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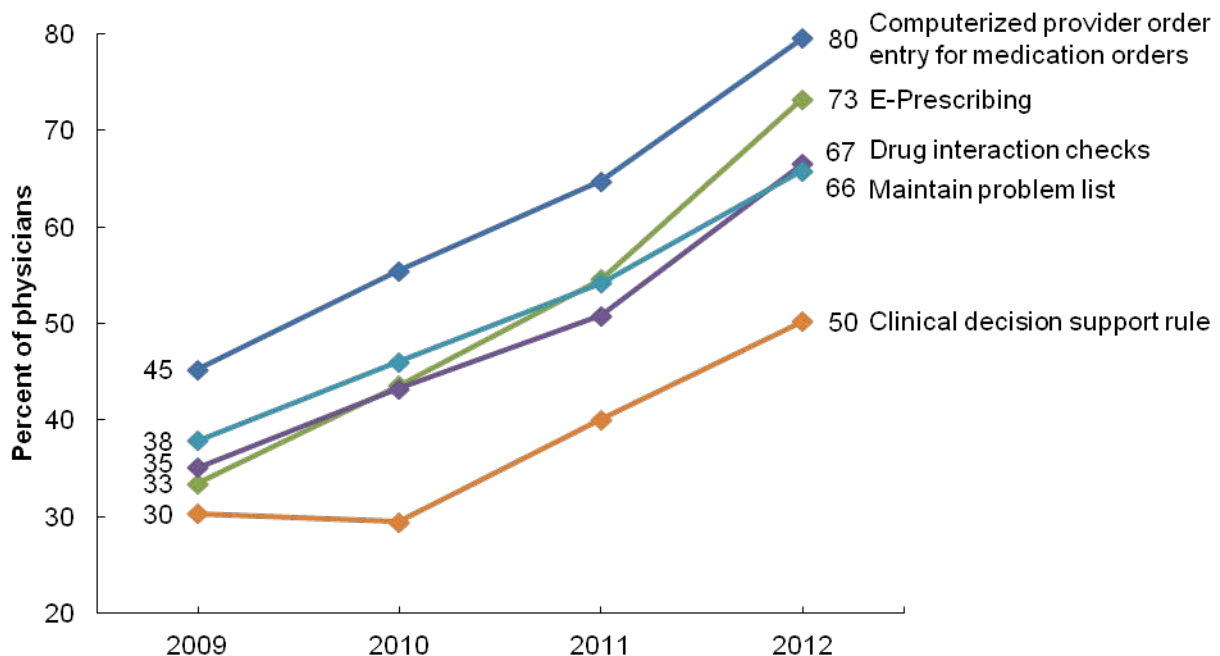
Physician Adoption of Electronic Health Record Technology to Meet Meaningful Use Objectives: 2009-2012

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The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 authorized incentive payments to eligible professionals and hospitals for the adoption and meaningful use of certified electronic health record (EHR) technology (1,2). To participate in the Medicare and Medicaid EHR Incentive Programs, professionals are required to demonstrate computerized capabilities that meet defined “Meaningful Use” objectives (3,4). This brief describes trends in adoption of EHR technology to meet selected Meaningful Use objectives by office-based physicians since 2009 and from 2011 to 2012.

Since HITECH started, physician adoption of EHR technology to meet five Meaningful Use Core objectives has increased by at least 66%.

Figure 1. Percent of physicians with computerized capabilities to meet selected Meaningful Use Core objectives: 2009-2012

