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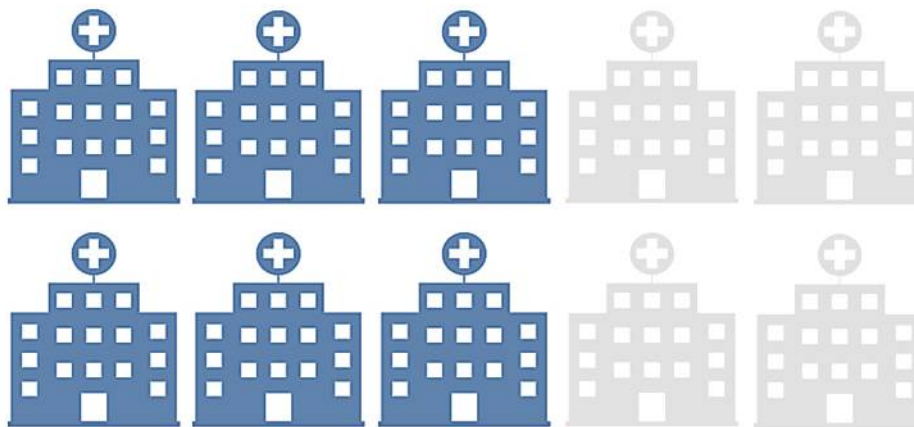
Health Information Exchange among U.S. Non-federal Acute Care Hospitals: 2008-2013

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The Department of Health and Human Services (HHS) has many initiatives to facilitate health information exchange among health care stakeholders, including clinicians, hospitals, laboratories, and pharmacies (1). Greater access to patient-level health information among these stakeholders is integral to enhance care, lower costs, and improve population health. Stage 2 of the Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs requires hospitals to exchange clinical information using a certified EHR to receive incentive payments (2). This brief updates analysis from 2012 (3), and describes trends in electronic health information exchange among non-federal acute care hospitals from 2008 to 2013.

Six in ten hospitals electronically exchanged health information with outside providers.

Figure 1: Percent of non-federal acute care hospitals that electronically exchanged laboratory results, radiology reports, clinical care summaries, or medication lists with any outside providers: 2013

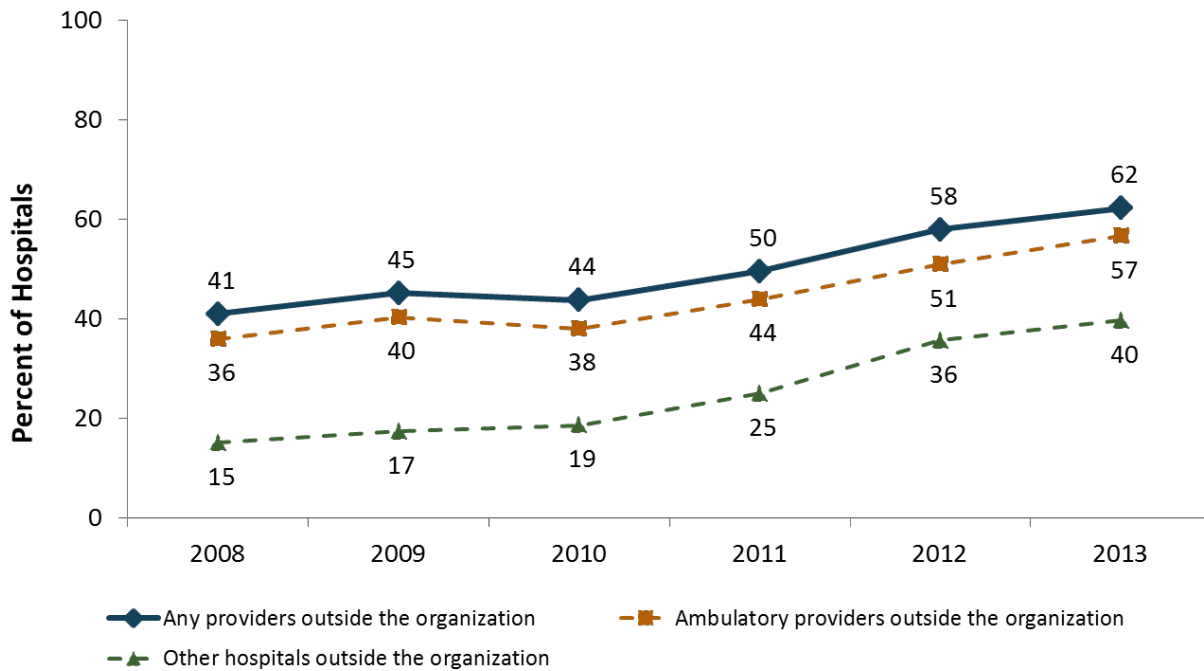


SOURCE: ONC/American Hospital Association (AHA), AHA Annual Survey Information Technology Supplement

