AI and *EGFR*m Lung Cancer

The Promise, the Pitfalls, and Keeping You in the Conversation

EGFR esisters

Session Speaker

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Session Objectives

1. Help attendees understand the evolving role of artificial intelligence (AI) in *EGFR*-positive lung cancer research, drug development, and clinical care.

2. Discuss the potential benefits, limitations, privacy concerns, and misinformation of using AI for cancer information in ways that matter to patients and caregivers.

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Using 1 word, what has this Summit meant to you?

Tell us here!

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Please Send in Your Questions!

This QR code will be live throughout the session

Download the Slides Here

For Easier Viewing in PDF on Your Device

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Disclosures

-Pilot Grant – AI implementation in Thoracic Oncology, Department of Medicine, University of Miami

-Certification course in AI & Agentic AI in HealthCare, Johns Hopkins University, Executive and Professional Education

In Loving Memory – Bharti Desai (aunt)

WHERE WE ARE

It's 2 a.m. You've just been diagnosed - and you type your pathology report into a chatbot.

This is already happening. The question isn't whether we use AI - **it's whether we use it well.**

Two rooms in one

Some of you
use these tools every day.

Some of you
don't trust them at all.

Both reactions
are completely reasonable.

My promise today: no hype, no doom - where AI helps, where it fails, and what I'd want my own family to know.

“AI” is not one thing

Pattern-spotters

Help read scans and pathology slides.

Sorters & matchers

Match you to trials; flag biomarker results.

Chatbots (LLMs)

Write answers in sentences. Most human-sounding - and most likely to sound sure while wrong.

Guideline-locked assistants

Chatbots fenced in by vetted medical guidelines.

The guardrails matter as much as the engine

No guardrails

Fast and fluent - and sometimes confidently wrong.

Guideline-locked

The same engine, fenced to vetted evidence - steadier and safer.

The promise

Speed & reach

Scan thousands of trials and studies in seconds.

Access & equity

Bring expert-informed reasoning far from big centers.

Consistency

Less “it depends who you ask” for settled decisions.

Empowerment

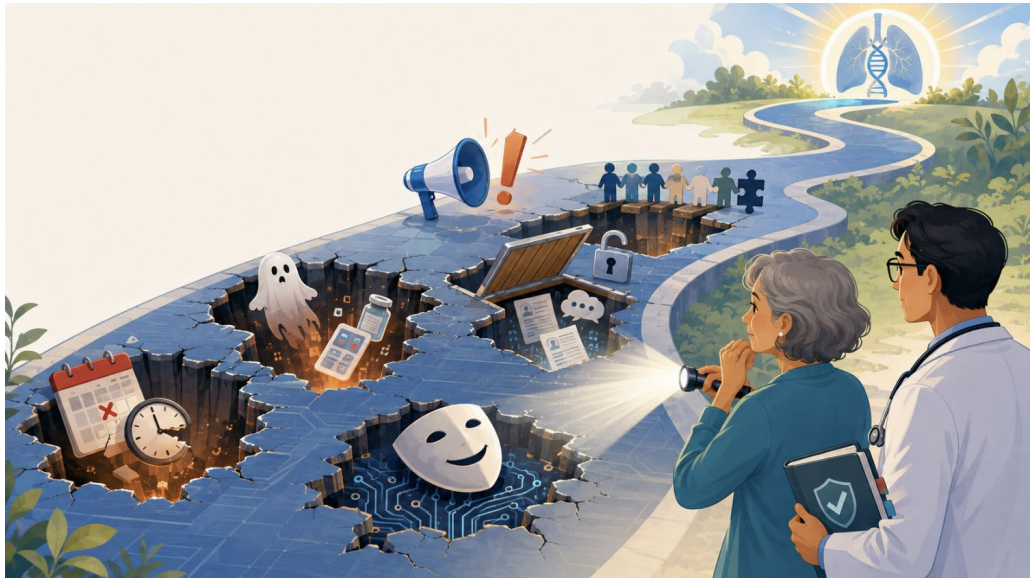
Walk in better informed, with sharper questions.

The pitfalls — the honest part

Outdated knowledge

Training has a cutoff — “confidently out of date.”

Hallucinations



Overconfidence

A certain tone does not mean a correct answer.

Bias & gaps

Often less reliable for underrepresented patients.

Privacy

Public chatbots and your medical records don't mix.

The “sounds human” trap

Fluency creates false trust - you stop checking.

We didn't want to guess how big these problems were.

So, we measured them.

2026 ASCO® ANNUAL MEETING

Our ASCO study - testing AI in EGFR-mutant metastatic NSCLC

Evaluating AI Decision Support in a Rapidly Evolving Clinical Landscape

A Clinical Stress-Test of 6 AI Models in EGFR-Mutant Metastatic NSCLC

C. Jani et al. | Division of Medical Oncology, University of Miami Sylvester Comprehensive Cancer Center; Larvol AI; MD Anderson Cancer Center; O'Neal Comprehensive Cancer Center, UAB.

SYLVESTER COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

Pilot Grant in AI – Department of Medicine, University of Miami

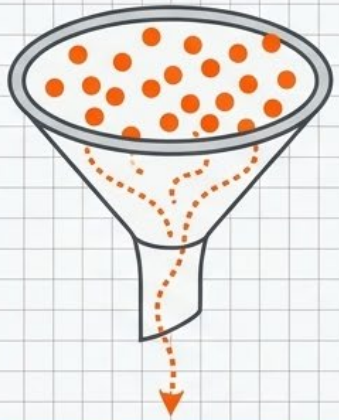
LARVOL ONCO DATA AI

How we put AI to the test

Chamber 1: The Knowledge Gap Framework

General LLMs

ChatGPT, Gemini, Claude, Grok

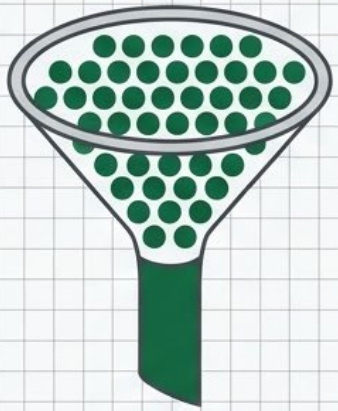


Status: Raw & Unbounded

Vulnerability: Lag Time — susceptible to outdated data and hallucinated certainty in the vacuum of emerging data.

