CMS RFI [CMS-0042-NC]: Health Technology Ecosystem
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Submitted by Intermountain Health

Introduction

First, a brief introduction. Intermountain Health is the largest nonprofit health system in the Intermountain West. We operate 33 hospitals and 400 clinics while also serving more than 3 million Americans with our virtual hospital. We would like to thank CMS for the opportunity to comment on the state of healthcare data interoperability. Moreover, we would like to take this opportunity to:

1. Take a step back to quickly review why we are still discussing how to solve a persistent problem that has plagued the industry for more than three decades;
2. Identify the two key problems that must be solved before we unleash long overdue seamless digital and clinical innovations to improve patient safety, clinical quality, and affordability;
3. Present a viable path forward that follows the order of operations that led to solving similar challenges in banking and the internet; and
4. Outline how CMS can support this open-sourced approach that will lay the critical foundation needed to finally solve healthcare's data problems.

Intermountain is not immune to the data challenges plaguing the rest of the industry. However, unlike other health systems or other interested stakeholders, we are uniquely positioned to lead the industry toward a viable solution to healthcare's data dilemma. We are working with partners to develop an open-sourced approach that would lay the groundwork for fulfilling the elusive dream of facilitating the safe, secure, and unfettered sharing of healthcare data that will drastically improve patient safety, access, care quality, affordability, and the overall patient experience.

Unlike other stakeholders you are likely to hear from, we do not want to *own* the solution we are proposing. We believe patient data or the free flow of it is not a commodity to be owned or controlled by anyone except the patient. This is the crucial promise we make to CMS and all the patients we serve. Our promise is foundational to why we believe this transparent, open-source approach will succeed where all other proprietary approaches have failed.

We are asking CMS and the Trump Administration for their support in laying the groundwork needed to create a seamless, open-sourced digital infrastructure that will empower the nation's innovators to fundamentally re-imagine a modern, safer, more secure, and more affordable healthcare delivery system.

Tripping Up by Forgetting to Take the Essential First Step

For more than three decades, companies have made countless promises to solve healthcare's data

challenges — yet none have delivered a truly comprehensive, scalable solution. Why? Because most *interoperability* efforts in healthcare start at second base: building pathways for data to move between disparate systems. But most of these initiatives have skipped a critical first step.

We urge CMS to help take that foundational first step — or, at the very least, ensure it is no longer neglected — by leaning in and supporting non-profit hospitals and others committed to a truly open, standards-based approach.

What is this fundamental first step?

We first need a common language and an interpretive model that enables data to be consistently shared, understood, and used — across all systems. Without this shared foundation, true digital and clinical innovation simply cannot happen. Systems must agree on that common language and build a shared interpretive framework before interoperability can even begin.

A few organizations have made attempts to take this step. But most approach the problem with a desire to push their own proprietary data models, control the transaction layers, define the data language, and — ultimately — own patient data. They advocate for *free-flowing* data, but only if health systems (or even patients) pay the toll and play by their rules. That's when critical clinical and transactional data becomes hostage to a handful of market-dominant players.

If the baseline data protocols, data language, and data-sharing agreements are all proprietary, then we have created the perfect recipe not for solving interoperability, but for perpetuating its failure. Today's digital healthcare infrastructure is not accidentally fragmented, costly, and ineffective — it was built that way.

A Model for Healthcare to Follow

To see the path healthcare must take, we must look to how digital banking evolved. For decades, accessing your own money meant going to a physical bank — secure, but slow and inconvenient. As demand grew for easier access to personal finances, the fintech industry responded — not by creating one-off solutions, but by collaboratively establishing open banking APIs.

These open-source APIs allowed banks to speak the same language, follow shared rules, and operate with common protocols. That foundation enabled true interoperability. Once in place, it unleashed innovation: ATMs gave people 24/7 access to cash, and mobile platforms like PayPal and Venmo transformed how money moves. This worked because banking got the order of operations right — build shared foundations first, then compete on services. Healthcare must do the same.

But there's a key challenge healthcare faces that banking didn't: language. In finance, a dollar is always a dollar. In healthcare, even something as basic as "blood sugar" might be recorded as *blood glucose*, *glucose*, *dextrose* or *glycemia* — depending on the system. This lack of a common clinical language forces each system to interpret the data on its own, leading to miscommunication, wasted effort, and even dangerous errors.

Part of the problem is that healthcare has focused too much on syntactic standards — which define how data is formatted (like JSON or XML) — without addressing semantic understanding. Syntax alone

doesn't ensure systems interpret data the same way. For example, a code for "Type 2 Diabetes" might mean one thing in a clinical record, something slightly different in a payer database, and nothing at all in a consumer app — unless everyone agrees on the underlying concept.

