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ORCID

HOLLY TIBBLE

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EDUCATION

PhD Medical Informatics, Edinburgh University (2018-2021)
Thesis title: "Data-driven approaches for predicting asthma attacks in adults in primary care".
Predicting clinical events in messy administrative data using machine learning classification algorithms.

MPhil Epidemiology, Darwin College, Cambridge University (2015-2016)
Dissertation Title: "The association between age at menopause and coronary heart disease: a comparison of approaches to handle missing data in EPIC-CHD"
Specialising in advanced statistics and programming in STATA, as well as broadening my medical knowledge.

BSc (Hons) Mathematics, Operational Research and Statistics, Cardiff University (2011–2015)
Specialising in medical statistics and game theory, with statistical industrial placement at Roche Pharmaceuticals (Welwyn Garden City) conducting statistical analysis in phase III and IV clinical trials.

EMPLOYMENT

Research Fellow – Statistics
(University of Edinburgh Usher Institute: 2021-present)
Machine learning, statistical analysis, data visualisation, administrative data processing

Self-Employed Statistical Consultant (2018-present)
Statistical analysis and study design assistance on projects with clients in academia and industry, including clinical trials, medical device validation, and cost-benefit evaluation.

Research Fellow – Statistics
(Melbourne School of Population and Global Health, Murdoch Children's Research Institute: 2016-2018)
Statistical analysis, data visualisation, administrative data processing

Biometrics Data Analyst
(Total Loyalty Company Hong Kong: 2014)
Cost-benefit analysis of employee health interventions and building automated analytical reports for clients and stakeholders.

RESEARCH FUNDING

Investigator:
- Health Research Council of New Zealand. *Predicting acute asthma events using machine learning.* Reference: 21/867. Principal Investigator Dr. Amy Chan. NZD $29,498 (2021)

Individual:
- University of Edinburgh College of Medicine and Veterinary Medicine PhD (eHERC/Farr Institute) Studentship: £63,114.00 (2018)
- Asthma UK Centre for Applied Research Student Travel Bursary: £300.00 (2019)
- Funded by University of Cambridge and Medical Research Council (MRC) Advanced Course Studentship: £18,109.00 (2015)

TEACHING EXPERIENCE

Lecturing:
- MSc (Edinburgh) Introduction to data science in health and social care, *Data visualisation and storytelling*, 2021/22
- MSc (Edinburgh) Introduction to R, *Seeking Help for R*, 2021/22
- MSc (Edinburgh) Introduction to R, *Programming in R*, 2021/22 (Topic Lead)
- MSc (Edinburgh) Introduction to R, *Data Visualisation in R*, 2021/22

Teaching assistant (classroom):
- MBChB (Edinburgh) Introduction to Statistics, 2018/29
- MPH (Edinburgh) Introduction to Statistics, 2019/20
- MPH (Edinburgh) Further Statistics, 2018/19-2019/20
- MPH (Edinburgh) Statistical Modelling, 2019/20
- MPH (Edinburgh) Medical Informatics, 2019/20

Virtual teaching assistant:
- MPH (Edinburgh) Medical Informatics, 2020/21
- CPD (Edinburgh) Health Data Science, 2020-2021

Grading:
- MPH (Edinburgh) Introduction to Statistics, 2019/20
- MPH (Edinburgh) Medical Informatics, 2019/20
- MPH (Edinburgh) Statistical Modelling, 2019/20
- MPH (Edinburgh) Dissertation Proposals, 2019/20

Grade Moderation:
- MPH (Edinburgh) Medical Informatics, 2020/21

- CPD (Edinburgh) Health Data Science, 2021

Dissertation Marking:
- MSc (Edinburgh) Data Science Technology and Innovation [Medical Informatics Specialism], 2020/21

Course Development:
- CPD (Edinburgh) Health Data Science, 2020-2021

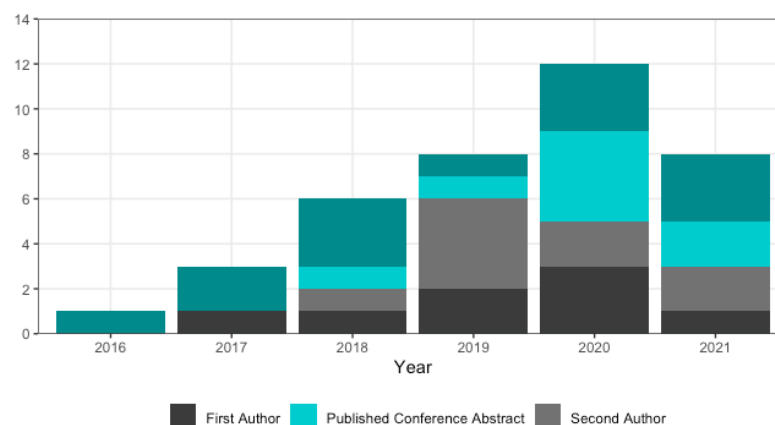**Exam Board:**
- MPH (Edinburgh) Medical Informatics, 2020/21

