

# AI IN HEOR

## "The Invisible Layer"

Women, Expertise, and  
What AI Leaves Behind in  
Healthcare Research

**CONNECT AI: HEOR THINKING FOR AN  
AI-ENABLED ERA**

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# Publisher's Note

## Connect AI | Edition 03

This paper began with a question asked around a small dinner table with a group of women working across healthcare research, consulting, academia, and industry: will AI reduce or widen the gap for women in healthcare research?

What followed was not primarily a conversation about technology. It was a conversation about careers, confidence, expertise, flexibility, leadership, and what work itself may look like in an AI-enabled future. Two perspectives emerged. One viewed AI as a democratising force that could lower barriers to knowledge, technical skills, and participation. The other questioned whether differences in access, confidence, and adoption could create new forms of inequality. Neither was wrong. Both are part of the same story.

The first two editions of Connect AI explored leadership, governance, and accountability in AI-enabled HEOR. Edition 02 introduced the Governance Ghost, the human who is nominally responsible for AI-assisted work but who stopped genuinely engaging with it. This edition extends the conversation to the workforce itself: not who owns the output, but who gets to build a career around the capabilities that AI cannot replace.

As AI increasingly performs tasks that once signalled expertise, the question facing healthcare research leaders is no longer simply how to adopt AI responsibly. It is how to ensure that the opportunities created by AI are distributed equitably, and that the next generation of leaders, women included, is prepared for a fundamentally different future.

This paper does not attempt to predict that future. It explores the questions leaders should be asking now, and names the choices that will determine whether AI becomes a force for greater equity in healthcare research or a mechanism for concentrating advantage in the hands of those who already have it.

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## INTRODUCTION

# The Conversation Happening Behind AI.

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Artificial intelligence is changing how healthcare research is conducted. Literature reviews, evidence synthesis, coding, analysis, scientific writing, and knowledge discovery are all becoming increasingly AI-enabled. Much of the current conversation focuses on productivity, efficiency, and technological capability.

Less attention has been paid to a different question: how AI may reshape expertise, careers, leadership, and workforce participation.

This matters because healthcare research is not simply a technical discipline. It is a profession built on judgment, interpretation, scientific rigour, and the ability to make decisions under uncertainty. As AI takes on more of the execution layer of this work, the value of human contribution shifts toward these higher-order capabilities. The question is who gets to develop those capabilities, who is recognised for them, and who is positioned to lead with them.

This paper explores what those changes may mean for women working across healthcare research, HEOR, pharma, academia, and policy. More broadly, it asks what kind of workforce organisations must build if they are to realise the benefits of AI while ensuring that opportunity, leadership, and advancement remain accessible to all.

It is intentionally broader than a women-only piece. Women are the lens. The subject is the future of expertise in healthcare research, and whether the profession will emerge from AI adoption more equitable or less.

***AI will not determine whether healthcare research becomes more equitable. The leaders who decide how AI is adopted, who benefits from it, and who is positioned to lead with it will.***

## SECTION 1

## Why This Conversation Matters Now.

AI is moving faster than the organisational structures around it. In healthcare research, that mismatch is already visible. Teams can now draft faster, search faster, synthesise faster, and produce more polished outputs in less time. But faster output is not the same thing as better judgment. That distinction is where the workforce conversation starts.

Healthcare research is consequential. Evidence choices influence payer decisions, access, reimbursement, and ultimately patient outcomes. Much of the work in HEOR and related functions depends on interpretive judgment that cannot be fully delegated to a model. And leaders are now facing a workforce question they were not expecting: what skills will matter most when AI handles more of the execution layer?

The answer is already emerging. In an AI-enabled environment, the most valuable professionals will not only be good writers or good coders. They will be people who can ask the right question, frame the right problem, and defend a choice under scrutiny. That shift may be especially meaningful for women. For some, AI may reduce barriers that have historically slowed progress: time pressure, the burden of repetitive work, and the need to prove technical competence through manual execution. For others, especially those without access to strong support systems, the same shift could create a new divide.