In short, healthcare has tried to move data before agreeing on what that data means. Until we build a shared, open, semantic foundation, real interoperability will remain out of reach.

Why No One Should Own the Foundational Rules

No single company owns open banking APIs — and that's exactly why they worked. By creating a shared, open framework, the financial sector unlocked the free flow of capital at the tap of a thumb.

Similarly, no one owns the HTTP protocols that power the internet. Its foundational architecture was intentionally designed to be open and decentralized, enabling global connectivity and sparking waves of innovation. The explosion of web design, online communication, and e-commerce was only possible because everyone agreed on how to connect and exchange information. Open protocols set the rules of engagement — and then let competition thrive. That is how consumers gained more choice, lower costs, and greater convenience.

In U.S. healthcare, we have failed to challenge a status quo built on closed, proprietary data platforms, where individual corporations control access — and patients have little control over their most personal data. To make true interoperability a reality, no one should own the protocols, agreements, or medical terminology that enable data exchange. These must be open source and accessible to all.

Once this shared foundation is in place — as it was in banking and on the web — the layer above becomes fertile ground for innovation, where free-market competition can flourish, and the best solutions rise to the top.

How It Benefits Patients, Providers, and the Future of AI in Healthcare

As the U.S. braces for a nationwide shortage of doctors and nurses — projected by every major workforce model — technology must step in to help close critical gaps in care delivery. AI and digital tools can support providers, streamline decision-making, and improve patient outcomes. But that promise will only be realized if these tools can work across systems, not just within a single hospital or vendor platform.

Today, data is often siloed and interpreted differently by each system. When clinical information is exchanged without a shared language or standard, it is frequently misread — leading to delays, duplications, and dangerous mistakes. In fact, preventable medical errors already claim more than 250,000 lives annually in the U.S., many caused by basic misinterpretation of patient data.

To unlock the full potential of AI in healthcare, we need more than structured data — we need shared understanding. AI systems require consistent, standardized inputs to generate accurate, safe, and scalable outputs. That means all providers must be speaking the same language, using the same terminology, and operating under common data-sharing agreements.

Without this open, semantic foundation, digital innovation of any kind, and AI specifically, will remain fragmented and incapable of scaling — helping in narrow cases, but failing to transform the system as

a whole. With it, we can lower costs, reduce errors, expand access, and finally deliver on the promise of intelligent, more consistent, data-driven care.

The Details: A Better Path Forward Begins with Taking the First Step

It is time to build an open-source platform that lays the foundation for true healthcare data interoperability — one designed to drive widespread industry adoption and collaboration. This will better serve patients by reducing preventable medical errors, lowering costs, and significantly improving the overall patient experience.

This foundational solution will:

- Be governed by a non-profit, open-source, transparent, and multi-stakeholder community;
- Ingest clinical and operational data from diverse EHRs, ERPs, and other systems;
- Normalize and translate data into a common semantic model;
- Leverage open terminologies such as SNOMED CT, LOINC, RxNorm, ICD-10, and UCUM;
- Provide APIs (e.g., FHIR) for real-time or batch access to harmonized data;
- Empower startups, researchers, governments, and clinicians to build innovative solutions on top of it; and
- Dramatically reduce the cost and friction associated with healthcare interoperability.

Building on the Work Already in Progress

There has been important progress in healthcare data interoperability — but the current efforts still fall short of delivering a truly seamless, scalable solution. The root of the problem is this: we need both syntactic and semantic interoperability, and most current initiatives focus on one at the expense of the other.

Syntactic standards define *how* data is structured and transmitted (the "technical rails"), while semantic standards define *what* the data actually means (the "clinical language"). In healthcare, both are essential. Unlike fintech — where exchanging a dollar is relatively straightforward — healthcare data is far more complex and nuanced. Clinical accuracy depends on consistent meaning, not just consistent format.

To succeed, we must integrate and build upon the strengths of the tools and standards already in play:

- HL7 FHIR – for modern API standards and structured resource definitions
- openEHR – for clinically robust and longitudinal data models
- OMOP CDM (via OHDSI) – for harmonized observational and research-ready data
- Open-source tools like Mirth Connect, HAPI FHIR, and Smile CDR – for connectivity and implementation infrastructure.
- SNOMED CT, LOINC, UCUM, and RxNorm – for universally recognized clinical and measurement terminology

Each of these plays a key role — but none alone solves the *full* interoperability challenge. What is missing is the unifying open-source initiative that brings these components together in a coordinated,

accessible, and scalable way. Only by aligning both the technical structure *and* the clinical meaning of data can we truly unlock healthcare's digital potential.

