



I have 9 years of experience in public health research and practice (mainly biostatistics) and 4 years of experience in clinical psychiatry, where I treated patients.

My goal is to carry out research to help prevent and alleviate suffering for the sickest, poorest, and most vulnerable populations.

My research includes the areas of poverty, crime, social disadvantage, prenatal drug abuse, prematurity, children with disabilities, mental health, out-of-home care, addiction, Aboriginal Health, communicable diseases, cancer, heart disease, smoking cessation, breastfeeding, health and well-being, health education and aged care.

Education

PhD in Social Mental Health Services (Biostats)

Western Sydney University

October 2022 to June 2025

Evaluating Mental Health Services for the Socially Disadvantaged including constructing Simulation Models in AnyLogic

Evaluating the effectiveness of GP care plans in reducing metabolic risk for patients with serious mental illness.

Predictors and outcomes of change in socio-economic position over time and ensuing patterns of illness and receiving treatment.

MPhil in Cancer Epidemiology

University of Sydney, NHMRC Clinical Trial Centre

September 2011

Risk and Treatment Factors of Squamous Cell Carcinoma of the Lip

Masters of Biostatistics

Monash University

January 2007 to June 2008

Training in Public Health Medicine

Australian Faculty of Public Health Medicine

Rotations: Rural and Indigenous Health, HIV, Public Health Unit (Communicable Disease and Environmental Health), Childhood Disability, Addiction and Pharmacoepi (TGA)

Coursework: Environmental Health Risk Assessments | Framing Indigenous Health | Health Promotion | Health Policy | Epidemiology and Control of Communicable Disease | Qualitative Research Methods | Environmental Health Risk Assessments | Introduction to teaching and supervision | Grant Writing | PRINCE 2 : Foundations and Practitioners | Good Clinical Practice (GCP) Certified as of 2022 Oct

MBBS BMedSc

University of Melbourne

January 2002 to December 2010

Honours Thesis: A Pharmacological mechanism for the Clinical Benefits of Angiotensin Converting Enzyme Inhibitors: Analyses of randomised controlled trials

High School Certificate

Fort St Selective High School

2001

Taught me broad content and diverse perspectives in a multicultural environment and how to LEARN and THINK.

Unique Achievements and Expertise

Leadership

- ▶ I led a 15-member team to give advice to the public and key stakeholders related to COVID, and adverse event reporting for the COVID vaccine in the Sydney COVID LOCKDOWN.
- ▶ President of the Sydney Northern District Table Tennis Association including, 520 players, 70 teams, 15 clubs. This includes working with the committee, improving processes, uploading scores to a global server using code and organising events.

Biostatistics (Masters in Biostatistics, First Class Honours, MPhil and PhD applying advanced statistics.)