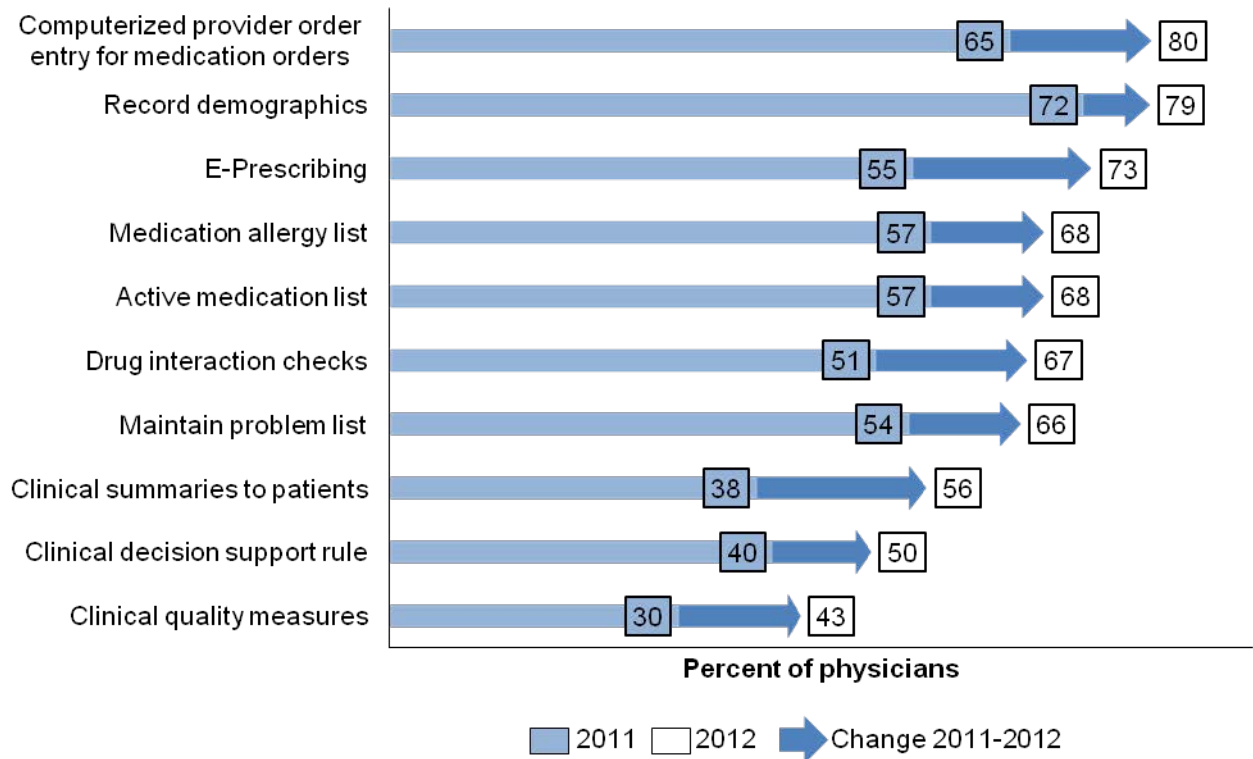


2012 is significantly different from 2009 for all computerized capabilities ($p < 0.01$).
SOURCE: ONC analysis of 2009-2012 National Electronic Health Records Surveys.

- ★ Since 2009, the percent of physicians with e-prescribing has more than doubled (119% increase).
- ★ Physicians’ capability to meet four other Meaningful Use Core objectives related to improving quality, safety, and efficiency grew by 66% to 90%.

In the one year between 2011 and 2012, physician adoption of EHR technology to meet nine Meaningful Use Core objectives increased by at least 21%.

Figure 2. Percent of physicians with computerized capabilities to meet selected Meaningful Use Core objectives: 2011-2012

