


# Screening for Information Environments: A Role for Health Systems to Address the Misinformation Crisis

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## Abstract

Misinformation about health topics is a public health issue. We are bombarded with information from many sources, across many digital means of communication, affecting the ways in which we are born, grow, work, live, and age. This makes information environments a social determinant of health (SDoH), but one not currently adequately addressed by clinical or public health practitioners. Since health systems are already screening for social determinants of health, existing mechanisms can additionally screen for unhealthy information environments. Then, for those patients who screen positive, we can apply best practices learned from initiatives addressing vaccine hesitancy: providing a non-judgmental environment in which to discuss health beliefs, using motivational interviewing techniques to gauge patient perspectives and readiness for change, and taking a harm-reduction approach in recognizing that behavior change evolves over time. Displacing misinformation is a process, not an event. As such, we need to address the underlying psychological and sociological reasons that people maintain unscientific beliefs as we would hope to do with any other SDoH. Furthermore, as information environments are the product of both individual choices and structural factors, clinicians should approach patients immersed in unhealthy information environments without blame or ostracism, much as we would approach any patient adversely impacted by social determinants of health.

## Keywords

underserved communities, community health, COVID, patientcenteredness, prevention, primary care, social determinants of health, information environment, misinformation

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## Key Messages

1. As misinformation circulates faster and at surprising scales, the public's health increasingly depends upon a healthy information environment, where *people and communities are immersed in high-quality information of public health importance and enveloped by a communication context that underscores the trustworthiness and importance of that quality.*
2. Our information environment is an under-recognized social determinant of health and health systems should screen to better understand the information environment in which our patients are immersed.
3. By applying best practices learned from vaccine hesitancy, like motivational interviewing and harm reduction approaches, many interventions can be offered for patients who screen positive for immersion in an unhealthy information environment.

On January 23, 2022 “Liz” was one of thousands who gathered on the steps of the Lincoln Memorial protesting Covid-19 vaccine mandates to hear speeches from anti-vaccine celebrities, each perpetuating well-known and previously-debunked falsehoods. Such protests, the Washington Post noted, mark a movement in ascendancy, affecting vaccination rates for Covid-19 and the potential to further undermine many extremely successful childhood vaccination programs. But it is a movement immersed in misinformation.<sup>1</sup> Liz, for

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example, “struggles to find trustworthy news sources,” though reports being mostly dependent for health information on a well-known anti-vaccine website, a faith-based far-right advocacy/news site, and what she receives from friends via a messaging app. In short, like many who make up this movement, Liz is immersed in an unhealthy information environment.

A healthy information environment, on the other hand, can be defined as *that in which people and communities are immersed in high-quality information of public health importance and enveloped by a communication context that underscores the trustworthiness and importance of that quality*. Clinical care providers have a unique opportunity to identify and intervene in the lives of patients like Liz who harbor medically misinformed beliefs, as many of the unvaccinated hold about Covid-19 vaccines. If vaccination rates in the United States had approached that of Denmark, England, or Portugal, especially with boosters for vulnerable elderly populations where the US’s rate continues to lag in the 50th percentile compared to those countries’ 90-plus percent, some models suggest hospitalizations during the recent Omicron wave could have been cut in half.<sup>2</sup> Misinformation is clearly a public health issue, and since an information environment is a condition in which people are born, grow, work, live, and age, it should be considered a social determinant of health (SDoH).

In the shift toward value-based care, screening for SDoH is now commonly taking place at hospitals and primary care clinics, with 1 industry survey reporting up to 80% of a national sample of U.S. hospitals seeking to engage in this practice.<sup>3</sup> Many base this work on the Center for Medicare and Medicaid’s Innovation Accountable Health Communities screening tool, emphasizing the examination of 8 critical domains: health insurance coverage, food or housing insecurity, public income benefits, household interpersonal violence, adult education and literacy, daycare, and legal problems (including those related to immigration). After screening, patients are then linked to social resources either connected to the health system itself or through external groups like Aunt Bertha, United Way’s 211 service, Health Leads, or Purple Binder, among many others. Such services are not designed to “solve” all of the social needs for patients, but, in alignment with a harm reduction ethos, they seek to mitigate suffering and reduce risk of negative outcomes.

These growing initiatives should also consider incorporating screening for patients’ information environments as this risk factor is not well covered by other SDoH screening. Health literacy and education are sometimes assessed by SDoH screening, but information environments are different. Notably, while many health-related issues are associated with low education, health literacy, and socioeconomic status, childhood vaccine hesitancy has often correlated with high education, higher incomes, and white race.<sup>4</sup> The communication ecosystem many Americans currently live

in has changed dramatically in less than a generation. While top-down messages from physicians or public health experts previously provided facts to patients, now that high-quality information is easily drowned out by abundant amounts of information shared in decentralized, horizontal networks. Information consumers are also information producers, propagating information of variable quality on to others in their networks.<sup>5,6</sup> It should be no surprise, then, that patients increasingly obtain their medical information from the internet where there are few safeguards to ensure that information is accurate.<sup>7</sup>

As clinicians, we should not stand on the sidelines as these social and structural changes to our information environment put our patients at risk. Just as clinicians become aware of a patient’s diet or living in a food desert by asking about food shopping and eating habits, health systems can start by asking patients: “where do you get your information about health?” A brief discussion about how patients obtain information about common health behaviors such as vaccination or vaping can reveal both their trusted sources and what they find trustworthy about that information.

