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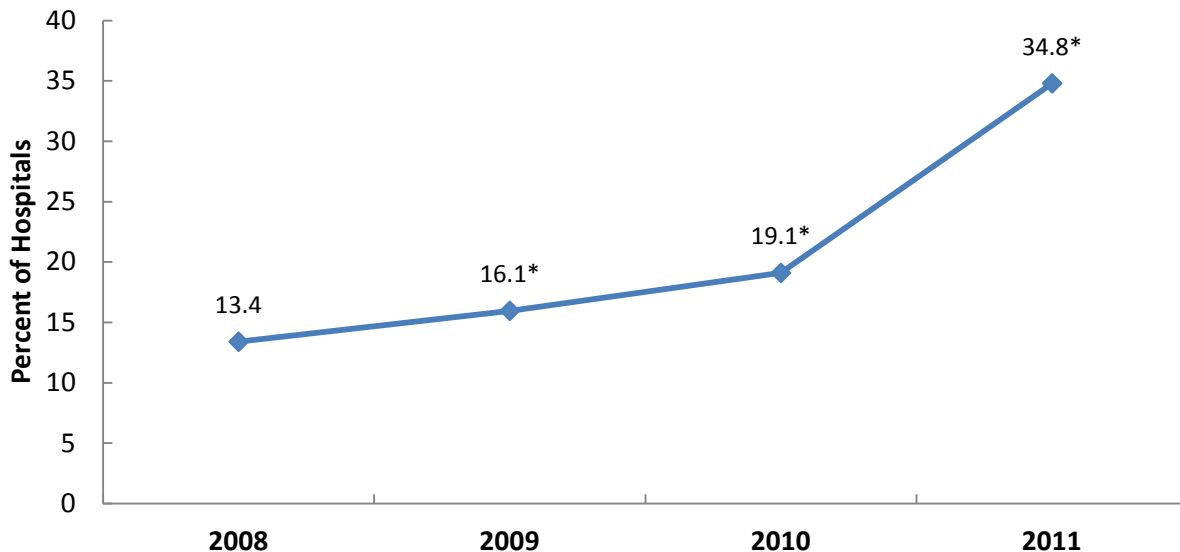
Electronic Health Record Systems and Intent to Attest to Meaningful Use among Non-federal Acute Care Hospitals in the United States: 2008-2011

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The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 directed the Office of the National Coordinator for Health Information Technology (ONC) to promote the adoption and meaningful use of electronic health records (EHR). This brief describes trends in adoption of EHR systems among non-federal acute care hospitals from 2008 to 2011, including tracking the intent of hospitals to attest to Meaningful Use of EHRs and receive payments through the Centers for Medicare and Medicaid Services (CMS) EHR Incentive Programs.

Hospital adoption of EHR systems has more than doubled since 2009.

Figure 1: Percent of non-federal acute care hospitals with adoption of at least a Basic EHR system: 2008-2011



NOTES: Adoption requires the EHR system to have at least a basic set of EHR functions as defined in Table 2. Estimates reported are based on adoption of at least a Basic EHR without Clinician Notes.

*Significantly different from previous year ($p < 0.05$).

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

- ★ Hospital adoption of at least a Basic EHR system increased by 82% between 2010 and 2011, increasing from 19% to 35% (Figure 1).
- ★ Since 2009, hospital adoption of at least a Basic EHR system more than doubled, increasing from 16% to 35%.

Hospital adoption of EHR systems and intent to attest to Meaningful Use vary by state.

