National Provider Directories (NPD)

"Federal efforts like NPD must pivot from speculative infrastructure to user-validated, modular solutions that reflect real-world priorities of patients and providers—not protocol design."

Provider Directories, FHIR, and the Federal Governance Paradox

This brief explores the governance contradictions, the limitations of CMS's current posture, and the need for a more grounded, stakeholder-informed approach. Despite CMS being the largest single payor in the U.S. healthcare system, its approach to provider directory interoperability appears fragmented, reactive, and increasingly state dependent.

- CMS enforces directory accuracy for federally funded plans yet doesn't adjudicate nationally it relies on state-based networks because providers are licensed locally.
- Meanwhile, commercial and self-funded plans often operate across state lines but still face licensure barriers and telehealth restrictions that vary by state.
- The No Surprises Act protects against surprise billing in some out-of-network scenarios, but directory errors still lead to ghost networks and access issues.
- So yes, it's a bit of a "pot-kettle" moment: federal agencies regulate insurers' directories while their own systems are fragmented, underfunded, and increasingly state-dependent.

Regulatory design needs to be vetted like any other product – with use case, design thinking, focus groups, cost and benefit, and options – as there are alternative options not being considered. In the case of the CMS National Provider Directory:

1. If the CMS Regulation is approved, they address 31% of unique lives. Some people like to argue 48% but that coverage – for SNP plans and ERISA self-funded there is overlap.
2. Yes, CMS is the largest single payor, and they have direct accountability for federal and some co-accountability to state delegated coverage like Medicaid.
3. CMS is federal but insurance, provider licensing and plan provisions are all managed at a state and sometimes regional levels but never nationally.

Initial assessment:

1. I was unable to find use **cases, proforma, actuarially backed ROI, focus groups, market research, options that led up to the decision on this NPD**.
2. **Blind Selection and Misaligned Innovation:** technology-first mandates like NPD violate core principles of innovation and process improvement. In skipping stakeholder discovery, CMS has prioritized scalability over usability, leading to several risks:
3. **Innovation Inversion**: Starting w/ architecture (FHIR/API) instead of real-world use cases.
4. **Bias Toward Scale**: Assuming national centralization is inherently superior, w/ovidence.
5. **Bifurcation of Value**: Separating what technology does from what users need.
6. **Cybersecurity**: Centralizing sensitive metadata creates single-point attack vector.
7. **Vendor and Lobbyist Influence**: Policies may favor those with the infrastructure to meet specs—not necessarily those offering best value.

8. **Regulatory Overreach and further fragmentation:** NPD is not enforceable over the 70% of covered lives governed by commercial or ERISA-exempt plans, leaving most of the market to either opt in voluntarily or be indirectly coerced
9. **Cost:** this is a $56B cost for CMS LOB; so $112B outlay not tied to a mandate is not logical.
10. **Sum Negative on Value**: Prioritizing a directory may divert finite system capacity and capital away from addressing more critical, patient-validated priorities.
11. "Blind selection" mindset undermines the interoperability and trust CMS seeks to build.

Assessment of federal register proposed:

- **Macro concerns**: CMS only governs approximately 30% of the covered market—primarily Medicare, Medicaid, and QHPs—leaving 70% of the U.S. health insurance market (commercial, employer-sponsored, and self-funded plans) unaddressed by this policy.
- **Further interoperability risks**: misalignment between regulatory jurisdiction and market coverage makes this effort inherently fragmented.
- **Pipeline vetting**: not publicly disclosed 10-year total cost estimate for building, maintaining, securing, and governing the NPD infrastructure, stakeholders are operating with limited fiscal clarity.
- More concerning is the **opportunity cost**: prioritizing a speculative infrastructure project over real, measurable improvements in care access, affordability, and coordination.

Provider Identity Lifecycle: Key Milestones & Identifiers

NPPES* is not the only source and only applies when groups are interacting with payors digitally. So, theoretically, if the gap is lack of practitioners in NPPES, then the solution is through other sources or getting everyone signed up versus recreating an entirely new warehouse.

