

Electronic Health Record Systems and Intent to Apply for Meaningful Use Incentives Among Office-based Physician Practices: United States, 2001–2011

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Key findings

Data from the National Ambulatory Medical Care Survey

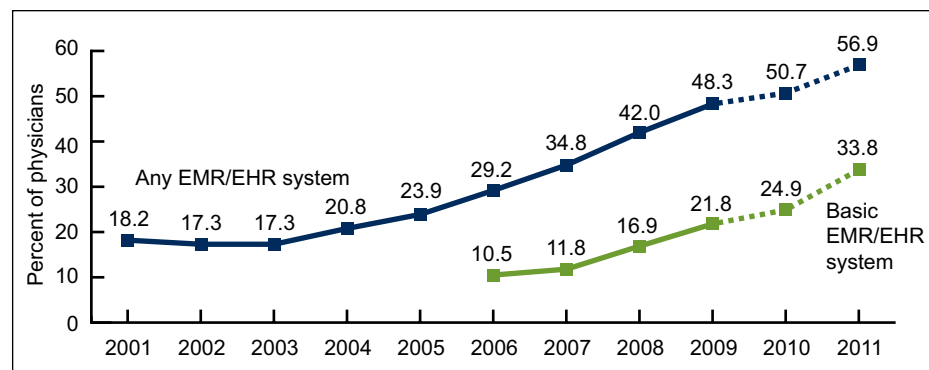
- In 2011, 57% of office-based physicians used electronic medical record/electronic health record (EMR/EHR) systems, with use by state ranging from 40% in Louisiana to 84% in North Dakota.
- About one-third of physicians (34%) reported having a system that met the criteria for a basic system, ranging by state from 16% in New Jersey to 61% in Minnesota.
- In 2011, 52% of physicians reported intending to apply for meaningful use incentives, up from 41% in 2010.
- In 2010, 43% of physicians planning to apply for meaningful use incentives had computerized systems that would allow them to meet eight Stage 1 Core Set objectives, with percentages by state ranging from 26% in Texas to 70% in Wisconsin.

The 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act authorized incentive payments through Medicare and Medicaid to increase physician adoption of electronic health record (EHR) systems (1,2). Eligible Medicare and Medicaid physicians may receive incentive payments over 5 years if they demonstrate 15 Stage 1 Core Set objectives and 5 of 10 Menu Set objectives, using certified EHR systems. This report describes trends in adoption of electronic medical record/electronic health record (EMR/EHR) systems through 2011 and provides baseline information on physician readiness to meet eight Stage 1 Core “meaningful use” objectives in 2010 (see “Definitions” section for an overview of meaningful use objectives). Data are reported from 2010 and 2011 mail surveys of physicians in the National Ambulatory Medical Care Survey (NAMCS) and in earlier years of the survey.

Keywords: health information technology • National Ambulatory Medical Care Survey

Adoption of EMR/EHR systems by office-based physicians has increased.

Figure 1. Percentage of office-based physicians with EMR/EHR systems: United States, 2001–2009, and preliminary 2010–2011



NOTES: EMR/EHR is electronic medical record/electronic health record. “Any EMR/EHR system” is a medical or health record system that is all or partially electronic (excluding systems solely for billing). Data for 2001–2007 are from the in-person National Ambulatory Medical Care Survey (NAMCS). Data for 2008–2009 are from combined files (in-person NAMCS and mail survey). Data for 2010–2011 are preliminary estimates (dashed lines) based on the mail survey only. Estimates through 2009 include additional physicians sampled from community health centers. Estimates of basic systems prior to 2006 could not be computed because some items were not collected in the survey. Data include nonfederal, office-based physicians and exclude radiologists, anesthesiologists, and pathologists.

SOURCE: CDC/NCHS, National Ambulatory Medical Care Survey.



- EMR/EHR system use among office-based physicians increased from 18% in 2001 to 57% in preliminary 2011 estimates; there was a 12% increase from the 2010 estimate (51%) (Figure 1).
- About 34% of physicians reported having a system that met the criteria for a basic system, a 36% increase from 2010 (25%).
- Preliminary 2011 estimates from the NAMCS mail survey showed that the percentage of physicians using any EMR/EHR system, by state, ranged from 40% in Louisiana to 84% in North Dakota (see Table).