### 2 questions

*The workforce question is not simply whether AI creates opportunity. It is whether organisations deliberately ensure that opportunity is shared, and whether the capabilities AI cannot replace are developed equitably.*

From an academic and research perspective, these shifts are already visible. AI tools are accelerating tasks such as literature searching, evidence synthesis, grant drafting, and manuscript preparation, lowering barriers that have traditionally limited participation for early-career researchers and non-native English speakers. These developments have the potential to broaden participation in healthcare research significantly.

However, if organisations assume equitable adoption without investing in training, support, and access, the benefits are likely to accumulate among those who are already well-resourced and well-connected. The question is not whether AI creates opportunity. It is whether organisations deliberately ensure that opportunity is shared.

## SECTION 2

## AI as a Democratising Force.

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The strongest case for AI is that it can lower barriers. In healthcare research, entry into more technical work has often depended on access to training, software, mentorship, and time. AI can reduce the need to start from zero on tasks such as initial drafting, literature search acceleration, coding assistance, or visual presentation support. That can make the field feel more accessible to people who may not have come through traditional pipelines.

This matters for women in particular because career paths are not shaped only by talent. They are shaped by time, flexibility, caregiving responsibilities, confidence, sponsorship, and access to opportunity. AI-enabled workflows may make it easier to work asynchronously, contribute from different locations, and maintain momentum through career transitions.

There is also a broader democratic possibility. AI may allow more people to contribute meaningfully to healthcare research without requiring the same level of institutional privilege that was previously necessary. A smaller team can do more. A geographically dispersed team can collaborate more easily. A researcher with strong judgment but less technical infrastructure can still make a visible contribution.

***AI can lower the technical floor of participation in healthcare research. But lowering the floor only matters if organisations also raise the ceiling for those who have historically been kept below it.***

This challenge is equally relevant within academia. Access to AI tools, institutional support, and opportunities for experimentation are not distributed evenly across organisations. Researchers working within well-resourced institutions are often able to adopt AI-enabled workflows earlier, potentially accelerating publication, grant development, and evidence generation. The democratising potential of AI is therefore real, but it will only be realised if institutions treat access to AI capability as shared professional infrastructure rather than an individual competitive advantage.

## SECTION 3

## The New AI Divide.

AI will not automatically level the playing field. It may create a new one.

The emerging divide is not simply technical versus non-technical. It is AI-enabled versus AI-disadvantaged. And that divide can show up in ways that are harder to see than access to a software licence.

- Who has access to tools
- Who knows how to use them effectively
- Who is confident enough to experiment
- Who is encouraged to adopt new ways of working
- Who has the time and support to learn

Importantly, this divide may not be driven primarily by capability. It may be driven by confidence, experimentation, and organisational support. Emerging workforce research suggests that while many women recognise the importance of AI for future careers, they are often less likely to report confidence in using AI tools and less likely to have received formal training or encouragement to adopt them. The result is that AI may create a confidence gap before it creates a capability gap.

This matters because AI adoption is rarely a formal process. In many organisations, professionals learn through experimentation, peer networks, and informal exposure. Some individuals open ChatGPT, Claude, or Gemini every day, testing ideas, refining workflows, and building new habits. Others wait for training, guidance, or permission. Over time, these differences compound.

**LEADERSHIP SIGNAL**

*The future divide may not be between technical and non-technical professionals. It may be between those who are AI-enabled, supported, and encouraged to experiment, and those who are not.*

The danger is that AI becomes a force multiplier for those who already have time, support, sponsorship, and confidence, while leaving others behind. In that scenario, AI does not reduce inequality in healthcare research. It amplifies it.

For women in healthcare research, this is especially important. If women are underrepresented in leadership or less likely to receive informal access to emerging workflows, they may also be less likely to benefit from AI adoption. The same technology that promises flexibility can also intensify expectations. The same speed that creates opportunity can also increase pressure.

The challenge may be even more pronounced in low- and middle-income countries, where disparities in access to technology, digital infrastructure, training opportunities, and professional networks remain significant. While much of the current evidence comes from North America and Europe, the implications for global healthcare research may be even greater.