Stage	*Entity Involved*	*Identifier /Credential*	*Purpose / Use Case*
State Licensure	State Medical Board	State License #	Legal auth to practice
Board Certification	ABMS Member Board	Cert Credential Optional	Demonstrates specialty;
Practice Established	Practice Group	Tax ID / EIN	billing, EE, and taxation
Billing Setup	CMS via **NPPES**	**National Provider ID**	billing and data exchange
Credentialing /Enrollment	CMS via **PECOS** / Medicare MACs	CCN / PTAN / PECOS ID	Medicare cert and reimbursement tracking
Directory	CAQH ProView, Payers	CAQH ID	Credential/ payer access

***Providers must apply for an NPI themselves through NPPES, once they intend to interact with payers electronically.**

Data Source	Purpose	Maintained By
National Provider ID	Unique provider ID for billing and transactions	CMS (NPPES)
Tax ID / EIN	Entity-level identification for financial / legal	IRS

State Licensure	Credentialing and scope of practice	State governments
CAQH ProView	Credentialing and attestation	Council
State DOBI Directories	Network adequacy and plan compliance	State Dep of Insurance
Contract Repositories	Payer-provider relationships and reimbursement terms	Payers and TPAs
VBC Attribution Rosters	Value-based care alignment and patient-provider matching	ACOs, payers, CMS

The above constitutes the entire practicing providers that would fall into federal, state, commercial and self-insured purview. **Cash-only and alternative providers fall outside the standard regulatory perimeter**; they're not required to obtain NPIs (unless they voluntarily bill electronically) if they do not seek reimbursement or transmit data.

- It is too **technocratic and absent vetting or** stakeholder co-design.
- Demand **process-driven reform**: where registries or directories are judged by real-world usability, transparency, and equity—not optics.
- Use existing and very well thought out Intersection of Clinical and Administrative Data (ICAD) call for **modular standards** to argue against one-size-fits-all software
- Solve for ICAD's workflow studies to **reject rigid data schemas** that obscure owner access or distort chain-of-authority audits.
- **Providers and coverage are state and region centric** – there is no national scenario, and interstate is a percentage of the 9% OON volume. The cost of this is $56B and only covers 31% of the lives covered.

Evaluation Area	NPD Status	Best Practice Gap
Use Case Validation	Lacking	No stakeholder journey mapping or MVP phasing
Cost Modeling	Absent	No published TCO, ROI, or opportunity cost
Governance Design	Central, opaque	No federated model or correction workflow transparency
Technology Selection	FHIR-first	No capability mapping or alternatives considered
Stakeholder Alignment	CMS-reg	Excludes 70% of covered lives (commercial/self-funded)
Risk Management	Unclear	No contingency for cybersecurity, adoption, fragmentation

Strategic Recommendation:

Rather than building a monolithic NPD, CMS should lead a federated synthesis initiative that:

- **Maps existing assets** to validated use cases (e.g., NPPES for billing, CAQH for credentialing)
- **Defines interoperability layers** that connect—not replace—state and commercial systems
- **Incentivizes data stewardship** through attestation portals, not mandates
- **Capability-first roadmap**, with modular pilots and stakeholder co-design

Governance Overlay Chart: CMS vs Market Coverage

CMS's governance is **programmatic**, not universal—NPD's ambition to be a "source of truth" exceeds its statutory reach. With a $112B price tag for groups outside purview, it will not be prioritized – same issue with prior authorization, same issue with replacing legacy X12 with FHIR as they have similar if not higher price tags.

CMS Jurisdiction	Actual Market Coverage	Governance Gaps
Medicare & Medicaid Providers	~1.5M providers; regulated via PECOS, NPPES	Strong oversight, but limited to federal programs
Commercial Payers	~900+ payers; maintain proprietary directories	CMS has no direct authority over data accuracy
State Licensure Boards	50+ boards; fragmented disciplinary data	CMS cannot enforce cross-state consistency
Cash-Only / Alt Providers	Unknown volume; outside HIPAA and CMS scope	Not captured in NPD; no regulatory interface
Credentialing Orgs (URAC, HITRUST, DATART, CAQH)	Voluntary participation; payer-driven	CMS lacks jurisdiction over credentialing standards

2. Historical Context and Technical Overview

The concept of a national provider directory traces back to the 2009 HITECH Act and the Meaningful Use program. While early health IT policy emphasized EHR adoption and structured data capture, directory modernization remained a secondary concern until CMS introduced machine-readable directory requirements for Medicare Advantage and QHP issuers.

Recent final rules (notably CMS-0057-F) promote FHIR-based APIs for data exchange, including prior authorization and payer-to-payer connectivity. The NPD is positioned as critical infrastructure for enabling these connections. However, the technical push has outpaced empirical research, governance design, and validated patient/provider demand. Importantly, these efforts have occurred in a regulatory environment marked by incongruency: federal mandates exist in parallel with deregulatory trends in the commercial sector, creating a mismatch between policy intentions and implementation feasibility.

