Google AI Search results & the Health Sector

An assessment of impact and concerns

1. Executive Summary

Google's 2024 launch of its AI search results panel has not only impacted traffic to support lines and health content across the sector, but there are concerns that this zero-click approach poses a risk to health outcomes.

70 organisations from across the health sector attended a virtual roundtable in March 2025, hosted by Marie Curie and the Patient Information Forum (PIF). These included NHS organisations and a host of national charities who share these concerns and have collaborated on this list of identified risks.

2. Working together

Google is a trusted source for access to health information. Research by Ipsos for PIF found 50% of people use Google to search for health information, a similar number to the NHS website. Al summaries present a risk to this position of trust. We want to work with Google to identify trusted sources of UK information, improve localisation of summaries and onward signposting. We believe AI can support better health outcomes and we make a series of recommendations including:

- Suspending AI summaries on health topics in the UK until accuracy and safety issues are resolved.
- Agreeing a framework for the verification of trusted health information in the UK.
- Ensuring results prioritise verified UK-based sources.

- Ensuring critical health queries are routed to NHS-approved content.
- Providing clearly visible context and support options at every stage.
- Introducing explicit warnings that AI summaries on health topics may not be accurate and should not be taken as authoritative or regulated advice.
- Providing directions in health searches for how to seek a healthcare professional.

3. Specific concerns

1. Risks to Health Outcomes

- Health organisations warn that AI-generated information panels may cause users to miss important source content, hindering a nuanced understanding of their condition and limiting access to support. The outcome could be a reduction in quality of life.
- o By giving the exact (potentially inaccurate) information for which people search with no context or clear onward user-journey, Google's results risk widening the health inequality gaps these organisations aim to reduce.
- o The PIF/Ipsos published research showed only 1 in 10 people are signposted to patient support groups from the NHS. The vast majority reach them through independent search with charities considered the most trusted sources.

We believe it is as critical for Google to maintain its position of trust by providing accurate source data as it is fundamental for health organisations that Google guides people to robust, researched health information and offers of care.

2. Quality and Accuracy of Content

- o Charities report their content has been altered in search results. See Appendix for examples.
- o Use of authoritative language and references may give invalid source sites the appearance of expertise, making them more likely to be picked by AI.
- o Al-generated summaries lack nuance, particularly in health-related topics where circumstances differ; an Al answer for "what are the causes of MASLD"

is unlikely to include side links for "what to do if you are worried".

o It is virtually impossible to obtain the same answer from AI even for questions worded identically, leading to urgent concerns about the consistency and accuracy of information provided, or the ability for someone to revisit advice.

3. Lack of localised source material

- o One of the most repeated concerns is that AI search results favour US-based sources and do not adequately cater to UK or more regional audiences.
- o Google has said this is a target for change; we would like to ask for visibility around how source content is being chosen and given weight.
- Better still, the sector offers to work with Google to develop a shared understanding of what would constitute a 'trusted publisher' in the Health Information space. PIF runs a certification scheme for health information in the UK under which 150 organisations are certified (the PIF TICK). This forms the basis of the content standard for NHS England and is already used as the basis forof criteria for YouTube's 'Health Shelf'.

4. Health Inequality and Literacy

- o Narrowly focused AI responses could widen health inequalities by failing to account for varying literacy levels and broader informational needs.
- People searching for health results may be in a state of panic and in need of additional context. While Google provides links to sources, search results are isolated from the context of other information or support, creating extra obstacles for those seeking help, especially affecting those less digitally included or literate.
- The language used in AI summaries is identified as confusing. For example, wording such as "this is especially the case" indicates information comes from multiple sources; however, users in a state of stress or with low reading age need clear, precise language to guide them to the help they need.

5. Access to support

- Some members have noticed a decline in organic search traffic and have concerns that users are bypassing signposting to source content, which may offer hands-on support and care or contain information they are unaware they need.
- Around 10% of organisations attending the roundtable reported a reduction in calls to their helpline; and 50% reported a fall in traffic. 70% of those reporting a fall attributed this to the introduction of AI overviews rather than other changes in the environment.