Fundamentally Open-sourced

A platform this foundational — one that will underpin clinical and digital innovation across the healthcare system — must be *open source* to ensure transparency, trust, and broad adoption. Proprietary approaches have repeatedly failed to scale. To succeed, this initiative must be guided by public interest and designed for collaboration.

We propose a national, open-source semantic interoperability framework, governed by a public-private consortium with strong CMS support, in partnership with leading non-profit health systems and informatics experts. This model ensures long-term sustainability, neutrality, and alignment with national healthcare goals.

Key features include:

- A FHIR-based core data model with real-time ingestion, normalization, and access;
- Integration of standard clinical terminologies, including SNOMED CT, LOINC, RxNorm, ICD-10, and UCUM;
- Plug-and-play connectors for major EHRs, ERPs, and other data systems to reduce onboarding friction; and
- CMS-specific modules for electronic clinical quality measures (eCQMs), claims enrichment, and capturing social determinants of health (SDoH).

This open initiative will accelerate innovation, enable scalable interoperability, and empower a wide ecosystem — from startups and researchers to hospitals and government agencies — to build better, safer, and more affordable healthcare solutions.

Who Should Be Involved

By design, an open-source solution invites broad, cross-sector collaboration. Health systems, payers, clinical societies, EHR vendors, startups, and government agencies have already played a role in shaping the early foundation. As the initiative gains momentum, we anticipate even deeper engagement from a growing ecosystem of stakeholders — including researchers, patient advocacy groups, public health agencies, and technology innovators. Comprehensive, transparent governance will ensure all voices are heard and the public interest is prioritized.

The Benefits for CMS & US Healthcare

Establishing an open-source semantic and syntactic data standard offers CMS a powerful opportunity to drive systemic improvements in cost, quality, access to care, and innovation — while also simplifying regulatory execution and compliance, across the US health system.

Key benefits include:

1. Regulatory Efficiency

Streamline adherence to ONC and CMS rules (e.g., USCDI, TEFCA, CMS Interoperability and Prior Authorization rules) through a shared, open-source infrastructure. Reduce the burden on both agencies and providers by aligning on a consistent, standards-based foundation.

2. Cost Containment

Significantly lower costs associated with bespoke interfaces, data mapping, and one-off integrations across Medicare and Medicaid systems. Open, reusable components reduce vendor lock-in and free up resources for higher-value care delivery and oversight.

3. A Framework to Advance Delivery & Outcomes for Patients

Enable consistent, structured integration of Social Determinants of Health (SDoH) data across multiple care settings, especially among safety-net providers. A common semantic foundation allows CMS to better monitor, address, and fund more consistent health interventions nationwide.

4. Innovation Enablement

Unlock a broad ecosystem of FHIR-native applications and more — from AI-powered decision support tools and agents to advanced population health analytics. Open standards lower the barrier to entry for innovators and researchers, especially those developing solutions for value-based care models.

5. Quality and Payment Alignment

Improve the accuracy, reliability, and interpretability of electronic clinical quality measures (eCQMs) and alternative payment model metrics. Standardized semantics ensure CMS can trust the data used to evaluate provider performance, drive value-based reimbursements, and monitor outcomes.

6. AI Acceleration at Scale

AI tools are ready - the data is not. This will lay the essential groundwork for safe, scalable, and clinically effective use of AI across the healthcare system. A shared, computable language enables AI tools to interpret and act on *trusted* data accurately across organizations, care settings, and populations — avoiding the risks of misaligned terminology, data silos, or incomplete data. With consistent semantics and structure, CMS can help ensure that AI tools are accessible, auditable, and aligned with public health priorities.

What's Next

We are already taking the critical first step— but we know true transformation will not happen in isolation. We invite CMS to walk this path with us. Together, with our partners across the healthcare ecosystem, we are laying the foundation for an open, interoperable, and innovation-ready future.

As CMS considers the next best moves to advance data interoperability, we welcome the opportunity to brief your teams on our progress, collaborative work currently in motion, and the broader vision we're driving toward - one that fully aligns with CMS's goals of better care, smarter spending, and a healthier population.

We are moving fast - and with your partnership we can move even faster. We urge CMS and the Trump Administration to collaborate with us in developing an open-source standard that can serve as the backbone of a modern, interoperable healthcare system at scale. Your engagement will inspire broader participation and catalyze the innovation needed to build healthcare's digital infrastructure of the future.

Let's build the foundation for the future of American healthcare - together.