

# **An Agentic AI Fidelity Evaluation Framework for Real-World Evidence Workflows**

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## **HARPER Methodology MCP Server**

The HARPER Methodology MCP server is a companion project to this framework. It implements the joint ISPE/ISPOR HARmonized Protocol Template to Enhance Reproducibility (HARPER) as an interactive authoring tool software that helps build HARPER-compliant study protocols section by section, with validation built in. In this work, S1 used the server to author four sections (objectives, time zero, exposure–outcome, statistical analysis) of the CGRP clean-baseline protocol; the remaining sections were authored directly against the schema, outside the server.

The current version of the server (v.0.3) exposes six tools for building and checking a protocol: `create_protocol`, `update_section`, `get_protocol_state`, `get_section_guidance`, `validate_pico`, and `check_protocol_coherence`. It also provides plain-language summaries of the relevant HARPER guidance for the objectives, exposure–outcome, and statistical-analysis sections, and a guided prompt that walks an author through the protocol one section at a time, validating as it goes.