Table 1: Percentages of non-federal acute care hospitals with adoption of at least a Basic EHR system and intent to attest to Meaningful Use: 2011

State	EHR Adoption, %	Intent to Attest, %	n(N)	State	EHR Adoption, %	Intent to Attest, %	n(N)
			2641				
United States	34.8	85.4	(4515)	Missouri	45.1†	52.2§	113(113)
Alabama	25.4	86.7	44(95)	Montana	15.2	87.3	31(54)
Alaska	7.3*	90.9	13(22)	Nebraska	22.9	90.7	52(84)
Arizona	23.3	84.9	31(62)	Nevada	36.1	82.5	13(30)
Arkansas	33.7	87.0	40(72)	New Hampshire	43.8	100.0†	14(26)
California	23.2§	83.5	153(333)	New Jersey	37.5	94.5†	41(63)
Colorado	33.0	93.4†	42(72)	New Mexico	28.2	79.1	16(29)
Connecticut	43.9	95.2†	22(30)	New York	33.2	94.9†	118(177)
Delaware	39.2	100.0†	5(6)	North Carolina	32.2	83.7	76(111)
District of Columbia	36.9	73.3	8(9)	North Dakota	11.2*	91.0	15(42)
Florida	60.2†	93.6†	93(183)	Ohio	33.9	90.5†	96(158)
Georgia	30.4	87.4	53(139)	Oklahoma	13.9§	90.0	39(102)
Hawaii	66.9	100.0†	9(23)	Oregon	50.4	79.8	25(58)
Idaho	19.0	84.3	24(39)	Pennsylvania	36.9	91.0†	109(158)
Illinois	43.8†	90.5†	131(180)	Rhode Island	55.2	100.0†	9(11)
Indiana	32.8	91.0	66(107)	South Carolina	43.2	82.6	24(57)
Iowa	37.9	86.5	83(117)	South Dakota	16.8§	75.0	27(51)
Kansas	22.5§	71.2§	102(123)	Tennessee	34.8	76.3	49(116)
Kentucky	29.5	67.2§	58(98)	Texas	26.6§	83.6	175(349)
Louisiana	27.1	75.3	48(101)	Utah	8.9*	100.0†	8(41)
Maine	45.8	100.0†	24(36)	Vermont	59.0	100.0†	7(14)
Maryland	38.4	89.7	39(46)	Virginia	62.1†	72.0	40(79)
Massachusetts	55.3†	95.0†	39(67)	Washington	41.4	91.2	51(85)
Michigan	37.0	94.0†	87(133)	West Virginia	36.5	86.1	27(50)
Minnesota	47.2†	87.3	127(131)	Wisconsin	49.6†	92.4†	73(121)
Mississippi	27.1	92.2	37(88)	Wyoming	21.0	93.0	15(24)

NOTES: n = survey respondents; N = hospitals surveyed

*Estimate does not meet standards of reliability

†Significantly higher than national average ($p < 0.05$)