SKILLS AND EXPERTISE

- Technical Skills
- Proficiency in R, Python, STATA, and Microsoft Suite.
- Competency in SQL (and IBM Db2), UNIX, Git, HTML, and SAS.
- Application of machine learning algorithms to supervised and unsupervised learning tasks

Aptitudes
- Managing resources including research expenses, computational capacity, and time of collaborators and supervisors.
- Initiating external collaborations within academia and industry.
- Community engagement, pastoral support, and inclusivity building.
- Leadership: leading research projects and workplace-community initiatives and engaging with mentoring and tutoring schemes.
- Extensive experience with peer-review statistical and medical publications and accompanying lay summaries for increasing public engagement.

PEER-REVIEWED PUBLICATIONS

Tibble H, Sheikh A, Tsanas A. (2021) Estimation of Asthma Severity from Electronic Prescription Records using British Thoracic Society and Scottish Intercollegiate Guidelines Network Treatment Steps. *2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM): Fifth Edition of Workshop Processes and Algorithms for Healthcare and Life Quality Improvement (CBPBL). (In Press).*

Sheikh A, Anderson M, Albala S, Casadei B, Dean Franklin B, Richards M, Taylor D, **Tibble H**, Mossialios E. (2021) Health information technology and digital innovation for national learning health and care systems. *Lancet Digital Health.*
(DOI: 0.1016/S0140-6736(21)00232-4)

Nwaru BI, Shah SA, **Tibble H**, Pillinger R, McLean S, Ryan D, Critchley H, Hawrylowicz CM, Simpson CR, Soyiri IN, Appiagyei F, Price D, Sheikh A. (2021) Hormone replacement therapy and risk of severe asthma exacerbation in peri-menopausal and post-menopausal women: 17-year national cohort study. *Journal of Allergy and Clinical Immunology in Practice.*
(DOI: 10.1016/j.jaip.2021.02.052)

Stage Baxter M, **Tibble H**, Bush A, Sheikh A, Schwarze J. (2021) Efficacy of mobile health interventions to improve nasal corticosteroid adherence in allergic rhinitis: a systematic review. *Clinical and Translational Allergy*. 11(9). e12075.

Nwaru BI, **Tibble H**, Shah SA, Pillinger R, McLean S, Ryan D, Critchley HOD, Price D, Hawrylowicz CM, Simpson CR, Soyiri IN, Appiagyei F, Sheikh A. (2021) Hormonal contraception and the risk of severe asthma exacerbation: 17-year population-based cohort study. *Thorax.* 76(2). p.109-115.

Willoughby M, Spittal MJ, Borschman R, **Tibble H**, Kinner SA. (2021) Violence-related deaths among people released from prison: a data linkage study. *Journal of Interpersonal Violence.* 11(1). e045601.

Tibble H, Flook M, Sheikh A, Tsanas A, Horne R, Vrijens B, De Geest S, Stagg HR. (2020) Measuring and reporting treatment adherence: what can we learn by comparing two respiratory conditions? *British Journal of Clinical Pharmacology.* 87(3). p.825-836.

Farhall J, Brophy L, Reece J, **Tibble H**, Le LK-D, Mihalopoulos C, Fletcher J, Harvey C, Morrisroe E, Newton R, Sutherland G, Spittal MJ, Meadows G, Vine R, Pirkis J. (2020) Outcomes of Victorian Prevention and Recovery Care Services (PARCS): A matched pairs comparison. *Australian and New Zealand Journal of Psychiatry.*
(DOI: 10.1177/0004867420983473)

Shah SA, **Tibble H**, Pillinger R, McLean S, Ryan D, Critchley H, Price D, Hawrylowicz CM, Simpson CR, Soyiri IN, Appiagyei F, Sheikh A, Nwaru BI. (2020) Hormone Replacement

Therapy and Asthma Onset in Menopausal Women: National Cohort Study. *Journal of Allergy and Clinical Immunology*. 147(5). p.1662-1670.

Nwaru BI, Pillinger R, **Tibble H**, Shah SA, Ryan D, Critchley H, Price D, Hawrylowicz CM, Simpson CR, Soyiri IN, Appiagyei F, Sheikh A. (2020) Hormonal contraceptives and onset of asthma in reproductive-age women: population-based cohort study. *Journal of Allergy and Clinical Immunology*. 146(2). p.438-446.