Guideline Platforms

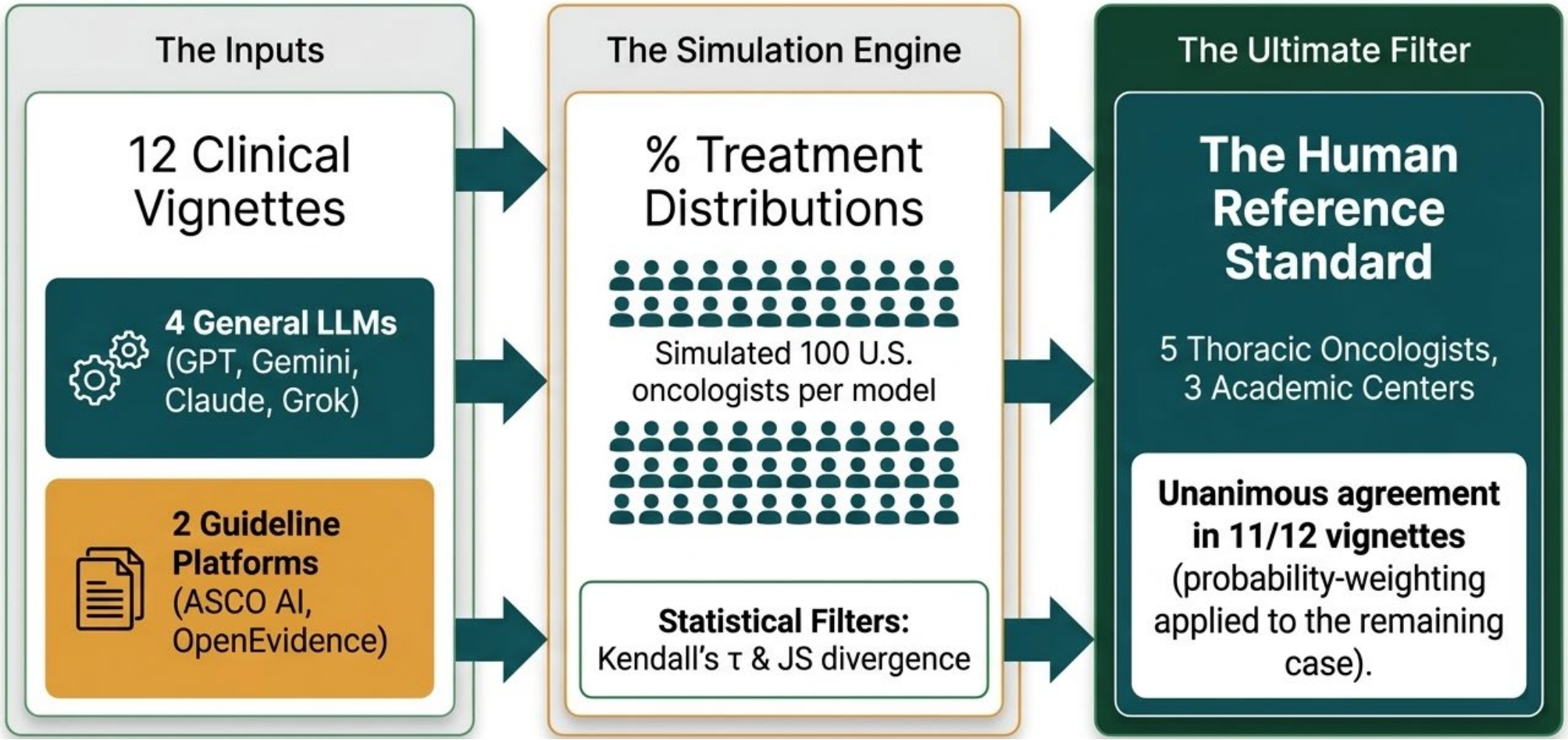
ASCO AI & OpenEvidence



Status: Constrained & Curated

Strength: Direct Mapping — enhanced consistency, safety, and high inter-system agreement.

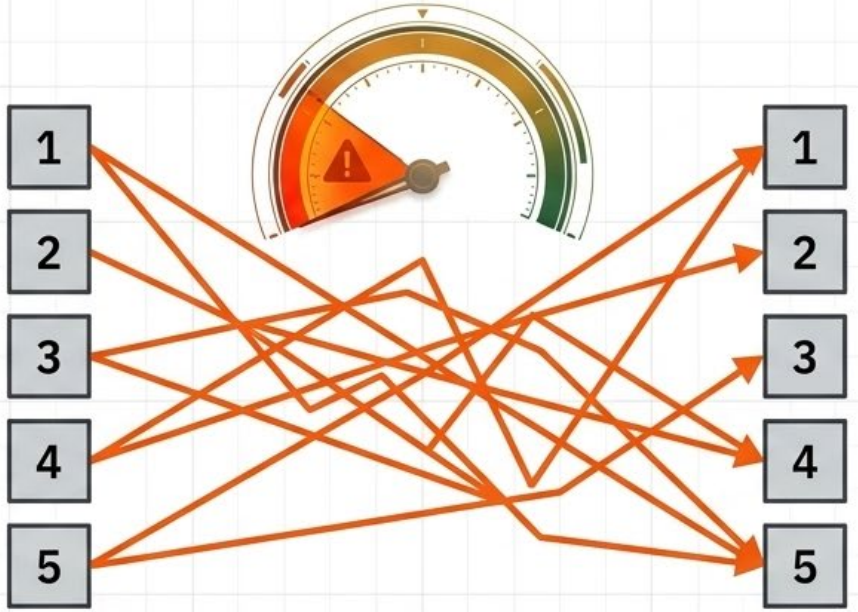
How we put AI to the test



How we put AI to the test

Statistical Filter 1: Measuring Concordance (Kendall's τ)

Perfect Agreement (+1.0)



