

# How paperwork and less than truthful patients at the doctor's office can lead to medical misdiagnoses

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Medical forms with privacy assurances can lead people to lie more about their health history. Credit: BYU Photo

Nearly every time you walk into a doctor's office, you can count on

filling out some form. One of those is usually related to HIPAA, the Health Insurance Portability and Accountability Act, a law that helps protect your private health information.

While these forms are supposed to assure patients that their [personal information](#) will be protected, new research from BYU and the University of Utah finds that they cause people to lie more about their medical history rather than feel more comfortable about sharing information.

Here's why that matters: lying on medical history documents leads to a greater number of misdiagnoses and consequently, deaths. Research shows that 60–90% of patients lie to their healthcare providers for a variety of reasons, from avoiding embarrassment to approval seeking, and the result can be devastating. Data indicate roughly 1.5 million people are affected by incorrect medications, adding \$3.5 billion in additional annual [health care](#) costs.

"HIPAA is supposed to make people feel better. It is meant to help them feel comfortable with sharing their [accurate information](#) because they are being ensured it will be kept safe," said Mark Keith, BYU professor of information systems. "What is so interesting about this study is that we are finding it has the exact opposite effect."

For the study, recently published in *PLOS ONE*, researchers asked roughly 600 participants to fill out a form online asking for their [medical history](#) with questions about [mental health](#) and other sensitive topics. The survey included questions about weight, height, prescription and illegal drug abuse, exercise and smoking.

Researchers then used mouse tracking technology to measure participant interaction with the online questions. (Studies have shown this technology accurately predicts when someone is acting dishonestly

online.) After collecting and analyzing the data, they then asked who would be willing to share how much they had lied while filling out the form.

"We discovered that women were more likely to lie initially but would then 'come clean' if questioned further," Keith said. "However, men were more likely to lie once you asked them if they were lying. In other words, if men lied at the beginning, they would lie again later."

Using six separate participant groups, they also studied how different wording on the online forms elicited different responses and levels of lying. They found that the wording that resulted in the most men lying was when they are given a HIPAA notice coupled with a statement exclaiming how untruthful information will hurt the accuracy of the diagnosis. Women, on the other hand, lied more when they were given a HIPAA notice and the following statement was framed as a benefit to truthfully sharing information.

Researchers explain that accurate information is an important contributor to accurate diagnosis and treatment. "Yet more than three quarters of patients withhold or lie about symptoms, intake, activities, and medication, which can have significant implications for their health care," write the study authors.

Keith said this seemingly contradictory phenomenon can be explained by how people process information in two different ways: using a primary or secondary route. He explains that when someone is using their secondary route, they are on cruise control, and the action taken is automatic. When people shift to the primary route, they are actively engaged and thinking when making a decision.

There are ways people can be primed to switch from their secondary to primary route of thinking, and the HIPAA form is doing just that. As

people are skimming the sheet and are actively reminded of the risk, even though they are being ensured against it, simply remembering that their sensitive information could be leaked causes people to lie.

The authors of the study, which include a team of faculty and student researchers from the BYU Healthcare Industry Research Collaborative, suggest that these findings should be kept in mind by regulators and clinicians as this problem continues to unfold. Research suggests that requiring patients to fill out of the HIPAA form before their scheduled appointment could make a difference. As a more long-term solution, it is recommended that regulators reconsider the requirements about disclosing HIPAA information.

**More information:** Tamara M. Masters et al, Do privacy assurances work? a study of truthfulness in healthcare history data collection, *PLOS ONE* (2022). [DOI: 10.1371/journal.pone.0276442](https://doi.org/10.1371/journal.pone.0276442)

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