- ★ In 2013, more than six in ten hospitals (62%) electronically exchanged health information with providers outside of their system (Figure 1).

Hospital health information exchange has significantly increased since 2008.

Figure 2: Percent of non-federal acute care hospitals that electronically exchanged laboratory results, radiology reports, clinical care summaries, or medication lists with outside providers and hospitals: 2008-2013

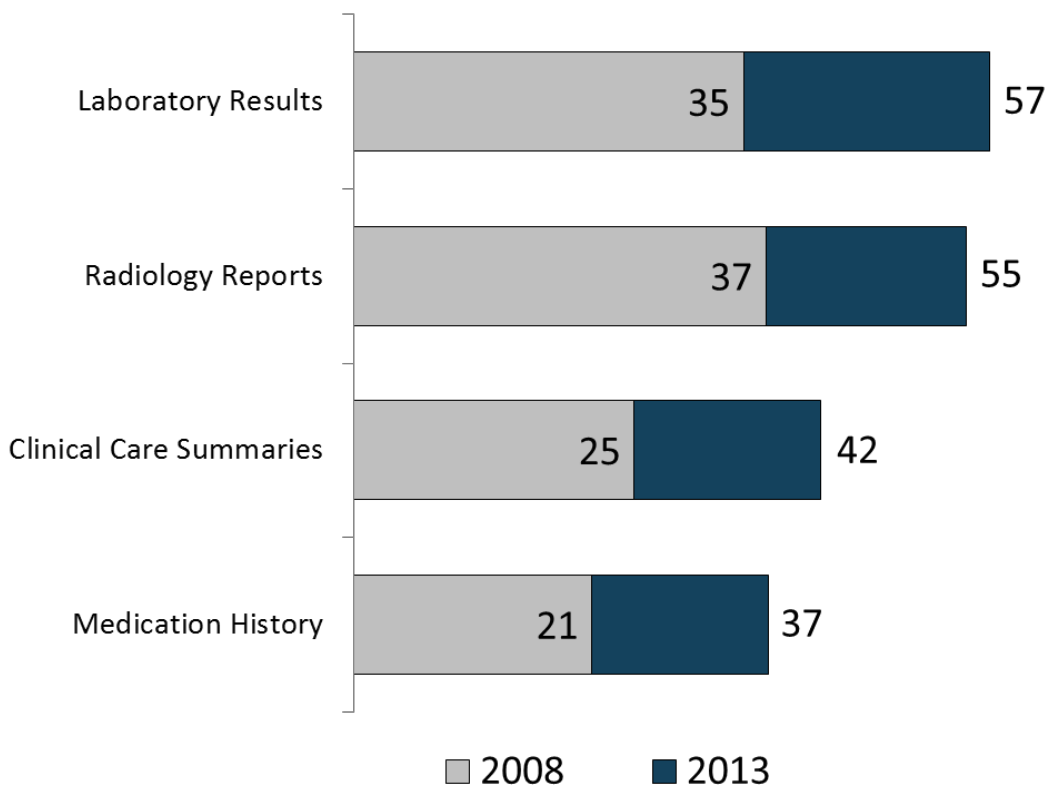


SOURCE: ONC/American Hospital Association (AHA), AHA Annual Survey Information Technology Supplement

- ★ Electronic health information exchange among hospitals and outside providers increased 51% from 2008 to 2013 (Figure 2).
- ★ The majority of hospitals (57%) electronically exchanged health information with ambulatory providers outside of their system. This represents a 58% increase since 2008.
- ★ Four in ten hospitals electronically exchanged health information with hospitals outside of their system. This represents a 167% increase since 2008.