4. Summary

Representatives from the health sector ask to address the concerns raised in this document directly with Google. We seek reassurance that the identified risks to health outcomes in the UK from the use of AI-generated search panels will be addressed and look forward to a successful collaboration on the maintenance of trust in Google's health-related search results.

5. Appendix 1: Additional questions raised

1. Interpretation of Health-related queries

- Can Google's search engine tell if someone is asking a health-related question? Is it possible to put in special measures to ensure results come from trusted content?
- Does Google have mechanisms able to identify and respond to critical or harmful queries such as health emergencies or medication issues which then direct to relevant sources such as NHS 111 or a charity helpline?

2. Safeguards and Warnings for Health-Related AI Content

o There is a strong wish for clearer, tailored disclaimers on the AI health information, such as urging users to verify data with trusted sources.

o There is a recommendation that Google make it a lot more clear which

- content has been AI generated. The example to the right shows an AI statement which could be made more prominent, and/or with stronger wording.
- Would Google be willing to introduce an obvious way to turn off AI summaries when searching? Combined with clear statementing around AI-generated content, this may help safeguard users

Screening:

Regular bowel cancer screening can help detect the disease early, when it's most treatable.

- NHS	ancer	Signs and bowel car
Main symptoms of bowel cancer changes in your poo, such as having		What are the cancer? * ble
NHS	:	😤 Bowel Ca



 There are concerns that harmful searches typically performed by those in fragile mental states could be delivering results that drive them to further harm.

3. Question: Why is Health the biggest sector for AI overviews?

- o Is this a reversal of the decision?
- Concerns were raised that the disproportionate focus on health content in AI summaries could pave the way for health/wellbeing/'wellness' advertising opportunities in the future.

6. Appendix 2: Examples of inaccurate Google AI results

1.1. Pancreatic Cancer UK

The Google panel below recommends that people with pancreatic cancer avoid high-fat and other foods as displayed in a list; however, this is the exact opposite of recommendations. Many people with pancreatic cancer will need to eat high fat foods to help them put on or maintain weight, including all the foods listed here.

This search result is potentially dangerous to those who need to put on weight so that they can receive cancer treatment. If people follow this, it will lead to worse health outcomes as they potentially won't be able to have treatment for their cancer.

With pancreatic cancer survival rates as low as 1% after 3 years, outcomes can depend on the speed at which treatment can be given.



Q pancreatitis survival rate **(ANS** +3 Survival rates for pancreatitis dep nd on the ty of pancreatitis and the severity of the disease: 🧔 cute pancreatitis × CAAFP Acute Pancreatitis: Diagnosis, Prognos 15 May 2007 — Mild acute pancreatitis has a very low n rate (less than 1 percent),1,2 whereas the death rate for acute pancreatitis can be 10 to 30 ...

::

:

÷

1.2. The Lullaby Trust

The charity reports this inaccurate AI-generated search result, which poses a potential child safety risk as well as a reputational risk.

The result states that the charity has collaborated with Purflo on a baby bed, which is particularly troubling, as Purflo sells products that do not align with the charity's evidence-based advice on infant sleep.

The Lullaby Trust states that it has never worked with Purflo. There is no information on their website about Purflo; they cannot find this information on Purflo's site or anywhere online, suggesting that this is an AI hallucination



1.3. Melanoma Focus

The charity has noticed an increase in US organisations appearing high in Google search results, which is concerning as treatments and medical information differ between the US and the UK.

Below is an example of AI search results for 'uveal melanoma'. This is a rare type of melanoma for which the charity produces up-to-date UK national guidelines.

When doing a search for 'uveal melanoma' on Google however, the UK national guidelines are not represented. The first link is to an out-of-date 2016 article in a medical journal, the next to Wikipedia and the last to a US organisation.



1.4. British Liver Trust

The AI summary results for "What is the normal range for liver blood tests" provides misleading information for Liver Function Tests, which are commonly requested by GPs in the UK to diagnose and monitor liver disease and other conditions. Many people with liver disease show no symptoms until the final stages, making accurate testing crucial.