- ▶ **Degree Related:** Honours first class was on mining cardiovascular clinical RCTs using estimation and prediction to generate surrogate markers using clinical data. My Masters of Biostatistics, MPhil and PhD has taught me a broad range of statistical methods and the application of these methods.
 - ▶ **Statistical Techniques:** Biostatistics: Generalized Linear Models, Survival Analysis, Longitudinal and Correlated Data (including multi-level modeling), Advanced R, Stata, Meta-regression, Study Design, Sample Size Calculation, Logic, Variable Selection, Data Linkage, Clinical Trial Design, Probability & Statistical Inference, Pharmacoepidemiology, generating and simulating data, multiple imputation for analysis with missing data and an overview of Machine Learning **Causal Inference:** Directed Acyclic Graphs, Propensity Scores, Inverse Probability Treatment Weights, Regression Discontinuity, Differences in Differences, Instrumental Variables, Mendelian Randomisation, Causal Mediation Analysis (incl. sensitivity analysis, time to event, multiple mediators) **AnyLogic: Agent Based Simulation, Discrete Events and System Dynamics**
 - ▶ **Data:** I am an expert programmer in R and Stata, and I write reproducible, well-structured and code with comments. I have attended introductory courses in Python and also SAS. I have carried out data management at the population level, 1.8 million records level with six different routinely collected government datasets of all babies and their mothers in the last 20 years in the state of NSW in Australia totalling over 20Gb)
 - ▶ **Experience:** I have applied almost all of these techniques in my work leading to publications or significant government reports with myself as the statistical author. I have published many articles and reports, including eighteen PubMed publications. 8 years of statistical consulting, data management, analysis, reporting and publication of results.
 - ▶ **Ongoing Learning:** I supervise research students and teach statistical methods. I have learned and used new statistical techniques independently, including causal mediation analysis. I am trained in and have experience in machine learning techniques such as Random Forest and k-means longitudinal analysis (kml). I have worked for TGA reviewing clinical study reports for approval of and safety of medical devices.
 - ▶ **Statistical Consulting:** I conceptualise and crystallise processes in data capture, data management, reporting and publication as well as consultation with the clients. I understand their requirements and also offer them innovative medical, public health and statistical advice. Developing and optimising protocols using critical appraisal, the literature, and the principles of excellent, scientifically valid, and relevant study designs. Constructed many Statistical Analysis Plans with client consultation.
 - ▶ **Supervision / Teaching:** Supervised Honours Students (5), PhD Students (1), clinicians (3), researchers. Taught seminars and tutored in biostatistics
 - ▶ **AStat (Accredited Statistician) from the Statistical Society of Australia in Dec 2022:** Member Profile: <https://www.stat soc.org.au/Sys/PublicProfile/48202292/4702721> Criteria for Accredited Statistician: Degree in Statistics + 6 years of progressively advanced Statistical Experience + Submission of Major Works + Maintaining Continual Professional Development + 5 year re-accreditations
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Conferences

National Rural Health (Oral) 2015 | Asia Pacific Heart Failure (2 Posters) 2008 | RACP 2016 (Oral: Gerry Murphy Prize) | Australian Public Health 2019 (Oral)

Workshops

UN Datathon (Education Track): <https://youtu.be/QwGhcoJ17jY?si=rVdXc9BLkWMtpBhd>

Major Works (23 Pub Med Publications) +600 Google Scholar citations, h-index: 10, i10-index: 10