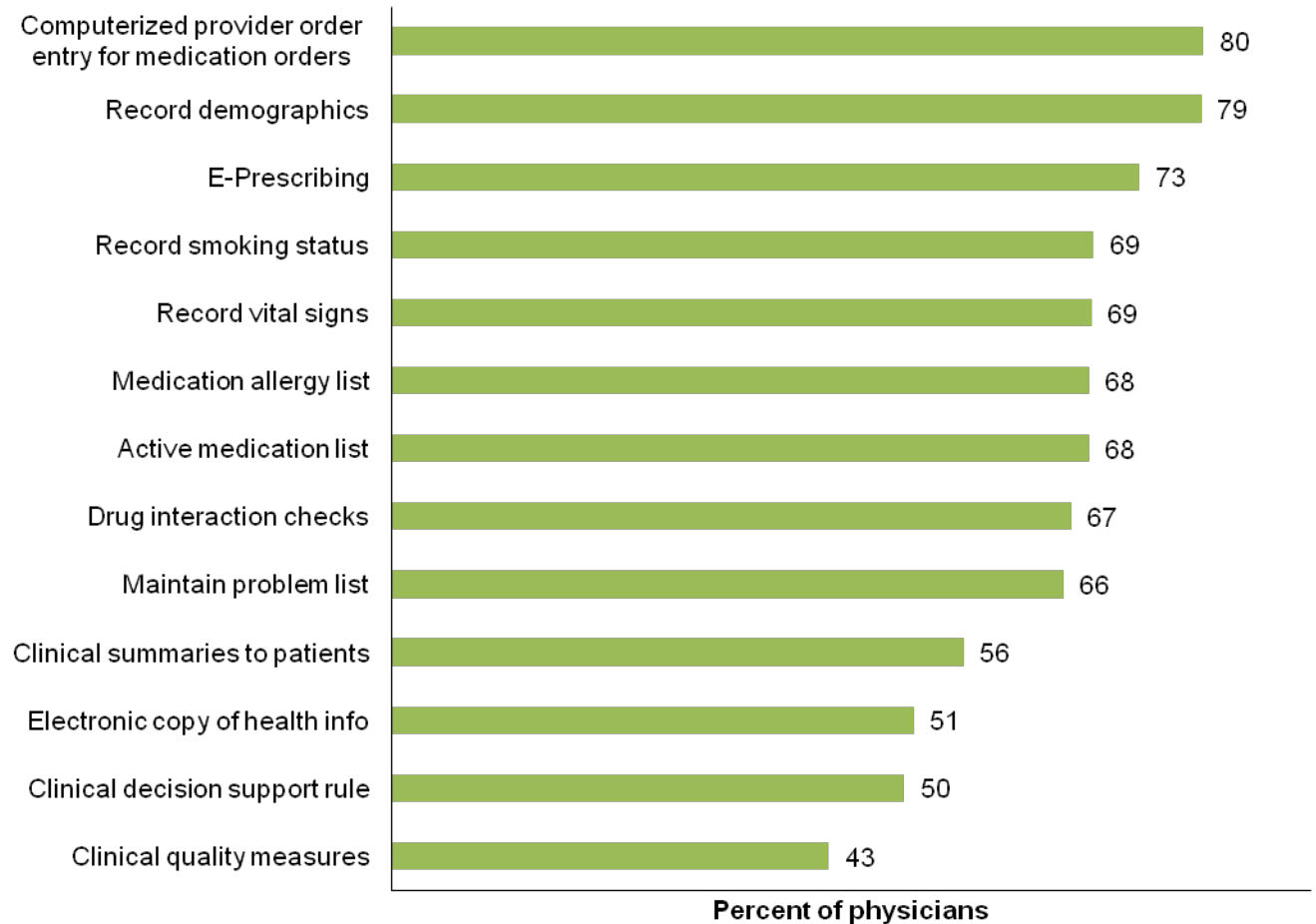


2012 is significantly different from 2011 for all computerized capabilities ($p < 0.01$).
 SOURCE: ONC analysis of 2011-2012 National Electronic Health Records Surveys.

- ★ From 2011 to 2012, growth in physician adoption of EHR technology to engage patients and families in their health care was especially strong; the share of physicians with computerized capability to provide patients with clinical summaries after each visit increased by 46%.
- ★ Physician adoption of eight computerized capabilities to improve quality, safety, and efficiency also grew substantially, with increases ranging from 21% to 42%.

In 2012, half or more of office-based physicians had adopted EHR technology to meet twelve Meaningful Use Stage 1 Core objectives.