We know from feedback that these results are often delivered with no context for what the numbers mean, leading people to search online for explanations. The first summary is only accurate for adult men and does not account for wide variances for sex, ethnicity, and age, so a great many will struggle to understand their results.

Three references are from the US and one is from India and both countries have different standards than the UK. As a result, these results could differ from what is considered 'normal' by up to a factor of 10,

Crucially for health outcomes, these result lack critical context. Some people with serious liver disease may have a normal result and could therefore be discouraged from seeking or attending a critical follow-up healthcare meeting. In contrast, 20% of those with results outside the range will have a completely healthy liver and may worry unduly.

🔶 Al Overview		
Normal ranges for common liver blood te U/L), ALP (40-129 U/L), Albumin (3.5-5.0 Total protein (3.5-5.0 g/dL). Here's a more detailed breakdown of the tests: Test	9 g/dL), Bilirubin (0.1-1.2 mg/dL), and	Liver function tests - Ma 18 Jan 2025 — Standard ra typical liver function tests in 7 Mayo Clinic
ALT (Alanine Transaminase)	7 to 55 U/L	Liver Function Tests: Typ Interpretation
AST (Aspartate Transaminase)	8 to 48 U/L	What is the normal range for ranges vary between different
ALP (Alkaline Phosphatase)	40 to 129 U/L	Cleveland Clinic
Albumin	3.5 to 5.0 g/dL	How to Read & Interpret - Prestige ER
Bilirubin	0.1 to 1.2 mg/dL	Average Ranges for Liver F
Total Protein	3.5-5.0 g/dL	transaminase (AST) AST le
GGT (Gamma-Glutamyl Transferase)	8 to 61 U/L	Liver Function Tests: Ty
LDH (Lactate Dehydrogenase)	122 to 222 U/L	ranges, and Results



Learn more

X

This is for informational purposes only. For medical advice or diagnosis, consult a professional. Generative AI is experimental.

1.5. Mind

Searches that may be performed by someone experiencing psychosis, in a manic episode, or with an eating disorder, also deliver concerning results.

For 'Hearing voices' and 'psychosis', while the information presented is broadly correct, it signposts people to untrustworthy resources such as WebMD; or to 'Voice Collective', which is a young person only resource – and the link provided goes to ChildLine instead.

Common searches performed by someone experiencing psychosis, such as 'I'm being spied on', generate AI overviews which may dangerously encourage someone's delusions, such as focusing on identifying the spy and the need to take it seriously.

Results for 'manic episode' bring up an AI overview which says that mania lasts for a week, whereas an episode must last a <u>minimum</u> of a week to be considered mania, which may lead people to avoid seeking help.

Al overviews regularly promote harmful calorie-restricted diets to those with eating disorders due to the heavy presence of poor-quality nutrition content online. The example below promotes a recommendation to only eat one 500 calorie meal some days whereas a diet of anything less than 1200 calories a day is considered starvation.

8:49 .II ? D	9:11 내 후 🖽 ૻૻૻૻૻૻૢૻૻૻ	9:17 .11 ବି 94
Google 🏚 🌒	Q manic episode 🌵 😨	Q fastest way to lose weight 🌵 😨
Q i'm being spied on U	All Videos Images News Short videos For	All Videos Images Short videos Forums
All Images Videos Short videos News For	♦ Al Overview	Al Overview 2000 +12 ;
Al Overview Al Overview Hightary 1 Hightary 2 Hightary	A manic episode is a period characterized by abnormally elevated, expansive, or irritable mood and abnormally and persistently goal-directed behavior or energy, lasting at least a week and present	To lose weight quickly, you can combine a healthy diet with regular exercise and try intermittent fasting. However, there's no single rule that works for everyone.
for:	most of the day, nearly every day.	 Eat more fruits, vegetables, lean proteins, and healthy fats
1. Assess the Situation & Gather Information:	What it is:	 Eat fewer refined carbs and added sugars
 Identify the potential spy: Who do you suspect might be spying on you, and why? 	A manic episode is a distinct period where a person experiences a significant shift in their usual mood and behavior, often involving	Drink more waterIncrease fiber in your diet
Note specific instances: What behaviors or	increased energy, activity, and a sense of euphoria or irritability.	Exercise 🥔
events lead you to believe you are being watched?	Duration:	 Get at least 150 minutes of moderate intensity aerobic exercise each week
	These episodes typically last for at least a week, or shorter if hospitalization is necessary.	 Do strength training exercises at least twice a week
Show more 🗸	Symptoms:	Consider high-intensity interval training (HIIT)
	Key signs and symptoms include: 🖉	Intermittent fasting
📮 🚔 Q i'm being spied on 🔮	 Elevated or expansive mood: Feeling unusually happy, excited, or "high". 	😑 🔒 Q fastest way to lose weight 🔮
< > @ @ @	 Irritability: Feeling easily frustrated or a Q manic episode 	< > @ @ @