- ▶ ORCID-ID: <https://orcid.org/0000-0002-5084-5023>
- ▶ PubMed: <https://pubmed.ncbi.nlm.nih.gov/?term=Dronavalli%2C+M>
- ▶ <https://youtu.be/sOhtbc00sSQ> My Public Lecture on Causation
- ▶ Gruber, V., Tracy, M. B., Hinder, M. K., Morakeas, S., Dronavalli, M., & Drevhammar, T. (2024). What CPAP to use in the delivery room? Bench comparison of two methods to provide continuous positive airways pressure in neonates. *BMJ Paediatrics Open*, 8(1), e002948. doi: <http://doi.org/10.1136/bmjpo-2024-002948>
- ▶ Lee, E., Schofield, D., Dronavalli, M., Lawler, K., Uebel, H., Burns, L., . . . Oei, J. L. (2024). Health Care Needs and Costs for Children Exposed to Prenatal Substance Use to Adulthood. *JAMA Pediatrics*, 178(9), 888-898. doi: <http://doi.org/10.1001/jamapediatrics.2024.2281>
- ▶ Uebel, H., Dronavalli, M., Lawler, K., Lee, E., Bajuk, B., Burns, L., . . . Oei, J. L. (2024). School performance in children with prenatal drug exposure and out-of-home care in NSW, Australia: a retrospective population-based cohort study. *The Lancet Child and Adolescent Health*, 8(7), 500-509. doi: [http://doi.org/10.1016/S2352-4642\(24\)00076-2](http://doi.org/10.1016/S2352-4642(24)00076-2)
- ▶ Lawler, K., Dronavalli, M., Page, A., Lee, E., Uebel, H., Bajuk, B., . . . Oei, J. L. (2024). 'Joining the Dots: Linking Prenatal Drug Exposure to Childhood and Adolescence' - research protocol of a population cohort study. *BMJ Paediatrics Open*, 8(1), e002557. doi: <http://doi.org/10.1136/bmjpo-2024-002557>
- ▶ Uribe, G., Dronavalli, M., Katz, I., Page, A., Wolfenden, S., Gillespie, J., . . . Schneider, C. H. (n.d.). Integrated health and social care with a CALD focus: a service mapping study in Sydney Metropolitan. *International Journal of Integrated Care*, 23(S1), 206. doi: <http://doi.org/10.5334/ijic.23076>
- ▶ Conaty, S. J., Ghosh, S., Ashraf, K., Taylor, K. H., Truman, G., Noonan, H., . . . Jalaludin, B. (2023). Heat illness presentations to emergency departments in Western Sydney: surveillance for environmental, personal and behavioural risk factors. *Public Health Research and Practice*, 33(4). doi: <http://doi.org/10.17061/phrp3342331>
- ▶ Adam, M., Kwinda, Z., Dronavalli, M., Leonard, E., Nguyẽn, V. K., Tshivhase, V., . . . Pillay, Y. (2023). Effect of Short, Animated Video Storytelling on Maternal Knowledge and Satisfaction in the Perinatal Period in South Africa: Randomized Controlled Trial. *Journal of medical Internet research*, 25, e47266. doi: <http://doi.org/10.2196/47266>
- ▶ Dronavalli, M., Page, A., Sperandei, S., Uribe, G., Huckel Schneider, C., & Eastwood, J. (2023). Determinants and health outcomes of trajectories of social mobility in Australia. *SSM - Population Health*, 21, 101336. doi: <http://doi.org/10.1016/j.ssmph.2023.101336>
- ▶ Wetherell, L., Kathurusinghe, S., Dior, U., Szabo, R., Gilmartin, C., Polyakov, A., . . . Catarina Ang, W. (2022). POMMS: Pre-operative misoprostol in myomectomy surgery: A randomised controlled pilot study. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 276, 98-101. doi: <http://doi.org/10.1016/j.ejogrb.2022.07.008>
- ▶ Leonard, E., Kwinda, Z., Baernighausen, T., Dronavalli, M., Adam, M., & Pillay, Y. (2022). Optimizing knowledge and behavioral intention of women and their partners in the perinatal period in South Africa: a randomized control trial study protocol in the Tshwane district, Gauteng province, South Africa. *BMC Public Health*, 22(1), 1224. doi: <http://doi.org/10.1186/s12889-022-13600-3>
- ▶ James, D. B., Lee, K. S. K., Dronavalli, M., Courtney, R. J., Conigrave, K. M., Conigrave, J. H., & Shakeshaft, A. (2022). Predictors of length of treatment, discharge reason, and re-admission to Aboriginal alcohol and other drug residential rehabilitation services in New South Wales, Australia. *Drug and Alcohol Review*, 41(3), 603-615. doi: <http://doi.org/10.1111/dar.13388>
- ▶ Adam, M., Johnston, J., Job, N., Dronavalli, M., Le Roux, I., Mbewu, N., . . . Bärnighausen, T. (2021). Evaluation of a community-based mobile video breastfeeding intervention in Khayelitsha, South Africa: The Philani MOVIE cluster-randomized controlled trial. *PLoS Medicine*, 18(9), e1003744. doi: <http://doi.org/10.1371/journal.pmed.1003744>