Tibble H, Chan AHY, Mitchell EA, Horne E, Doudesis D, Horne R, Mizani MA, Sheikh A, Tsanas A. (2020) A Data-Driven Typology of Asthma Medication Adherence using Cluster Analysis. *Scientific Reports.* 10(1). 14999.

Tibble H, Lay-Flurrie J, Sheikh A, Horne R, Mizani MA, Tsanas A, The Salford Lung Study Team. (2020) Linkage of Primary Care Prescribing Records and Pharmacy Dispensing Records in the Salford Lung Study: Application in Asthma. *BMC Medical Research Methodology*. 20(1). 303.

Horne E, **Tibble H**, Sheikh A, Tsanas A. (2020) Challenges of clustering multimodal clinical data: a review of applications in asthma subtyping. *JMIR Medical Informatics*. 8(5). e16452.

Sutherland G, Harvey C, **Tibble H**, Spittal MJ, Farhall J, Fletcher J, Meadows G, Newton JR, Vine R, Brophy L. (2020) Similarities and Differences in People Accessing Prevention and Recovery Care Services and Inpatient Units in Victoria, Australia. *BMC Health Services Research*. 20(1). 542.

Borschman R, **Tibble H**, Spittal MJ, Preen D, Pirkis J, Larney S, Rosen DL, Young JT, Love AD, Altice FL, Binswanger IA, Bukten A, Butler T, Chang , Chen CY, Clausen T, Christensen PB, Culbert GJ, Degenhardt L, Dirkzwager AJE, Dolan K, Fazel S, Fischbacher C, Giles M, Graham L, Harding D, Huang YF, Huber F, Karaminia A, Keen C, Kouyoumdjian FG, Lim SW, Møller L, Moniruzzaman A, Morenoff J, O'Moore E, Pizzicato LN, Pratt D, Proescholdbell SK, Ranapurwala SI, Shanahan ME, Shaw J, Slaunwhite A, Somers JM, Spaulding AC, Stern MF, Viner KM, Wang N, Willoughby M, Zhao B, Kinner SA. (2020) The Mortality After Release from Incarceration Consortium (MARIC): Protocol for a multinational, individual participant data meta-analysis. *International Journal of Population Data Science.* 5(1). 1145.

Veness BG, **Tibble H**, Grenyer BFS, Morris J, Spittal MJ, Nash L, Studdert DM, Bismark MM. (2019) Complaint risk among mental health practitioners compared with physical health practitioners: A retrospective cohort study of complaints to health regulators in Australia. *BMJ Open*. 9(12). e030525.

Vine R, **Tibble H**, Pirkis J, Spittal MJ, Judd F. (2019) The impact of substance use on treatment as a compulsory patient. *Australasian Psychiatry*. 27(4). p.378-382.

Tibble H, Chan A, Mitchell EA, Horne R, Mizani MA, Sheikh A, Tsanas A. (2019) Heterogeneity in Asthma Medication Adherence Measurement. *2019 IEEE 19th International Conference on Bioinformatics and Bioengineering (BIBE)*. p.899-903.

Tibble H, Horne E, Horne R, Mizani AM, Simpson CR, Sheikh A, Tsanas A. (2019) Predicting asthma attacks in primary care: protocol for developing a machine learning-based prediction model. *BMJ Open*. 9(7), e028375.

Harvey CA, Brophy LM, **Tibble H,** Killaspy H, Spittal MJ, Hamilton B, Ennals P, Newton R, Cruickshank P, Hall T, Fletcher J. (2019) Prevention and Recovery Care Services in Australia: Developing a State-wide Typology of a Subacute Residential Mental Health Service Model. *Frontiers in Psychiatry*. 10(1). 383.

Vine R, **Tibble H**, Pirkis J, Judd F, Spittal MJ. (2019) Does legislative change affect the use and duration of compulsory treatment orders? *Australia New Zealand Journal of Psychiatry*. 53(5), p.433-440.

Bismark MM, **Tibble H**, Moore J, Morris JM, Paterson R, Fletcher M, Studdert DM. (2018). Eyes and ears on patient safety: Sources of complaints about the health, performance and conduct of health practitioners. *Journal of Patient Safety*. (DOI: 10.1097/pts.0000000000000544).

Tibble H, Law HD, Spittal MJ, Karmel R, Borschman R, Hail-Jares K, Thomas LA, Kinner SA. (2018). The importance of including aliases in data linkage with vulnerable populations. *BMC Medical Research Methodology*. 18(1). 76.

Thomas LA, **Tibble H**, Too LS, Hopcraft MS, Bismark MM. (2018). Complaints about dental practitioners: an analysis of 6 years of complaints about dentists, dental prosthetists, oral health therapists, dental therapists and dental hygienists in Australia. *Australian Dental Journal*. 63(3), p.285-293.

