10 July 2023

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| **This submission follows a Roundtable meeting Initiated and conveyened by** [**JULIA WALSH**](https://www.linkedin.com/in/juliawalsh2020/) **BSC.**  A roadmap for adapting to change, Prepared in collaboration with industry thought leaders |

**Considerations to support responsible AI (Health)**

Submission based on our white paper

“With over a billion health-related queries entered into Google around the world every day, Dr. Google is a profoundly influential virtual member of the multi-disciplinary team across all stages of the patient journey.

The transformation of the digital information experience into a conversational chat-based exchange is poised to deepen this relationship, with potential for a significant influence on public health outcomes and the broader healthcare ecosystem where opinions formed online drive real-world behaviour.”

Julia Walsh, Search Listening Analyst

# The need to proactively shape the digital landscape as search shifts from offering a menu of ranked websites, to a conversation

We call for the consideration of the impact artificial intelligence (AI) is having on the way questions are exchanged for health advice online. Our white paper attached to our submission presents a detailed summary of current dynamics of the digital information landscape in healthcare and presents a roadmap for responding to the disruptions as AI-generated ‘conversations’ replace traditional search. It is anticipated that verbal exchanges of questions for health advice will be quickly adopted across healthcare stakeholders next, and we will see relationships with *‘Dr. Google’* deepen and expand to include AI-chat tools such as ‘Dr. ChatGPT’ and ‘Dr Bard’.

As the implications will be broad, and possibly too big for one organisation to grapple on its own within the timeframe of change, a group of senior healthcare executives engaged in this cross-industry collaboration to define the scope of this disruption and explore the opportunities and challenges it presents. Their goal was to generate a guide to digital change management that includes recommendations for healthcare organisations internally, and industry as a whole where there may be broader legislative and ethical considerations.

This white paper is the outcome of that collaboration and presents an overview of:

* Current dynamics of the digital disconnect in search particularly where, due to regulatory restrictions, the pharmaceutical industry has little to no voice when healthcare stakeholders seek online advice about prescription therapies which inadvertently leads searchers to misinformation
* Key challenges and opportunities presented by the AI-led disruption where chat-based conversational narratives replace the menu of ranked websites offered by traditional search,
* Strategies for adapting to this changing landscape with recommendations of specific critical success factors for groups of stakeholders from Medical Affairs to Information Technology
* Considerations for an ethical framework to guide our response

The Australian Government has an opportunity to lead the way by developing and launching a medical information app (or AI-driven website) to intersect with the adoption of chat-based search tools for healthcare queries. The timing of this rollout and the customer experience delivered is critical because with delay to this rollout, habits will be established and relationships built with the current search engines that will be challenging to alter. Costs of generating chat-based responses into the future also need to be considered. This could be overcome by simply pre-populating pre-approved answers to key questions that can be delivered via search within the tool (or website) versus ‘generated’ each time a question is asked.

Key websites that currently have strong domain authority in the SERPs across prescription medications (as identified in our research) will need to be audited to ensure content is up to date and edited and that the content is visible and available for incorporation by AI in a conversational and accessible response to health queries. Ideally, the information in these sites will also be updated to ensure it answers the top-volume questions we see patients asking search engines, as this will reduce the digital disconnect whereby answers are scrapped by chatbots from less reputable sites.

* [NPS.org](https://www.nps.org.au/)
* [TGA](https://www.tga.gov.au/)
* [PBS](https://www.pbs.gov.au/pbs/home)
* [Better Health Victoria](https://www.betterhealth.vic.gov.au/)
* [MyDoctor](https://mydr.com.au/)

Medical Director software is another tool. It can activate alerts for screening and enhance HCP capabilities to compete with AI-driven interactions regarding health concerns. This may also be a pathway to ensure HCPs have an easily accessible, verified source of local advice that may deter the need to simply ‘google it’.

#### Search engines

* Microsoft New Bing with ChatGPT integration
* Google + Bard

We call on the Australian government to require search engines to tag all questions about prescription medications within the Australian environment with the appropriate local PI or CMI related to that product. This should be a mandatory regulatory requirement for any channels offering advice on these prescription entities.

