PHYSICIANS' USE, EXCHANGE, AND EVALUATION OF ELECTRONIC MEDICAL RECORDS

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Executive Summary

- The percentage of Arizona physicians using electronic medical records (EMRs) increased from approximately 45% in 2007-2009 to approximately 81% in 2012-2013. The current trend suggests that nearly all Arizona physicians will be using EMRs by 2018. The incentives and support provided by Medicare and Medicaid, combined with other influences, have succeeded in increasing EMR adoption, but important obstacles remain.
- The single most important obstacle to the inter-organization transfer of electronic health information is the shortage of Health Information Exchanges (HIEs). The Health Information Network of Arizona (HINAZ) is one such HIE. Although HINAZ currently serves only thirty-three participants, it continues to expand.
- The expected benefits of EMRs, such as the avoidance of duplicative tests, require the exchange of information among health care providers. However, among physicians whose EMRs include options such as patient care summaries, e-prescribing and others, less than 20% to slightly more than 47% of the physicians share the information with others, depending on the type of information being shared.
- This report is the second in the CHiR series to include physician rankings of EMRs by brand. EMRs were ranked on a 1-5 scale where 1=awful and 5=outstanding. Twenty five different EMR packages were ranked on each of five criteria.
- Many articles in the press and online discussions among HIE professionals suggest that physicians are very dissatisfied with the EMRs that they use. The results presented here differ, indicating that physicians are at least somewhat positive about the EMR software that they use with their rankings averaging slightly more than the midpoint in the 1-5 scale. The more accurate conclusion may be that physicians seek to improve individual elements of their EMRs but recognize that EMRs offer advantages not available from scanned records or paper medical records.
- We plan to implement new survey questions at the end of the current renewal cycle in April 2014. Many of the new questions will focus on the use of and obstacles to the exchange of information among physicians who use EMRs. The new survey will also include an enhanced focus on Medicaid providers.

Introduction

This is one of a continuing series of reports designed to help the Arizona Health Care Cost Containment System (AHCCCS) and other stakeholders to create strategies to expand the use of Electronic Medical Records (EMR) and develop regional Health Information Exchanges (HIEs). This report describes patterns of EMR utilization, the extent to which EMR data are exchanged among health care providers, and the values placed on EMRs by users and non-users. This report also distinguishes between physicians who influence decisions to implement EMRs and physicians who are not decision makers. Physicians' evaluations of their EMRs are included for the first time in this series.

It is widely believed that increased use of EMRs will improve the quality of health care and reduce costs (Chaudhry, et al. 2006; Sequist, et al. 2007). That belief led to the creation of the Arizona Health-e Connection and is one of the major objectives of The State of Arizona Health Information Exchange awarded in 2010 to the Arizona Governor's Office of Economic Recovery. Funds from this award were distributed to AHCCCS, Arizona's single Medicaid agency.

Background

Studies of EMR utilization have increased since 2005 but most use neither comparable definitions of an EMR nor comparable samples. We summarize several of the better known studies in Appendix A of this report. Additional, but not strictly comparable, information is available from a meta-analysis of national surveys of physician adoption of EMRs between 1994 and 2005. It estimated that, in 2005, approximately 24% of physicians used EMRs, but only 9% of the EMRs in use included functions such as e-prescribing (Jha, Ferris, et al. 2006). A consistent set of estimates is produced by the National Center for Health Statistics (NCHS) surveys of ambulatory care physicians in office settings. It is important to recognize that the estimates apply to only one segment of the physicians in this study. The exclusions include physicians in federal facilities and a number of specialty practices.

The percentage of office based physicians using some form of EMR in the United States increased from 48% in 2009 to 72% in 2012 (Hsiao and Hing 2012). The results from the NAMC survey estimate that more than 82% of physicians in office based practices in Arizona used some form of EMR in 2012 (Hsiao and Hing 2012).

The CHiR Survey of Physicians

This report and its predecessors are made possible by an ongoing partnership between the physician licensing boards in Arizona and Arizona State University's Center for Health Information & Research (CHiR). Beginning in 1992, the licensing boards permitted CHiR to add survey questions to license applications from physicians. With few exceptions, the data have been collected continuously since 1992. Previous reports and articles from the survey are listed in Appendix G.

The voluntary survey responses are merged with the licensing data collected by the boards for each physician. The licensing data for non-respondents to the survey permits a rigorous analysis of non-response bias.

The survey questions change over time and among different project sponsors. AHCCCS and the Arizona Strategic Enterprise Technology (ASET), an agency of the State of Arizona, have provided financial support for the project since 2009.

The survey was changed in July 2007 to focus on the use of EMRs and the influences affecting decisions to adopt EMRs. The 2007 survey was implemented with minimal pre-testing to accumulate information as early in the two year allopathic renewal cycle as possible and to capture the "once in every two year" renewal cycle for osteopathic physicians that included Fall 2007. The objective was to provide AHCCCS with estimates for targeting its campaign to expand the use of EMRs as quickly as possible. The rapid implementation of the survey was possible by the enthusiastic cooperation of the Directors and staff of the Arizona Medical Board (AMB) and the Arizona Board of Osteopathic Examiners (ABOE).

Short paper survey forms were used from 1992 through July 2009, greatly restricting the number and complexity of survey questions. The 2007 paper survey consisted, for example, of six questions. The licensing boards converted to electronic applications in 2009, but a large number of physicians continued to use paper surveys and funding was not available to create an electronic survey. (See Appendix B for a copy of the 2007-2011 survey instrument.) Results for the period July 2007 to July 2009 are described in a previous CHiR report (Johnson, Qiu, et al. 2010).

A new electronic survey was implemented in early 2012 with funding from AHCCCS and ASET. The electronic survey includes a greatly expanded set of questions and a large number of

decision trees, including different questions for physicians with Arizona licenses who practice outside the state. Many of the questions on the new survey duplicate questions used in national surveys, such as the NCHS and the National Health and Nutrition Examination Survey (NHANES) surveys, to permit direct comparisons to the national data. A copy of the new survey is included in Appendix C.

The periods of data collection discussed in this report are:

- 2007-2009 – represents July 17, 2007 to July 17, 2009
- 2009-2011 – represents November 1, 2009 to November 1, 2011
- 2012-2013 – represents March 20, 2012 to December 2013

The period between November 1, 2011 and March 20, 2012 was used to deploy the new electronic survey. The current two year renewal cycle data will be complete on March 20, 2014.

Some studies of EMR adoption identify the *number of practices* with EMRs, while this report counts the *number of physicians* with EMRs, as does the NCHS. Estimates of the number of physicians using EMRs is the most direct measure of potential impact on patients, but the number of practices is a more useful measure of the impact on organizations. A 2007 Massachusetts study is a good example of the effects of larger practices on physician counts (Simon, et al. 2007). The study reported that almost half of Massachusetts' physicians used EMRs, but less than one-quarter of practices in Massachusetts had adopted EMRs.

Definitions

Active license: The licensing boards define active physicians as those whose license has not expired or been suspended. Some physicians renew their licenses after retirement or while on leave. The distinction between physicians with an active license and those who are actively practicing medicine is only obtainable from responses to the survey. The true status of physicians who do not respond to the survey is, therefore, unknown. Survey respondents who indicate that they are retired or semi-retired/on leave physicians with active licenses are excluded from our results.

Electronic Medical Record: Physicians were given the opportunity to select any or all of the possible methods of storing their medical records. The specific survey question is:

How does the organization in which you practice store its medical records? (Check all that apply);

a) Paper ☐ Yes ☐ No
b) Scanned images of paper records ☐ Yes ☐ No
c) Electronic files (an electronic version of a patient's medical history, including progress notes, problems, medications and other information used in treatment.) ☐ Yes ☐ No
   i. *{if yes then ask}* What is the name of your EMR/EHR system

Note: Check boxes are provided for more than 21 types of EMRs with an open ended response for others.

This question is much more specific than the question on previous surveys which was thought to be too general, allowing some respondents to mistakenly include billing software as an EMR. The previous question was:

Are patients' medical records in your practice/organization stored as:

a.paper ◯ Yes ◯ No
Scanned images of paper files ◯ Yes ◯ No
Electronic files ◯ Yes (continue) ◯ No (If no, go to question #5)
◯ The records are stored on a PC/server located in my organization
◯ The records are stored on a server to which I connect via the internet
◯ I don't know where they are stored

Therefore, comparisons between the current results and data based on the short survey question may not, be strictly comparable.

Specialty: Physicians can report more than one specialty to the licensing boards, and they need not be board certified in the reported specialty. We adopt the first specialty reported and do not classify physicians by multiple specialties. *Pediatric Specialties* are defined as pediatricians or physicians practicing a pediatric subspecialty. *Surgical Specialties* are defined to include surgeons or any surgical subspecialty. *Hospital Based Specialties* include critical care medicine, diagnostic imaging and radiology, emergency medicine, hospitalist medicine, infectious disease, neonatology, respiratory care, transport medicine, anesthesiology, intensive care medicine, pathology, nuclear medicine, rehab and occupational medicine, or radiation oncology. *Primary Care is* defined to include family care, general practice, geriatrics, or internal medicine when no other sub-specialty is listed. All other specialties are defined as *Medical Specialties,* including obstetrics and gynecology, following the conventions used by AHCCCS.

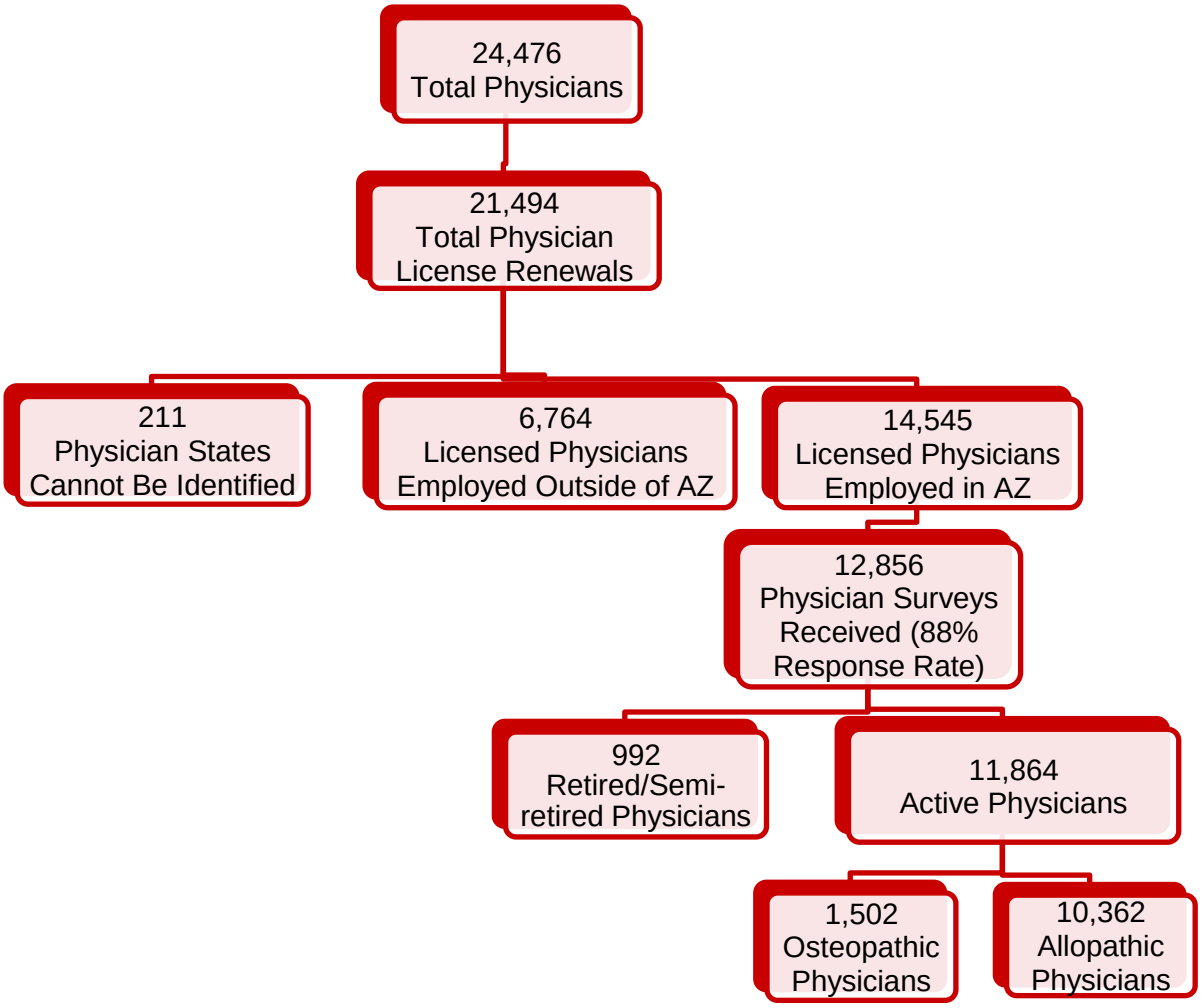
Type of Practice: The categories used from 1990-2012 were expanded and revised for the new electronic survey to be more internally consistent. Categories defined in terms of physician activity (e.g. semi-retired; locum tenens) were removed and replaced by categories representing the type of practice/organization in which a physician works. Thus, the type of practice data prior to 2012 is not strictly comparable to the data collected after March 2012.

Survey Sample

The number of physician renewals and survey respondents is described in Figure 1. A total of 21,494 physicians renewed their licenses between March 20, 2012 and December 31, 2013. Allopathic physicians renew their licenses every two years on their birthdays, and osteopathic physicians renew their licenses every other year, so the results represent approximately eighty-eight percent of the physicians in the 2012-2014 renewal cycle. The results should be representative of physicians, assuming that the distribution of physician renewals over the two year period does not have a systematic bias in renewal dates. However, there is no guarantee that the responses to some survey questions will not differ when the results for the complete renewal cycle are completed.

The renewals included 14,545 physicians who live in Arizona and an additional 6,764 physicians with Arizona licenses who live outside Arizona. There were 185 physicians whose state of residence could not be identified. Survey responses were received from 12,856 physicians living in Arizona. Of those, 11,864 physicians were in active practice. These respondents include 10,362 allopathic physicians and 1,502 osteopathic physicians.

Figure 1. Active Physicians, 2012-2013



Source: Arizona Medical Board (AMB), Arizona Board of Osteopathic Examiners (ABOE) Survey and Administrative Data, 2012-2013.

Because all physicians renewing Arizona licenses have the opportunity to complete a survey, the number of respondents is substantially larger than the number obtained from a fractional sample that typically draws respondents from a relatively small percentage of the renewals. If, for example, a five percent sample of the 14,545 renewals and the response rate was 88% then the survey results would include 640 physicians rather than the 12,856 physician respondents represented in our results. Response rates of 60% or more are considered adequate for surveys. The 88% response rate is unusually high. The NCHS survey, for example, used

approximately 3,180 physicians to represent all office practice based physicians in the United States (Jamoom, et al. 2012).

Our very large sample minimizes the need to rely on small numbers of responses to some questions on the survey, and it reduces the variance surrounding estimates. In other words, the results are more certain.

Response Bias

The sample is quite large and the response rate is very high but the best test of the extent to which a survey represents a population is a comparison of the respondents to the non-respondents. Since we have licensing data on all physicians, we can make that comparison. The data described in Table 1 compare respondents to all members of the Arizona physician population rather than the usual comparison of respondents to all physicians who renewed their licenses during 85% of the renewal cycle. Thus, the "non-respondents" in our comparisons include physicians who have not yet received the survey because they have yet to file for renewal of their licenses. The non-respondents also include retired or semi-retired physicians with active licenses. The identification of these physicians is only possible using answers to the survey questions. The inclusion of retired physicians and physicians not scheduled for renewal at the time of this survey is a much stricter test of response bias than the usual comparisons.

There are a few significant differences between respondents and all Arizona physicians. Physicians aged 35-54 are slightly overrepresented in the survey results and physicians in the 65+ groups are slightly underrepresented among survey respondents. Hospital based specialists are slightly overrepresented and Surgical specialist slightly underrepresented. Physicians in Maricopa County are slightly underrepresented and physicians in rural areas slightly underrepresented. The differences are small and since some physicians counted as non-respondents are not yet eligible to respond to the survey, the results are representative of the physician population, subject to very small variations. The comparisons between respondents and non-respondents for previous years are summarized in Appendix D. The results in previous years include complete renewal cycles rather than the partial cycle represented by the current results.

Table 1. Comparison of Respondents to Non-Respondents, 2012-2013

Characteristic	*Respondents (N =11,864)*		*Non-Respondents (N = 4,057)*		*P-Value*
Sex					
Female	3,383	28.5%	1,147	28.2%	NS
Male	8,081	68.1%	2,795	68.8%	NS
Total	11,464	96.6%	3,942	97.1%	
Age Group					
25 - 34	1,473	12.4%	676	16.6%	<0.01
35 - 44	3,743	31.5%	978	24.1%	<0.01
45 - 54	3,160	26.6%	920	22.6%	<0.01
55 - 64	2,462	20.7%	834	20.5%	NS
65+	846	7.1%	598	14.7%	<0.01
Total	11,684	98.4%	4,006	98.7%	
Specialty					
Primary Care	4,286	36.1%	1,460	35.9%	NS
Medical	2,701	22.7%	957	23.5%	NS
Hospital-Based	2,746	23.1%	822	20.2%	<0.01
Pediatric	1,022	8.6%	336	8.2%	NS
Surgical	1,071	9.0%	469	11.5%	<0.01
Total	11,826	99.6%	4,044	99.6%	
Location					
Maricopa County	7,363	62.0%	2,469	60.8%	<0.01
Pima County	2,168	18.2%	725	17.8%	NS
All Other Counties	1,962	16.5%	527	12.9%	<0.01
Total	11,493	96.8%	3,721	91.7%	

Source: AMB, ABOE Administrative/Survey Data, 2012-2013. Data include retired and semi-retired physicians.

Note: A p-value of .05 or less implies only a 5% probability of declaring the relationship significant when in fact it is not. NS = no significant difference. Gender was unknown for 400 (3.3%) respondents and 115 (2.8%) non-respondents. Age was unknown for 180 (1.5%) respondents and 51 (1.2%) non-respondents. Specialty was unknown for 38 (0.3%) respondents and 13 (0.2%) non-respondents. Location was unknown for 371 (3.1%) respondents and 336 (8.2%) non-respondents.

One potential source of response bias is the fact that physicians in the Veterans Administration (VA) health care system or the Indian Health Service (IHS) are not required to have an Arizona license unless they also practice outside the federal systems.

We tested for potential omissions of federal physicians in a previous report by comparing physicians who indicated employment in a government setting on the survey to a then recent HRSA report showing that 500 physicians were employed in the VA or IHS systems in Arizona (Health Resources and Services Administration (HRSA) 2007). The HRSA report showed that 38.8% (194/500) of Arizona physicians (MD) with a federal license practiced in primary care during 2007. The number of Arizona physicians who reported working in a government setting on the CHiR/AHCCCS survey was 412 MDs and 48 DOs.

Weighting the survey responses to population totals indicated that approximately 906 physicians [(412+48)*1.97] with Arizona licenses worked in a government setting. The estimate included all government settings, not just the VA and IHS, but comparisons with the HRSA report suggest that the relatively large number from the survey data implies that most of the federally employed physicians had Arizona licenses. Unfortunately, HRSA has not published more recent reports that would permit an update of these results.

Subject to some uncertainty about the current numbers of physicians who work in federal government settings but who are not licensed in Arizona, the survey results are, reasonably representative of all osteopathic physicians and allopathic physicians practicing in Arizona in 2012-2013.

Note: From this point forward, retired and semi-retired/on leave physicians are excluded from all subsequent results in this report.

Physician Characteristics

The licensing board data are available for each of the 14,545 physicians who were employed in Arizona and who renewed their licenses between March 2012 and December 2013. There were 12,856 physicians who responded to the survey. Of those, approximately 11,864 are in active practice. Each survey respondent represents approximately 1.1 physicians who renewed their licenses in 2012-2013. Except where noted, the results are un-weighted counts and percentages because our primary interest is in the averages, which do not change if weighted, rather than the absolute number of responses.

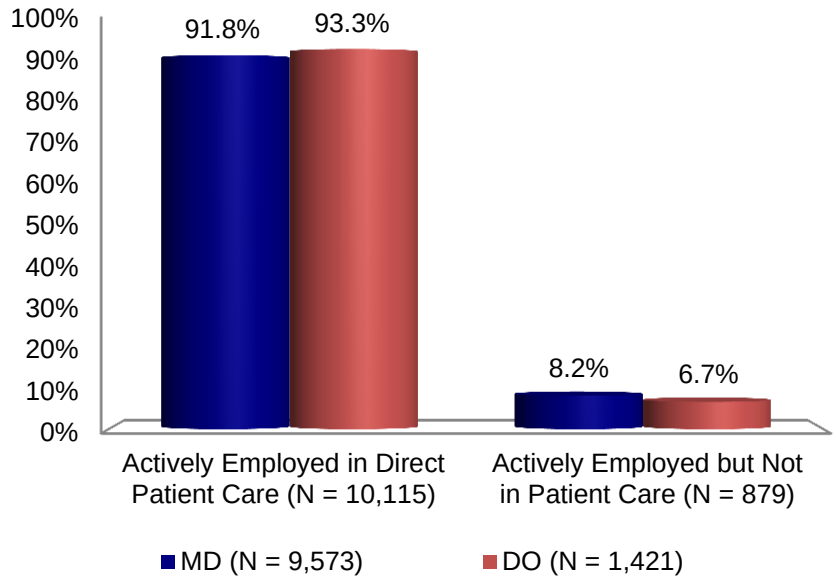
We measure EMR users as a percentage of all physician respondents actively practicing in Arizona, including some physicians who may not need EMRs because they don't treat patients. The inclusion of physicians who do not need EMRs understates the utilization rates by a small amount given the very low number of physicians not providing direct care. As indicated in Table 2, approximately 92.0% of the physicians provided patient care.

Table 2. Active Physicians by Employment Status, 2012-2013

Employment Status	*MD*		*DO*		*Total*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Actively Employed in Direct Patient Care	8,789	91.8%	1,326	93.3%	10,115	92.0%
Actively Employed but Not in Patient Care	784	8.2%	95	6.7%	879	8.0%
Total	9,573	100%	1,421	100%	10,994	100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Figure 2. Physicians Providing Patient Care, 2012-2013



Source: AMB, ABOE Survey data, 2012-2013.

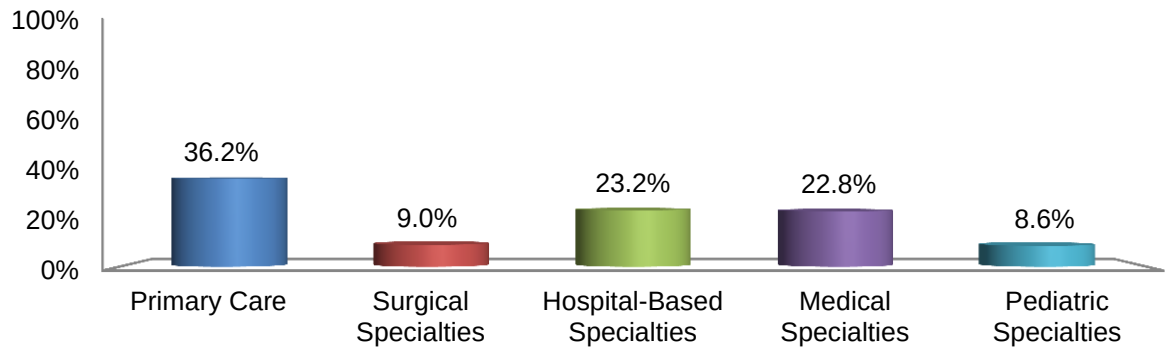
Table 3. Distribution of Practicing Physicians by Specialty, 2012-2013 (N = 11,826)

Specialty Groups	*Total Physicians*	
	N	*%*
Primary Care	4,286	36.2%
Surgical Specialties	1,071	9.0%
Hospital-Based Specialties	2,746	23.2%
Medical Specialties	2,701	22.8%
Pediatric Specialties	1,022	8.6%
Total	11,826	100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Note: Primary specialty reported by physician at the time of licensure. 38 physicians did not report specialty to the medical board.

Figure 3. Distribution of Practicing Physicians by Specialty, 2012-2013 (N = 11,826)



Source: AMB, ABOE Survey data, 2012-2013.

Note: Primary specialty reported by physician at the time of licensure. 38 physicians did not report specialty to the medical board.

Practice Settings

Table 4. Type of Practice by MD and DO, 2012-2013

Type of Practice	*MD*	*DO*	*Total*
Physician Owned Group Practice	3,070 (34.0%)	468 (34.5%)	3,538 (34.1%)
Physician Owned Solo Practice	1,549 (17.1%)	235 (17.3%)	1,784 (17.1%)
Hospital/Medical School Group Practice	1,417 (15.7%)	212 (15.6%)	1,629 (15.7%)
Private Hospital System	760 (8.4%)	115 (8.5%)	875 (8.4%)
Community or Rural Health Center	471 (5.2%)	84 (6.1%)	555 (5.3%)
Federal Government Hospital or Clinic	412 (4.5%)	48 (3.5%)	460 (4.4%)
Non-Hospital Private Outpatient Facility	381 (4.2%)	75 (5.5%)	456 (4.3%)
Medical School/University Research Center	433 (4.8%)	36 (2.6%)	469 (4.5%)
Health Insurer/Health Related Organization that does not provide care	186 (2.0%)	22 (1.6%)	208 (2.0%)
City, State or County Clinic or Hospital System	125 (1.3%)	20 (1.4%)	145 (1.3%)
Hospice or SNF	29 (0.3%)	4 (0.2%)	33 (0.3%)
Independent Contractor	35 (0.4%)	9(0.6%)	44 (0.4%)
Medical Consultant	28 (0.3%)	3 (0.2%)	31 (0.2%)
Mental/Behavioral Health	7 (0.0%)	1(0.0%)	8 (0.0%)
Other	134 (1.5%)	24(1.8%)	158 (1.5%)
Total	9,019 (86.9%)	1,356 (13.0%)	10,375 (100.0%)

Source: AMB, ABOE Survey Data, 2012-2013.

Note: 1,489 physicians did not report type of practice (missing). Percentages are based on responses. The five practice types listed under the "Other" section are a subset of the total types included in the Other category.

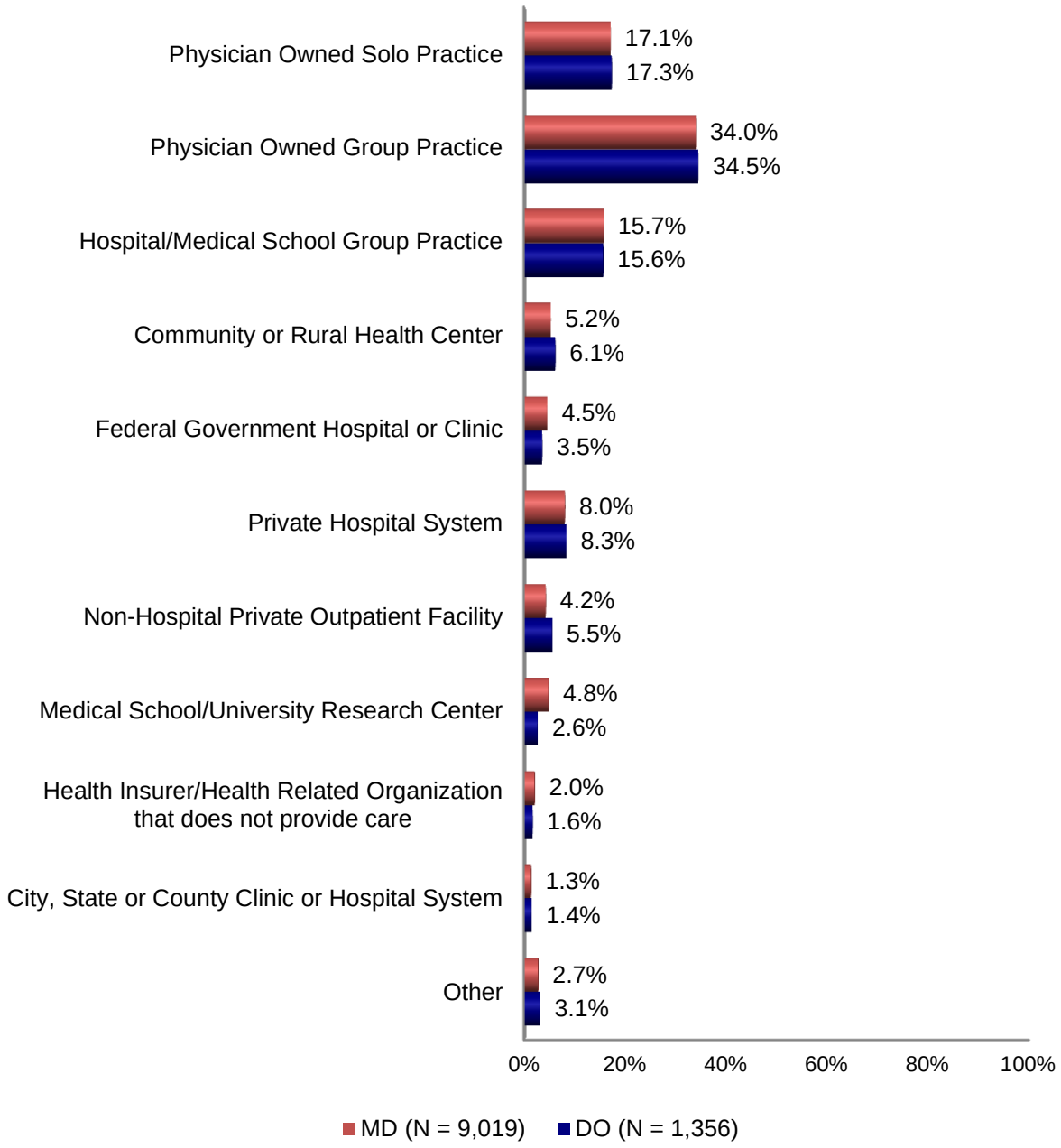
Table 4 shows the distribution of physicians by type of practice. More than 34% of physicians work in physician owned group practices, followed by 17.1% of physicians in solo practices. Hospital or Medical School owned group practices accounted for an additional 15.7% of the physicians. In total, more than two-thirds of Arizona physicians work in solo or group practices. Physicians were rather thinly distributed among the other practice types.

The prevalence of solo practice is declining in Arizona, in part due to acquisitions of practices by hospital systems. The percentage of physicians in solo practice dropped from 24% in 2007-

2009 to slightly more than 17% in 2012-2013. Solo practice physicians are, all else equal, much less likely to adopt EMRs than are physicians in other practice settings. All else equal, utilization rates of EMRs will continue to increase as the percentage of physicians in solo practice declines.

There are few differences in the distribution of MDs and DOs by type of practice. Medical Schools is the exception where MDs are much more likely than DOs to be employed. Should the trend in the expansion of osteopathic medical schools in Arizona continue, it is likely that the differences between MDs and DOs in that category will narrow.

Figure 4. Type of Practice by MD and DO, 2012-2013



Source: AMB, ABOE Survey data, 2012-2013.

Note: 1,489 Physicians did not report type of practice (missing). Percentages are based on responses.

Table 5. Type of Practice by Number of MDs, 2012-2013

Type of Practice	*Number of Physicians*				*Total*
	2-5	*6-50*	*51-94*	*95+*	
Physician Owned Group Practice	1,081 82.2%	1,185 63.1%	107 40.5%	303 28.6%	2,676 59.2%
Hospital/Medical School Group Practice	72 5.4%	389 20.7%	82 31.0%	669 63.1%	1,212 26.8%
Community or Rural Health Center	83 6.3%	215 11.4%	58 21.9%	45 4.2%	401 8.9%
Non-Hospital Private Outpatient Facility	78 5.9%	88 4.6%	17 6.4%	43 4.0%	226 5.0%
Total	1,314 29.1%	1,877 41.5%	264 5.8%	1,060 23.4%	4,515 100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Note: 1,343 MD's did not report practice type, and 2,449 MD's did not report the number of physicians in their practice for the above practice types.

Table 6. Type of Practice by Number of DOs, 2012-2013

Type of Practice	*Number of Physicians*				*Total*
	2-5	*6-50*	*51-94*	*95+*	
Physician Owned Group Practice	163 76.1%	171 53.2%	19 35.1%	38 31.9%	391 55.2%
Hospital/Medical School Group Practice	10 4.6%	90 28.0%	23 42.5%	67 56.3%	190 26.8%
Community or Rural Health Center	17 7.9%	45 14.0%	9 16.6%	7 5.8%	78 11.0%
Non-Hospital Private Outpatient Facility	24 11.2%	15 4.6%	3 5.5%	7 5.8%	49 6.9%
Total	214 30.2%	321 45.3%	54 7.6%	119 16.8%	708 100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Note: 146 DO's did not report practice type, and 317 DO's did not report the number of physicians in their practice for the above practice types.