Thomas LA, Milligan E, **Tibble H**, Too LS, Studdert DM, Spittal MJ, Bismark MM. (2018). Health, performance and conduct concerns among older doctors: a retrospective cohort study of notifications received by medical regulators in Australia. *Journal of Patient Safety and Risk Management*. 23(2), p.54-62.

Hettiarachci VL, Kinner SA, **Tibble H,** Borschmann R. (2018). Self-harm among young people detained in the youth justice system in Sri Lanka. *International Journal of Environmental Research and Public Health*. 15(2), 209.

Tibble HM, Broughton NS, Studdert DM, Spittal MJ, Hill N, Morris JM, Bismark MM. (2017). Why do surgeons receive more complaints than their physician peers? *ANZ Journal of Surgery*. 88(4), p.269-273.

Fletcher J, Spittal MJ, Brophy L, **Tibble H**, Kinner S, Elsom S, Hamilton BE. (2017) Outcomes of the Victorian Safewards Trial in 13 wards: Impact on seclusion rates and fidelity measurement. *International Journal of Mental Health Nursing*. 26(5), p.461-471.

Pirkis J, Currier D, Butterworth P, Milner A, Kavanagh A, **Tibble H**, Robinson J, Spittal MJ. (2017). Socio-Economic Position and Suicidal Ideation in Men. *International Journal of Environmental Research and Public Health.* 14(4), 365.

Knight V, Campbell O, Harper M, Langner K, Campbell J, Campbell T, Carney A, Chorley M, Davidson-Pilon C, Glass K, Glynatsi N, Ehrlich T, Jones M, Koutsovoulos G, **Tibble H**, Müller J, Palmer G, Petunov P, Slavin P, Standen T, Visintini L, Molden K, (2016). An Open Framework for the Reproducible Study of the Iterated Prisoner's Dilemma. *Journal of Open Research Software.* 4(1), e35.

PUBLISHED CONFERENCE ABSTRACTS

Borschmann R**, Tibble H**, Spittal MJ, Preen Dd, Pirkis J, Larney S, Rosen D, Young J, Kinner SA. (2021) 535 The epidemiology of all-cause and cause-specific mortality following release from prison in 11 countries. *International Journal of Epidemiology (From the IEA World Congress of Epidemiology 2021).*

Daines L, Bonnett LJ, **Tibble H**, Boyd A, Turner SW, Lewis S, Sheikh A, Pinnock A. (2021) P73 A clinical prediction model to support the diagnosis of asthma in children and young people in primary care. *Thorax (From the 2020 British Thoracic Society Winter Meeting).*

Young J, **Tibble H**, Borschmann R, Kinner SA.(2020) Drug-Related Deaths Among Young People Involved in The Criminal Justice System: A Whole-Population Multi-Sectoral Data Linkage Study. *International Journal of Population Health Science (From Conference Proceedings for International Population Data Linkage Conference 2020)*

Shah SA, **Tibble H**, Pillinger R, McLean S, Ryan D, Critchley H, Price D, Hawrylowicz CM, Simpson CR, Soyiri IN, Appiagyei D, Sheikh A, Nwaru B. (2020) Does use of hormonal contraceptives impact on exacerbations and control in reproductive-age women with asthma? A 17-year population-based cohort study. *European Respiratory Journal.*

Shah SA, **Tibble H**, Pillinger R, McLean S, Ryan D, Critchley H, Price D, Hawrylowicz CM, Simpson CR, Soyiri IN, Appiagyei D, Sheikh A, Nwaru B. (2020) HRT use is associated with a decreased risk of asthma onset: 17-year cohort study of 353,173 peri-and post-menopausal women. *30th ERS International Congress.*

Tibble H, Sheikh A, Tsanas A, Horne R, Mizani M, Simpson C, Lay-Flurrie J. (2019) Linkage of Primary Care Prescribing Records and Pharmacy Dispensing Records in Asthma Controller Medications. *International Journal of Population Health Science (From Conference Proceedings for International Conference on Administrative Data Research 2019).*

Tibble H, Kinner SA, Borschmann R. (2020) International Collaborations using Linked Administrative Data: Lessons from the MARIC Study. *Dealing with Data 2019.*

Kinner SA, Tibble H, Hail-Jares K, Borschmann R, Spittal MJ, Clough A, Sawyer S, Miller A, Cadet-James Y. (2018) Deaths in young people after contact with the youth justice system: a retrospective data linkage study. *International Journal of Population Health Science (From Conference Proceedings for International Population Data Linkage Conference 2018).*