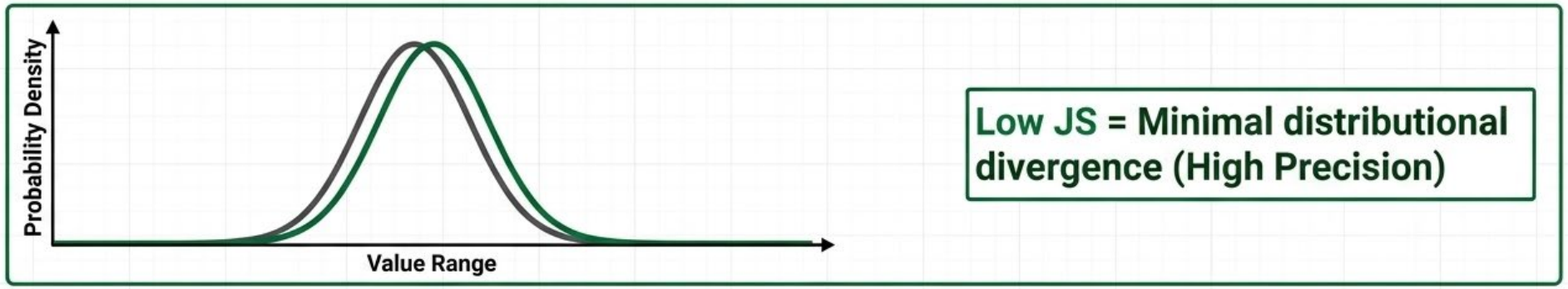
Inverse Correlation (-0.06)

Metric: Kendall's rank correlation coefficient (τ).
Function: Measures the ordinal association between the AI's ranked treatment recommendations and the expert consensus sequence.

Crucial Insight: This filter doesn't just check the top answer. It heavily penalizes models that successfully guess the #1 treatment but disastrously hallucinate a dangerous, contraindicated option as #2.

How we put AI to the test

Statistical Filter 2: Measuring Risk (Jensen-Shannon Divergence)



Function: **Quantifies the mathematical distance between the AI's simulated probability distribution and the expert baseline.**

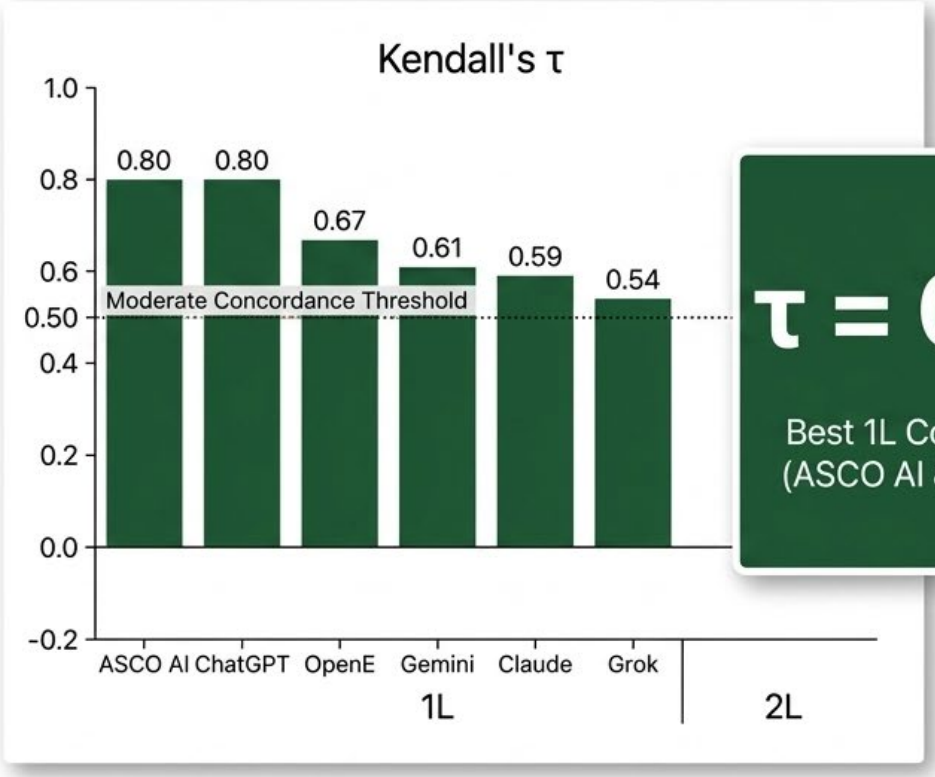
Crucial Insight: Unmasks false confidence. A high **JS divergence reveals hidden** volatility and unsafe, scattered long-tail recommendations across the 100 simulations, even if the top rank is often correct.

NotebookLM

Where AI kept up - and where it didn't

The Precision Clinical Dashboard

1ST LINE (1L) — Strong Concordance in Established Scenarios



τ = 0.80

Best 1L Concordance (ASCO AI & ChatGPT)

All systems demonstrated moderate-to-strong concordance with experts (τ > 0.50).

ASCO AI appropriately emphasized guideline-endorsed Osimertinib-based strategies without preferential commitment.

Where AI kept up - and where it didn't

The Precision Clinical Dashboard

The Second-Line Collapse: Divergence in a Rapidly Evolving Landscape

Concordance declined substantially across all systems in 2L settings.

This inverse correlation likely reflects general AI training data lagging hopelessly behind rapidly evolving 2L evidence.

$\tau = -0.06$

ChatGPT 2L Concordance (Inverse Correlation)

Gemini emerged as the most robust general LLM in this chaotic setting (τ=0.49), but overall system reliability fractured.

