Nuvamed — Customer Signup & NPI Form Integration

⋄ Overview

This project extends the **Shopify customer registration process** to validate and control access for **clinics** and verified healthcare providers using their NPI (National Provider Identifier).

The objective is to ensure that only legitimate, approved medical entities can register, view pricing, and make purchases on the Nuvamed platform.

Investigation

While integrating the NPI validation and custom signup flow within **Shopify's New Customer Accounts**, several key issues were identified:

1. JavaScript Event Isolation

- The submit event listeners were not triggering as expected.
- Shopify's new authentication pages use a sandboxed, iframe-based architecture that blocks custom JavaScript execution on forms.

2. Dynamic DOM Limitations

- The <form> element was rendered dynamically, often after the JS executed.
- As a result, standard document.querySelector() or addEventListener() calls failed to bind correctly.

3. Restricted Customization in New Customer Accounts

- Shopify no longer allows direct modification of /authentication/login or related templates.
- This prevents developers from injecting validation logic or additional fields (like NPI) directly into the default signup process.

4. Limited Documentation & Community Knowledge

- Even experienced Shopify developers often lack deep insight into the new hosted account system, since it operates outside the theme layer.
- Most guides and tutorials online still reference Classic Accounts, which behave differently.

Conclusion:

These constraints make implementing advanced form logic (like real-time NPI verification) within Shopify's hosted account system technically **impossible without external integration**.

Solution We Are Moving Forward With

Given Shopify's technical restrictions, we are moving forward with a **hybrid solution** that integrates a **custom clinic signup form** and a **FastAPI backend validation service**.

Architecture Summary

- Frontend: Custom Liquid + JS form hosted in Shopify (under /pages/clinic-signup).
- Backend: FastAPI service handling NPI validation and pre-registration checks.

Why This Approach

- The custom form gives us **full control** over input fields and validation logic.
- FastAPI enables real-time NPI validation before account creation.
- Singleton acts as an access control bridge until the full custom logic replaces it (Phase 2).

The system is being developed in two main phases:

Feature	Classic Accounts	New Accounts
Editable templates		×
Custom JS injection	abla	×
Themed layout customization	abla	⚠ Limited
Native API access	abla	⚠ Restricted
Hosted by	Theme	Shopify

As a result, it is **not currently possible** to:

- Inject custom validation scripts inside /authentication/login.
- Add NPI fields directly into the hosted signup form.

Hence the decision to **offload registration to a custom page** with controlled logic and design.

App Used: Singleton Verify Customers

This phase leverages the third-party app **Singleton Verify Customers** as an initial access control mechanism.

Note: The Singleton app has a cost of \$20 USD per month.

It is being used as a temporary measure until the custom verification and access control system is fully developed and deployed.

How It Works

- When a user signs up via the Shopify-hosted registration page, the account is created **but remains unapproved**.
- A manual approval checkbox (Approve Customer) is available in the Shopify admin panel.
- Until the customer is approved:
 - They cannot see prices.

- They cannot add products to cart.
- They cannot complete purchases.
- Only after an internal team member verifies and approves the account will the customer gain full access.

(2) Internal Review Process

- Internal users have access to a private verification page.
- This page includes an NPI lookup integration, allowing staff to cross-check the customer's information against the official NPI Registry.
- The verification ensures that **only legitimate providers** are granted full access.

Purpose of This Phase

This solution serves as a **controlled access layer** while the permanent, fully automated signup validation system is being developed (see Phase 2).

Phase 2 — Final Implementation (In Progress)

😘 Goal

Develop a **custom registration form** (outside of Shopify's hosted login/signup flow) that directly integrates with:

- The NPI Registry API for real-time validation.
- Shopify's customer account creation endpoint (or a backend proxy API).
- Custom business logic for approval, notifications, and conditional access.

Core Components

1. Custom Frontend Form (Shopify Page or App Embed)

- o Fields:
 - Clinic Name
 - Contact Name
 - Email
 - NPI Number
 - Phone
 - Address
 - Additional metadata if required
- Performs real-time NPI validation.

2. JavaScript Behavior

- o Input validation (frontend).
- Dynamic floating labels for UX.
- Handles form submission via fetch().
- o Displays success/error states.

3. Backend (FastAPI)

- Proxy endpoint /check-npi for secure validation against https://npiregistry.cms.hhs.gov/api/.
- o Implements:
 - CORS
 - Rate limiting
 - Request timeouts
 - Security headers
- Returns a simplified JSON response with provider info.

4. Shopify Integration

- Currently limited due to **New Customer Accounts** restrictions (Shopify-managed, not editable).
- Custom signup form hosted on a dedicated page (e.g., /pages/clinic-signup).
- Will eventually replace the Singleton Verify Customers workflow once validated.

Estimated Development Effort — Phase 2

Based on the current architecture, integration needs, and testing scope, we estimate the **Phase 2 implementation** (full custom signup + FastAPI integration + security hardening) will require approximately:

Total Estimated Time

26-35 hours

(§) Cost Estimate

If calculated at a standard backend integration rate of \$65/hour, the approximate range is:

\$1,690 - \$2,275 USD

Implementation Roadmap

Step	Description	Status
1	Implement Singleton Verify Customers for access control	✓ Done
2	Create internal NPI verification page	✓ Done
3	Develop FastAPI /check-npi proxy service	✓ Done
4	Build standalone clinic signup page (Liquid + JS)	In progress
5	Add direct validation before submission	In progress
6	Implement complete FastAPI server hardening (security headers, rate limit, timeouts, CORS rules)	⇒ Planned

Step	Description	Status
7	Deprecate Singleton app once full custom signup system is live (removes \$20/mo cost)	⇒ Planned

Security & Validation

The **FastAPI service** includes key security features such as:

- Strict CORS configuration.
- Rate limiting and request timeouts.
- Secure headers for anti-DDoS protection.

⚠ **Note:** These components are currently under **active development** and will be finalized in Step 6 of the roadmap.

Additional measures:

- NPI validation occurs **before** registration or account creation.
- Only verified clinics can proceed to checkout after internal approval.
- Final deployment will include improved logging, request auditing, and protection against brute-force or spam attacks.

Structure Client Decisions Needed

Before proceeding with full deployment, several points require input from the **Nuvamed team**:

Decision Area	Description	Required Action
Hosting Provider	Decide whether to host FastAPI on Railway (recommended for setup speed) or migrate later to Nuvamed's internal infrastructure .	✓ Confirm hosting strategy
⊠ Support Email	Define the email address used to notify or assist users whose NPI verification fails.	✓ Provide contact email
Legacy Accounts	Determine what to do with existing customer accounts created before approval logic (e.g., auto-disable, contact manually, or flag for review).	✓ Confirm remediation plan

References

- Shopify Docs Customer Accounts
- NPI Registry API
- Singleton Verify Customers App
- FastAPI Documentation
- Demo Video