Communication in Practice Environments

The survey asks physicians about the methods of communication and billing in their practices. The results are shown in the next two tables.

Table 7. Methods of Communication by Renewal Period, 2007-2013

Method	*2012-2013 N = 9,712*		*2009-2011 N = 11,100*		*2007-2009 N = 6,699*	
	Number	*%*	*Number*	*%*	*Number*	*%*
Email	8,902	91.6%	9,634	86.7%	5,530	82.5%
Internet	9,086	93.5%	9,947	89.6%	5,702	85.1%
Fax	9,497	97.7%	10,365	93.4%	6,273	93.6%
Medifax	NA	NA	869	7.8%	536	8.0%
U.S. Mail	9,469	97.4%	NA	NA	NA	NA
None of the Above	0	0.0%	211	1.9%	96	1.4%

Source: AMB, ABOE Survey Data, 2007-2009, 2009-2011, 2012-2013.

Note: Categories are not mutually exclusive. 78 physicians did not respond to this question 2007-2009; 1,081 physicians did not respond 2009-2011; 2,152 physicians did not respond 2012-2013. Medifax was removed as a method of communication for the 2012-2013 data and U.S. Mail was added.

A surprisingly large number of physicians lacked access to the internet or email in the early years of the survey. As recently as 2007-2009, nearly 15% of the physicians practicing in Arizona did not have internet access. The rapid increases in internet access shown in Table 7 remove an important obstacle to the exchange of EMR information. Given the very high levels of access, we will discontinue publication of these results in the future.

Characteristics of EMR Users

The 2012-2013 survey expanded the set of questions on the types of practices in which physicians are employed (Table 8). The results, with the exception of solo practice, are not strictly comparable to the estimates from previous years.

The fact that solo practitioners have the lowest rates of EMR utilization relative to other practice types occurs in our previous surveys and in national studies. In absolute terms, however, EMR use by solo practitioners is rapidly increasing in Arizona. The utilization rate among solo practitioners increased from approximately 26% in 2007-2009 to approximately 55.5% in 2012-2013. The most recent rate is substantially higher than the NCHS estimate of 29% of all office based physicians in solo practice (Jamoom, et al. 2012). The national average is for a slightly earlier period (2011) and national averages are not representative of any particular state, but the difference is quite large and deserves additional investigation.

As expected, the highest utilization rate occurs in federal health systems with physicians associated followed by medical schools. Physicians in community health centers have essentially as high a utilization rate as those in medical school practices, presumably reflecting the effects of a number of federal and state incentive programs directed to community health centers and to rural areas. Physicians in private hospital systems and state or county systems are the next most highly ranked utilizers of EMRs.

Table 8. EMR Utilization by Type of Practice, 2012-2013 (N = 7,961)

Type of Practice	*Utilization Rates*
Physician Owned Solo Practice	55.5%
Physician Owned Group Practice	80.6%
Hospital/Medical School Group Practice	92.7%
Community or Rural Health Center	92.3%
Federal Government Hospital or Clinic	96.0%
Private Hospital System	88.9%
Non-Hospital Private Outpatient Facility	80.6%
Medical School/University Research Center	91.0%
Health Insurer/Health Related Organization that does not provide care	42.8%
City, State or County Clinic or Hospital System	74.1%
Other	73.2%
Hospice or SNF	81.8%
Independent Contractor	71.0%
Medical Consultant	54.5%
Private Hospital - Not for Profit	100.0%
Mental/Behavioral Health	85.7%

Source: AMB, ABOE Survey Data, 2012-2013.

Note: Rates = % of physicians within each practice type. 1,489 respondents were missing type of practice.

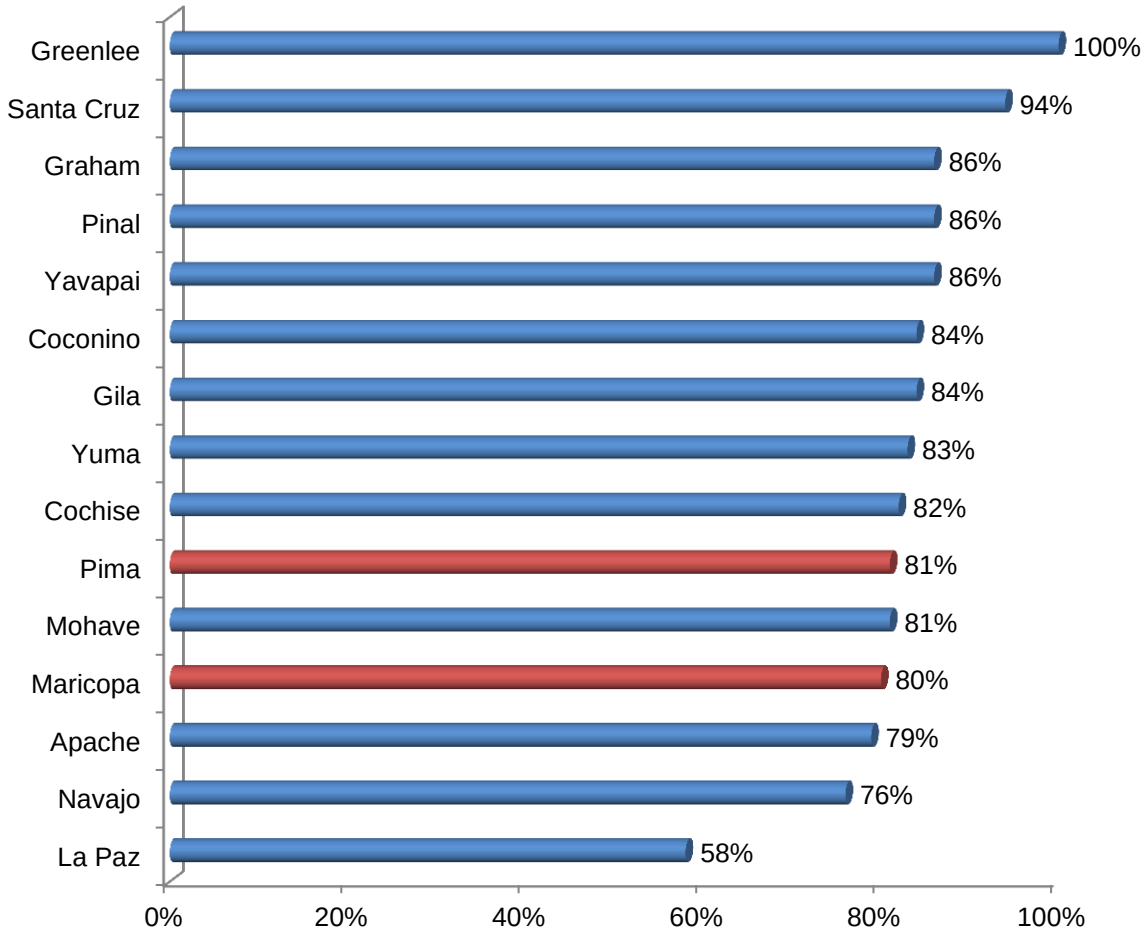
The distribution of EMR users by County is described in Figure 5. We characterize Maricopa and Pima counties as urban areas because they include the largest metropolitan areas in

Arizona. However, both counties are quite large and both include areas where population density is quite low.

The percentage of physicians who use EMRs ranges from 58% in La Paz County to 100% in Greenlee County. The number of practicing physicians ranges from 1 (Greenlee) to 4,935 (Maricopa).

The utilization rate in Maricopa County is the fourth lowest in the state. The relatively high adoption rates in many of the rural counties is likely the result of aggressive campaigns, including financial incentives, that have been directed to rural health care providers by CMS and the State of Arizona.

Figure 5. EMR Utilization by County 2012-2013 (N = 9,351)



Source: AMB, ABOE Survey Data, 2012-2013.

Note: Approximately 1,906 respondents did not identify a method of storing medical records and 607 were of unknown county. Pima and Maricopa Counties (red) represent the urban areas. All other counties in blue represent the rural areas.

The Utilization of Electronic Medical Records

Trends in the utilization of EMRs are described in Table 9. A serious problem with the new reporting software for the survey in 2009-2011 required the application of utilization rates from the paper surveys to the electronic survey data. The paper surveys represented a substantial portion of the total responses in that time period, but the potential agreement between the paper and electronic results could not be validated. The overall results for that period can be interpreted with a reasonable level of confidence, but the results for some individual characteristics are subject to uncertainty. The most directly comparable results are between 2007-2009 and 2012-2013.

Table 9. Methods of Storing Medical Records by Renewal Period

Method	*2012-2013 N = 9,881*		*2009-2011 N = 2,137; W = 8,996*		*2007-2009 N = 6,387*	
	Number Yes	*% of total*	*Weighted Yes*	*% of total*	*Number Yes*	*% of total*
Paper Files Only	1,167	11.8%	3,140	37.3%	2,911	45.6%
EMR Only	1,371	13.8%	1,565	17.4%	859	13.4%
Scanned Images Only	183	1.8%	204	2.3%	205	3.2%
Paper + Scanned Images Only	552	5.5%	404	4.5 %	393	6.2%
EMR + Paper Only	313	3.1%	559	6.2%	484	7.6%
EMR + Scanned Images Only	3,200	32.3%	1,411	15.7%	742	11.6%
Paper + Scanned Images + EMR	3,095	31.3%	1,126	12.5%	793	12.4%
EMR alone or in combination*	7,979	80.7%	4,700	52.3%	2,878	45.1%

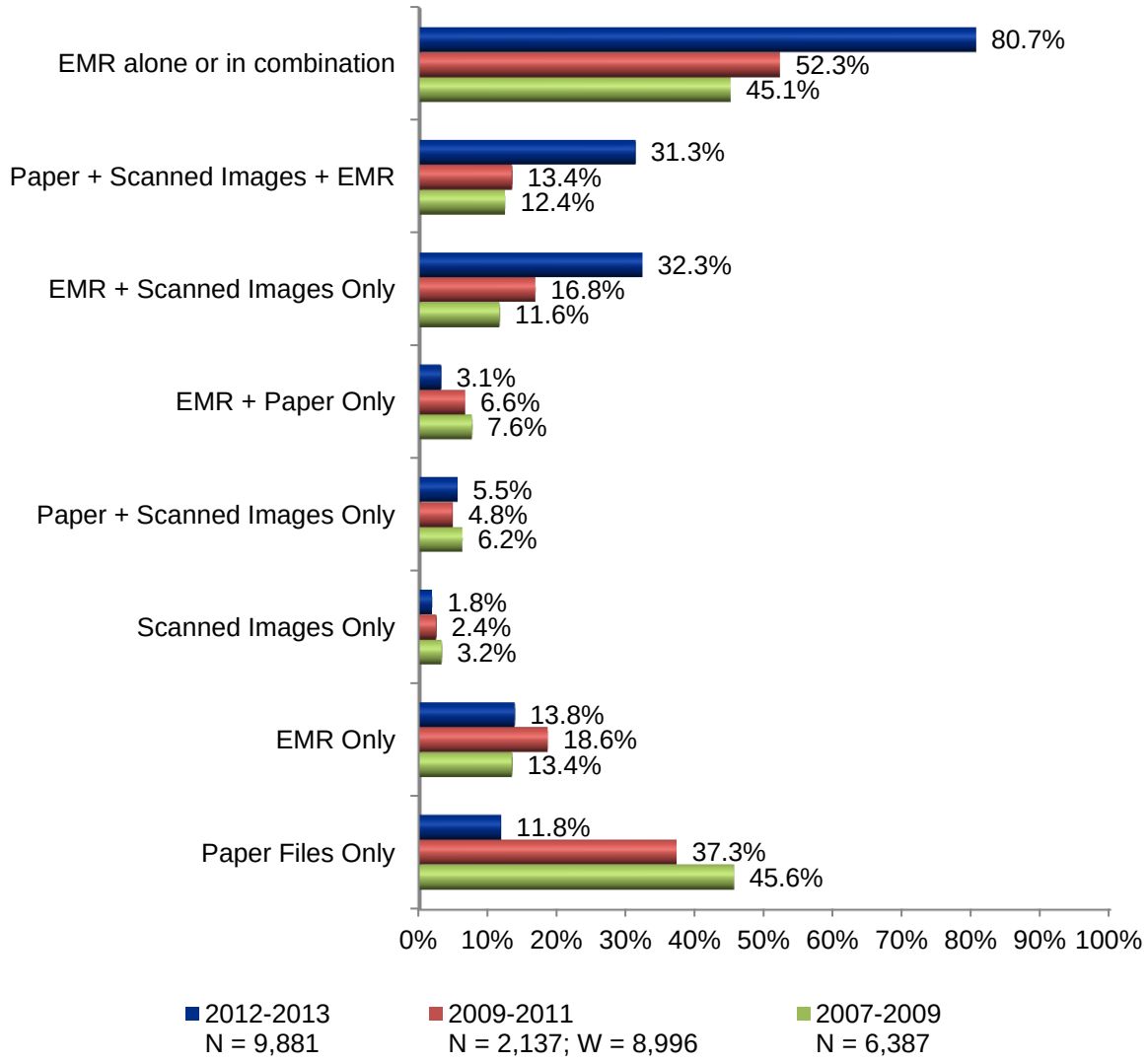
Source: AMB, ABOE Survey Data, 2007-2009; 2009-2011; 2012-2013.

Note: The 2011 weight = 4.21. The 2011 estimates are subject to substantially more uncertainty than the other renewal period data.

Respondents who did not identify a method of storing medical records (missing): 390 for 2007-2009 and 1,983 for 2012-2013.

*Data on "EMR alone or in combination" is not mutually exclusive from other categories.

Figure 6. Methods of Storing Medical Records by Renewal Period



Source: AMB, ABOE Survey Data, 2007-2009; 2009-2011; 2012-2013.

Note: The 2011 weight = 4.21. The 2011 estimates are subject to substantially more uncertainty than the other renewal period data.

Respondents who did not identify a method of storing medical records (missing): 390 for 2007-2009 and 1,983 for 2012-2013.

*Data on "EMR alone or in combination" is not mutually exclusive from other categories.

The uncertainty in the 2009-2011 estimates notwithstanding, the trend to increasing reliance on EMRs, often in combination with paper or scanned medical records, is quite clear. The percentage of physicians using EMRs increased from approximately 45% in 2007-2009 to approximately 80.7% in 2012-2013. The trend in Arizona is consistent with trends in the use of EMRs in the United States. The percentage of office based physicians using some form of

EMR in the United States increased from 48% in 2009 to 72% in 2012 (Hsiao and Hing 2012). The national data from the NAMC survey are not strictly comparable since they represent only a portion of the physicians included in our survey. The exclusions include physicians in federal facilities where the utilization rates of EMRs are 96% and a number of specialty practices (Hsiao and Hing 2012). The results from the NAMC survey estimate, however, that more than 82% of physicians in office based practices in Arizona used some form of EMR in 2012.

The use of paper records alone in Arizona declined from nearly 46% to less than 12% between 2007-2009 and 2012-2013. The use of EMRs in combination with scanned files increased nearly threefold from 12% to 32%. The use of EMRs in combination with paper and scanned files increased by a slightly larger multiple, suggesting that many of the new adopters of EMRs were physician practices that had previously begun a transition from paper records to scanned records. The process is one of gradual transition from paper records and scanned records to EMRs rather than the complete translation of existing records to EMRs. Our data do not address the transition from paper to EMRs, but one can imagine strategies that create EMRs for new patients or previous patients if they continue to seek care, while leaving the records of patients who may not return for care in their original format.

Another possible influence is the absence of electronic networks for the exchange of clinical information. In a summary of several surveys reported in *Information Week*, 80% of organizations with EMRs also use paper records (Terry 2012). The *Information Week* article, citing various sources, reports that many practices with EMRs receive faxes and paper documents from other practices because electronic interfaces are not available. Many of the documents are scanned or entered into the EMRs. The reliance on scanning in conjunction with EMRs suggests another reason for the proliferation of scanned documents in firms with EMRs.

A Multivariate Model of the Determinants of EMR Adoption & Information Exchange

We use multivariate logistic regression models to: (1) estimate the influence of various characteristics on the use of EMRs; and (2) measure the extent to which the characteristics of EMR users affect the extent to which they exchange information with others. The odds ratios are a measure of the influence of a particular characteristic, such as age, on use of an EMR, “all else equal”. An “all else equal” effect is the marginal influence of a measured characteristic, such as age, holding the effects of all other characteristics (e.g., type of practice, gender,

location, specialty etc.) constant. The variables added to the 2012-2013 results affect all the estimated coefficients by changing the content of the variables that provide the "all else equal" interpretations of the results.

The first set of results estimate the probability of being an EMR user, comparing EMR users to all physicians. The second and third columns of results compare the number of physicians with EMRs who exchange information to all physicians who use EMRs.

To use an example from Table 10 below, physicians age 25 to 34 are, all else equal, 4.02 times *more* likely to utilize EMRs in their practice than physicians age 65 and older. An odds ratio less than 1.0 indicates that physicians in a particular group are *less* likely than those in the comparison group to utilize EMRs. Physicians age 25-34 who use EMRs are less likely than older physicians to be partially connected (0.77).

There are no statistically significant differences, all else equal, between Osteopathic and Allopathic physicians; between female and male physicians or between urban and rural practices.

The odds ratios for types of practice can be ranked in terms of the odds that physicians use EMRs in each work setting relative to federal health care systems. None of the practice types reach as high a utilization rate as federal facilities. The statistically significant estimated odds ratios range from 0.12 for solo practice to 0.37 for Non-Hospital Outpatient Facilities.

The effects of age are measured relative to physicians in the 65+ age group. The odds of EMR use is at a maximum in the 25-34 year age group (4.02) and slightly lower among physicians age 35-44 (3.14). The odds drop sharply for the 45-54 year age to 2.24 and drop to 1.73 among physicians 55-64 years of age. An inverse relationship between physician age and EMR use has been observed in every period from 2007-2013.

One can speculate that differences in age represent differences in the culture of the medical profession, established work habits, facility with computerized applications, and training. An additional correlate of age, which is especially important for solo practitioners and small physician owned practices, is that the relatively short durations before retirement make the Return on Investment (ROI) to implement EMRs too low. The cost of purchasing a system is the most important single barrier cited by physicians in the NHCS Physician Workflow Survey (Jamoom, et al. 2012).

Table 10. Predictors of Being an EMR User/Partially or Fully Connected EMR User, 2012-2013

Variable	*2012-2013*		
	Odds Ratio (EMR User) N=9,380	*Odds Ratio (Partially Connected EMR User) N=7,496*	*Odds Ratio (Fully Connected EMR User) N=7,496*
DO (vs. MD)	1.02	1.00	1.32
Type of Practice (vs. Federal Government)			
Physician Owned Solo Practice	0.12*	3.26*	1.29
Physician Owned Group Practice	0.33*	3.19*	0.92
Hospital/Med School Group Practice	1.06	1.60*	0.83
Community or Rural Health Center	0.88	2.17*	0.78
Private Hospital System	0.62*	1.28	0.53
Non-Hospital Private Outpatient Facility	0.37*	1.80*	0.71
Medical School, University Research Center	0.76	1.57*	0.25*
City, State or County Clinic or Hospital System	0.23*	1.45	0.69
Other	0.18*	0.83	0.87
Age (vs. 65 and older)			
25 to 34	4.02*	0.77*	1.78
35 to 44	3.14*	1.02	1.41
45 to 54	2.24*	1.14	1.58
55 to 64	1.73*	1.09	1.49
Gender (Female vs. Male)	0.90	1.01	0.85
Location (vs. all other AZ counties)			
Maricopa County	0.88	0.86*	1.05
Pima County	0.87	0.93	1.12
Specialty (vs. Hospital Based Specialists)			
Primary Care	1.24*	4.38*	6.43*
Medical Care	1.06	3.68*	3.42*
Pediatric Care	1.19	3.92*	3.73*
Surgical Care	0.82*	2.46*	1.92

Source: AMB, ABOE Survey & Licensing Data, 2012–2013.

Note: 2,484 observations were deleted due to missing values for EMR Users and 479 observations were deleted for Partially Connected EMR Users and Fully Connected EMR Users. *Statistically significant at p less than or equal to 0 .05.

The odds ratios for the influence of each specialty are measured relative to physicians in hospital based specialties. All else equal, primary care physicians are more likely than the reference group to use EMRs and physicians in surgical care are less likely to use EMRs.

We next compare the extent to which physicians who use EMRs are partially or fully connected with others.The “Partially Connected” physicians are defined as users of at least one of their EMR’s functions to exchange information with others. The “Fully Connected” physicians are those who use all six functions to exchange information to others.

Approximately 3,173 or 42.3% of physicians with EMRs are “Partially Connected” and only 212 or 2.8% of physicians with EMRs are “Fully connected”. The small sample of fully connected users is not, in our opinion, sufficient for stable estimates. We present results for the fully connected group but defer discussion until a larger sample is available.

The significant influences on being partially connected are the type of practice, being in the youngest (25-34) age group, practicing in an urban location and physician specialty.

The practice types that are most likely to exchange information are the physician owned group practice, with solo practice a close second relative to federal government practices. Physicians in solo practice are the most likely to be partially connected. Thus, while solor practitioners are the least likely to have EMRs, the solo practice physicians with EMRs are the most likely to share at least some information with other health care organizations. Physicians in physician owned group practices are technically second to the solor practitioners but the differences are very small. Community health centers are the next most likely to exchange information with others.

All the specialty groups have large significant effects on connectivity, with primary care the most influential. One can speculate that the results for primary care reflect the effects of the Medicaid and Medicare incentive programs but that suggestion requires additional study.

The results suggest that the characteristics of individual physicians (age, gender) that are significant influences on the use of EMRs do not influence the exchange of information once an EMR is adopted. Older physicians are, for example, least likely to adopt EMRs, but once an EMR is adopted, there only significant age related differences in the extent to which physicians exchange EMR data with others is that the youngest group are less likely than the oldest group of physicians with EMRs to be connected. .

It appears that the exchange of information depends primarily on the environment in which physicians work. As we indicated in the previous section, a major obstacle to the exchange of information is the absence of electronic networks (health information exchanges) that are necessary for exchanges to occur. The extent to which connectivity is determined by intra-organizational factors versus the availability of health information networks will require additional study.

Our results include exchanges within a practice or a single hospital system and exchanges between organizations. Exchanges among different organizations such as between hospital systems or among physician owned solo or group practices are much less frequent.

Trends 2007-2013

An advantage of the ongoing CHiR survey is the ability to track trends in the use of EMRs and an array of associated characteristics over time. Improvements in the electronic version of the survey were achieved at the costs of some loss of between-year comparability for some questions. The survey questions for previous years included, for example, only two specialty groups rather than the five classifications in current use. The categories for types of practice were also expanded and the content was changed to eliminate some internal inconsistencies. Other important questions, such as the types of medical records in use (EMR, paper, scanned and combinations) are the same and comparisons of EMR utilization rates over time are appropriate.

The definitions of partially and fully connected are completely changed with the availability of much more detailed survey questions on the availability and use of the functions embedded in EMR software packages. The changes limit comparability of the multivariate results over time. Inferences at a very general level are possible, including longitudinal differences among the effects of physicians' ages, differences between allopathic and osteopathic physicians, and urban versus rural physicians.

Table 11. Multivariate Predictors of Being an EMR User/Connected EMR User, 2007-2011

Variable	*2009-2011*		*2007-2009*	
	Odds Ratio (EMR User)	*Odds Ratio (Fully Connected EMR User)*	*Odds Ratio (EMR User)*	*Odds Ratio (Fully Connected EMR User)*
Type of Practice (vs. Government)				
Group Practice	0.38*	0.43*	0.28	0.13
Community Health Center	0.66	0.45*	0.23	0.08
Hospitalist	0.52	0.80	0.54	0.46
Solo Practice	0.11*	0.09*	0.08	0.02
Academic Teaching/Research	1.10	1.19	0.76	0.72
DO (vs. MD)	1.02	1.14	1.60*	1.04
Age (vs. 65 and older)				
25 to 34	2.63*	1.99	3.16*	2.12*
35 to 44	3.19*	1.85*	2.49*	1.69*
45 to 54	2.36*	1.75*	2.12*	1.90*
55 to 64	1.35	1.24	2.07*	1.92*
Gender (Female vs. Male)	0.75*	0.84	0.92	0.94
Location (vs. all AZ counties except Maricopa and Pima)				
Maricopa County	0.98	0.93	1.12	1.28
Pima County	0.92	0.92	1.18	0.89
Primary Care (vs. Specialty Care)	1.20	1.85*	1.20*	0.89

Source: AMB, ABOE Survey Data, 2007- 2009; 2009-2011.

Note: 1,284 observations were deleted due to missing values.

*Statistically significant at p less than or equal to 0 .05.

The inverse relationship between physician ages and the use of EMRs occurs in all the years. There is a shift, however, between the most recent results and the 2007-2009 results that may reflect aging of the workforce. In 2007-2009, the 25-34 year old physicians were most likely to use EMRs, with the odds steadily declining for each of the older age groups. In 2012-2013 the highest ratios apply to the 35-44 year old group, with the 25-34 age physicians ranking second. The other change was that physicians in the 55-64 age group in 2007-2009 were twice as likely

as oldest group of physicians to use EMRs. There is no significant difference between these two age groups in 2012-2013. Age is not the only influence on the use of EMRs, but the gap in utilization rates between older and younger physicians will gradually disappear as the younger physicians replace retiring older physicians.

Osteopathic physicians were more likely than allopathic physicians to have EMRs in 2007-2009, but there are no significant differences between DOs and MDs in 2009-2011 or in 2012-2013.

There are no significant differences in EMR use between Maricopa and Pima County physicians or between them and physicians practicing in more rural counties (the omitted group) in the past.

Utilization of EMR Functions

The functions included in EMR software packages vary among vendors. In addition, the selection of functions included varies among physicians. The results describe the extent to which key functions are included in physicians' EMRs; the extent to which physicians use those functions; and the extent to which information is exchanged with others by physicians who use the functions. Specifically we examine inclusion, use and exchange for each of the following:

- Patient Care Summary
- Prescription Function
- Lab Results Function
- Reminders Intervention Function
- Public Health Reports Function
- Quality Metrics Function

There is variation in the extent to which the functions are included in EMR software. Although there are some variations among categories, there are approximately 5,700 physicians who responded to the question.

Table 12. Utilization of Available EMR Functions*

EMR Functions	*Included in EMR*	*Used by the Respondent Number/Percent*		*Exchanged with Other Providers Number/Percent*	
Patient Care Summary	5,658	5,195	91.8%	1,810	32.0%
Prescription "e-prescribing"	5,342	4,769	89.3%	2,500	46.8%
Lab Results	5,601	5,208	93.0%	1,952	34.9%
Reminders for Interventions	3,500	2,882	82.3%	675	19.3%
Public Health Reports	2,600	1,996	76.8%	814	31.3%
Quality Metrics (HEDIS, AQA, etc.)	2,247	1,764	78.5%	804	35.8%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: *The data in this table effectively treat *"Don't Know"* answers as *"No"* since the questions ask for the respondent's experience, not for the practices of other physicians in the same organization.

The data in this table only include those physicians that answered *"Yes"* to the Include question for each EMR function. Furthermore, the data only includes those that answered both the Used and Exchanged questions for each EMR functions; if either question was left blank the physician was excluded from the table for that function.

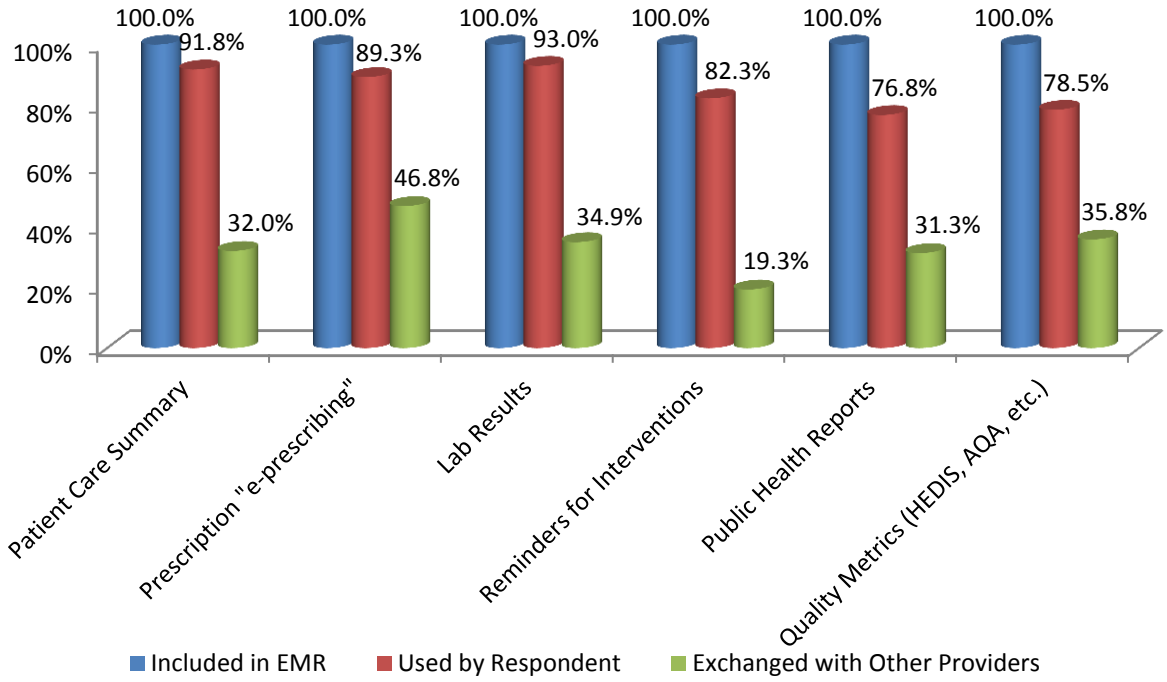
The most frequently used function is *e-prescribing* are the *Patient Care Summary and Quality Metric s* functions. There has been a concerted effort in Arizona to incent providers to use e-prescribing and it appears to be succeeding. The prevalence of use of lab functions probably reflects the long standing practice of electronic reporting by Sonora Quest Laboratories. The pre-existing reporting systems simplified the inclusion of laboratory results in EMR software.

The *Public Health Reports f*unction is least often included in EMRs among the six functions and, when included, is used by only 77% of physicians.

The use of EMRs is the necessary condition for the realization of the benefits of EMRs, but it is not sufficient to reach that goal without adequate methods of exchanging information. The very low percentages of physicians who exchange their EMR data with others are a significant obstacle to achieving the benefits of EMRs.

Exchanges using *e-prescribing* were no more prevalent than any other function but less than one-half of the physicians made exchanges. Less than 20% of the physicians exchanged information involving the *Reminders* for *Guideline Based Interventions.* Exchanges of information from the other functions cluster between approximately 31% and 36%. Potential benefits that depend upon the exchange of information on a patient among different providers are, therefore, not being realized.

Figure 7. Summary Utilization of Available EMR Functions



Source: AMB, ABOE Survey Data, 2012–2013.

Note: The data in this table only include those physicians that answered *"Yes"* to the Include question for each EMR function. Furthermore, the data only includes those that answered both the Used and Exchanged questions for each EMR functions; if either question was left blank the physician was excluded from the table for that function.

Quality metrics and required reports such as reportable diseases are reported by other methods, including email, faxes and separate electronic networks. Although the information is not lost, EMRs would be a more efficient and timelier means of delivery. The marked disparity between the use of EMRs and the sharing of information is a consistent feature of all the previous CHiR surveys, although the previous results are less detailed.

The results overstate exchanges of information that occur between physicians in different practices or different hospital systems because the results include exchanges within a practice or a single hospital system as well as exchanges between organizations. Exchanges among different organizations such as between hospital systems or among physician owned solo or group practices are much less frequent.

The single most important obstacle to the inter-organization transfer of electronic health information is the shortage of Health Information Exchanges (HIEs). The history of HIEs linking different organizations is one of frequent failure, largely traceable to the absence of viable business models (E Health Initiative 2012). The lack of HIEs also forces practices with EMRs to

exchange information via fax, requiring the recipients to continue to use paper or scanned documents in addition to their EMRs (Terry 2012).

