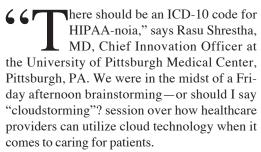# Health Information Exchange Economics: Decreasing healthcare costs while increasing patient safety and quality

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"There should be an ICD-10 code for HIPAA-noia," says Rasu Shrestha, MD, Chief Innovation Officer at the University of Pittsburgh Medical Center, Pittsburgh, PA. We were in the midst of a Friday afternoon brainstorming—or should I say "cloudstorming"? session over how healthcare providers can utilize cloud technology when it comes to caring for patients.

Indeed, Dr. Shrestha and I discussed how recent compromises to personal patient health information have sadly strengthened the case against using the cloud to manage patient financial records, lab results, imaging reports and images, and deterred many from leveraging health information exchanges (HIEs) to share patient information across state and facility borders.

Although we agreed that this is an unfortunate turn of events, we concurred that there is room to turn the cloud's fortunes around, with the help of some basic steps (Table 1).

Moving forward, safeguarding patient privacy to the best of our ability should be Step One. Leveraging encryption and better security against hackers would be a good place—indeed, a critical place—to start to protect our patients. The key mission would be to have one's data encrypted at rest, while allowing the patient to own the encryption keys to information stored in the cloud.

Once the cloud is secure, we may begin to leverage it safely by utilizing secure tunnels between regional networks. The ideal situation for hospitals would be to have point-to-point image exchange, which would enable the transmission of patient records, reports and images freely among multiple institutions, and would allow physicians to evaluate their patients in the most efficient manner and avoid redundant imaging.

This method would be particularly useful in emergency settings; this practice would avoid exposing patients to unnecessary ionizing radiation (especially in the setting of repeat CT Imaging), increase patient safety and save healthcare dollars.

In settings where there are no interim clinical changes for a given patient, it is of paramount importance to avoid unnecessary repeat imaging for at least 24 hours, especially when exams have just been recently performed at a local

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Table 1.

Conway and Shrestha's

5 STEPS TO THE STAIRWAY OF CLOUDONOMICS

1. Secure the cloud by encryption and encryption keys.

2. Leverage the cloud by allowing private HIEs to share information within secure tunnels across facility and state lines.

3. Make cloud information available at the ED or treating facility when the patient arrives, to avoid repeats in lab work and imaging that may be redundant.

4. Allow patients to partner by choosing "Opt in" to participating in HIEs and the cloud.

5. In exchange for using a patient's health information through "Opt in," the patient will receive a break on insurance premiums. Personal patient information has value, so the patient may as well be the one who is compensated for its use.

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center. Ideally, with HIEs and the cloud making lab data, imaging reports, images and records immediately available, there will be useful information to review when the patient arrives at the emergency department door.

"It is critical to get access to these reports and images anywhere, anytime, and to also leverage mobile apps in a more intelligent way," says Dr. Shrestha, who added that he likes to call the process of leveraging the cloud, "cloudonomics."

"We have had over 7 or 8 years of public, state-run HIEs, and they have failed miserably," says Dr. Shrestha, noting the weak return on investment of most public HIEs. During the past 4 years, on the other hand, private HIEs "have really blossomed," he says.

Private HIEs often involve integrated delivery networks (IDNs) or Accountable Care Organizations (ACOs) and may cross state borders. One HIE, for example, may connect hospitals A, B, C, D; all four hospitals may extend across state lines. Beyond crossing state lines, private HIEs are focused around a naturally distributed geographical dispersion of patient populations served by a cluster of participating healthcare organizations. In addition to shared interests across the stakeholders, private HIEs often tend to be funded by participating organizations with an aligned vision and a defined set of services enabled by the HIE.

"There has been great growth in this area," states Dr. Shrestha. "Unlike public HIEs, private HIEs have thrived."

We are all patients at one time or another, and our patient health information is being bought, traded and sold in one way or another every day. Since patient health information has value, and it technically belongs to the patient, the patient should perhaps be compensated for the use of their personal health information. An insurance system where patients receive a break on their premiums by allowing insurance companies to use their information would be ideal. Someone, somewhere, benefits from the use of personal health information, so it may as well be the patient. If nothing else, it's one way to help prevent "Affordable Care" from becoming "Unaffordable Care."

It's late afternoon, and my cloudstorming session with Dr. Shrestha is coming to a close. We have only begun to tackle this healthcare challenge, but I am smiling because I know that in this time of world climate change and healthcare climate change, I am certain we will be brainstorming—and cloudstorming—again soon.