

Resume

Marothi Peter LETSOALO

11 July 2025

Personal Details

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Location: Little Falls, Johannesburg

Birthplace: Mankweng, South Africa

Nationality: South African

Gender: Male

Civil Status: Married

Field & Skills Highlights

Biostatistics | Bioinformatics | Data Science | Pharmacometrics | Clinical Research
| Clinical Data Management | Generative Artificial Intelligence
Statistical Analysis & Modeling | Dataset Management | Clinical Trials | Epidemiology
| Healthcare Analytics | Public Health | Data Visualization | Automated Reporting |
Scientific Collaboration | Scientific Communication | Mentorship

Professional Summary

A highly motivated and results-oriented Biostatistician and Data Scientist with over 7 years of experience in designing, analyzing, and reporting on clinical trials and cohort studies, including extensive work with large and complex longitudinal datasets. Passionate about leveraging advanced statistical methodologies, particularly in R, to drive evidence-based decision-making in health research. Proven ability to lead statistical planning, create linked datasets, and contribute significantly to scientific publications. Adept at collaborating with multidisciplinary teams to deliver impactful research findings, with a keen interest in contributing to mental health research. Committed to clear communication and fostering a culture of data-driven research through mentorship and training.

Skills

- Highly analytical and results-oriented professional with advanced proficiency in statistical analysis and modeling using R (including pipeline development), SAS (including macro development), Python, and Stata.
- Proven expertise in end-to-end dataset management, from extraction, cleaning, and processing to validation and the creation of complex linked and harmonized datasets using R, Python, SAS, and SQL.
- Possesses comprehensive experience in the design and execution of clinical trials and epidemiological studies, including study design, statistical analysis plan development, sample size calculation, randomization, and the analysis of diverse public health data (HIV, TB, COVID-19, mental health).
- Skilled in translating complex data into actionable insights through the development of automated reports with Quarto and interactive dashboards with R Shiny.
- A strong scientific collaborator and mentor with a record of co-authoring peer-reviewed publications, presenting research findings, and training junior statisticians.

Work Experience

Senior Biostatistician, CAPRISA, Durban, South Africa (1/2021 to Present)

Strategic Study Leadership & Grant Acquisition

- Contributed significantly to the successful acquisition of research grants totaling over R100 million by providing expert statistical input into grant proposals.
- Spearheaded study design, statistical planning (including sample size optimization, randomization, and SAP development) for numerous clinical trials and observational studies.
- Led the analysis of large, complex longitudinal datasets to identify key predictors of health outcomes, directly informing public health interventions.

Efficiency, Innovation & Cost Savings

- Developed and implemented R-based analysis pipelines, slashing TLF generation time by over 90%.
- Insourced previously outsourced statistical work, achieving organizational cost savings exceeding R1.5 million.

Public Health Crisis Response & Reporting

- Led the CAPRISA Epidemic Intelligence Unit, delivering critical, timely data analysis, statistical insights, and interactive visualizations to guide public health responses during major events like the COVID-19 pandemic.

Advancing Research & Data Quality

- Co-authored numerous peer-reviewed scientific manuscripts by providing expert statistical guidance and ensuring methodological rigor.
- Contributed vital statistical input into study database design, data validation, and quality control measures.

Capacity Building & Mentorship

- Fostered a robust data-driven research culture by providing regular training and mentorship to CAPRISA scientists and fellows on advanced statistical methodologies, data visualization, and effective research communication.

Research Data Manager, VLIR-OUS, University of Limpopo, South Africa (6/2016 to 3/2019)

- Managed complex clinical and epidemiological datasets, ensuring data integrity, accuracy, and implementing robust quality control procedures.
- Developed and maintained SQL databases to optimize clinical research data collection, validation, and analysis.
- Trained and supported research teams in data management and analysis best practices, enhancing overall project efficiency.

Junior Lecturer, University of Limpopo, South Africa (1/2015 to 5/2016)

- Delivered lectures and tutorials in introductory statistics and research methodology to undergraduate students.
- Mentored students on research projects, including statistical analysis and interpretation.

Faculty Researcher, University of Limpopo, South Africa (4/2012 to 12/2014)

- Conducted statistical analyses for selected research projects, contributing significantly to study design and data interpretation.
- Played a key role in advancing postgraduate research by reviewing student proposals and presentations, providing critical feedback.
- Demonstrated exceptional organizational and problem-solving skills by developing a comprehensive university-wide academic timetable from scratch, encompassing all faculties and schools modules.

Education

PhD in Statistics (Field: Biostatistics) | University of KwaZulu-Natal (Enrolled) July 2024 – 2027 June

- Research focus on development and application of new framework combining rigorous Biostatistical Methods and Machine Learning (as well as possible integration of Mechanistic Modelling, e.g. Pathway Analysis and Pharmacometrics).

