infant and Parental Sleep (TIPS) Trial. Stremler R (Principal Investigator), **Willan AR**, *et al.* \$405,344, 2007-2009.
57. Canadian Institutes of Health Research, Infant and Maternal Factors Associated with Attendance at Neonatal Follow-up Programs. Stevens B (Principal Investigator), **Willan AR**, *et al.* \$180,000, 2007-2010.
58. Canadian Institutes of Health Research, Multiple Courses Of Antenatal Corticosteroids For Preterm Birth Study: 5 Year Follow-Up (MACS-5). Asztalos E (Principal Investigator), Hannah M, Ohlsson A, Ross S, Matthews S, Murphy K, **Willan AR**, Saigal S, Gafni A. \$3,585,161, 2005-2012.
59. Canadian Institutes of Health Research, Translating Research on Pain in Children (Team Grant). Stevens B (Principal Investigator), **Willan AR**, *et al.* \$4,054,611, 2006-2011.
60. Physician's Services Incorporated Foundation, Impact of Oximetry on Disposition in Acute Bronchiolitis. Schuh S (Principal Investigator), Freedman S, Coates A, Parkin P, Allen U, **Willan AR**, Ungar W, DaSilva Z. \$163,000 2008-2011.
61. National Science and Engineering Council, Expected Value of Information and Optimal Trial Design (RGPIN 44868-08). **Willan AR** (Principal Investigator) \$70,000, 2008-2013.

62. 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**, and 13 others. \$3,959,716, 2010-2014.
63. 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**, and 20 others. \$998,061, 2011-2014.
64. Canadian Institutes of Health Research, The Twin Birth Study (200211MCT-110280). Barrett J (Principal Investigator), **Willan A**, and 7 others. \$8,608,045, 2003-2014.
65. 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**, and 5 others. \$1,999,993, 2012-2016.

### **Current Research Funding**

1. CIHR. Impact of Emergency Department Probiotic Treatment of Pediatric Gastroenteritis: Randomized Controlled Trial. Stephen Freedman (Principal Investigator), **Willan AR**, and 9 others. \$2,231,300, 2013-2018.
2. CIHR. Sucrose Practices for Pain in Neonates (SPiN); A Program of Research. Bonnie Stevens (Principal Investigator), **Willan AR**, and 12 others. \$1,246,500, 2013-2018.
3. IMPACT. Comparing the complex care for kids Ontario (CCKO) province-wide integrated care intervention for children with medical complexity (CMC) to waitlist controls using a patient-engaged evaluation framework and mixed method design. Nora Fayed (Principal Investigator), **Willan AR**, and 16 others. \$300,000, 2016-2018.
4. IMPACT. Addressing obesity in toddlers at risk: a pragmatic randomized controlled trial comparing usual care to group-based parenting and home visits in primary care. Catherine Birken (Principal Investigator), **Willan AR**, and 11 others. \$299,723, 2016-2018.
5. CIHR - Foundation Scheme – 2nd Live Pilot. Effective Knowledge Translation Strategies for Enhancing Impact and Improving Outcomes in Infant Pain. Bonnie Stevens (Principal Investigator), **Willan AR**, and 13 others. \$3,823,346. 2016-2023.
6. CIHR - Project Scheme – 1st Live Pilot. Evaluating the effectiveness of an online knowledge translation intervention for minimizing procedural pain in hospitalized infants. Bonnie Stevens (Principal Investigator), **Willan AR**, and 13 others. (\$1,116,171). Declined. 2016-2021.
7. CIHR - Project Scheme. Intermittent vs. Continuous Oxygen Saturation Monitoring in Infants Hospitalized for Bronchiolitis: A Randomized Controlled Trial. Sanjay Mahant (Principal Investigator), **Willan AR**, and 9 others. (\$1,823,340). 2016-2020.

8. CIHR - Foundation Scheme – 2nd Live Pilot. Necrotizing Entero Colitis (NEC) Research Program: introducing innovative therapies to halt the disease progression and promote recovery. Agostino Pierro (Principal Investigator), **Willan AR**, and others. \$. 2016-2023.
9. CIHR – Innovative Clinical Trials. Four trials with Pediatric Emergency Research Canada. Klassen TP. (Principal Investigator), **Willan AR**, and 26 others. (\$3,000,000). 2017-20.

