



AI Trends in Clinical Research

Navigating the Reality from AI Hallucinations

WEBINAR | 27 March 2026



AGENDA

AI & LLMs 101

Case Study | Pharmacovigilance

Case Study | Data Management

Case Study | Biostatistics

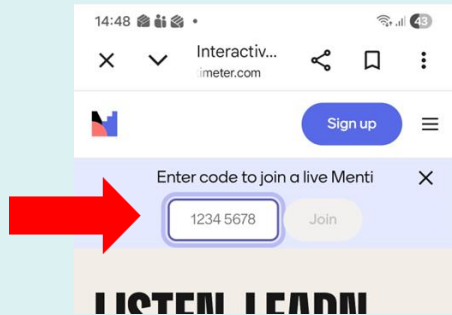
Closing + Q&A



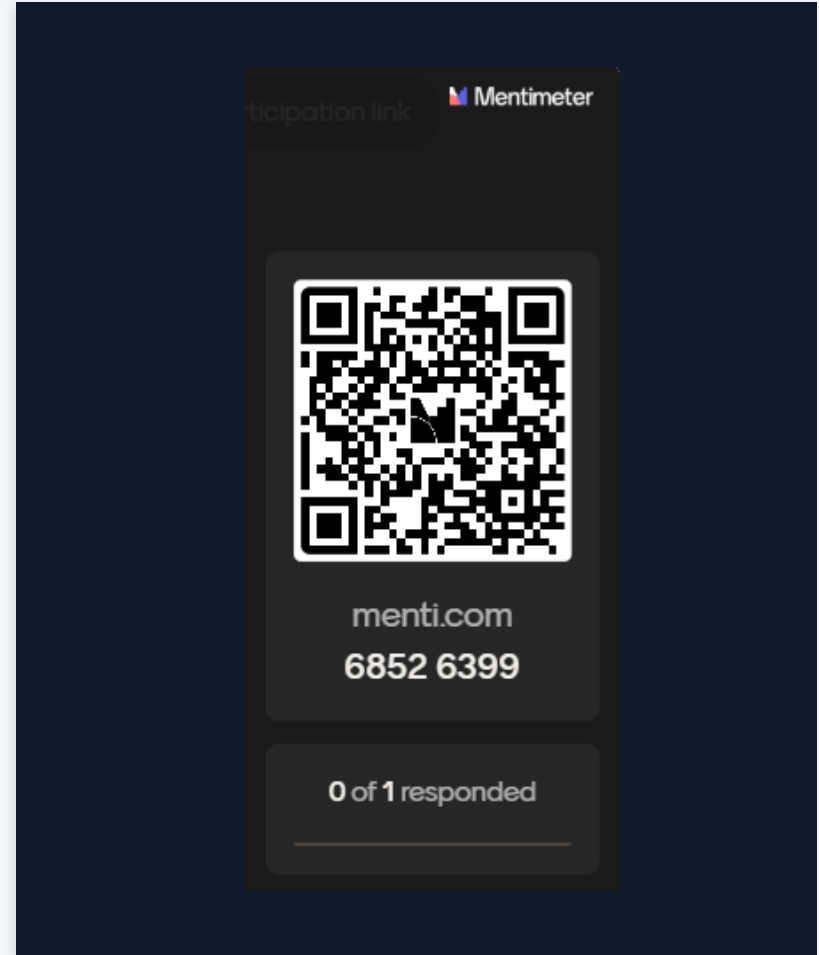
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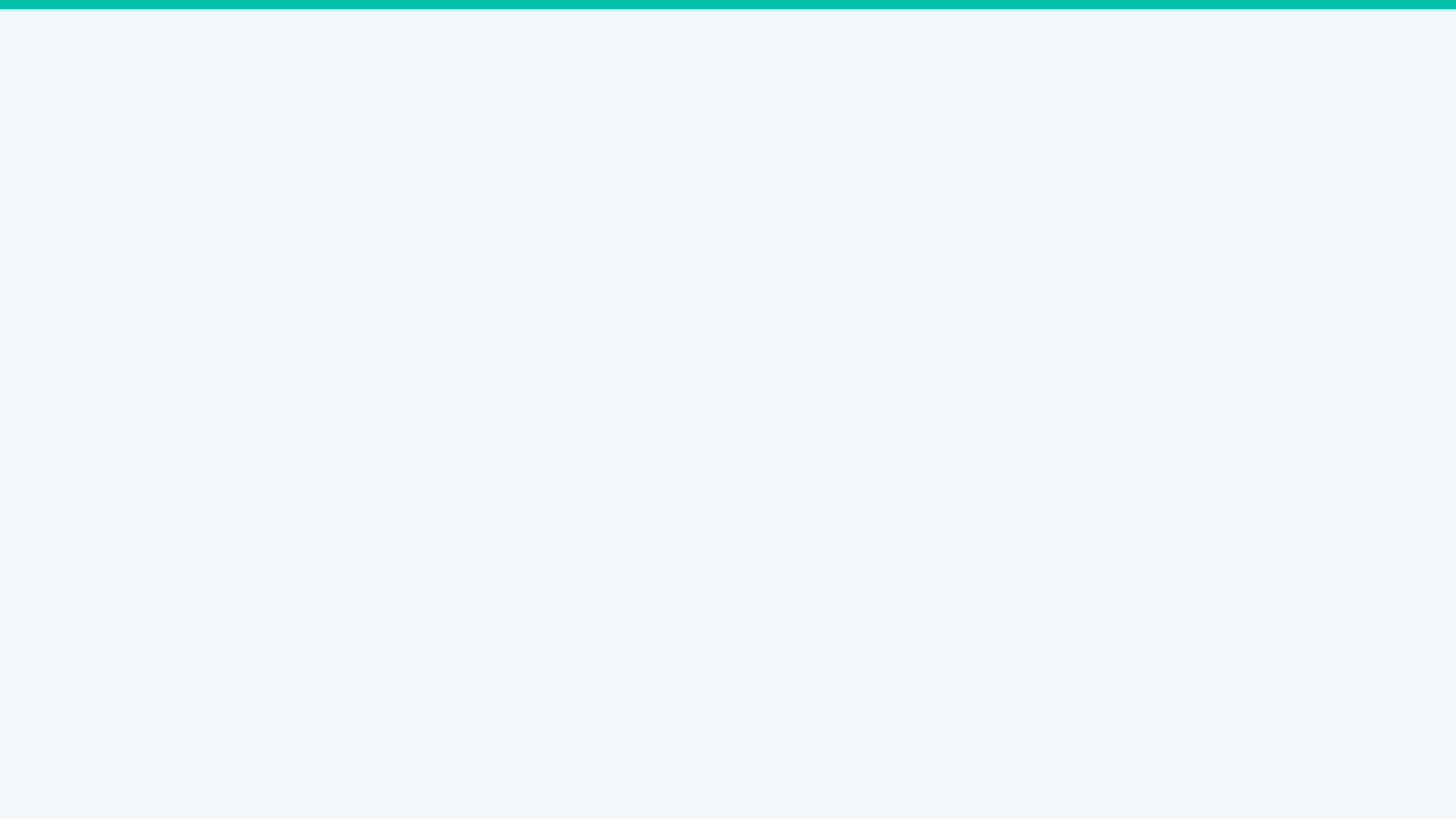