Master of Biostatistics (RSS Accredited) | Hasselt University, Diepenbeek, Belgium September 2018 – July 2020

- Studies through VLIR scholarship and full time at Hasselt University in Belgium.
- Completed with 20 Biostatistics-Relevant modules and Biostatistics Master Thesis.
- Thesis received second prize for best development-relevant master's thesis UHasselt 2020 (International student category).

Master of Science in Statistics | University of Limpopo, Mankweng, South Africa January 2014 – May 2019

- Completed with Applied Statistics Master Thesis.

Honours and Junior Degree

- BSc (Hons) in Statistics 2010 June
- BSc in Statistics & Applied Mathematics at the University of Limpopo 2011 June

Specialization Certifications

- Pharmacometrics | Pharmacometrics Africa | December 2023 – July 2024
- Data Science & Machine Learning | MIT Schwarzman College of Computing, USA | December 2023 – April 2024

Selected Projects

CAPRISA Epidemic Intelligence Unit

- Led data analysis across SARS-CoV-2, HIV, and other outbreaks.
- Mining/scrubbing data from multiple sources.
- Generating insights from large, complex datasets to inform public health interventions and research strategies.

Pharmacometrics Fellowship Project

- Balancing covariates using propensity score weighting in nonlinear mixed-effects models: A Bayesian Framework.
- Contributed to a Roche project developing a methodological framework for integrating historical controls in drug development, leveraging historical data.

Certifications

Pharmacometrics (PMx Africa)| Data Science and Machine Learning (MIT) [Verify](#) | Clinical Trials Programming Using SAS [Verify](#) | Advanced Programmer for SAS 9 [Verify](#) | Base Programmer for SAS 9 [Verify](#) | Statistical Business Analyst Using SAS 9 [Verify](#) | VIARES Clinical Research Data Management]() | Design and Interpretation of Clinical Trials (John Hopkins University) [Verify](#) | ICH Good Clinical Practice E6 (R2) [Verify](#) | Designing Big Data Healthcare Studies: Part I- [Verify](#) | Part II-[Verify](#)

Publications

- Bodley, Nicola, Jienchi Dorward, Jessica Naidoo, Marothi Letsoalo, Kaminee Ramsaroop, Fathima Sayed, Yukteshwar Sookrajh, Paul K. Drain, and Nigel Garrett. 2023. “Diagnostic Accuracy of the Alere Afinion AS100 Point-of-Care Assay to Screen for Noncommunicable Diseases Among People Living With HIV.” *JAIDS Journal of Acquired Immune Deficiency Syndromes* 92 (1): e1–3. <https://doi.org/10.1097/qai.0000000000003098>.
- Dhindayal, Sherishka, Marothi P. Letsoalo, and Tanuja N. Gengiah. 2022. “Mental Health Outcomes and Workplace Quality of Life Among South African Pharmacists During the COVID-19 Pandemic: A Cross-Sectional Study.” *Journal of Pharmaceutical Policy and Practice* 15 (1). <https://doi.org/10.1186/s40545-022-00463-7>.
- Gordhan, Bhavna G., Astika Sewcharran, Marothi Letsoalo, Thilgavathy Chinappa, Nonhlanhla Yende-Zuma, Nesri Padayatchi, Kogieleum Naidoo, and Baves D. Kana. 2022. “Detection of Differentially Culturable Tubercle Bacteria in Sputum from Drug-Resistant Tuberculosis Patients.” *Frontiers in Cellular and Infection Microbiology* 12 (September). <https://doi.org/10.3389/fcimb.2022.949370>.