Where AI kept up - and where it didn't

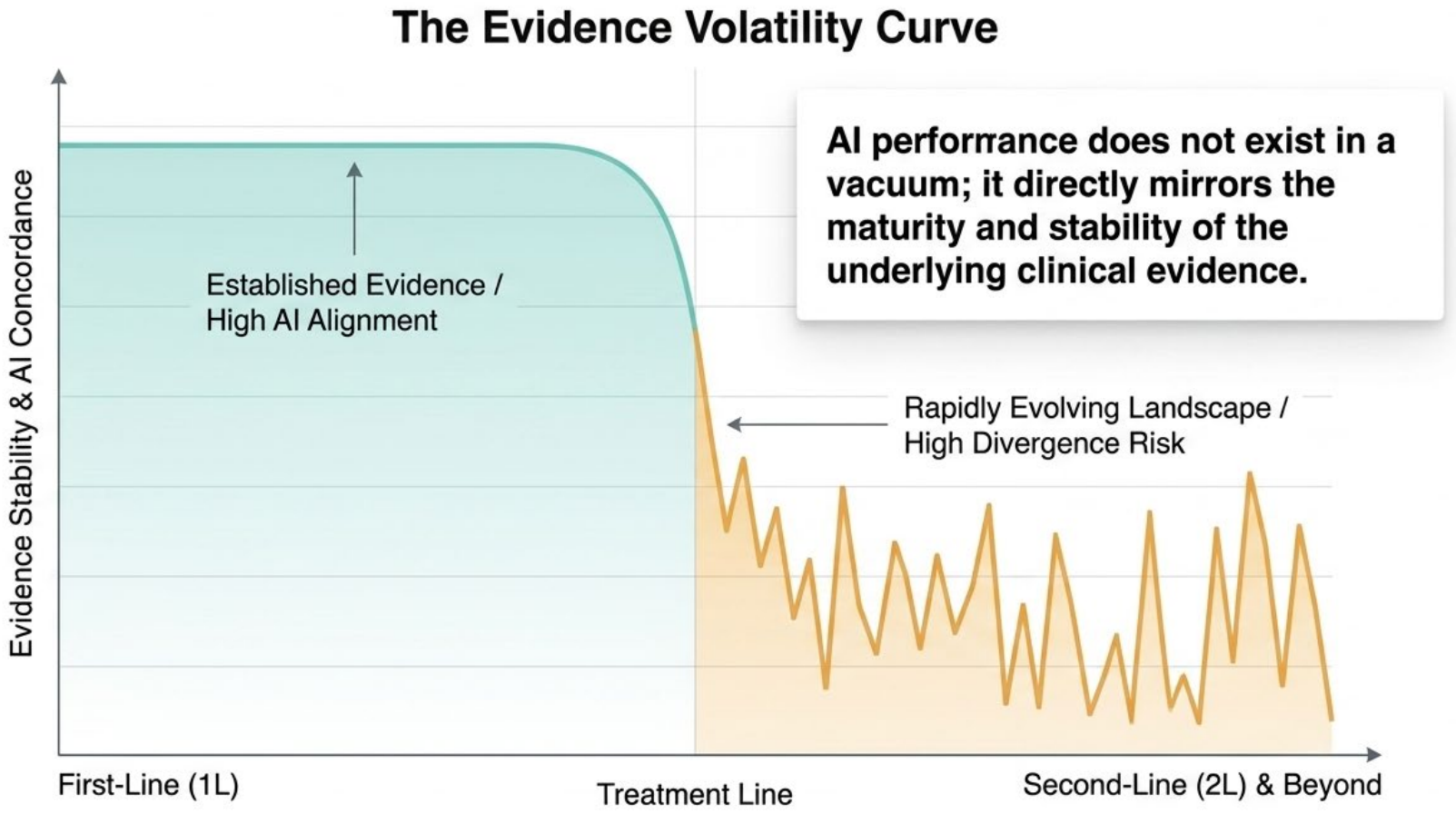
The Precision Clinical Dashboard

System Concordance & Divergence: A Comparative Data Heatmap

	1L τ	1L JS	2L τ	2L JS	Best Inter-system τ
ASCO AI Guideline	**0.80**	0.14	0.25	0.39	OpenE (0.73)
ChatGPT LLM	**0.80**	0.15	**-0.06**	0.36	ASCO AI (0.72)
OpenEvidence Guideline	0.67	0.25	0.27	0.24	ASCO AI (0.73)
Gemini LLM	0.61	0.21	0.49	0.19	ChatGPT (0.64)
Claude LLM	0.59	0.32	0.27	0.22	ChatGPT (0.60)
Grok LLM	0.54	0.26	0.27	0.25	OpenE (0.64)

τ = Kendall's rank correlation (Higher = Better Agreement). JS = Jensen–Shannon divergence (Lower = Less distributional divergence).

Where AI kept up - and where it didn't



****The Gemini Paradox****

The value of curated constraints is measurable: Guideline-constrained platforms outperform general LLMs in consistency and safety, even when built on the same base architecture (ASCO AI's reliable clinical safety profile vs. raw Gemini's volatility).

Things we learned

THE PRECISION CLINICAL DASHBOARD

Established Evidence = AI Alignment

Strong 1L concordance proves AI can reliably support decisions when the clinical landscape is mature.

Evolving Landscapes = High Risk

Substantial 2L divergence highlights the danger of discordance when treatment options are in flux.

Constraints Drive Safety

Guideline-based platforms consistently outperform general-purpose LLMs, proving the necessity of curated clinical guidance.

Augmentation, Not Replacement

Human expertise remains irreplaceable, particularly in the complex sequencing of second-line decisions.

What this means for you

1. Trust AI most where the science is settled — and least where it's new.
2. How a tool is built matters more than how smart it sounds.
3. This is exactly why your expert — and you — stay in the loop.

One line we don't cross: AI is not a therapist

For emotional and mental-health support, general AI chatbots are not a safe substitute for professional care.

Stanford, 2025

Therapy chatbots showed bias toward mental-health conditions and gave unsafe responses in crisis scenarios — at times failing to recognize when someone was at risk.

NEDA “Tessa,” 2023

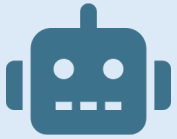
An eating-disorder support chatbot was pulled offline after it gave harmful dieting advice to vulnerable users seeking help.

If you're struggling, reach a person — your care team, a mental-health professional, or a crisis line. **In the U.S., call or text 911 / 988 crisis life line.**

Now - how do you actually use this?

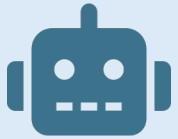
A hands-on guide to prompting, trial matching, and trusted sources

Which tools - a place to start



ChatGPT by OpenAI

A general-purpose AI assistant with a free version. Good for plain-language explanations and drafting questions.