## Major Interests

statistical inference and power considerations for cost-effectiveness data, meta-analysis  
clinical trials methodology, crossover trials, non-nested regression, health services  
research, internet applications for clinical trials

## Scholarly and Professional Activities

### Grant Committees

- CIHR, Clinical Trials Panel 2001-2006
- NCIC, Panel I (Clinical Trials) 1998-2002
- CIHR, University-Industry Clinical Trials Panel, 1994-2001
- Canadian HIV Trials Network Scientific Panel, 1992-1997

### Professional Organizations

- American Statistical Society, 1975-2015
- Biometric Society, 1975-2015
- Society for Clinical Trials, 1982-2015
- Statistical Society of Canada, 1988-2015
- International Health Economics Association, 2001-2015

### External Grant Reviews

- Canadian Institutes of Health Research
- British Columbia Research Institute
- National Cancer Institute of Canada
- Ontario Ministry of Health
- Canadian HIV Trials Network
- Clinical Trials Program, German Federal Ministry for Research and Education
- National Science and Engineering Research Council
- National Science Foundation, USA
- Economic and Social Research Council, UK

### Journal Referee

- Technometrics
- Canadian Journal of Statistics
- Journal of Chronic Diseases

- American Statistician
- Controlled Clinical Trials
- Biometrics
- Health Economics
- BioMed Central
- Circulation
- Clinical Trials
- Cost Effectiveness and Resource Allocation
- Health Policy
- Health Policy and Planning
- Journal of Health Economics
- Journal of the Royal Statistical Society (A)
- Medical Decision Making
- Pharmacoeconomics
- Public Library of Science
- Scandinavian Journal of Statistics
- Statistica Sinica
- Statistics in Medicine
- Teaching and Learning in Medicine
- Value in Health

## **Graduate Teaching**

Public Health Sciences, University of Toronto

CHL 5225H - Advanced Statistical Methods for Clinical Trials (2005-2017)

Health Policy, Management and Evaluation, University of Toronto

HAD 5303H - Controlled Clinical Trials (2006-2007)

HAD 5313H - Advanced Design and Analysis Issues in Clinical Trials (2006-2008)

Health Research Methodology Program, McMaster University

CHS-HRM-702 - Introductory Biostatistics (1994)

CHS-HRM-730 - Clinical Trials (1995-2000)

CHS-HRM-733 - Statistical and Methodological Issues in Controlled Clinical Trials (1991-2008)

CHS-HRM 734 - Data Management in Health Research (1997-99)

CHS-HRM-751 - Research Methods using Non-experimental Designs (1991-92)

Department of Mathematics and Statistics, McMaster University

Math 756 - Biostatistics (1992-93, 1996)

Department of Population Medicine, University of Guelph

91-629 - Epidemiology and Biostatistics (1989)

Department of Mathematics & Statistics, University of Guelph

630-6990 - Statistical Consulting Internship (1987-88)

Department of Community Health and Epidemiology, Queen's University

EPID802 - Statistics for Epidemiologists (1982-87)

### **Current Graduate Student Supervision**

Kelvin Chan, PhD. Statistical methods in estimating uncertainties of Health Utilities. (Co-supervisor)

### **Previous Graduate Student Supervision**

Hong (Maggie) Chen, (2012) Ph.D.

“Using value of information methods to determine optimal designs for research in diagnostic tests, clinical trials in chronic diseases and the use of interim analyses.”

Current position: biostatistician at Global Safety & Independent Biostatistics, Amgen Inc.

Ahmed Hossain, (2011) Ph.D. “Incorporating correlation in testing for differential expression of genes in microarray data.” (Co-supervisor)

Current position: Post-doc, Department of Clinical Epidemiology and Biostatistics, McMaster University.

Lusine Abrahamyan, PhD. “Development of new clinical trial design for rare Diseases.” (Co-supervisor)

Current position: Clinical Epidemiologist, Toronto Health Economics and Technology Assessment Collaborative, University of Toronto.