Figure 3. Percent of physicians with computerized capabilities to meet selected Meaningful Use Stage 1 Core objectives: 2012



NOTE: These computerized capabilities correspond to 13 of 15 Meaningful Use Core objectives for Stage 1; survey data were not available for two objectives: perform a test of capacity to electronically exchange clinical information and protect electronic health information.

SOURCE: ONC analysis of 2012 National Electronic Health Records Surveys.

- ★ In 2012, at least two-thirds of physicians had computerized capabilities to meet nine Meaningful Use Core objectives to improve quality, safety, and efficiency.
- ★ Computerized capabilities to engage patients and families in their healthcare – providing patients with clinical summaries and electronic copies of their health information – were adopted by over half of physicians in 2012.

Physician adoption of EHR technology to meet selected Meaningful Use Stage 1 Menu and Stage 2 objectives has increased significantly.

Table 1. Percent of physicians with computerized capabilities to meet selected Meaningful Use Stage 1 Menu and Stage 2 objectives: 2009-2012

Meaningful Use Objective	2009	2010	2011	2012
Record electronic notes in patient records	44	54	62	73 ^{*†}
Computerized provider order entry for lab orders	37	45	51	62 ^{*†}
Imaging results accessible through certified EHR technology	50	48	56	59 [*]
Generate patient lists	--	--	--	53
Incorporate clinical lab test results into EHR as structured data	--	--	--	43
Secure messaging with patients	--	--	28	40 [†]
Immunization registries data submission	--	--	--	19

-- Data not collected

*Significantly different from reference year 2009 ($p < 0.05$).

†Significantly different from reference year 2011 ($p < 0.05$).

SOURCE: ONC analysis of 2009-2012 National Electronic Health Records Surveys.

- ★ Physicians' capability to exchange secure messages with patients increased by 40% from 2011 to 2012.
- ★ In 2012, over 6 in 10 physicians had capability to use computerized provider order entry for lab orders and nearly three-quarters had capability to record electronic notes in patient records. This represents 66% and 68% growth, respectively, since 2009.
- ★ Computerized capability to view imaging results has grown more slowly than other functionalities, increasing by 18% since 2009. Nonetheless, nearly 6 in 10 physicians had this capability in 2012.



Summary

Since the passage of the HITECH Act in 2009, physician adoption of EHR technology has increased substantially. In 2012, nearly three-quarters of office-based physicians (72%) had adopted any EHR system and 4 out of 10 physicians (40%) had adopted basic EHR systems with certain advanced capabilities (5). Trends in EHR adoption overall have been driven by significant increases in physician adoption of specific computerized capabilities to meet Meaningful Use objectives.

Since 2009, there has been strong and steady growth in physician adoption of EHR technology to meet Meaningful Use objectives to improve quality, safety and efficiency. Physicians' capability to e-prescribe has more than doubled since 2009, and as of 2012, two-thirds of physicians had adopted computerized capabilities such as electronic medication lists (68%) and drug interaction checks (67%).

Physician adoption of EHR technology to engage with patients and their families has also substantially increased. In 2012, over half of physicians had the capability to meet Meaningful Use objectives of providing patients with clinical summaries after each visit (56%) and electronic copies of their health information (51%). From 2011 to 2012, physicians' capability for secure messaging with patients increased by 40%.

Physician adoption of EHR technology to meet selected Meaningful Use objectives has increased significantly since HITECH started. In 2012, half or more of physicians had the capability to meet each of 12 Meaningful Use Core objectives. These findings represent important national progress toward the goals of improving health and health care through the use of advanced health information technology.

Definitions

Office-based physician: Nonfederally employed physicians providing direct patient care in office-based practices in the 50 states and the District of Columbia, excluding radiologists, anesthesiologists, and pathologists.

Electronic health record (EHR) technology: The Medicare and Medicaid EHR Incentive Programs provide incentive payments to physicians that demonstrate the meaningful use of certified EHR technology (1,2). EHR technology may comprise a complete EHR system and/or modules with computerized capabilities to meet specific Meaningful Use objectives.

