

The connection was the easy part

What we found plugging an AI reasoning engine into Epic, Oracle Health and MEDITECH. Written for people who do not work in interfaces.

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The short version

1. **We connected to all three.** Epic, Oracle Health and MEDITECH, live, over the public internet, from a laptop, with no relationship with any hospital.
2. **Getting in was three completely different jobs.** One took under an hour. One took a day. One waited on a human being to answer an email, and still needs a person sitting at a browser every single time it runs.
3. **Epic hands you a key, lists in writing which doors it opens, then does not open two of them.** And it does not say why. The refusal arrives with nothing attached to it at all.
4. **The real surprise was not the plumbing. It was the data.** A body temperature of 45 degrees Celsius. A pulse of 1. A blood pressure of 1 over 1. An adult recorded at 1.1 kilograms. One patient weighed eight times in a single day, from 45 kg to 89 kg.
5. **So we split the demonstration in two.** One runs on a patient we built and checked ourselves. One runs on whatever a real records system actually sends. Both end in the same place: a short recommendation in front of a clinician, inside the software they already use.

1. WHAT WE WERE ACTUALLY TESTING

AI MedAgent reads a patient record and reasons about medication risk before it turns into harm. To do that it needs the record. So the first question was not a clever one. It was the plumbing question.

Can an outside program get a real patient record out of a real hospital records system, over the internet, without a special deal with the hospital?

Five years ago the honest answer was no. Today it is yes, and the reason is a federal rule.

2. THE RULE, AND WHAT IT DOES NOT DO

The rule is **45 CFR 170.315(g)(10)**, the "standardized API for patient and population services" criterion in the 21st Century Cures Act Final Rule. Every certified electronic health record had to meet it by **31 December 2022**. Over 95 percent of certified developers did. By February 2023 the federal office reported 646 certified product listings from 411 developers.

In plain terms: every certified records system in the country now has to speak one common language, over the internet, at a published address. That is why this work is possible at all, and it is a genuine achievement.

Here is the part that gets overstated, including by people who should know better.

- **The rule does not give an outside company the right to read a hospital's charts.** It requires the vendor to build a door of a specified shape. Who gets a key is still the hospital's decision, governed by an agreement, not by the rule.

- **The single patient path is built around a human granting permission.** A patient approving an app, or a clinician launching one from inside their own session. Someone is present and someone consents.
- **There is an unattended path, but it is for bulk export of a whole population,** not for reading one chart at a time whenever you feel like it.

So the mandate put a standard front door on every certified product in the United States. It did not hand anybody a key. Any claim that federal policy grants access to patient data is wrong, and it is the kind of wrong that ends a conversation with a hospital chief information officer.

3. THREE FRONT DOORS

Same rule, three vendors, three completely different experiences. The difference is not technical.

VENDOR	WHAT IT TOOK TO GET IN	TIME TO FIRST READ	HUMAN NEEDED?
Oracle Health open sandbox	Nothing. No account, no key, no agreement. A plain request over the internet returns patient data.	Under an hour	No
Epic Epic on FHIR sandbox	Self service registration. Publish a public key, sign each request with the matching private one. No human in the loop.	Same day	No
MEDITECH Greenfield Workspace	Registration, a welcome packet from their team, a signed license agreement, a Google identity, then a client ID and secret.	As long as a person takes	Yes, at every single run

Measured, not quoted from documentation. MEDITECH offers only the browser based sign in path in this environment, so no unattended script can authenticate against it. Every run needs a person to click.

One caveat, stated up front. All three of these are sandboxes. A sandbox is a practice environment with invented patients in it. Nothing in this document is a statement about any vendor's certified production system, and nothing here is a compliance finding against anybody. It is a report of what three published test environments actually returned to one outside developer.

4. THE REFUSAL YOU CANNOT SEE

This is the finding that a technical reader will care about, so let me put it in terms that do not require a technical reader.

Imagine a hotel keycard. Printed on the card, in writing, is the list of rooms it opens. The list includes room 150. You walk to room 150 and put the card in. **The door does not open. There is no beep. No red light. No message on the little screen. Nothing happens at all.** You go back to the front desk and the documentation still says your card opens room 150.

That is what Epic did. We asked Epic for permission to read the problem list and the allergy list. Epic granted both, in writing, in the credential it issued. We then asked for the problem list, and the answer came back empty. Not an error message. Not a short explanation. Zero bytes.

