Geiger Gibson /
RCHN Community Health Foundation Research Collaborative

Policy Research Brief # 27

Results from the 2010-11 Readiness for Meaningful Use of HIT and Patient Centered Medical Home Recognition Survey

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About the Geiger Gibson / RCHN Community Health Foundation Research Collaborative

The Geiger Gibson Program in Community Health Policy, established in 2003 and named after human rights and health center pioneers Drs. H. Jack Geiger and Count Gibson, is part of the School of Public Health and Health Services at The George Washington University. It focuses on the history and contributions of health centers and the major policy issues that affect health centers, their communities, and the patients that they serve.

The RCHN Community Health Foundation, founded in October 2005, is a not-for-profit foundation whose mission is to support community health centers through strategic investment, outreach, education, and cutting-edge health policy research. The only foundation in the country dedicated to community health centers, the Foundation builds on health centers' 40-year commitment to the provision of accessible, high quality, community-based healthcare services for underserved and medically vulnerable populations. The Foundation's gift to the Geiger Gibson program supports health center research and scholarship.

Additional information about the Research Collaborative can be found online at www.gwumc.edu/sphhs/departments/healthpolicy/ggprogram or at rchnfoundation.org.

Acknowledgement

The authors wish to express their appreciation to the National Association of Community Health Centers (NACHC), Primary Care Associations (PCAs), Health Center Controlled Networks (HCCNs), the National Center for Farmworker Health, the National Health Care for the Homeless Council and the National Center for Health in Public Housing for their collaboration in the design of the survey and assistance with completion of the field work.

In addition, we wish to acknowledge our gratitude to the Health Resources and Services Administration (HRSA) and the Bureau of Primary Health Care (BPHC) for guidance and funding for the analysis of the survey findings. Conclusions or opinions expressed in this report are those of the authors and do not reflect the views of the sponsors or The George Washington University.

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EXECUTIVE SUMMARY

This brief describes the status of health centers with respect to Electronic Health Record (EHR) adoption, readiness to meet the health information technology (HIT) meaningful use (MU) standards, and readiness to achieve Patient-Centered Medical Home (PCMH) recognition. Results are derived from a brief 10-12 minute online survey that was developed in partnership with the National Association of Community Health Centers (NACHC) and in consultation with the leadership of selected primary care associations (PCAs), health center controlled networks (HCCNs), the National Health Care for the Homeless Council, the National Center for Health in Public Housing and the National Center for Farmworker Health. Key findings include:

- 69 percent of responding health centers have adopted EHR, with 45 percent fully electronic at all sites and 24 percent partially implemented (combination of electronic/paper records);
- Compliance with individual MU Core Functional Measures ranges from 26 percent to 82 percent;
- Compliance with individual MU Menu Set Measures ranges from 17 percent to 62 percent;
- 91 percent of health centers plan to apply for Medicaid MU incentives within two years;
- Less than 6 percent of health centers have received NCQA PCMH recognition;
- The top reported challenges and barriers in applying for or maintaining PCMH recognition are: Cost, staff training/support and lack of understanding of requirements;
- 48 percent of health centers are currently involved with a Regional Extension Center with an additional 16 percent in discussions with a REC;
- The top reported areas of interest for technical assistance (TA) or training are:
    - Applying for PCMH recognition;
    - Complying with MU measures;
    - Workflow redesign and practice transformation; and
    - Using HIT to improve clinical care.
- The highest levels of satisfaction are with PCAs and HCCNs, while the lowest levels of satisfaction are with Private-Public Partnerships and EHR vendors.

Full or partial EHR adoption among health centers increased from 49 percent in 2008 to 69 percent at the time of the survey. Despite a high level of HIT readiness and various supports to achieve both meaningful use of HIT and practice transformation to achieve PCMH recognition, there is a relatively low level of interest in applying for PCMH recognition. A lack of understanding of PCMH requirements and related practice transformation activities suggests a more targeted and coordinated effort may be needed among the various agencies and organizations supporting PCMH recognition.