- ▶ Fletcher-Lartey, S., Lord, H., Dronavalli, M., Alexander, K., Ghosh, S., Thomas, J., . . . Pal, N. (2020). Trends in antimicrobial susceptibility patterns in *N. gonorrhoea* in Australia: Systematic review and meta-regression analysis. *International Journal of Infectious Diseases*, 101, 41. doi: <http://doi.org/10.1016/j.ijid.2020.09.139>
- ▶ Dronavalli, M., Lord, H., Alexander, K., Boonwaat, L., Pal, N., & Fletcher-Lartey, S. M. (2020). Effectiveness of oseltamivir prophylaxis in influenza outbreaks in residential aged care. *Journal of Epidemiology and Global Health*, 10(2), 184-189. doi: <http://doi.org/10.2991/jegh.k.200402.001>
- ▶ Ghosh, S., Dronavalli, M., & Raman, S. (2020). Tuberculosis infection in under-2-year-old refugees: Should we be screening? A systematic review and meta-regression analysis. *Journal of Paediatrics and Child Health*, 56(4), 622-629. doi: <http://doi.org/10.1111/jpc.14701>
- ▶ Fletcher-Lartey, S., Dronavalli, M., Alexander, K., Ghosh, S., Boonwaat, L., Thomas, J., . . . Pal, N. (2019). Trends in antimicrobial resistance patterns in *neisseria gonorrhoeae* in Australia and New Zealand: A meta-analysis and systematic review. *Antibiotics*, 8(4), 191. doi: <http://doi.org/10.3390/antibiotics8040191>
- ▶ Chan, D. J., Furner, V., Smith, D. E., Dronavalli, M., Bopage, R. I., Post, J. J., & Bhardwaj, A. K. (2018). Non-AIDS complexity amongst patients living with HIV in Sydney: Risk factors and health outcomes. *AIDS Research and Therapy*, 15(1), 6. doi: <http://doi.org/10.1186/s12981-018-0193-z>
- ▶ Bhagwat, M. M., Woods, J. A., Dronavalli, M., Hamilton, S. J., & Thompson, S. C. (2016). Evidence-based interventions in primary care following acute coronary syndrome in Australia and New Zealand: A systematic scoping review. *BMC Cardiovascular Disorders*, 16(1). doi: <http://doi.org/10.1186/s12872-016-0388-y>
- ▶ Dronavalli, M., Bhagwat, M. M., Hamilton, S., Gilles, M., Garton-Smith, J., & Thompson, S. C. (2017). Findings from a clinical audit in regional general practice of management of patients following acute coronary syndrome. *Australian Journal of Primary Health*, 23(2), 170-177. doi: <http://doi.org/10.1071/PY15191>
- ▶ Dronavalli, M., & Thompson, S. C. (2015). A systematic review of measurement tools of health and well-being for evaluating community-based interventions. *Journal of Epidemiology and Community Health*, 69(8), 805-815. doi: <http://doi.org/10.1136/jech-2015-205491>
- ▶ Dronavalli, M., & Thompson, S. C. (2015). A systematic review of measurement tools of health and well-being for evaluating community-based interventions. *Journal of Epidemiology and Community Health*. doi: <http://doi.org/10.1136/jech-2015-205491>
- ▶ Fricke, T. A., D'Udekem, Y., Richardson, M., Thuys, C., Dronavalli, M., Ramsay, J. M., . . . Konstantinov, I. E. (2012). Outcomes of the arterial switch operation for transposition of the great arteries: 25 years of experience. *Annals of Thoracic Surgery*, 94(1), 139-145. doi: <http://doi.org/10.1016/j.athoracsur.2012.03.019>
- ▶ Vilalta, A., Sahuquillo, J., Merino, M. A., Poca, M. A., Garnacho, A., Martínez-Valverde, T., & Dronavalli, M. (2011). Normobaric hyperoxia in traumatic brain injury: Does brain metabolic state influence the response to hyperoxic challenge?. *Journal of Neurotrauma*, 28(7), 1139-1148. doi: <http://doi.org/10.1089/neu.2010.1720>
- ▶ Yong, M. S., D'Udekem, Y., Robertson, T., Horton, S., Dronavalli, M., Brizard, C., . . . Konstantinov, I. E. (2011). Outcomes of surgery for simple total anomalous pulmonary venous drainage in neonates. *Annals of Thoracic Surgery*, 91(6), 1921-1927. doi: <http://doi.org/10.1016/j.athoracsur.2010.12.069>
- ▶ Solana, E., Poca, M. A., Sahuquillo, J., Benejam, B., Junqué, C., & Dronavalli, M. (2010). Cognitive and motor improvement after retesting in normal-pressure hydrocephalus: A real change or merely a learning effect? Clinical article. *Journal of Neurosurgery*, 112(2), 399-409. doi: <http://doi.org/10.3171/2009.4.JNS081664>
- ▶ Sheffield, L. J., Irving, P., Gupta, A., Byron, K., Macrae, F. A., Phillipmore, H., . . . Sparrow, M. (2009). Thiopurine methyltransferase and thiopurine metabolite testing in patients with inflammatory bowel disease who are taking thiopurine drugs. *Pharmacogenomics*, 10(7), 1091-1099. doi: <http://doi.org/10.2217/pgs.09.60>