Hospital health information exchange with outside providers varied by data type.

Figure 3: Percent of non-federal acute care hospitals that electronically exchanged laboratory results, radiology reports, clinical care summaries, and medication history with any outside providers: 2008 and 2013



SOURCE: ONC/American Hospital Association (AHA), AHA Annual Survey Information Technology Supplement

- ★ Hospital exchange activity significantly increased across the four data types since 2008 (Figure 3).
- ★ More than half of hospitals electronically exchanged laboratory results (57%) and radiology reports (55%) with outside providers in 2013.
- ★ In 2013, more than four in ten hospitals (42%) electronically exchanged clinical care summaries with outside providers and less than four in ten (37%) electronically exchange medication histories with outside providers.



Hospital health information exchange with outside providers varied significantly by state.

Table 1: Percent of non-federal acute care hospitals that electronically exchanged health information and clinical care summaries with any outside providers by U.S. state: 2013

State	Any Outside Exchange, %	Clinical Care Summaries, %	n(N)	State	Any Outside Exchange, %	Clinical Care Summaries, %	n(N)
United States	62	42	2655 (4472)	Missouri	64†	38§	111(112)
Alabama	63	56	31(90)	Montana	41§	20§	28(54)
Alaska	57	57	6(19)	Nebraska	59	36	49(84)
Arizona	68	58†	39(60)	Nevada	43	31	11(29)
Arkansas	58	39	38(71)	New Hampshire	92†	59	12(26)
California	52	38	170(328)	New Jersey	93†	66†	45(64)
Colorado	79†	62†	48(71)	New Mexico	70	21§	17(31)
Connecticut	95†	53	17(29)	New York	73†	34§	115(171)
Delaware	100†	51	4(6)	North Carolina	74†	54†	55(108)
District of Columbia	70	38	6(8)	North Dakota	62	53	14(42)
Florida	64	51†	96(184)	Ohio	80†	55†	106(158)
Georgia	56	39	58(134)	Oklahoma	38§	25§	57(107)
Hawaii	65	57	12(20)	Oregon	75	63†	27(59)
Idaho	74	50	20(38)	Pennsylvania	67†	51†	114(154)
Illinois	57	33§	141(178)	Rhode Island	100†	36	8(10)
Indiana	83†	48	63(107)	South Carolina	52	32	19(58)
Iowa	51§	34§	75(117)	South Dakota	54	49	23(50)
Kansas	54§	39	97(125)	Tennessee	66	28§	48(115)
Kentucky	68	43	63(97)	Texas	50§	30§	199(343)
Louisiana	43	25§	44(100)	Utah	65	57	22(44)
Maine	59	32	22(36)	Vermont	83	49	6(14)
Maryland	81†	50	31(45)	Virginia	72†	59†	42(81)
Massachusetts	70	29§	40(62)	Washington	79†	63†	36(88)
Michigan	73†	47	74(128)	West Virginia	55	27§	28(49)
Minnesota	58§	46†	127(129)	Wisconsin	63	50†	93(125)
Mississippi	42§	38	33(90)	Wyoming	56	49	15(24)

NOTES: n = survey respondents; N = hospitals surveyed

*Estimate does not meet standards of reliability

†Significantly higher than national average (p < 0.05)