Claude by Anthropic

Another general-purpose assistant with similar strengths and a free version to try.

Keep in mind: **these are general tools, not medical devices. For clinical specifics, guideline-locked tools (from our study) are steadier. Examples here - not endorsements.**

The prompt shapes the answer

A thin question

“What treats lung cancer?”

→ **a generic, one-size-fits-all list**

A rich prompt

“I'm 62, EGFR exon 19, stage IV…”

→ **an answer that speaks to you**

The more relevant detail you give, the more useful the answer. **Change the details, change the answer - *so keep refining.***

Before you type: protect your privacy!

Leave out identifiers

No full name, birth date, address, or record numbers.

Assume it's stored

Treat anything you type as potentially saved.

You still get great help

Age, condition and mutation are plenty - no need to identify yourself.

Let's build a prompt together

Start with one sentence. Add a layer at a time. Watch the answer get sharper with every detail.

1. **Your question**
2. **Age & background**
3. **Other conditions**
4. **Your diagnosis**
5. **Your EGFR details**

Layer 1 Start with your question

One sentence gets you a generic answer — that's our baseline.

You **Your prompt**

What are my treatment options for lung cancer?

What we've added

1. **Your question**
2. Age & background
3. Other conditions
4. Your diagnosis
5. Your EGFR details

Layer 2 Add your age & background

Age, sex, smoking history and where you live change what's relevant.

You **Your prompt**

What are my treatment options for lung cancer? **I'm a 62-year-old woman, a lifelong non-smoker, living in a rural area.**

What we've added

- ✓ Your question
- 2 **Age & background**
- 3 Other conditions
- 4 Your diagnosis
- 5 Your EGFR details

Layer 3 Add other health conditions

Other conditions affect which treatments are safe and suitable for you.

You **Your prompt**

What are my treatment options for lung cancer? I'm a 62-year-old woman, a lifelong non-smoker, living in a rural area. **I also have type 2 diabetes and mild kidney disease, both well controlled.**

What we've added

- ✓ Your question
- ✓ Age & background
- 3 **Other conditions**
- 4 Your diagnosis
- 5 Your EGFR details

Layer 4 Add your exact diagnosis

Type, stage, timing and spread focus the answer on your real situation.

You **Your prompt**

What are my treatment options for lung cancer? I'm a 62-year-old woman, a lifelong non-smoker, living in a rural area. I also have type 2 diabetes and mild kidney disease, both well controlled. **I was diagnosed 3 months ago with stage IV NSCLC (adenocarcinoma), now spread to my bones.**

What we've added

- ✓ Your question
- ✓ Age & background
- ✓ Other conditions
- 4 **Your diagnosis**
- 5 Your EGFR details

Layer 5 Add your EGFR details

Your EGFR subtype is the single biggest driver of targeted options.

You **Your prompt**

What are my treatment options for lung cancer? I'm a 62-year-old woman, a lifelong non-smoker, living in a rural area. I also have type 2 diabetes and mild kidney disease, both well controlled. I was diagnosed 3 months ago with stage IV NSCLC (adenocarcinoma), now spread to my bones. **Testing showed an EGFR exon 19 deletion with pdL1 negative. I haven't started treatment yet, and quality of life matters most to me.**

What we've added

- ✓ Your question
- ✓ Age & background
- ✓ Other conditions
- ✓ Your diagnosis
- 5 **Your EGFR details**

Same tool. Very different answer.

Thin prompt

- Generic list of options
- May be out of date
- Not really about you

Layered prompt

- Speaks to EGFR-targeted options
- Weighs your other conditions
- Reflects your priorities
- Better questions for your team

Still just a starting point - not a decision. Take it back to your team, and never include identifying details.

The road ahead - where AI could fit

Our map for today

This is our map - and at every stage, *a person still decides*.

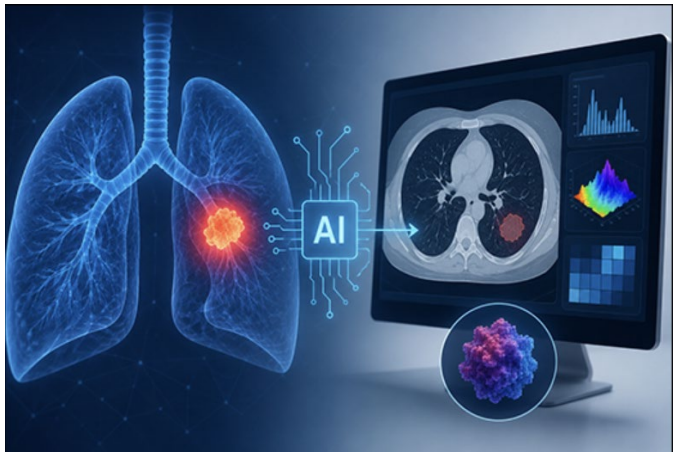
Finding lung cancer earlier

Risk assessment

Early detection

Where AI could help

- Spot suspicious nodules on CT scans
- Compare new scans with earlier ones
- Estimate if a nodule is more likely benign or cancer
- Flag higher-risk people who miss smoking-based screening
- Reduce missed follow-up of abnormal imaging



Why this matters for EGFR

Many EGFR patients are never- or light-smokers - and may not qualify for standard lung cancer screening.

Reality check

AI can't confirm a nodule is *EGFR*-positive cancer. Imaging still needs clinical evaluation and, when indicated, a biopsy.