## The digital disconnect highlights the urgent need for regulatory reform

Based on research undertaken by search listening specialists at Brand Medicine International, there is a genuine urgency to understand and influence the new digital information experience to ensure patients and healthcare professionals are receiving locally relevant, evidence-based answers when they engage chat tools for health advice.

Outside the US, the pharmaceutical industry has little to no voice when healthcare stakeholders seek online advice about prescription medicines. Around the world, national advertising regulations for medicines were created on the assumption that healthcare consumers and patients did not have sufficient knowledge to correctly understand and act upon the information that would be communicated about those products – as well as, of course, to protect them from inappropriate promotion of restricted therapeutic agents. This has consistently been the case since the internet became widely available over 30 years ago. The restrictions imposed by this regulatory framework do not acknowledge the scale of search activity about medications occurring online. They also fail to address the reality of the current digital information experience influencing both patients and HCPs.

One of the top medications on the Pharmaceutical Benefits Scheme (PBS) in Australia has *over a million* questions about it recorded by Google every year[[1]](#footnote-1) – with the most prominent content returned to stakeholders being third-party websites such as WebMD and drugs.com[[2]](#footnote-2) – the latter where **unverified individual patient reviews drive the narrative on a medication, not clinical data**. While US branded websites are often presented to local stakeholders in other markets such as Australia and offer answers to prescribers and patients, this can have implications as well by offering incorrect details on indication, price etc.

The regulatory restrictions are designed to protect patients from direct advertising promotion; however, they inadvertently concurrently construct a situation where Australian patients miss out on getting relevant and accurate information. It critical to consider the value of a regulatory context that facilitates the delivery of patient-responsive content that accurately answers specific questions patients ask when they seek to understand how to take and use their medications.

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can I crush seroquel?

The current dynamic inadvertently creates a vacuum where misinformation is amplified, because search engine ranking elevates the prominence of unverified sources of information about prescription medications due to the absence of industry-owned assets with an online presence.

Content consumed online informs the opinions of healthcare stakeholders, from patients to prescribing healthcare professionals (HCPs) – **because doctors google too**. These opinions, in turn, drive behaviour. When the sheer scale of this activity is taken into account, it is imperative to acknowledge the impact this must be having on the broader healthcare ecosystem, from quality use of medicines to patient safety and public health outcomes. Among other issues, it is likely the current digital information experience online in relation to medicines exacerbates the cost of public health, due to:

* the prominence of information published by people without health credentials, leading to misuse of medications, and
* primary non-adherence driven by negative reviews about life-saving treatments that deter initiation.

Correspondingly, there will also be commercial implications for the healthcare industry whereby all efforts to implement robust medical education on a disease and inform prescribing stakeholders via sales representatives on how to initiate and manage patients on a therapy are undone by individual reviews or advice delivered on channels that are not sufficiently regulated, such as YouTube and Reddit. They also see sensationalised ‘news’ (local or foreign) not grounded in clinical evidence.

## AI compounds the issues

To add to this digital disconnect, we are currently bearing witness to a profound transformation in the way information is exchanged online. Stakeholders, from patients to HCPs, have always had a tendency to start their search with a question, asked in their own natural language; they do not habitually enter a specific URL. So, with the arrival of AI-driven, chat-based search platforms, the responses to questions for health advice have now evolved from a menu of ranked websites into a concise answer presented in a conversational style that is highly engaging to the searcher.

These responses flow from question to question across a topic in a seamless digital information experience that is frequently infused with statements of empathy for patient concerns. This is likely to deepen their relationship with digital sources of health advice moving forward, and it is possible that patients will be spending more time with ‘Doctor GPT’ and ‘Doctor Bing’ in future than they will with their primary healthcare givers.

“We anthropomorphize because we do not want to be alone. Now we have powerful technologies, which appear to be finely calibrated to exploit this core human desire ... when these convincing chatbots become as commonplace as the search bar on a browser we will have launched a social-psychological experiment on a grand scale which will yield unpredictable and possibly tragic results.”