Table. Percentages of office-based physicians using any EMR/EHR system (2011), having a basic system (2011), and planning to apply for meaningful use incentives (2010), by state

State	Any system	Basic system	Plan to apply	State	Any system	Basic system	Plan to apply
Percent				Percent			
United States	56.9	33.8	41.1	Missouri	56.5	32.6	39.6
Alabama	47.5	25.8	49.6	Montana	62.8	38.4	34.5
Alaska	59.4	29.4	29.0 [†]	Nebraska	58.8	36.1	44.1
Arizona	65.7	36.5	41.7	Nevada	51.0	22.3 [†]	41.7
Arkansas	50.9	24.7	50.3	New Hampshire	68.7 [§]	39.7	41.3
California	58.8	40.7	40.1	New Jersey	41.3 [†]	15.6 [†]	40.8
Colorado	66.2	35.6	49.1	New Mexico	53.6	27.3	38.4
Connecticut	62.3	32.2	38.1	New York	54.7	34.2	28.0 [†]
Delaware	60.6	37.3	47.3	North Carolina	57.6	30.9	34.2
District of Columbia	64.7	20.9 [†]	21.0 [†]	North Dakota	84.4 [§]	57.8 [§]	29.7 [†]
Florida	48.9	27.1	43.4	Ohio	59.4	31.5	35.7
Georgia	58.5	31.1	44.8	Oklahoma	56.9	31.3	47.2
Hawaii	70.5 [§]	46.3 [§]	35.5	Oregon	74.7 [§]	53.9 [§]	44.0
Idaho	53.7	25.6	45.7	Pennsylvania	50.0	27.4	47.5
Illinois	55.6	29.6	37.2	Rhode Island	45.2 [†]	30.1	46.7
Indiana	57.8	34.8	47.7	South Carolina	53.3	19.5 [†]	44.0
Iowa	72.6 [§]	48.2 [§]	49.2	South Dakota	54.6	40.5	45.9
Kansas	60.5	30.6	50.3	Tennessee	48.4	28.9	38.4
Kentucky	46.8	29.7	51.0	Texas	52.7	34.1	38.4
Louisiana	39.5 [†]	15.9 [†]	39.3	Utah	80.7 [§]	49.3 [§]	49.1
Maine	60.8	33.2	42.7	Vermont	67.1 [§]	36.1	38.8
Maryland	52.5	30.9	38.9	Virginia	59.3	29.6	45.2
Massachusetts	71.4 [§]	44.0	45.5	Washington	75.8 [§]	54.2 [§]	44.2
Michigan	47.9	27.2	51.3	West Virginia	53.9	29.6	29.0 [†]
Minnesota	78.1 [§]	60.7 [§]	40.1	Wisconsin	76.1 [§]	60.4 [§]	41.5
Mississippi	53.8	19.5 [†]	49.2	Wyoming	51.3	26.2	37.2

[†] Significantly lower than national average ($p < 0.05$).

[§] Significantly higher than national average ($p < 0.05$).

NOTE: EMR/EHR is electronic medical record/electronic health record.

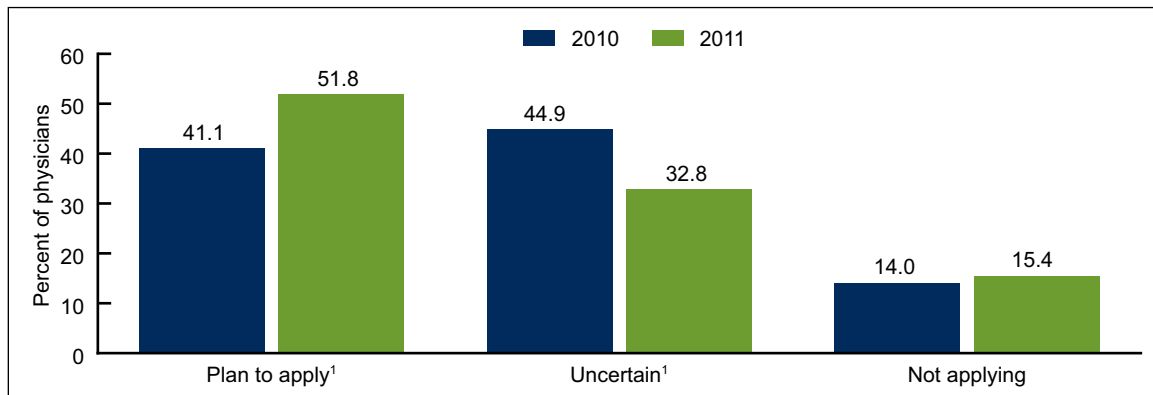
SOURCE: CDC/NCHS, National Ambulatory Medical Care Survey.