The Health Information Network of Arizona (HINAZ) is striving to solve the problems that have hampered the expansion of HIEs, but it does not yet provide service to the majority of Arizona physicians.

HINAZ has the following participants:

- 12 hospitals, including 4 Critical Access Hospitals
- 7 health plans
- 3 community health centers
- 2 reference laboratory
- 7 clinics
- 3 long term care facilities
- 2 county departments
- 2 state departments

One promising feature of HINAZ is the involvement of the seven health plans. The economic benefits of exchanging patient information directly accrue to payers. The unnecessary costs of duplicate testing, treatments required because of prescription errors, and other information related problems are borne by the organizations that assume economic risk, including insurers and health care organizations that provide capitated care. Thus, they are also the primary economic beneficiaries of exchanges of information that reduce avoidable negative outcomes of care.

Utilization of EMRs by Vendor

The 2012-2013 survey includes, for the first time, questions enabling physicians to evaluate their EMRs on usability, functionality and a number of other important characteristics. The results are, however, subject to the possibility that the rankings by physicians in the second year (2013-2014) of the two renewal cycle could differ from these first year (2012-2013) results. The questions are new so we cannot judge the likelihood of differences between the two years.

The distribution of EMR brands by number of users is described in Figures 8 and 9. One peculiar feature of the results is the large number of EMR users who do not know the brand of software they are using (Table 13). Large surveys always include responses that seem to be illogical or erroneous. These responses result from misunderstandings of the question because of a respondent's inattention or from poorly designed questions.

Table 13. EMR Users Unaware of EMR Vendor Name by Type of Practice, 2012-2013 (N = 906)

Type of Practice	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	77	10.1%
Physician Owned Group Practice	286	37.8%
Hospital/Medical School Group Practice	106	14.0%
Community or Rural Health Center	55	7.2%
Private Hospital System	59	7.8%
Non-Hospital Private Outpatient Facility	62	8.2%
Medical School/University Research Center	33	4.3%
Health Insurer/Health Related Organization that does not provide care	17	2.2%
City, State or County Clinic or Hospital System	7	0.9%
Other	54	7.1%
Hospice or SNF	9	1.1%
Independent Contractor	9	1.1%
Medical Consultant	6	0.7%
Private Hospital - Not for Profit	2	0.2%
Mental/Behavioral Health	0	0
Total	756	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: N represents the number of physicians who answered "Don't Know" for this survey question. Governmental hospitals or clincis are excluded.

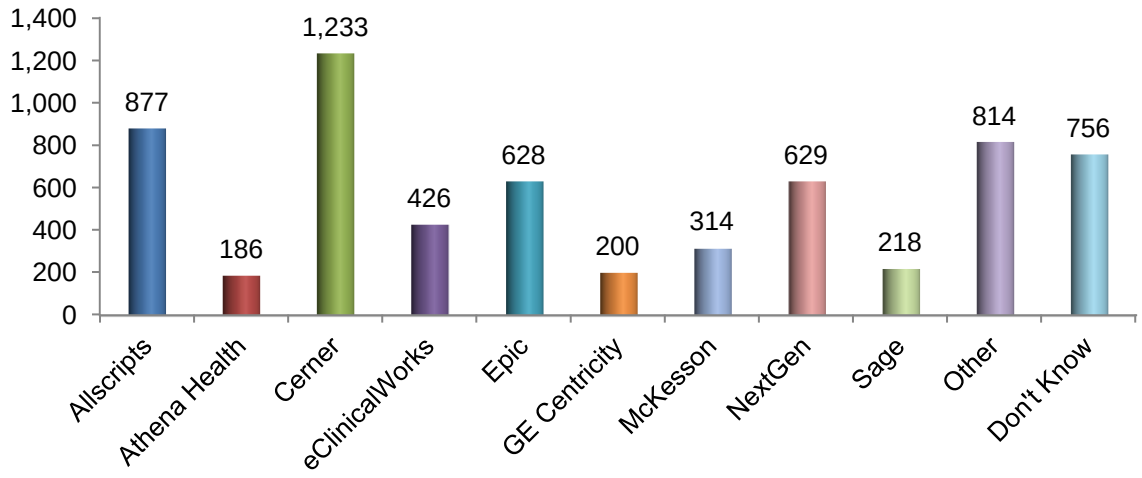
The question that asked for the vendor or brand name of the EMR used by a respondent included 21 brand names and a category for "Other" with an associated blank for the name to be written in by the respondent. Slightly more than 800 physicians answered "Other" and an additional 906 physicians who used EMRs did not know the brand name of their EMR. Previous years' results show that only approximately one-third of physicians using EMRs were either the decision maker or participated in a shared decision making process. The "Don't Know" answers

may reflect the fact that, especially in large health care organizations, relatively few physicians make choices concerning the purchase of EMR systems.

We expected that the "Don't Know" responses should disproportionately be found in large organizations such as hospital systems but nearly 67% of the "don't know" respondents worked outside of hospital settings. It was most surprising that 11.6% of solo practitioners could not identify their EMRs.

One implication of the results is that many physicians using EMRs are not likely to communicate to their EMR vendor about the advantages or problems that they face in using the EMR. In large hospital systems, the feedback may be provided by physicians in management or information technology (IT) roles, but in smaller organizations, it appears that valuable information concerning the performance of EMRs is being lost.

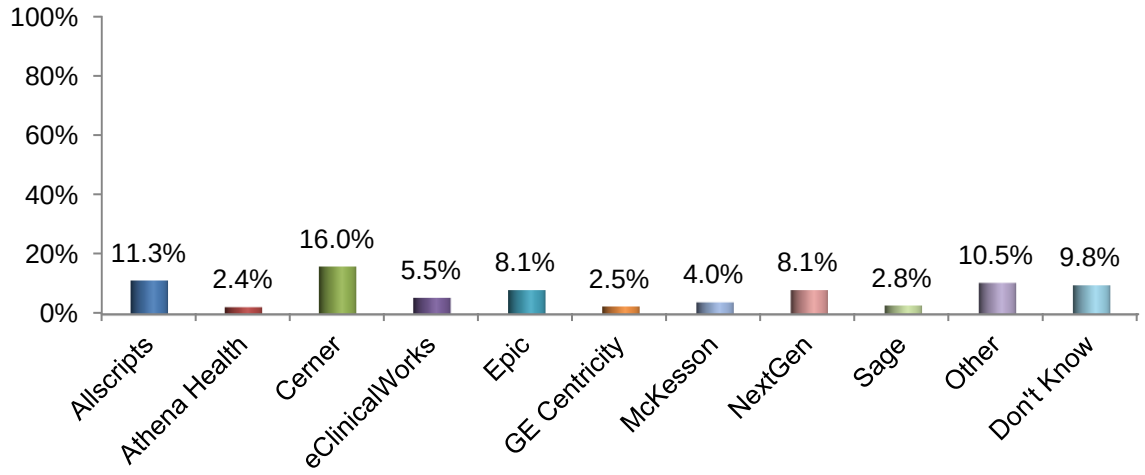
Figure 8. Number of EMR Users by Vendor ≥ 130 Users



Source: AMB, ABOE Survey Data, 2012–2013.

Note: The "Other" vendor excludes vendors contracted with government hospitals/clinics. 3,709 physicians did not respond to the survey question on vendor name.

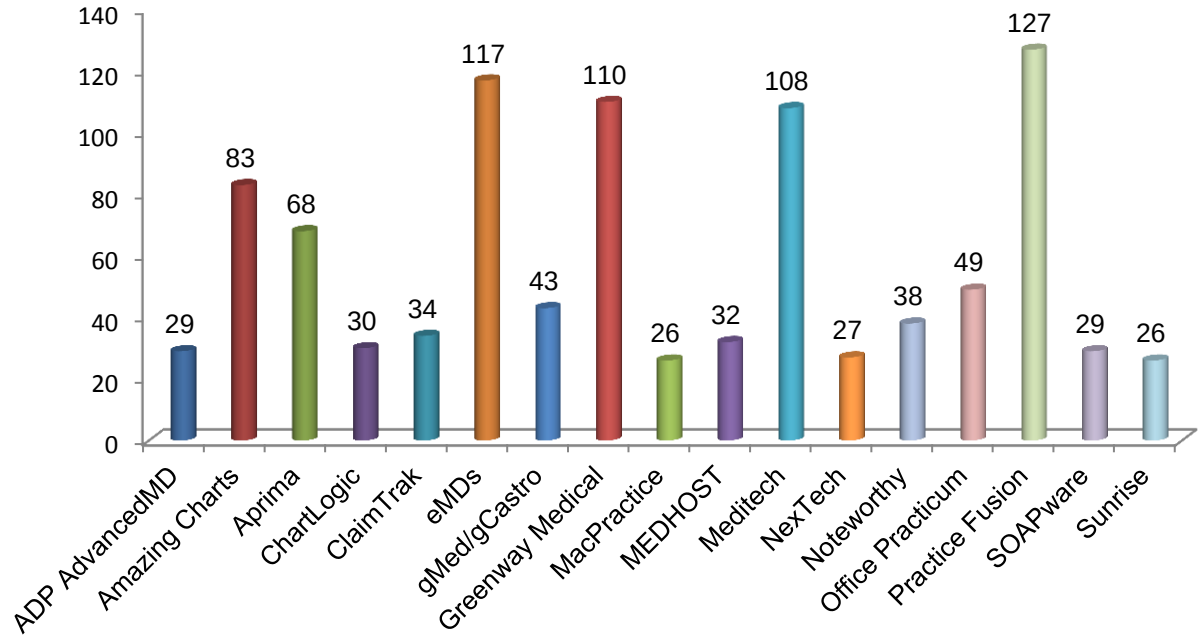
Figure 9. Percent of EMR Users by Vendor ≥ 130 Users



Source: AMB, ABOE Survey Data, 2012–2013.

Note: The "Other" vendor includes all vendors contracted with government hospitals/clinics. 3,709 physicians did not respond to the survey question on vendor name.

Figure 10. Number of EMR Users by Vendor < 130 Users



Source: AMB, ABOE Survey Data, 2012–2013.

Note: 3,709 physicians did not respond to the survey question on vendor name. Vendors with less than 25 users were excluded.

Physicians' Evaluation of EMR Software

The results in this section describe how Arizona physicians rank their EMR software on five criteria, namely:

- Ease of use
- Effect on physician productivity
- Effect on staff productivity
- Reliability
- Performance vs. promise

Each physician rates the EMR that she or he uses on a scale from 1 to 5, where 1 represents "Awful" and 5 represents "Outstanding". The intermediate values are not defined but the mid-point in the range can be thought of as approximating "acceptable" or a neutral evaluation. Rankings greater than 3 can be interpreted as positive. A ranking greater than "3" for physician or staff productivity indicates, for example, that an EMR has increased productivity, while rankings less than "3" suggest that an EMR has reduced productivity.

This section begins with a description of the rankings assigned to each of the five criteria described above. It then summarizes the results for each vendor in Table 25. Our discussion focuses on the summary results with a few comments on the more detailed information. Physicians practicing in government settings are excluded from these results but will be included in the next report in this series.

The rankings across all EMRs are a representation of a general evaluation of EMRs of several different types by different types of practices and physicians. Thus, without further clarification, individual EMR packages should not be interpreted as substitutes for one another. Many EMRs, such as *eClinicalWorks* are general purpose products while the *Gmed* EMR is specifically designed for gastroenterology specialists. Appendix F summarizes EMRs by vendor and intended use.

The fact that an EMR designed for primary care physicians might be ranked lower than an EMR designed for only one specialty does not imply that the primary care physicians could or should adopt the specialty EMR. Similarly, the finding that EMR brand A has a higher rating than EMR

brand B should not imply that brand A is a better buy than brand B without reference to the cost (and thereby the cost effectiveness) of the two brands. We hope to further classify the EMR packages by their intended use to permit within group comparisons as part of the final report for the current renewal cycle.

The survey does not ask if the physician respondent is using an EMR that replaced an EMR package that was not acceptable. In such cases, the rankings of the current EMR could reflect a choice that solved the problems with the previous EMR and would, presumably be more positive than a first time EMR that was acceptable but perhaps not as well suited to the physician's specific needs. Such situations are extremely costly but the information on the prevalence of these problems in Arizona is not known.

The revised survey instrument for the 2014-2016 renewal cycle includes questions regarding the replacement of EMRs and the reasons associated with the decision to make replacements.

The results presented next are restricted to the ten EMR packages that have the largest number of users because of the difficulty of presenting results for the very large number of vendors that serve physicians in Arizona. A more complete summary is presented in Table 25.

A great deal of attention has been given to the shortcomings of EMRs, but the rankings described in the following tables have means equal to or slightly above the midpoint in the 1-5 scale. The results on physician satisfaction with EMRs are generally consistent with results from the NCHS Survey of physicians in office-based practices. The NCHS results for 2011 show that 38% of the physicians were very satisfied with their EMRs and 46% were somewhat satisfied (Jamoom, et al. 2012).

Table 14. Ranking of All EMRs by Ease of Use (N = 6,944) (Weighted Mean Rank = 3.3)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	502	7.2%
2	917	13.2%
3	2,439	35.1%
4	2,118	30.5%
5 (Outstanding)	968	13.9%

Source: AMB, ABOE Survey Data, 2012–2013.

As indicated in Table 14, the weighted mean rank for the ease of using an EMR is 3.3. Only 20.4% of physicians give their EMR a rank less than 3 while 44.4% rate their EMR as greater than 3. The distribution suggests that physicians are mildly positive about the ease with which the EMR can be used. With minor variations, this distribution is characteristic of the rankings for the other criteria used to evaluate EMRs.

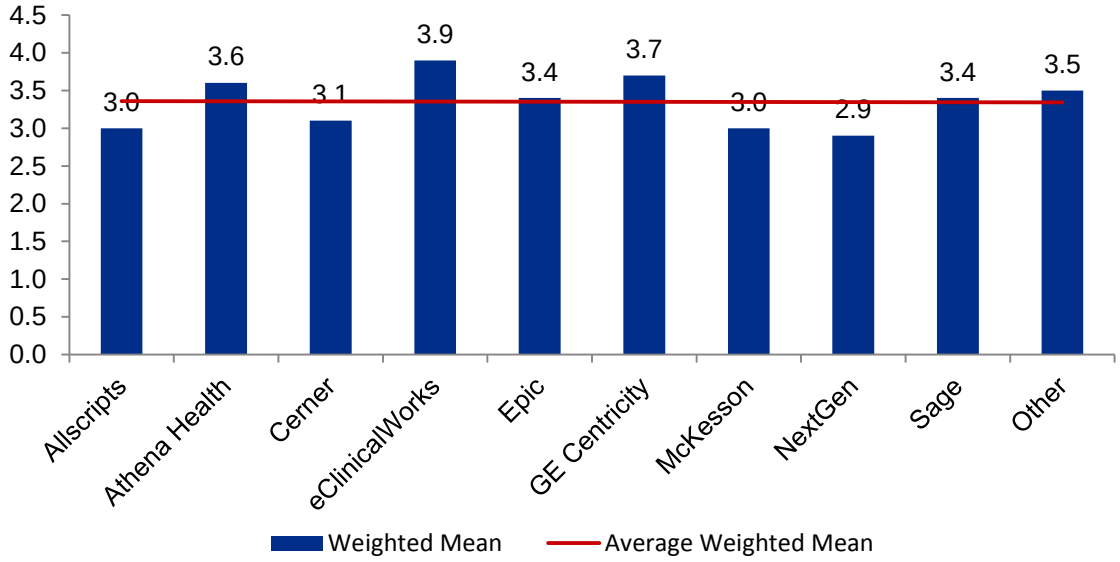
Table 15. Ease of Use by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean*
Allscripts	62 8.0%	135 17.5%	346 45.0%	178 23.1%	47 6.1%	768 15.3%	3.0
Athena Health	8 4.4%	19 10.6%	50 28.0%	61 34.2%	40 22.4%	178 3.5%	3.6
Cerner	127 11.1%	205 18.0%	384 33.8%	315 27.7%	105 9.2%	1,136 22.6%	3.1
eClinicalWorks	3 0.7%	25 6.1%	92 22.6%	168 41.2%	119 29.2%	407 8.1%	3.9
Epic	24 4.5%	59 11.1%	198 37.3%	190 35.8%	59 11.1%	530 10.5%	3.4
GE Centricity	6 3.2%	15 8.1%	43 23.4%	88 48.0%	31 16.9%	183 3.6%	3.7
McKesson	42 14.1%	51 17.1%	102 34.3%	72 24.2%	30 10.1%	297 5.9%	3.0
NextGen	76 12.9%	121 20.6%	209 35.6%	141 24.0%	39 6.6%	586 11.6%	2.9
Sage	5 2.4%	19 9.1%	94 45.1%	71 34.1%	19 9.1%	208 4.1%	3.4
Other	33 4.5%	70 9.6%	243 33.5%	249 34.3%	130 17.9%	725 14.4%	3.5
Top 10 Total	386 7.6%	719 14.3%	1,761 35.0%	1,533 30.5%	619 12.3%	5,018 100.0%	3.3

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 543 physicians who did not identify a brand name but answered thisr this question. The weighted mean for those physicians is 3.17.

Figure 11. Weighted Mean Rank of Ease of Use by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Figure 11 shows that *eClinicalWorks* is the most highly ranked EMR in terms of ease of use, followed by *GE Centricity* and *Athena Health,* followed closely by a cluster of EMRs with rankings either at the group weighted mean of slightly below or above the mean. The exception is *NextGen* with a ranking of 2.9. Tables 16-24 detail the ranks that physicians assigned to EMRs from the 10 most widely used EMRs. Our discussion begins following Table 24 where the summary ranking of all EMR criteria are also presented.

The introduction of an EMR into a practice typically requires investments in physician and staff time to learn new procedures and make the transition from paper or scanned records to the EMR. In some instances, an EMR package does not fit well into a practice and must be replaced. Both situations imply a loss of physician and staff productivity and both are often cited in critiques of EMRs. Increases in productivity attributable to the use of EMRs are much less discussed. The physician rankings of the effect of EMRs on physician and staff productivity, however, reveal an almost exact balance between increases and reductions in productivity creating an average rank approximately equal to the mid-point in the scale.

We do not know from the current results whether the rankings would be substantially different if we separated physicians dealing with recently introduced EMRs from those with EMRs in use for longer periods of time. We suspect that productivity, on average, would increase with the duration for which an EMR had been used. That is a topic worthy of additional analysis.

Table 16. Rank All EMRs by Physician Productivity (N = 6,922) (Weighted Mean = 3.0)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	868	12.5%
2	1,319	19.0%
3	2,286	33.0%
4	1,653	23.8%
5 (Outstanding)	796	11.4%

Source: AMB, ABOE Survey Data, 2012–2013.

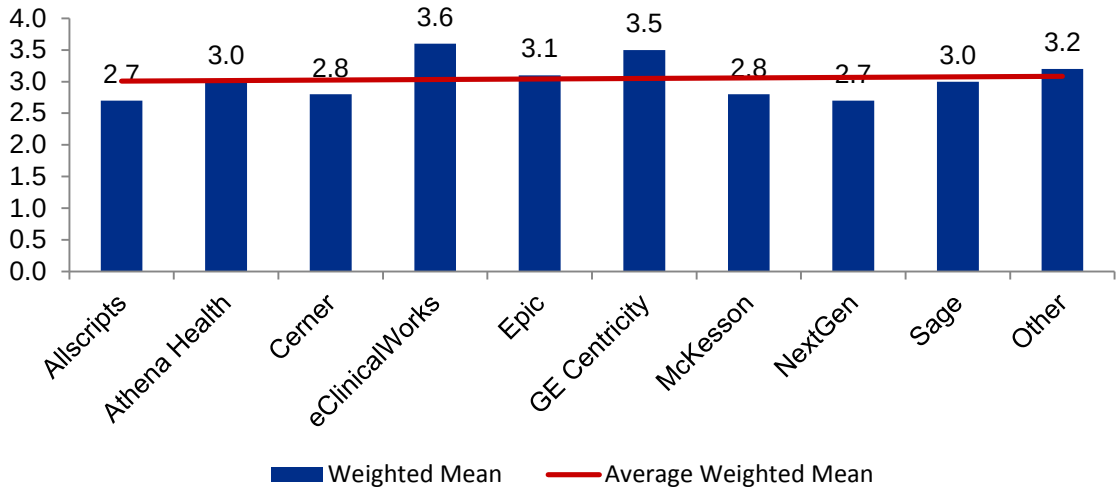
Among the ten vendors with the most users, the *eClinicalWorks* and *GE Centricity* EMR receive the most positive rankings in terms of physician productivity. *Allscripts* and *NextGen* are tied for the lowest ranking and *McKesson* is only very slightly higher.

Table 17. Physician Productivity by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean**
Allscripts	126 16.3%	191 24.8%	271 35.2%	142 18.4%	39 5.0%	769 15.3%	2.7
Athena Health	28 15.7%	31 17.4%	55 30.8%	33 18.5%	31 17.4%	178 3.5%	3.0
Cerner	188 16.5%	243 21.3%	363 31.9%	242 21.2%	101 8.8%	1,137 22.7%	2.8
eClinicalWorks	16 3.9%	54 13.3%	96 23.7%	154 38.0%	85 20.9%	405 8.0%	3.6
Epic	50 9.4%	99 18.7%	196 37.1%	132 25.0%	51 9.6%	528 10.5%	3.1
GE Centricity	12 6.5%	16 8.7%	62 33.8%	63 34.4%	30 16.3%	183 3.6%	3.5
McKesson	54 18.3%	68 23.0%	100 33.8%	43 14.5%	30 10.1%	295 5.8%	2.8
NextGen	123 21.0%	141 24.1%	165 28.2%	116 19.8%	40 6.8%	585 11.6%	2.7
Sage	22 10.6%	41 19.8%	70 33.8%	58 28.0%	16 7.7%	207 4.1%	3.0
Other	69 9.5%	111 15.4%	250 34.7%	185 25.7%	104 14.4%	719 14.3%	3.2
Top 10 Total	688 13.7%	995 19.8%	1,628 32.5%	1,168 23.3%	527 10.5%	5,006 100.0%	3.0

Source: AMB, ABOE Survey Data, 2012–2013. Note: There were 538 physicians Did not identify a brand name but answered the Physician Productivity question The weighted mean for those physicians is 3.05.

Figure 12. Weighted Mean Rank of Physician Productivity by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 18. Ranking of All EMRs by Staff Productivity (N = 6,885) (Weighted Mean Rank = 3.1)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	724	10.5%
2	1,230	17.8%
3	2,393	34.7%
4	1,729	25.1%
5 (Outstanding)	809	11.7%

Source: AMB, ABOE Survey Data, 2012–2013.

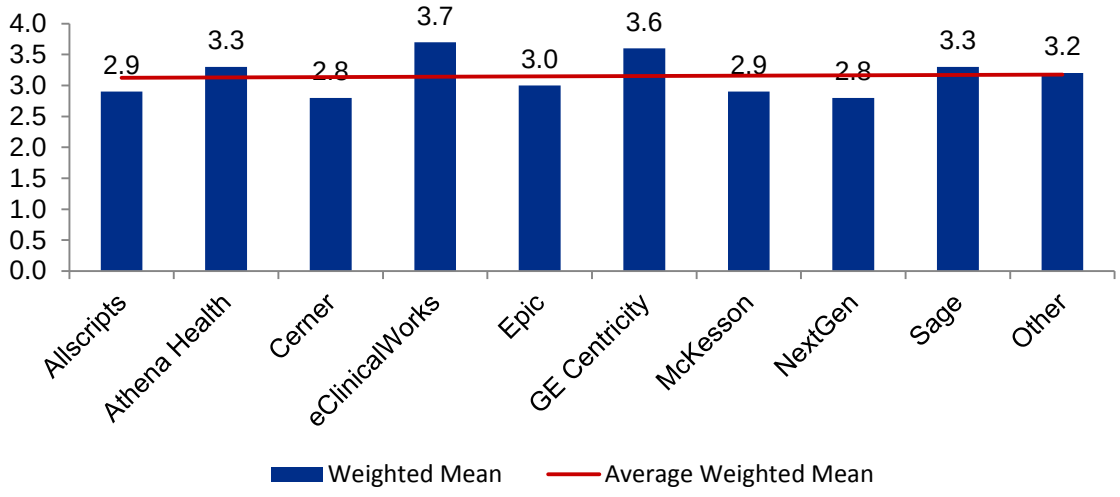
The *eClinicalWorks* and *GE Centricity* EMRs are the most highly ranked in terms of staff productivity, just as they were the most highly ranked for physician productivity. The *Allscripts, Cerner* and *NextGen* EMRs are tied for the lowest rankings. The ranking for *McKesson* is only very slightly higher.

Table 19. Staff Productivity by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean*
Allscripts	92 12.0%	175 22.8%	297 38.8%	152 19.8%	49 6.4%	765 15.3%	2.9
Athena Health	18 10.1%	26 14.6%	48 26.9%	55 30.8%	31 17.4%	178 3.5%	3.3
Cerner	174 15.3%	263 23.2%	385 33.9%	223 19.6%	88 7.7%	1,133 22.7%	2.8
eClinicalWorks	7 1.7%	40 9.9%	103 25.5%	156 38.7%	97 24.0%	403 8.0%	3.7
Epic	49 9.3%	105 20.0%	190 36.2%	134 25.5%	46 8.7%	524 10.5%	3.0
GE Centricity	6 3.2%	15 8.2%	57 31.3%	74 40.6%	30 16.4%	182 3.6%	3.6
McKesson	48 16.3%	63 21.4%	98 33.3%	53 18.0%	32 10.8%	294 5.9%	2.9
NextGen	98 16.8%	140 24.0%	188 32.3%	111 19.0%	45 7.7%	582 11.6%	2.8
Sage	13 6.2%	21 10.1%	87 42.0%	67 32.3%	19 9.1%	207 4.1%	3.3
Other	62 8.6%	105 14.7%	252 35.3%	195 27.3%	99 13.8%	713 14.3%	3.2
Top 10 Total	567 11.3%	953 19.1%	1,705 34.2%	1,220 24.4%	536 10.7%	4,981 100.0%	3.0

Source: AMB, ABOE Survey Data, 2012–2013.Note: There were 532 physicians did not identify a brand name but answered the Staff Productivity question. The weighted mean for those physicians is 3.05.

Figure 13. Weighted Mean Rank of Staff Productivity by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 20. Ranking of All EMRs by Reliability, (N = 6,896) (Weighted Mean Rank = 3.5)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	328	4.7%
2	669	9.7%
3	2,194	31.8%
4	2,522	36.5%
5 (Outstanding)	1,183	17.1%

Source: AMB, ABOE Survey Data, 2012–2013.

Once again, *eClinicalWorks* and *GE Centricity* are the highest ranking EMRs, in this case in terms of reliability. The rankings for reliability are, however, higher in absolute terms for most of the EMRs relative to the rankings for productivity. The lowest ranking is for *NextGen* with *Allscripts* only very slightly higher.

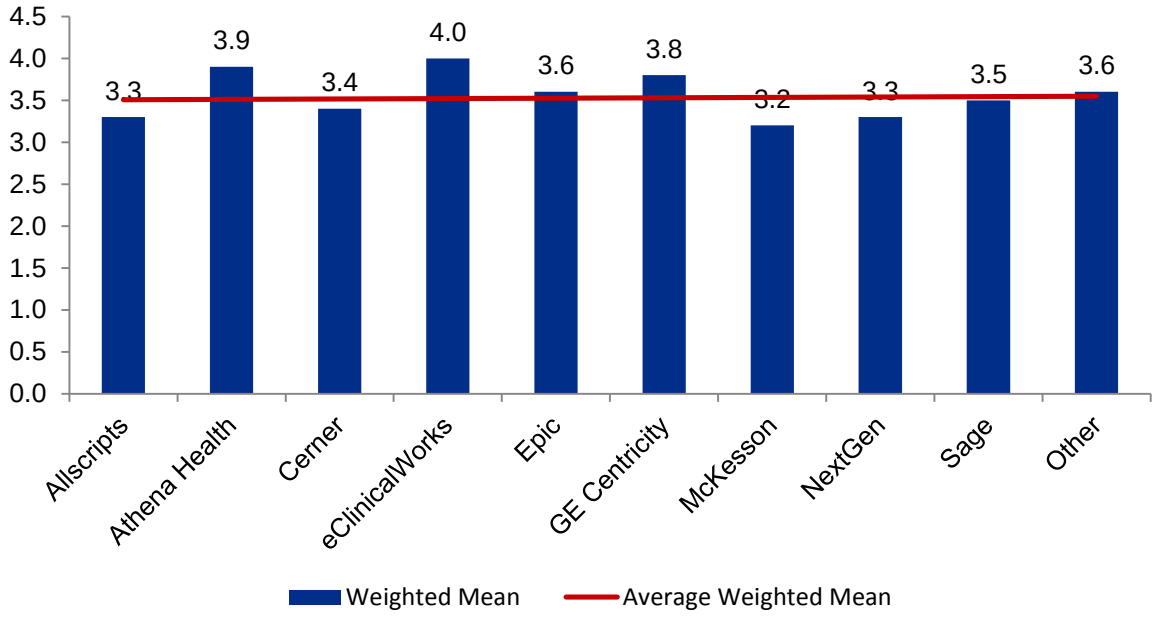
Table 21. Reliability by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean*
Allscripts	43 5.6%	91 11.8%	296 3853%	270 35.2%	67 8.7%	767 15.3%	3.3
Athena Health	3 1.7%	10 5.6%	46 26.1%	57 32.3%	60 34.0%	176 3.5%	3.9
Cerner	61 5.3%	103 9.0%	392 34.5%	436 38.4%	142 12.5%	1,134 22.7%	3.4
eClinicalWorks	3 0.7%	15 3.7%	85 20.9%	187 46.1%	115 28.3%	405 8.1%	4.0
Epic	11 2.0%	44 8.3%	163 30.9%	209 39.7%	99 18.8%	526 10.5%	3.6
GE Centricity	2 1.1%	9 4.9%	45 24.8%	90 49.7%	35 19.3%	181 3.6%	3.8
McKesson	36 12.2%	38 12.8%	97 32.8%	81 27.4%	43 14.5%	295 5.9%	3.2
NextGen	49 8.3%	74 12.6%	197 33.6%	201 34.3%	64 10.9%	585 11.7%	3.3
Sage	8 3.8%	20 9.6%	73 35.2%	79 38.1%	27 13.0%	207 4.1%	3.5
Other	31 4.3%	66 9.2%	210 29.3%	259 36.1%	150 20.9%	716 14.3%	3.6
Top 10 Total	247 4.9%	470 9.4%	1,604 32.1%	1,869 37.4%	802 16.0%	4,992 100.0%	3.5

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 532 physicians who did not identify a brand name but answered the Reliability question. The weighted mean for those physicians is 3.30.

Figure 14. Weighted Mean Rank of Reliability by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 22. Ranking of All EMRs by Performance vs. Promise (N = 6,760) (Weighted Mean Rank = 3.1)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	704	10.4%
2	1,027	15.1%
3	2,543	37.6%
4	1,755	25.9%
5 (Outstanding)	731	10.8%

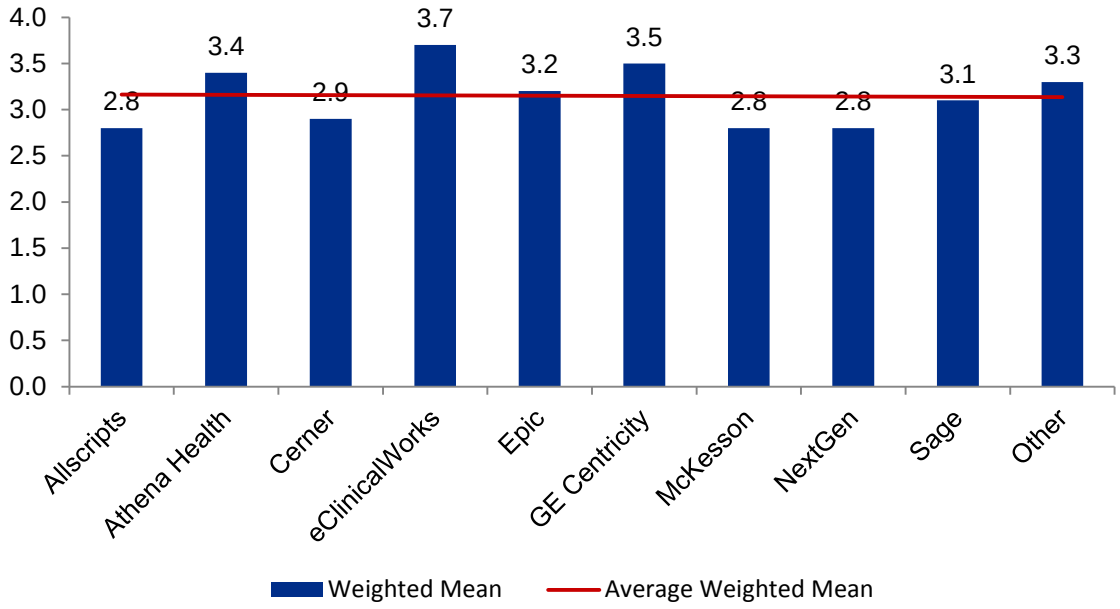
Source: AMB, ABOE Survey Data, 2012–2013.