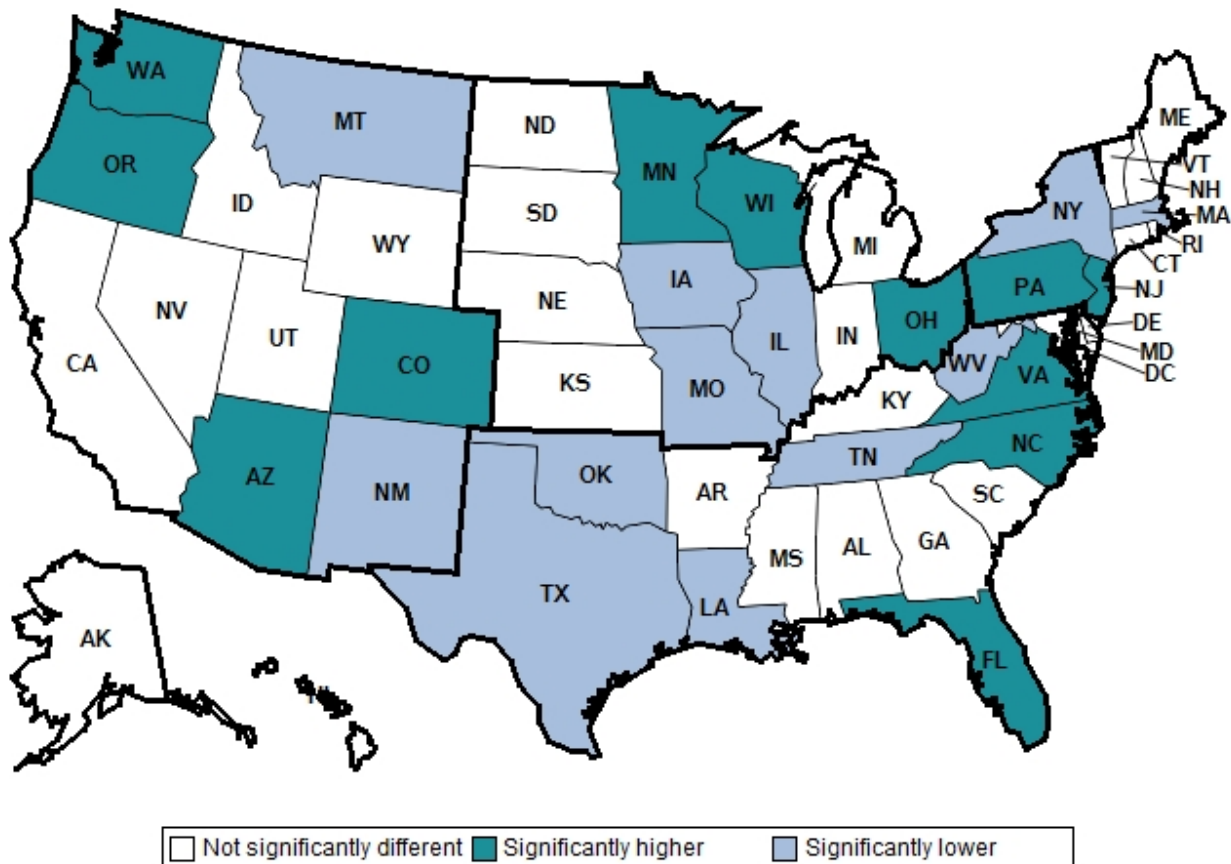
§Significantly lower than national average (p < 0.05)

SOURCE: ONC/American Hospital Association (AHA), AHA Annual Survey Information Technology Supplement

- ★ State rates of electronic health information exchange with outside providers ranged from 38% to 100% (Table 1).
- ★ Rhode Island (100%), Delaware (100%), and Connecticut (95%) had the highest percent of hospitals that electronically exchanged health information with outside providers.
- ★ Oklahoma (38%), Montana (41%), and Mississippi (42%) had the lowest percent of hospitals that electronically exchanged health information with outside providers.

Clinical care summary exchange was significantly higher than the national average in twelve states.

Figure 4: State percent of non-federal acute care hospitals that electronically exchanged clinical care summaries with any outside providers compared with the national average (42%): 2013



SOURCE: ONC/American Hospital Association (AHA), AHA Annual Survey Information Technology Supplement

- ★ Clinical care summary exchange among hospitals with outside providers was significantly higher than the national average in twelve states (Arizona, Colorado, Florida, Minnesota, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Virginia, Washington, and Wisconsin) (Figure 4).
- ★ Clinical care summary exchange among hospitals with outside providers was significantly lower than the national average in twelve states (Illinois, Iowa, Louisiana, Massachusetts, Missouri, Nevada, New York, Oklahoma, Tennessee, Texas, and West Virginia).



Summary

Hospital adoption of EHR systems has significantly increased since the enactment of the Health Information Technology for Clinical Health (HITECH) Act of 2009 (4). During that same period, hospital's electronic health information exchange with both outside ambulatory providers and other hospitals significantly increased. In 2013, more than six in ten (62%) non-federal acute care hospitals electronically exchanged laboratory results, radiology reports, clinical care summaries, and/or medication lists with any outside providers. This represents a 51% increase since 2008.