- Compared with the national average (57%), the percentage of physicians using any EMR/EHR system was lower in 3 states (Louisiana, New Jersey, and Rhode Island) and higher in 11 states (Hawaii, Iowa, Massachusetts, Minnesota, New Hampshire, North Dakota, Oregon, Utah, Vermont, Washington, and Wisconsin).
- The percentage of physicians who had systems meeting the criteria for a basic system, by state, ranged from 16% in New Jersey to 61% in Minnesota.
- The percentage of physicians who had systems meeting the criteria for a basic system was lower in the District of Columbia and five states (Louisiana, Mississippi, Nevada, New Jersey, and South Carolina) and higher in eight states (Hawaii, Iowa, Minnesota, North Dakota, Oregon, Utah, Washington, and Wisconsin) compared with the national average.

Intent to apply for Medicare or Medicaid EHR incentive programs increased between 2010 and 2011.

- In 2011, 52% of physicians reported intending to apply for Medicare or Medicaid EHR incentive payments, a 26% increase from 2010 (Figure 2).
- In 2010, the percentage of physicians planning to apply for incentives was lower than the national average (41%) in four states (Alaska, New York, North Dakota, and West Virginia) and the District of Columbia (see Table).

Figure 2. Office-based physicians' intent to apply for Medicare or Medicaid EHR incentive program: United States, preliminary 2010–2011



¹Differences between 2010 and 2011 percentages are statistically significant ($p < 0.05$).

NOTES: Data are obtained from responses to the question, "Beginning in 2011, Medicare and Medicaid will offer incentives to practices that demonstrate 'meaningful use of Health IT.' At this practice, are there plans to apply for Medicare or Medicaid incentive payments for meaningful use of Health IT?" Data include nonfederal, office-based physicians and exclude radiologists, anesthesiologists, and pathologists.

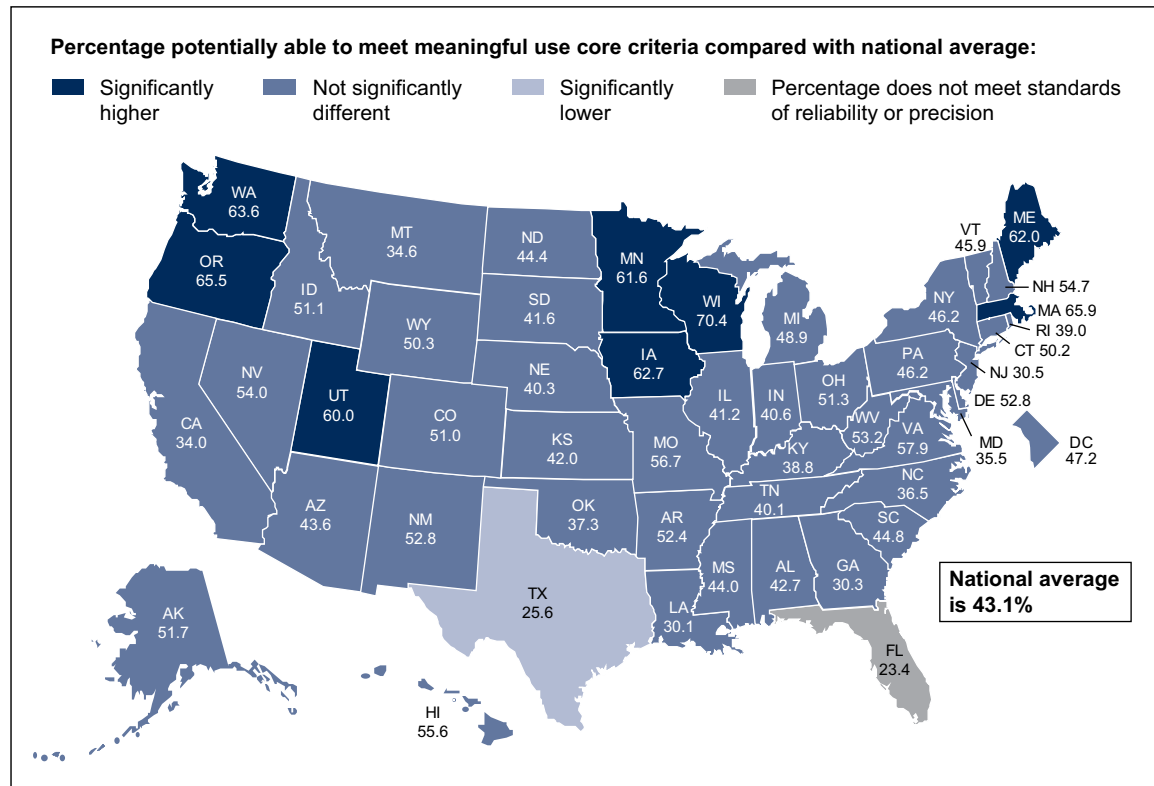
SOURCE: CDC/NCHS, National Ambulatory Medical Care Survey.

