Reducing Patient Anxiety and Increasing Clarity in MyChart's Test Results Experience

MyChart's Test Results tab serves over 150 million patients, but its interface was designed for clinicians, not the people reading it at 11pm on a Friday wondering if "Abnormal" means they're dying. Through secondary user research across 5 platforms, peer-reviewed clinical studies, and analysis of Epic's existing AI capabilities, I identified 5 core UX failures in how lab results are presented and designed a solution that extends Epic's own AI tools into the place where patient anxiety actually starts.

Role: UX Designer (unsolicited case study) **Timeline:** April 2026 **Tools:** Figma, MyChart (as a real patient), secondary research **Focus Areas:** Information architecture, healthcare UX, AI-assisted interfaces, accessibility

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The Problem

In 2021, the 21st Century Cures Act began requiring healthcare providers to release test results to patients immediately, often before a doctor has even seen them. MyChart, Epic's patient portal, became the delivery mechanism for raw clinical data that was never designed to be read by patients without medical training.

The result: patients see things like "COMPREHENSIVE METABOLIC PANEL — Abnormal" with no explanation, no doctor's note preview, and no indication of whether anyone is even looking at their results. They Google. They panic. They screenshot their results and upload them to ChatGPT. They message their doctor at 2am asking what "AST: 64 High" means. Or they simply avoid the portal entirely, one study participant called it a "folder of anxiety."

The interface didn't evolve to meet its new role. This case study redesigns the test results experience to reduce patient anxiety, improve comprehension, and extend Epic's existing AI capabilities into the place where they're needed most.

User Personas

These personas are composites built directly from the complaints, reviews, and patient accounts collected in the research phase. Each persona's behavior and frustrations map to specific documented experiences.

Persona 1: Margaret, 68 — The Anxious Patient

Background: Retired teacher. Has hypertension, high cholesterol, and pre-diabetes. Gets bloodwork every 3 months. Uses an iPad and is moderately comfortable with technology but not confident interpreting medical information.

Behavior: Checks MyChart the moment she gets a notification. Sees "Abnormal" and immediately calls her daughter (a nurse) to ask what it means. Has Googled symptoms from her results and convinced herself she had kidney failure (she didn't).

Needs: Plain-language explanations. Reassurance when results are slightly out of range but not clinically concerning. A clear signal that her doctor has seen the results and isn't worried.

Frustration: "I see a red flag that says Abnormal and my heart drops. Then I click in and my doctor says it's nothing. Why couldn't they just tell me that on the first screen?"

Grounded in: Complaint 8 — a real patient whose neighbor received biopsy results a week before her doctor appointment and spent that week in agony. The Mayo Clinic Connect user (Complaint 7) who spent two hours with a medical dictionary trying to decode results. And the patient interview (Complaint 6) where a nonuser described MyChart as a "folder of anxiety" — representing the patients who avoid the portal entirely because of experiences like these.

Persona 2: Marcus, 34 — The Data-Literate Patient

Background: Software engineer. Generally healthy. Gets annual physicals. Comfortable with data, dashboards, and technology. Wants to track trends in his bloodwork over time.

Behavior: Reads every result, Googles the ones he doesn't understand, and brings a list of questions to his next appointment. Has uploaded results to ChatGPT to get a plain-language summary. Wishes he could see his cholesterol trending over multiple blood draws in one view.

Needs: Results organized by type (not just date) so he can track trends. Enough context to understand what's normal variation vs. what needs attention. The ability to flag results he wants to discuss with his doctor.

Frustration: "I had 12 tests from one blood draw and I have to click into each one individually. There's no way to see the big picture or compare it to last year."

Grounded in: Complaint 1 — the Capterra reviewer who had 24 tests and had to open 24 separate pages with no way to mark results for discussion. Complaint 3 — the G2 reviewer who wanted results organized by type so they could track trends over time, not just by date. And Study C — the documented behavior of patients (especially under 30) screenshotting lab results and uploading them to AI tools because the portal doesn't give them the synthesis they want.

Persona 3: Rosa, 52 — The Low Health Literacy Patient

Background: Works in food service. English is her second language. Has limited experience with medical terminology. Relies on her adult children to help navigate healthcare systems. Uses a smartphone but not a computer.

Needs: Visual cues that don't rely on medical jargon. Clear, simple language. An obvious path to get help if she doesn't understand something.

Frustration: "I don't know what any of these words mean. I just want to know if I'm okay."