Marie Curie is a registered charity in England and Wales (207994) and Scotland (SC038731). Registered as a company limited by guarantee in England & Wales (507597). Registered Office: One Embassy Gardens, 8 Viaduct Gardens, London, SW11 7BW.

1.6. Migraine Trust

The Migraine Trust reports several examples of concerning results including localisation issues and inaccurate advice.

The first results shown are for a search of CGRP medication which includes medicines that aren't available in the UK

Similarly, a search for the best treatments for migraines also lists non-UK medications.

Both results show US brand names for medication which may be available in the UK but called something else.

+ AI Overview	Al Overview For acute migraine attacks, triptans are considered the gold standard, while	
CGRP medication, specifically monoclonal antibodies (mAbs) and gepants, are a relatively new class of migraine treatments that target the calcitonin gene- related peptide (CGRP) system, a key player in migraine pain transmission.	for acute migraine acutes, inplans are considered in e-goid standard, while for milder cases, over-the-counter pain relievers like ibupofen or aspirin can be effective. Preventive treatments, including beta-blockers and other medications, can help reduce the frequency and severity of migraines. <i>•</i>	
	Here's a more detailed breakdown of migraine treatments:	
Here's a more detailed explanation:	Acute Migraine Treatments:	
What are CGRP medications?	Triptans:	
 CGRP is a peptide that plays a role in transmitting pain signals and causing inflammation in the brain, contributing to migraine attacks. 	These medications, like sumatriptan and rizatriptan, are highly effective for stopping migraine attacks. 🥐	
 CGRP medications aim to block the action of CGRP or its receptor, thereby reducing migraine symptoms. 	 They work by constricting blood vessels in the brain and blocking pain signals. 	
Types of CGRP Medications:	Other Medications:	
 Monoclonal Antibodies (mAbs): These are large molecules that target either the CGRP molecule itself or its receptor. Examples include erenuma (Almovig), fremanezumab (Ajovy), galcanezumab (Emgality), and reptinezumab (Verpti). 	 Dihydroergotamine: Available as a nasal spray or injection, it can be effective for migraines that last longer than 24 hours. 	
	Lasmiditan (Reyvow): A newer oral tablet approved for migraine treatment.	
 These are typically administered as monthly or quarterly injections. 	 Gepants: Oral medications like ubrogepant (Ubrelvy) and rimegepant (Nurtec ODT) target a specific pain pathway. 	
 Gepants: These are small molecules that act as CGRP receptor antagonists, meaning they block the CGRP receptor. 	 Intranasal zavegepant (Zavzpret): A nasal spray approved for migraine treatment. 	
Examples include rimegepant (Nurtec ODT), atogepant (Qulipta), and ubrogepant (Ubrelvy).	 Anti-nausea drugs: Can help if your migraine is accompanied by nausea and vomiting. 	
Gepants are available as oral tablets.	Pain Relievers:	
How CGRP medications work:	Over-the-counter: Aspirin, ibuprofen, and acetaminophen (Tylenol) can provide	
mAbs: By binding to CGRP or its receptor, mAbs prevent CGRP from transmitting	pain relief for mild to moderate migraines. 🕖	

ginger for migraine

Al Overview

Ginger may offer relief for migraine symptoms like headache and nausea, and some studies suggest it can be as effective as certain medications, with fewer side effects. \mathcal{P}

