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# When hospitals share patient records, emergency patients benefit, study suggests

## U-M research shows fewer repeat medical images made in ERs of hospitals taking part in health information exchanges

**ANN ARBOR, Mich. —** As hospitals and doctors' offices across the country race to join online systems that let them share medical information securely, a new study suggests that these systems may already be helping cut unnecessary care.



A new study looks at the impact of health information exchanges, which allow hospitals to share medical records securely online.

Fewer emergency patients got repeated medical scans when they went to a hospital that takes part in a health information exchange, or HIE, according to new findings by University of Michigan researchers published online in the journal *Medical Care* (http://journals.lww.com/lww-medicalcare/Abstract/publishahead/Does_Health_Information_Exchange_Reduce_Redundant.99186.aspx).

And although the study focuses specifically on scans done on patients who went to two different emergency departments in a 30-day period, the authors say the findings serve as a good test case for

the effectiveness of HIEs. The study is one of the first to show with hard data that HIEs may deliver the increased efficiency they promise.

The researchers chose to examine emergency care, says senior author and [U-M Medical School (http://medicine.umich.edu/medschool)](http://medicine.umich.edu/medschool) emergency physician [Keith Kocher, M.D. (http://www.uofmhealth.org/profile/704/keith-eric-kocher-md)](http://www.uofmhealth.org/profile/704/keith-eric-kocher-md), because emergency department teams need information quickly in order to diagnose and treat a patient.

The ability to log in to a computer and pull up that patient's previous records from other hospitals through an HIE -- instead of ordering duplicate tests or scans -- holds great promise, he says. But until now, large-scale studies haven't been done.

The findings show that the use of repeat CT scans, chest X-rays and ultrasound scans was significantly lower when patients had both their emergency visits at two unaffiliated hospitals that took part in an HIE. The data come from two large states that were among the early adopters of HIEs: California and Florida.

Patients were 59 percent less likely to have a redundant CT scan, 44 percent less likely to get a duplicate ultrasound, and 67 percent less likely to have a repeated chest X-ray when both their emergency visits were at hospitals that shared information across an HIE.

Kocher, an assistant professor of emergency medicine, worked with Eric Lammers, Ph.D., who performed the analysis for his doctoral work at the [U-M School of Public Health (http://sph.umich.edu/)](http://sph.umich.edu/) and is now working at [Mathematica Policy Research (http://www.mathematica-mpr.com/)](http://www.mathematica-mpr.com/).

"The emergency department is an important test case for whether we would see any impact from HIEs on rates of repeat imaging," says Lammers. "The fact that we find that there is a decrease is in and of itself significant."

## Hope and hype put to the test

The federal government has incentivized participation in HIEs, offering states grants to form them, and medical providers extra money if they sign on. In Michigan, several HIEs have emerged, and the two largest just announced plans to merge. HIEs are a key extension of the electronic health records that hospitals and practices are also being incentivized to adopt.

"There has been a lot of hope, and some hype, that these systems will enable more efficiency in how care is provided across unaffiliated providers," says Lammers. The availability of several years of data from various sources in two HIE early-adopter states gave the chance to do the study, he notes.

The researchers pooled information from the California and Florida State Emergency Department Databases, for 2007 through 2010, and information on hospital HIE participation and affiliation from the Health Information Management Systems Society annual survey. The state ED databases were

compiled as part of the Healthcare Cost and Utilization Project of the federal Agency for Healthcare Research and Quality.

In all, they found that patients in the two states underwent 20,139 repeat CT scans – meaning that 14.7 percent of those who had a CT scan in their first emergency visit had another one at their second emergency visit at another, unaffiliated hospital within a month.

There were also 13,060 repeat ultrasounds, which were ordered for 21 percent of those who had had ultrasounds at their first visit, and 29,703 repeat chest X-rays, ordered for 19.5 percent of those who had an X-ray at their first emergency visit.

While the researchers couldn't tell specifically that doctors at the second emergency department had accessed the patient's records from the first ED, or that it impacted their decision-making if they did, the presence of an HIE at both hospitals means it would have been possible to do so. And they did see that the rates of repeat scanning were higher when an HIE was not present than when one was. They also estimated that if adopted nationwide, HIE might reduce health care costs by $19 million annually for these types of repeat imaging tests in the ED.

"Our data allowed us to study a very specific type of care where HIE was associated with reducing what would potentially be a redundant test by half, which we think is pretty meaningful," says Kocher. "We can't say yet how generalizable these results will be to other settings, but these are definitely interesting empirical findings."

He notes that other types of patient records, such as recent lab test results, can also make a major difference in what an emergency doctor chooses to do when presented with an emergency patient.

Lammers notes that not all states report the relevant data to the HCUP system, and that more broad reporting could make research on the impact of HIEs easier as the systems become more common nationwide. The data allows researchers to see the activity of individual patients across their different medical encounters, while preserving patient privacy.

In addition to Kocher and Lammers, the study team included Julia Adler-Milstein, Ph.D., an assistant professor in the U-M School of Information and School of Public Health who studies health information technology policy. Kocher and Adler-Milstein are members of the U-M Institute for Healthcare Policy and Innovation (http://ihpi.umich.edu/). Lammers is now part of the Mathematica effort to evaluate the HITECH Act, the federal law that provides for health IT incentives.

**Reference:** *Medical Care, (http://journals.lww.com/lww-medicalcare/Abstract/publishahead/Does_Health_Information_Exchange_Reduce_Redundant.99186.as*

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