Grounded in: Complaint 5 — the healthcare provider who observed that "sometimes it is not appropriate for them to see results without knowing how to interpret these results," and the reviewer who noted the interface is "confusing/alarming to non-tech-savvy users." Study D — the University of Pittsburgh finding that among patients with low health literacy, confusion about the meaning of results is common. And Complaint 4 — the G2 reviewer who described being left to interpret results alone, leading to "poor assumptions or unwarranted worry."

Research

Phase 1: Secondary User Research — Individual Complaints

I collected real user feedback from 5 platforms to identify recurring pain points specific to the test results experience. These are unedited quotes from real patients.

Complaint 1: "I had 24 tests and have to open 24 separate pages"

> "I recently had 24 tests done and to see them I have to open 24 separate pages and scroll down the page to see the results. There is no way for me to mark the tests that I want to speak to my doctor about or to easily return to and review."

Platform: Capterra Source: https://www.capterra.com/p/128410/MyChartsOnline/reviews/

Complaint 2: "Why can't I see all results from the same date in one place?"

> "MyChart is not user friendly at all. Why can't I see all test results from the same test date all in one place, instead of clicking on each individual result? VERY frustrating app."

Platform: Trustpilot Source: https://www.trustpilot.com/review/www.mychart.org

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Complaint 3: "Test results are organized wrong"

> "The organization of the test results is confusing. I wish that they would be organized by type of test so that you could see your results over time for a specific test. Instead, they are organized chronologically, which can make it difficult to find."

Platform: G2 Source: https://www.g2.com/products/mychart/reviews

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Complaint 4: "I'm left to interpret results myself"

> "I'll sometimes get lab results, and be left to interpret myself, as they haven't been reviewed and explained by a doctor yet. This can lead to poor assumptions or cause unwarranted worry or concern if you don't know how to read them."

Platform: G2 Source: https://www.g2.com/products/mychart/reviews

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Complaint 5: "Confusing/alarming to non-tech-savvy users"

A patient reviewer noted the interface is "Could be confusing/alarming to non-tech savvy users," and separately a healthcare provider observed: "sometimes it is not appropriate for them to see results without knowing how to interpret these results."

Platforms: Capterra / G2 Sources:
https://www.capterra.com/p/128410/MyChartsOnline/reviews/ and
https://www.g2.com/products/mychartsonline/reviews

Complaint 6: "A folder of anxiety"

In a published research study, patients who chose not to use MyChart described the portal as a "folder of anxiety" because it doesn't contain context and next steps from a healthcare provider. One participant said: "When you're talking hypertension, cholesterol, thyroid — regular run-of-the-mill stuff — then fine. When you're talking about life-threatening and life-changing things, everything changes."

Platform: Published research (PMC) Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC11803326/

Complaint 7: "I spent two hours with a medical dictionary"

A user on Mayo Clinic Connect described how they and their partner "spent the last two hours with a second device set to a medical dictionary" looking up words and phrases, hoping their knowledge would "somehow translate to an understanding of what might be going on."

Platform: Mayo Clinic Connect Source: https://connect.mayoclinic.org/discussion/the-patient-portal-help-or-hindrance/

Complaint 8: Biopsy results posted a week before the doctor called

A user described their neighbor calling to ask "what does this word mean" — the neighbor had a large mass removed and biopsy results were posted a week before her phone appointment with the doctor. The user noted "this would have caused this poor woman agony for a week."

Platform: Mayo Clinic Connect Source: https://connect.mayoclinic.org/discussion/the-patient-portal-help-or-hindrance/

Complaint 9: "Alarm-bell emojis and meters from green to red"

A woman going through fertility treatment wrote about how MyChart's alarm-bell emojis and lab-result meters ranging from green to red added anxiety to an already anxious process. She described discovering an unannounced diagnosis ("anemic") in her Conditions tab with no context, and said some of the harshest news she'd ever received arrived as "You have a new message in MyChart."

Platform: Slate Source: https://slate.com/technology/2025/01/mychart-patient-portal-fertility-journey-pregnancy-anxiety.html

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Phase 2: Supporting Academic & Clinical Evidence

A. Two-thirds of patients receive results with no explanation. A study found nearly two-thirds of 95 patients who obtained test results via a portal received no explanatory information. Nearly half then searched online, and many with abnormal results called their doctors. A University of Michigan researcher observed that results are often reported in the same form the doctor sees them, which patients find "literally meaningless." Source: https://www.physicianleaders.org/articles/the-problem-with-portals-and-instant-access-to-test-results

B. The "Abnormal" label causes documented emotional harm. A Cleveland Clinic-funded study found that concerns persist about releasing abnormal results online, noting that even normal results may cause confusion and stress due to difficulty with complex medical terminology. Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC8741580/