- ▶ Dronavalli, M., Billah, B., & Krum, H. (2008). Meta-analysis of effect of ACE inhibitors and beta-blockers on mortality in CHF patients according to renal function. *Heart Lung and Circulation*, 17, s14. doi: <http://doi.org/10.1016/j.hlc.2007.11.035>
 - ▶ Dronavalli, M., & Gurrin, L. (2008). Effect of cardiovascular biochemical markers in predicting cardiac hospitalisation for patients with heart failure and associated interaction with ACEi therapy. *Heart Lung and Circulation*, 17, s14-s15. doi: <http://doi.org/10.1016/j.hlc.2007.11.036>
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Experiences

Medical Biostatistician

Western Sydney University - Since May 2022

- ▶ Perinatal Drug Exposure, prematurity and inhaled nitric oxide treatment, bronchopulmonary dysplasia, unsupervised clustering of neonatal ICU infants and short-term/long-out-of-home/cost to health services/education / out of home care outcomes and service utilisation for babies and their mothers. Results of a population birth cohort 'Joining the Dots' of 1.8 million babies and their mothers in NSW between 2001 and 2020. Methods focused on causal mediation analysis.
 - ▶ Supervising Clinicians and Honours Research Students as a Medical Statistician and co-supervisor. Two of my honours students were Gold Medallists in their seminar series.
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In-house Lead Biostatistician

Ingenu CRO - September 2022 to September 2023

For Phase 1 and Early Phase 2 Studies in neuroleptic/psychotropic/analgesic medication with a focus on psychedelics:

Statistical Analysis Plans
Data Analysis
Randomisation Schedule
Sample Size Calculations

Innovation in Data Related Planning and Tasks
Advising Sponsors in Sponsor Meetings

Pharmacoepidemiologist

Therapeutic Goods Administration - September 2021 to April 2022

Approving and Regulating Medical Devices

Senior Public Health Medicine Registrar in Communicable Diseases (Sydney COVID Lockdown)

Liverpool Public Health Unit - March 2021 to September 2021 - Australia

- ▶ Leading the external communications team for answering questions from the public regarding the Sydney COVID Lockdown
 - ▶ Leading a team in the management of Adverse Effects following Immunisation for COVID
 - ▶ Contributing to the containment of a COVID outbreak in Lockdown
 - ▶ As an Investigator, designing and overseeing a real world implementation RCT of Co-designed Universal Micro-messaging Health Education Videos for Breastfeeding in Rural Mothers in South Africa.
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Research Fellow (Biostatistics)

National Drug and Alcohol Research Centre (WHO Collaborating Research Centre), UNSW - January 2020 to December 2020 - Sydney

- ▶ Investigating the role of Social Disadvantage in Criminal Trajectories of those using Drugs as the index offence.
 - ▶ Evaluation of an Aboriginal Cultural Competency Program for non-Aboriginal Drug Rehabs
 - ▶ Supervising an Aboriginal PhD Student in research for a Continuous Quality Improvement of Aboriginal Residential Drug Rehabs
 - ▶ RCT Evaluating Health Education Videos for Breastfeeding delivered by "Mentor Mothers" for Poor Mothers in South Africa. In collaboration with Stanford University and Heidelberg University
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Medical Biostatistician and Public Health Medicine Registrar