L.M. Sacasas[[3]](#footnote-3)

ChatGPT reached 100 million users just two months after launching, with Microsoft rapidly integrating it into Bing and quickly attracting people across to this search engine from Google.[[4]](#footnote-4) Shortly after, on 21 March 2023, Google announced the launch of its AI chat-based search interface, Bard.

With the race between the major search engines driven by AI, we are now navigating an entirely new digital landscape with diminished visibility of the digital information experience from the end-user point of view. Dynamics are further complicated by little accountability over content given that some of these tools do not even offer the sources used for their answers, and for those that do, an alarming number of those references cannot be verified. In our experiment designed to assess the performance of models GPT-3.5, GPT-4, and Bard in generating a review article on cancer research, GPT-4 delivered the most comprehensive and well-organized response, ***although half of its citations were invalid***. GPT-3.5 crafted a logically structured response but inadequately addressed challenges in cancer research and provided more invalid sources. Bard fell short by offering a less detailed overview and failing to meet the citation requirements, with all provided references being invalid (refer to the Appendix for the full details of this research).

The issue is these tools are trained on the visible web – the content with high current domain authority that sits in front of fire- and pay-walls – and then compound complications with hallucinations and invalid sources.

With respect to AI chatbot responses “we are unable to draw a straight line from the answers given back to the sources used”

Stefan Harrer, Chief Innovation Officer, Digital Health CRC

Does this mean that AI is seizing control of the narrative over therapeutic entities?

* Government has an urgent responsibility to ensure that evidence-based, locally relevant sources are being used to guide the advice given to patients and HCPs when they type questions about medicines into these new AI-driven, chat-based search tools

To a certain degree, health outcomes are a function of health literacy and digital literacy, with the ability to discern the quality of online health advice playing a significant role in shaping the patient journey. To enhance public health outcomes, proactive engagement with stakeholders across the digital ecosystem is crucial to create a positive online experience that swiftly guides patients from initial symptoms to accurate diagnoses, and on to effective treatments.

The double exponential change fuelled by the convergence of AI disciplines and the acquired ability of AI to self-direct its own learning will further accelerate the transition from traditional searches to AI-driven, chat-based exchanges drawn from content currently visible to these entities on the web.

There are already advances to improve the health-related digital information experience. [Med-PaLM 2](https://arxiv.org/pdf/2305.09617.pdf), developed by Google, has been recorded as accurately answering medical questions and achieving an "expert" level performance on USMLE-style queries with 86.5% accuracy. This AI system facilitates understanding of complex medical texts, serving as a transformative tool in advancing channels for healthcare advice while maintaining robust safeguards for users.

## Digital transformation: Guiding a response

So, how do we face this challenge when the rapidly evolving digital landscape makes it nearly impossible to accurately describe the context?

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| A screenshot of a phone  Description automatically generated with low confidence | **As illustrated here, search engines are actively converting people from traditional search to chat-based interfaces.**  **This transition is now unstoppable – Search Engine Optimisation (traditional SEO) is likely to diminish in relevance as Search Chat Optimisation is poised to become the holy grail of digital customer engagement.** |

To start, we must **accept it is happening**. Search has changed forever and will not revert; this applies to all subject areas; however, the potential implications for personal health may be greater.

Next, we must **tackle it** as one would prepare for a marathon: we train (learn), and then lean into the challenge to adapt to this new digital landscape by continuing to put one foot firmly in front of the other.

In the first instance, we need to demonstrate to lawmakers that it is more urgent than ever that the companies responsible for these medications need a seat at the table. Legislation has failed to ensure the delivery of locally relevant, evidence-based health advice within traditional search, so regulatory reform needs to leap ahead to protect searchers from the influence of mis- or disinformation in AI-driven, chat-based search platforms.