C. Patients are leaving the portal to use third-party AI. Patients increasingly screenshot MyChart lab results and upload them to ChatGPT, Claude, and Gemini. About 1 in 4 adults under 30 use AI for health information. This behavior is a direct signal that the interface is failing its primary job. Source: https://thepublicsradio.org/npr/lab-results-confusing-some-patients-use-ai-to-interpret-them-for-better-or-worse/

D. Portal use increases anxiety and doctor visits. A University of Pittsburgh study found that portal use may increase anxiety and lead to more doctor visits. Among patients with low health literacy, confusion about the meaning of results is common. Source: https://www.physicianleaders.org/articles/the-problem-with-portals-and-instant-access-to-test-results

E. Doctors are overwhelmed by "what does this mean?" messages. On physician forums, doctors describe being overwhelmed by patient messages about results, with inbox volume up 150-200% since the pandemic. One physician said they wanted to create a template response that says "please schedule an appointment to discuss your issues." Sources: https://forum.whitecoatinvestor.com/the-lounge/304699-my-nemesis-%E2%80%9C-mychart%E2%80%9D and https://forums.studentdoctor.net/threads/my-nemesis-mychart.1453741/

F. A health system literally warns patients not to check on Fridays. Reliant Medical Group advises patients to "consider NOT looking in MyChart on a Friday" because they can't contact their provider until Monday, leading to "a weekend filled with anxiety." When a health system has to tell patients *when* to use the app, the UX has failed. Source: https://reliantmedicalgroup.org/blog/2021/04/29/news-about-viewing-test-results-in-mychart-new-law-requires-results-to-be-released-to-patients-more-quickly/

G. Patient-centered interface design for test results is a studied problem. A PMC study explored patient-centered test result display design, finding that interfaces with visual ranges of lab values, nontechnical descriptions, and features to help patients interpret results were perceived as usable and fulfilled patient information needs. The study required 6 design iterations to reach a version patients found useful. Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC6078112/

Key Insights

Synthesizing across all 9 user complaints, 7 supporting articles, and my own experience as a MyChart patient, five core problems emerge:

#	Problem	Evidence
1	**The list page creates anxiety before patients click in.** "Abnormal" is a red badge with no context. Test names are clinical jargon. No preview of the doctor's note.	Complaints 4, 5, 6, 8, 9. Studies A, B, D.
2	**Results are individual items, not grouped experiences.** 24 tests = 24 pages. No visit-level summary. No way to flag results for discussion.	Complaints 1, 2, 3.
3	**Results arrive before the doctor reviews them.** No UI distinction between "doctor has seen this" and "just came in from the lab."	Complaints 4, 6, 8. Studies A, F.
4	**Patients don't understand what the numbers mean.** Raw clinical data designed for providers is shown to patients unchanged.	Complaints 5, 6, 7. Studies A, D, G.
5	**No clear next step after viewing results.** No contextual CTA. No timeline for when to expect a review. No guidance on urgency.	Complaints 4, 8. Study C (patients leaving to use AI).

Competitive Analysis

I examined how other patient portals and health platforms present lab results to identify specific design patterns MyChart is missing.

Kaiser Permanente App

Kaiser groups results by visit into collapsible panels — a single blood draw appears as one card (e.g., "Lab Results — Oct 15, 2025") rather than 12 individual line items. Tapping the card expands to show individual results. Each result shows the value, reference range, and a simple indicator. The key design pattern: **results are organized around the patient's experience of a visit, not the lab's output of individual tests.** This directly addresses Complaints 1 and 2 (patients frustrated by opening dozens of separate pages). However, Kaiser still uses clinical test names without plain-language subtitles, so the jargon problem (Complaints 5 and 7) persists.

NHS App (UK)

The NHS App uses a traffic-light color system — green for normal, amber for borderline, red for abnormal. Results include a brief contextual note from the ordering provider when available. The key design pattern: **color communicates severity before the patient reads any text.** However, this was criticized for being inaccessible to colorblind users and confusing for older adults who didn't understand the rating scale without text labels. After negative feedback, the NHS redesigned with larger text, simplified navigation, and added text-based status labels alongside color indicators — a lesson in not relying on color alone for meaning.

b.well (White-Label Platform)

b.well's Health Summary feature lets users generate a single condensed document that rolls up visit history, diagnoses, and lab results into a readable format. The key design pattern: **a synthesized narrative view that gives patients the big picture rather than asking them to assemble it from individual records.** This is closest to the AI-generated visit summary proposed in this case study, though b.well's version is static (generated on demand) rather than proactive (appearing automatically when results arrive).