In 2010, 4 in 10 physicians planning to apply for meaningful use incentive payments had computerized systems that would allow them to meet eight Stage 1 Core Set meaningful use objectives.

- Among physicians planning to apply for meaningful use incentives, 43% had computerized systems supporting eight Stage 1 Core Set objectives (Figure 3 and "Definitions").
- Readiness in eight Stage 1 Core Set objectives among physicians planning to apply for meaningful use incentives ranged from 26% in Texas to 70% in Wisconsin (Figure 3).

- Among physicians planning to apply for meaningful use incentives, the percentage with systems that would allow them to meet eight Stage 1 Core Set meaningful use objectives exceeded the national average (43%) in eight states (Iowa, Maine, Massachusetts, Minnesota, Oregon, Utah, Washington, and Wisconsin).
- Among physicians planning to apply for meaningful use incentives, the percentage of physicians with systems that would allow them to meet eight Stage 1 Core Set meaningful use measures was lower than the national average only in Texas (26%).

Figure 3. Percentage of office-based physicians planning to apply for meaningful use incentives who have EHR system capabilities to support eight Stage 1 Core Set meaningful use objectives, by state: United States, 2010



NOTE: EHR is electronic health record.
SOURCE: CDC/NCHS, National Ambulatory Medical Care Survey.

Summary

An increasing trend in EMR/EHR system use among office-based physicians was noted from 2001 through preliminary 2011 estimates. In 2011, the NAMCS mail survey showed about 57% of office-based physicians used any EMR/EHR system, a 12% increase from the 2010 estimate. Between 2010 and 2011, the percentage of physicians who reported having systems meeting the criteria for a basic system increased 36%.

Adoption of EMR/EHR systems varied greatly by state. In 2011, the percentage of physicians using any EMR/EHR system ranged from 40% in Louisiana to 84% in North Dakota. Compared with the national average, 3 states had a significantly lower percentage of office-based physicians using any EMR/EHR system, and 11 states had a significantly higher percentage. The percentage of physicians having a system that met the criteria for a basic system ranged from 16% in New

Jersey to 61% in Minnesota. Compared with the national average, five states had a significantly lower percentage of office-based physicians with a basic system, and eight states had a significantly higher percentage.

In 2011, 52% of physicians reported intending to apply for the Medicare or Medicaid EHR incentive payments, a 26% increase from 2010. In 2010, interest among physicians in applying for meaningful use incentive payments was similar to the national average (41%) across most states. In only four states (Alaska, New York, North Dakota, and West Virginia) and the District of Columbia was the percentage lower than the national average.

To qualify for Stage 1 meaningful use incentive payments, eligible physicians need to meet all 15 Stage 1 Core Set objectives and 5 of 10 Menu Set objectives, using certified EHR systems (see “[Definitions](#)”). In this report, estimates of physicians’ readiness to meet Stage 1 Core Set meaningful use measures were limited to data collected on the computerized functions needed to meet eight Stage 1 objectives. A previous study found that 15% of physicians eligible to apply for meaningful use incentives had EHR systems with basic functions capability (3). In the present study, 43% of physicians planning to apply for incentives had EHR systems with functions that would allow them to meet eight Stage 1 Core Set meaningful use objectives. In 2010, the percentage of physicians planning to apply for incentives with EHR systems able to support eight Stage 1 Core Set objectives exceeded the national average in eight states (Iowa, Maine, Massachusetts, Minnesota, Oregon, Utah, Washington, and Wisconsin) and was below the national average only in Texas.

The 2010 estimates represent an overestimate of physician readiness because not all physicians with systems supporting all eight objectives examined in this report have systems also capable of supporting the remaining seven Core Set objectives and 5 of 10 Menu Set objectives required for payment.

As federal programs to provide incentives for meaningful use and local technical support are implemented, monitoring EHR system adoption will continue to be important in evaluating the effectiveness of these policies and targeting efforts in certain areas.

Definitions

Physician office: A place where nonfederally employed physicians provide direct patient care in the 50 states and the District of Columbia; excludes radiologists, anesthesiologists, and pathologists.

Any EMR/EHR system: Obtained from “yes” responses to the question, “Does this practice use electronic medical records or electronic health records (not including billing records)?”

Basic EMR/EHR system: A system that has all of the following functionalities: patient history and demographics, patient problem list, physician clinical notes, comprehensive list of patient’s medications and allergies, computerized orders for prescriptions, and ability to view laboratory and imaging results electronically (4). Having a comprehensive list of patient’s medications and allergies was asked as two separate questions in 2010 (one about medications and the other about allergies); the questions were collapsed into one question in 2011 (5).