While product information (PI) and consumer medicines information (CMI) are technically available online, there is no SEO investment so the sites they are posted on are eclipsed by other sites that hold high domain authority. For this reason, regulatory reform must immediately permit sponsors of medications to openly publish customer-responsive content online (for both patient and HCP stakeholders) that accurately answers key queries in a locally relevant context. This will offer evidence-based content for AI chat tools to scrape from the internet to inform their answers.

“Our overall goal is to ‘clean up the internet’ for patients and doctors – to ensure that locally relevant, evidence-based advice, informed by approved labels and backed by clinical data, is what turns up online when people ask search engines about their medications, and to diminish the influence of misinformation.”

Julia Walsh, Search Listening Specialist

## Government

### Challenges

#### Concentration of misinformation and loss of control

One of the most significant challenges faced by governments, particularly those with substantial public health systems, is the spread of misinformation online in the realm of healthcare. This issue is exacerbated when search engines do not prioritise content from approved manufacturers of prescription medications or other reliable, evidence-backed sources. As a result, locally relevant information may be overlooked when AI chat tools scrape currently available data to respond to healthcare inquiries, leading to potential inaccuracies in the provided information.

To address these challenges, governments must scrutinise existing legislative frameworks and reassess them in light of the changing dynamics of how information on health care, particularly prescription products, is sought and delivered through these new interfaces. Governments must determine if their current policies are equipped for the future and, if necessary, quickly revise legislation to keep pace with the rate of change while simultaneously safeguarding the delivery of accurate health advice online.

It is crucial for governments to acknowledge, as a matter of urgency, the immense scale of healthcare-related queries submitted to search engines. These inquiries significantly influence the opinions and actions of various healthcare stakeholders, including patients and prescribing HCPs. Consequently, this widespread activity carries considerable implications for public health outcomes, patient safety, and potential cost overruns in public health budgets, as well as commercial ramifications for the healthcare industry.

By proactively addressing these challenges and adapting to the rapidly evolving digital healthcare landscape, governments can work to ensure the accurate and reliable dissemination of healthcare information, ultimately improving public health and safety.

#### Resource and capability

‘How can they effectively regulate what they don’t yet fully understand?’ – this represents a critical challenge. In the case of the TGA, collaboration with international partner agencies (for example, via the International Coalition of Medicines Regulatory Authorities (ICMRA)) would be valuable. Some specific approaches may be more fruitful (for example, learning from the Singaporean ‘Regulatory Sandbox’ approach).

### Opportunities

#### Capitalising on momentum

Emerging Australian Government policy suggests an interest in accelerating national AI capability and opportunities. Ensuring key government stakeholders understand the issues and potential opportunities offers a pathway to effectively drive action at the regulator level. The national regulatory framework will require coordination across federal and state/territory governments, so sharing insights on the dynamics of the new search landscape (using this white paper as a starting point) offers a way to catalyse awareness and action across these important stakeholders.

#### Improving public health outcomes

The introduction of chat-based AI healthcare tools offers governments numerous opportunities to improve public health outcomes, understand citizens’ healthcare search behaviours, and increase patient engagement in their healthcare journey. These advances can lead to better patient outcomes, enhanced health equity and access, expedited drug discovery and approval, and greater personalisation in healthcare services.

“Governments need to work with the private sector on ways to limit the risks.”

Bill Gates, [The Age of AI Has Begun](https://www.gatesnotes.com/The-Age-of-AI-Has-Begun); Gates Notes blog, 21 March 2023

Governments should seize the opportunity to harness the digitalisation of health advice, capitalising on the rapidly adopted behaviour of healthcare stakeholders who exchange questions for health advice. By creating an AI-based framework for interaction with healthcare stakeholders in a similar conversational style, governments can ensure the source content is limited to approved, locally relevant, evidence-based materials.

Once capabilities are built and resources in place to ensure patient safety, the primary focus for governments should be on building efficiencies through AI. This technology can streamline and speed up decision-making in response to changes in the healthcare landscape. In the context of public health systems with multiple layers of responsibility at both federal and state levels, establishing a platform for data sharing to optimise decision-making is essential.