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*The organisations that assume equitable AI adoption without deliberately designing for it will discover, too late, that AI accelerated the advantages of those who were already best positioned.*

This divide also has implications for research publication quality. Researchers and organisations with mature AI workflows will not only move faster. They will be better positioned to document how AI was used, preserve audit trails, comply with journal and funder disclosure expectations, and defend methodological choices during peer review. Current medical publishing guidance is already moving in this direction: ICMJE recommends disclosure of AI-assisted technologies and makes clear that AI tools cannot be listed as authors because they cannot take responsibility for the integrity of the work. For HEOR, this means AI literacy is becoming part of research quality infrastructure, not just individual productivity.

**ICMJE & WAME (current guidance). Authorship, disclosure, and accountability in AI-assisted research.**

*AI tools cannot be listed as authors because they cannot take responsibility for the integrity of the work. Human accountability, transparency, and editor/reviewer disclosure are required. A team that uses AI without documenting prompts, source checks, version history, or human review decisions may produce faster outputs while weakening the evidentiary chain that makes those outputs trustworthy.*

## SECTION 4

## The Future of Expertise.

Historically, expertise in healthcare research has often been signalled by output: writing, code, slide decks, summaries, and technical deliverables. AI disrupts that model. If AI can draft, summarise, code, and structure faster than humans, then the value of human expertise moves elsewhere.

The new premium is likely to sit in judgment, methodological rigour, strategic framing, interpretation, ethical oversight, and the ability to defend choices in a real-world context. That has profound implications for careers at every level.

### 3 levels

*For early-career professionals: producing polished text may not be enough to stand out. For mid-career professionals: contextualising, challenging, and steering matters more than manual production. For senior leaders: distance from the detail is no longer automatically a strength.*

This is one of the most important arguments in the Connect AI series, and it connects directly to the governance argument in Edition 02. If AI changes the distribution of work, then the human role shifts toward deciding what matters, why it matters, and how it should be defended. In an AI-enabled environment, seniority increasingly means being close to judgment, not distant from it.

That is good news for those who lead with insight. But it is also a warning. If organisations continue to reward visible production more than invisible judgment, they may fail to recognise where value is actually moving, and fail to develop the workforce capable of generating it.

***The organisations that will lead in AI-enabled healthcare research are not those that produce the most. They are those that judge the best. Building that capability equitably is the leadership test of this decade.***

Research institutions may also need to reconsider how expertise is recognised and rewarded. Traditional markers such as publication volume, writing quality, and technical execution have long acted as proxies for scientific capability. As AI increasingly supports these activities, organisations will need to place greater emphasis on critical thinking, methodological judgment, originality, and the ability to defend scientific decisions. This is not a reduction in standards. It is a shift in where expertise creates value.

A useful near-term standard would be to treat AI use as a methods and accountability question rather than a writing-style issue. In practice, that means distinguishing low-risk editorial assistance from substantive uses that affect search strategy, screening, data extraction, model specification, interpretation, or manuscript framing. The latter should trigger a stronger documentation expectation: what tool was used, for what purpose, what human checks were performed, and who remains accountable for the final scientific claim.

## SECTION 5

## Productivity, Pressure, and the Paradox.

AI is often presented as a productivity tool. That is true, but incomplete. In practice, productivity gains rarely mean less work. They often mean higher expectations.

When teams produce faster, stakeholders ask for more. When work becomes easier to generate, timelines compress. When output quality rises, expectations rise with it. This can be especially challenging in consulting and research environments already shaped by tight deadlines and constant demand.

For women, the productivity paradox matters because AI may appear to offer flexibility while simultaneously raising performance pressure. If AI saves time, that time is often filled immediately with more work, more revisions, or broader scope. The result can be efficiency without relief.

### LEADERSHIP SIGNAL

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*AI should not be framed as a way to extract more output from the same people without changing workload, priorities, or expectations. If that is the operating model, the tool will not feel like empowerment. It will feel like escalation.*

This dynamic is particularly relevant for early- and mid-career researchers, where the pressure to publish, secure funding, and demonstrate impact was already high before AI entered the picture. While AI can reduce the time required for tasks such as literature reviews, manuscript preparation, and grant drafting, it may also create an expectation of delivering more outputs in less time rather than easing overall workload.