Liverpool Hospital - February 2019 to January 2020 - Sydney

- ▶ Assessing the effectiveness of oseltamivir prophylaxis in preventing Influenza outbreaks in Aged Care Facilities.
 - ▶ Estimating Childhood Disability in Southwest Sydney and advocating a state-wide Child Disability Register
 - ▶ Outbreak Control (eg Measles; Gastro in a school, child care or aged care facility; Influenza in an Aged Care Facility)
 - ▶ Educating district aged care facility managers and nursing staff on managing and preventing the spread of influenza outbreaks in a one day teaching session
 - ▶ Environmental Health Risk Assessments (PFAS, M12 noise and vibration, Establish Surveillance for Lead Notification with a high-risk Lead Battery Manufacturer, Mercury in Fish)
 - ▶ Speeding up the management of Syphilis notification through automating repetitive data entry tasks using R and Adobe Optical Character Recognition for data extraction and processing.
 - ▶ Teaching and upskilling staff in research methods and assisting the Medical Epidemiologist in reporting and surveillance work (Annual STI report | Published Meta-Analysis of Gonorrhoea prevalence and antibiotic resistance for studies in the past 30 years in Australia and New Zealand)
 - ▶ Assessing the need for screening for Latent Tuberculosis Infection for refugee children under 2 years
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Psychiatry Registrar

North Shore Psychiatry Training Network - September 2016 to October 2018 - Sydney

- ▶ Worked in a high turn over Psychiatric Emergency Care Centre attached to an Emergency Department.
 - ▶ Worked in Addiction Dual Diagnosis, Old Age Psychiatry and Child Psychiatry.
 - ▶ Completed 3 year Education Program in Psychiatry at the Brain and Mind Research Institute
 - ▶ Completed the Opioid Substitution Treatment Accreditation Course
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Pharmacoepidemiologist

Therapeutic Goods Administration - July 2016 to September 2016 - Canberra

Systematic Review, Meta Analysis and Safety Filter

Medical Biostatistician

The Albion Centre - (WHO Collaborating Research Centre) - February 2016 to July 2016 - Sydney

- ▶ HIV research and gaining exposure to HIV medicine as well as training and enabling staff in research methods.
 - ▶ HIV Complexity - Described the increasing burden of comorbidities in patients with HIV, where care needs a multi-disciplinary team approach. Used directed acyclic graphs.
 - ▶ HIV Smoking Audit - Predicting which patients will benefit most from a smoking cessation intervention
 - ▶ Completed the HIV Prescriber Course
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Medical Biostatistician

Western Australian Centre for Rural Health, University of Western Australia - November 2014 to January 2016 - Geraldton

- ▶ Systematic Review as the first author to assess measurement tools of general health and wellbeing.
 - ▶ Commissioned review of Sexual Health Services in Western Australia by the Department of Health in a team.
 - ▶ Designed and Delivered Seminars: 1. Understanding and Evaluating Advanced Quantitative Methods 2. Use of Social Media for Public Health
 - ▶ Co-ordinating principal investigator on a complex GP Audit of patients with Acute Coronary Syndrome after discharge from hospital
 - ▶ National Finalist for Gerry Murphy Prize at RACP Congress
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Psychiatry Registrar

Top End Mental Health Services - January 2014 to November 2014 - Darwin

- ▶ Worked in Psychiatry treating Aboriginal People with mental illness from remote areas.
 - ▶ Took the history and mental state of patients and liaised with the multidisciplinary team. Prescribed medication, performed on-call duties, did ECT under supervision
 - ▶ Taught Medical students about psychiatry regularly by teaching them psychiatric theory and interview skills
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Research Fellow (Pharmacoepidemiology)

NCEPH, ANU and TGA - July 2012 to December 2012

- ▶ Developed a Quantitative Data Analysis Plan for the 45 and Up study in the pharmacoepidemiology field.
 - ▶ Investigated a New Indication for a cholesterol-lowering agent.
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Psychiatry Registrar

Cumberland Hospital - January 2012 to June 2012

- ▶ Worked empathically under pressure, Treated quite severe mental illness
 - ▶ Caring for mentally ill patients under consultant psychiatrist supervision
 - Elicit History and Mental State to adjust medication.
 - Communicate with the multidisciplinary team and family+carers of the patient.
 - Clozapine and Outpatient Clinics
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Medical Internship

Westmead Hospital - January 2011 to January 2012