Australian governments, in particular, have the opportunity to shape global policy and governance in response to the rollout of these AI tools. We have a track record as a nation of leading trends in similar areas so we should feel confident to step forward on this issue and establish a best practice response. (Sidebar: There are also opportunities outside ‘search’ to explore ways to leverage AI to expedite the approval process for drugs by the TGA, and facilitate more efficient pricing and reimbursement decision-making.)

To ensure HCPs understand the impact of these tools on the healthcare ecosystem, governments can lead the way in training and education. Investments in training materials and the simplification of delivery through micro-qualifications (for example, through government providers such as the New South Wales (NSW) Government’s Health Education and Training Institute (HETI)) could be considered. Additionally, governments should address issues related to health data (for example, AIHW) concerning the accessibility, collation and reporting of patient data to maximise the potential benefits of these AI-driven technologies in health care.

Government stakeholders should reflect on the learnings from when platforms such as Google were launched and search engine results started to influence the narrative around medications. There is an opportunity to build on that past experience (what has gone well and what has not) and also inform our response with an understanding of what people are searching for now. By leveraging strategic search listening analysis to understand the quality of current digital information, government can adapt approaches to shape the new digital landscape to improve the experience and enhance public health outcomes by ensuring better quality of evidence-based, locally relevant advice.

Initially, the primary focus needs to be on building efficiencies. There is an opportunity to use AI to streamline and speed up decision-making in context of how to face this disruptive change. In an environment with a public health system that has layers of responsibility for deliverables at a federal level as well as siloed state health services, we are in great need of a national, intergovernmental platform for sharing data to optimise decision-making.

There is an opportunity for Australian governments to design best practice approaches that shape global policy and governance of the response to the rollout of these tools.

## In summary

Our full white paper offers a roadmap to help healthcare stakeholders respond to the growing role of AI in the delivery of health advice online. It highlights key challenges and opportunities, as well as critical success factors and ethical considerations for all stakeholders to consider.

It is our pleasure to submit this valuable resource that was developed with input from the Digital Health Co-operative Research Centre, Medical Affairs Professionals Australia and Consumer Healthcare Products Australia, among others, to this working group.

Julia Walsh

CEO Brand Medicine International Pty Ltd

**Roundtable and White Paper contributors[[5]](#footnote-5)**

Views expressed by contributors are their personal views and not representative of their employers.

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**Research**

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1. Answer the Public and Semrush combined volume for all keyword variants stemming from ‘Eliquis’; July 2023. [↑](#footnote-ref-1)
2. Share of SERPs analysis conducted by Brand Medicine International. For the seed term (in each case the brand name), additional key words (for example, why, how, versus) were included in a set of search queries to populate Google’s autocomplete data from which all autocomplete queries were extracted, resulting in a full set of unique search queries. SERP proxies were then used to scrape the SERP data across the full set of extracted queries (with the location set to Australia, language set to English, SERP (page) 1 only, and 10 results per SERP). Lastly, the publishing website was isolated from the landing page and frequency counts and proportions were calculated for each website. Note: Google’s autocomplete algorithm provides searches that reflect common and trending queries that are affected by location, language and time. The top 40 publishers were assessed as a percentage of the results for the set of search queries. The total number of unique online publishers (websites) was also extracted from the total results (across all search queries). [↑](#footnote-ref-2)
3. # [The Prompt Box is a Minefield: AI Chatbots and Power of Language’ (substack.com)](https://theconvivialsociety.substack.com/p/the-prompt-box-is-a-minefield-ai#footnote-1-103392149), The Convivial Society: Vol. 4, No. 2, 17 February 2023.

   [↑](#footnote-ref-3)
4. [Microsoft Bing hits 100 million active users in bid to grab share from Google - The Verge](https://www.theverge.com/2023/3/9/23631912/microsoft-bing-100-million-daily-active-users-milestone) [↑](#footnote-ref-4)
5. Contributors paid a fee to support the work to design and run the round table and generate this white paper. [↑](#footnote-ref-5)