

Does Sharing Make My Data More Insecure? An Empirical Study on Health Information Exchange and Data Breaches

Does joining a health information exchange make hospitals more vulnerable to data breaches, or can strong HIE governance and advanced clinical IT systems mitigate increased security risks?

This study by Sunil Wattal and colleagues examines whether hospitals' participation in health information exchanges (HIEs) raises or lowers their data breach risk. By 2018, roughly 70 percent of U.S. acute care hospitals were connected to at least one HIE, prompting concerns that broader data sharing might expose providers to greater cybersecurity threats. Conversely, HIEs enforce governance mechanisms, such as standardized security policies, accountability requirements, and technical monitoring, that could strengthen protection across member hospitals.

To address these competing forces, the authors develop an analytical model comparing hospitals' optimal cybersecurity investments with and without HIE participation. They then construct a panel dataset covering over 3,000 U.S. hospitals from 2010 to 2015, integrating breach incident records, HIMSS Analytics IT profiles, and regional market variables. Using difference-in-differences, propensity score matching, and instrumental variables (regional HIE participation rates and health system fragmentation), they estimate the causal impact of joining an HIE on breach likelihood.

Empirical results show that joining an HIE reduces the probability of a hospital experiencing a breach by 35 percent. Hospitals also adopt more IT security applications after joining, confirming that HIE participation incentivizes greater security investment. Moreover, the protective effect is stronger among hospitals with more complex clinical IT systems and in states that have enacted HIE-security legislation.

These findings suggest that robust HIE governance and advanced IT capabilities can outweigh the additional exposure from broader data sharing. Policymakers and HIE administrators should prioritize security support for smaller hospitals with less sophisticated IT, while states can reinforce HIE security through targeted legislation.

MAJOR TAKEAWAYS:

- Hospitals that join HIEs experience a 35 percent reduction in breach risk, driven by increased security investments (DiD, IV estimates).
- Strong HIE governance and state-level security laws magnify protective effects, especially for hospitals with advanced clinical IT systems.
- Participating hospitals adopt more IT security applications post-HIE, indicating that HIE membership incentivizes ongoing cybersecurity investment.

WHO NEEDS TO KNOW:

- IT directors
- Policymakers
- Academics

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