- Lale Ngema, Senamile, Navisha Dookie, Rubeshan Perumal, Louansha Nandlal, Nikita Naicker, Marothi Peter Letsoalo, Max O'Donnell, Azraa Khan, Nesri Padayatchi, and Kogieleum Naidoo. 2023. "Isoniazid Resistance-Confering Mutations Are Associated with Highly Variable Phenotypic Resistance." *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases* 33 (December): 100387. <https://doi.org/10.1016/j.jctube.2023.100387>.
- Letsoalo, Marothi P, Yehenew G Kifle, Maseka Lesaoana, and Christel Faes. 2021. "Analysis of Longitudinal Teenage Pregnancy Data of Mpunkunyoni, Kwazulu-Natal Using Generalised Linear Mixed Model" 21 (2): 225–38.
- Mahomed, Sharana, Martin Beliveau, Roberto Heredia-Ortiz, Farzana Osman, Marothi Letsoalo, Nigel Garrett, Tanuja N Gengiah, et al. 2025. "Population Pharmacokinetics of Weight-Based Compared with Fixed Dosing of CAP256V2LS, a Broadly Neutralizing Antibody for HIV Prevention in Women." *Journal of Antimicrobial Chemotherapy*, dkaf181. <https://doi.org/10.1093/jac/dkaf181>.
- Maseko, Thando Glory, Slindile Ngubane, Marothi Letsoalo, Santhuri Rambaran, Derseree Archary, Natasha Samsunder, Rubeshan Perumal, et al. 2023. "Higher Plasma Interleukin - 6 Levels Are Associated with Lung Cavitation in Drug-Resistant Tuberculosis." *BMC Immunology* 24 (1). <https://doi.org/10.1186/s12865-023-00563-2>.
- Naidoo, Anushka, Hylke Waalewijn, Kogieleum Naidoo, Marothi Letsoalo, Gabriela Cromhout, Leora Sewnarain, Nozibusiso R Mosia, et al. 2025. "Pharmacokinetics and Safety of Dolutegravir in Children Receiving Rifampicin Tuberculosis Treatment in South Africa (ORCHID): A Prospective Cohort Study." *The Lancet HIV*. [https://doi.org/10.1016/S2352-3018\(24\)00312-6](https://doi.org/10.1016/S2352-3018(24)00312-6).
- Naidoo, Kogieleum, Anushka Naidoo, Abimiku Alash'le G, Everdina W Tiemersma, Agnes Gebhard, Sabine M Hermans, Derek J Sloan, et al. 2024. "Triage Test for All-Oral Drug-Resistant Tuberculosis (DR-TB) Regimen: A Phase IV Study to Assess Effectiveness, Feasibility, Acceptability and Cost-Effectiveness of the Xpert MTB/XDR Assay for Rapid Triage and Treatment of DR-TB." *BMJ Open* 14 (11): e084722. <https://bmjopen.bmj.com/content/14/11/e084722>.
- Perumal, Rubeshan, Neda Bionghi, Camus Nimmo, Marothi Letsoalo, Matthew J. Cummings, Madeleine Hopson, Allison Wolf, et al. 2023. "Baseline and Treatment-Emergent Bedaquiline Resistance in Drug-Resistant Tuberculosis: A Systematic Review and Meta-Analysis." *European Respiratory Journal* 62 (6): 2300639. <https://doi.org/10.1183/13993003.00639-2023>.
- Perumal, Rubeshan, Kogieleum Naidoo, Anushka Naidoo, Marothi P. Letsoalo, Aliasgar Esmail, Ivan Joubert, Paolo Denti, et al. 2023. "The Impact of Enteral Feeding and Therapeutic Monitoring of Rifampicin with Dose Escalation in Critically Ill Patients with Tuberculosis." *International Journal of Infectious Diseases* 126 (January): 174–80. <https://doi.org/10.1016/j.ijid.2022.11.033>.
- Pillay, Nashlin, Gugulethu Favourate Mzobe, Marothi Letsoalo, Asavela Olona Kama, Andile Mtshali, Stanley Nzuzo Magini, Nikkishia Singh, et al. 2024. "Performance of Softcup® Menstrual Cup and Vulvovaginal Swab Samples for Detection and Quantification of Genital Cytokines." *Journal of Immunological Methods* 528 (May): 113656. <https://doi.org/10.1016/j.jim.2024.113656>.

- Qulu, Wenkosi Perez, Gugulethu Mzobe, Andile Mtshali, Marothi Peter Letsoalo, Farzana Osman, James Emmanuel San, Asavela Olona Kama, et al. 2023. “Metronidazole Treatment Failure and Persistent BV Lead to Increased Frequencies of Activated T- and Dendritic-Cell Subsets.” *Microorganisms* 11 (11): 2643. <https://doi.org/10.3390/microorganisms11112643>.
- Schwebs, Timo, Ann-Katrin Kieninger, Lenka Podpera Tisakova, Vera Oberbauer, Rocío Berdaguer, Andile Mtshali, Gugulethu Mzobe, et al. 2024. “Evaluation of Metronidazole Resistance of Vaginal Swab Isolates from South African Women Treated for Bacterial Vaginosis.” *Antibiotics* 13 (12): 1217. <https://www.mdpi.com/2079-6382/13/12/1217>.
- Setlhare, Boitumelo, Marothi Letsoalo, Siphathimandla Authority Nkabinde, Magugu Nkabinde, Gugulethu Mzobe, Andile Mtshali, Sobia Parveen, et al. 2024. “Corrigendum: An in Vitro Study to Elucidate the Effects of Product Nkabinde on Immune Response in Peripheral Blood Mononuclear Cells of Healthy Donors.” *Frontiers in Pharmacology* 15 (April). <https://doi.org/10.3389/fphar.2024.1401376>.