COMMENTARY

Digital Opinion Leadership in the Age of Social Media and Generative AI: A Vision for the Future of Health Communication Science

Brinleigh Murphy-Reuter, EdM, Science To People, Inc.; and **Amelia Burke-Garcia, PhD, MA,** NORC at the University of Chicago

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Digital ecosystems have become the primary arena in which the public encounters a variety of science and health information. In its seminal 2025 publication, *Understanding and Addressing Misinformation About Science*, The National Academies of Sciences, Engineering, and Medicine (NASEM, 2025) note that "while some features of social media platforms contribute to the production and spread of misinformation, there are opportunities to leverage these platforms to proactively increase the supply of high-quality science information" (NASEM, 2024, 3). This commentary seeks to expand on this concept by integrating recent developments in generative artificial intelligence (Gen AI), with the goal of identifying opportunities to advance the field of health communication science within the current communication landscape.

Social Media Content Creators as Digital Opinion Leaders

Social media has enabled the growth of what are known as "content creators" (or influencers) who have established persuasive profiles on various topics across popular social media and other digital platforms (Burke-Garcia, 2019). As of 2023, it is estimated that there are nearly 30 million creators in the United States (Mandese, 2023). There is further evidence that 75 percent of US-based consumers trust social media for purchasing advice and nearly 70 percent trust creator recommendations (Digital Marketing Institute, 2025).

While these creators produce multimedia content on a wide variety of topics, such as recipes, fashion, and travel, research suggests that they also do this for health-related topics like mental health, fitness, chronic disease, and cancer awareness. Specifically, health messaging accompanied by hashtags like #MentalHealth, #ProstateCancer, and #ChronicPain reach billions of online users (Motta et al., 2024; Burke-Garcia, 2019). Such evidence underscores the significant role that creators play in sharing health information in digital spaces and contributing to public perceptions of health topics. Thus, they can act as opinion leaders of the digital age, accelerating or derailing public health messaging among their audiences (Burke-Garcia, 2019; BurkeGarcia and Soskin Hicks, 2024a).

Push Versus Pull Communication in Today's Communications Environment

Traditional public health communication was built on a push model: Institutions identify priority messages, package them in onedirectional formats (press releases, white papers, pamphlets, or PDFs), and disseminate them through multimedia channels. We now live, however, in a very different kind of information ecosystem; one that is networked, ondemand, and personalized. Information that is shared in today's communication environment is rapidly outpacing the antiquated broadcast (push) approach.

Key to today's information ecosystem are creators who use colloquial language, share transparent and authentic personal experiences, and provide information regularly and in real time (Burke-Garcia, 2019). In short, these creators use

a pull model of communication, whereby content is available whenever and wherever people need and want to engage with it. In doing so, the recipient of the information (rather than the sender) is the initiator. Ultimately, through this process of recipient-initiated interaction and engagement, year-over-year, these creators become digital opinion leaders, engendering deep trust organically with their audiences (Burke-Garcia, 2019; Burke-Garcia and Soskin Hicks, 2024a).

Self-determination theory (SDT) provides a possible rationale for why using a pull model of communication can be powerful for the field of health communication science today. SDT is a theory of human motivation, focusing on how both internal and external influences affect three key psychological needs that enable well-being: autonomy, competence, and relatedness. The theory highlights the degree to which people's behaviors are self-determined, rather than controlled by others, and when these needs are met, people tend to be more self-motivated, feel more satisfied, and experience greater well-being (Burke-Garcia and Gallo, forthcoming; Weir, 2025). Public health communicators can learn a lot from the creators' way of communicating. That is, to meet people where they already are, communicate authentically and compassionately, and rebuild trust with communities. The way creators develop and share content helps fulfill people's psychological needs as laid out in SDT. Moreover, for health, shared decision making is now expected and increasingly the norm (Burke-Garcia and Soskin Hicks 2024b), making this approach vital to successful health communication in the digital age. Public health communicators must, however, shift from a purely push model of communication to more of a pull one. By empowering information recipients to be the initiators of their own health information seeking behaviors, public health communicators can focus on providing individuals with personalized and tailored information when and how they want to receive it.

Generative AI and A Pull Model of Health Communication for The Digital Age

Public health communicators must acknowledge that there is an inherent scalability issue within the field. As resources are constrained, the ability to engage with every person and tailor every question to their own personal experiences and in their preferred language becomes difficult.

One way to address the need for personalized and tailored information is to engage more with content creators to help spread evidence-based health messaging in ways that are effective for their audiences. The same challenge exists, however, to do this consistently, on an ongoing basis, and across the infinite online creator communities. That is, communication still requires dedicated resources to design, implement, and manage—resources that public health communication, institutionally based or local, rarely has.

This is where Burke-Garcia's (2024a) foundational idea of Health Communication AI (HCAI) comes into play. HCAI encompasses a broad scientific agenda wherein Gen AI is central to the future of how public health communicators engage with people about health (Burke-Garcia and Soskin Hicks, 2024a; Tuckson and Murphy-Reuter, 2025). The primary thesis of HCAI is that while humans have limits to their ability to communicate with anyone, anywhere, at any time, Gen AI does not. Rather, Gen AI can be trained to do this with empathy, transparency, personalization, and scalability (Burke-Garcia and Soskin Hicks 2024a).