Making biomarker testing smarter

Diagnosis

Biomarker testing

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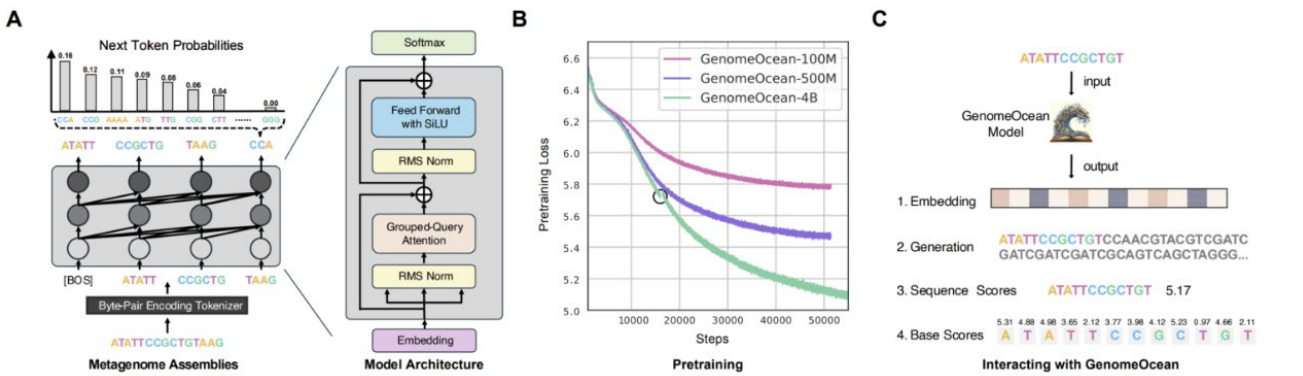
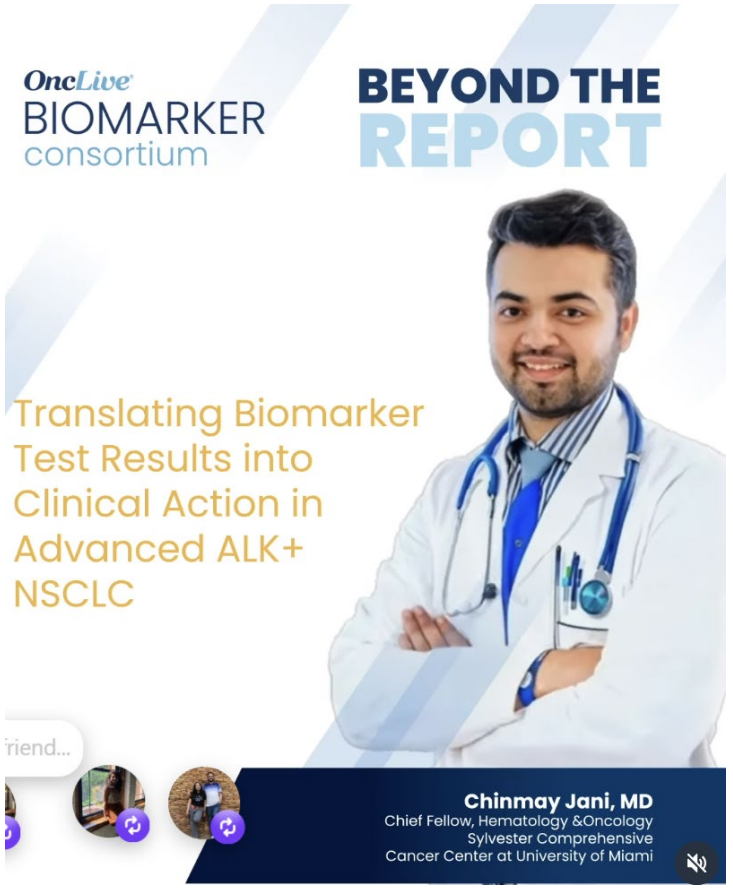
AI could assist with

- Interpreting complex next-generation sequencing (NGS) reports
- Identifying uncommon *EGFR* alterations
- Separating meaningful findings from incidental ones
- Combining tissue and liquid biopsy results
- Recognizing resistance - new *EGFR* changes or bypass pathways
- Identifying new biomarker in clinical trials





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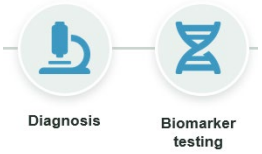
Prompt



- Help me understand my lung cancer diagnosis and biomarker results in plain language.

- I will paste the exact wording from my pathology and molecular-testing reports below after removing my name and personal information.

Please explain: - My type, subtype, and stage of lung cancer.

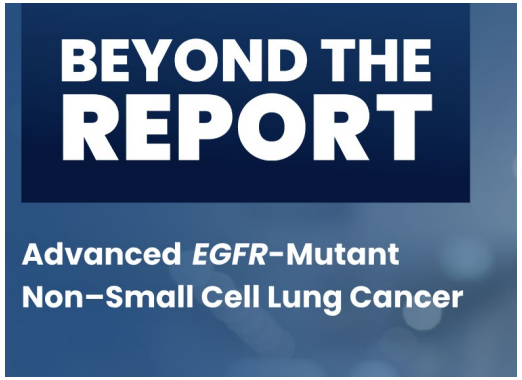
- What each biomarker result means
- Whether any result may guide an approved targeted treatment
- Whether important testing appears to be missing or incomplete
- The limitations of the test, including whether it was performed on tissue or blood
- Five questions I should ask my oncology team
- **Use current, reliable sources and tell me their dates till which your data is up-to date.**
- Pathology report: [paste here] Biomarker report: [paste here] PD-L1 result: [paste here] Stage and sites of spread: [paste here]”

Trusted sources still matter most

So much information is being published now - including by AI. Human-vetted sources are still the most reliable. Read them directly.

Patient advocacy groups

Communities like EGFR Resisters.



Cancer centers & NCI

Cancer.gov and major academic centers.

Global Resource for Advancing Cancer Education®

Professional societies

Guideline bodies such as ASCO.

