CASE STUDY

# Medical Necessity Form Agent:

## Automated Medical Necessity Documentation for a Genetic Testing Lab

**Executive Summary**

Labs hand-assemble medical necessity forms for every order, wrong templates, missing fields, days lost to signature chasing. NonStop's agent auto-selects the right payor template, populates it from existing lab data, validates every field, and routes for digital signature automatically.

**Top Problems faced by Business**

1. Every payor has a different template, coordinators pulling and populating manually for every order
2. Data exists across LIS, order forms, and physician notes, no automated assembly
3. Signature collection via fax, email, or portal, adds days to every claim

**Impacts**

1. Wrong templates, missing fields, mismatched justification language, denials before the claim even starts
2. Coordinator time consumed by repetitive data extraction instead of exception handling
3. Signature delays hold completed forms, cash cycle stretched unnecessarily

**Solution**

Agent triggers on every new order, selects correct payor template, auto-populates from existing lab data, validates every field deterministically, routes for digital signature. Self-hosted, PHI-safe.

**Impact**

- Template selection: manual lookup → automated per payor-order combination
- Form population: multi-system manual extraction → auto-assembled
- Field validation: caught post-denial → flagged pre-submission
- Signature workflow: fax/email/portal → digital, 21 CFR Part 11 compliant

- Coordinator role: data entry → review and approve
- Claims readiness: days → minutes

**The Problem**

Medical necessity forms are the paperwork that makes or breaks a genetic testing claim, and most labs are still assembling them by hand.

Every payer has its own medical necessity template. The fields overlap, but the requirements don't. What Aetna accepts as sufficient clinical justification for a hereditary cancer panel isn't what UnitedHealthcare expects, even for the same test and the same patient. A lab coordinator has to pull the correct template for the payor, then manually extract patient demographics, clinical indications, test justification, and provider details from across the LIS, the order form, and physician notes, field by field, for every order.

> **"The failure modes are predictable. Wrong template for the payor. Missing fields. Justification language that doesn't match what the insurer's policy requires."**

Once the form is finally assembled, it still needs signatures from both the ordering provider and the patient, a step that often means fax, email, or manual portal follow-up, adding days to a process that should take minutes.

The data already exists: patient details in the LIS, clinical context in the order, provider information on file, and templates known per payor. The gap isn't information. It's the automated assembly of that information into the right form, for the right payor, with a clean digital path to signatures.

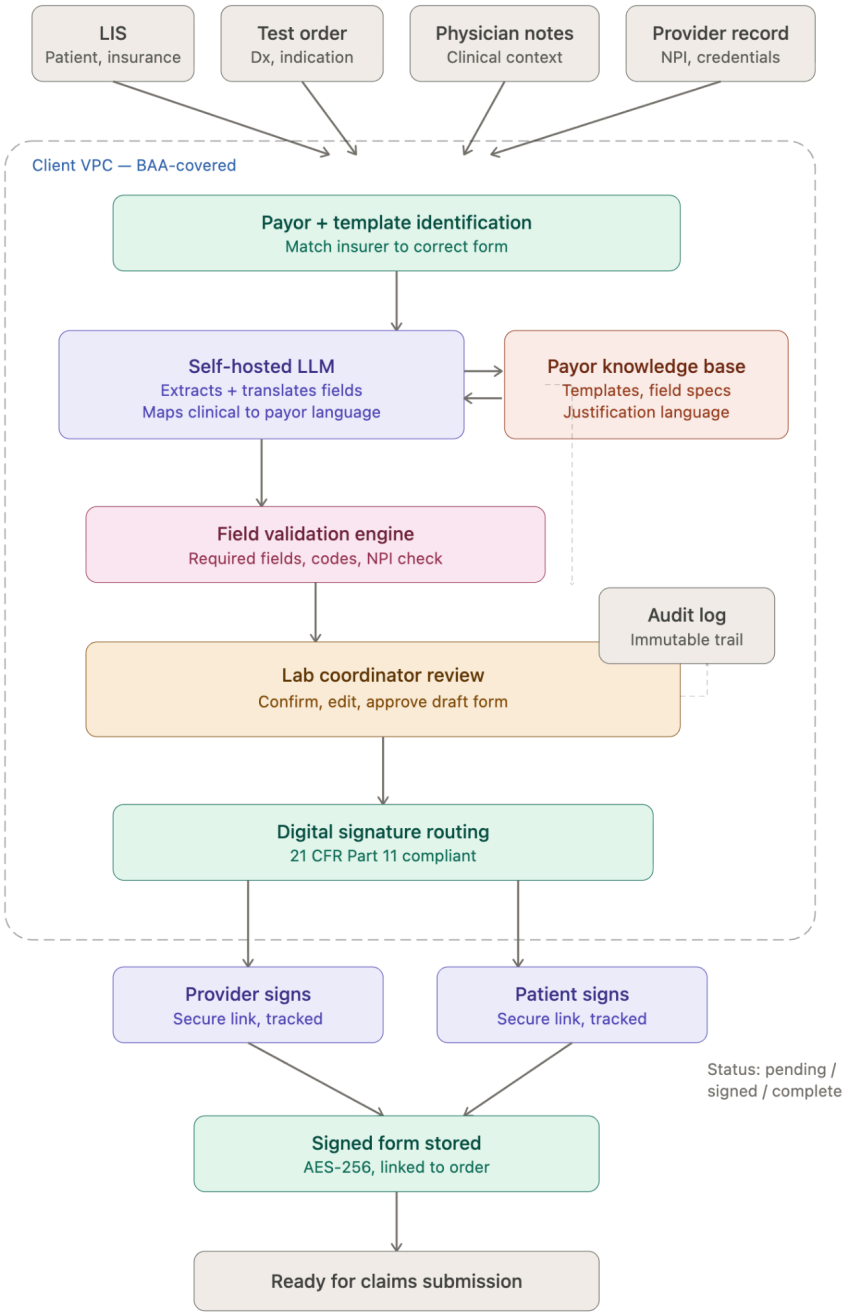
**Our Approach**

The agent triggers on every new test order and does three things: picks the correct payor-specific medical necessity template, auto-populates it from the lab's existing data sources, and routes the completed form for digital signatures.

**Architecture**

**Self-hosted LLM**

Patient data, demographics, diagnosis, and clinical notes never leave the secure environment. The model processes in a stateless, ephemeral container. No PHI persists in the model between requests.




### RAG-backed template and payor logic

Medical necessity templates, payor-specific field requirements, and accepted justification language live in a structured knowledge base that's updated when payors change their forms or policies.

### Deterministic field validation

Before the form reaches the coordinator, a rules engine checks every required field against the template spec, whether the ICD-10 code is present, whether the justification field meets the minimum documentation threshold, and whether the provider's NPI is valid. The agent populates. The rules engine validates. Each does what it's built for.

**Digital signature**

The signature workflow runs through an e-signature integration (21 CFR Part 11 compatible). Every step is logged, who signed, when, from which device, and with what version of the form. The signed form is stored encrypted with the associated order, ready for claims submission.

**Human-in-the-loop**

The agent populates. The coordinator reviews and approves. The provider and patient sign. No form is submitted without three layers of human confirmation. This isn't a bottleneck; it's a compliance requirement that the workflow enforces by architecture, not by policy