One Medical (Now Part of Amazon)

One Medical's app presents results with a provider comment attached — the doctor's interpretation is displayed alongside the result by default, not as a separate message you have to find. The key design pattern: **provider interpretation and clinical data appear together, not in separate sections.** This is the most patient-centered approach in the market and the closest analog to what this case study proposes.

Where MyChart falls short:

MyChart actually does one thing better than most competitors — its visual range bars on individual result detail pages are clear and well-designed. What it lacks is the layer *above* that:

Design Pattern	Kaiser	NHS	b.well	One Medical	MyChart
Visit-level grouping	✓	✗	✓	✓	✗
Plain-language test names	✗	Partial	✓	✓	✗
Provider note visible on list page	✗	Partial	N/A	✓	✗
Color-coded severity indicators	✗	✓	✗	✗	Partial ("Abnormal" badge)
Provider review status	✗	✗	✗	✗	✗
AI-generated summary	✗	✗	Static	✗	Imaging only
Visual range bars	✗	✗	✗	✗	✓

The opportunity: MyChart could leapfrog every competitor by combining its existing strength (range bars) with visit-level grouping, provider-review status, and AI-generated summaries — none of which any competitor has fully implemented together.

Design Principles

Based on the research, I established four principles to guide the redesign:

1. Reassurance before data. The patient's first impression of any result set should be context, not clinical values. Lead with what the doctor said, not what the lab measured.

2. Group by experience, not by record. Patients don't think in individual lab tests — they think in visits. "My bloodwork from December" is a single experience, not 12 separate records.

3. Distinguish what's reviewed from what's raw. Patients need to know whether a doctor has seen their results. This is the difference between "I can read the doctor's interpretation" and "I'm alone with data I don't understand."

4. Meet patients where anxiety starts. AI assistance, plain-language explanations, and next-step guidance belong on the results page itself — not buried in a separate chatbot the patient has to find.

Proposed Solutions

- **Solution Set A: Information Architecture (No AI Required)**
- **A1. Visit-level grouping with summary cards** The core decision here was whether to group results by visit date (how patients think about their care) or by test type (how the data-literate patients in Complaint 3 want to track trends). I chose visit-level grouping as the default because the anxiety problem is more urgent than the tracking problem — Complaints 1, 2, 4, 6, and 8 all describe confusion rooted in not seeing the big picture of a single visit. A "view by test type" toggle could serve Marcus's use case without compromising the default experience for Margaret and Rosa, but it's a secondary view, not the primary one.
- Instead of 12 individual line items from one blood draw, results appear in a single collapsible visit card. The card header shows the date, panel name, result count, flag count, and provider review status. I surfaced the provider's note preview directly on the card — before the patient expands it — because Complaints 4 and 8 show that patients' worst anxiety comes from not knowing whether anyone has looked at their results. One Medical does something similar by attaching provider comments to results by default, but MyChart currently buries the note inside the detail page where patients only find it after they've already panicked.
- The tradeoff: grouping by visit means a patient tracking their cholesterol over 6 months has to open 6 cards instead of seeing a single trend line. That's a real cost, and it's why the "view by type" toggle matters — but it's the right default for the 150 million patients who aren't power users.
- **A2. Context-aware status badges replacing "Abnormal"** This was the most consequential decision in the redesign. The current red "Abnormal" badge is the single highest-anxiety element identified in the research (Complaints 4, 5, 6, 8, 9; Studies A, B, D). But I couldn't simply remove it — patients need to know when something is outside the expected range.
- The solution replaces a single binary label with three states that reflect what actually matters to a patient:
- When the doctor has reviewed and isn't concerned: "Reviewed — see provider's note." This leads with human reassurance, which is what Complaint 6 ("folder of anxiety") patients are actually looking for.
- When the doctor has reviewed and there's a plan: "Provider has a follow-up plan." This tells the patient that not only has someone seen it, something is being done — directly addressing Complaint 8 (biopsy results with no indication anyone was acting).
- When the doctor hasn't reviewed yet: "Pending provider review." This is the most important new state. It currently doesn't exist in MyChart, which means patients can't distinguish between "my doctor saw this and said nothing because it's fine" and "my

doctor hasn't looked at this yet." That ambiguity drives a huge volume of unnecessary messages (Study E).