Understanding Cancer Staging: What It Means and Why It Matters

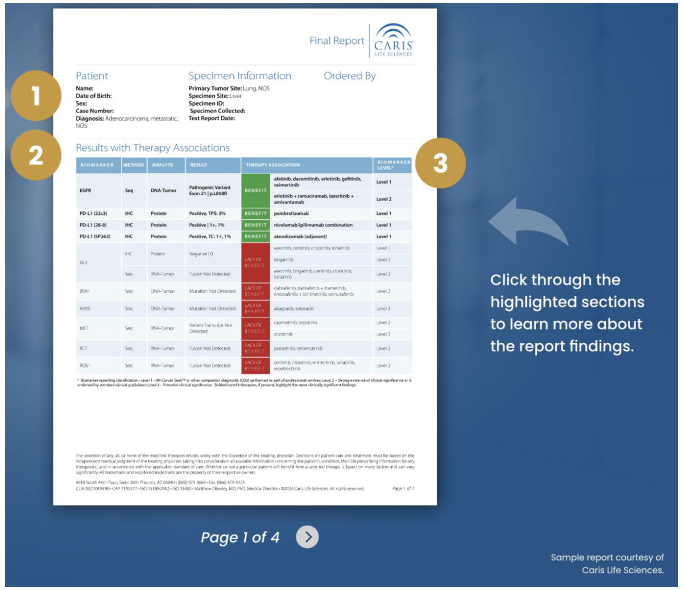
Submitted by AlexandraGBeneke on Wed, 06/17/2026 - 14:37

When you or a loved one is diagnosed with cancer, one of the first questions is often: How advanced is it? This is where cancer staging comes in.

Author: GRACE Videos and Articles

What Do the Cancer Stages Mean?

The content of this article has been algorithmically generated by an AI model trained on a wide range of data and is based on a Grace's video transcript from our Animated Video Library 2025-26 *and Verified by Dr. Chinmay T. Jani, who is a Hematology-Oncology Chief Fellow at the University of Miami/Jackson Health System.*



https://beyondthereport.onclive.com

Treatment Selection / Gathering Information

Treatment selection

- **Please find the most current best practices and guideline recommendations for my situation and explain them in patient-friendly language.**
- **I am a 62-year-old woman and lifelong non-smoker living in a rural area.**
- **I have well-controlled type 2 diabetes and mild kidney disease. I was diagnosed three months ago with stage IV non–small cell lung cancer (adenocarcinoma) that has spread to my bones. Biomarker testing showed an EGFR exon 19 deletion, and my PD-L1 result was negative. I have not started treatment, and preserving my quality of life is my highest priority.**
- **Please explain:**

- My guideline-recommended first-line treatment options.
- I was in breask-out room at EGFR Resisters summit – I want to know more about Ivonescimab
- The expected benefits, side effects, and quality-of-life tradeoffs of each option
- How my kidney disease, diabetes, rural location, and desire to minimize travel may affect these choices
- Recommended care for my bone metastases
- What scans, laboratory tests, and monitoring I may need
- What treatment options may be available if the cancer later progresses
- Five specific questions I should ask my oncologist

Watching for side effects and symptoms

Monitoring

Tools may help you report

- Rash
- Diarrhea
- Fatigue
- Shortness of breath
- Fever
- Appetite or weight changes
- New neurologic symptoms
- Emotional distress

Potential benefits

- Earlier alerts to your clinical team
- Catch worsening symptoms sooner
- More personalized supportive care
- Fewer ER visits or treatment interruptions

Safety: ***these tools must never replace urgent medical care for severe or rapidly worsening symptoms***.

Watching for side effects and symptoms

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Prompt -1

- I take osimertinib (Tagrisso) for EGFR + Lung cancer and have developed a rash on [body area]. It started [when], covers approximately [amount of skin], and is [itchy/painful/not bothersome]. I also have [fever, blisters, peeling, drainage, or sores in my mouth or eyes - or none].
- Could this be related to osimertinib? Explain in simple language how concerning it may be, what details I should track, and what safe skin-care measures I can use while contacting my cancer team. Clearly tell me if I need emergency help by 911 or should contact my cancer team. Do not tell me to stop or change osimertinib on my own.

Prompt-2

- I receive amivantamab subcutaneous (Rybrevant Faspro) for EGFR+ lung cancer and have developed a rash on [body area]. It started [when], covers approximately [amount of skin], and is [itchy/painful/not bothersome]. I also have [fever, blisters, peeling, drainage, facial swelling, breathing problems, or sores in my mouth or eyes - or none].
- Could this be related to amivantamab? Explain in simple language how concerning it may be, what details I should track, and what safe skin-care measures I **can use while contacting my cancer team.** Clearly tell me if I need emergency help by 911 or should contact my cancer team. Do not tell me to stop or change treatment on my own.

Safety: ***these tools must never replace urgent medical care for severe or rapidly worsening symptoms***.

AI for Research

AI-Assisted Research Skills Workshop

Track 2: AI-Assisted Systematic Reviews

Go All In! 🃏 All 5 Sessions in One Day

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SESSION 1

AI-Assisted Python Coding
Advanced Data Analysis & Scientific Visualization

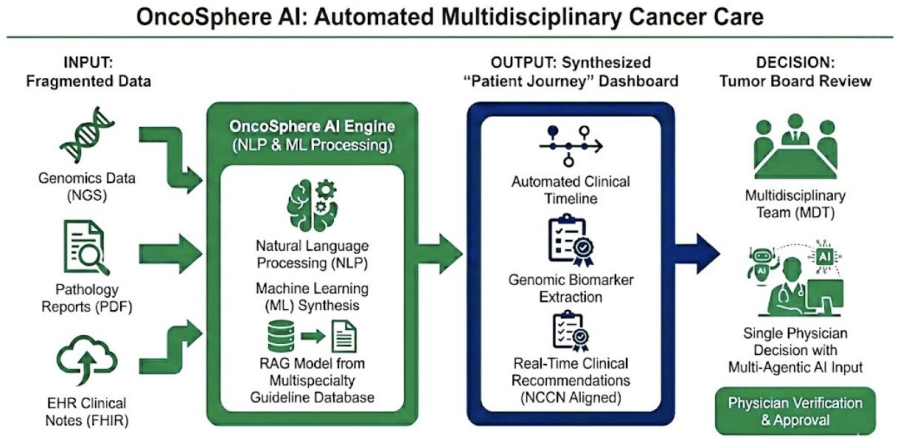
10AM-12PM

SESSION 2

AI-Assisted Literature Screening
Systematic Review Fundamentals & Database Mastery