Women, especially those balancing caregiving responsibilities, often have less protected time for sustained research and greater service commitments. AI has the potential to provide genuine support by enabling more flexible and efficient ways of working. However, if organisations respond by simply increasing productivity expectations without adjusting workloads or recognising these realities, the benefits of AI risk being absorbed into additional demands rather than improving career sustainability.

For leaders, this is not simply a productivity question. It is a workforce and equity question. Organisations that are serious about responsible AI adoption need to be as deliberate about protecting employees' time, wellbeing, and career progression as they are about enabling AI capability.

**Guarino CM, Borden VMH. (2017). Faculty Service Loads and Gender: Are Women Taking Care of the Academic Family? Research in Higher Education.**

*Women face disproportionate service burdens in academic environments. AI-driven efficiency gains that are absorbed into increased output expectations, rather than workload reduction, risk compounding existing inequalities for women in research roles.*

## SECTION 6

## Women, Leadership, and the Sponsorship Gap.

The conversation about women and AI is often framed around access: access to tools, access to training, and access to technology. While these are important, the larger question is one of leadership. Who will shape how AI is adopted within healthcare research? Who will be trusted to experiment with new approaches? Who will be recognised as an AI-enabled leader rather than an AI user?

Historically, discussions around women's advancement have focused on the first step into management, where women are promoted at lower rates than men, creating disparities that compound throughout leadership pipelines. AI may introduce a new version of this challenge at a stage that is largely invisible.

As AI becomes embedded within healthcare research, those who actively experiment with AI, build new workflows, influence adoption decisions, and develop AI-enabled ways of working are becoming more visible within organisations. They are often the individuals shaping future operating models, influencing strategy discussions, and developing skills that will become increasingly valuable in leadership roles.

The risk is not simply that some women use AI less frequently than men. The risk is that women may be less likely to be positioned as AI leaders, AI innovators, or AI champions within their organisations. If AI fluency becomes associated with influence, visibility, and leadership potential, then unequal participation today may translate into unequal opportunities tomorrow.

**LEADERSHIP SIGNAL**

*The most important AI gap may not be a skills gap. It may be a sponsorship gap. The future leaders of healthcare research will be shaped not only by who has access to AI, but by who is encouraged, trusted, and supported to lead with it.*

In this environment, sponsorship becomes as important as training. Access to AI tools alone is unlikely to create equitable outcomes. Individuals need opportunities to experiment, psychological safety to learn, mentors who encourage adoption, and leaders who actively create pathways into AI-enabled work. Without these supports, organisations risk creating a new form of inequality where the most valuable future opportunities accrue to those who were already best positioned to access them.

Career progression will also depend on whether AI-enabled work is recognised as legitimate professional contribution. In academic and consulting environments, some of the most valuable work may be invisible at first: building reusable evidence-review workflows, designing quality-control checks for AI-assisted outputs, training peers, or identifying when AI output is plausible but scientifically wrong. These activities sit between methods, operations, governance, and leadership. If they are treated as informal side work, they will often fall to already overextended women and early-career staff without improving promotion prospects. If they are recognised in performance review, promotion dossiers, and leadership pipelines, they can become a new route into influence.

There is also a significant opportunity. Many of the capabilities likely to become more important in an AI-enabled future, including collaboration, systems thinking, stakeholder engagement, communication, ethical reasoning, and contextual judgment, are capabilities that have always been central to effective leadership. If organisations deliberately invest in developing these capabilities alongside AI literacy, the transition could create new pathways for women to lead within healthcare research, HEOR, academia, and policy.

**Lean In & McKinsey & Company. Women in the Workplace 2024: AI and the Gender Gap.**

*While many women recognise the importance of AI for future careers, they are consistently less likely to report confidence in using AI tools and less likely to have received formal training or encouragement to adopt them. The result is that AI may create a confidence gap before it creates a capability gap.*

## SECTION 7

## What Leaders Must Do Now.

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Leaders in pharma, academia, consulting, and policy do not need another generic AI manifesto. They need a practical agenda. The following four commitments are the minimum required to ensure that AI adoption in healthcare research is both responsible and equitable.

### 1. Build AI literacy as a shared workforce capability.

Not everyone needs to build models. But everyone needs to understand what AI can do, where it fails, and where human judgment remains essential. AI literacy should be treated as professional infrastructure, not a competitive advantage for those who discover it first. That means structured access, not informal osmosis.

