

Vilija R. Joyce

Healthcare Data Scientist | Real-World Evidence, Claims & EHR Analytics, NLP/LLMs

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Summary

Healthcare Data Scientist and Associate Director with 20+ years in health economics and outcomes research, turning claims, EHR, OMOP, and clinical trials data into real-world evidence, peer-reviewed publications, and operational tools. Led implementation of the Tuva model on Databricks with dbt, built LLM-based monitoring of clinical text, and launched national NLP-integrated Power BI dashboards.

Skills

- **Programming and data:** SQL, Python, R, SAS, Stata, Azure Databricks, dbt, Snowflake, Git/GitHub, VS Code/Copilot
- **AI and analytics:** LLMs, NLP, machine learning, Power BI
- **Methods:** Causal inference, survival and mixed-effects models, cost-effectiveness analysis
- **Healthcare data:** Claims, EHR, OMOP, Medicare, and clinical trial data; ICD-10, CPT, and DRG coding systems

Experience

Health Economics Resource Center, Veterans Health Administration | Menlo Park, CA | Jul 2002 – Present

Data Scientist

Jul 2022 – Present

- Led adoption of the Tuva model to standardize community care claims, taking it from discovery to production on Azure Databricks with dbt, and owned data quality validation.
- Built a SQL and SAS pipeline that identifies pregnancy episodes, along with maternal risk factors and maternal/infant outcomes, from VA and community care claims.
- Launched a Power BI dashboard tracking maternal risk factors and pregnancy outcomes over time and by geography.
- Delivered congressionally mandated quarterly reports on severe maternal morbidity and maternal deaths.
- Led annotation teams and developed, validated, and monitored an LLM-based framework that detects emerging drug threats in clinical text.
- Wrote SQL stored procedures and tables summarizing weekly NLP pipeline output by concept for quality monitoring; met quarterly KPIs and presented results to stakeholders.
- Launched the first VA nationwide clinical operations dashboard to use NLP data, supporting harm reduction; trained 24 subject matter experts.
- Awarded \$35K to curate an opioid use disorder pharmacotherapy phenotype.
- Presented at AcademyHealth, SMDM, and VA Data Bootcamp.

Associate Director

Feb 2021 – Present (concurrent with Data Scientist)

- Advise the Center Director on research strategy and steward \$3.6M in funding.
- Manage operations, budget, hiring, and mentoring; rewrote data analyst position descriptions adopted nationwide.

- Automated consulting request intake and tracking with a ticketing system built in Power Automate, Power BI, and Slack.

Research Associate

Sep 2006 – Jun 2022

- First-authored an Addiction paper using difference-in-differences to measure healthcare costs and utilization before and after opioid overdose; produced VA treatment cost estimates for the Office of General Counsel.
- Built analytic datasets for an end-of-life cancer care cohort from VA, VA community care, and Medicare data.
- With Stanford's Quantitative Sciences Unit, wrote R and SAS code for multiple imputation, extended Cox models, and marginal structural models.
- Secured \$52K through an operational partnership to improve quality indicators for VA's MOVE! weight management program.

Research Assistant

Jul 2002 – Sep 2006

- Co-authored 8 papers from the OPTIMA HIV trial, including in JAIDS; built SAS and Stata models mapping quality of life measures (EQ-5D-3L, HUI3, MOS-HIV).
- Built a SQL database and custom content management system for the Center's website.

Education

- M.S., Health Services Research | Stanford University
- B.A., Economics – International Area Studies, Minor in Health Policy | University of California, Los Angeles (UCLA)

Certifications

- Snowflake – The Complete Masterclass | Udemy | 2025
- Machine Learning A-Z: Python & R in Data Science | Udemy | 2023
- Microsoft Power BI Desktop for Business Intelligence | Udemy | 2022

Selected Publications

20+ peer-reviewed articles. Full list: bit.ly/3V0BtOs

- Panelli DM, Esmaeili A, **Joyce VR**, et al. al methods. Association Between Mental Illness and Risk of Severe Maternal Morbidity in Pregnant Veterans. *Obstetrics & Gynecology*. 2025.
- Gujral K, Esmaeili A, Leonard SA, Shaw JG, **Joyce VR**, et al. Severe maternal morbidity and potential disparities by race and rurality among VA-covered births, 2010 to 2020. *American Journal of Obstetrics and Gynecology*. 2024.
- **Joyce VR**, Oliva EM, Garcia CC, et al. Healthcare costs and utilization before and after opioid overdose in patients with opioid use disorder. *Addiction*. 2023.
- McElfresh D, Chen L, Oliva EM, **Joyce VR**, et al. A call for better validation of opioid overdose risk algorithms. *JAMIA*. 2023.
- Fairley M, Humphreys K, **Joyce VR**, et al. Cost-effectiveness of treatments for opioid use disorder. *JAMA Psychiatry*. 2021.