12PM-2PM

NEJM AI



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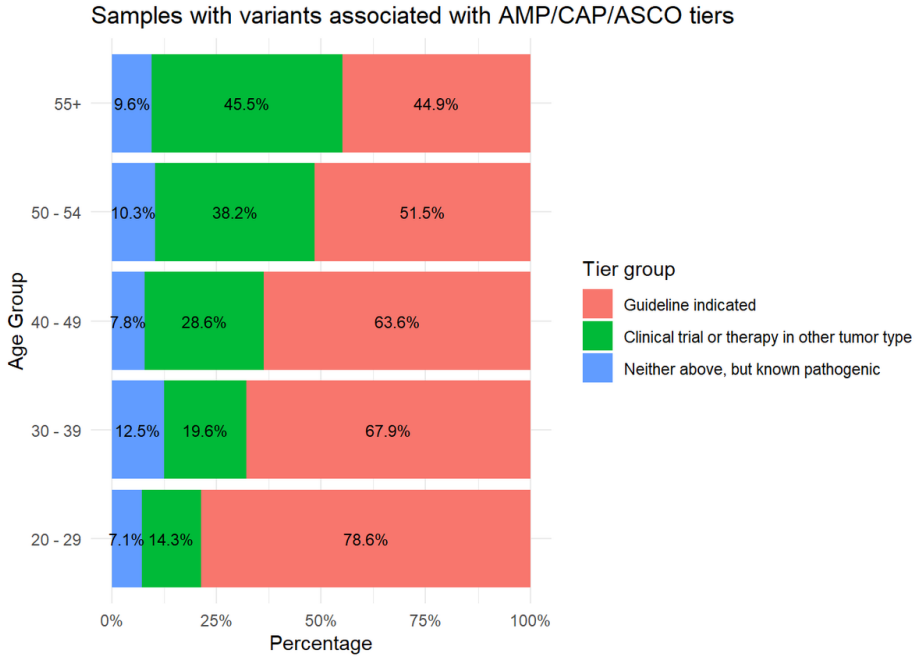

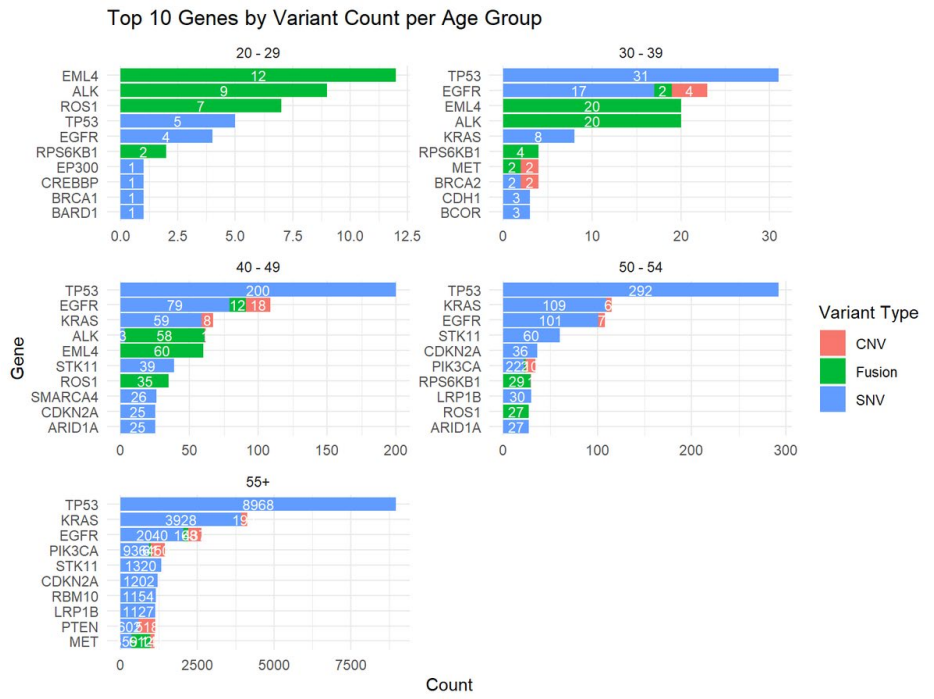

Using AI for clinical trial matching

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A powerful first pass

Scans thousands of trials in seconds - something no person can do by hand - especially useful for specific EGFR subtypes.

But verify everything

Eligibility is complex. AI can miss real trials - or invent ones that don't exist.

Cross-check every result on ClinicalTrials.gov and with your care team.

A trial-matching prompt

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You **Your prompt**

Find clinical trials for **EGFR exon 19 deletion** non-small cell lung cancer that has **progressed after osimertinib**. I'm **near Chicago and can travel up to 3 hours**. Please include the trial name, phase, and where to learn more. Search ClinicalTrials.gov directly (and search for “recruiting” and “not yet recruiting”)

Include these

- **Mutation & subtype**
- **Prior treatments**
- **Location & travel range**
- **Other diseases**

Then verify each trial's **NCT number on ClinicalTrials.gov.**

Understanding your care

For patients and caregivers

Survivorship

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AI may help you and your caregivers

- **Translate medical language into plain explanations**
- ***Summarize clinic notes and molecular reports***
- **Prepare questions before an appointment**
- **Organize medication schedules**
- **Translate information into other languages**
- **Create visit summaries for family members**

Especially: molecular reports

Your EGFR and NGS results are dense and technical. AI can turn them into plain language - so you understand what's driving your cancer and what your options are.

What you can do now

Do this

- Utilize it as a robust Search engine
- Treat it as a question generator, not an answer
- Check the date - how current is its knowledge?
- Protect your privacy with medical records
- Bring it to your care team

Red flags

- Always verify the source and guidelines
- Never utilize it for mental therapies
- Never solely rely on AI for clinical decision making and understanding symptoms

Acknowledgements

Family, Mentors (Dr. Gilberto Lopes), Patients, Collaborators

Pilot Grant in AI – Department of Medicine, University of Miami

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UNIVERSITY OF MIAMI HEALTH SYSTEM

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Elevate Healthcare Strategy With Intelligent Decision Support

AI and Agentic AI in Healthcare

Global Resource for Advancing Cancer Education®

LARVOL ONCO DATA AI

AI cannot replace the human heart of cancer care. But when guided by evidence and compassion, it can help every patient feel more informed, more prepared, and less alone.

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