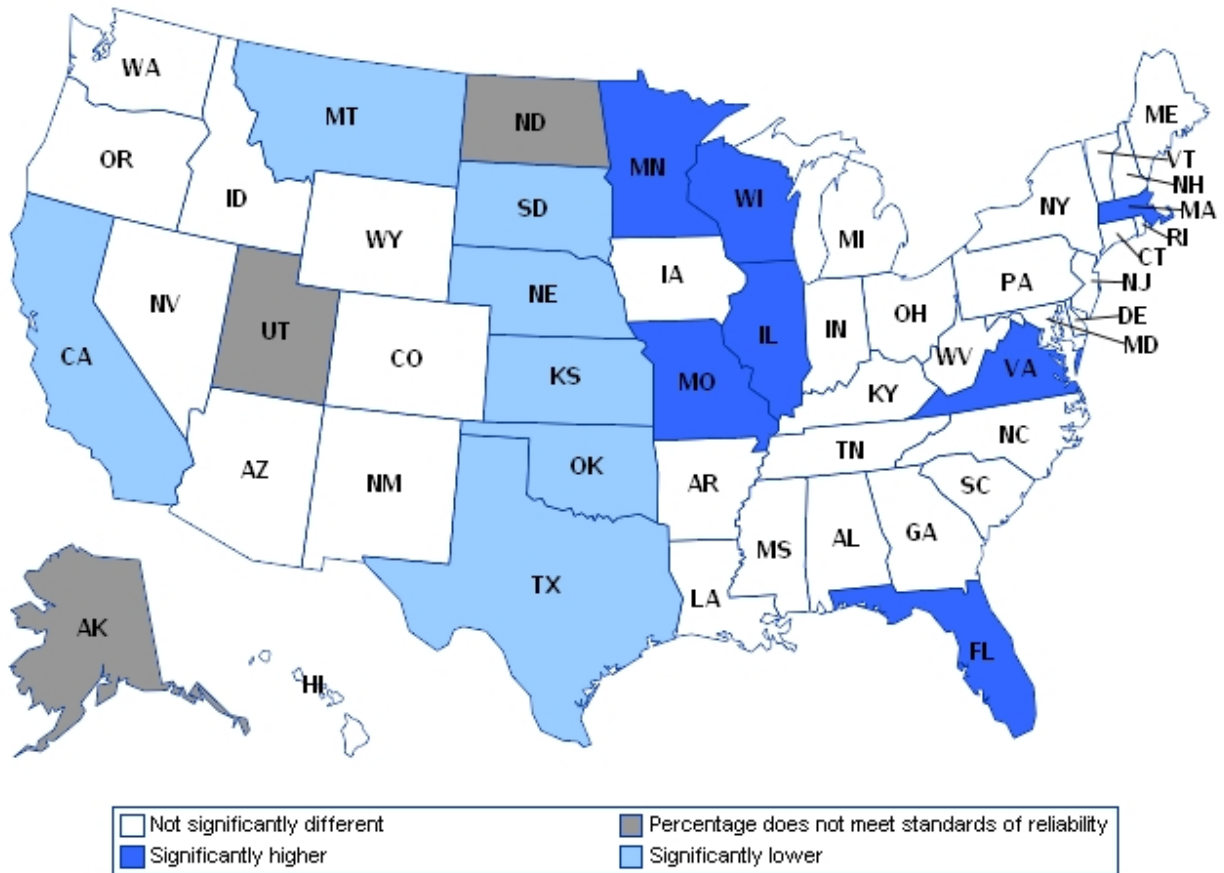
§Significantly lower than national average ($p < 0.05$)

SOURCE: ONC/AHA, AHA Annual Survey Information Technology Supplement

- ★ State rates of hospital adoption of at least a Basic EHR system ranged from 14% to 67% (Table 1).
- ★ Hawaii (67%), Virginia (62%) and Florida (60%) had the highest percent of hospitals reporting adoption of at least a Basic EHR system
- ★ Oklahoma (14%), Montana (15%) and South Dakota (17%) had the lowest percent of hospitals with adoption of at least a Basic EHR system.
- ★ In seven states, all hospitals responding to the survey reported they intend to attest to Meaningful Use under the CMS Medicare and Medicaid EHR Incentive Programs (Delaware, Hawaii, Maine, New Hampshire, Rhode Island, Utah, and Vermont).
- ★ Missouri (52%), Kentucky (67%) and Kansas (71%) reported the lowest percent of hospitals intending to attest to Meaningful Use under the CMS Medicare and Medicaid EHR Incentive Programs.

EHR adoption rates were significantly higher than the national average in seven states.

Figure 2: Percent of non-federal acute care hospitals with adoption of at least a Basic EHR system compared with national average (34.8%): 2011