Not all Gen AI models are built the same, however. While off-the-shelf models can already draft readable copy at scale, they were not built for the nuance of health communication. They may hallucinate citations, can be manipulated to provide misleading information, ignore clinical subtleties, and lag behind emerging evidence (NAM, 2025; Tuckson and Murphy-Reuter, 2025) Thus, HCAI recommends that Gen AI models intended for health communication be purposely built to address the evidence, accuracy, and relevance gaps left by the

general-use models. In order for such purpose-built models to be successful in addressing these gaps and effective in communicating health information, they must:

- Have access to a large, high-quality, curated corpora of peer-reviewed health and science literature, ensuring that every claim can be traced back to high-quality evidence;
- Employ a multi-tier validation pipeline, combining automated source verification, agentic AI trained in domain-specific guardrails, and independent expert review screening on outputs for factual accuracy and scientific nuance;
- Leverage supervised fine-tuning on specialized science-translation datasets to enable the model to distill complex concepts into clear, audience-tailored insights without sacrificing precision; and
- Include culturally responsive customization layers to enable models to adjust language, tone, and framing to match each user's style and the needs of specific communities, boosting audience resonance and, thus, trust.

This kind of responsible, purpose-built development ensures that HCAI-backed models offer transparent, unbiased, evidence-based insights while maintaining the flexibility to adapt to individual queries and personalization needs. It enables the rapid communication of timely health information, allowing for the quick and authoritative response to emerging health challenges, and it can do this at scale for anyone, anywhere, anytime.

Pairing HCAI with Digital Content Creators

Recent studies on creator-focused interventions have demonstrated that even minimal guidance, such as pithy, asynchronous PDF toolkits, designed in plain language and distributed via email, can significantly increase the presence of evidence-based messaging in videos on social media (Motta et al., 2024). One such intervention conducted by researchers at the Harvard T.H. Chan School of Public Health led to over half a million additional views on evidence-backed content and enhanced TikTok viewers' foundational knowledge construction about mental health (Liu et al., 2024). Creators exposed to the same kind of intervention made content that significantly improved both a perceived and objectively assessed mental health skill (Motta et al., 2024). These findings underscore that equipping digital influencers with the right tools can meaningfully impact the landscape of public understanding on topics of health and science.

HCAI-backed approaches to health communication leverage the effective practices of digital content creators and enhance their impact, using the power of Gen AI to develop a dual push-pull communication approach that is faster and more ubiquitous. Achieving this vision, however, requires the real-time production of high-quality, unbiased, evidence-based health content by the creators whom the public trust and turn to for such information. As part of designing accessible and inviting digital tools and platforms, HCAI-backed approaches must supply:

- Evidence-based talking points generated in real time, without the need for extensive research or access to paywalled academic articles;
- Personalized insights tailored to specific audiences and communicated empathetically by preserving a creator's unique voice; and
- Advanced evidence-reference checking systems to alert users when inaccurate information is detected in volume online, allowing for prompt awareness and response.

Conclusions and Recommendations

Public health communicators must embrace a new way of communicating about health. This is fueled both by the evolving communications environment and by the pressing imperative to restore trust in health information among the public.

A pull model of health communication that is powered by Gen AI can be part of how this is accomplished. HCAI-backed approaches can em-

power creators, communicators, and ultimately individuals to seek out and share in their own voices rigorously sourced, unbiased health evidence in formats that are impactful, tailored, empathetic, as well as timely, relevant, and actionable.

To achieve this vision, the field of public health, its partners, funders, and supporters need to invest in the development of responsible HCAI-backed tools and platforms by:

- Advocating for a new way of communicating empathetically about health for today's communication environment;
- Developing platforms that integrate validated research and clinical guidelines and ensuring that digital tools provided to communicators are both reliable and adaptable to evolving health and science information;
- Forging private–public partnerships between health experts, technology leaders, and community members to successfully embed advanced HCAI-backed tools directly into platforms, products, and adjacent services; and
- Ensuring humans remain in the loop to advocate for inclusive, accessible, and tailored communication for all.

In advancing these aims, we believe that public health communicators can leverage HCAI-backed approaches to bolster trust in quality, evidence-based information again.

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Author Information

Brinleigh Murphy-Reuter, EdM, is an expert in science communication and digital innovation and the CEO and Founder of Science To People, a US-based nonprofit organization. **Amelia Burke-Garcia, PhD, MA,** is a health communicator with experience designing and evaluating innovative health interventions that leverage the power of communication to influence behavior. She currently serves as the Director of the Center for Health Communication Science at NORC at the University of Chicago, where she oversees the organization's Health Communication AI initiative.

Conflict of Interest Disclosures

Brinleigh Murphy-Reuter, Ed.M is the founder and Chief Executive Officer of Science To People, a US social impact nonprofit that develops tools to improve public understanding of science and health. Science To People is finalizing a program grant from the de Beaumont Foundation to support early-stage development of VeriSciLM, an AI language model for effective and ethical science communication. The technology is still in prototype form and is not commercially available. Mrs. Murphy-Reuter receives no personal remuneration, royalties, equity, speaker fees, or consulting income related to this project and holds no patents. She reports no other relationships, financial or otherwise, relevant to the content of this editorial.

Correspondence

Questions or comments should be directed to Brinleigh Murphy-Reuter at Brinleigh@Science2People.org and Amelia Burke-Garcia at burkegarcia-amelia@norc.org.

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