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4. **Evidence of Strategic Gaps**

4.1 Lack of User Research

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5. Patient and Provider Priorities

5.1 Patient Top 10 Priorities (per CAHPS, AHRQ, KFF, Deloitte studies)

1. Timely access to care
2. Clear communication from providers
3. Affordable premiums and out-of-pocket costs
4. Transparent provider and hospital pricing
5. Trust and empathy in care delivery
6. Real-time appointment booking
7. Medication and pharmacy affordability
8. Care coordination across specialties
9. Easy-to-use digital tools (e.g., portals)
10. Access to medical records and decision participation

5.2 **Provider Top 10 Priorities (per AMA, AHA, Medscape, KLAS reports)**

1. Reduced administrative burden (e.g., prior auth)
2. Staffing and burnout relief
3. Streamlined EHR workflows
4. Fair reimbursement models
5. Accurate, up-to-date patient histories
6. Lower litigation risk and clear documentation
7. Reduced payer interference in clinical decision-making
8. Efficient referral management
9. Trustworthy population health data
10. Better public health and data reporting tools

None of these lists prioritize a national provider directory. That absence should be read not as oversight, but as a call to realign federal innovation priorities to actual end-user value.

Recommendations to CMS, ONC, and Stakeholders

Recommendation		Description
Fund user-centered R&D	CMS, AHRQ	Focus group, journey map, co-design pilots
Freeze directory mandates pending research	ONC	Hold mandates until user-first MVPs are validated
Require transparent governance	CMS	Publish source logic, update protocols, and correction workflows
Prioritize modular architectures	Tech vendors	Encourage federated, purpose-specific pilots with interoperable standards
Redefine success metrics	CMS, payers	Focus on patient access, burden reduction, and provider usability

Align fed strategy w market reality	CMS, ONCHHS	Acknowledge commercial/self-funded exclusion, invite public-private collab
Incorporate opportunity cost review	HHS, OMB	Evaluate innovative alternatives based on unmet user needs/cost avoidance potential

Strategic Evaluation of CMS's NPD Proposal

A highly relevant ONC committee: the **Intersection of Clinical and Administrative Data (ICAD) Task Force**, which operated under the **Health IT Advisory Committee (HITAC)** directly addressed the **convergence of data standards** that underpin provider directories and administrative workflows.

ICAD Task Force and value to directories: ICAD Purpose: Evaluate how clinical and administrative data can be harmonized to reduce burden, improve care coordination, and support interoperability, including the infrastructure behind provider directories.

Key Recommendations:

- Develop **patient-centered workflows** and standards that include administrative data like eligibility, referrals, and provider access.
- Establish a **government-wide standards advancement process** to avoid fragmented mandates (e.g., FHIR vs legacy formats).
- Create a **standard** to support data exchange between providers and payers.
- Ensure **real-time data capture** and **workflow automation** for administrative tasks, which directly impacts directory accuracy and usability.

Relevance to Provider Directories: while the ICAD Task Force didn't publish a standalone directory framework; identified **provider discovery** and **referral management** as core use cases needing standardization. Called for **API-based access** to administrative data for both patients and providers—mirroring NPD goals. Highlighted the need for **burden reduction**, which aligns with critiques of centralized directory mandates.

National Case study: 50 state solutions from Meaningful Use:

The "50-state solution" from the Meaningful Use era is another is a prime example of how scale-driven standardization can outpace actual stakeholder utility—especially when the goal shifts from solving real-world problems to enabling data aggregation and AI-readiness.

What Was the "50-State Solution" ?

This concept emerged during the rollout of **HITECH Act programs**, particularly **Meaningful Use** and **State Health Information Exchange (HIE) Cooperative Agreements**. The idea was to ensure **every state had a functioning HIE infrastructure**, regardless of local readiness, demand, or existing capacity.

Goal: Create a **nationwide health data exchange fabric** by funding and mandating HIE development in all 50 states.

Reality: Many states received grants to build HIEs that were duplicative, underutilized, or eventually folded into larger regional or commercial networks.

Lessons for CMS's FHIR Directory Push.

The 50-state HIE rollout showed that **genericizing for scale** can: 1) prioritize **data liquidity over stakeholder utility, 2)** create **infrastructure without sustainable use cases, and 3) l**ead to **policy inertia**, where systems exist to fulfill mandates—not solve problems and is disconnected from the **actual workflows of provider discovery, referrals, and patient navigation**.

Evaluation of CMS's NPD Proposal

1. **Legislative Alignment**

Passed Legislation: NPD is not directly mandated by statute. It stems from CMS's interpretation of interoperability goals under the HITECH Act and rules like CMS-0057-F.

Regulatory Basis: The NPD is framed as an infrastructure to support FHIR-based APIs for prior auth, payer-to-payer exchange, and provider discovery.

Gap: No enabling legislation explicitly authorizes or funds NPD as a national infrastructure. This weakens its mandate and raises questions about jurisdiction over commercial plans.

2. **Proforma & Total Cost of Ownership**

Missing: No published 10-year cost estimate, phased budget, or sustainability model.

Risk: Without a proforma, stakeholders cannot assess ROI, breakeven, or opportunity cost.