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AI & LLMs 101

A Practical Guide for Clinical Research Professionals

South African Clinical Research Association (SACRA)

Presented by: Jason Hinch





Last Week, a Man With No Medical Training Made a Cancer Vaccine

- 01 Paul Conyngham — a Sydney data engineer — had a rescue dog named Rosie with aggressive mast cell cancer
- 02 Chemo and surgery failed. He opened ChatGPT and asked it how to save her
- 03 Using ChatGPT + Google's AlphaFold, he designed a personalised mRNA vaccine
- 04 The tumour shrank by 75%. Rosie is back chasing rabbits



First personalised cancer vaccine ever designed for a dog. Built with tools available to anyone.

This Isn't a Fad

The numbers tell the story



\$4.5T

Nvidia's market cap

Most valuable company on Earth.
Worth more than Japan's GDP.



\$527B

AI infrastructure spend

What hyperscalers will invest
in AI in 2026 alone.



94%

Revenue growth

Nvidia's year-over-year
quarterly growth rate.

A company that made graphics cards for gamers is now worth more than almost every country's economy. Why? Because every major company on Earth is investing in AI.

So What Actually Is ChatGPT?



Large Language Models (LLMs) in 60 Seconds

- ✓ Trained on most of the text on the internet — books, papers, websites, code
- ✓ Learns patterns in language at an extraordinary scale
- ✓ Predicts the most likely next word, billions of times — like autocomplete on steroids
- ✓ Not sentient. Not thinking. But remarkably good at synthesising, drafting, and reasoning

Important: AI is not one thing. LLMs handle text. AlphaFold predicts protein structures. Computer vision reads medical images. The Rosie story used multiple AI tools for different steps.

The Landscape

ChatGPT (OpenAI)

Most well-known, great all-rounder

Claude (Anthropic)

Excellent for long documents & analysis

Gemini (Google)

Integrated with Google workspace

Copilot (Microsoft)

Built into Office 365

Perplexity

AI-powered search engine

Your Brilliant Intern Who Sometimes Lies

What AI is great at — and where it will confidently get it wrong



Great At

- Synthesising literature across hundreds of papers
- Drafting documents, emails, reports
- Brainstorming and exploring ideas
- Explaining complex concepts simply
- Translating between formats and languages
- Pattern recognition in large datasets



Watch Out

- ⚠ "Hallucinations" — confidently making things up
- ⚠ Fabricating citations that look real but don't exist
- ⚠ Maths and precise calculations
- ⚠ Knowing your specific organisational context
- ⚠ Anything requiring real-time or very recent data
- ⚠ Replacing human judgement on critical decisions

Golden rule: Trust but verify. Always. Especially citations and statistics.

⚠ Never upload confidential patient data, unpublished trial results, or proprietary sponsor documents to public AI tools. POPIA applies.

Why Clinical Research Should Pay Attention

 **10-15
years**

Average time to bring
a drug to market

 **>\$1B**

Average cost of drug
development

 **<10%**

Success rate from
Phase I to approval

Where AI Is Already Making an Impact

- ✓ Patient recruitment improved by up to 65% with AI matching tools
- ✓ Trial timelines accelerated by 30-50% in preclinical phases
- ✓ AI simulation tools stress-test protocols before the first site opens
- ✓ Personalised medicine — smaller, more targeted, more complex trials



What This Means for South Africa

< 4%

of global clinical trials happen in Africa — despite carrying a disproportionate share of the world's disease burden

91%

of South African clinicians believe AI could help reduce hospital admissions

The Opportunity



Clinicians lose the equivalent of 23 working days/year to paperwork — AI can reclaim that time



AI-assisted diagnostics are beginning to reach rural clinics via devices that guide examinations



More efficient trial design means SA can compete more effectively for global studies



Growing data sovereignty requirements mean local expertise becomes more valuable, not less

What You Can Do Monday Morning

Two skills that separate good AI results from great ones

#1 Manage Your Context

Start fresh chats for new topics

Long chats = confused AI. It loses focus as conversations grow.

Front-load your context

Tell it who you are, what you need, and what format you want — all up front.

Be specific about what you know

"I'm a CRA reviewing a Phase III oncology protocol" gives wildly better results than "help me with this document."

Upload documents directly

Most tools accept PDFs and docs. But never upload confidential or POPIA-protected data to public tools.

#2 Prompt Like a Pro

Instead of this:

"Summarise this paper"

"Write an email"

"Help with my protocol"

Try this:

"Summarise this paper in 200 words, focusing on methodology and primary endpoints, for an audience of clinical research associates"

"Draft a professional email to the sponsor updating them on enrollment progress at Site 203. Tone: concise, factual. Include the 3 key metrics below..."

"Review the inclusion/exclusion criteria in this Phase II diabetes protocol. Flag any criteria that could limit enrollment in a South African patient population"

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Things You Might Not Have Thought Of

Practical use cases for clinical research professionals — starting today



Literature Reviews

Upload 20 papers, ask for a synthesis of methodologies, a comparison of endpoints, or gaps in the research. Hours → minutes.



Draft SOPs & Protocols

Use it as a first-draft machine. Beat the blank page. You still apply the expert review, but start from 80% instead of 0%.