Table 23. Performance vs. Promise by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean*
Allscripts	86 11.4%	156 20.6%	335 44.4%	145 19.2%	32 4.2%	754 15.4%	2.8
Athena Health	16 8.9%	21 11.7%	54 30.3%	55 30.8%	32 17.9%	178 3.6%	3.4
Cerner	162 14.6%	210 19.0%	410 37.1%	252 22.8%	70 6.3%	1,104 22.5%	2.9
eClinicalWorks	12 2.9%	22 5.4%	114 28.4%	172 42.8%	81 20.1%	401 8.1%	3.7
Epic	48 9.2%	70 13.4%	202 38.9%	144 27.7%	55 10.5%	519 10.6%	3.2
GE Centricity	10 5.6%	11 6.1%	60 33.7%	69 38.7%	28 15.7%	178 3.6%	3.5
McKesson	52 17.9%	47 16.2%	117 40.3%	54 18.6%	20 6.8%	290 5.9%	2.8
NextGen	87 15.4%	126 22.3%	205 36.4%	111 19.7%	34 6.0%	563 11.5%	2.8
Sage	11 5.4%	38 18.8%	90 44.5%	47 23.2%	16 7.9%	202 4.1%	3.1
Other	60 8.5%	77 10.9%	266 37.7%	207 29.3%	95 13.4%	705 14.4%	3.3
Top 10 Total	544 11.1%	778 15.8%	1,853 37.8%	1,256 25.6%	463 9.4%	4,894 100.0%	3.1

Source: AMB, ABOE Survey Data, 2012–2013.Note: There were 532 physicians who did not identify a brand name but answered the Reliability question. The weighted mean for those physicians is 3.30.

Figure 15. Weighted Mean Rank of Performance vs. Promise by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 24. Summary of All EMR Ranking Criteria

Criterion	*Weighted Mean*	*Number of Physicians*
Ease of Use	3.3	6,944
Effect on Physician Productivity	3.0	6,922
Effect on Staff Productivity	3.1	6,885
Reliability	3.5	6,896
Performance vs. Promise	3.1	6,760
Mean of the Weighted Means	3.3	--

Source: AMB, ABOE Survey Data, 2012–2013.

The mean rankings for the five criteria suggest that ease of use and reliability are more highly ranked than criteria such as effects of EMRs on productivity or perceptions of performance versus vendor promises. The differences are small and one must recognize that physicians who were not involved in the decision to implement a system may not be aware of the promises that accompanied the purchase of the system. Physicians using established systems may not have experienced the transitory effects or, if involved, may have their responses colored by

recall. The net effect of these influences is not known. A summary of all weighted means for each EMR ranking criteria by the top 25 vendors is listed in Appendix E.

The next section considers the extent to which physicians were aware of incentives to adopt EMRs and the extent to which applications for incentives were made. Many physicians in large organizations are not in a position to make these decisions and as the results indicate, a rather large number of respondents did not answer the incentive related questions.

EMR Adoption Incentives

The costs of implementing an EMR system are one of the most significant obstacles to EMR adoption and the problem is especially difficult for relatively small health care organizations. Economic incentives have been effective in increasing the rate of adoption nationally. A 2010 study of e-prescribing shows, for example, that nearly 40 percent of e-prescribers had adopted e-prescribing in response to a federal incentive program (Joseph, et al. 2013).

There are a number of conditions defining eligibility for Medicare or Medicaid incentives (Center for Medicare & Medicaid Services 2013). The basic eligibility criteria for Medicare are:

- Subsection (d) hospitals that are paid under the inpatient prospective payment system (PPS)
- Critical Access Hospitals (CAH)
- Medicare Advantage (MA-Affiliated) Hospitals

The Medicaid eligible hospitals include:

- Acute care hospitals with at least 10% Medicaid patient volume
- Children's hospitals

Eligible professionals for Medicaid incentives include:

- Physicians
- Nurse Practitioners
- Certified nurse-midwives
- Dentists
- Physician assistants who furnish services in a federally qualified community health center or rural health clinic led by a physician assistant.

The available survey data do not adequately distinguish between eligible and non-eligible physicians. The results include, therefore, physicians in environments to which the incentives do not apply. We hope to improve this analysis in future reports.

The incentive payments made by Medicare and Medicaid (AHCCCS) in Arizona are summarized in Tables 25 and 26. As noted, we do not have the data needed to link adoptions to incentives, but it is true that the recent increases in the rate of adoption of EMRs are correlated with the incentive payments made to health care providers.

Table 25. Total Arizona Medicare and Medicaid EHR Incentive Payments by Provider Type (January 2011 – February 2014)

Provider Type	*Number of Payments*	*Amount of Incentive Payments*
Medicare Eligible Professionals	4,636	$72,774,642
Medicaid Eligible Professionals	2,506	$53,025,844
Total Eligible Professionals	7,142	$125,800,486
Medicaid Eligible Hospitals	3	$$5,990,921
Medicare/Medicaid Eligible Hospitals (Medicare)	92	$131,520,254
Medicare/Medicaid Hospitals (Medicaid)	98	$105,533,709
Total Eligible Hospitals	193	$243,044,884
Total EPs and EHs	7,335	$368,845,370

Source: CMS Website https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/DataAndReports.html.

Table 26. Summary of AHCCCS Payments to Eligible Professionals as of July, 31 2013

Eligible Professionals	*Number of Providers*
Physicians (non-Pediatric)	1,384
Physicians (Pediatricians)	577
Physician Assistants (FQHC)	5
Nurse Practitioners	293
Certified Nurse Midwives	71
Dentists	109
Total Eligible Professional Payments*	2,439

Source: (Johnson, Harootunian and Mayer 2013). Note: *There were 3,200 payments attested, but 2,439 (76%) were paid.

The success in incentivizing physicians to adopt EMRs will continue, and there are physicians as yet unaware of the opportunities. Physicians in large organizations are often unaware of decisions regarding incentives. . Others may practice in settings that are ineligible for incentives. We will more fully analyze these relationships when the current renewal cycle is completed.

Table 27. Medicare/Medicaid Incentive Payments (N = 9,088)

Aware of Incentive Payments	Number of Physicians	Percent
No	1,684	18.5%
Yes	7,404	81.4%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 2,316 physicians did not respond to this question.

The data in Table 27 support our speculation concerning the relationship between physicians' awareness of incentives and the organization in which they practice. The largest percentages of physicians not knowledgeable about incentives are employed in State or County hospital systems, with Medical Schools (generally not eligible for incentives) a close second. Solo practice physicians are the group most aware of the incentive programs with only approximately 12% of them who are not aware. The number of physicians in practices that have applied for Medicare incentive payments is described in Tables 30 through 33.

Table 28. Awareness of Incentive Payments by Type of Practice and Decision Maker (N = 8,773)

Type of Practice	*Aware of Incentive Payments*					
	Sole decision maker		*Decided by others*		*Shared decision*	
	Yes	*No*	*Yes*	*No*	*Yes*	*No*
	Number of Physicians (Percent)	*Number of Physicians (Percent)*	*Number of Physicians (Percent)*	*Number of Physicians (Percent)*	*Number of Physicians (Percent)*	*Number of Physicians (Percent)*
Physician Owned Solo Practice	1,509 (88.7%)	180 (10.5%)	8 (0.4%)	2 (0.1%)	1 (0.0%)	0 (0.0%)
Physician Owned Group Practice	1,885 (58.7%)	188 (5.8%)	751 (23.3%)	240 (7.4%)	138 (4.2%)	9 (0.2%)
Hospital/Medical School Group Practice	51 (3.5%)	24 (1.6%)	952 (66.2%)	349 (24.2%)	57 (3.9%)	5 (0.3%)
Community or Rural Health Center	3 (0.6%)	2 (0.4%)	335 (71.4%)	94 (20.0%)	33 (7.0%)	2 (0.4%)
Private Hospital System	28 (3.7%)	11 (1.4%)	480 (65.1%)	188 (25.5%)	27 (3.6%)	3 (0.4%)
Non-Hospital Private Outpatient Facility	35 (8.6%)	9 (2.2%)	254 (62.8%)	77 (19.0%)	24 (5.9%)	5 (1.2%)
Medical School, University Research Center	3 (0.7%)	1 (0.2%)	252 (63.9%)	118 (29.9%)	18 (4.5%)	2 (0.5%)
Health Insurer/Health Related Organization that does not provide care	8 (13.7%)	1 (1.7%)	26 (44.8%)	20 (34.4%)	3 (5.1%)	0 (0.0%)
City, State or County Clinic or Hospital System	0 (0.0%)	0 (0.0%)	68 (53.5%)	51 (40.1%)	7 (5.5%)	1 (0.7%)
Other	22 (9.3%)	10 (4.2%)	122 (51.9%)	61 (25.9%)	18 (7.6%)	2 (0.8%)
Hospice or SNF	1 (3.2%)	0 (0.0%)	24 (77.4%)	5 (16.1%)	1 (3.2%)	0 (0.0%)
Independent Contractor	4 (10.2%)	1 (2.5%)	17 (43.5%)	15 (38.4%)	2 (5.1%)	0 (0.0%)
Medical Consultant	8 (38.0%)	3 (14.2%)	3 (14.2%)	5 (23.8%)	1 (4.7%)	1 (4.7%)
Private Hospital - Not for Profit	0 (0.0%)	0 (0.0%)	18 (60.0%)	5 (16.6%)	7 (23.3%)	0 (0.0%)
Mental/Behavioral Health	0 (0.0%)	0 (0.0%)	6 (75.0%)	2 (25.0%)	0 (0.0%)	0 (0.0%)
Total	3,544 (40.3%)	426 (4.8%)	3,248 (37.0%)	1,200 (13.6%)	326 (3.7%)	29 (0.3%)

Source: AMB, ABOE Survey Data, 2012–2013.Note: Physicians practicing in government settings have been excluded from these results. 2,631 physicians were excluded from this table due to missing data, including 2,316 missing Awareness of Incentive Payments; 1,489 missing the Type of Practice; and 2,245 missing the Decision Maker.

Table 29. Applications for Medicare Incentives (N = 7,303)

Applied for Medicare Incentives	*Number of Physicians*	*Percent*
No	2,744	37.5%
Yes	4,559	62.4%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 4,101 did not respond to this question.

Table 30. Applications for Medicare Incentives by Type of Practice (N = 7,295)

Type of Practice	*Applied for Medicare Incentives*			
	Yes		*No*	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	768	50.0%	766	49.9%
Physician Owned Group Practice	2,013	71.0%	820	28.9%
Hospital/Medical School Group Practice	750	68.6%	342	31.3%
Community or Rural Health Center	268	66.6%	134	33.3%
Private Hospital System	315	57.9%	229	42.0%
Non-Hospital Private Outpatient Facility	179	56.6%	137	43.3%
Medical School, University Research Center	165	59.7%	111	40.2%
Health Insurer/Health Related Organization that does not provide care	6	13.0%	40	86.9%
City, State or County Clinic or Hospital System	26	33.7%	51	66.2%
Other	64	36.5%	111	63.4%
Hospice or SNF	3	12.0%	22	88.0%
Independent Contractor	5	20.0%	20	80.0%
Medical Consultant	2	13.3%	13	86.6%
Private Hospital - Not for Profit	18	62.0%	11	37.9%
Mental/Behavioral Health	4	57.1%	3	42.8%
Total	4,554	62.4%	2,741	37.5%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 4,109 physicians were excluded from this table due to missing data, including 4,101 physicians missing applied for Medicare incentives and 1,489 missing type of practice.

Table 31. Applications for Medicaid Incentives (N = 7,151)

Applied for Medicaid Incentives	*Number of Physicians*	*Percent*
No	3,534	49.4%
Yes	3,617	50.5%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 4,253 physicians did not respond to this question.

Table 32. Applications for Medicaid Incentives by Type of Practice (N = 7,143)

Type of Practice	*Applied for Medicaid Incentives*			
	Yes		*No*	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	512	33.8%	1,002	66.1%
Physician Owned Group Practice	1,459	52.4%	1,324	47.5%
Hospital/Medical School Group Practice	671	63.5%	385	36.4%
Community or Rural Health Center	278	71.0%	113	28.9%
Private Hospital System	293	55.2%	237	44.7%
Non-Hospital Private Outpatient Facility	165	53.2%	145	46.7%
Medical School/University Research Center	153	56.6%	117	43.3%
Health Insurer/Health Related Organization that does not provide care	5	10.8%	41	89.1%
City, State or County Clinic or Hospital System	24	31.5%	52	68.4%
Other	53	31.7%	114	68.2%
Hospice or SNF	1	4.3%	22	95.6%
Independent Contractor	4	16.0%	21	84.0%
Medical Consultant	1	6.6%	14	93.3%
Private Hospital - Not for Profit	16	57.1%	12	42.8%
Mental/Behavioral Health	3	50.0%	3	50.0%
Total	3,613	50.5%	3,530	49.4%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 4,261 physicians were excluded from this table due to missing data, including 4,253 physicians missing applied for Medicaid incentives and 1,489 missing type of practice.

Meaningful Use

Table 33. EMR Vendor Helping Meet Meaningful Use (N = 4,521)

Is EMR Vendor Helping Meet Meaningful Use	*Number of Physicians*	*Percent*
No	792	17.5%
Yes	3,729	82.4%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 6,883 physicians did not respond to the meaningful use question.

Table 34. EMR Vendor Helping Meet Meaningful Use by Type of Practice (N = 4,515)

Type of Practice	*Yes*		*No*	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	639	78.3%	177	21.6%
Physician Owned Group Practice	1,695	84.2%	317	15.7%
Hospital/Medical School Group Practice	586	82.6%	123	17.3%
Community or Rural Health Center	225	82.7%	47	17.2%
Private Hospital System	253	86.9%	38	13.0%
Non-Hospital Private Outpatient Facility	140	79.0%	37	20.9%
Medical School, University Research Center	110	74.3%	38	25.6%
Health Insurer/Health Related Organization that does not provide care	3	50.0%	3	50.0%
City, State or County Clinic or Hospital System	20	83.3%	4	16.6%
Other	53	88.3%	7	11.6%
Hospice or SNF	1	100.0%	0	0.0%
Independent Contractor	5	100.0%	0	0.0%
Medical Consultant	1	50.0%	1	50.0%
Private Hospital - Not for Profit	18	94.7%	1	5.2%
Mental/Behavioral Health	4	100.0%	0	0.0%
Total	3,724	82.4%	791	17.5%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 6,893 physicians were excluded from this table due to missing data, including 1,489 missing type of practice.

The overall survey results suggest that nearly three-quarters of the respondents were not aware of the support offered by the Arizona Regional Extension Center (REC). The result is, however, misleading because many physicians do not participate in decisions to adopt EMRs. The results in Table 36 separate physicians according to their role in decision making. The most relevant group is physicians who are the sole decision makers. These physicians are often the owners of group practices and, of course, physicians in solo practice. Approximately 66% of the sole decision makers are not aware of the REC support. An additional 24.3% are aware of the support but are not working with REC.

Further analysis of the results will be completed to classify the physicians by their eligibility for REC support. The results are also limited by the number of physicians who either did not respond to the decision maker question and/or the question on the awareness of support. The survey includes a question that offers physicians the opportunity to submit a request for information to the REC. Lists of the requesters are periodically delivered to the REC for further action.

Table 35. Support from Regional Health Extension Center by Decision Maker (N = 8,423)

Aware of Support Offered by AZ Regional Extension Center	*Decision Maker*					
	Decided by others		*Shared decision*		*Sole decision maker*	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*	*Number of Physicians*	*Percent*
No	3,700	87.7%	255	73.2%	2,502	64.8%
Yes, but not working with them at present	510	12.0%	91	26.1%	976	25.2%
Yes, working with them	5	0.1%	2	0.5%	382	9.8%
Total	4,215	100.0%	348	100.0%	3,860	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 2,981 physicians were excluded from this table due to missing data, including 2,714 missing Awareness of Support Offered; and 2,245 missing the Decision Maker.

Plans to Install EMRs

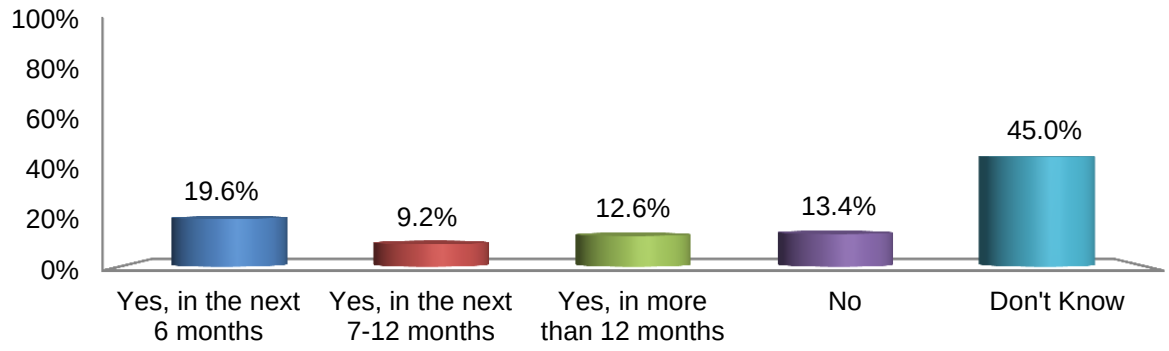
Table 36. Non-EMR Users Plans for Adoption of EMRs (N = 617)

Future Plans to Adopt EMRs	*Number of Physicians*	*Percent*
Don't Know	278	45.0%
No	83	13.4%
Yes, in more than 12 months	78	12.6%
Yes, in the next 7-12 months	57	9.2%
Yes, in the next 6 months	121	19.6%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Figure 16. Non-EMR Users Plans for Adoption of EMRs (N = 617)



Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 37. Plans to Install EMRs by Vendor (N = 392)

Vendor	*Number of Physicians*	*Percent*
Allscripts	20	5.1%
Amazing Charts	2	0.5%
Aprima	2	0.5%
Athena Health	3	0.7%
Cerner	24	6.1%
eClinicalWorks	8	2.0%
eMDs	1	0.2%
Epic	22	5.6%
Greenway Medical	1	0.2%
HealthPort	1	0.2%
McKesson	12	3.0%
Meditech	2	0.5%
NextGen	10	2.5%
Noteworthy	1	0.2%
Sage	5	1.2%
SOAPware	1	0.2%
Other	65	16.5%
Don't Know	212	54.0%
Total	392	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings are excluded from these results.

Table 38. Plans to Switch EMRs by Vendor (N = 1,864)

Vendor	*Number of Physicians*	*Percent*
Allscripts	120	6.4%
Amazing Charts	4	0.2%
Aprima	2	0.1%
Athena Health	15	0.8%
Cerner	216	11.5%
eClinicalWorks	21	1.1%
e-MDs	5	0.2%
Epic	423	22.6%
Greenway Medical	2	0.1%
McKesson	25	1.3%
Meditech	6	0.3%
NextGen	100	5.3%
Noteworthy	4	0.2%
Office Practicum	1	0.0%
Sage	11	0.5%
SOAPware	1	0.0%
Other	223	11.9%
Don't Know	685	36.7%
Total	1,864	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings are excluded from these results.

The Target Population

The data presented to this point are good profiles of the characteristics of the EMR users. It remains to describe the physicians who have not adopted EMRs. They are the targets of incentives that seek to increase EMR utilization. Their numbers are estimated in Table 39 by applying the population weights (W = 1.1 per respondent for 2012-2013, which is the first year of a two year renewal cycle. The weights for the two previous completed renewal cycles are 1.97 per respondent in 2007-2009 and 1.30 in 2009-2011) to the numbers (N) of survey respondents.

The target population of Non-EMR users in each county is described in Table 39. The estimates can change because they are based on the 2012-2013 data which represent approximately one-half of the two year renewal cycle. There are approximately 1,200 physicians who do not currently use EMRs. The target population ranges from 3 physicians in La Paz County to 845 physicians in Maricopa County.

The projected target population when the current renewal cycle is complete is estimated in Table 39 by simply assuming that the results for the 2013-2014 survey duplicate the 2012-2013 results. That is that the physicians not yet surveyed, because they have yet to renew their licenses, are reasonably well represented by the 2012-2013 respondents subject to several assumptions.

The simplifying assumptions exclude, for example, the likely possibility that physicians renewing in the second year of the renewal cycle will adopt EMRs at a higher rate than the physicians in 2012-2013. This assumption disregards the information presented subsequently in this report on physician's intentions to adopt EMRs. It is likely, therefore, that the projected target population for 2012-2014 is somewhat overstated.

The estimates of target populations by county are a guide to the prioritization of some types of incentives designed to expand the use of EMRs. The smaller the target population in a county is, the lower the priority for a project with a fixed budget. Some of the potentially low yield areas also are the areas where time and travel costs of some interventions will be relatively high. If, for example, an initiative includes the IT support services on an ongoing basis, counties such as Apache, Gila or La Paz offer small payoffs and relatively high costs in terms of travel time for support personnel.

Table 39. The Target Population of Physicians without EMRs by County, 2012-2013 (N = 9,254)

Location	*2012-2013 80% of Renewal Cycle*				*The Projected Target Population Complete Renewal Cycle 2012-2014*
	All Survey Respondents (N)	*Survey Respondents EMR Users (N)*	*Survey Respondents Non-EMR Users (N)*	*The Target Population (W*N)*	
Apache	18	12	6	7	8
Cochise	97	79	18	20	24
Coconino	233	195	38	42	50
Gila	43	36	7	8	9
Graham	24	20	4	4	5
Greenlee	1	1	0	0	0
La Paz	10	5	5	6	7
Maricopa	5,982	4,726	1,256	1,382	1,659
Mohave	229	186	43	47	57
Navajo	69	48	21	23	28
Pima	1,630	1,306	324	356	428
Pinal	146	126	20	22	26
Santa Cruz	18	17	1	1	1
Yavapai	238	203	35	39	46
Yuma	197	163	34	37	45
Missing	28	21	7	8	9
Unknown	291	217	74	81	98
Total	9,254	7,361	1,893	2,082*	2,500

Source: AMB, ABOE Survey Data, 2012-2013.

Note: Table does not include fully retired physicians or physicians practicing in government settings. 1,900 respondents did not identify a method of storing medical records and 351 were of unknown/missing county.

The target population is calculated as the number of non-EMR users multiplied by the population weight (1.1). *rounding errors

The results also suggest consideration of different approaches to increase EMR utilization for different geographic areas. We know from our multivariate results, for example, that the rate of EMR use is, all else equal, at its lowest among older physicians. It seems equally likely that the required investments and the relatively short period for the return on investment will make their potential rates of adoption much lower than among younger physicians. Age and other criteria can be added to the definition of the target population to sharpen the focus of planned interventions. The data described in Table 39 provide estimates of the target population that

can be used as a baseline against which to compare the success of interventions designed to increase the use of EMRs.

Progress in the expansion of EMR use in each county can be measured by comparing the 2012-2013 targets to the estimates from previous renewal cycles. We rely on comparisons between 2007-2009 and 2012-2013 because of the variability in the county results for 2009-2011.

Table 40. Trends in the Target Population of Physicians without EMRs by County, 2012-2013 vs. 2007-2009

Location	*Non- Users of EMRs as a Percent of Physicians*	
	2012-2013	*2007-2009*
Apache	33.3%	47.1%
Cochise	18.6%	56.6%
Coconino	16.3%	56.8%
Gila	16.3%	67.7%
Graham	16.7%	57.9%
Greenlee	0.0%	57.9%
La Paz	50.0%	66.7%
Maricopa	21.0%	57.2%
Mohave	18.8%	64.1%
Navajo	30.4%	52.9%
Pima	19.9%	56.0%
Pinal	13.7%	52.1%
Santa Cruz	5.6%	77.8%
Yavapai	14.7%	62.6%
Yuma	17.3%	73.3%
Total	20.5%	57.6%

Source: AMB, ABOE Survey Data, 2007-2009; 2009-2011; 2012-2013.

Table 41. The Target Population of Physicians without EMRs by County, 2009-2011 vs. 2007-2009

Location	2009-2011			2007-2009		
	All Survey Respondents (W)	Survey Respondents Non-EMR Users (W)	Target Population (W*N)	All Survey Respondents (N)	Survey Respondents Non-EMR Users (N)	Target Population (W*N)
Apache	54	27	35	17	8	16
Cochise	110	42	55	76	43	85
Coconino	231	108	140	176	100	197
Gila	49	17	22	31	21	41
Graham	26	14	18	19	11	22
Greenlee	9	9	12	5	4	8
La Paz	9	9	12	9	6	12
Maricopa	5,229	2,859	3,717	4,371	2,500	4,925
Mohave	188	113	147	184	118	232
Navajo	105	46	60	68	36	71
Pima	1,965	857	1,114	1,376	771	1,519
Pinal	153	90	117	94	49	97
Santa Cruz	47	15	20	18	14	28
Yavapai	262	122	159	163	102	201
Yuma	149	92	120	135	99	195
Total	8,586	4,420	5,746	6,742	3,882	7,648

Source: AMB, ABOE Survey Data, 2007-2009; 2009-2011.

Note: Table does not include fully retired physicians. 342 respondents did not identify a method of storing medical records in 2007-2009.

The target population is calculated as the number of non-EMR users multiplied by the population weight (1.97 in 07-09 and 1.3 in 09-11).

The results in Table 39 document a substantial reduction in the percentage of physicians who do not use EMRs. On average, across all counties, there was more than a three-fold reduction in the percentage of physicians without access to an EMR between 2007-2009 and 2012-2013. The reduction was larger in many of the rural counties than in either Maricopa or Pima County.

The 2012-2013 data represent one-half of a renewal cycle while the 2007-2009 results are from a full cycle. It is possible, therefore, that the results described here could change when the data from the complete cycle are available. Nevertheless, the differences between the two time

periods are so consistent and so substantial that we do not expect subsequent variations in the yet to be collected data to alter the substance of our conclusions.

Physicians and health care organizations that are not yet connected to a network that permits them to exchange information are another part of the target population. As the results on individual physician use show, EMR use continues to increase but the ability to exchange information languishes. AHCCCS and ASET are addressing the problem with incentive payments to unconnected providers. The data in Table 42 described the most recent set of awardees, many of which serve rural areas of the state of Arizona.

Table 42. Grant Awards to Rural Providers to Plan for HIE

Unconnected Providers Sub-Grantee Award Information	
Sub-Grantee	*Funds Requested*
A New Leaf, Inc.	$50,000
CONMED Health Management	$50,000
Copper Queen Community Hospital	$50,000
Flagstaff Medical Center, Inc.	$98,007
Jewish Family and Children's Service, Inc.	$100,000
La Paz Hospital, Inc.	$50,000
Little Colorado Medical Center	$99,955
North Country Healthcare, Inc.	$100,000
People of Color Network, Inc.	$100,000
Quality Care Network	$100,000
Sierra Vista Regional Health Center, Inc.	$50,000
Symphony of Mesa and Springdale Village	$40,385
Terros, Inc.	$100,000
Villa Maria Care Center, LLC/CopperSands, Inc.	$42,210
Total Awarded Funds	$1,030,557

Source: (Johnson, Harootunian and Mayer 2013).

Summary & Conclusion

The percentage of Arizona physicians using EMRs increased from approximately 45% in 2007-2009 to approximately 81% in 2012-2013. The current trend suggests that nearly all Arizona physicians will be using EMRs by 2018. The results from 2007-2013 consistently show that utilization of EMRs is lowest among older physicians and physicians in solo practices. The findings are similar to the results of national surveys. The increased use of EMRs in Arizona reflects the gradual replacement of retiring older physicians by younger physicians and the consolidation of solo practices into larger group practices or hospital based practices. The growth is also induced by Medicare and Medicaid incentive payments.

The use of EMRs increased more rapidly in the rural counties of Arizona than in the urbanized areas. The Medicare and Medicaid incentives and the support from organizations such as the REC are often directed to organizations with the most need, including smaller practices which typify rural medicine. This appears to have had a very significant impact on the use of EMRs by rural health care providers and Community Health Centers.

The expected benefits of EMRs, such as the avoidance of duplicative tests, require the exchange of information among health care providers. The lack of communication networks is now a much more important obstacle to the realization of the benefits of EMRs than is underutilization of EMRs. Among physicians with EMRs that include functions such as *e*-prescribing, patient summaries and others, slightly more than 20% to slightly more than 47% of the physicians share information with other providers. The data, however, include exchanges among providers within organizations such as hospital systems. Exchanges between hospital systems or among solo or group practices are much less frequent.

HINAZ continues to expand and its future is hopeful. It currently serves thirty-three participants.

This report is the first in the CHiR series to include physician rankings of EMRs by brand. EMRs were ranked on a 1-5 scale where 1=Awful and 5=Outstanding. Twenty five different EMR packages were ranked on each of five criteria.

Many articles in the press and on-line discussions among HIE professionals suggest that physicians are very dissatisfied with the EMRs that they use. The results presented here differ, indicating that physicians are at least somewhat positive about the EMR software that they use with their rankings averaging slightly more than the midpoint in the 1-5 scale. Ease of use and

reliability receive the highest rankings, although the variance among rankings of the five criteria is very small. The more accurate conclusion may be that physicians seek to improve individual elements of their EMRs, but recognize that EMRs offer advantages not available from scanned records or paper medical records.

We plan to revise the survey questions at the end of the current renewal cycle in April 2014. Many of the new questions will focus on the use of and obstacles to the exchange of information among physicians who use EMRs. The new survey will include an enhanced focus on Medicaid providers.

AHCCCS Physician Results

The results in this section have not been subject to the same level of review as the preceding sections of this report. A final, completely reviewed set of results will be presented when the data on the final months of the two year renewal cycle are received.

Table 43. Comparison of AHCCCS Respondents to Non-Respondents, 2012-2013

Characteristic	*Respondents (N = 11,297)*		*Non-Respondents (N = 3,551)*		*P-Value*
Sex					
Female	2,740	28.2%	849	28.2%	NS
Male	6,598	67.9%	2,052	68.3%	NS
Total	9,338	96.2%	2,901	96.6%	
Age Group					
25 - 34	1,239	12.7%	521	17.3%	<0.01
35 - 44	3,371	34.7%	837	27.8%	<0.01
45 - 54	2,610	26.8%	750	24.9%	<0.05
55 - 64	1,786	18.4%	576	19.1%	NS
65+	584	6.0%	294	9.7%	<0.01
Total	9,590	98.8%	2,978	99.1%	
Specialty					
Primary Care	3,460	35.6%	1,040	34.6%	NS
Medical	2,128	21.9%	690	22.9%	NS
Hospital-Based	2,318	23.8%	657	21.8%	<0.05
Pediatric	913	9.4%	270	8.9%	NS
Surgical	855	8.8%	340	11.3%	<0.01
Total	9,674	99.6%	2,997	99.8%	
Location					
Maricopa County	6,117	63.0%	1,905	63.4%	NS
Pima County	1,773	18.2%	562	18.7%	NS
All Other Counties	1,566	16.1%	413	13.7%	<0.01
Total	9,456	97.4%	2,880	95.9%	

Source: AMB, ABOE Administrative/Survey Data, 2012-2013. Data include retired and semi-retired physicians.

