GeodAIstics

# BioGML-Advisor

Guideline intelligence + disease-signature spotting — at the point of prescription and at validation, before the order goes out. For prescribers and lab biologists alike.

FDA · NON-DEVICE CDS

## — THE GAP AT THE PRESCRIPTION & LAB INTERFACE

**01**
### Missing tests
A guideline-recommended analyte simply absent from the order — delayed diagnosis, avoidable referrals.

**02**
### Redundant analytes
Tests repeated too soon, not covered, or not reimbursable — without clinical justification.

**03**
### Missing context
Patient history rarely captured by standard request forms — prescriber and biologist act blind.

**04**
### Pattern-driven blind spots
The lab pattern is in the data, but no codified rule fires the etiologic work-up — especially for rare conditions.

## — WHAT BIOGML-ADVISOR IS

A measurement layer over guideline & literature knowledge — beside the prescriber and the biologist.

| | |
|---|---|
| OPENING | Propose a work-up for a new patient — pregnancy, diabetes, new-onset CKD — as the order is composed. |
| VERIFICATION | Audit an order at prescription and at validation: add / remove / keep + a cost line for each. |
| REFLEX | Value-driven add-ons when results return — e.g. anti-TPO above the pregnancy TSH threshold. |
| DISCOVERY | Spot disease signatures from lab patterns — even where no guideline exists. Triggered by the data itself, not by documented conditions. |

## — RECOMMENDATION EXAMPLES

ADD

**Type-2 annual review — urine albumin-to-creatinine ratio absent.**

Diabetes diagnosed 3 yrs ago, no nephropathy screening on record. Add ACR — converging KDIGO, ESC/EASD and NICE guidance.

REMOVE · COST AVOIDED

**HbA1c repeated within 3 months in a stable T2 diabetic.**

Prior HbA1c 8 wks ago, stable. Remove redundant — interval not reached per ESC/EASD and IFCC guidance.

SIGNATURE MATCH

**MASH / liver-fibrosis risk spotted in routine metabolic bloods.**

Triglycerides, glucose, urate, GGT, HbA1c up, albumin low → FibroScan / hepatology. A signature **validated on an external public cohort**, outperforming the first-line FIB-4 index, especially under 40. Silent below threshold.

Each recommendation carries its **verbatim source** — guideline quote + doc ID for rules, NCBI-verified PMID + title for signature matches. The professional — prescriber or biologist — accepts or declines, with a recorded rationale.

CLINICAL DECISION SUPPORT — BY DESIGN

## BioGML-Advisor augments the qualified professional; it does not replace them.

The four traits below are designed-in product properties. They are the criteria for clinical decision support that **operates outside the medical-device qualification** — deployment goes through your standard software procurement.

**1 Information, not autonomous action** — surfaces guidelines & literature; the professional decides.

**2 Sources transparent** — verbatim guideline sentence or PMID + title, verifiable in seconds.

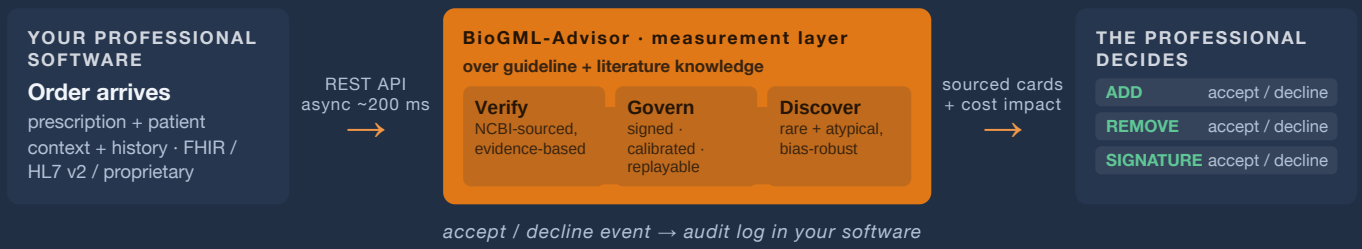
**3 No patient-directed feedback** — outputs are advisory to the qualified professional only.

**4 Independent professional review** — every card accepted or declined, rationale recorded.

## — HOW IT CONNECTS TO THE SOFTWARE YOU ALREADY USE

### A service that plugs into your professional software — not a parallel UI to maintain.

A standards-based REST API: your software sends prescription + patient context, BioGML-Advisor returns sourced, measured decisions for the professional to validate.




DEPLOYMENT: On-premise or SaaS · FHIR / HL7 v2 / proprietary · Sync or async

## — COVERAGE · TWO KINDS OF SIGNATURE

Retrieval of medical knowledge is commoditized — any model can quote a guideline. BioGML-Advisor carries **two kinds of signature**, and the durable value lives in the second: **measurement**.

### 1 · Deterministic — transparent, the diagnosis is certain

Diagnosis established with certainty from biology + history, or handed over by the clinical context — plus the full guideline work-ups (CKD, T2D, pregnancy, perioperative, viral cadence). Published criteria, traceable rules, **no data-fitting**.

- HFE (haemochromatosis)
- Multiple myeloma (CRAB)
- Iron-deficiency anaemia
- Autoimmune haem. anaemia
- Hypothyroidism reflex

### 2 · Data-validated — the defensible advantage

Patterns validated empirically on **real cohorts** — where a naive rule or model misses or points the wrong way. Measured, adjusted for confounders, replicated on external public cohorts where possible.

- MASH metabolic composite
- CBC leukaemia triage
- Sepsis CBC (bias-adjusted)
- Biochemistry coherence

## — GOVERNANCE · THE ATLAS DIFFERENCE

**No LLM at decision time** — the deployed engine is deterministic and fully auditable. Every recommendation traces to a guideline quote or an NCBI-verified PMID: **hallucination is impossible by construction**.

**Deterministic**
Same inputs → the same output, every time. Locked thresholds.

**Sourced — zero hallucination**
Every card cites a guideline quote or NCBI PMID; nothing generated free-hand.

**Signed & replayable**
Each decision is a signed artifact, re-runnable and audit-traced.

**No silent drift**
Corpus curated once; every update explicit and versioned.

## — WE ALREADY COVER

| 600+ | 1,000+ | 10,000+ | 5,000+ |
|---|---|---|---|
| ANALYTES, EXAMS & PANELS | CLINICAL CONDITIONS | SOURCED DECISION LINKS | DECISION INTERVALS |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