Plain-Language Summaries

Turn complex informed consent documents into patient-friendly language. Translate between regulatory frameworks.



Data Anomaly Spotting

Feed it a dataset and ask: 'Flag any inconsistencies, outliers, or patterns that look unusual.' A second pair of eyes.



Email & Report Drafting

Weekly status reports, investigator correspondence, sponsor updates. Let AI handle the boilerplate so you can focus on substance.



Personal Learning

Use it as a tutor to understand new therapeutic areas, statistical concepts, or regulations. Ask it to explain like you're not a specialist.

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Paul Conyngham Had No Pharma Training.

Imagine What Can Be Done With The Decades of Expertise in This Room.

AI won't replace clinical research professionals.

*But clinical research professionals who use AI
will outpace those who don't.*

Your Three Next Steps

1. Sign up for a free ChatGPT, Claude or Gemini account today
2. Try one work task with AI this week — a draft, a summary, a literature scan
3. When it gets it wrong (and it will), learn from it — refine your prompt and try again



Pharmacovigilance Case study

Using AI to Enhance GVP Compliance

Automating Literature Monitoring & AE Detection with LLMs

Presented by: Mulongo Jecinta



The Challenge

Pharmacovigilance teams must monitor thousands of medical journals for adverse events (AE) signals

Fragmented

- × Hundreds of journals with different formats structures
- × Each journal requires a unique scraper – unsustainable

Manual and Slow

- × Teams rely on individual scrapers or manual searches
- × Each breaking when journal sites update

Voluminous

- × Millions of articles published annually. Identifying relevant AE signals requires reading thousands of abstracts and full texts

ICH E2F & GVP Module VI require systematic literature monitoring - manual approaches cannot keep pace. One model replaces hundreds of scrapers



AE Signal Narrative Generation

The tool reads each article and return an AI-generated narrative - providing the 'why' behind every decision