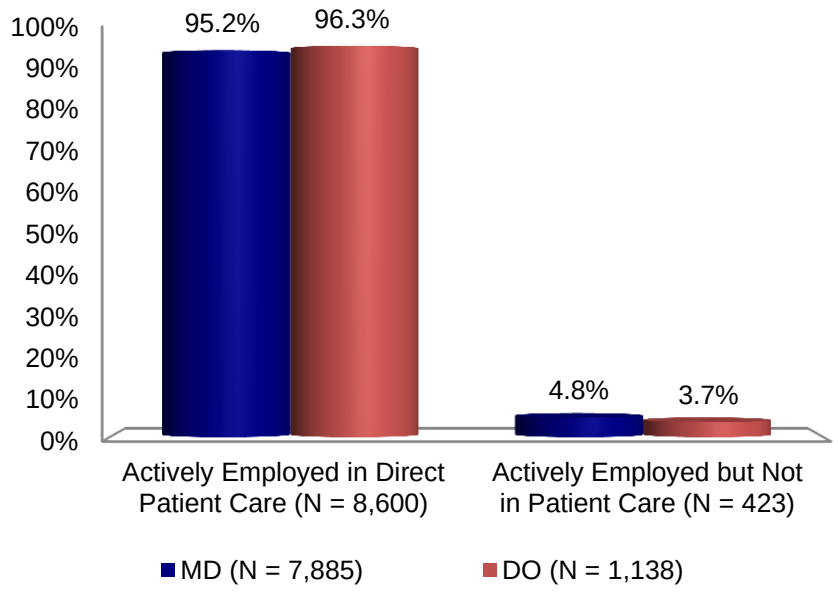
Note: A p-value of .05 or less implies only a 5% probability of declaring the relationship significant when in fact it is not. NS = no significant difference. Gender was unknown for 367 (3.7%) respondents and 102 (3.3%) non-respondents. Age was unknown for 115 (1.1%) respondents and 25 (0.8%) non-respondents. Specialty was unknown for 31 (0.3%) respondents and 6 (0.1%) non-respondents. Location was unknown for 249 (2.5%) respondents and 123 (4.0%) non-respondents.

Table 44. Active AHCCCS Physicians by Employment Status, 2012-2013

Employment Status	*MD*		*DO*		*Total*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Actively Employed in Direct Patient Care	7,504	95.2%	1,096	96.3%	8,600	95.3%
Actively Employed but Not in Patient Care	381	4.8%	42	3.7%	423	4.7%
Total	7,885	100.0%	1,138	100.0%	9,023	100.0%

Source: AMB, ABOE Survey data, 2012-2013. 682 respondents were missing employment status.

Figure 17. AHCCCS Physicians Providing Patient Care, 2012-2013



Source: AMB, ABOE Survey data, 2012-2013.

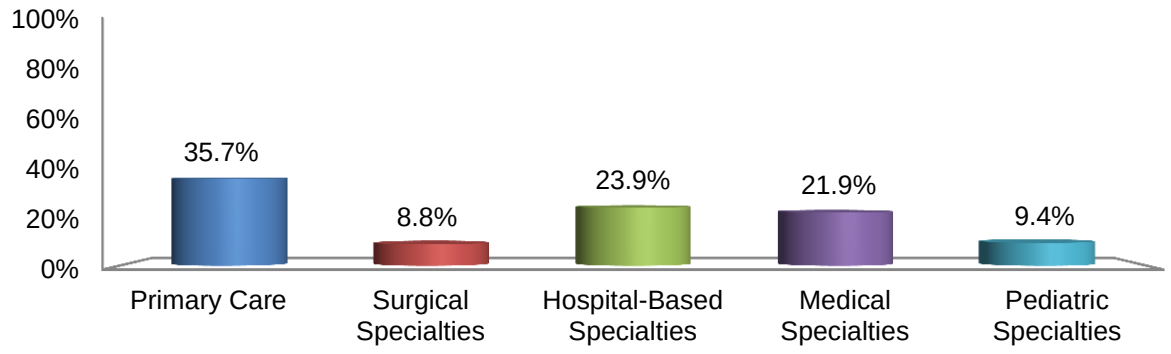
Table 45. Distribution of Practicing AHCCCS Physicians by Specialty, 2012-2013 (N = 9,674)

Primary Specialty Groups	*Total Physicians*	
	N	*%*
Primary Care	3,460	35.7%
Surgical Specialties	855	8.8%
Hospital-Based Specialties	2,318	23.9%
Medical Specialties	2,128	21.9%
Pediatric Specialties	913	9.4%
Total	9,674	100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Note: Primary specialty reported by physician at the time of licensure. 31 physicians did not report specialty to the medical board.

Figure 18. Distribution of Practicing AHCCCS Physicians by Specialty, 2012-2013 (N = 9,674)



Source: AMB, ABOE Survey data, 2012-2013.

Note: Primary specialty reported by physician at the time of licensure. 31 physicians did not report specialty to the medical board.

Practice Settings

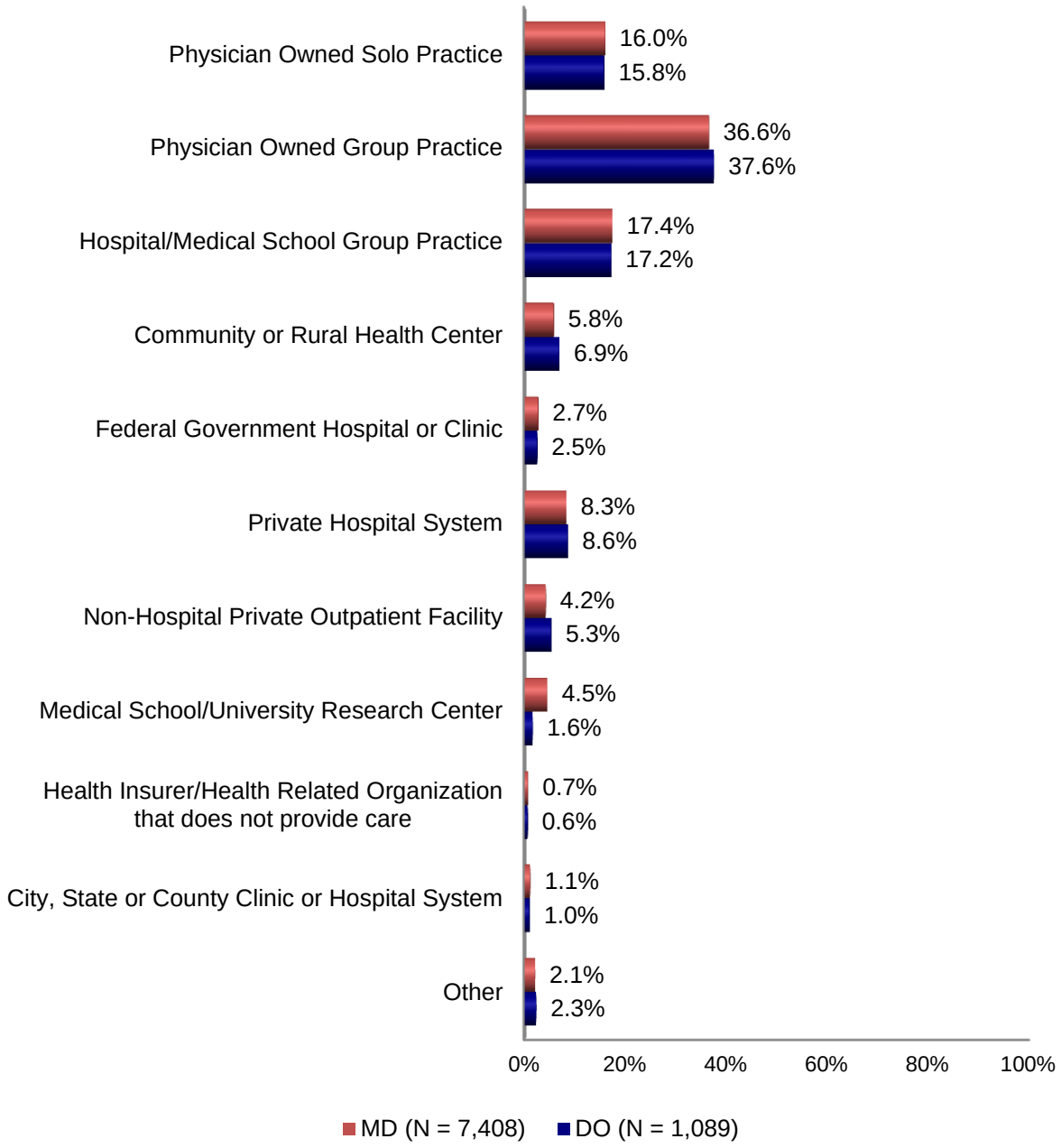
Table 46. Type of AHCCCS Practice by MD and DO, 2012-2013

Type of Practice	*MD*	*DO*	*Total*
Physician Owned Solo Practice	1,187 (16.0%)	173 (15.8%)	1,360 (16.0%)
Physician Owned Group Practice	2,713 (36.6%)	410 (37.6%)	3,123 (36.7%)
Hospital/Medical School Group Practice	1,295 (17.4%)	188 (17.2%)	1,483 (17.4%)
Community or Rural Health Center	436 (5.8%)	76 (6.9%)	512 (6.0%)
Federal Government Hospital or Clinic	206 (2.7%)	28 (2.5%)	234 (2.7%)
Private Hospital System	621 (8.3%)	94 (8.6%)	715 (8.4%)
Private Outpatient Facility not part of Hospital System	316 (4.2%)	58 (5.3%)	374 (4.4%)
Medical School, University Research Center	337 (4.5%)	18 (1.6%)	355 (4.1%)
Public or Private Insurer/Health Related Organization that does not provide care	52 (0.7%)	7 (0.6%)	59 (0.6%)
City, State or County Clinic or Hospital System	85 (1.1%)	11 (1.0%)	96 (1.1%)
Other	160 (2.1%)	26 (2.3%)	186 (2.1%)
Hospice or SNF	25 (0.3%)	4 (0.3%)	29 (0.3%)
Independent Contractor	26 (0.3%)	9 (0.8%)	35 (0.4%)
Medical Consultant	7 (0.0%)	1 (0.0%)	8 (0.0%)
Private Hospital - Not for Profit	25 (0.3%)	1 (0.0%)	26 (0.3%)
Mental/Behavioral Health	5 (0.0%)	0 (0.0%)	5 (0.0%)
Total	7,408 (87.1%)	1,089 (12.8%)	8,497 (100.0%)

Source: AMB, ABOE Survey Data, 2012-2013.

Note: 1,208 physicians did not report type of practice (missing). Percentages are based on responses.

Figure 19. Type of AHCCCS Practice by MD and DO, 2012-2013



Source: AMB, ABOE Survey data, 2012-2013.

Note: 1,208 Physicians did not report type of practice (missing). Percentages are based on responses.

Table 47. Type of AHCCCS Practice by Number of MDs, 2012-2013

Type of Practice	*Number of Physicians*				*Total*
	2-5	*6-50*	*51-94*	*95+*	
Physician Owned Group Practice	913 81.6%	1,071 62.6%	100 40.6%	281 28.9%	2,365 58.4%
Hospital/Medical School Group Practice	63 5.6%	359 21.0%	76 30.8%	617 63.4%	1,115 27.5%
Community or Rural Health Center	77 6.8%	203 11.8%	55 22.3%	38 3.9%	373 9.2%
Non-Hospital Private Outpatient Facility	65 5.8%	76 4.4%	15 6.0%	36 3.7%	192 4.7%
Total	1,118 27.6%	1,709 42.2%	246 6.0%	972 24.0%	4,045 100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Note: 1,097 MD's did not report practice type, and 1,924 MD's did not report the number of physicians in their practice.

Table 48. Type of AHCCCS Practice by Number of DOs, 2012-2013

Type of Practice	*Number of Physicians*				*Total*
	2-5	*6-50*	*51-94*	*95+*	
Physician Owned Group Practice	133 76.0%	152 53.1%	18 35.2%	36 34.9%	339 55.1%
Hospital/Medical School Group Practice	7 4.0%	82 28.6%	22 43.1%	56 54.3%	167 27.1%
Community or Rural Health Center	15 8.5%	41 14.3%	8 15.6%	6 5.8%	70 11.3%
Non-Hospital Private Outpatient Facility	20 11.4%	11 3.8%	3 5.8%	5 4.8%	39 6.3%
Total	175 28.4%	286 46.5%	51 8.2%	103 16.7%	615 100.0%

Source: AMB, ABOE Survey data, 2012-2013.

Note: 111 DO's did not report practice type, and 249 DO's did not report the number of physicians in their practice.

Communication in Practice Environments

Table 49. Methods of Communication, 2012-2013

Method	*2012-2013*	
	Number	*%*
Email	7,529	92.2%
Internet	7,673	93.9%
Fax	8,018	98.2%
US Mail	7,954	97.4%

Source: AMB, ABOE Survey Data, 2012-2013.

Note: Categories are not mutually exclusive. 1,542 physicians did not respond 2012-2013. Medifax was removed as a method of communication for the 2012-2013 data and U.S. Mail was added.

Characteristics of EMR Users

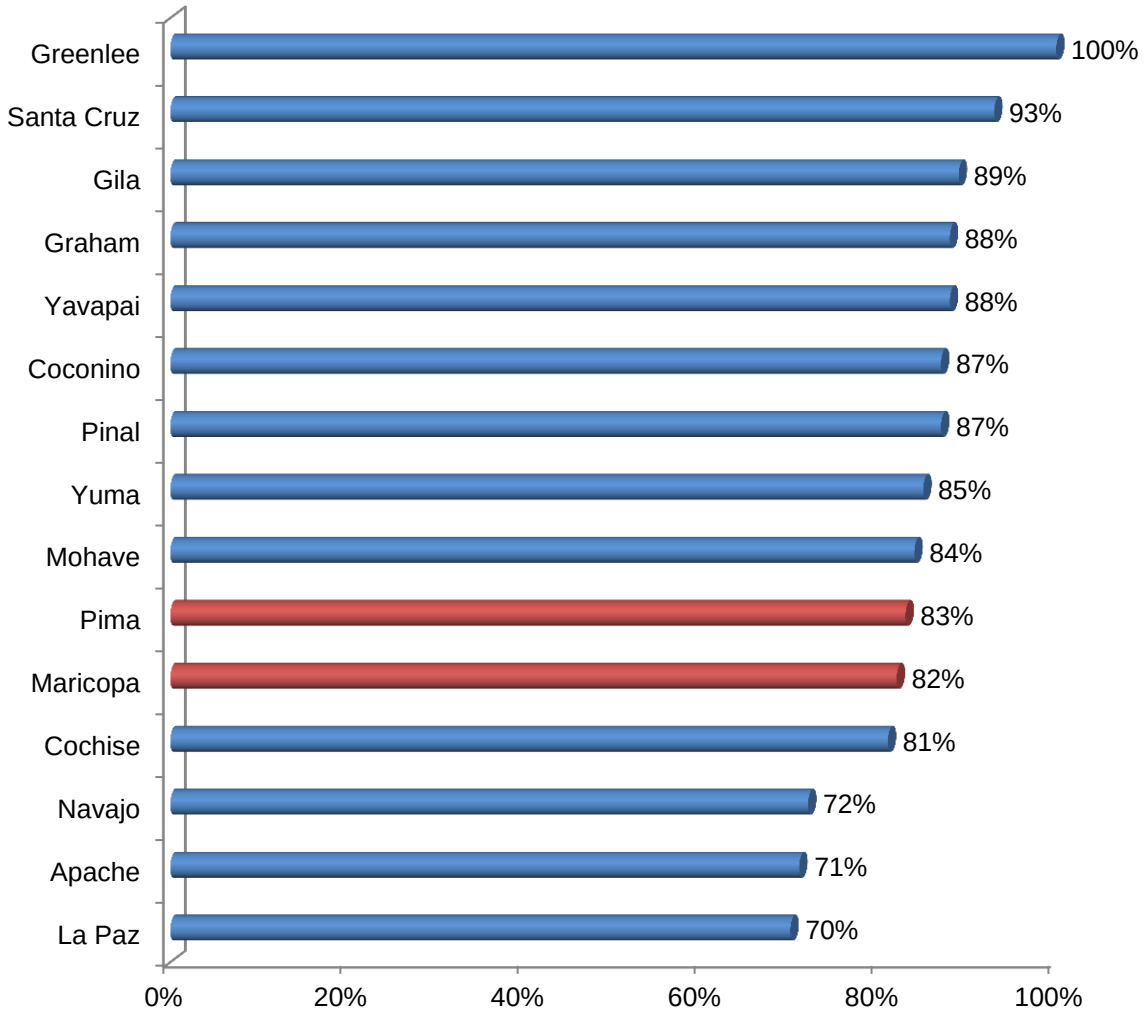
Table 50. EMR Utilization by Type of AHCCCS Practice, 2012-2013 (N = 6,799)

Type of Practice	*Utilization Rates*
Physician Owned Solo Practice	60.5%
Physician Owned Group Practice	81.8%
Hospital/Medical School Group Practice	92.9%
Community or Rural Health Center	92.4%
Federal Government Hospital or Clinic	95.1%
Private Hospital System	89.7%
Private Outpatient Facility not part of Hospital System	81.9%
Medical School, University Research Center	95.9%
Public or Private Insurer/Health Related Organization that does not provide care	55.0%
City, State or County Clinic or Hospital System	78.9%
Other	78.8%

Source: AMB, ABOE Survey Data, 2012-2013.

Note: Rates = % of physicians within each practice type. 1,208 respondents were missing type of practice.

Figure 20. EMR Utilization by County 2012-2013 (N =7,854)



Source: AMB, ABOE Survey Data, 2012-2013.

Note: Approximately 1,447 respondents did not identify a method of storing medical records and 404 were of unknown county. Pima and Maricopa Counties (red) represent the urban areas. All other counties in blue represent the rural areas.

The Utilization of Electronic Medical Records by AHCCCS Physicians

Table 51. Methods of Storing Medical Records 2012-2013 (N = 8,211)

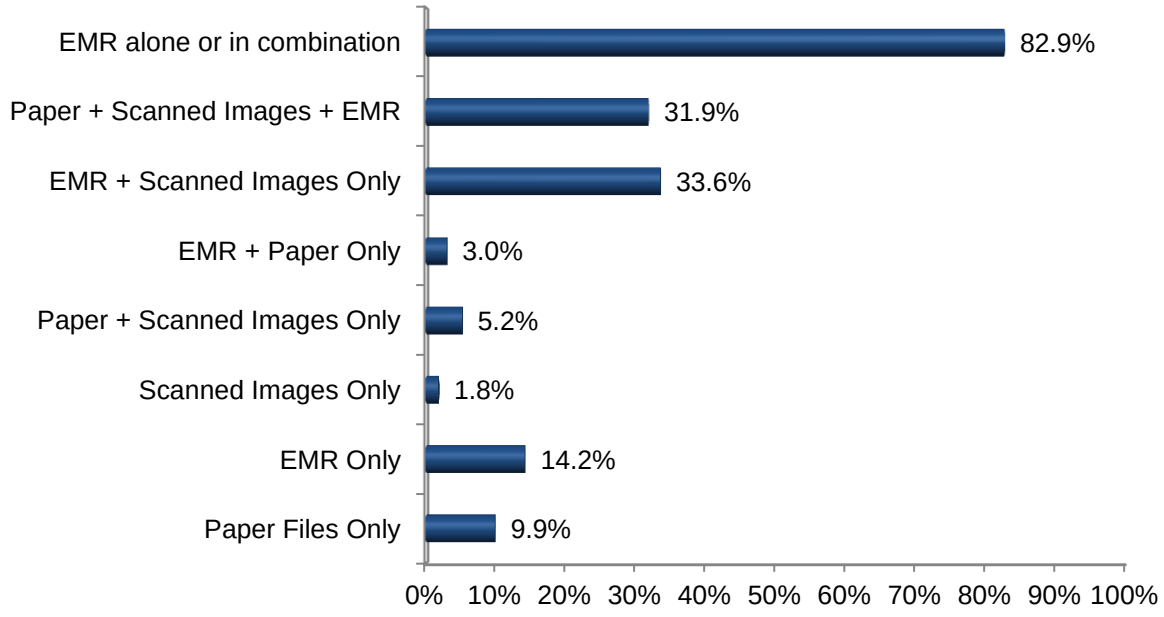
Method	*2012-2013*	
	Number Yes	*% of total*
Paper Files Only	818	9.9%
EMR Only	1,171	14.2%
Scanned Images Only	155	1.8%
Paper + Scanned Images Only	427	5.2%
EMR + Paper Only	251	3.0%
EMR + Scanned Images Only	2,764	33.6%
Paper + Scanned Images + EMR	2,625	31.9%
EMR alone or in combination*	6,811	82.9%

Source: AMB, ABOE Survey Data, 2012-2013.

Note: 1,494 respondents did not identify a method of storing medical records (missing).

*Data on "EMR alone or in combination" is not mutually exclusive from other categories.

Figure 21. Methods of Storing Medical Records by Renewal Period



Source: AMB, ABOE Survey Data, 2012-2013.

Note: 1,494 respondents did not identify a method of storing medical records (missing) .

*Data on "EMR alone or in combination" is not mutually exclusive from other categories.

Table 52. Predictors of Being an EMR User/Partially or Fully Connected EMR User, 2012-2013

Variable	*2012-2013*		
	Odds Ratio (EMR User) N=7,802	*Odds Ratio (Partially Connected EMR User) N=6,409*	*Odds Ratio (Fully Connected EMR User) N=6,409*
DO (vs. MD)	1.13	0.99	1.29
Type of Practice (vs. Federal Government)			
Physician Owned Solo Practice	0.15*	3.38*	1.56
Physician Owned Group Practice	0.41*	2.95*	1.05
Hospital/Med School Group Practice	1.22	1.50*	1.05
Community or Rural Health Center	1.00	2.05*	0.87
Private Hospital System	0.75	1.23	0.65
Non-Hospital Private Outpatient Facility	0.43*	1.78*	0.77
Medical School, University Research Center	2.12*	1.55*	0.36
City, State or County Clinic or Hospital System	0.32*	1.39	1.06
Other	0.26*	1.09	1.64
Age (vs. 65 and older)			
25 to 34	3.52*	0.77	1.72
35 to 44	2.91*	1.02	1.36
45 to 54	2.21*	1.15	1.31
55 to 64	1.76*	1.07	1.21
Gender (Female vs. Male)	0.97	1.01	0.72
Location (vs. all other AZ counties)			
Maricopa County	0.85	0.85*	1.07
Pima County	0.81	0.93	1.11
Specialty (vs. Hospital Based Specialists)			
Primary Care	1.30*	4.40*	5.98*
Medical Care	1.21*	3.98*	3.46*
Pediatric Care	1.29*	4.16*	3.77*
Surgical Care	0.90	2.58*	2.11

Source: AMB, ABOE Survey & Licensing Data, 2012–2013. Note: 1,903 observations were deleted due to missing values for EMR Users and 401 observations were deleted for Partially Connected EMR Users and Fully Connected EMR Users. *Statistically significant at p less than or equal to 0 .05.

Table 53. Utilization of Available EMR Functions*

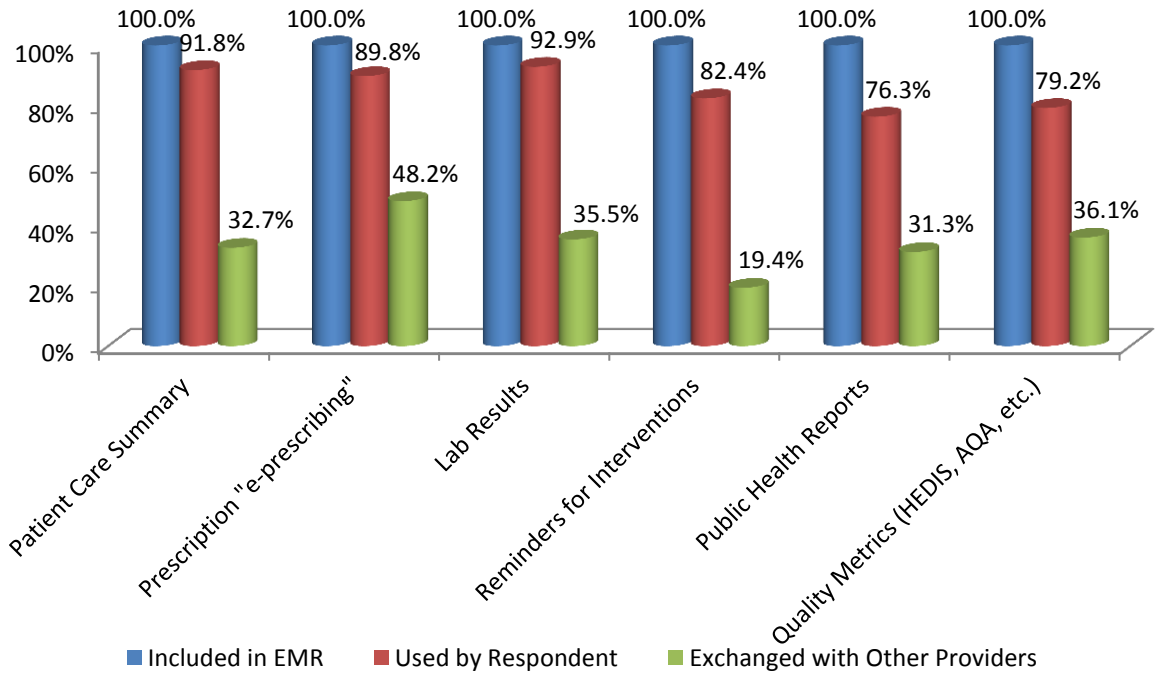
EMR Functions	*Included in EMR*	*Used by the Respondent Number/Percent*		*Exchanged with Other Providers Number/Percent*	
Patient Care Summary	4,866	4,468	91.8%	1,592	32.7%
Prescription "e-prescribing"	4,630	4,158	89.8%	2,231	48.2%
Lab Results	4,848	4,505	92.9%	1,723	35.5%
Reminders for Interventions	2,987	2,460	82.4%	578	19.4%
Public Health Reports	2,189	1,671	76.3%	685	31.3%
Quality Metrics (HEDIS, AQA, etc.)	1,937	1,535	79.2%	700	36.1%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: *The data in this table effectively treat *"Don't Know"* answers as *"No"* since the questions ask for the respondent's experience, not for the practices of other physicians in the same organization.

The data in this table only include those physicians that answered *"Yes"* to the Include question for each EMR function. Furthermore, the data only includes those that answered both the Used and Exchanged questions for each EMR functions; if either question was left blank the physician was excluded from the table for that function.

Figure 22. Summary Utilization of Available EMR Functions



Source: AMB, ABOE Survey Data, 2012–2013.Note: The data in this table only include those physicians that answered *"Yes"* to the Include question for each EMR function. Furthermore, the data only includes those that answered both the Used and Exchanged questions for each EMR functions; if either question was left blank the physician was excluded from the table for that function.

Utilization of EMRs by Vendor for AHCCCS Physicians

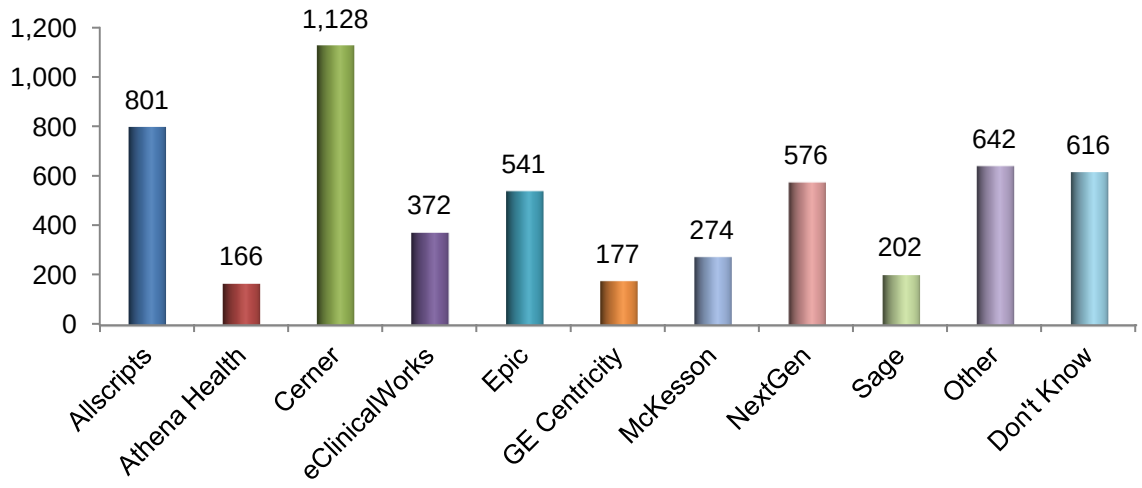
Table 54. EMR Users Unaware of EMR Vendor Name by Type of Practice, 2012-2013 (N = 699)

Type of Practice	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	61	9.9%
Physician Owned Group Practice	250	40.5%
Hospital/Medical School Group Practice	96	15.5%
Community or Rural Health Center	50	8.1%
Federal Government Hospital or Clinic	0	0
Private Hospital System	46	7.4%
Private Outpatient Facility not part of Hospital System	49	7.9%
Medical School, University Research Center	26	4.2%
Public or Private Insurer/Health Related Organization that does not provide care	5	0.8%
City, State or County Clinic or Hospital System	5	0.8%
Other	28	4.5%
Hospice or SNF	7	1.1%
Independent Contractor	6	0.9%
Medical Consultant	2	0.3%
Private Hospital - Not for Profit	2	0.3%
Mental/Behavioral Health	0	0
Total	616	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: N represents the number of physicians who answered "Don't Know" for this survey question.

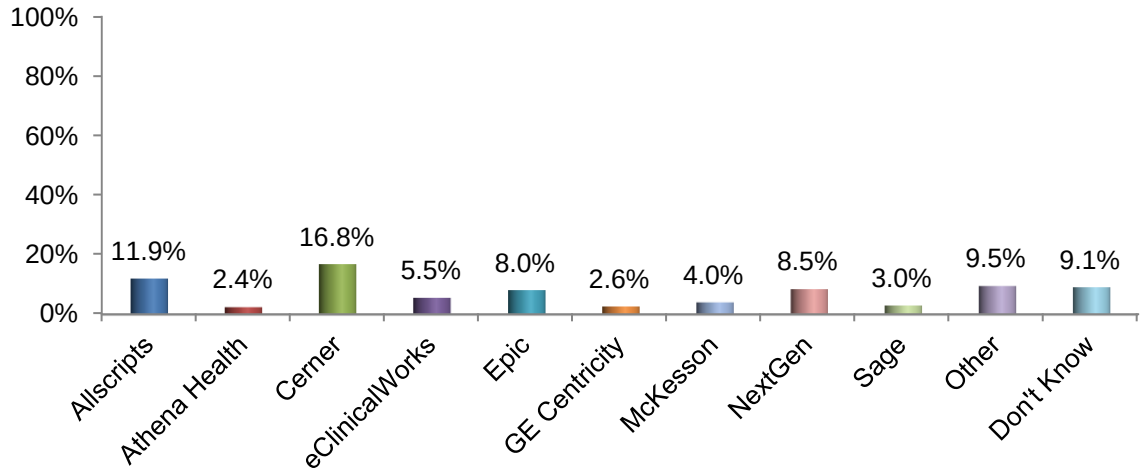
Figure 23. Number of EMR Users by Vendor ≥ 130 Users



Source: AMB, ABOE Survey Data, 2012–2013.

Note: The "Other" vendor includes all vendors contracted with government hospitals/clinics.

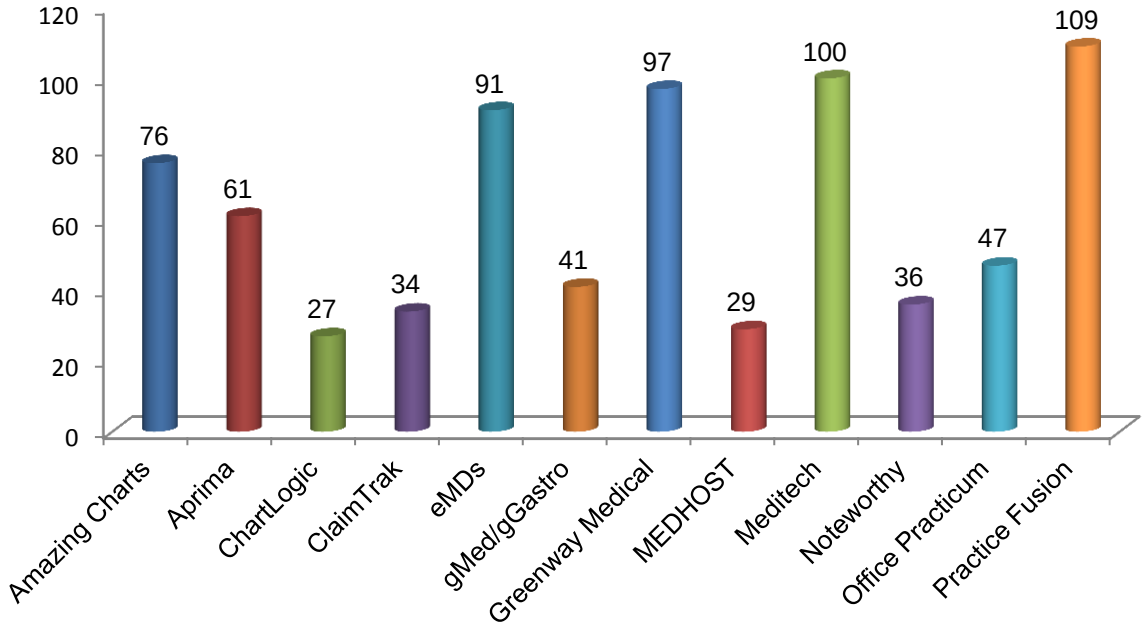
Figure 24. Percent of EMR Users by Vendor ≥ 130 Users



Source: AMB, ABOE Survey Data, 2012–2013.