Why an empty refusal is worse than a rude one. A program that reads the contents of the reply, rather than the status code attached to it, reads nothing at all and concludes that this patient has no allergies. That is not a theoretical concern for a medication safety tool. That is the exact failure mode the tool exists to prevent.

We eventually found out why, and not from the documentation. A slightly different request to a different address returned one sentence: "Combination of parameters is not valid for any authorized sub-resource." Epic makes its access decision at a level underneath the permission list it printed on the key. Four separate probes were needed to establish that. It is not published anywhere we could find, and anyone building against Epic should know it in month one rather than month nine.

We got this wrong in public first, and it is worth saying so

Our own site said Epic refused four things. It refused two. Of the other two, we had never asked permission in the first place, so refusing them was Epic behaving correctly. A reader on the HL7 developer forum asked a single sharp question that exposed it. We fixed it the same day and left a dated correction on the page. Two is the right number, and two is still the finding, because those two are the problem list and the allergy list, which are precisely the two a medication safety check needs most.

The other two vendors served both without argument. Oracle returned them without even asking us to identify ourselves. MEDITECH returned the entire chart, 321 items, in a single request, including the allergy that mattered: penicillin, high criticality, anaphylaxis.

5. THE PART WE DID NOT EXPECT

We assumed the hard part was getting in. It was not. The hard part is what comes out.

The engine checks every value it receives against what is **possible in a living human being**. Not what is normal. What is possible. Here is what it found in the vendors' own official demonstration patients, in the records they publish specifically so developers can practice on them.

SOURCE	IMPOSSIBLE IN ANY LIVING PERSON	IMPOSSIBLE FOR THIS PATIENT, ON THE EVIDENCE OF THEIR OWN CHART
Oracle Health sandbox	49	37
Epic sandbox	13	11
MEDITECH Greenfield	0	0
Synthea open synthetic generator	53 laboratory results	not applicable

Counts produced by running the same integrity check over each record on 25 August 2026. The full output is reproducible from the published sandboxes.

What those numbers actually look like

- **A body temperature of 45 degrees Celsius.** That is 113 degrees Fahrenheit. Also one of 47.5, and, on a different day, 28.
- **A pulse of 1 beat per minute**, and the following day a blood pressure of 1 over 1.
- **An adult recorded at 1.1 kilograms.** Two and a half pounds. Recorded seven separate times.

- **One patient weighed eight times on a single day:** 51.7, 45.4, 77.1, 63.5, 88.9, 48.1, 57.2 and 47.6 kilograms.
- **A patient whose height is consistently 175 cm recorded at 220 cm,** then 200, then 197.

None of these were flagged when they were entered. All of them come back through the certified interface with no warning attached. And every one of them would land inside an average, a trend line, or a chart that a human being looks at.

MEDITECH was clean on that test, and its problem was a quieter one

I am not going to lump all three together, because the measurement does not support it. MEDITECH's chart contained no impossible value. Its problem was different, and in one respect worse, because it is invisible.

MEDITECH filed three completely different laboratory tests under one identical code: **sodium, chloride and anion gap**. Every individual value is clinically normal. A program doing exactly what the specification instructs it to do groups them into a single series and draws a trend line through three unrelated measurements. Nothing looks wrong until they are grouped, and checking values one at a time cannot see it.

The same code was also labeled as a LOINC code, which is the standard vocabulary for laboratory tests. It is not one. LOINC codes look like 2951-2. This one is IMO0001, which is the format of a different, separately registered vocabulary that HL7 maintains under its own name.

The headline finding of this whole exercise. Data quality is not one vendor's problem. It appeared in every source we read, including the open synthetic generator that researchers use precisely because it is supposed to be clean. The certification test asks whether the door opens. It does not ask whether what comes through the door is believable.

6. WHY WE SPLIT THE DEMONSTRATION IN TWO

If one demonstration has to prove both "the reasoning is sound" and "we can read a real chart," it proves neither. A skeptic watching a recommendation calculated from a pulse of 1 does not pause to consider whether the reasoning was any good. They close the tab.

So there are now two, and they are deliberately different in exactly one respect: where the patient comes from.

Demonstration one: the reasoning

A patient we built and validated ourselves, running as a live encounter over time. The record passes the same integrity checks described above with nothing outstanding. Nothing about the patient is real. Everything about the reasoning is: it runs live in the cloud, against current federal drug safety data, while you watch, and it pauses the clock when it finds something.