Eleanor Pullenayegum (nee Pinto) (2005) Ph.D.

“Semi-parametric models for cost-effectiveness analysis: improving the efficiency of estimation from censored data”

Current position: Scientist, CHES, SickKids Research Institute and Associate Professor, Dalla Lana School of Public Health, University of Toronto.

Min Su (2003) M.Sc.

“Factors associated with perinatal or neonatal mortality or serious neonatal morbidity in the term breech trial.”

Rina A Leyva (2001) M.Sc.

“Cost-effectiveness analysis when the willingness-to-accept is greater than the willingness-to-pay.”

Current position: Manager Statistician at Pfizer Consumer Healthcare.

Frank Cihon (1999) M.Sc.

“Meta-analysis: effects of the drug fosamax on osteoporosis.”

Joanna Biernacka (1998) M.Sc.

“Accounting for uncertainty in cost-effectiveness studies.”  
Current position: Scientist, Health Sciences Research, Mayo Clinic.

Feng Chen (1994) M.Sc.  
“Meta-analysis: fixed versus random effects.”  
Current position: a statistician at a drug company in Toronto.

David Hutchison (1993) M.Sc.  
“Modelling vision in patients with age-related macular degeneration.”

Meiying Hou (1992) M.Sc.  
“Linear models with nested error structure in prediction vision loss for patients with subretinal neovascular membranes.”

### Administrative Responsibilities

#### Hospital for Sick Children

- Member of Committee for Computational Bioinformatics, 2002/09-2004/09
- Member of Dr Earl Silverman’s promotional review committee, 2002/11
- Member, Seed Grant Competition Committee, 2002/11-2004/12
- Chairman, DSMC for “A randomized, double-blind, placebo-controlled study of the effect of oral D-glucosamine hydrochloride on behaviour in Sanfilippo disease” 2002/11-2006/10
- Mentor to Joseph Beyene, 2002/11 - present
- Mentor and research advisor to Abhaya Kulkarni, 2003/01 - present
- Chairman of Dr Paul Dick’s promotional review committee, 2003/10
- Member of RESTRACOMP Committee, 2004/03-2006/04
- Chairman of Dr Gail McVey’s promotional review committee, 2004/07
- Mentor and research advisor to Robyn Stremler, 2004/07 – 2005/11
- Mentor and research advisor to Lillian Sung, 2004/04 - present
- Mentor to Lisa Strug, 2007/08 – present
- Scientific Director, Quantitative Methods, Program in Child Health Evaluative Sciences, 2007/01 – 2013/12

#### Dalla Lana School of Public Health, University of Toronto

- Member of Graduate Student Admissions Committee, 2003/02-2007/05
- Member of Promotions and Tenure Committee, 2007/10-2008/01

#### Department of Clinical Epidemiology & Biostatistics, McMaster University

- Member of PhD Development Committee, 1991/04-1995/05
- Member of MSc Admissions Committee, 1993/04-2002/06
- Member of Graduate Education Committee, 1994/11- 2002/06



- Member of PhD Admissions Committee, 1996/04-2002/06
- Vice Chair, Research, 2000/09-2002/06

#### Faculty of Medicine, McMaster University

- Member of Safety Monitoring Committee of the ATIII Replacement Trial, 1991/08-1995/05
- Member of Alternative Payment Plan Working Group, 1992/02-1994/06
- Member of Faculty Scholarship Committee, 1999/04-March 2001/03

#### External

- Chairman of Safety Monitoring Committee for the ASA/Prednisone trial in women with unexplained recurrent fetal loss, 1990/01-1992/05
- Member of Data Monitoring and Safety Committee for the Clinical Trials Unit of the National Cancer Institute of Canada, 1996/04-2002/05
- Member of FSORC Management Committee, 1997/12-2001/06
- Member of FSORC Scholarship Committee, 1999/04-2002/06
- Member of Data Monitoring and Safety Committee for A Canadian Avandamet Normoglycemia Outcomes Evaluation, 2004/11-2007/11
- Member of Data Monitoring and Safety Committee for Randomized Trial of Accelerated Partial Breast Irradiation, 2007/05-2011/04