Dr. Mithilesh Dronavalli

Social & Medical Epidemiologist

Social Disadvantage

Mental Health/Addiction

Public Health

Causal Inference

Machine Learning / Deep Learning

LinkedIn

Google Scholar

Pubmed

My goal is to prevent and alleviate suffering for the sickest, poorest, and most vulnerable people through advocacy, leadership, innovation and discovery.

I have 11 years of experience in clinical/public health research (33 articles on PubMed & +800 citations) and 4 years of experience in clinical psychiatry. I also hold general medical registration with AHPRA, and I am an Accredited Statistician with SSA.

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.

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Interests

Leadership

- I led a 15-member team in a Public Health Unit 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, 600 players, 90 teams, 15 clubs. This includes working with the committee, improving processes, uploading scores to a global server using code and organising events.

Research Publications - Google Scholar

https://scholar.google.com/citations?user=VRfrJpcAAAAJ&hl=en

Further Interests

- Advocacy, Social Welfare, Discovery, Innovation, Logic, Leadership
- Table Tennis, Performing Carnatic Music

Experiences

Research Fellow (Epidemiology)

University of Queensland and Mater Research Institute - Since September 2026

Addiction Research at UQ.
Research on infants born before 26 weeks' gestational age. (Tiny Babies) at Mater Misericordiae University Hospital

Technical Analyst

Indpendent Health and Aged Care Pricing Authority (IHACPA): Federal Government - December 2025 to September 2026

Modelling National Health Data with ICD-10 and ACHI intervention codes to determine funding for Public Hospital Admissions across Australia. Funding is determined by the complexity of the patient and the care received (Activity-Based Funding) rather than by the length of stay.

Medical Epidemiology

Western Sydney University - May 2022 to December 2026

- Prenatal Drug Exposure, prematurity and inhaled nitric oxide treatment, bronchopulmonary dysplasia, unsupervised clustering of neonatal ICU infants and short-term/long-term outcomes/cost to health services/education /, out-of-home care outcomes and service utilisation for babies and their mothers. Derived results for 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.

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

Medical Advisor (Pharmacoepidemiology)

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.

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

Public Health Medicine Registrar

Liverpool Public Health Unit - 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 ad 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

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

Medical Officer

Therapeutic Goods Administration - July 2016 to September 2016 - Canberra

Systematic Review, Meta Analysis and Safety Filter

Medical Epidemiologist

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

Research Fellow

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

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

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.

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
  o Elicit History and Mental State to adjust medication. o Communicate with the multidisciplinary team and family+carers of the patient. o Clozapine and Outpatient Clinics

Medical Internship

Westmead Hospital - January 2011 to January 2012

Skills



- Public Health Skills and Expertise

Social Disadvantage
Mental Health Services
Framing Indigenous Health
Health Promotion
Health Policy
Epidemiology and Control of Communicable Disease
Environmental Health Risk Assessments
Teaching of research methods and supervision of research students
Grant Writing
PRINCE 2 : Foundations and Practitioners
Good Clinical Practice (GCP) Certified as of 2022 Oct



- Medical Skills (Psychiatry)

Active Listening, History Taking, Mental State Exam and Formulation of treatment in a multidisciplinary team environment
Supporting, Advocating and Caring for the Sick
Overcoming Social Disadvantage
Prescribing Psychotropic medication
Carrying out ECT

- Data Science Skills

Accredited Statistician since 2022: (Statistical Society of Australia)

Statistical / Database Programming **R, Stata, Python, PL/SQL, SAS** Reproducible well commented segmented code

Statistical Consulting Clear written and verbal communication, interested, organised, excellent problem solving,

Study Design Critical Appraisal, Systematic Reviews, Meta-Analysis, Meta-regression, Observational Studies and RCTs

Statistical Techniques: Generalised Linear Models, Longitudinal/Correlated Outcome Data/Multilevel Modelling, Survival Analysis, Multiple Imputation, generating and simulating
data, Deep 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)

Machine learning Random Forest, Longitudinal K-means, SVM, KNN, Classification and Regression Trees, Linear and generalised models for prediction, *Deep Learning*

Teaching and Supervision of Research Students

Data Management of large linked population data, EER Diagrams, PL/SQL

RCTs Clinical Trials Design, Sample Size, Randomisation Schedule,

Simulation Modelling AnyLogic: Agent Based Simulation, Discrete Events and System Dynamics

Education

PhD - Data Science: Social Mental Healthcare (submitted revisions)

Western Sydney University
October 2022 to December 2025

Evaluating primary care and primary mental health care services in reducing social gradients in mental health and chronic disease outcomes for patients with mental illness

Training in Clinical Psychiatry

Royal Australian and New Zealand College of Psychiatry

Completed Stage 1 Psychiatry and CPD for Basic Training in Psychiatry, rotations in Inpatient Psychiatry, Old Age Psychiatry and Addiction Psychiatry, psychopharmacology and the delivery of ECT. Developed skills in active listening, collecting history and mental state formulation, and developing a multidisciplinary treatment plan. I began to understand the chaos mental illness causes in human life.

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)

MPhil in Cancer Epidemiology

University of Sydney, NHMRC Clinical Trial Centre

June 2007 to September 2011

Risk and Treatment Factors of Squamous Cell Carcinoma of the Lip

Masters of Biostatistics

Monash University

January 2007 to June 2008

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.

Conferences Attended as Speaker

National Rural Health (Oral) 2015 | RACP 2016 (Oral: Gerry Murphy Prize) |Australian Public Health 2019 (Oral) UN Datathon (Education Track): https://youtu.be/QwGhcoJ17JY?