Demonstration two: the connection

A live chart pulled from Epic, Oracle Health or MEDITECH over the internet at the moment you press the button. Whatever the vendor sends is what the engine gets, the 1.1 kilogram adult included. It reasons anyway. And then it writes down, in the output, every check it could not perform and the reason it could not perform it.

That last sentence is the entire design philosophy, so it is worth reading twice. The engine reports the checks it could not perform. A tool that quietly skips a safety check it was unable to run is more dangerous than no tool at all, because the silence reads as a clean result.

7. WHERE THE ANSWER GOES

Both demonstrations end in the same place, and it is not a report and not a dashboard. It is a card: a few lines of text that appear inside the software the clinician is already using, at the moment they are drafting the order.

This is a published standard called CDS Hooks, and it is the same mechanism Epic, Oracle Health and MEDITECH already use for their own alerts. We are not asking anyone to open a new application, learn a new screen, or leave their workflow. The output was designed to arrive where the decision is being made, and nowhere else.

Which brings up the thing every clinician reading this is already thinking. **Clinicians dismiss the overwhelming majority of the alerts they are shown.** Anything that adds to that pile is worse than nothing. So the discipline throughout is the same: show the shape of the problem, give the count, cite enough that someone can check it, then stop talking.

8. WHAT THIS MEANS, DEPENDING ON WHO YOU ARE

IF YOU ARE	THE QUESTION TO ASK
Buying a system	Ask your vendor for the sub-resource authorization rules in writing, not the permission list. They are different documents and only one of them is published. Then ask what share of the values already in your system would fail a plausibility check. As far as we can tell nobody has ever been asked this. The answer is not zero.
Building on one	Budget for data quality, not for connectivity. Connectivity is a solved problem now, and it will take you less time than you think. Assume every field can be wrong, and design so the tool declares which checks it skipped rather than quietly skipping them.
Writing the rules	The mandate required the door and the door got built, on time, at a scale that deserves more credit than it gets. It did not require that what comes through the door be believable. No part of the certification test asks whether a temperature is physically possible.

HOW TO CHECK ANY OF THIS

The Epic and Oracle sandboxes are open to anyone. Register and you will see the same values we did. The two live demonstrations are at aimedagent.net. The technical datasheet, with every count, every refusal and every check that could not be run, is at aimedagent.net/ehr-datasheet.html.

Everything above was measured. Nothing was quoted from a vendor's documentation and then repeated as though it were a result. Where we have been wrong we have said so in this document, and corrected it in public on the date we found out.

TRANSLATION TABLE

WHAT YOU WILL HEAR	WHAT IT MEANS
FHIR	The common language every certified records system was required to learn. Pronounced "fire."
403	The server said no. It is not obliged to say why, and in the case above it did not.
Zero-byte body	The refusal arrived with nothing attached. Not a short explanation. None.
Scope	The list of things your key is supposed to open, printed on the key.
Sub-resource authorization	A second, finer list underneath the first one, which decides what actually opens. Epic uses it. It is not published.
Sandbox	A practice environment full of invented patients. Not a hospital.
CDS Hooks	The published standard for putting a short recommendation in front of a clinician inside the software they already use.
Card	The recommendation itself. A few lines, a severity, and a link to the evidence.
LOINC	The standard vocabulary for naming laboratory tests, so that "sodium" means the same thing in every hospital.
\$everything	One request that returns the entire chart instead of seventeen separate ones. MEDITECH offered it. Neither of the other two did.

SOURCES

- 45 CFR 170.315(g)(10), Standardized API for patient and population services, test method and requirements. healthit.gov/test-method/standardized-api-patient-and-population-services
- ONC Health IT Buzz, "Achieving a Major Milestone: Health IT Developers Certify to Cures Update," 10 February 2023, for the 31 December 2022 deadline and the 646 listings from 411 developers. healthit.gov/buzz-blog/health-it/achieving-a-major-milestone-health-it-developers-certify-to-cures-update
- ONC Health IT Certification Program API Resource Guide, g10 criterion, for the single patient and multi patient requirements. onc-healthit.github.io/api-resource-guide/g10-criterion/
- HL7 Terminology, Intelligent Medical Objects code system, which is registered separately from LOINC. terminology.hl7.org/5.1.0/CodeSystem-IMO.html
- CDS Hooks specification. cds-hooks.hl7.org
- AI MedAgent EHR integration datasheet, with the underlying counts. aimedagent.net/ehr-datasheet.html

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