Darwin Del Castillo, MD, MPH

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EDUCATION

Master of Public Health (MPH)   **Sep 2023 − Jun 2025**
UNIVERSITY OF WASHINGTON, SEATTLE - USA

Medical Doctor (MD)   **Mar 2013 − Dec 2020**
UNIVERSIDAD NACIONAL MAYOR DE SAN MARCOS, LIMA - PERU

SKILLS

Programming: SQL (MySQL), Python, R, Stata
Machine Learning: PyTorch, TensorFlow/Keras, scikit-learn, self-supervised learning, probabilistic methods
Data Engineering: Apache Spark/PySpark, Airflow, dbt, Pandas
Cloud Computing: AWS SageMaker, Docker, Slurm HPC, CUDA
Experiment Tracking: MLflow, Weights and Biases
Signal Processing: HeartPy, NeuroKit2, SciPy, RHRV, cgmanalysis (R), cgmquantify (Python)
Data Standards: HIPAA, HL7 FHIR, GDPR, UK GDPR, DPA 2018
Tools: VS Code, Jupyter, Quarto, LaTeX, Git version control
Languages: English (fluent), Spanish (native)
Core Competencies: Data analysis, teamwork, problem solving, science communication, mentorship

PROFESSIONAL EXPERIENCE

Institute for Health Metrics and Evaluation   **Seattle, USA**
Graduate Research Assistant   **Jul 2024 − Jun 2025**

- Developed informative Bayesian priors and covariate structures for a Bayesian hierarchical meta-regression model to estimate prevalence, incidence, and clinical-outcome occurrence of lower-respiratory-tract infections across 80 countries, informing GBD 2025 inputs.
- Executed LLM algorithms over EHR data to screen ICD-9 and ICD-10 codes for estimating mortality rates among homeless populations, substance users, and incarcerated individuals across 22 high-income countries, reducing processing time by 25%.
- Led ML workflows on EHR data extraction from 2 countries with 60+ million records to build population-level summaries per age and sex groups.

University of Washington   **Seattle, USA**
Graduate Research Assistant   **Sep 2023 − Jun 2024**

- Partnered with clinicians, and project managers in Peru to translate burn-care evidence into prototype decision-support dashboards.
- Analyzed Peruvian pediatric EHR data under HIPAA standards to evaluate burn-injury intervention outcomes with survival and causal inference models.
- Presented findings to 15+ MoH officials and hospital stakeholders to align pediatric burn care strategies with national healthcare priorities, improving pediatric care for over 50 000+ patients annually.

Health Technology Assessment and Research Institute   **Lima, Peru**
Real-World-Evidence Consultant   **Jan 2023 − Jan 2024**

- Harmonized claims and inpatient EHR-data from >50 hospitals to provide comprehensive insights into healthcare outcomes.
- Executed budget impact and cost-effectiveness models that prioritized oncological interventions worth $1 M+.
- Synthesised peer-reviewed literature and real-world evidence into executive reports, guiding reimbursement policy for Peru's Social Security System.

Anglo-American Hospital   **Lima, Peru**
Resident Physician − Department of Pediatrics   **Sep 2021 − Aug 2023**

- Delivered clinical care for 500+ patients monthly in pediatric internal medicine and emergency rotations.
- Carried out chart reviews and clinical assessments during sub-speciality rotations, evaluating diagnostic accuracy of auxiliary test interpretations and correlating findings with patient outcomes to improve clinical decision-making protocols.

CRONICAS Center of Excellence in Chronic Diseases **Lima, Peru**
Research Assistant **Mar 2019 − Aug 2023**

- Coordinated a human-centered design study for cognitive impairment screening, co-creating a mobile app with regional stakeholders and community health workers.
- Processed continuous-glucose-monitoring and activity-tracker data using RHRV and cgmanalysis, generating features for subsequent statistical models in diabetes trials.
- Translated findings into executive briefs and grant proposals that secured $300 k in competitive funding.

ADDITIONAL EDUCATION

Professional Certificate in Clinical Research **Sep 2021 − Apr 2022**
Universidad Peruana Cayetano Heredia, Lima - Peru

LICENSURE AND CERTIFICATION

2021	Peruvian College of Physicians, Membership No. 94534
2023	CITI Program, Good Clinical Practice and ICH, Credential ID 65079238
2023	CITI Program, Human Subjects Learners, Credential ID 65079240
2023	CITI Program, Biomedical Responsible Conduct of Research, Credential ID 65079239
2024	National Registry of Investigators, RENACYT-CONCYTEC, Investigator Level VII (P0160977)

PUBLICATIONS   ORCID: 0000-0002-8609-0312

Peer-reviewed publications

- Bazo-Alvarez, J.C., **Del Castillo, D.**, Piza, L., Bernabe-Ortiz, A., Carrillo-Larco, R.M., Smeeth, L., Gilman, R.H., Checkley, W., Miranda, J.J. (2024) "Multimorbidity patterns, sociodemographic characteristics, and mortality: Data science insights from low-resource settings" **Am J Epidemiol.** kwae466: Online ahead of print. Available at: 10.1093/aje/kwae466
- Vidyasagaran, AL., Ayesha, R., Boehnke, JR., [...], **Del Castillo Fernández, D.**,[...], Zavala, GA., Zhao, YW., Siddiqi, N. (2024) "Core outcome sets for trials of interventions to prevent and to treat multimorbidity in adults in low and middle-income countries: the COSMOS study" **BMJ Glob Health.** 9(8):e015120. Available at: 10.1136/bmjgh-2024-015120
- Lapidaire, W., Proaño, A., Blumenberg, C., Loret de Mola, C., Delgado, CA., **Del Castillo, D.**, Wehrmeister, FC., Gonçalves, H., Gilman, RH., Oberhelman, RA., Lewandowski, AJ., Wells, JCK., Miranda, JJ. (2023) "Effect of preterm birth on growth and blood pressure in adulthood in the Pelotas 1993 cohort" **Int J Epidemiol.** 25;52(6):1870-1877. Available at: 10.1093/ije/dyad084
- **Del Castillo-Fernández, D.**, Brañez-Condorena, A., Villacorta-Landeo, P., Saavedra-García, L., Bernabé-Ortiz, A., Miranda, JJ. (2021) "[Advances in the investigation of chronic non-communicable diseases in Peru] (in Spanish)" **An Fac med.** 81(4): 444-452. Available at: 10.15381/anales.v81i4.18798
- **Del Castillo, D.**, Bernabe-Ortiz, A., Gilman, R.H., Sharma, M., Nugent, R., Miranda J.J. (2025) "Cost-effectiveness analysis of a household salt substitute intervention on reducing community-wide blood pressure in Northern Peru" **Lancet Reg Health Am.** Submitted under consideration.

Conference abstracts

- Valverde, N., Santivanez, M., Tello, M., and **Del Castillo, D.** (2025) "[Beyond abortion: A mixed methods study on the factors that condition access and use of post-abortion contraceptives in Peruvian women] (in Spanish)" **VII International Conference on Family Planning** The William H. Gates Sr. Institute for Population and Reproductive Health., Bogota, Colombia