BACKGROUND

Under the Health Information Technology for Economic and Clinical Health Act (HITECH), which was enacted as part of the American Recovery and Reinvestment Act of 2009 (ARRA), Medicaid and Medicare programs provide bonus payments to qualified physicians for the adoption and demonstration of meaningful use of certified Electronic Health Record (EHR) technology; the incentive program pays up to $44,000 per eligible physician from Medicare and up to $63,750 per eligible physician from Medicaid. While prior analysis of the National Ambulatory Medical Care Survey indicates nearly all health centers would be eligible for either bonus payments,[1] there is currently incomplete information about the status of health centers with respect to EHR adoption, readiness to meet the meaningful use standards and progress toward Patient Centered Medical Home (PCMH) recognition. To address this knowledge gap, the George Washington University (GW) developed and administered an on-line survey to all federally-qualified health centers (FQHCs). The survey – known as the "Readiness for Meaningful Use of HIT and PCMH Recognition" (Readiness Survey) – was fielded between December 7, 2010, and February 28, 2011.

The Readiness Survey was intended to identify unmet needs for technical assistance and training to accomplish Meaningful Use (MU) and PCMH recognition, and to identify the current status of Electronic Dental Record (EDR) adoption, regional clinic data warehouse linkages and the use of telehealth and telemedicine. The survey was developed in consultation with the leadership of selected primary care associations (PCAs), health center controlled networks (HCCNs), the National Health Care for the Homeless Council, the National Center for Health in Public Housing and the National Center for Farmworker Health. The Bureau of Primary Health Care (BPHC) of the Health Resources and Services Administration (HRSA) provided funding for the analysis of Readiness Survey data.

The survey was designed to collect information regarding: Electronic Health Record adoption, Electronic Dental Record adoption, behavioral health, Meaningful Use of Health Information Technology, Patient Centered Medical Home recognition, patient registries, clinical data warehouses, Regional Extension Centers (RECs), telemedicine, telehealth, technical assistance needs and training activities.

[1] Bruen B., Ku, L., Burke M.F., and Buntin M.B., More than Four in Five Office-based Physicians Could Qualify for Federal Electronic Health Record Incentives. Health Affairs, March 2011; 30:3472-3480; Finnegan B., Ku L., Shin P., and Rosenbaum S. "Boosting Health Information Technology in Medicaid: The Potential Effect of the American Recovery and Reinvestment Act," Geiger Gibson/RCHN CHF Policy Research Brief No. 9, Jul 7, 2009.

METHODS

The Readiness Survey was administered online through *Survey Monkey* between December 7, 2010, and February 28, 2011. Using a master list of Project Director (Executive Director or CEO) contact names and email addresses of health center grantees, GW researchers identified and invited participation in the survey by all federally-qualified health centers, in all 50 states, the District of Columbia and U.S. territories. All health centers were invited to complete the survey, regardless of their respective status regarding E H R use, preparing for Meaningful Use of HIT, or applying for PCMH recognition among any of their sites.

The *Survey Monkey* email invitation was sent with instructions that the survey be completed within 10 days of receipt by an appropriate and knowledgeable person as designated by the Project Director. The email invitations provided a link to a "Reference Copy" pdf version of the survey instrument, which respondents could print out for their reference and records.

To help optimize survey participation, GW researchers sent monthly reminders to survey non-respondents via *Survey Monkey* email. In addition, researchers sent customized updates reporting the survey response status of individual health centers to their PCAs, HCCNs and Special Populations organizations. These updates allowed each organization to follow up with survey non-respondents as they chose, and provided for the submission of updated and corrected contact information for any non-respondents to the research team.

There were a total of 63 multiple choice and open-ended, free text questions. The response data were merged with 2009 Uniform Data System (UDS) data. Quantitative data were analyzed using Stata version 11.1 software. Qualitative responses were reviewed by researchers who independently coded each response into pre-identified categories, and subsequently reconciled coded responses.