### 2. Treat AI as a leadership and talent question, not only an efficiency one.

Adoption decisions should be linked to career development, not just output metrics. The organisations asking who is developing AI-enabled capabilities, and whether those people reflect the full range of the workforce, will build a broader and more sustainable pipeline of future leaders.

### 3. Protect space for human judgment.

If everything becomes a race to the first draft, the field may lose the reflective thinking that makes evidence trustworthy. AI changes the distribution of work in healthcare research. It does not reduce the amount of judgment required. Leaders need to create conditions where judgment is valued, rewarded, and protected, not incidentally produced by the people who happen to have time for it.

### 4. Design for equity explicitly.

Equitable AI adoption requires access, sponsorship, psychological safety, and pathways into AI-enabled leadership. None of those things happen without a deliberate decision to create them. For senior leaders, this is the real test of whether AI governance extends beyond technology into the human organisation it is transforming.

***The question is not whether AI can generate more output. The question is whether the organisation can use AI to build a stronger, fairer, and more future-ready workforce. That is a leadership choice, not a technology outcome.***

## SECTION 8

## Recommendations by Audience.

The following recommendations are addressed to distinct audiences. Each reflects the specific leadership decisions that will shape whether AI adoption in healthcare research becomes a force for equity or a mechanism for concentrating existing advantage.

### For Pharma Leaders

- Build AI literacy into talent development plans, not only technical onboarding.
- Identify which roles are being reshaped and which capabilities will matter next.
- Ensure women are represented in AI adoption, governance, and leadership decisions from the beginning.
- Track whether AI is improving flexibility and career sustainability, or simply increasing expectations.

### For Academic Leaders

- Protect scientific rigour while adapting to changing methods and publication norms.
- Reconsider how training, supervision, and authorship expectations evolve in an AI-enabled environment.
- Support early-career researchers in building judgment and critical capability, not only output.
- Create explicit AI-use norms for grants, manuscripts, peer review, student supervision, and disclosure.

### For Policy and System Leaders

- Consider the workforce implications of AI alongside the technological ones.
- Encourage responsible adoption frameworks that address equity, transparency, and trust.
- Recognise that the future of healthcare research depends on how well, and how equitably, the workforce adapts.

### For Healthcare Research Organisations

- Make AI adoption visible, supported, and equitable across all levels of seniority and experience.
- Create clear expectations for who owns judgment in AI-assisted work.
- Recognise AI workflow design, quality assurance, and responsible-use leadership as career-relevant contributions.
- Reward people who ask hard questions about AI outputs, not only those who move quickly.

## CONCLUSION

# More Intelligent. More Equitable. More Human.

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AI will transform healthcare research. That much is already clear. The deeper question is whether leaders will shape that transformation in a way that expands opportunity, strengthens expertise, and supports the next generation of women leaders in the field.

This paper argues that the future of healthcare research will belong less to those who can produce the most, and more to those who can judge, interpret, and lead best. In that world, women should not be treated as a side story in the conversation about AI. They are central to the question of who benefits from AI, who leads with it, and who gets left behind.

The Connect AI series has argued across three editions that AI changes the distribution of work, not the amount of it. The execution layer moves toward AI. The judgment layer, the framing, the interpretation, the defence of choices under scrutiny, moves toward the people senior and capable enough to own it. That redistribution is an opportunity. But opportunity is not the same as outcome. Outcomes require deliberate choices about who is developed, who is sponsored, who is trusted to lead, and whose contributions are recognised.

The challenge now is not simply to adopt AI. It is to build a future of healthcare research that is more intelligent, more equitable, and more human than the one being left behind.

***The future leaders of healthcare research will be defined not by how well they used AI, but by what they chose to do with the human layer it left behind.***

## Connect AI

Connect AI explores how the life sciences industry must evolve in an AI-enabled world.

The series focuses on leadership decisions, governance, and operating models, not tools or technology in isolation. Each edition examines a specific dimension of how evidence is governed, defended, and owned as AI becomes embedded in HEOR workflows.

Each edition examines a different dimension of how evidence is generated, interpreted, and defended as speed, scale, and complexity increase.

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