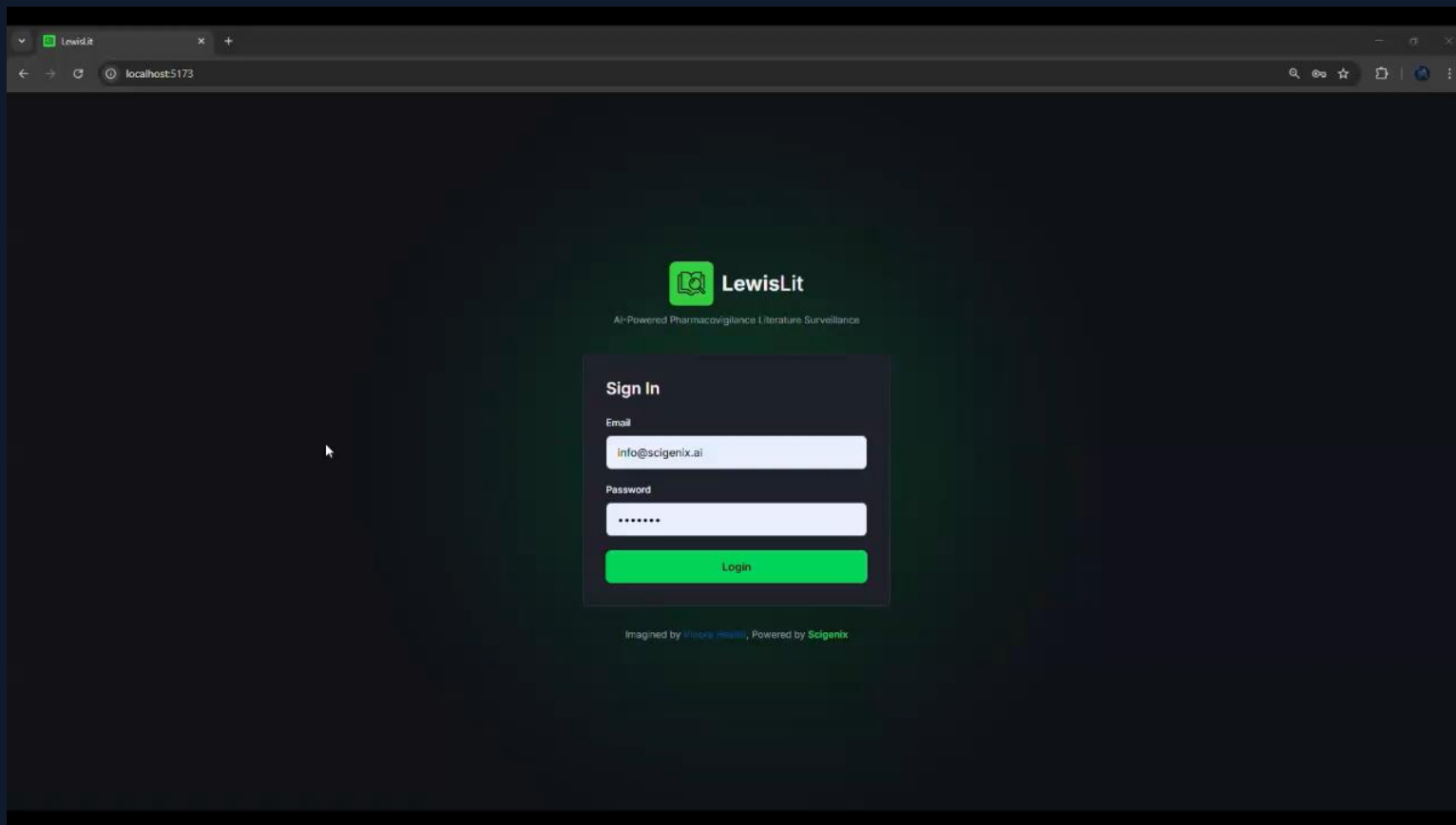
AE Detected

The article report that a patient experiences an adverse event while on the product. The narrative captures what happened, with a direct quote from the article.

AE not Detected

The article does not report an adverse event linked to the product. It may mention the product or an unrelated AE, but no patient-level product-AE connection is established in the text.

AI-Powered Pharmacovigilance | Literature Surveillance



The screenshot shows a web browser window with the address bar displaying 'localhost:5173'. The page features a dark blue background with a subtle grid pattern. At the top center, there is a logo for 'LewisLit' consisting of a green square with a white book icon and the text 'LewisLit' in white. Below the logo, the text 'AI-Powered Pharmacovigilance Literature Surveillance' is displayed in a smaller white font. In the center of the page, there is a white 'Sign In' form. The form has a title 'Sign In' in bold. It contains two input fields: 'Email' with the value 'info@scigenix.ai' and 'Password' with masked characters '*****'. Below the password field is a green 'Login' button. At the bottom of the page, there is a footer that reads 'Imagined by [Viktor Reale](#), Powered by [Scigenix](#)'.

LewisLit

AI-Powered Pharmacovigilance Literature Surveillance

Sign In

Email

info@scigenix.ai

Password

Login

Imagined by [Viktor Reale](#), Powered by [Scigenix](#)



EDC UAT Case study

Using AI to create test cases for Edit Check validation

Presented by: Mulongo Jecinta

How AI Generates Test Cases



Parse the Rule

AI reads the Edit Check specification and eCRF extracts key conditions, fields and constraints



Understand Intent

LLM identifies the business logic: what must pass, what must fail and which edge cases matter



Generate Scenarios

AI produces a comprehensive set of test cases automatically but HUMAN-in-the-LOOP necessary for clinical review of cases

PERFORMANCE IMPACT

↓70% Faster Delivery

Reduced time to execution



Lower Costs

Operational efficiency gains



Faster Go-Live

Accelerated DM deployment

SCALABLE BENEFITS



SME Iteration Cycles

Rapid feedback & refinement



Built to Scale

From 50 edits → 500+ edits

50 edits

500+ edits



Reduced Errors

Improved quality & control

How AI Generates Test Cases

Upstream Data



Patient Visit

Medication Dose

Previous Dates

Vitals Recorded

Trigger Condition



IF Vital Signs Time
is 2H ($\times/\pm$ 15 min)
after IP Administration

Expected Outcome



- Error Message

- Valid Scenario



BS Practical Case Study

Hands Free Statistical Analysis and Report

A quick demonstration of what is possible.

Presented by: Dr Xan Swart



Statistician-free data quality assessment and analysis report?