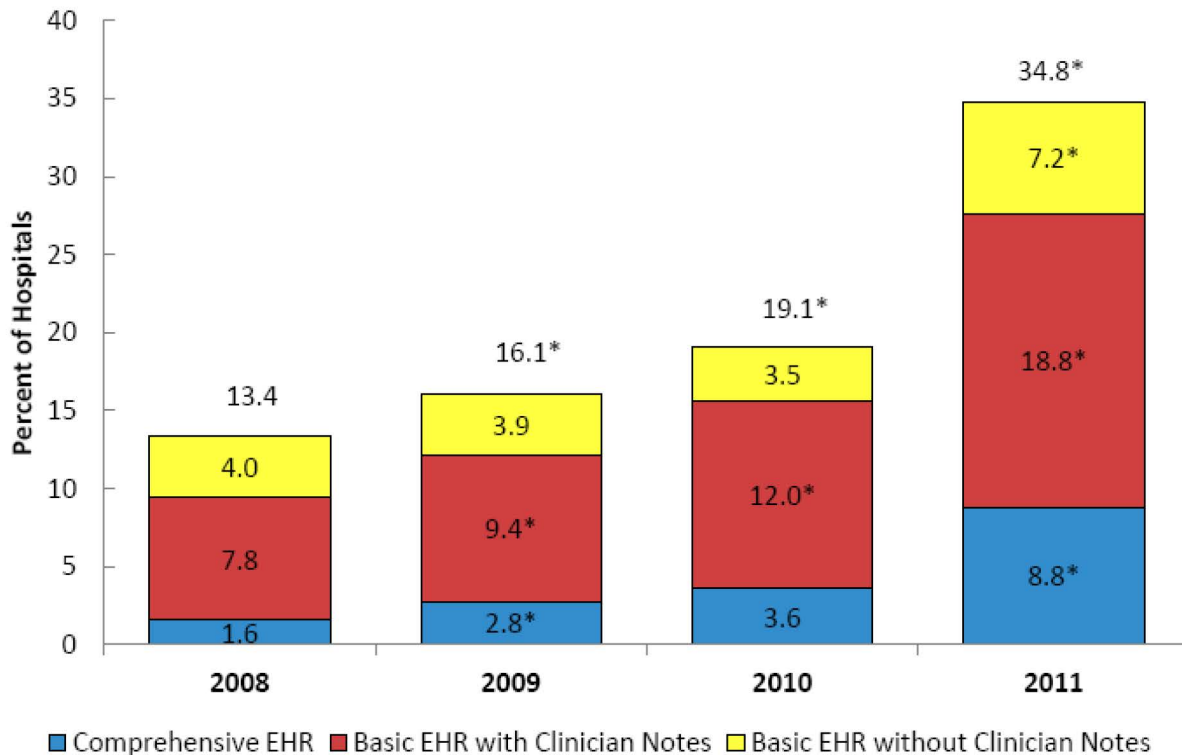


SOURCE: ONC/AHA, AHA Annual Survey Information Technology Supplement

- ★ The percent of hospitals with adoption of at least a Basic EHR system was significantly higher than the national average in seven states (Florida, Illinois, Massachusetts, Minnesota, Missouri, Virginia, and Wisconsin) (Figure 2).
- ★ Hospital adoption of at least a Basic EHR system was significantly lower than the national average in seven states (California, Kansas, Montana, Nebraska, Oklahoma, South Dakota, and Texas).

Trends in EHR adoption show increasing use of advanced functionality.

Figure 3: Percent of non-federal acute care hospitals with adoption of EHR systems by level of functionality: 2008-2011



NOTES: Definitions of Basic EHR and Comprehensive EHR systems are reported in Table 2.

*Significantly different from previous year (p < 0.05).

A prior study reported estimates of hospital adoption based on at least Basic EHR with Clinician Notes (1).

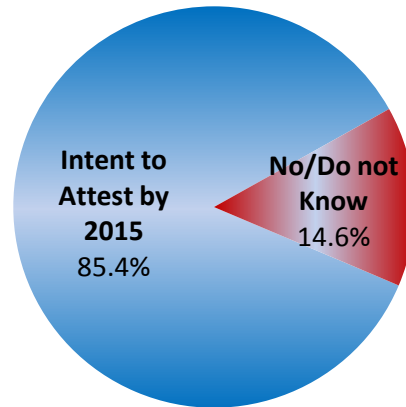
Differences in the estimates in this brief from (1) are due to the inclusion of children’s and cancer hospitals and small differences in the calculation of hospital-level weights.

SOURCE: ONC/AHA, AHA Annual Survey Information Technology Supplement

- ★ From 2010 to 2011, hospital adoption of Basic EHRs without Clinician Notes has more than doubled, increasing from 3.5% to 7% (Figure 3).
- ★ Hospital adoption of Basic EHRs with Clinician Notes has doubled since 2009, increasing from 9% to 19%.
- ★ From 2009 to 2011, hospital adoption of Comprehensive EHR systems tripled, increasing from 3% to 9%.