Note: The "Other" vendor includes all vendors contracted with government hospitals/clinics.

Figure 25. EMR Use by Vendor < 130 Users



Source: AMB, ABOE Survey Data, 2012–2013.

Note: Vendors with less than 25 users were excluded from this figure.

AHCCCS Physicians' Evaluation of EMR Software

Table 55. Ranking of All EMRs by Ease of Use (N = 6,136) (Weighted Mean Rank = 3.3)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	456	7.4%
2	809	13.1%
3	2,161	35.2%
4	1,871	30.4%
5 (Outstanding)	839	13.6%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 450 physicians who did identify a brand name but answered the Ease of Use question. The weighted mean for those physicians is 3.15.

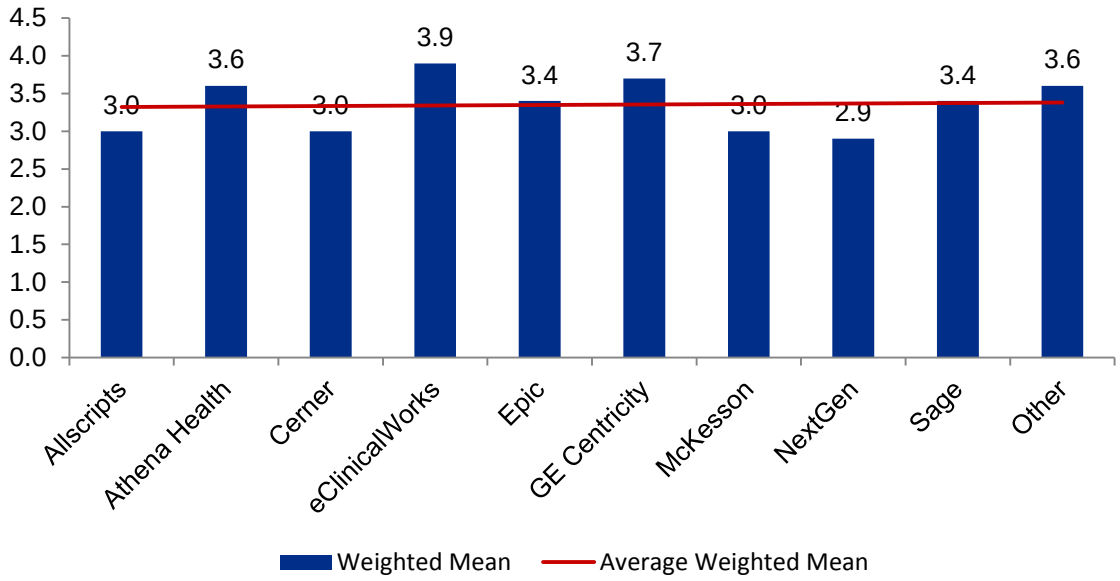
Table 56. Ease of Use by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean*
Allscripts	57 7.8%	123 16.9%	329 45.3%	174 24.0%	42 5.7%	725 16.1%	3.0
Athena Health	7 4.3%	17 10.5%	47 29.1%	56 34.7%	34 21.1%	161 3.5%	3.6
Cerner	122 11.6%	185 17.6%	358 34.0%	289 27.5%	96 9.1%	1,050 23.3%	3.0
eClinicalWorks	1 0.2%	19 5.3%	83 23.2%	150 42.0%	104 29.1%	357 7.9%	3.9
Epic	21 4.4%	52 11.0%	175 37.3%	171 36.4%	50 10.6%	469 10.4%	3.4
GE Centricity	4 2.4%	15 9.0%	41 24.8%	77 46.6%	28 16.9%	165 3.6%	3.7
McKesson	38 14.7%	45 17.4%	89 34.4%	62 24.0%	24 9.3%	258 5.7%	3.0
NextGen	70 12.9%	113 20.9%	193 35.8%	125 23.1%	38 7.0%	539 11.9%	2.9
Sage	4 2.0%	18 9.3%	85 44.0%	69 35.7%	17 8.8%	193 4.2%	3.4
Other	26 4.4%	48 8.3%	197 34.0%	196 33.9%	111 19.2%	578 12.8%	3.6
Top 10 Total	350 7.7%	635 14.1%	1,597 35.5%	1,369 30.4%	544 12.1%	4,495 100.0%	3.2

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 450 physicians who did identify a brand name but answered the Ease of Use question. The weighted mean for those physicians is 3.15.

Figure 26. Weighted Mean Rank of Ease of Use by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 57. Ranking of All EMRs by Physician Productivity (N = 6,117) (Weighted Mean Rank = 3.0)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	779	12.7%
2	1,163	19.0%
3	2,022	33.0%
4	1,462	23.9%
5 (Outstanding)	691	11.2%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 445 physicians who did not identify a brand name but answered the Physician Productivity question. The weighted mean for those physicians is 3.03.

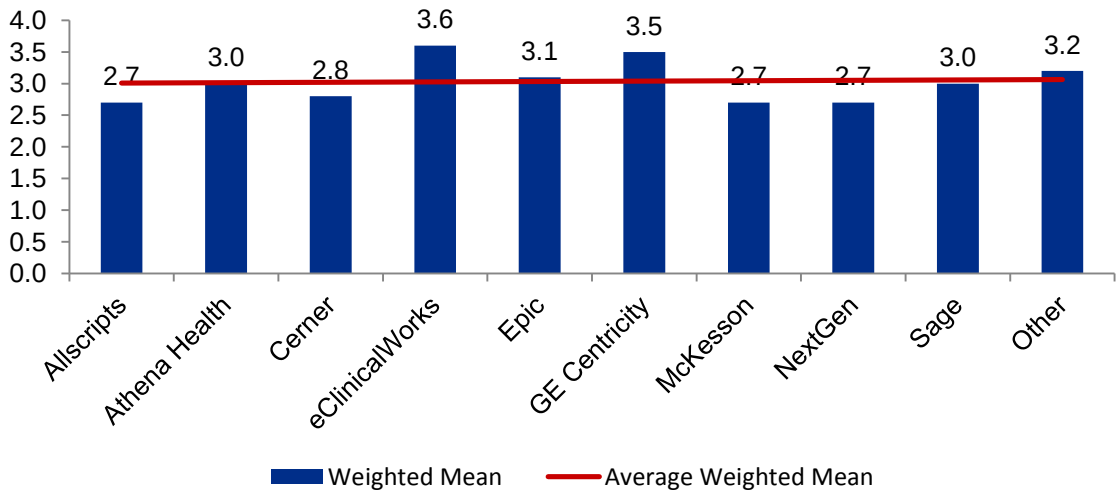
Table 58. Physician Productivity by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean**
Allscripts	115 15.8%	178 24.5%	260 35.8%	138 19.0%	35 4.8%	726 16.1%	2.7
Athena Health	26 16.1%	28 17.3%	51 31.6%	29 18.0%	27 16.7%	161 3.5%	3.0
Cerner	176 16.7%	221 21.0%	335 31.9%	223 21.2%	95 9.0%	1,050 23.4%	2.8
eClinicalWorks	12 3.3%	49 13.8%	86 24.2%	137 38.5%	71 20.0%	355 7.9%	3.6
Epic	44 9.4%	86 18.3%	174 37.1%	121 25.8%	43 9.1%	468 10.4%	3.1
GE Centricity	11 6.6%	15 9.0%	55 33.3%	56 33.9%	28 16.9%	165 3.6%	3.5
McKesson	48 18.7%	60 23.4%	89 34.7%	37 14.4%	22 8.5%	256 5.7%	2.7
NextGen	116 21.5%	131 24.3%	149 27.6%	103 19.1%	39 7.2%	538 11.9%	2.7
Sage	18 9.3%	40 20.8%	64 33.3%	55 28.6%	15 7.8%	192 4.2%	3.0
Other	53 9.2%	83 14.4%	201 35.0%	150 26.1%	86 15.0%	573 12.7%	3.2
Top 10 Total	619 13.8%	891 19.8%	1,464 32.6%	1,049 23.3%	461 10.2%	4,484 100.0%	3.0

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 445 physicians who did not identify a brand name but answered the Physician Productivity question. The weighted mean for those physicians is 3.03.

Figure 27. Weighted Mean Rank of Physician Productivity by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 59. Ranking of All EMRs by Staff Productivity (N = 6,087) (Weighted Mean Rank = 3.1)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	653	10.7%
2	1,095	17.9%
3	2,115	34.7%
4	1,523	25.0%
5 (Outstanding)	701	11.5%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 439 physicians did not identify a brand name but answered the Staff Productivity question. The weighted mean for those physicians is 3.02.

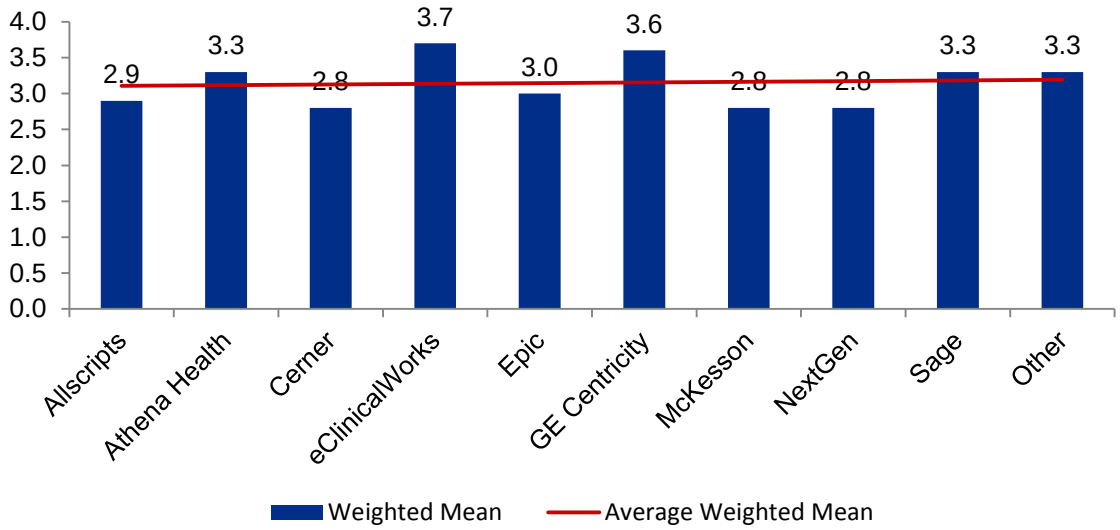
Table 60. Staff Productivity by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean**
Allscripts	85 11.7%	163 22.5%	283 39.1%	147 20.3%	45 6.2%	723 16.1%	2.9
Athena Health	18 11.1%	23 14.2%	44 27.3%	50 31.0%	26 16.1%	161 3.6%	3.3
Cerner	163 15.5%	239 22.8%	356 33.9%	207 19.7%	83 7.9%	1,048 23.4%	2.8
eClinicalWorks	6 1.6%	33 9.3%	92 26.0%	140 39.6%	82 23.2%	353 7.9%	3.7
Epic	45 9.6%	89 19.1%	172 36.9%	120 25.8%	39 8.3%	465 10.4%	3.0
GE Centricity	5 3.0%	14 8.5%	52 31.7%	65 39.6%	28 17.0%	164 3.6%	3.6
McKesson	43 16.7%	58 22.6%	86 33.5%	45 17.5%	24 9.3%	256 5.7%	2.8
NextGen	92 17.1%	132 24.6%	170 31.7%	99 18.5%	42 7.8%	535 11.9%	2.8
Sage	12 6.2%	20 10.4%	79 41.1%	63 32.8%	18 9.3%	192 4.2%	3.3
Other	47 8.2%	81 14.2%	201 35.3%	157 27.5%	83 14.5%	569 12.7%	3.3
Top 10 Total	516 11.5%	852 19.0%	1,535 34.3%	1,093 24.4%	470 10.5%	4,466 100.0%	3.0

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 439 physicians who did identify a brand name but answered the Staff Productivity question. The weighted mean for those physicians is 3.02.

Figure 28. Weighted Mean Rank of Staff Productivity by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 61. Ranking of All EMRs by Reliability, (N = 6,091) (Weighted Mean Rank = 3.5)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	292	4.7%
2	590	9.6%
3	1,965	32.2%
4	2,232	36.6%
5 (Outstanding)	1,012	16.6%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 441 physicians who did not identify a brand name but answered the Reliability question. The weighted mean for those physicians is 3.29.

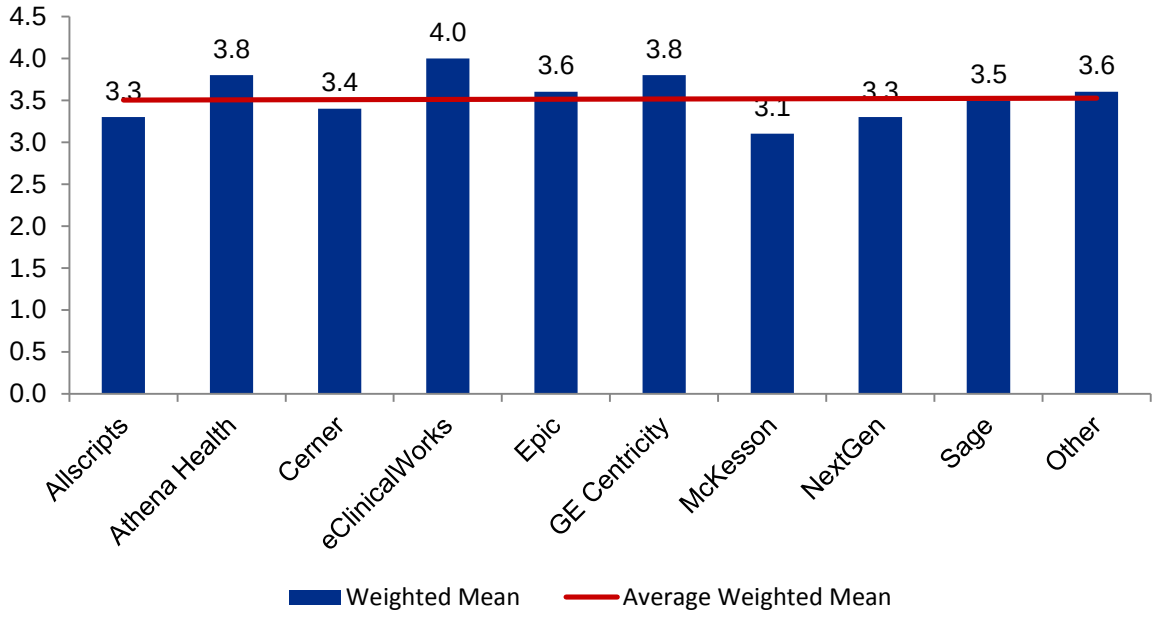
Table 62. Reliability by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean**
Allscripts	38 5.2%	86 11.8%	283 39.0%	256 35.3%	61 8.4%	724 16.1%	3.3
Athena Health	3 1.8%	10 6.2%	45 28.3%	51 32.0%	50 31.4%	159 3.5%	3.8
Cerner	57 5.4%	96 9.1%	367 35.0%	397 37.9%	130 12.4%	1,047 23.4%	3.4
eClinicalWorks	2 0.5%	11 3.0%	76 21.4%	167 47.0%	99 27.8%	355 7.9%	4.0
Epic	10 2.1%	41 8.7%	141 30.2%	188 40.3%	86 18.4%	466 10.4%	3.6
GE Centricity	1 0.6%	8 4.9%	44 26.9%	79 48.4%	31 19.0%	163 3.6%	3.8
McKesson	33 12.8%	35 13.6%	88 34.2%	68 26.4%	33 12.8%	257 5.7%	3.1
NextGen	45 8.3%	72 13.3%	174 32.3%	188 34.9%	59 10.9%	538 12.0%	3.3
Sage	7 3.6%	17 8.8%	69 35.9%	75 39.0%	24 12.5%	192 4.2%	3.5
Other	23 4.0%	48 8.4%	171 30.0%	207 36.3%	120 21.0%	569 12.7%	3.6
Top 10 Total	219 4.8%	424 9.4%	1,458 32.6%	1,676 37.4%	693 15.5%	4,470 100.0%	3.5

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 441 physicians who did not identify a brand name but answered the Reliability question. The weighted mean for those physicians is 3.29.

Figure 29. Weighted Mean Rank of Reliability by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 63. Ranking of All EMRs by Performance vs. Promise (N = 5,969) (Weighted Mean Rank = 3.1)

Ranking	*Number of Physicians*	*Percent*
1 (Awful)	627	10.5%
2	919	15.3%
3	2,261	37.8%
4	1,549	25.9%
5 (Outstanding)	613	10.2%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 427 physicians who did not answer this question. The weighted mean for those physicians is 3.00.

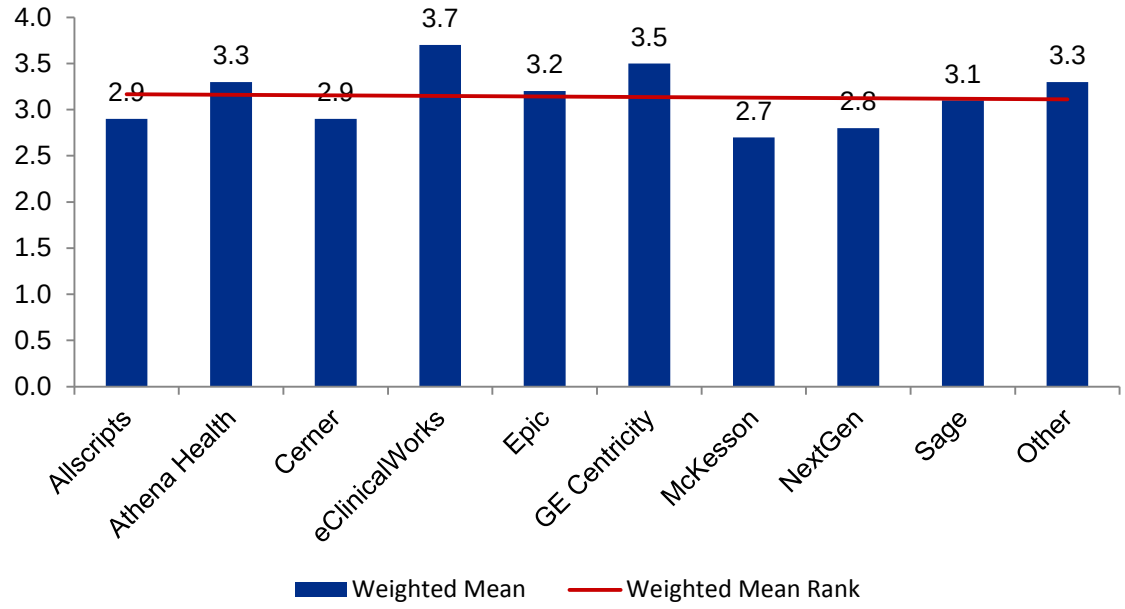
Table 64. Performance vs. Promise by Top 10 Vendors

Vendor	*1 Awful*	*2*	*3*	*4*	*5 Outstanding*	*Total*	*Weighted Mean**
Allscripts	77 10.8%	147 20.6%	319 44.8%	140 19.6%	29 4.0%	712 16.2%	2.9
Athena Health	16 9.9%	19 11.8%	48 29.8%	51 31.6%	27 16.7%	161 3.6%	3.3
Cerner	151 14.8%	194 19.0%	379 37.2%	232 22.7%	62 6.0%	1,018 23.2%	2.9
eClinicalWorks	10 2.8%	14 3.9%	104 29.5%	152 43.1%	72 20.4%	352 8.0%	3.7
Epic	42 9.1%	60 13.0%	181 39.4%	132 28.7%	44 9.5%	459 10.4%	3.2
GE Centricity	8 5.0%	11 6.8%	56 35.0%	61 38.1%	24 15.0%	160 3.6%	3.5
McKesson	46 18.3%	44 17.5%	104 41.4%	43 17.1%	14 5.5%	251 5.7%	2.7
NextGen	80 15.4%	118 22.8%	188 36.3%	99 19.1%	32 6.1%	517 11.8%	2.8
Sage	10 5.3%	35 18.7%	84 44.9%	45 24.0%	13 6.9%	187 4.2%	3.1
Other	45 8.0%	59 10.5%	215 38.3%	168 29.9%	74 13.1%	561 12.8%	3.3
Top 10 Total	485 11.0%	701 16.0%	1,678 38.3%	1,123 25.6%	391 8.9%	4,378 100.0%	3.1

Source: AMB, ABOE Survey Data, 2012–2013.

Note: There were 427 physicians who did not identify a brand name but answered the Performance vs Promise question. The weighted mean for those physicians is 3.00.

Figure 30. Weighted Mean Rank of Performance vs. Promise by Top 10 Vendors



Source: AMB, ABOE Survey Data, 2012–2013.

Table 65. Summary of All EMR Ranking Criteria

Criterion	*Weighted Mean*	*Number of Physicians*
Ease of Use	3.3	6,136
Effect on Physician Productivity	3.0	6,117
Effect on Staff Productivity	3.1	6,087
Reliability	3.5	6,091
Performance vs. Promise	3.1	5,969
Mean of the Weighted Means	3.2	--

Source: AMB, ABOE Survey Data, 2012–2013.

EMR Adoption Incentives by AHCCCS Physicians

Table 66. Medicare/Medicaid Incentive Payments (N = 7,658)

Aware of Incentive Payments	*Number of Physicians*	*Percent*
No	1,365	17.8%
Yes	6,293	82.1%
Total	7,658	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 67. Medicare/Medicaid Incentive Payments by Type of Practice by Decision Maker (N = 7,399)

Type of Practice	*Aware of Incentive Payments*					
	Decided by others		*Sole decision maker*		*Shared decision*	
	Yes *Number of Physicians* *Percent*	*No* *Number of Physicians* *Percent*	*Yes* *Number of Physicians* *Percent*	*No* *Number of Physicians* *Percent*	*Yes* *Number of Physicians* *Percent*	*No* *Number of Physicians* *Percent*
Physician Owned Solo Practice	7 0.5%	2 0.1%	1,156 89.3%	128 9.8%	1 0.0%	0 0.0%
Physician Owned Group Practice	657 23.2%	203 7.1%	1,665 58.9%	174 6.1%	118 4.1%	7 0.2%
Hospital/Medical School Group Practice	873 66.5%	312 23.7%	49 3.7%	21 1.6%	51 3.8%	5 0.3%
Community or Rural Health Center	309 71.6%	86 19.9%	3 0.6%	1 0.2%	30 6.9%	2 0.4%
Private Hospital System	417 65.6%	159 25.0%	25 3.9%	11 1.7%	20 3.1%	3 0.4%
Private Outpatient Facility not part of Hospital System	217 64.9%	62 18.5%	29 8.6%	6 1.7%	17 5.0%	3 0.8%
Medical School, University Research Center	207 68.0%	81 26.6%	0 0.0%	1 0.3%	13 4.2%	2 0.6%
Public or Private Insurer/Health Related Organization that does not provide care	8 42.1%	8 42.1%	2 10.5%	0 0.0%	1 5.2%	0 0.0%
City, State or County Clinic or Hospital System	51 57.9%	31 35.2%	0 0.0%	0 0.0%	6 6.8%	0 0.0%
Other	93 58.4%	35 22.0%	11 6.9%	4 2.5%	15 9.4%	1 0.6%
Hospice or SNF	21 77.7%	4 14.8%	1 3.7%	0 0.0%	1 3.7%	0 0.0%
Independent Contractor	13 40.6%	13 40.6%	3 9.3%	1 3.1%	2 6.2%	0 0.0%
Medical Consultant	1 16.6%	1 16.6%	2 33.3%	1 16.6%	0 0.0%	1 16.6%

Type of Practice	*Aware of Incentive Payments*					
	Decided by others		*Sole decision maker*		*Shared decision*	
	Yes *Number of Physicians* *Percent*	*No* *Number of Physicians* *Percent*	*Yes* *Number of Physicians* *Percent*	*No* *Number of Physicians* *Percent*	*Yes* *Number of Physicians* *Percent*	*No* *Number of Physicians* *Percent*
Private Hospital - Not for Profit	14 63.6%	2 9.0%	0 0.0%	0 0.0%	6 27.2%	0 0.0%
Mental/Behavioral Health	4 80.0%	1 20.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Total	2,839 38.3%	979 13.2%	2,940 39.7%	346 4.6%	272 3.6%	23 0.3%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results

Table 68. Applications for Medicare Incentives (N = 6,193)

Applied for Medicare Incentives	*Number of Physicians*	*Percent*
No	2,112	34.1%
Yes	4,081	65.8%
Total	6,193	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 69. Applications for Medicare Incentives by Type of Practice (N = 6,187)

Type of Practice	*Applied for Medicare Incentives*			
	No		Yes	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	520	44.3%	653	55.6%
Physician Owned Group Practice	682	27.3%	1,814	72.6%
Hospital/Medical School Group Practice	303	30.4%	693	69.5%
Community or Rural Health Center	119	32.1%	251	67.8%
Private Hospital System	192	41.1%	275	58.8%
Private Outpatient Facility not part of Hospital System	106	39.5%	162	60.4%
Medical School, University Research Center	71	32.2%	149	67.7%
Public or Private Insurer/Health Related Organization that does not provide care	9	69.2%	4	30.7%
City, State or County Clinic or Hospital System	35	60.3%	23	39.6%
Other	73	57.9%	53	42.0%
Hospice or SNF	19	86.3%	3	13.6%
Independent Contractor	16	84.2%	3	15.7%
Medical Consultant	3	100.0%	0	0.0%
Private Hospital - Not for Profit	8	34.7%	15	65.2%
Mental/Behavioral Health	1	20.0%	4	80.0%
Total	2,110	34.1%	4,077	65.8%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 70. Applications for Medicaid Incentives (N = 6,063)

Applied for Medicaid Incentives	*Number of Physicians*	*Percent*
No	2 732	45.0%
Yes	3 331	54.9%
Total	6 063	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 71. Applications for Medicaid Incentives by Type of Practice (N = 6,057)

Type of Practice	*Applied for Medicaid Incentives*			
	Yes		No	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*
Physician Owned Solo Practice	458	39.4%	703	60.5%
Physician Owned Group Practice	1,368	55.7%	1,086	44.2%
Hospital/Medical School Group Practice	625	64.9%	337	35.0%
Community or Rural Health Center	260	72.4%	99	27.5%
Private Hospital System	257	56.6%	197	43.3%
Private Outpatient Facility not part of Hospital System	154	58.3%	110	41.6%
Medical School, University Research Center	138	64.4%	76	35.5%
Public or Private Insurer/Health Related Organization that does not provide care	2	15.3%	11	84.6%
City, State or County Clinic or Hospital System	21	36.8%	36	63.1%
Other	44	36.9%	75	63.0%
Hospice or SNF	1	5.0%	19	95.0%
Independent Contractor	3	15.7%	16	84.2%
Medical Consultant	0	0.0%	3	100.0%
Private Hospital - Not for Profit	13	59.0%	9	40.9%
Mental/Behavioral Health	3	75.0%	1	25.0%
Total	3,327	54.9%	2,730	45.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Meaningful Use for AHCCCS Physicians

Table 72. Is the Vendor Helping You Achieve Meaningful Use?

Is EMR Vendor Helping Meet Meaningful Use	*Number of Physicians*	*Percent*
No	700	17.2%
Yes	3,363	82.7%
Total	4,063	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 5,408 physicians did not respond to the meaningful use question, and XX physicians did not identify their EMR.

Table 73. EMR Vendor Helping Meet Meaningful Use by Type of Practice (N = 4,058)

Type of Practice	*Is EMR Vendor Helping Meet Meaningful Use*			
	Yes		No	
	Number	*Percent*	*Number*	*Percent*
Physician Owned Solo Practice	552	78.2%	153	21.7%
Physician Owned Group Practice	1,542	84.8%	276	15.1%
Hospital/Medical School Group Practice	544	83.0%	111	16.9%
Community or Rural Health Center	212	82.8%	44	17.1%
Private Hospital System	220	86.2%	35	13.7%
Private Outpatient Facility not part of Hospital System	129	79.1%	34	20.8%
Medical School, University Research Center	95	71.9%	37	28.0%
Public or Private Insurer/Health Related Organization that does not provide care	2	50.0%	2	50.0%
City, State or County Clinic or Hospital System	18	85.7%	3	14.2%
Other	45	91.8%	4	8.1%
Hospice or SNF	1	100.0%	0	0.0%
Independent Contractor	3	100.0%	0	0.0%
Medical Consultant	0	0.0%	0	0.0%

Type of Practice	*Is EMR Vendor Helping Meet Meaningful Use*			
	Yes		No	
	Number	*Percent*	*Number*	*Percent*
Private Hospital - Not for Profit	15	93.7%	1	6.2%
Mental/Behavioral Health	4	100.0%	0	0.0%
Total	3,359	82.7%	699	17.2%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 74. Support from Regional Health Extension Center by Decision Maker (N = 7,096)

Aware of Support Offered by AZ Regional Extension Center	*Decision Maker*					
	Decided by others		Shared decision		Sole decision maker	
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*	*Number of Physicians*	*Percent*
No	3,169	87.7%	213	74.4%	2,062	64.4%
Yes, but not working with them at present	439	12.1%	71	24.8%	809	25.3%
Yes, working with them	5	0.1%	2	0.6%	326	10.1%
Total	3,613	100.0 %	286	100.0 %	3,197	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 2,375 physicians were excluded from this table due to missing data, including 2,149 missing Awareness of Support Offered; and 1,754 missing the Decision Maker.

Plans to Install EMRs by AHCCCS Physicians

Table 75. Non-EMR Users Plans for Adoption of EMRs (N = 453)

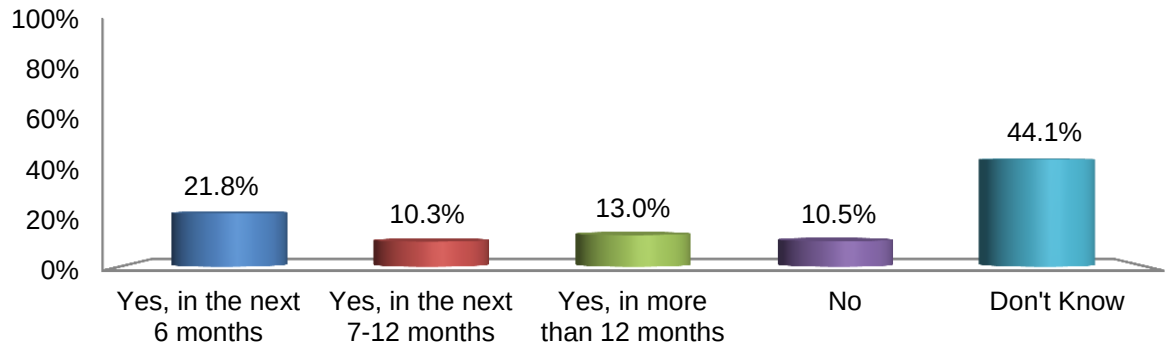
Future Plans to Adopt EMRs	*Number of Physicians*	*Percent*
Don't Know	200	44.1%
No	48	10.5%
Yes, in more than 12 months	59	13.0%
Yes, in the next 7-12 months	47	10.3%

Future Plans to Adopt EMRs	*Number of Physicians*	*Percent*
Yes, in the next 6 months	99	21.8%
Total	453	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Figure 31. Non-EMR Users Plans for Adoption of EMRs (N = 453)



Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results.

Table 76. Plans to Install EMRs by Vendor (N = 306)

Vendor	*Number of Physicians*	*Percent*
Allscripts	18	5.8%
Amazing Charts	1	0.3%
Aprima	2	0.6%
Athena Health	3	0.9%
Cerner	21	6.8%
eClinicalWorks	8	2.6%
e-MDs	1	0.3%
Epic	17	5.5%
Greenway Medical	1	0.3%
HealthPort	1	0.3%

Vendor	*Number of Physicians*	*Percent*
McKesson	10	3.2%
Meditech	2	0.6%
NextGen	8	2.6%
Noteworthy	1	0.3%
Sage	3	0.9%
SOAPware	1	0.3%
Other	56	18.3%
Don't Know	152	49.6%
Total	306	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings are excluded from these results.