Scenario: You need an analysis of a dataset ASAP and there are no statisticians available to help.



You provide the dataset, a prompt, and 9 minutes later, a 20-page report is produced with the programming script.



Fast and impressive. Review and change with simple requests



- *Domain expert is still needed in most scenarios.*
- *Participant autonomy is compromised*
- *Data privacy is compromised*

Important: Data privacy and participant autonomy can be protected by implementing additional steps into the procedure. This Case Study uses dummy data.

The Truth

Impressive but prone to errors

Domain expert still needs to review

Preliminary analysis expert

Explores on your behalf

Data is no longer yours

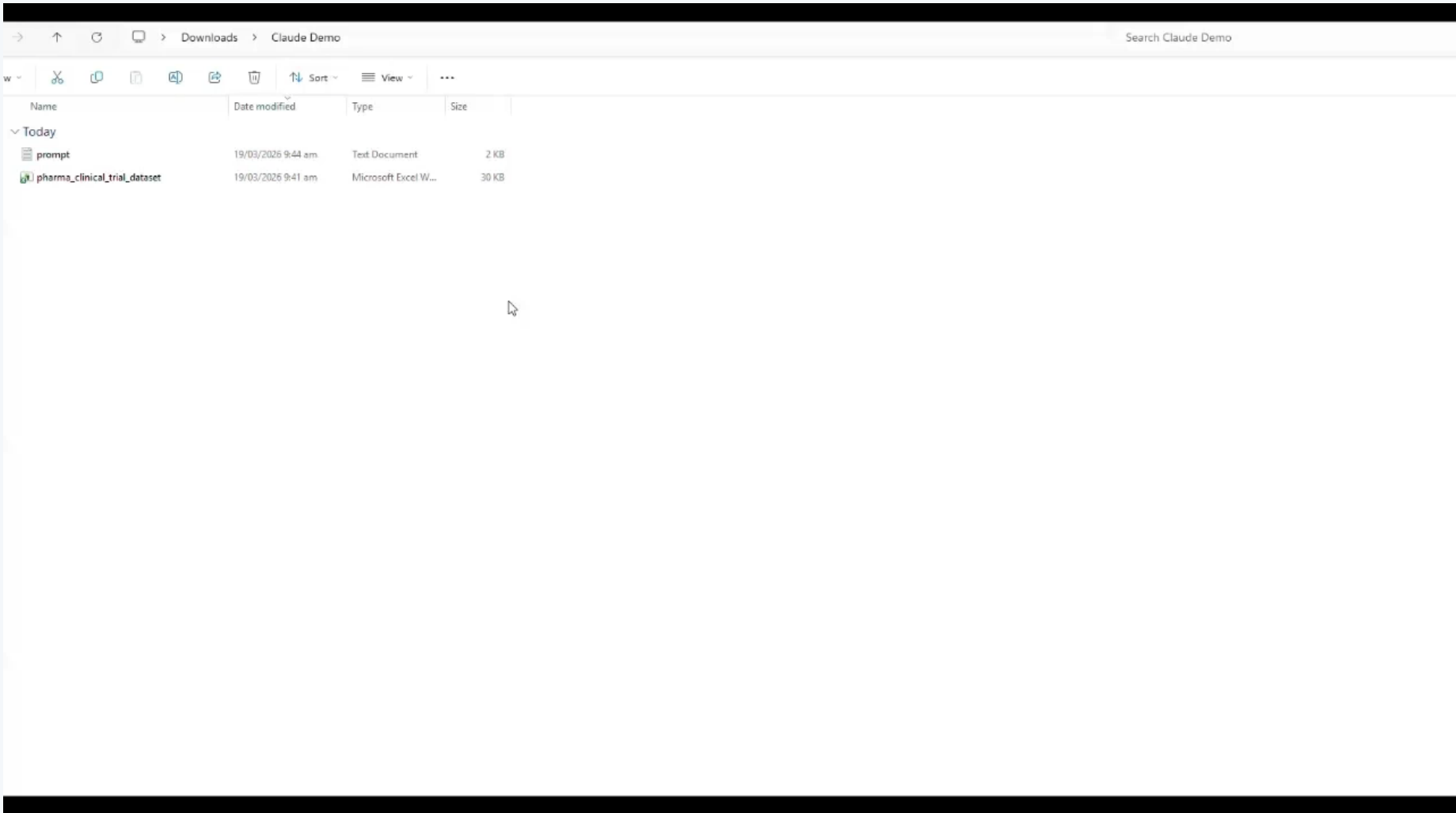
LLM provider has your data

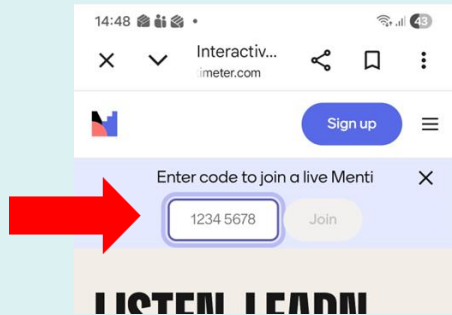
Basic errors look correct