Most hospitals intend to attest to Meaningful Use by 2015.

Figure 4: Percent of non-federal acute care hospitals planning to attest to Meaningful Use under the CMS Medicare and Medicaid EHR Incentive Program: 2011



SOURCE: ONC/AHA, AHA Annual Survey Information Technology Supplement

- ★ 85% of hospitals intend to attest to Meaningful Use of certified EHR technology under the CMS Medicare and Medicaid EHR Incentive Program by 2015 (Figure 4).

Summary

The trend in adoption of EHR systems by non-federal acute care hospitals has been steadily increasing since 2008. From 2010 to 2011, EHR adoption sharply increased from 19% to 35%, an increase of 82%. Since 2009, hospital adoption of at least Basic and Comprehensive EHR systems has more than doubled.

Hospital adoption of EHR systems varied across states. EHR adoption rates were significantly above the national average in seven states and significantly below the national average in seven other states. Hospital respondents in Hawaii, Virginia and Florida reported the highest rates of adoption. Oklahoma, Montana and South Dakota reported the lowest adoption rates, which were significantly lower than the national average.

More than 85% of non-federal acute care hospitals intend to attest to Meaningful Use of EHRs through either the Medicare or Medicaid EHR Incentive Program by 2015. Overall, most states reported high rates of intent to attest to Meaningful Use. Delaware, Hawaii, Maine, New Hampshire, Rhode Island, Utah, and Vermont reported that all their hospitals in the survey intended to attest to Meaningful Use of EHRs. Missouri, Kentucky, and Kansas reported the lowest rates of Meaningful Use intent, which were significantly below the national average.



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.

Adoption of Basic EHR: Table 2 defines the electronic functions required for hospital adoption of a Basic or Comprehensive EHR system, which were derived by a consensus expert panel (2). The panel disagreed on the need to include physician notes and nursing assessments to classify a hospital as having a basic system, so two definitions of Basic EHR (Basic without Notes, Basic with Notes) were developed (3). Since Meaningful Use criteria does not require clinician notes, adoption of at least Basic EHR is based on the definition of Basic without Clinician Notes.

Attest to Meaningful Use: Attestation to Meaningful Use of certified EHR technology requires that hospitals demonstrate that their EHR system meets 14 ‘Core’ measures and an additional 5 measures chosen from a menu set of 10.

Table 2: Electronic Functions Required for Hospital Adoption of Basic or Comprehensive EHR Systems

EHR Functions Required	Basic EHR without Clinician Notes	Basic EHR with Clinician Notes	Comprehensive EHR
Electronic Clinical Information			
Patient demographics	★	★	★
Physician notes		★	★
Nursing assessments		★	★
Problem lists	★	★	★
Medication lists	★	★	★
Discharge summaries	★	★	★
Advance directives			★
Computerized Provider Order Entry			
Lab reports			★
Radiology tests			★
Medications	★	★	★
Consultation requests			★
Nursing orders			★
Results Management			
View lab reports	★	★	★
View radiology reports	★	★	★
View radiology images			★
View diagnostic test results	★	★	★
View diagnostic test images			★
View consultant report			★
Decision Support			
Clinical guidelines			★
Clinical reminders			★
Drug allergy results			★
Drug-drug interactions			★
Drug-lab interactions			★
Drug dosing support			★

NOTES: Basic EHR adoption requires each function to be implemented in at least one clinical unit, and Comprehensive EHR adoption requires each function to be implemented in all clinical units.



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 2011 AHA IT Supplement to track hospital adoption and use of electronic health records 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 October through December 2011.

The response rate for non-federal acute care hospitals was 58%. 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. The inverse of the predicted propensity was used to derive hospital-level weights.

Estimates considered unreliable had a relative standard error adjusted for finite populations greater than 0.49. Responses with missing values were assigned zero values, which assumed the item was not implemented. Significant differences were tested using $p < 0.05$ as the threshold for significance.

References

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