Here's a more detailed look at ginger and migraines:

- Potential Benefits:
- Pain Relief: Ginger has been shown to reduce pain and inflammation, potentially helpful for migraine pain. Nausea Reduction: Ginger is known for its anti-nausea properties, which can be beneficial during migraine attacks.
- Alternative to Medications: For those who cannot take or prefer not to take conventional migraine medications, ginger may be a safe and effective
- tive. 🥏 Side effect profile: Ginger has a better side effect profile than some medications

How to Use Ginger:

- Ginger Tea: Brew ginger tea by steeping fresh or dried ginger in hot water.
- Ginger Powder: Mix a small amount of powdered ginger in water or tea. Ginger Supplements: Ginger supplements are also available, but it's esse consult with a healthcare professional before taking them.

Research Findings:

- Some studies have shown that ginger can be as effective as certain migrain medications, like sumaritytan, in relieving pain.
 A meta-analysis indicated that ginger treatment led to improved pain-free outcomes and reduced pain scores in migraine patients.
 Another study found that ginger was effective in reducing the frequency of monthly migraine episodes.

An AI search for migraine treatments also delivered a recommendation to use ginger - then when searching specifically for 'ginger for migraine', it seems to be advocating ginger as a treatment for migraine.

The reality is that the trials it mentions are very small, unreliable and from quite a long time ago; there has never been enough evidence to recommend ginger in migraine treatment.

Marie Curie is a registered charity in England and Wales (207994) and Scotland (SC038731). Registered as a company limited by guarantee in England & Wales (507597). Registered Office: One Embassy Gardens, 8 Viaduct Gardens, London, SW11 7BW.

1.7. MS Society

Below is an example of an AI overview getting something fundamentally wrong about multiple sclerosis (MS).



It may be that the AI logic assumed an order because it knows secondary usually comes after primary, however secondary and primary progressive MS do not follow on from each other. They are different diagnoses with very different treatment options and health outcomes, which makes this a particularly problematic example.

If a user trusts that AI results are correct it can lead to all sorts of problems like pursuing the wrong treatment, or giving up on treatment altogether.

The charity has since retrained the result by using a webpage to answer the specific question. This means the answer (below) is now correct. This was only caught by chance, however. Finding and correcting errors created by AI is not a sustainable approach for charities already pressed for resources.



1.8. BUPA

BUPA quote an example in which a random dental site had copy/pasted a Bupa blog onto their own site (https://www.toothtalk.uk/preston/is-vaping-harmful/) and they were cited in the search summary rather than Bupa, despite the content being identical.

This may be because they'd published that information more recently, but that's not necessarily a good gauge of accuracy/relevance.

BUPA has emphasised the concern that AI summaries lack context. They are transparent about how they produce information and clearly outline their stance on this, going to great lengths to remain unbiased and accurate, substantiating each statement with the best possible evidence and getting clinical sign-off.

BUPA are another organisation actively looking for ways to target inaccuracies in results and which has seen a reduction in traffic directly correlated to the launch of the AI search results panel.

1.9. Radiotherapy UK

Radiotherapy UK expressed concern about the racial bias contained in this summary. The search summary for radiotherapy skin reactions described 'redness' of the skin. This is only the case for the white population and UK consent forms have been updated to describe skin reactions on all skin tones.

Including results for *radiotherapy* skin reaction Search only for radiation skin reaction

🔶 Al Overview

Radiotherapy can cause skin reactions in the treated area, often starting 1-2 weeks after treatment begins. These reactions can include **redness, itching, dryness, peeling, and even blistering**. The severity of the reaction can vary, and some people may experience moist patches or sores. Skin reactions typically subside within a few weeks after treatment ends, but some changes, like pigmentation changes, may persist.

Common Skin Reactions:

- Redness (Erythema): The skin may appear pink or red, similar to a sunburn.
 - Itching (Pruritus): The treated area can become itchy.