- The alternative I considered was the NHS traffic-light approach (green/amber/red), but their own redesign history shows that color-only systems fail for accessibility and for patients who don't understand the scale without text. My badges use text-first with color as a secondary signal — and critically, they communicate provider status, not just clinical status. A result can be clinically flagged and still carry a reassuring badge if the doctor has reviewed it. That distinction is the core insight.
- **A3. Star/flag results for next appointment** Complaint 1 specifically describes a patient with 24 results and "no way for me to mark the tests that I want to speak to my doctor about." No competitor offers this. The design decision was whether to make the flag visible to the provider (so the doctor sees what the patient wants to discuss) or keep it patient-side only. I chose patient-side only for the initial version because surfacing flags to providers risks adding to inbox burden (Constraint C4) — but if testing shows patients want their flags shared, that's a natural expansion. Even as a patient-side feature, it gives users a sense of control over their own care experience, which research on patient empowerment consistently links to reduced anxiety.
- **Solution Set B: AI-Powered Interpretation Layer**
- Epic already has Emmie (a patient-facing AI chatbot), AI-generated plain-language summaries for imaging results, and Art (a clinician-facing AI used 16M+ times/month). This solution set extends those existing capabilities into lab results — the area where the research shows the most anxiety and the most patients leaving the portal for third-party AI tools (Study C).
- **B1. AI-generated visit-level summary** This is the centerpiece of the AI layer, and the decision that required the most careful scoping. The summary appears at the top of a visit card when bloodwork comes back:
- "Your Dec 30 blood panel came back mostly normal. Two liver markers (AST and Total Bilirubin) were slightly above the typical range. Your provider, Daniel Borezo, PA, left a note explaining that this is common and can fluctuate with diet. He ordered a follow-up in 1-2 weeks."
- The key design decision was whether the AI summary should exist independently or only appear when a provider's note is attached. I chose to allow it in both states, but with different behavior. When a provider's note exists, the summary synthesizes the clinical data and the provider's interpretation together — it's a bridge between the two, not a replacement for either. When no provider note exists yet (the "pending review" state), the summary is strictly factual: "12 results received. 10 within typical range. 2 flagged. Your provider has not yet reviewed these results." No interpretation, no reassurance, no language that could be mistaken for clinical judgment.
- This distinction matters because the highest-risk failure mode for an AI summary in healthcare is false reassurance (Constraint C1). If the AI says "nothing to worry about" and the result is clinically significant, that's a liability. The guardrail is that the summary never uses "normal" or "fine" — only "within typical range" — and always defers to the

provider's note when one exists. The summary supplements the doctor's interpretation; it never replaces it.

- The behavior this solution targets is documented and specific: Study C found that patients — especially those under 30 — are already screenshotting lab results and uploading them to ChatGPT for exactly this kind of synthesis. Building it into MyChart keeps patients in a HIPAA-compliant environment using AI that has access to their actual clinical context, rather than a general-purpose tool hallucinating from a screenshot.
- **B2. Contextual "What this means" on each result card** Alongside MyChart's existing range bar showing "AST: 64 — High," an AI-generated contextual note appears: "AST measures liver enzyme activity. A slightly elevated result is common and can be caused by exercise, alcohol, or certain medications. Your provider's note above addresses this specifically."
- I chose to tie each explanation back to the provider's note (when available) rather than standing alone because the goal is to funnel patients toward the doctor's interpretation, not away from it. The current "Learn more about COMPREHENSIVE METABOLIC PANEL" link in MyChart sends patients to a generic educational page — which is what Complaint 7 (two hours with a medical dictionary) looks like in practice. A contextual, result-specific explanation addresses the actual question the patient has ("what does MY number mean?") rather than the generic question ("what is this test?"). This follows the recognition over recall heuristic: instead of making patients remember or research what a test measures, the answer is right there in context.
- The tradeoff I weighed was between personalized explanations (which reference the patient's specific value and context) and generic explanations (which are safer but less useful). I chose personalized because the generic version is what MyChart already has, and it's clearly not working. The safety guardrail is the same as B1: the AI contextualizes but does not diagnose, and always points back to the provider.
- **B3. Inline Emmie prompt on the results page** Instead of requiring patients to navigate to Emmie separately, a contextual entry point appears directly on the results page: "Have questions about these results? Ask here."
- This is the simplest solution in the set and the one with the clearest rationale. Epic already built Emmie. Patients already have questions on the results page (Studies A, C, E). The only design decision was placement — I chose to put it below the results rather than in a floating widget because the results page is already information-dense, and a floating element would compete with the content the patient is trying to read. The prompt appears after the patient has had the chance to read the summary, the provider's note, and the individual results — it's a safety net for remaining questions, not a first resort. This applies progressive disclosure: the interface answers the most common questions through the summary and contextual notes first, and only then offers deeper exploration through Emmie.