Physician adoption: Adoption was defined to include “yes” responses to the question: “Please indicate whether the ambulatory reporting location has each of the computerized capabilities listed.”

Meaningful Use objectives: To receive a Medicare or Medicaid EHR incentive payment, physicians must demonstrate the “meaningful use” of EHR technology by meeting thresholds for a number of Meaningful Use objectives. Requirements for meaningful use increase in stages over time. For Stage 1, in 2012, physicians must meet 15 Core objectives and 5 out of 10 Menu objectives. Details on the full set of Meaningful Use objectives for Stages 1 and 2 are published elsewhere (1-4).

Data Source and Methods

Data are from the National Electronic Health Records Survey (NEHRS). The NEHRS is a supplemental mail survey to the National Ambulatory Medical Care Survey (NAMCS) and was formerly entitled the NAMCS Electronic Medical Records (EMR) Supplement. Details on the sampling frame and methods are reported elsewhere (4).

These estimates were derived from the 2009-2012 NEHRS mail surveys. Since 2009, survey questions have been incorporated into the NEHRS to assess physician adoption of computerized capabilities related to specific Meaningful Use objectives. Across the four years, the survey collected data corresponding to selected Meaningful Use objectives for Stages 1 and 2. In 2012, the survey collected information on computerized capabilities related to 13 of 15 Stage 1 Core objectives and seven Stage 1 Menu and/or Stage 2 objectives.

Complete trend data were not available for all Meaningful Use objectives. Trends from 2009 to 2012 were analyzed for eight Meaningful Use objectives with data available from all four years (reported in Figure 1 and Table 1). Trend data for computerized capability to record demographics was excluded due to anomalous fluctuations in the data that may be due to unmeasured sampling variation. Trends from 2011 to 2012 were analyzed for fifteen Meaningful Use objectives with data available from both years (reported in Figure 2 and Table 1). Significant differences from the reference year were tested with significance at the $p < 0.01$ level.

Table 2. Meaningful Use objectives and corresponding NEHRS survey items

Meaningful Use Objectives	Corresponding NEHRS survey item on specific computerized capabilities
Stage 1 Core Objectives	
Use computerized provider order entry for medication orders	Ordering prescriptions
Record patient demographics	Recording patient history and demographic information
Generate and transmit permissible prescriptions electronically	Sending prescription orders electronically to the pharmacy
Record smoking status	Recording patient smoking status
Record and chart vital signs	Recording and charting vital signs
Maintain active medication list	Recording patient's medications and allergies
Maintain active medication allergy list	Recording patient's medications and allergies
Implement drug-drug and drug-allergy interaction checks	Providing warnings of drug interactions or contraindications
Maintain up-to-date problem list of current and active diagnoses	Recording patient problem lists
Provide patients with clinical summaries for each office visit	Providing patients with clinical summaries for each visit
Provide patients with an electronic copy of their health information	Providing patients with an electronic copy of their health information
Implement one clinical decision support rule	Providing reminders for guideline-based interventions and/or screening tests
Report clinical quality measures to the Centers for Medicare & Medicaid Services or the states	Viewing data on quality of care measures
Stage 1 Menu/Stage 2 Objectives	
Incorporate clinical laboratory test results into EHR as structured data	Computerized system for viewing lab results that can automatically graph a specific patient's lab results over time
Record electronic notes in patient records	Recording clinical notes
Use computerized provider order entry for lab orders	Ordering lab tests
Imaging results accessible through certified EHR technology	Viewing imaging results
Generate lists of patients by specific conditions	Generating lists of patients with particular health conditions
Use secure electronic messaging to communicate with patients on relevant health information	Exchanging secure messages with patients
Submit electronic data to immunization registries or information systems	Computerized system for electronic reporting to immunization registries in standards specified by Meaningful Use criteria

NOTE: The table includes only Meaningful Use objectives for which survey data were available. Comprehensive information on the full set of Meaningful Use objectives for Stages 1 and 2 are reported elsewhere (3,4).

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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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