Best Practice Missed: In corporate settings, infrastructure proposals require detailed cost modeling, including build, maintain, secure, and sunset phases.

Rough order of magnitude (ROM) estimates ballpark total costs at about $56 billion in the 33% of total enrolled regulatory purview.

3. **Market Research & User Validation**

Absent: No documented focus groups, usability testing, or stakeholder journey mapping.

Best Practice Missed: Enterprise-grade initiatives begin with validated use cases and stakeholder pain points. CMS skipped this phase.

Evidence: CAHPS, AHRQ, AMA, and KFF data show provider directories are not a top priority for patients or providers.

4. **Technology vs Capability Bias**

Bias Observed: NPD prioritizes FHIR/centralized architecture over modular, federated capability.

Impact:favors vendors w existing FHIR stack/disadvantages simpler, attestation/ regional models.

Best Practice Missed: Technology should follow validated capability needs—not dictate them.

Contingency & Risk Management

- **Unaddressed**: No published contingency plans for:
- Cybersecurity breaches (centralized metadata risk)
- Commercial sector non-adoption
- Governance failures or correction workflows

Best Practice Missed: Enterprise initiatives require risk matrices and fallback protocols.

Designed for End Users?

- **Patients**: NPD does not address top patient priorities (access, affordability, coordination).
- **Providers**: NPD does not reduce burden or improve workflows.
- **Conclusion**: The design reflects policy goals, not user needs.

Federal Deregulation Meets State Licensing

Lacks vetting: CMS's NPD proposal lacks the foundational elements of a viable enterprise initiative. It skips discovery, omits cost modeling, and prioritizes architecture over capability. Without user validation, market alignment, or fiscal clarity, it risks becoming a distraction rather than a solution.

Rollback risk: The approach counters the current administrative stance on regulation and has not been vetted to reaffirm the current stance is supported by the current administration, as there are other decisions ahead of this. Which gives way to a true threat that cost, time and efforts will occur and then the administration will kill it when they become aware of it through pushback.

- The current administration has aggressively rolled back federal oversight, shifting healthcare regulation to the states through executive orders like **EO 14192** and **EO 14219**, which call for rescinding "unlawful" or "burdensome" regulations
- HHS, CMS, and ONC have faced **massive workforce cuts** and reorganization, reducing their capacity to enforce national standards.
- This decentralization means **provider directories are increasingly shaped by state-level rules**, even though CMS still mandates accuracy for Medicare and Medicaid plans

The adoption of **FHIR (Fast Healthcare Interoperability Resources)** as a technical standard raises critical questions: Is CMS leading with **capability-driven governance**, or **technology.**

Has CMS conducted **industry-standard vetting** with patients and providers to validate use cases before mandating FHIR?

Will we repeat of the **web services era**, where enthusiasm outpaced strategic alignment?

Governance Contradictions

- **Federal Oversight vs. State Licensing**
  CMS regulates provider directories for Medicare, Medicaid, and CHIP—but adjudication and network assignment remain **state-bound**, driven by local licensure.
- **Regulatory Enforcement vs. Internal Compliance**
  CMS penalizes payors for inaccurate directories, yet its own systems (e.g., NPPES, Medicare.gov) have faced criticism for outdated or incomplete listings.

This creates a paradox: CMS enforces national standards without national adjudication authority. The same agencies enforcing accuracy may be **noncompliant themselves**, undermining credibility.

Technology vs. Strategy: Is FHIR the Right Fit?

- **Lack of Use Case Articulation** CMS has not publicly demonstrated a **structured ideation process** involving patients, providers, or payors to validate FHIR as the optimal solution for directory interoperability.
- **Capability Mapping Gaps** There's little evidence CMS translated stakeholder needs into **functional capabilities** before selecting FHIR. Instead, FHIR adoption appears driven by **regulatory mandates** and alignment with ONC's Cures Act rule.
- **Bandwagon Effect** FHIR is now treated as **non-optional**, much like web services were in the early 2010s. The shift from SOAP/XML to REST/FHIR may be more about **modernization optics** than strategic fit. This creates a "compliance as a defense" strategy.

Recommendations for Strategic Realignment

- **Stakeholder-Led Capability Mapping**
  Convene panels of patients, providers, and payors to define directory use cases and desired outcomes before finalizing technical standards.
- **Technology-Neutral Governance**
  Shift from FHIR mandates to **capability-based certification**, allowing innovation while ensuring baseline interoperability.
- **Audit CMS's Own Directory Systems**
  Apply the same scrutiny to CMS-managed directories as is applied to commercial payors—starting with NPPES and Medicare.gov.
- **Transparency in Standard Selection**
  Publish the rationale, alternatives considered, and stakeholder feedback that led to FHIR adoption.