Easily missed by the untrained

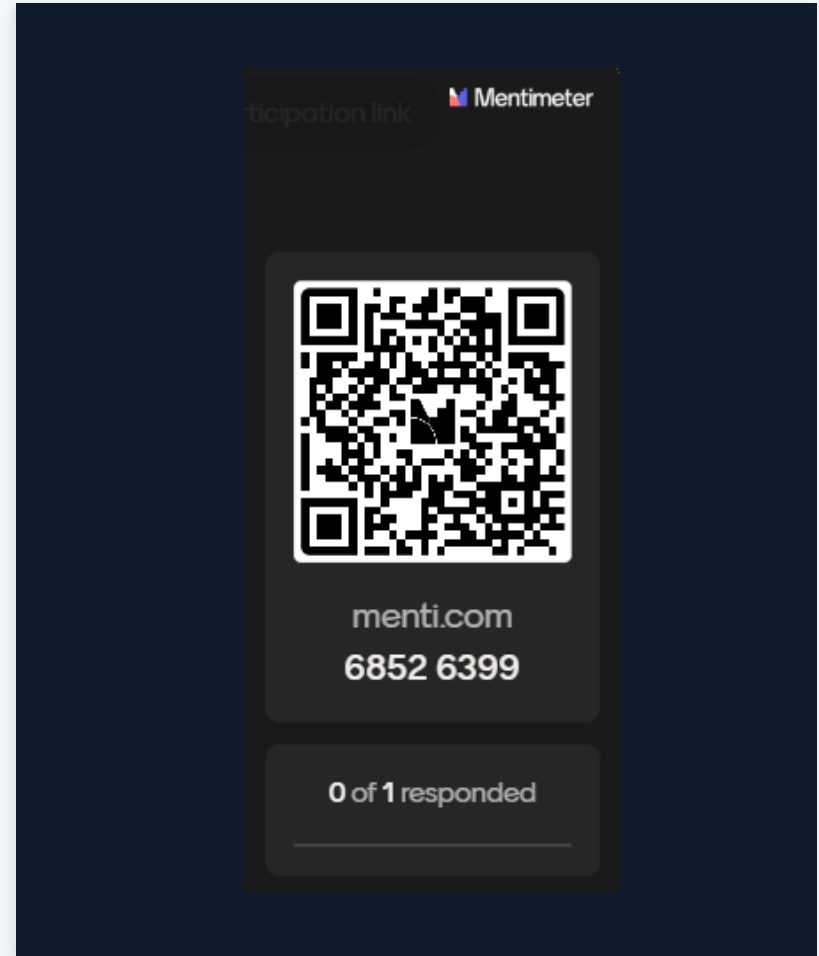
Validation-free

Analysis, software, and output is not validated





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Summary & Closing



Build AI literacy (not coding expertise)

Understand what AI can and cannot do, and how it applies to clinical workflows.

Stay grounded in GxP and ethics

Regulatory knowledge and patient safety remain your strongest differentiators.

Adopt a “human + AI” mindset

Focus on how AI augments—not replaces—clinical judgment and expertise.

Commit to continuous learning

The field is evolving rapidly—stay updated on tools, regulations, and best practices.



Q & A

ThermoFisher
SCIENTIFIC

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Free tools to try today:

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