Table 77. Plans to Switch EMRs by Vendor (N = 1,606)

Vendor	*Number of Physicians*	*Percent*
Allscripts	108	6.7%
Amazing Charts	4	0.2%
Aprima	2	0.1%
Athena Health	12	0.7%
Cerner	194	12.0%
eClinicalWorks	19	1.1%
e-MDs	4	0.2%
Epic	376	23.4%
Greenway Medical	2	0.1%

Vendor	*Number of Physicians*	*Percent*
McKesson	21	1.3%
Meditech	6	0.3%
NextGen	90	5.6%
Noteworthy	4	0.2%
Office Practicum	1	0.0%
Sage	8	0.4%
Other	177	11.0%
Don't Know	578	35.9%
Total	1,606	100.0%

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings are excluded from these results.

The Target Population

Table 78. The Target Population of AHCCCS Physicians without EMRs by County, 2012-2013

Location	*All Survey Respondents (N)*	*2012-2013 One Half of Renewal Cycle*			*The Projected Target Population Complete Renewal Cycle 2012-2014*
		Survey Respondents EMR Users (N)	*Survey Respondents Non-EMR Users (N)*	*The Target Population (W*N)*	
Apache	16	10	6	7	8
Cochise	85	69	16	18	21
Coconino	196	169	27	30	36
Gila	37	33	4	4	5
Graham	22	19	3	3	4
Greenlee	1	1	0	0	0
La Paz	8	5	3	3	4
Maricopa	5,105	4,178	927	1,020	1,224
Mohave	198	166	32	35	42
Navajo	62	41	21	23	28

Location	*All Survey Respondents (N)*	*2012-2013 One Half of Renewal Cycle*			*The Projected Target Population Complete Renewal Cycle 2012-2014*
		Survey Respondents EMR Users (N)	*Survey Respondents Non-EMR Users (N)*	*The Target Population (W*N)*	
Pima	1,379	1,143	236	260	312
Pinal	131	115	16	18	21
Santa Cruz	14	13	1	1	1
Yavapai	217	189	28	31	37
Yuma	176	149	27	30	36
Missing	24	18	6	7	8
Unknown	172	134	38	42	50
Total	7,843	6,452	1,391	1,530	1,837

Source: AMB, ABOE Survey Data, 2012-2013.

Note: Table does not include fully retired physicians or physicians practicing in government settings. 236 respondents were of unknown/missing county.

The target population is calculated as the number of non-EMR users multiplied by the population weight (1.1). *rounding errors

Table 79. Trends in the Target Population of AHCCCS Physicians without EMRs by County, 2012-2013

Location	*Non- Users of EMRs as a Percent of Physicians*
	2012-2013
Apache	37.5%
Cochise	18.8%
Coconino	13.8%
Gila	10.8%
Graham	13.6%
Greenlee	0.0%
La Paz	37.5%
Maricopa	18.2%
Mohave	16.2%
Navajo	33.9%
Pima	17.1%
Pinal	12.2%
Santa Cruz	7.1%

Yavapai	12.9%
Yuma	15.3%
Total	17.7%

Source: AMB, ABOE Survey Data, 2007-2009; 2009-2011; 2012-2013.

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Appendix A: Comparison to National Surveys

The results of a national survey of EMR use and attitudes toward the adoption of EMRs by physicians with the American Medical Association (AMA) memberships were published on July 3, 2008 (DesRoches, et al. 2008; Jha, DesRoches, et al. 2009). The results cannot be strictly compared to the results reported here because of differences in the structure of the sample and some differences in methods. The sample design does not, for example, provide estimates for Arizona and is limited to members of the AMA.

The ASU study queries all physicians who renew their Arizona licenses. The practice began in 1992 and with a few interruptions has continued. The data are not, therefore, a sample but rather a census of all physicians. Some characteristics, drawn from the information required for licensing, are obtained for all physicians while the survey questions are voluntary and obtained from those physicians who choose to respond. Fully retired physicians were not asked to respond to the survey questions.

The national survey results are restricted to non-federal, allopathic physicians directly involved in patient care who are members of the AMA. Doctors of Osteopathy were excluded. Other exclusions included physicians working in federally owned hospitals, those who requested not to be contacted; radiologists; anesthesiologists; pathologists; psychiatrists; no known address; medical school students and physicians not providing patient care.

The NCHS released the preliminary results of a mail survey of a national sample of office based physicians in December 2008. The survey, conducted from April through August 2008 shows that 38.4% of physicians used full or partial EMR systems in their office based practices. Approximately 20.4% of the physicians used systems that included orders for prescriptions, orders for tests, results of lab or imaging tests and clinical notes (Hsiao and Hing, Use and characteristics of electronic health record systems among office-based physician practices: United States, 2001-2012 2012). As indicated in Table A – 1 below, our results are much closer to the NCHS study than the NEJM study. The difference between the two national studies is surprisingly large give the apparent similarities in sample design.

Table A - 1. Comparison of CHIR Survey vs. National EMR Surveys (under revision 9/13/13)

Study	*Data Source*	*Sample Size*	*Characteristics of Sample, Exclusions*	*Percent of Physicians with EMR**	*Definition of basic EMR*	*Definition of connected EMR*	*Definition of fully functional EMR*
Hing et al. (2007)	2006 National Ambulatory Medical Care Survey	1,311	Sample consists of non-federal, office-based physicians who see patients in an office setting.	29.2% (B) 12.4% (F)	Use of full or partial electronic records	NA	Can electronically order prescriptions & tests, report results to lab or radiology; manage clinical notes
DesRoches et al. (2008)	Survey created by the study team and Research Triangle Institute	2,758	Sample consists of US physicians who provide direct patient care. Exclusions: D.O.s, residents, physicians in federally owned hospitals, retired physicians, radiologists, anesthesiologists, pathologists, psychiatrists, hospitalists, part-time, physicians who worked < 20 hour per week.	13% (C) 4% (F)	NA	EMR can store demographic data, problem lists, medication lists, and clinical notes; can order prescriptions; can view laboratory results and imaging results. (Study authors refer to this type of record as a "basic EMR")	All capabilities listed in previous column, plus enhanced order-entry management and clinical-decision support
AHCCCS/ CHIR (2009)	Survey created by study team and Arizona Hospital and Health Care Association; Licensing data from Arizona Medical Board and Arizona Board of Osteopathic Examiners	10,813	This sample includes Arizona-based physicians who provide direct patient care and exclude the following: DOs, residents, retired/semi-retired, physicians in government settings, radiologists, anesthesiologists, pathologists, psychiatrists, hospitalists. Specialty exclusions were for Primary Specialty. (exclusions not part of full survey..applied to compare to DesRoches.	40.8% (B) 19.9% (C) 6.1% (F)	Use of electronic files as method of storing medical records	EMR that is connected to at least one of the following: hospital, radiology, lab, pharmacy	EMR that is connected to all of the following: radiology, lab, pharmacy

*B = basic EMR, C = connected EMR, F = fully functional EMR

Table A - 2. Comparison of CHIR Survey vs. National EMR Surveys (cont.)

Study	*Data Source*	*Sample Size*	*Characteristics of Sample, Exclusions*	*Percent of Physicians with EMR**	*Definition of basic EMR*	*Definition of connected EMR*	*Definition of fully functional EMR*
Jamoom et al. (2012)	2011 Physician Workflow Survey	3,180	Sample consists of non-federal, office-based physicians who see patients in an office setting. Excludes: radiologists, anesthesiologists and Pathologists	54%	Electronic medical records or electronic health records not including billing records	NA	?
CHIR/AHCCCS (2012)	Survey created by CHIR and AHCCCS; Licensing data from Arizona Medical Board and Arizona Board of Osteopathic Examiners		Sample consists of all Arizona physicians with active licenses who renewed their license between November 1, 2009 and November 1, 2011. Exclusions: non-Arizona physicians, fully retired physicians.	44.5% (B) 24.1% (C) 9.3% (F			
	Survey created by study team and Arizona Hospital and Health Care Association; Licensing data from Arizona Medical Board and Arizona Board of Osteopathic Examiners	10,813	Arizona-based physicians who provide direct patient care and exclude the following: DOs, residents, retired/semi-retired, physicians in government settings, radiologists, anesthesiologists, pathologists, psychiatrists, hospitalists. Specialty exclusions were for Primary Specialty.	40.8% (B) 19.9% (C) 6.1% (F)	Use of electronic files as method of storing medical records	EMR that is connected to at least one of the following: hospital, radiology, lab, pharmacy	EMR that is connected to all of the following: radiology, lab, pharmacy
			Sample consists of all Arizona physicians with active licenses who renewed their license between November 1, 2009 and November 1, 2011. Exclusions: non-Arizona physicians, fully retired physicians.	44.5% (B) 24.1% (C) 9.3% (F)			

Appendix B: The Survey Instrument (2007-2011)

1. How would you best characterize your practice? (PLEASE DO NOT CHECK MORE THAN TWO)

◯ Fully retired (skip to end)	◯ Community health center	◯ Government (VA, IHS, etc.)
◯ Semi-retired/On Leave	◯ Group Practice	◯ Administrative Medicine
◯ Med school, intern, resident, fellow	◯ Solo Practice	◯ Academic/Teaching/Research
	◯ Hospitalist	◯ Locum Tenens

2. Which of the following are available at your practice location? (CHECK ALL THAT APPLY)
◯ Email ◯ Internet ◯ Fax ◯ Medifax ◯ None of the above

3. How do you submit your bills to payers? (CHECK ALL THAT APPLY)
◯ Email ◯ Internet ◯ Fax ◯ US Mail ◯ Don't Know ◯ N/A

4. Are patients' medical records in your practice/organization stored as:
Paper files ◯ Yes ◯ No
Scanned images of paper files ◯ Yes ◯ No
Electronic files ◯ Yes (continue) ◯ No (If no, go to question #5)
◯ The records are stored on a PC/server located in my organization
◯ The records are stored on a server to which I connect via the internet
◯ I don't know where they are stored

b. Is your EMR system connected to: (CHECK ALL THAT APPLY)
◯ Hospital ◯ Pharmacy ◯ Lab ◯ Radiology Center ◯ None of these
Are you the person who decided to purchase an electronic medical record system?
◯ Sole Decisionmaker ◯ Shared Decision ◯ Decided by Others
What is a reasonable amount to pay for an electronic medical record system (per individual provider within a practice setting)?
◯ $5,000-$10,000/provider ◯ $10,000-$20,000/provider ◯ >$20,000/provider

GO TO QUESTION #6

5. Are you the person who would decide to purchase an electronic medical record system?
a. ◯ Sole Decisionmaker ◯ Shared Decision ◯ Decided by Others
b. What best describes the barriers to adoption of electronic medical records in your practice/organization?
◯ Cost ◯ Insufficient Return on Investment ◯ Time/Training ◯ Lack of Interoperability ◯ Attitudes
c. Would you consider an internet-based system (patient records stored offsite) rather than one where the records are stored in your office PC or server? ◯ Yes ◯ No
d. What is a reasonable amount to pay for an electronic medical record system (per individual provider within a practice setting)? ◯ $5,000-$10,000/provider ◯ $10,000-$20,000/provider ◯ >$20,000/provider

6. Would you be willing to participate in a web-based system that permits the exchanges of medical records among health care providers? ◯ Yes ◯ No (if no, SKIP TO #7)
a. Who would you trust to manage the health information exchange system? (CHECK ALL THAT APPLY)

◯ Commercial Vendor	◯ Health Insurer/Managed Care Plan
◯ Hospital System	◯ Regional Health Information Organization (RHIO)
◯ State of Arizona (AHCCCS)	◯ Other

7. ◯ PLEASE SEND ME A COPY OF THE RESULTS

Thank you for completing this survey.

Appendix C: The Survey Instrument (2012-2014)

Since 1991, the Arizona Physician Survey has, with the cooperation of physicians, their licensing boards and their professional associations, collected important information on the physician workforce. The current survey focuses on the use of medical records that are electronic (often called electronic medical records (EMRs) or electronic health records (EHRs)). Your participation is encouraged by the *Arizona Medical Association* and the *Arizona Osteopathic Medical Association*. Your answers are confidential and results are published only in aggregate form.

1. Which one of the following **best** describes your employment status ?(check one)
    a. Actively employed in Arizona in direct patient care ☐Yes ☐No {if yes ask:}
        i. I usually treat _____patients in a typical work week.
        ii. I usually work _____hours/day, _____days/week, and _____weeks/year.
    b. Actively employed in Arizona but not in direct patient care ☐Yes ☐No
    c. Actively employed outside of Arizona ☐Yes ☐No {*skip to separate survey questions*}
    d. Semi-retired/on leave ☐Yes ☐No *{go to end fill all intermediate questions with DNA}*
    e. Retired ☐Yes ☐No {go to end fill all intermediate questions with DNA}

2. Which one of the following **best** describes the organization in which you practice
    a. a physician owned solo practice ☐Yes ☐No *{if yes, auto fill 3a=yes; skip to 4}*
    b. A physician owned group practice ☐Yes ☐No
    {if yes then ask}
        i. Approximately how many physicians are associated with this practice?
            1. 2-5 physicians ☐Yes ☐No
            2. 6-50 physicians ☐Yes ☐No
            3. 51-94 physicians ☐Yes ☐No
            4. 95 or more physicians ☐Yes ☐No
    c. A hospital or medical school physician group practice ☐Yes ☐No
    if yes then ask}
        i. Approximately how many physicians are associated with this practice?
            1. 2-5 physicians ☐Yes ☐No
            2. 6-50 physicians ☐Yes ☐No o
            3. 51-94 physicians ☐Yes ☐No
            4. 95 or more physicians ☐Yes ☐No
    d. A community or rural health center(e.g. federally qualified CHC) ☐Yes ☐No
    {if yes then ask}
        i. Approximately how many physicians are associated with this center?
            1. 2-5 physicians ☐Yes ☐No
            2. 6-50 physicians ☐Yes ☐No
            3. 51-94 physicians ☐Yes ☐No
            4. 95 or more physicians ☐Yes ☐No
    e. Federal Government hospital or clinic (e.g. VA, IHS etc.) ☐Yes ☐No { *if yes skip to 5}*
    f. State or County hospital system ☐Yes ☐No *if yes skip to 4}*
    g. Private Hospital system ☐Yes ☐No

h. Private Outpatient Facility not part of a hospital system (e.g. Urgent Care center, insurer owned clinic, etc.) ☐Yes ☐No
{if yes then ask}
    i. Approximately how many physicians are associated with this facility?
        1. 2-5 physicians ☐Yes ☐No
        2. 6-50 physicians ☐Yes ☐No
        3. 51-94 physicians ☐Yes ☐No
        4. 95 or more physicians ☐ Yes ☐ No
i. Medical school ,university, research center ☐ Yes ☐ No
j. Public or private health Insurer, pharmaceutical company or other health related organization that does not provide care. ☐ Yes ☐ No *{if yes then skip to end; auto code intermediate questions as DNA}*
k. Other_____

3. Which of the following **best** describes your primary role in the organization in which you practice? *{(if 2d=yes or 2e=yes or 2f=yes) then set 3b=yes)}*
    a. Owner , partner, part-owner ☐ Yes ☐ No
    {if yes then ask}
        i. Approximately how many of each of the following providers are associated with this practice?
            1. ____ PAs
            2. ____RNs
            3. ____NPs
            4. ____Other Licensed Health Care Providers
    b. Employee/contractor/locum tenens ☐ Yes ☐ No
    c. Faculty ☐ Yes ☐ No
    d. Student (include residents, fellows etc.) ☐ Yes ☐ No

4. Which of the following are available at your practice location? (check all that apply)
    a. Email ☐ Yes ☐ No
    b. Internet (FTP etc.) ☐ Yes ☐ No
    c. Fax ☐ Yes ☐ No
    d. US Mail ☐ Yes ☐ No
    e. Don't know ☐ Yes ☐ No

5. How does the organization in which you practice submit bills/claims to insurers or other payers? (check all that apply)
    a. Email ☐ Yes ☐ No
    b. Internet (FTP etc.) ☐ Yes ☐ No
    c. Fax ☐ Yes ☐ No
    d. US Mail ☐ Yes ☐ No
    e. Don't know ☐ Yes ☐ No

6. How does the organization in which you practice store its medical records? (Check all that apply);
    a. Paper ☐ Yes ☐ No
    b. Scanned images of paper records ☐ Yes ☐ No
    c. Electronic files (an electronic version of a patient's medical history, including progress notes, problems, medications and other information used in treatment.) ☐ Yes ☐ No *{if yes then ask}*
        i. What is the name of your EMR/EHR system

Allscripts ☐ Yes ☐ No
Amazing Charts ☐ Yes ☐ No
Aprima ☐ Yes ☐ No
Athena Health ☐ Yes ☐ No
GE Centricity ☐ Yes ☐ No
Cerner ☐ Yes ☐ No
CHARTCARE ☐ Yes ☐ No
eClinicalWorks ☐ Yes ☐ No
Epic ☐ Yes ☐ No
eMDs ☐ Yes ☐ No
Epic ☐ Yes ☐ No
GE ☐ Yes ☐ No
Greenway Medical ☐ Yes ☐ No
HealthPort ☐ Yes ☐ No
McKesson ☐ Yes ☐ No
Meditech ☐ Yes ☐ No
NextGen ☐ Yes ☐ No
Noteworthy ☐ Yes ☐ No
Office Practic.com ☐ Yes ☐ No
Sage ☐ Yes ☐ No
SOAP ware ☐ Yes ☐ No
Other_____ ☐ Yes ☐ No
Don't know ☐ Yes ☐ No

7. On a scale of 1 (awful) to 5 (outstanding), how would you rate your EMR/EHR system in terms of:
   a. Ease of use ☐1 ☐2 ☐3 ☐4 ☐5
   b. Effect on your productivity ☐1 ☐2 ☐3 ☐4 ☐5
   c. Effect on staff productivity ☐1 ☐2 ☐3 ☐4 ☐5
   d. Reliability ☐1 ☐2 ☐3 ☐4 ☐5
   e. Performance versus vendor's promises ☐1 ☐2 ☐3 ☐4 ☐5

8. *{if 6c=yes} then ask:* Does the EMR/EHR system include the following functions? (CHECK ALL THAT APPLY) *{if 6c ne yes then auto fill DNA and skip to 8}*

Functions	**Is the Function Included in the EMR?**	**Do You Use the Function?**	**Do you exchange this information using your EMR/EHR to organizations outside your practice?"**
Patient Care Summary	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Prescriptions (e-prescribing)	☐ Yes ☐ No ☐ Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Lab Test Results	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Reminders for Guideline Based Interventions	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Public Health Reports: immunizations, notifiable diseases	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Quality Metrics (HEDIS, AQA etc.)	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know

9. {if 6c=yes and (3a=yes or 3b=yes or 3c=yesor 3d=yes) then ask}: Are you aware of the incentive payments from Medicare and Medicaid to physicians who adopt EMRs/EHRs that meet **meaningful use criteria**?
    a. ☐ Yes ☐ No {if no skip to c}
    b. Have you applied OR are you planning to apply for the meaningful use incentives offered by Medicare and Medicaid? Medicare ☐Yes ☐No Medicaid ☐Yes ☐ No {if both No *skip to c}*
    c. Is your EMR/EHR vendor helping you to meet the **meaningful use criteria**?
        i. ☐ *Yes*
        ii. ☐ *No*
    d. Are you aware of the support offered by the Arizona Regional Extension Center?
        i. ☐ *Yes :workin*g with them {go to wind up question}
        ii. ☐ Yes but not working with them at present
        iii. ☐ No

        If you would like more information on the Arizona Regional Extension Center you can contact them at 602-688-7200 or *her@azhec.org* Or
        Would you like us to submit a request with your name and address but not reveal any other information included on this survey? ☐ Yes ☐ No

{ if (3a=yes then code 9ai=yes skip to wind up question); else ask:

10. Are you the person who would decide to purchase an EMR/EHR system?
    a. Sole decision maker ☐Yes ☐No
    b. Shared decision ☐Yes ☐No
    c. Decided by others ☐Yes ☐No
11. Are there plans for installing an EMR/EHR system in the future?
    a. ☐No
    b. ☐Don't know
    c. ☐Yes, in the next ☐6 months ☐7-12 months ☐more than 12 months
        i. {if yes}What system are you planning to install?

Allscripts ☐Yes ☐No	Greenway Medical ☐Yes ☐No
Amazing Charts ☐Yes ☐No	HealthPort ☐Yes ☐No
Aprima ☐Yes ☐No	McKesson ☐Yes ☐No
Athena Health ☐Yes ☐No	Meditech ☐Yes ☐No
Centricity ☐Yes ☐No	NextGen ☐Yes ☐No
Cerner ☐Yes ☐No	Noteworthy ☐Yes ☐No
CHARTCARE ☐Yes ☐No	Office Practic.com ☐Yes ☐No
eClinicalWorks ☐Yes ☐No	Sage ☐Yes ☐No
Epic ☐Yes ☐No	SOAP ware ☐Yes ☐No
eMDs ☐Yes ☐No	Other_____
GE Centricity ☐Yes ☐No	Don't Know ☐Yes ☐No

Thank you very much for providing a physician's evaluation of the use and value of electronic health records. Any additional comments are most welcome:

_____

SURVEY QUESTIONS FOR PHYSICIANS WITH AZ LICENSES WHO DO NOT PRACTICE IN ARIZONA

1. When did you leave Arizona?
    a. ☐ I left Arizona in _____,(year) or
    b. ☐ I have never practiced in Arizona

    c. ☐I serve patients in multiple states via Telemedicine
    d. ☐ Travel among states at different times of year
        The states in which I serve patients
        i. ☐include Arizona
        ii. ☐ do not include Arizona

Please rate the importance of *each of the following* as an influence on your choice to practice in your current country/state/territory rather than Arizona

Code #	Factor	Important	Not Important	Does Not Apply
1.	To be Closer to Family/Friends……..	☐	☐	☐
2.	Better Elementary/Secondary Schools	☐	☐	☐No school age kids
3.	Better Climate	☐	☐	☐
4.	Better salary/compensation/career opportunity	☐	☐	☐
5.	Unable to find a position in my field in Arizona	☐	☐	☐
6.	Lower Medical Malpractice Premiums	☐	☐	☐
7.	Career Opportunity for Spouse/Partner	☐	☐	☐No spouse/partner
8.	Better Lifestyle	☐	☐	☐
9.	Better Political Climate	☐	☐	☐
10.	Transferred by the Military	☐	☐	☐
11.	To continue training (residency, fellowship)	☐	☐	☐
14.	To Practice near my Residency location	☐	☐	☐
15.	Availability of Part-time Positions/Locum Tenens	☐	☐	☐
16.	Fulfill loan repayment obligation	☐	☐	☐
17.	If other important factor, specify_____			

_____

2. Are you planning to return to practice in Arizona?
    ☐Yes ☐No
    {if yes then ask}
    a. When do you plan to return?
        i. ☐Upon completion of postgraduate training
        ii. ☐In the next 5 years.
        iii. ☐Other
3. Which one of the following **best** describes the organization in which you practice?
    a. A physician owned solo practice ☐Yes ☐No *{if yes, auto fill 3a=yes; skip to 4};*
    b. A physician owned group practice ☐Yes ☐No
    {if yes then ask}
        i. Approximately how many physicians are associated with this group?
            1. 2-5 physicians ☐Yes ☐No
            2. 6-50 physicians ☐Yes ☐No
            3. 51-94 physicians ☐Yes ☐No
            4. 95 or more physicians ☐Yes ☐No
    c. A hospital or medical school physician group practice ☐Yes ☐No
    {if yes then ask}
        i. Approximately how many physicians are associated with this center?

1. 2-5 physicians ☐Yes ☐No
2. 6-50 physicians ☐Yes ☐No
3. 51-94 physicians ☐Yes ☐No
4. 95 or more physicians ☐Yes ☐No

d. A community or rural health center(e.g. federally qualified CHC) ☐Yes ☐No
{if yes then ask}
   i. Approximately how many physicians are associated with this center?
      1. 2-5 physicians ☐Yes ☐No
      2. 6-50 physicians ☐Yes ☐No
      3. 51-94 physicians ☐Yes ☐No
      4. 95 or more physicians ☐Yes ☐No

e. Federal Government hospital or clinic (e.g. VA, HIS etc.) ☐Yes ☐No { *if yes skip to 5}*
f. State or County hospital system ☐Yes ☐No {*if yes skip to 4}*
g. Private Hospital system ☐Yes ☐No
h. Private Outpatient Facility not part of a hospital system (e.g. Urgent Care center, insurer owned clinic,) ☐Yes ☐No
{if yes then ask}
   i. Approximately how many physicians are associated with this facility?
      1. 2-5 physicians ☐Yes ☐No
      2. 6-50 physicians ☐Yes ☐No
      3. 51-94 physicians ☐Yes ☐No
      4. 95 or more physicians ☐Yes ☐No

i. Medical school ,university, research center ☐Yes ☐No
j. Public or private health Insurer, pharmaceutical company or other health related organization that does not provide care. ☐Yes ☐No *{if yes then skip to end; auto code intermediate q's as DNA}*
k. Other_____ ☐Yes ☐No

4. Which of the following **best** describes your primary role in the organization in which you practice? *{(if 5d=yes or 5e=yes or 5f=yes) then set 6a=yes)}*
   a. Owner, partner, part-owner ☐Yes ☐No
   {if yes then ask}
      i. Approximately how many of each of the following providers are associated with this practice:
         1. ____PAs
         2. ____RNs
         3. ____NPs
         4. ____Other licensed health care providers
      ii. Employee/contractor/locum tenens ☐Yes ☐No
      iii. Faculty ☐Yes ☐No
      iv. Student (include residents, fellows etc.) ☐Yes ☐No

5. Which of the following are available at your practice location? (check all that apply)
   a. Email ☐Yes ☐No
   b. Internet (FTP etc.) ☐Yes ☐No
   c. Fax ☐Yes ☐No
   d. US Mail ☐Yes ☐No
   e. Don't Know ☐Yes ☐No

6. How does the organization in which you practice submit bills/claims to insurers or other payers? (check all that apply)
   a. Email ☐Yes ☐No
   b. Internet (FTP etc.) ☐Yes ☐No
   c. Fax ☐Yes ☐No
   d. US Mail ☐Yes ☐No
   e. Don't Know ☐Yes ☐No

7. How does the organization in which you practice store its medical records? (Check all that apply);

a. Paper ☐Yes ☐No
b. Scanned images of paper records ☐Yes ☐No
c. Electronic files (an electronic version of a patient's medical history, including progress notes, problems, medications and other information used in treatment.) ☐Yes ☐No
{if yes then ask}
    i. What is the name of your EMR/EHR system*?*
        1. Allscripts ☐Yes ☐ No
        2. Amazing Charts ☐ Yes ☐No
        3. Aprima ☐Yes ☐ No
        4. Athena Health ☐ Yes ☐No
        5. Centricity ☐Yes ☐No
        6. Cerner ☐Yes ☐ No
        7. CHARTCARE ☐ Yes ☐No
        8. eClinicalWorks ☐ Yes ☐No
        9. Epic ☐Yes ☐No
        10. eMDs ☐Yes ☐No
        11. GE ☐Yes ☐No
        12. Greenway Medical ☐Yes ☐No
        13. HealthPort ☐Yes ☐No
        14. McKesson ☐Yes ☐No
        15. Meditech ☐Yes ☐ No
        16. NextGen ☐Yes ☐ No
        17. Noteworthy ☐Yes ☐No
        18. Office Practic.com ☐Yes ☐No
        19. Sage ☐Yes ☐No
        20. SOAP ware ☐Yes ☐No
        21. Other_____ _____ ☐Yes ☐ No
        22. Don't Know ☐Yes ☐No

8. On a scale of 1 (awful) to 5 (outstanding), how would you rate your EMR/HER system in terms of:
    a. Ease of use ☐1 ☐2 ☐3 ☐4 ☐5
    b. Effect on your productivity ☐1 ☐2 ☐3 ☐4 ☐5
    c. Effect on staff productivity ☐1 ☐2 ☐3 ☐4 ☐5
    d. Reliability ☐1 ☐2 ☐3 ☐4 ☐5
    e. Performance versus vendors promises ☐1 ☐2 ☐3 ☐4 ☐5

Thank you very much for providing valuable insights into physicians' choice of practice locations and the use and value of electronic health records. Any additional comments are most welcome:

_____

AHCCCS Gov Paper Survey Version 2012

Name_____ License No._____

Since 1991, the Arizona Physician Survey has, with the cooperation of physicians, their licensing boards and their professional associations, collected important information on the physician workforce. The current survey focuses on the use of medical records that are electronic (often called electronic medical records (EMRs) or electronic health records (EHRs)). Your participation is encouraged by the *Arizona Medical Association* and the *Arizona Osteopathic Medical Association*. Your answers are confidential and results are published only in aggregate form.

1. Which **one** of the following **best** describes your employment status ?(check one)
   a) Actively employed in Arizona in direct patient care ☐Yes {if yes ask:}
      i. I usually treat _____patients in a typical work week.
      ii. I usually work _____hours/day, _____days/week, and _____weeks/year.
   b) Actively employed in Arizona but not in direct patient care ☐Yes
   c) Actively employed outside of Arizona ☐Yes
   d) Retired/Semi-retired/on leave ☐Yes

2. Which **one** of the following **best** describes the organization in which you practice
   a) a physician owned solo practice ☐Yes
      i. A physician owned group practice ☐Yes ***If yes****:* Approximately how many physicians are associated with this practice?
         a. 2-5 physicians ☐ 6-50 physicians ☐ 51+physicians ☐
   b) A hospital or medical school physician group practice ☐Yes
      i. ***If yes***: Approximately how many physicians are associated with this practice?
         a. 2-5 physicians ☐ 6-50 physicians ☐ 51+ physicians ☐
   c) A community or rural health center(e.g. federally qualified CHC) ☐Yes
   d) Federal Government hospital or clinic (e.g. VA, IHS etc.) ☐Yes
   e) State or County hospital system ☐Yes
   f) Private Hospital system ☐Yes
   g) Private Outpatient Facility not part of a hospital system (e.g. Urgent Care center, insurer owned clinic, etc.) ☐Yes
   h) Medical school ,university, research center ☐ Yes
   i) Public or private health Insurer, pharmaceutical company or other health related organization that does not provide care. ☐ Yes
   j) Other_____

3. Which of the following **best** describes your primary role in the organization in which you practice?
   a) Owner, partner, part-owner ☐ *{if yes then ask}* Approximately how many of each of the following providers are associated with this practice?
      i. ____ PAs ____RNs ____NPs

ii. ____Other Licensed Health Care Providers

b) Employee/contractor/locum tenens ☐
c) Faculty ☐
d) Student (include residents, fellows etc.) ☐

4. Which of the following are available at your practice location? (check all that apply)
   a) Email ☐ Yes ☐ No
   b) Internet (FTP etc.) ☐ Yes ☐ No
   c) Fax ☐ Yes ☐ No
   d) US Mail ☐ Yes ☐ No
   e) Don't know ☐ Yes ☐ No

5. How does the organization in which you practice store its medical records? (**Check all that apply);**
   a) *Paper* ☐ Yes ☐ No
   b) *Scanned i*mages of paper records ☐ Yes ☐ No
   c) *Electronic files* (an electronic version of a patient's medical history, including progress notes, problems, medications and other information used in treatment.)