Wireframe Specifications

Screen 1: Results List Page (Before vs. After)

BEFORE (Current State):

- Flat chronological list of individual tests
- ALL CAPS test names with no plain-language context
- Red "Abnormal" badge with no explanation
- Doctor's photo and "Messages from Care Team" tag — but no preview of the message
- No grouping by visit or date
- No indication of whether the doctor has reviewed results

AFTER (Redesigned):

- Results grouped by visit date in collapsible cards
- Card header: "Dec 30, 2024 — Blood Panel · 12 results · 2 flagged · Provider reviewed ✓"
- AI-generated 1-2 sentence summary visible on the card before expanding
- Provider's note preview: "Dr. Borezo: Mostly normal. Two liver markers slightly elevated — see my note."
- Expanded state shows individual results with plain-language subtitles
- Context-aware badges replace "Abnormal" (e.g., "Slightly elevated — provider reviewed, no concern")
- Star icon on each result for flagging for next appointment
- Inline Emmie prompt at bottom: "Questions about these results?"

Screen 2: Individual Result Detail Page (Before vs. After)

BEFORE (Current State):

- Clinical test name in large blue text (e.g., "COMPREHENSIVE METABOLIC PANEL")
- Date collected
- Doctor's message in a plain text box (good — keep this)
- Individual result cards with range bars (good — keep this)
- "Learn more about COMPREHENSIVE METABOLIC PANEL" link (generic, not personalized)
- No next steps, no provider review status

AFTER (Redesigned):

- Retain the doctor's message at the top (this is already well-designed)
- Add AI-generated visit-level summary above the individual results: "10 of 12 values are in normal range. Two liver markers are slightly high — your provider's note explains why."

- Each result card retains the range bar but adds a contextual "What this means" line
- "High" badge supplemented with: "Common causes: exercise, alcohol, medication"
- "View trends" link made more prominent for patients who want longitudinal data
- Clear next-step section at bottom: "Follow-up ordered: Liver function recheck in 1-2 weeks. Walk-in lab, no appointment needed."
- Inline Emmie: "Want to understand a specific result? Ask here."

Screen 3: "Pending Review" State (New)

Currently does not exist. When results arrive before the doctor reviews them, patients see the same interface they'd see after review — with no indication that context is coming.

New state:

- Results are visible (Cures Act requires this) but displayed in a "pending" visual treatment
- Banner: "Your results are in. Your provider hasn't reviewed them yet — you'll be notified when they add their notes."
- Subdued color treatment on badges (gray instead of red for flagged values)
- Prominent CTA: "Prefer to wait? We'll notify you when your provider has reviewed these results."
- Educational note: "Not all results marked outside the typical range are cause for concern. Your provider will give you context."

Constraints & Tradeoffs

C1: AI-generated summaries could be wrong in a medical context.

This is the highest-stakes tradeoff. If an AI summary says "nothing to worry about" and the result is actually clinically significant, that's a liability issue. **Mitigation:** AI summaries should always defer to the provider's note when one exists, include a disclaimer ("This summary is not a diagnosis"), and never use language like "normal" or "fine" — instead use "within typical range" or "your provider will review." The system should be designed so the AI *supplements* the doctor's interpretation, never replaces it.

C2: The Cures Act requires immediate release of results.

You can't hold results until the doctor reviews them (with narrow exceptions for sensitive results like HIV or genetic testing). This means the "Pending Review" state is a UX layer on top of data that's already available — not a gate. Patients can still see their raw results; the design just helps them understand the context of what they're seeing.

C3: Epic's system is configured differently by each health organization.

What South Shore Health shows may differ from what Cleveland Clinic shows. Any redesign needs to degrade gracefully — if a health system hasn't enabled AI summaries, the information architecture improvements (grouping, plain-language subtitles, status badges) should still work independently.

C4: Provider burden.

If the redesign generates *more* messages to doctors ("I saw the AI summary but I still have questions"), it's failed. The design should reduce messages by proactively answering the questions patients would have asked. Success = fewer "what does this mean?" messages, not more.

C5: Accessibility.

Any redesign must maintain WCAG 2.1 AA compliance. Color-coded badges can't be the only indicator — they need text labels too. AI-generated summaries must be screen-reader compatible. The "pending review" state must be communicated through text, not just visual treatment.

Success Metrics

For an unsolicited case study, I can't access Epic's internal analytics. But I can define what I'd measure and how I'd establish baselines — because a metric without a real baseline is just a guess.