In 2013, the majority of hospitals (58%) electronically exchanged health information with ambulatory providers outside of their organization. The percent of hospitals that electronically exchanged clinical data with outside hospitals has more than doubled since 2008; however, only four in ten hospitals electronically exchanged health information with outside hospitals.

Health information exchange among hospitals and outside providers also varied by the type of data exchanged. More than half of hospitals exchanged laboratory results (57%) and radiology reports (55%) with outside providers. However, about four in ten hospitals electronically exchanged clinical care summaries (42%) and medication history (37%) with outside providers.

Health information exchange among hospitals varied across states. State rates of exchange with outside providers ranged from 38% to 100%. Hospitals in Rhode Island, Delaware, and Connecticut had the highest percent of hospitals that exchanged health information with any outside providers, while hospitals in Oklahoma, Montana, and Mississippi had the lowest percent of hospitals that electronically exchanged health information with any outside providers.

New Jersey, Oregon, and Washington had the highest percent of hospitals that electronically exchanged clinical care summaries with any outside providers, while hospitals in Montana and New Mexico had the lowest percent of hospitals that electronically exchanged clinical care summaries with any outside providers.



Definitions

Non-federal acute care hospital: Includes acute care general medical and surgical, children’s general, and cancer hospitals owned by private/not-for-profit, investor-owned/for-profit, or state/local government and located within the 50 states and District of Columbia.

Any outside providers: Encompasses ambulatory care providers, hospitals, or both that are outside the respondent’s organization.

Hospital health information exchange: Assessed using survey questions asking respondents whether their hospital electronically exchanged or shared the following four types of clinical information: radiology reports, laboratory results, clinical care summaries, and medication lists.

Table 2: Survey questions assessing hospitals’ health information exchange activity.

Which of following patient data does your hospital electronically exchange/share with one or more of the provider types listed below? (Check all that apply)					
	With Hospitals In Your System	With Hospitals Outside of Your System	With Ambulatory Providers Inside of Your System	With Ambulatory Providers Outside of Your System	Do not know
Laboratory results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medication history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiology reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinical/Summary care record in any format	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Data Source and Methods

Data are from the American Hospital Association (AHA) Information Technology (IT) Supplement to the AHA Annual Survey. Since 2008, ONC has partnered with the AHA to measure the adoption and use of health IT in U.S. hospitals. ONC funded the 2013 AHA IT Supplement to track hospital adoption and use of EHRs and the exchange of clinical data.

The chief executive officer of each U.S. hospital was invited to participate in the survey regardless of AHA membership status. The person most knowledgeable about the hospital's health IT (typically the chief information officer) was requested to provide the information via a mail survey or secure online site. Non-respondents received follow-up mailings and phone calls to encourage response. The survey was fielded from November 2013 to the end of February 2014.

The response rate for non-federal acute care hospitals was 59%. A logistic regression model was used to predict the propensity of survey response as a function of hospital characteristics, including size, ownership, teaching status, system membership, availability of a cardiac intensive care unit, urban status, and region. Hospital-level weights were derived by the inverse of the predicted propensity.

Estimates considered unreliable had a relative standard error adjusted for finite populations greater than 0.49. Responses with missing values were assigned zero values. Significant differences were tested using $p < 0.05$ as the threshold.

References

1. U.S. Department of Health and Human Services. Principles and strategy for accelerating health information exchange. 2013. Accessed April 14, 2014 at: http://www.healthit.gov/sites/default/files/acceleratinghieprinciples_strategy.pdf
2. Centers for Medicare & Medicaid Services. [Medicare and Medicaid] EHR Incentive Programs. Available form: <https://www.cms.gov/ehrincentiveprograms>.
3. Furukawa MF, Patel V, Charles D, Swain M, Mostashari F. Hospital electronic health information exchange grew substantially in 2008-2012. *Health Affairs*. 2013;32(8): 1346-54.
4. Charles D, Gabriel M, Furukawa MF. "Adoption of Electronic Health Record Systems among U.S. Non-federal Acute Care Hospitals: 2008-2013," *ONC Data Brief, no X*. Washington, DC: Office of the National Coordinator for Health Information Technology. April 2014.



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The authors are with the Office of the National Coordinator for Health Information Technology, Office of Economic Analysis, Evaluation and Modeling.

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