1.10. Sarcoma UK

We have been researching health misunderstandings in the world of sarcoma, and have come across some misinformation from Google AI. It's a very outdated thought that injuries and trauma cause sarcoma, which is simply not true. However, this AI summary from Google seems to suggest that it might promote sarcoma development. There is no clinical evidence for this.



1.11. Lyme Disease Action

Earlier this month we had a request from AMR Action UK (whose name & website is still <u>https://www.antibioticresearch.org.uk/</u>) saying

"I'm reaching out from AMR Action UK to share an opportunity to support people with lived experience of resistant infections — and we'd love your help getting the word out and connecting us directly with anyone who might be interested."

I explained how AMR is not relevant in Lyme disease and that nudged me to see what Google AI had to say to "Is AMR a factor in Lyme disease?"

The answer was "Yes, antimicrobial resistance (AMR) can be a factor in Lyme disease, especially in cases of post-infection or post-treatment Lyme disease syndrome (PTLDS)....."

This is not the case; AI has not understood AMR.

Yes, Lyme disease symptoms can persist after antibiotic treatment but we don't know what causes that; possibilities are an autoimmune reaction, tissue damage or the Borrelia bacteria in places that antibiotics don't reach well. There is no evidence that Borrelia have the ability to change and develop resistance to antibiotics. (Ref 1). Lyme disease is not relevant in AMR except if patients take months or years of the same antibiotics and that may encourage AMR generally in bacteria other than the Borrelia that cause Lyme disease.

Reference

 Márton et al. 2023. "Antimicrobial Resistance Gene Lack in Tick-Borne Pathogenic Bacteria." Scientific Reports 13 (1): 1–10. <u>https://doi.org/10.1038/s41598-023-35356-5</u>.

7. Appendix 3 – Authors

This document has been compiled by Marie Curie, the Patient Information Forum and Macmillan Cancer Support.



Marie Curie is the UK's leading end-of-life charity. We bring 75 years of experience and leading research to the care we give you at home, in our hospices and over the phone. And we push for a better end of life for all by campaigning and sharing research to change the system.



The Patient Information Forum (PIF) is the independent membership body for people working in health information. PIF runs the UK quality mark for health information – the PIF TICK.



Because cancer can affect your life in so many ways, we do whatever it takes to give people the support they need.

Additional content has been provided by BUPA, British Liver Trust, The Lullaby Trust, Melanoma Focus, Migraine Trust, MIND, Pancreatic Cancer UK and MS Society, with input from nearly 70 organisations from across the health sector.

The following organisations have endorsed this report:

ALK Positive UK Alzheimer's Research UK Anthony Nolan Articulate: health communication consultancy Association of Translation Companies (ATC) Asthma + Lung UK **Bowel Cancer UK** Brainstrust - the brain cancer people **Breast Cancer Now** Cancer Research UK **Communication Research Institute** CoppaFeel! Crohn's & Colitis UK Dementia UK **EIDO Systems International Encephalitis International Epilepsy** Action Glaucoma UK Grace Kelly Childhood Cancer Trust Kidney Cancer UK Kidney Care UK L-W-O Community Lyme Disease Action Lymphoedema Support Network (LSN) Lymphoma Action Macmillan Cancer Support Melanoma Focus

Meningitis Now **MS Society** Multiple System Atrophy Trust National Voices OVUM Pancreatic Cancer UK Parkinson's UK Prostate Cancer UK Rad Chat Radiotherapy UK Rethink Mental Illness Royal Marsden Hospital Sarcoma UK Scleroderma & Raynaud's UK Self-Care Forum Target Ovarian Cancer The British Liver Trust The Eve Appeal The Lullaby Trust The Migraine Trust The Reading Agency The UK Mastocytosis Support Group Thomas Editina Tommy's

Marie Curie is a registered charity in England and Wales (207994) and Scotland (SC038731). Registered as a company limited by guarantee in England & Wales (507597). Registered Office: One Embassy Gardens, 8 Viaduct Gardens, London, SW11 7BW.