   ☐ Yes ☐ No

   1. *{if yes then ask}* What is the name of your EMR/EHR system?
      1. Allscripts ☐
      2. Amazing Charts ☐
      3. Aprima ☐
      4. Athena Health ☐
      5. GE Centricity ☐
      6. Cerner ☐
      7. CHARTCARE ☐
      8. eClinicalWorks ☐
      9. Epic ☐
      10. eMDs ☐
      11. Epic ☐
      12. GE ☐
      13. Greenway Medical ☐
      14. HealthPort ☐
      15. McKesson ☐
      16. Meditech ☐
      17. NextGen ☐
      18. Noteworthy ☐
      19. Office Practic.com ☐
      20. Sage ☐
      21. SOAP ware ☐
      22. Other_____
      23. Don't know ☐ Yes ☐ No

   2. On a scale of **1 (awful) to 5 (outstanding**), how would you rate your EMR/EHR system in terms of:
      1. Ease of use ☐1 ☐2 ☐3 ☐4 ☐5
      2. Effect on your productivity ☐1 ☐2 ☐3 ☐4 ☐5
      3. Effect on staff productivity ☐1 ☐2 ☐3 ☐4 ☐5
      4. Reliability ☐1 ☐2 ☐3 ☐4 ☐5
      5. Performance versus vendor's promises ☐1 ☐2 ☐3 ☐4 ☐5
   3. Does the EMR**/**EHR system include the following functions? **(CHECK ALL THAT APPLY)**

Functions	Is the Function Included in the EMR?	Do You Use the Function?	Do you exchange this information using your EMR/EHR to organizations outside your practice?"
Patient Care Summary	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Prescriptions (e-prescribing)	☐ Yes ☐ No ☐ Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Lab Test Results	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Reminders for Guideline Based Interventions	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Public Health Reports: immunizations, notifiable diseases	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know
Quality Metrics (HEDIS, AQA etc.)	☐Yes ☐No ☐Don't Know {If yes then go to next row}	☐ Yes ☐ No	☐Yes ☐No ☐Don't Know

6. Are you aware of the incentive payments from Medicare and Medicaid to physicians who adopt EMRs/EHRs that meet ***meaningful use criteria***?
   a) ☐ Yes ☐ No
   b) Have you applied OR are you planning to apply for the meaningful use incentives offered by Medicare and Medicaid? Medicare ☐Yes ☐No Medicaid ☐Yes ☐No

   {if both No *skip to c}*

   c) Is your EMR/EHR vendor helping you to meet the ***meaningful use criteria****?*
      1. ☐ *Yes*
      2. ☐ *No*
7. Are you aware of the support offered by the Arizona Regional Extension Center?
      1. ☐ *Yes :working* with them {go to wind up question}
      2. ☐ Yes but not working with them at present
      3. ☐ No
8. If you would like more information on the Arizona Regional Extension Center you can contact them at 602-688-7200 or *her@azhec.org* Or would you like us to submit a request with your name and address but not reveal any other information included on this survey? ☐ Yes ☐ No

Appendix D: Comparison of Respondents to Non-Respondents by Renewal Period, 2007-2011

Characteristic	*2009-2011*					*2007-2009*				
	Respondents N = 12,181		*Non-Respondents N = 3,607*		*P-Value*	*Respondents N =6,777*		*Non-Respondents N =6,594*		*P-Value*
Gender					N.S.					<0.05
Female	3,325	28.3%	932	26.4%		1,791	27.3%	1,640	25.9%	
Male	8,418	71.7%	2,595	73.6%		4,769	72.7%	4,689	74.1%	
Total	11,743	100.0%	3,527	100.0%		6,560	100.0%	6,329	100.0%	
Age Group										
25-34	749	6.2%	372	10.3%	<0.01	438	6.5%	758	11.5%	<0.01
35-44	3,682	30.2%	840	23.3%	<0.01	1,976	29.2%	2,024	30.7%	<0.01
45-54	3,422	28.1%	720	20.0%	<0.01	2,012	29.7%	1,855	28.1%	<0.05
55-64	2,873	23.6%	758	21.0%	<0.01	1,590	23.5%	1,328	20.1%	
65+	1,455	11.9%	916	25.4%		758	11.2%	627	9.5%	
Total	12,181	100.0%	3,606	100.0%		6,774	100.0%	6,592	100.0%	
Specialty					<0.01					<0.01
Primary Care	5,753	47.3%	1,566	43.7%		2,945	43.6%	2,501	38.2%	
Specialty Care	6,401	52.7%	2,016	56.3%		3,812	56.4%	4,053	61.8%	
Total	12,154	100.0%	3,582	100.0%		6,757	100.0%	6,554	100.0%	
Location					N.S.					N.S.
Maricopa County	7,990	65.6%	2,365	65.6%		4,371	64.5%	4,421	67.0%	
Pima County	2,416	19.8%	757	21.0%		1,376	20.3%	1,250	19.0%	
All Other Counties	1,775	14.6%	485	13.5%		1,030	15.2%	923	14.0%	
Total	12,181	100.0%	3,607	100.0%		6,777	100.0%	6,594	100.0%	

Source: AMB, ABOE Administrative/Survey Data, 2007-2009; 2009–2011.

Note: Percentages are calculated on numbers of cases with non-missing values. A p-value of .05 or less implies only a 5% probability of declaring the relationship significant when in fact it is not. N.S. =no significant difference.

Appendix E: Summary of Vendors

The results in Table A - 3 summarize the scores for each of the five criteria and the mean score that characterizes the overall ranking of each EMR package. Individual results for vendors with less than 10 users are excluded but the information is included in calculating the total scores and total number of respondents.

Table A - 3. Summary of EMR Ranking Weighted Means by Vendor (N = 6,882)

Vendor	*Total Weighted Average Rank*	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*	*Total Respondents*
ADP AdvancedMD	3.3	3.5	3.1	3.1	3.7	3.2	26
Allscripts	2.9	3	2.7	2.9	3.3	2.8	769
AltaPoint	2.9	3.2	2.9	3.1	2.8	2.3	11
Amazing Charts	3.7	3.8	3.3	3.5	3.8	3.8	79
Aprima	3.2	3.3	3.1	3.3	3.4	3	65
ARIA	3.4	3.3	3.4	3.3	3.7	3.3	10
Athena Health	3.4	3.6	3	3.3	3.9	3.4	178
Cerner	3	3.1	2.8	2.8	3.4	2.9	1,138
Chart Logic	3.5	3.7	3.3	3.7	3.5	3.3	24
Chart Source	3	2.9	2.7	2.8	3.3	3.3	12
ChartMaxx	3.1	3.3	3	2.5	3.5	3.2	6
Claim Track	3.1	3.3	3	3.1	3.3	2.6	7
ClaimTrak	2.5	2.6	2.6	2.6	2.4	2.2	33
digiChart	4.2	4.3	3.9	4.1	4.2	4.1	18
Don't Know	3.1	3.2	3	3	3.3	3	543
EBIO	3.1	3.5	2.6	2.9	3.6	3.1	10
eClinicalWorks	3.8	3.9	3.6	3.7	4	3.7	407
e-MDs	3.6	3.7	3.4	3.5	3.8	3.5	114
Empower	3.7	3.9	4.1	3.9	3.3	3.4	15
EncounterPro	3.3	3.3	3.3	3.4	3.5	2.8	10
Epic	3.3	3.4	3.1	3	3.6	3.2	530
GE Centricity	3.6	3.7	3.5	3.6	3.8	3.5	183
gloStream	3.8	4.1	3.9	4.1	3.8	3.3	12
gMed/gGastro	3.6	3.9	3.4	3.4	3.8	3.3	41

Vendor	*Total Weighted Average Rank*	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*	*Total Respondents*
Greenway Medical	3.4	3.5	3.1	3.4	3.9	3.3	89
IC-Chart	4.9	5	4.9	4.9	4.9	4.9	25
IKnowMed	3.3	3.3	2.9	3.6	3.7	3.1	12
MacPractice	3.7	3.9	3.3	3.5	4.1	3.6	24
McKesson	2.9	3	2.8	2.9	3.2	2.8	297
MD Plus	3.5	3.5	3.3	3.6	3.6	3.3	13
MEDHOST	3	3.1	2.7	2.7	3.2	2.9	31
Medinformatix	3.3	3.5	3.3	3.5	3.3	2.7	11
Medinotes	3.1	3.4	3.1	3.1	3.3	2.8	10
Meditech	2.8	2.8	2.6	2.6	3.2	2.8	102
Modernizing Medi	3.8	4.1	3.2	3.3	4	4	10
NexTech	3.8	4	3.5	3.6	4	3.9	26
NextGen	2.9	2.9	2.7	2.8	3.3	2.8	586
Noteworthy	3.5	3.5	3.5	3.5	3.7	3.3	34
Office Ally	3.7	3.8	3.6	3.7	3.8	3.8	19
Office Practicum	3.8	3.8	3.6	3.7	4	3.8	49
OptumInsight	3.5	3.7	3.5	3.3	3.5	3.5	13
Other	3.4	3.5	3.2	3.2	3.6	3.3	725
Picis	3	3.5	2.8	2.4	3.5	2.9	19
Practice Fusion	3.7	3.9	3.3	3.3	3.9	3.9	122
PrognoCIS	3.4	3.5	3.3	3.5	3.6	3.4	11
Sage	3.3	3.4	3	3.3	3.5	3.1	208
SOAPware	3.7	3.8	3.6	3.6	3.9	3.6	29
SpringChart	3.7	3.9	3.6	3.8	3.5	3.4	12
Sunrise	3.5	3.5	3.5	3.5	3.8	3.3	19
VistA	3.1	3.4	2.7	2.4	3.9	3.1	10
Average	3.2	3.3	3	3.1	3.5	3.1	6,882

Source: AMB, ABOE Survey Data, 2012–2013.

The top ranked EMRs are *ICChart* with a rank of 4.9, followed by *DigiChart*, ranked at 4.2 and, *eClinicalWorks, gloStream* and *SOAPware*, each with a rank equal to 3.8. One reason for their high rankings is that *ICChart* received an outstanding (rank=5) and a 4.9 on all the other

criteria. *eClinicalWorks* and *SOAPware* received a score of 4 on the ease of use criterion and also were ranked as a 4 on reliability. There were five other EMRs with overall scores of 3.6 - 3.7, sufficiently close to the top ranked three EMRs to be considered effectively the same ranking.

The lowest ranked EMR was *ClaimTrak* with a very narrow range of scores for each of the five criteria.

Table A - 4. Summary of EMR Ranking Weighted Means by Vendors for AHCCCS Physicians (N =6,081)

Vendor	*Total Weighted Average Rank*	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*	*Total Respondents*
ADP AdvancedMD	3.2	3.3	3.0	3.0	3.7	3.1	20
ALERT	1.2	1.0	1.2	1.0	1.2	1.2	6
Allscripts	3.0	3.0	2.7	2.9	3.3	2.9	726
AltaPoint	2.9	3.2	2.9	3.1	2.8	2.3	11
Amazing Charts	3.7	3.9	3.4	3.5	3.9	3.8	72
Aprima	3.2	3.3	3.1	3.2	3.4	3.0	58
ARIA	3.4	3.3	3.4	3.3	3.7	3.3	10
Athena Health	3.4	3.6	3.0	3.3	3.8	3.3	161
Avatar	2.4	2.4	2.4	2.3	2.7	2.2	9
Baby Steps	4.7	4.8	4.5	4.5	5.0	4.8	6
Cerner	3.0	3.0	2.8	2.8	3.4	2.9	1,051
Chart Logic	3.5	3.7	3.4	3.7	3.6	3.3	23
Chart Source	2.7	2.4	2.4	2.6	3.1	3.0	7
CHARTCARE	1.8	2.0	1.0	2.0	2.0	2.0	1
ChartMaxx	2.8	3.0	2.8	2.3	3.3	3.0	4
Claim Track	3.1	3.3	3.0	3.1	3.3	2.6	7
ClaimTrak	2.5	2.6	2.6	2.6	2.4	2.2	33
digiChart	4.1	4.2	3.8	3.9	4.1	4.0	16
EBIO	3.1	3.5	2.6	2.9	3.6	3.1	10
eClinicalWorks	3.8	3.9	3.6	3.7	4.0	3.7	357
e-MDs	3.6	3.7	3.4	3.5	3.8	3.4	90
Empower	3.7	3.9	4.1	3.9	3.3	3.4	15

Vendor	*Total Weighted Average Rank*	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*	*Total Respondents*
Epic	3.3	3.4	3.1	3.0	3.6	3.2	469
GE Centricity	3.6	3.7	3.5	3.6	3.8	3.5	165
gloStream	3.7	4.0	3.8	4.0	3.6	3.2	11
gMed/gGastro	3.6	3.9	3.4	3.5	3.8	3.3	39
Greenway Medical	3.4	3.5	3.1	3.4	3.9	3.3	77
IC-Chart	4.9	5.0	4.9	4.9	4.9	4.9	25
IKnowMed	3.3	3.4	3.0	3.4	3.8	3.1	10
MacPractice	3.7	3.9	3.3	3.5	4.1	3.5	22
McKesson	2.9	3.0	2.7	2.8	3.1	2.7	258
MD Plus	3.4	3.5	3.3	3.5	3.5	3.2	11
MEDHOST	3.0	3.1	2.9	2.8	3.3	3.0	28
Medinformatix	3.1	3.4	3.1	3.1	3.1	2.3	8
Medinotes	2.8	3.1	2.8	2.8	3.0	2.4	8
Meditech	2.8	2.8	2.5	2.6	3.1	2.7	94
NexTech	3.8	4.0	3.5	3.6	4.1	3.9	16
NextGen	2.9	2.9	2.7	2.8	3.3	2.8	539
Noteworthy	3.5	3.5	3.5	3.4	3.7	3.3	32
Office Ally	3.8	3.8	3.7	3.8	3.8	3.9	17
Office Practicum	3.8	3.8	3.5	3.7	4.0	3.8	47
OptumInsight	3.6	3.8	3.5	3.3	3.6	3.6	11
Picis	3.0	3.5	2.8	2.4	3.5	2.9	19
Practice Fusion	3.7	4.0	3.4	3.4	3.9	3.9	105
Practice Partner	3.4	3.2	2.8	3.2	4.2	3.4	5
PrognoCIS	3.4	3.5	3.3	3.5	3.6	3.4	11
Sage	3.3	3.4	3.0	3.3	3.5	3.1	193
SOAPware	3.7	3.9	3.6	3.7	4.0	3.5	22
SpringChart	3.7	4.0	3.6	3.8	3.5	3.5	11
Sunrise	3.5	3.4	3.4	3.4	3.7	3.2	18
Waiting Room Sol	2.4	2.3	1.8	1.8	3.5	2.5	4
WoundExpert	3.3	3.8	2.8	2.8	3.8	3.3	4

Vendor	*Total Weighted Average Rank*	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*	*Total Respondents*
Other	3.4	3.6	3.2	3.3	3.6	3.3	578
Don't Know	3.1	3.1	3.0	3.0	3.3	3.0	450
Average	3.2	3.3	3.0	3.1	3.5	3.1	6,081

Source: AMB, ABOE Survey Data, 2012–2013.

Table A - 5. Summary of EMR Ranking Criteria by Vendor

Vendor	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*
ADP AdvancedMD	26	26	26	26	25
ALERT	9	8	8	8	8
Allscripts	768	769	765	767	754
AltaPoint	11	11	11	11	11
Amazing Charts	79	79	79	78	78
Aprima	65	65	65	65	65
ARIA	10	10	10	9	10
Athena Health	178	178	178	176	178
Avatar	9	9	9	9	9
Baby Steps	8	8	8	8	7
Cerner	1,136	1,137	1,133	1,134	1,104
Chart Logic	24	24	24	24	24
Chart Source	12	12	12	12	12
CHARTCARE	1	1	1	1	1
ChartMaxx	6	6	6	6	5
Claim Track	7	7	7	7	7
ClaimTrak	33	33	33	33	32
Computer Systems	1	1	1	1	1
CORE-AT	1	1	1	1	1
CPSI	3	3	3	3	3
digiChart	18	17	17	17	17
DocuTAB	9	9	8	9	8
EBIO	10	10	10	10	10
eClinicalWorks	407	405	403	405	401
e-MDs	114	114	114	114	113

Emergisoft	9	9	9	9	9
Empower	15	15	15	15	14
EncounterPro	10	10	10	10	10
Epic	530	528	524	526	519
GE Centricity	183	183	182	181	178
GEMMS	5	5	5	5	5
gloStream	12	12	12	12	12
gMed/gGastro	41	41	41	41	41
Greenway Medical	89	89	88	89	88
HealthPort	1	1	1	1	1
HealthTrio	1	1	1	1	1
IC-Chart	25	25	25	25	25
IKnowMed	12	12	12	12	12
Indian Health Se	2	2	2	2	2
JCLMyChart	1	1	1	1	1
MacPractice	24	24	24	23	24
McKesson	297	295	294	295	290
MD Plus	13	13	13	13	12
MEDHOST	31	31	29	31	31
Medinformatix	11	11	11	11	9
Medinotes	10	10	10	10	10
Meditech	102	102	102	101	99
Modernizing Medi	10	9	9	9	9
NexTech	26	26	26	26	26
NextGen	586	585	582	585	563
Noteworthy	34	34	34	34	34
Office Ally	19	19	19	19	19
Office Practicum	49	49	49	49	48
OmniMD	2	2	2	2	2
ONCO	9	9	9	9	9
OptumInsight	13	13	13	13	13
Patient Now	9	9	9	9	9
Picis	19	19	18	18	18
Point N Click	9	9	9	9	9
Practice Fusion	122	122	120	120	121
Practice Partner	6	6	6	6	6
PracticeStudio	1	1	1	1	1

Praxis	6	6	6	6	6
ProfileEMR	1	1	1	1	1
PrognoCIS	11	11	11	11	11
Prorietary	7	7	7	7	5
Pulse Complete E	1	1	1	1	1
Sage	208	207	207	207	202
Sequest	1	1	1	1	1
SOAPware	29	29	29	29	29
SpringChart	12	12	12	12	12
Success	5	5	5	5	5
Sunrise	19	19	19	19	18
SYSTOC	9	9	9	9	9
VistA	10	10	10	10	9
Waiting Room Sol	5	5	5	5	5
WoundExpert	4	4	4	4	4
Other	725	719	713	716	705
Don't Know	543	538	532	532	517
Total	6,879	6,859	6,821	6,832	6,704

Source: AMB, ABOE Survey Data, 2012–2013.

Table A - 6. Summary of EMR Ranking Criteria by Vendor for AHCCCS Physicians

Vendor	*Ease of Use*	*Doc Productivity*	*Staff Productivity*	*Reliability*	*Performance vs. Promise*
ADP AdvancedMD	20	20	20	20	19
ALERT	6	6	5	5	5
Allscripts	725	726	723	724	712
AltaPoint	11	11	11	11	11
Amazing Charts	72	72	72	71	72
Aprima	58	58	58	58	58
ARIA	10	10	10	9	10
Athena Health	161	161	161	159	161
Avatar	9	9	9	9	9
Baby Steps	6	6	6	6	5
Cerner	1,050	1,050	1,048	1,047	1,018
Chart Logic	23	23	23	23	23

Chart Source	7	7	7	7	7
CHARTCARE	1	1	1	1	1
ChartMaxx	4	4	4	4	3
Claim Track	7	7	7	7	7
ClaimTrak	33	33	33	33	32
Computer Systems	1	1	1	1	1
CPSI	3	3	3	3	3
digiChart	16	15	15	15	15
DocuTAB	7	7	7	7	6
EBIO	10	10	10	10	10
eClinicalWorks	357	355	353	355	352
e-MDs	90	90	90	90	89
Emergisoft	9	9	9	9	9
Empower	15	15	15	15	14
EncounterPro	7	7	7	7	7
Epic	469	468	465	466	459
GE Centricity	165	165	164	163	160
GEMMS	4	4	4	4	4
gloStream	11	11	11	11	11
gMed/gGastro	39	39	39	39	39
Greenway Medical	77	77	76	77	76
HealthPort	1	1	1	1	1
IC-Chart	25	25	25	25	25
IKnowMed	10	10	10	10	10
MacPractice	22	22	22	21	22
McKesson	258	256	256	257	251
MD Plus	11	11	11	11	10
MEDHOST	28	28	26	28	28
Medinformatix	8	8	8	8	7
Medinotes	8	8	8	8	8
Meditech	94	94	94	93	91
Modernizing Medi	5	4	4	4	4
NexTech	16	16	16	16	16
NextGen	539	538	535	538	517
Noteworthy	32	32	32	32	32
Office Ally	17	17	17	17	17
Office Practicum	47	47	47	47	46

OmniMD	2	2	2	2	2
ONCO	8	8	8	8	8
OptumInsight	11	11	11	11	11
Patient Now	8	8	8	8	8
Picis	19	19	18	18	18
Point N Click	3	3	3	3	3
Practice Fusion	105	105	104	103	105
Practice Partner	5	5	5	5	5
PracticeStudio	1	1	1	1	1
Praxis	5	5	5	5	5
ProfileEMR	1	1	1	1	1
PrognoCIS	11	11	11	11	11
Prorietary	3	3	3	3	3
Pulse Complete E	1	1	1	1	1
Sage	193	192	192	192	187
SOAPware	22	22	22	22	22
SpringChart	11	11	11	11	11
Success	3	3	3	3	3
Sunrise	18	18	18	18	17
SYSTOC	2	2	2	2	2
VistA	7	7	7	7	6
Waiting Room Sol	4	4	4	4	4
WoundExpert	4	4	4	4	4
Other	578	573	569	569	561
Don't Know	450	445	439	441	427
Total	6,079	6,061	6,031	6,035	5,919

Source: AMB, ABOE Survey Data, 2012–2013.

Table A - 7. Are Vendors Helping Physicians Achieve Meaningful Use? - Results by Vendor (N = 4,069)

Vendor	*No*		*Yes*		*Total*
	Number of Physicians	*Percent*	*Number of Physicians*	*Percent*	*Total*
ADP AdvancedMD	7	36.8%	12	63.1%	19
ALERT	1	25.0%	3	75.0%	4
Allscripts	97	17.7%	449	82.2%	546
AltaPoint	2	20.0%	8	80.0%	10

Vendor	No		Yes		Total
	Number of Physicians	Percent	Number of Physicians	Percent	Total
Amazing Charts	19	30.1%	44	69.8%	63
Aprima	9	18.0%	41	82.0%	50
ARIA	2	22.2%	7	77.7%	9
Athena Health	10	7.0%	132	92.9%	142
Avatar	1	25.0%	3	75.0%	4
Baby Steps	0	0.0%	2	100.0%	2
Cerner	88	19.6%	360	80.3%	448
Chart Logic	0	0.0%	21	100.0%	21
Chart Source	1	100.0%	0	0.0%	1
Claim Track	1	100.0%	0	0.0%	1
ClaimTrak	2	20.0%	8	80.0%	10
CPSI	0	0.0%	1	100.0%	1
digiChart	4	26.6%	11	73.3%	15
DocuTAB	0	0.0%	1	100.0%	1
EBIO	0	0.0%	9	100.0%	9
eClinicalWorks	45	13.8%	280	86.1%	325
e-MDs	18	19.5%	74	80.4%	92
Emergisoft	0	0.0%	1	100.0%	1
Empower	0	0.0%	4	100.0%	4
EncounterPro	0	0.0%	5	100.0%	5
Epic	25	9.5%	238	90.4%	263
GE Centricity	8	6.5%	115	93.4%	123
GEMMS	1	16.6%	5	83.3%	6
gloStream	2	16.6%	10	83.3%	12
gMed/gGastro	6	15.3%	33	84.6%	39
Greenway Medical	15	17.6%	70	82.3%	85
IC-Chart	4	17.3%	19	82.6%	23
IKnowMed	0	0.0%	9	100.0%	9
Indian Health Se	0	0.0%	1	100.0%	1
MacPractice	3	18.7%	13	81.2%	16
McKesson	40	23.6%	129	76.3%	169
MD Plus	2	22.2%	7	77.7%	9
MEDHOST	0	0.0%	6	100.0%	6
Medinformatix	2	28.5%	5	71.4%	7

Vendor	No		Yes		Total
	Number of Physicians	Percent	Number of Physicians	Percent	Total
Medinotes	1	33.3%	2	66.6%	3
Meditech	9	23.6%	29	76.3%	38
Modernizing Medi	1	16.6%	5	83.3%	6
NexTech	1	5.8%	16	94.1%	17
NextGen	60	13.9%	369	86.0%	429
Noteworthy	4	16.0%	21	84.0%	25
Office Ally	3	17.6%	14	82.3%	17
Office Practicum	1	3.0%	32	96.9%	33
OmniMD	0	0.0%	2	100.0%	2
ONCO	0	0.0%	9	100.0%	9
OptumInsight	0	0.0%	12	100.0%	12
Other	74	19.3%	308	80.6%	382
Patient Now	1	14.2%	6	85.7%	7
Picis	4	33.3%	8	66.6%	12
Practice Fusion	11	12.0%	80	87.9%	91
Practice Partner	3	60.0%	2	40.0%	5
Praxis	2	33.3%	4	66.6%	6
ProfileEMR	0	0.0%	1	100.0%	1
PrognoCIS	0	0.0%	10	100.0%	10
Prorietary	1	100.0%	0	0.0%	1
Pulse Complete E	0	0.0%	1	100.0%	1
Sage	18	10.2%	157	89.7%	175
SOAPware	4	19.0%	17	80.9%	21
SpringChart	1	14.2%	6	85.7%	7
Success	0	0.0%	4	100.0%	4
Sunrise	1	12.5%	7	87.5%	8
VistA	2	33.3%	4	66.6%	6
Waiting Room Sol	0	0.0%	5	100.0%	5
WoundExpert	2	66.6%	1	33.3%	3
Total	619	15.9%	3,268	84.0%	3,887

Source: AMB, ABOE Survey Data, 2012–2013.

Note: Physicians practicing in government settings have been excluded from these results. 6,883 physicians did not respond to the meaningful use question, and 3,709 physicians did not identify their EMR.

Table A - 8. Are Vendors Helping AHCCCS Physicians Achieve Meaningful Use? - Results by Vendor (N = 3,682)

Vendor	No		Yes		Total
	Number of Physicians	Percent	Number of Physicians	Percent	
ADP AdvancedMD	7	41.1%	10	58.8%	17
ALERT	1	33.3%	2	66.6%	3
Allscripts	91	17.4%	431	82.5%	522
AltaPoint	2	20.0%	8	80.0%	10
Amazing Charts	18	30.5%	41	69.4%	59
Aprima	8	17.0%	39	82.9%	47
ARIA	2	22.2%	7	77.7%	9
Athena Health	7	5.6%	118	94.4%	125
Avatar	1	25.0%	3	75.0%	4
Baby Steps	0	0.0%	1	100.0%	1
Cerner	86	21.2%	319	78.7%	405
Chart Logic	0	0.0%	19	100.0%	19
Chart Source	1	100.0%	0	0.0%	1
Claim Track	1	100.0%	0	0.0%	1
ClaimTrak	2	20.0%	8	80.0%	10
CPSI	0	0.0%	1	100.0%	1
digiChart	4	30.7%	9	69.2%	13
DocuTAB	0	0.0%	1	100.0%	1
EBIO	0	0.0%	9	100.0%	9
eClinicalWorks	39	13.4%	252	86.5%	291
e-MDs	15	20.0%	60	80.0%	75
Emergisoft	0	0.0%	1	100.0%	1
Empower	0	0.0%	4	100.0%	4
EncounterPro	0	0.0%	4	100.0%	4
Epic	22	9.1%	218	90.8%	240
GE Centricity	7	6.5%	100	93.4%	107
GEMMS	0	0.0%	5	100.0%	5
gloStream	2	18.1%	9	81.8%	11
gMed/gGastro	6	16.2%	31	83.7%	37
Greenway Medical	11	14.4%	65	85.5%	76
IC-Chart	4	17.3%	19	82.6%	23

IKnowMed	0	0.0%	7	100.0%	7
MacPractice	3	18.7%	13	81.2%	16
McKesson	35	24.8%	106	75.1%	141
MD Plus	2	25.0%	6	75.0%	8
MEDHOST	0	0.0%	6	100.0%	6
Medinformatix	1	25.0%	3	75.0%	4
Medinotes	1	33.3%	2	66.6%	3
Meditech	8	25.0%	24	75.0%	32
Modernizing Medi	0	0.0%	4	100.0%	4
NexTech	1	9.0%	10	90.9%	11
NextGen	55	14.1%	333	85.8%	388
Noteworthy	4	16.0%	21	84.0%	25
Office Ally	3	18.7%	13	81.2%	16
Office Practicum	1	3.0%	32	96.9%	33
OmniMD	0	0.0%	2	100.0%	2
ONCO	0	0.0%	8	100.0%	8
OptumInsight	0	0.0%	11	100.0%	11
Patient Now	1	14.2%	6	85.7%	7
Picis	4	33.3%	8	66.6%	12
Practice Fusion	10	12.0%	73	87.9%	83
Practice Partner	2	50.0%	2	50.0%	4
Praxis	2	40.0%	3	60.0%	5
ProfileEMR	0	0.0%	1	100.0%	1
PrognoCIS	0	0.0%	10	100.0%	10
Prorietary	1	100.0%	0	0.0%	1
Pulse Complete E	0	0.0%	1	100.0%	1
Sage	17	10.5%	144	89.4%	161
SOAPware	2	12.5%	14	87.5%	16
SpringChart	1	16.6%	5	83.3%	6
Success	0	0.0%	2	100.0%	2
Sunrise	1	14.2%	6	85.7%	7
VistA	2	40.0%	3	60.0%	5
Waiting Room Sol	0	0.0%	4	100.0%	4
WoundExpert	2	66.6%	1	33.3%	3
Other	62	18.0%	282	81.9%	344
Total	558	15.8%	2,960	84.1%	3,518

Appendix F: EMR Software Descriptions

Table A - 9. Intended Use of EMR Software for Most Popular Vendors

EMR Vendor	*Intended Use*
Allscripts	Different versions for solo/mid-size practices vs. large/multi practices; Access info anywhere on any device; Connected to pharmacies, labs, payers & patients; Practice management/claims processing; Templates for >20 specialties
Amazing Charts	For solo or multi-clinician practices; Includes office flow, charting, scheduling, messaging, e-prescribing, reporting, billing & templates
Aprima	Transcription/dictation; e-prescribing; diagnosis & payer Info; electronic lab orders & results; patient portal; patient compliance alerts; Meaningful Use stage 2 certified
Athena Health	Quality mgmt for Meaningful Use, pay-for-performance; cloud-based full-service solution; interfaces w/pharmacies, hospitals, registries and HIEs
Cerner	Clinical summary; chart search; e-prescribe; computer assisted coding; electronic orders & results; pre-completed notes for documentation; electronic immunization download/upload; Meaningful Use
ClaimTrak	Solution for clinicians & administrators; clinical forms for assessments, treatment plans, progress notes, discharge summaries, medication administration, etc.; access and manage all aspects of caseloads; electronic billing, scheduling, reports; document scanning to records
eClinicalWorks	Caters to all size private practices, CHCs & hospitals; supports >50 specialties; patient mgmt system; clinical decision support; access lab/test results; registry & quality measure reporting; exchange data electronically; e-prescribing; meets Meaningful Use
eMDs	Adaptable to multiple clinical settings & sizes; clinical decision support; customizable templates & patient flow sheets; e-prescribing
Epic	Meaningful Use stage 2 certified; accommodates >40 specialties; chart review; order management; documentation; clinical & financial decision support; telemedicine options
GE Centricity	Caters to physician practices of all sizes; Fully interoperable; meets Meaningful Use; automated workflows; ICD-9/ICD-10 compatible; clinical decision support; e-prescribing
gloStream	Customizable to individual physicians in a multi-physician setting; Cloud-based; Meaningful Use certified; e-prescribing; labs/orders; scheduling and tasking; note taking
GMed	Caters to small, large & surgery centers and hospitals for gastro, cardio & urology practices; customizable workflow; interoperable; clinical decision support
Greenway Medical	Combined EHR/Practice Management solution integrating clinical/financial/administrative functions for primary care & >30 specialties in all types/sizes of practices; interoperable; Meaningful Use certified;
McKesson	Certified Meaningful Use stage 1; separate web-based solutions for different types/sizes of practices; complete medical billing, scheduling & clinical functionality
Meditech	Integrated medical and practice management solution for all types/sizes of practices which includes scheduling, labs, registration, EHRs, billing, ordering, reporting
NextGen	Certified Meaningful Use stage 2; scalable; ICD-10 ready; accommodates 25 specialties; patient workflows/summaries; health information exchange
Noteworthy	Certified Meaningful Use stage 1; full EHR/PM solution scalable for all physician practices
Office Practicum	Pediatric only EHR solution that includes encounters/flow sheets; prescriptions/diagnostic tests; vaccine recording/forecasting; billing; practice management

Table A - 10. Intended Use of EMR Software by Vendor (cont.)

EMR Vendor	*Intended Use*
Practice Fusion	Free, web-based EHR/PM solution for >25 specialties; scalable to all practice types/sizes; includes e-prescribing; charting; scheduling mobile access; labs/imaging; patient health record; Meaningful Use certified
Sage	Certified Meaningful Use; scalable for practice size and multiple specialties; charting; scheduling; orders; labs; e-prescribing; quality measure reporting; HL7 interoperable
SOAPware	scheduling; coding; integrate data from specific medical devices; order entry; e-prescribing; patient education/maintenance; additional practice management tools
Sunrise	EHR solution specifically for hospitals and health systems; addresses Meaningful Use; contains interoperable, fully connected care with order entry, clinical decision support, e-prescribing/medication management

Source: EMR Vendors' individual websites.

Appendix G: CHiR Health Care Workforce Reports and Articles

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