



Client Overview

- Leading global health care diagnostics and life sciences company
- Over 100 million patient encounters/year
- Millions of lab tests/week

Client patient engagement strategy:

- **Patient portal** (with dedicated mobile app) patients can view lab results, check billing information, expedite booking and check-in via QR code.
- **Partnerships with retail pharmacies** greatly expand the number of locations where patients can access client services.
- **Integration with Apple Health** lets patients retrieve lab results and display them alongside other provider data in the iPhone Health app, giving patients a more holistic view of their health.

Leading Diagnostics Company Uses Smile CDR to Accelerate SMART on FHIR Integration with Apple Health

Laboratory test results are critical to both diagnostic and therapeutic decision making. They're also critical to patients, as better informed patients lead to better conversations with clinicians.

When Apple introduced its Health Records feature in 2018, this leading diagnostics company saw an opportunity. By enabling data sharing with Apple, they could let patients retrieve and view lab results in the iPhone Health app. Giving patients more choice over how they access critical information deepens engagement and provides differentiation from competitors. It also establishes a touch point for strengthening client relationships and boosting retention.

After evaluating their options, their development team knew they were capable of building an integration solution themselves. They also knew that a custom build would absorb time and resources while saddling them with long term support costs.

Instead, they used Smile CDR to achieve integration in less than **6 months** using **65-75% fewer developers** while reducing future maintenance costs.

The client's starting position was similar to many other healthcare organizations:

- They had a patient portal that users could sign into to view clinical data.



- All clinical data was stored in a database that did not support **Fast Healthcare Interoperability Resources (FHIR)** APIs.

The Challenge

For patient data to be accessed by the Apple Health app, the client's database would need to:

- Receive FHIR queries from the Health app, surface the appropriate data and then return the queried data to the Health app using the FHIR specification.
- Support login and data access authorization models through the **Substitutable Medical Applications Reusable Technologies (SMART)** profile of OpenID Connect (an open standard for providing authentication on top of OAuth2-enabled authorization).

Solution Design

The client saw that since Apple's developer toolkit is FHIR-based, engaging a vendor with a role in standards governance would be a significant advantage. They ultimately chose Smile CDR, the creators and maintainers of the visionary FHIR JAVA reference implementation known as the HAPI FHIR project and members of the core FHIR team.

Smile CDR worked with them to implement a facade on top of the database that would:

- Take FHIR queries and talk to the non-FHIR database, then return the results to the Apple health application using FHIR.
- Support the SMART profile of OpenID connect.

The client successfully leveraged Smile CDR's FHIR-based platform and expertise to cut implementation time and bend the FHIR learning curve in their favor.

Building on Smile CDR, whose modules already provided two-thirds of the necessary features, reduced coding work for their development team. They also ensured continuing compatibility with the FHIR standard without increasing overhead since Smile CDR is versioned to support FHIR updates. For the client, this means less time worrying about evolving standards and more time focusing on their core competencies.



Building with Smile CDR meant they could take advantage of upfront FHIR training provided by a dedicated Smile CDR senior developer, who also remained allocated to the project until completion to provide continual feedback, advice and support. The client could dodge common FHIR pain points with confidence knowing they had experts in their corner.

Benefits Achieved



✓ The client's **patients** are able to **access, download** and **view** their lab results in the Health app.



✓ Solution is **future-proof** and **versioned** to support the newest updates in the FHIR spec.



✓ Patients can **grant third-party apps of their choice permission** to access clinical information from the client (and other Apple Health-compliant organizations) to provide **additional tools** for the **management** and **interpretation** of their health data.



✓ The **entire integration process**, from kickoff to launch, was achieved in less than **6 months** using **1/3** to **1/4** the number of developers normally required for this kind of integration.



✓ **Ongoing relationship** with Smile CDR means they have **continuous support** not just for health records on iPhone but for the conception and design of **future** interoperability projects.

Next Steps

The client and Smile CDR will continue working together to find new FHIR-based innovations that provide more value and better outcomes for their patients.



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