Metric 1: Provider inbox volume for result-related messages

Why it matters: If the redesign works, patients should need to message their doctor less often to ask "what does this mean?" This is also the metric providers care about most — physician forums report 150-200% increases since the pandemic. **How I'd baseline:** Pull Epic inbox analytics for result-related message threads (identifiable by messages sent within 24 hours of a result notification). Segment by result type, provider review status, and whether the result included flagged values. Establish the baseline over 30 days before any design changes. **What success looks like:** A meaningful, sustained decrease in result-interpretation messages — not result-action messages (those should stay the same or increase, because they indicate engaged patients).

Metric 2: Time-to-comprehension

Why it matters: How long does it take a patient to go from "I got a notification" to "I understand what this means for me"? The current interface forces patients through multiple clicks and often out to Google or AI tools. **How I'd baseline:** Measure in usability testing with both the current and redesigned interfaces. Track time from first page load to the moment the participant can correctly summarize what the results mean. Also track how many external tools (Google, AI) they reach for. **What success looks like:** Shorter time-to-comprehension and fewer instances of patients leaving the portal to understand their results.

Metric 3: Patient-initiated messages within 24 hours of result release

Why it matters: A spike in "what does this mean?" messages immediately after results are released is a direct signal that the interface isn't doing its job. **How I'd baseline:** Epic analytics on message volume by hour relative to result release timestamp. Break down by: result had provider note vs. didn't, result was flagged vs. wasn't, patient's historical messaging frequency. **What success looks like:** Flattened spike — patients still message, but it's distributed more evenly and contains more specific questions rather than general confusion.

Metric 4: Portal avoidance

Why it matters: Some patients stop using MyChart entirely because of anxiety-inducing experiences — the "folder of anxiety" finding from the PMC study. These are the hardest patients to reach. **How I'd baseline:** Track notification-to-login rate. If a patient receives a result notification but doesn't log in within 7 days, that's a potential avoidance signal. Segment by patients who previously logged in consistently. **What success looks like:** Higher notification-to-login rate, especially among patients who had previously stopped checking.

Metric 5: Emmie engagement on results pages

Why it matters: If the inline Emmie prompt (Solution B3) is working, patients should use it instead of leaving the portal for third-party AI. **How I'd baseline:** Current Emmie usage data (how often patients ask lab-related questions) compared to post-redesign usage when Emmie is surfaced contextually on the results page. **What success looks like:** Increased Emmie usage for result-related questions. Ideally, this correlates with a decrease in the Metric 1 and Metric 3 numbers.

Metric 6: Patient anxiety self-report

Why it matters: The core problem is emotional, not just functional. Patients feel scared, confused, and alone with their results. **How I'd baseline:** Not currently measured. I'd introduce a lightweight, optional 1-question pulse survey after viewing results: "How confident do you feel that you understand these results?" (1-5 scale). Collect for 30 days on the current design, then compare after the redesign. **What success looks like:** A shift toward higher confidence scores, especially among patients viewing flagged results.

What I'd Test First

Round 1: The "Abnormal" badge (Highest priority — fastest, cheapest, highest impact)

The red "Abnormal" badge is the single highest-anxiety element on the results list page. I'd test three specific variations against the current design:

Variation A (Clinical + Context): "Outside typical range — see provider's note" This keeps clinical accuracy but adds a direct pointer to reassurance. Tests whether directing attention to the provider's interpretation reduces anxiety.

Variation B (Status-Led): "Reviewed by your provider ✓ — one value flagged" This leads with the fact that a human has looked at this, and downgrades the flag to informational rather than alarming. Tests whether provider-review status matters more than the result itself.

Variation C (Action-Oriented): "Your provider has a follow-up plan for this result" This skips the flag entirely and leads with the next step. Tests whether patients care less about the abnormality when they know something is being done about it.

Control: Current "Abnormal" badge (red text, no additional context).

Method: Show each participant a mock results list page with one flagged result among 8 normal results. Ask them to describe what they see, rate their anxiety (1-5), and explain what they'd do next. 15-20 participants, recruited across age groups and health literacy levels. Each participant sees only one variation (between-subjects) to avoid anchoring.

What I'm looking for: Which variation produces the lowest anxiety score *without* decreasing comprehension. If Variation C reduces anxiety but patients can't tell you which result was flagged, it's gone too far.

Round 2: Visit-level grouping vs. flat list

Stimulus A (Current): Flat chronological list showing 12 individual results from a Dec 30 blood draw, mixed in with 3 results from a Jan 8 surgical visit.

Stimulus B (Redesigned): Two collapsible visit cards — "Dec 30 — Blood Panel (12 results, 2 flagged)" and "Jan 8 — Surgical (3 results)" — each with a summary line and provider note preview.