Demonstrating meaningful use: To qualify for Stage 1 meaningful use incentives, an eligible professional (EP) must use a certified EHR system “meaningfully” by demonstrating all 15 Core Set objectives and 5 of 10 Menu Set objectives through associated measures or by attesting to an objective (1). For example, EPs with computerized provider order entry (CPOE) demonstrate the CPOE objective for medication orders with a measure indicating that at least 30% of their patients had one or more medications ordered through CPOE (1). On the other hand, EPs who have implemented drug-drug and drug-allergy interaction checks meet this objective by attesting that the functionality was enabled (1). The full list of Stage 1 objectives and measures has been published elsewhere (1,2). Following is a crosswalk of Stage 1 meaningful use objectives and applicable EHR system functions reported in the 2010 NAMCS:

Meaningful Use Objectives	2010 NAMCS
Core set	Physician has computerized system for:
Computerized provider order entry for medications	Prescription order entry
Drug-drug and drug-allergy interaction checks	Drug interactions or contraindications warnings
Generate and transmit permissible prescriptions electronically	Sending prescription orders electronically to the pharmacy
Record patient demographics	Patient history and demographic information
Maintain up-to-date problem list of current and active diagnoses	Patient problem list
Maintain active medication list	Clinical notes include a list of current medications
Maintain active medication allergy list	Comprehensive list of the patient's allergies
Vital signs	...
Smoking status	...
Implement one clinical decision support rule and ability to track compliance with rule	Reminders provided for guideline-based interventions or screening tests, or warnings of drug interactions or contraindications
Calculate and transmit Centers for Medicare & Medicaid Services quality measure	...
Electronic copy of health information	...
Clinical summaries	...
Exchange key clinical information	...
Privacy/security	...
Menu set	Physician has computerized system for:
Implement drug formulary checks	...
Incorporate clinical laboratory test results into EHR system as structured data	Laboratory results incorporated into EHR system
Patient lists	...
Patient reminders	...
Timely electronic access to health information	...
Patient-specific information	...
Medication reconciliation	...
Summary of care	...
Submit electronic immunization data to registries or information systems	Electronic reporting to immunization registries
Submit laboratory results to public health agencies	...
Submit electronic syndromic surveillance data to public health agencies	Public health reporting for notifiable diseases sent electronically

... Data not available.

NOTE: EHR is electronic health record.

Data source and methods

Data for this report are from NAMCS, which is conducted by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) as an annual, nationally representative survey of office-based physicians that collects information on the adoption and use of EMR/EHR systems. The target universe of NAMCS physicians is physicians classified as providing direct patient care in office-based practices, including clinicians in community health centers. Radiologists, anesthesiologists, and pathologists are excluded.

Since 2008, a supplemental mail survey on EMR/EHR systems has been conducted in addition to the core NAMCS, which is an in-person survey. In 2008 and 2009, samples of physicians in the core, in-person NAMCS and the supplemental mail survey, stratified by specialty, were chosen from selected geographic areas. Starting in 2010, the mail survey sample size was increased fivefold to allow for state-level estimates. Survey questions added in 2010 and continued in 2011 ask a physician's intent to apply for meaningful use incentive payments.

The preliminary 2010 and 2011 estimates are from the NAMCS mail surveys, with a sample of 10,301 physicians selected in each year. Nonrespondents to the mail survey received follow-up telephone calls. The 2010 mail survey was conducted from April through July 2010, and the 2011 mail survey was conducted from February through June 2011. The unweighted response rates of the 2010 and 2011 mail surveys were 68% (66% weighted) and 64% (61% weighted), respectively. Copies of the 2010 and 2011 surveys are available from the NCHS website:

http://www.cdc.gov/nchs/ahcd/ahcd_survey_instruments.htm#namcs.

Estimates of intent to apply for incentives exclude about 1% of cases with missing information. Estimates of physician readiness for Stage 1 Core Set objectives include physicians whose systems have all of the following eight computerized functions: recording patient demographic information, recording current problems, recording medications, recording patient allergies, CPOE for medications, sending prescriptions electronically to the pharmacy, providing drug-drug and drug-allergy alerts, and having at least one clinical decision support rule implemented. In this report, the percentage of physicians who had systems that would allow them to meet eight Stage 1 Core Set meaningful use objectives excludes unknowns.

Statements of differences in estimates are based on statistical tests with significance at the $p < 0.05$ level. Terms relating to differences, such as "increased" or "decreased," indicate that the differences are statistically significant. A lack of comment regarding the difference does not mean that the difference was tested and found to be not significant.

About the authors

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