While initial screenings can and should remain simple until there is more empirical evidence to support the best screening methods, we anticipate screening for information environments will be similar to assessing risk for other conditions strongly associated with SDoH risk factors, such as substance use disorder, asthma, or diabetes. We anticipate that screenings will need to consider 3 related factors: first, assessing access to risk mitigators such as someone’s access and exposure to high-quality information. Second, we can assess exposure to elements associated with increased risk, in this case someone’s exposure to poor-quality information. Finally, we should consider someone’s underlying risk and psychological predisposition. For diabetes or asthma, risk is linked both to genetics and SDoH. For misinformation, psychologists continue to study various psychological factors that are associated with someone’s propensity to be taken in by misinformation’s thrall.<sup>8,9</sup> As with other SDoH, there may eventually be a role for social informatics<sup>10</sup> to identify patients at risk for poor quality health information environments.

For patients like “Liz” who screen “positive” for being at risk of immersion in an information environment providing them with low-quality health information without sufficient exposure to high-quality information, some best practices for interventions are starting to emerge based on our growing knowledge about addressing vaccine hesitancy. Broadly speaking, until there is more precise evidence to guide our actions, our clinical focus should be rooted in motivational interviewing and harm reduction principles.

To that end, health systems can:

- (1) Provide a non-judgmental environment in which patients feel comfortable expressing their views. Feeling belittled, stigmatized, or dismissed for their

perspective can alienate patients from specific medical providers and the health system in general. Clinic SDoH screeners should take great care to keep discussions respectful, to understand patient perspectives, and validate their feelings without validating incorrect facts. It can start by assessing where patients may be on Prochaska's "stages of change" model.<sup>11</sup> Are they aware of the information environment they are immersed in? Do they see it as a problem or challenge for their health?

- (2) Draw on successful efforts to address vaccine hesitancy<sup>12</sup> and ensure health system staff are trained in motivational interviewing to engage patients with respect and curiosity and dive more deeply into their perspective. For patients that are pre-contemplative, the goal would not be to directly challenge their beliefs but rather "roll with resistance." The concerns of contemplative patients can be explored while those ready for action can be given high-quality resources, such as lists of trustworthy websites from sources they are likely to trust, or tell-tale signs of snake-oil scams.
- (3) Conceptualizing our information environments as a *social determinant of health* and intervening in a harm reduction framework reinforces a few key take-aways.
  - (a) As with all SDoH, it is not a personal failing to be immersed in a particular information environment. We similarly recognize food deserts as detrimental to health and acknowledge that marketing and convenience play significant roles in people's choices to consume sugary sodas, oily snacks, or fast food. Therefore, we take care to avoid blaming patients for obesity or its consequences, like metabolic syndrome and diabetes. We should take the same care with patients enveloped by harmful information environments.
  - (b) As in any harm reduction framework, "relapses" should be expected, and patients should not be excluded from medical care or otherwise punished for such behavior. Though, in the case of unvaccinated patients or children, care must be taken not to expose other clinic patients to potentially dangerous vaccine-preventable diseases. As we do not dismiss patients from our primary care practices simply because they have relapsed due to substance use disorder or struggled to adhere to dietary restrictions, the same should be true for patients who carry medical beliefs rooted in misinformation.
  - (c) Interventions must resist the temptation to rely solely on education or "debunking" misinformed beliefs without also addressing structural factors affecting someone's information environment. Abundant research

has shown that belief in misinformation can be deeply rooted, even psychologically intertwined with our identity.<sup>13</sup> Simply providing information, while necessary, will be insufficient to displace knowledge that directly threatens someone's identity or place within a status hierarchy or social network. Displacing misinformation is a process, not an event. As such, we need to address the underlying psychological and sociological reasons that people maintain unscientific beliefs as we would hope to do with any other SDoH.

Primary care centers in particular are uniquely positioned to address medical information and harmful information environments. Primary care doctors are routinely cited as patients' most trusted resource for health information<sup>14</sup> and clinics can leverage this trust to point patients to both high-quality health information and to resources that help them distinguish high- from low-quality information.

Many primary care clinicians reading this may be understandably reluctant to take on yet another task in primary care. However, information environment screening and intervention efforts can and should be distributed across the care team similar to how SDoH screening and interventions already operate in many primary care clinics. Only in cases requiring disease-specific knowledge or expertise in motivational interviewing does the adept clinician need to be involved. Indeed, other front-line clinicians are considering similar steps. Midwives for example, also advocate the need for harm-reduction approaches to misinformation, in particular about vaccines.<sup>15</sup>

Of course, despite patient portals and electronic messaging, the size of primary care panels renders it impossible for most primary care clinics to realistically be the sole source for patients' medical questions. But through screening patients for their information environments like other SDoH, we can draw in better information resources as needed and engage patients in a process of behavior change over time. Leveraging hard-earned trust with patients, primary care offices specifically and health systems in general have a unique role to play in addressing the misinformation crisis and a significant opportunity to nudge patients toward higher quality information environments.

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