Method: Task-based testing. Give participants a scenario: "Your doctor ordered bloodwork and two results came back outside the normal range. Find them and tell me what your doctor said about them." Measure time-to-completion, number of clicks, and whether participants can correctly identify the flagged results and summarize the provider's note. 10-15 participants.

What I'm looking for: Faster task completion, fewer mis-clicks, and — critically — whether participants in Stimulus B can articulate the "big picture" of their results without being asked. If they naturally say "most of my bloodwork was fine, two liver things were a little high but my doctor said it's no big deal," the grouping is working.

Round 3: AI summary tone and trust

Stimulus A (Factual/Neutral): "12 results received. 10 within typical range. 2 outside typical range (AST, Total Bilirubin). Your provider has reviewed these results and left a note."

Stimulus B (Reassuring/Contextual): "Your Dec 30 blood panel came back mostly normal. Two liver markers were slightly above the typical range — your provider, Daniel Borezo, PA, left a note explaining that this is common and often related to diet or activity."

Stimulus C (Action-Oriented): "Your blood panel results are in. Most look good. Two liver values were slightly elevated. Your provider reviewed them and ordered a follow-up recheck in 1-2 weeks — no appointment needed."

Method: Show each participant the full results detail page with one of the three summaries at the top. After reviewing, ask: "In your own words, what do these results mean?" Then ask: "Do you trust this summary? Would you still want to read your doctor's note?" And: "Would you message your doctor after reading this?" 15-20 participants.

What I'm looking for: The version that maximizes comprehension and confidence without undermining trust in the provider's note. If patients read Stimulus B and skip the doctor's note entirely, that's a signal the summary is doing *too much*. The ideal outcome is that the summary reduces initial anxiety enough that patients read the doctor's note calmly rather than frantically.

Primary Research Plan

This case study is built on secondary research — real user reviews, published studies, and my own experience as a patient. If this were a project at Epic, I'd supplement with:

1. Contextual observation (4-8 sessions) Shadow patients as they receive and review test results in real time. Watch where they hesitate, what they click first, whether they understand what they see, and what they do when they don't. This maps directly to Epic's practice of requiring every developer to spend time in the field observing workflows.

2. Patient interviews (12-15 participants) Recruit across three segments: high health literacy, moderate health literacy, and low health literacy. Focus on emotional experience, not just task completion. Key questions: What did you feel when you saw the notification? Where did you look first? What would have helped?

3. Provider interviews (5-8 participants) Understand the other side: What messages do they get most often about results? What do they wish patients understood before messaging? How do they use the current "Reviewed/To MyChart" workflow? What would they want an AI summary to say (and not say)?

4. Unmoderated usability testing (20-30 participants) Test wireframes of the redesigned results list, detail page, and pending review state. Measure task success rate, time-to-comprehension, and emotional response. Use platforms like UserTesting.com with healthcare-specific participant panels.

5. A/B testing (post-implementation) If implemented, A/B test the redesigned results list against the current design with a subset of patients. Track the success metrics defined above over 90 days.

Epic's Existing AI Landscape

Understanding what Epic has already built is essential for positioning this solution correctly.

Emmie (Patient-Facing AI): A conversational chatbot in MyChart that answers questions about lab results, scheduling, and billing. First went live at Sutter Health. Available via MyChart and text message. Key limitation: Emmie is reactive — patients have to find it and ask.

AI Imaging Summaries: AI-generated plain-spoken summaries of imaging results that appear automatically. Key limitation: only exists for imaging, not lab results.

Art (Clinician-Facing AI): Summarizes patient charts, drafts notes, provides diagnostic insights. Used 16M+ times/month.

The gap this case study fills: Lab results — where the most patient anxiety occurs — have no proactive AI layer. Emmie exists but isn't surfaced on the results page. There are no AI-generated plain-language lab summaries equivalent to what imaging already has.

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Why This Matters to Epic

1. **It extends existing AI, not replacing it.** Emmie and AI imaging summaries exist. This applies the same pattern to lab results — the area of highest patient anxiety.

2. **It reduces provider burden.** Fewer "what does this mean?" messages means doctors spend less time on inbox and more time on care.

3. **It aligns with Epic's philosophy.** Epic's guiding principle is making products "a joy to use." Their design culture emphasizes clarity over complexity, designing for both patients and providers, and the conviction that UX in healthcare can save lives.

4. **It addresses a documented behavior.** Patients already use AI to interpret results outside of Epic's ecosystem, with tools that aren't HIPAA-compliant and can hallucinate. Building this in keeps patients in the trusted environment.

5. **It's backed by real evidence.** Every solution maps to a documented user complaint and is supported by peer-reviewed research.

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