



# HADES

Health Analytics Data-to-Evidence Suite

## Workgroup Spotlight

### March 17, 2026



# HADES Workgroup mission

**Enable the OHDSI community to perform observational research following OHDSI best practices for characterization, population-level estimation, and patient-level prediction by providing a cohesive set of open-source analytic software**

***OHDSI Mission:** To improve health by empowering a community to collaboratively generate the evidence that promotes better health decisions and better care.*

***OHDSI Vision:** A world in which observational research produces a comprehensive understanding of health and disease.*



# What is HADES?

- HADES (Health Analytics Data-to-Evidence Suite) is a set of open - source R packages for large scale analytics, including population characterization, population-level causal effect estimation, and patient-level prediction.

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## Health-Analytics Data to Evidence Suite (HADES): Open-Source Software for Observational Research

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**Abstract.** The Health-Analytics Data to Evidence Suite (HADES) is an open-source software collection developed by Observational Health Data Sciences and Informatics (OHDSI). It executes directly against healthcare data such as electronic health records and administrative claims, that have been converted to



# HADES Package Maintainers

- 38 R Packages maintained by 17 OHDSI Community Members
- In 2025, HADES R packages saw 80+ releases with enhancements and bug fixes

**HADES Maintainers**

The open-source tools that empower OHDSI research are not only available to the community, but they are DEVELOPED by the community. We thank the many developers and maintainers who empower our research initiatives around the world!

 Adam Black	 Frank DeFalco	
 Lee Evans	 Egill Fridgeirsson	 Jamie Gilbert
 Ger Inberg	 Christopher Knoll	 Martin Lavallee
 Anna Ostropelets	 Gowtham Rao	 Jenna Reps
 Katy Sadowski	 Martijn Schuemie	 Anthony Sena
 Marc Suchard	 Joel Swerdel	 Maarten van Kessel



# HADES Workgroup Information

- **Who:** Those interested in the development and improvement of open-source tools for observational research.
- **When & Where:** The HADES Workgroup meets the 3<sup>rd</sup> Thursday of each month at 12PM EST via OHDSI Microsoft Teams. Our next meeting is this Thursday, 19 March 2026.
- **How:** Is our open-source code made available? GitHub!
  - HADES: <https://ohdsi.github.io/Hades>
  - Code & Issue Trackers: <https://github.com/OHDSI/>



# Recent HADES Accomplishments

- Codify scientific best practices in observational research into standardized tools:
  - HADES implements LEGEND (Large-scale Evidence Generation and Evaluation across a Network of Databases) principles and systematic framework to support federated observational research across the OHDSI network to minimize bias, avoid p-hacking, enhance transparency and enables robust assessment of replicability and operating characteristics.
  - Estimation and meta-analysis HADES packages support objective study validity diagnostics
  - KEEPER is now part of HADES to support reviewing patient profiles for phenotype evaluation
  - DARWIN EU<sup>®</sup> Treatment patterns incorporated into HADES enabling analysis of treatment pathways and longitudinal therapy patterns
  - Deep learning for patient-level prediction modeling & external validation of prediction models



# Recent HADES Accomplishments

- Improvements in the suite of tools
  - HADES wide releases of all R packages every 6 months to provide a stable set of R packages for study design & execution
  - Strategus provides a modular framework for the coordination and execution of OHDSI network studies using HADES modules
  - Standardized results data model and Shiny results viewer for network studies
  - Increased adoption in using CRAN with 21 HADES Packages now in CRAN to simplify installation
  - Improvements to Andromeda to improve scalability and efficiency across HADES packages
  - Expansion of database and platform support – now up to 11 database platforms.



# 2026 Objectives and Key Results

Objective: Mature HADES packages and workflows

- All HADES packages are tested across all supported DB platforms
- Expand HADES to support OHDSI recommended study design & results review workflows.
- Study results reviewable through DuckDB backend



# 2026 Objectives and Key Results

Objective: Support the design of studies using HADES/Strategus using GenAI.

- Identify gaps in packages that are necessary to enable study design using GenAI (and likely humans too).
- Expand code examples to support different study designs for characterization, estimation & prediction. Use these as examples for both humans and GenAI.
- Provide an end-to-end example from study inception to study results for the OHDSI community that uses GenAI.
- Compare vibe coding using GenAI with Strategus vs. directly using HADES packages



# 2026 Objectives and Key Results

Objective: Add support for CDM extensions

- Define mechanisms by which we extend HADES (FeatureExtraction + Circe)
- Support  $n$  'official' extensions



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