FINDINGS

PART 1: SAMPLE CHARACTERISTICS

This section discusses the survey response rate, both nationally and by state; and compares selected health center characteristics for the survey respondents and the universe of health centers.

1A. Survey Response Rate

The overall response rate to the Readiness Survey was 63.5 percent, with 714 of the 1,124 health centers participating as of November 2010. Of the 714 health center respondents, 679 health centers submitted a fully completed survey (95.1 percent), while 34 health centers submitted a partially complete survey (4.8 percent).

Table 1 shows the Readiness Survey response rates by state and U.S. territory. States with the highest survey response rates include Colorado, Montana, North Dakota and the territories of Guam and Puerto Rico (100 percent). Wyoming and Delaware health centers had the lowest response rate (17 percent and 25 percent, respectively). No surveys were received from health centers in the U.S. territories of American Samoa, Federated States of Micronesia, Marshall Islands, Palau or the U.S. Virgin Islands.

Table 1. "Readiness Survey" Response Rate by State and Territory

State	Number		Response Rate	State	Number		Response Rate
	Respondents	FQHCs			Respondents	FQHCs	
Alabama	7	14	50.0%	Montana	15	15	100.0%
Alaska	12	25	48.0%	Nebraska	5	6	83.3%
American Samoa	0	1	0.0%	Nevada	1	2	50.0%
Arizona	13	16	81.3%	New Hampshire	8	10	80.0%
Arkansas	9	12	75.0%	New Jersey	11	20	55.0%
California	77	118	65.3%	New Mexico	8	15	53.3%
Colorado	15	15	100.0%	New York	36	52	69.2%
Connecticut	9	13	69.2%	North Carolina	20	27	74.1%
Delaware	1	4	25.0%	North Dakota	4	4	100.0%
District of Columbia	3	4	75.0%	Ohio	18	32	56.3%
Federated States of Micronesia	0	2	0.0%	Oklahoma	10	17	58.8%
Florida	22	44	50.0%	Oregon	16	25	64.0%
Georgia	16	27	59.3%	Palau	0	1	0.0%
Guam	1	1	100.0%	Pennsylvania	16	35	45.7%
Hawaii	6	14	42.9%	Puerto Rico	19	19	100.0%
Idaho	6	11	54.5%	Rhode Island	7	8	87.5%
Illinois	19	36	52.8%	South Carolina	15	20	75.0%
Indiana	18	19	94.7%	South Dakota	4	6	66.7%
Iowa	10	13	76.9%	Tennessee	15	23	65.2%
Kansas	11	13	84.6%	Texas	32	64	50.0%
Kentucky	9	19	47.4%	Utah	9	11	81.8%
Louisiana	11	24	45.8%	Vermont	5	8	62.5%
Maine	10	18	55.6%	Virgin Islands	0	2	0.0%
Marshall Islands	0	1	0.0%	Virginia	15	25	60.0%
Maryland	8	16	50.0%	Washington	18	25	72.0%
Massachusetts	22	36	61.1%	West Virginia	14	28	50.0%
Michigan	18	29	62.1%	Wisconsin	13	16	81.3%
Minnesota	13	15	86.7%	Wyoming	1	6	16.7%
Mississippi	19	21	90.5%				
Missouri	14	21	66.7%	**Total**	**714**	**1,124**	**63.5%**

Note: Of the 714 survey respondents, 679 respondents submitted a fully complete survey (95.1%); 34 of the respondents (4.8%) submitted a partially complete survey.

1B. Comparison of Survey Respondents and Health Center Universe

To examine whether there were differences in the characteristics of Readiness Survey respondents and the entire universe of health centers, a comparison of selected characteristics was performed. In short, using 2009 Uniform Data Set (UDS) to establish baseline characteristics, there were no statistically significant differences between the two groups for the following six attributes:

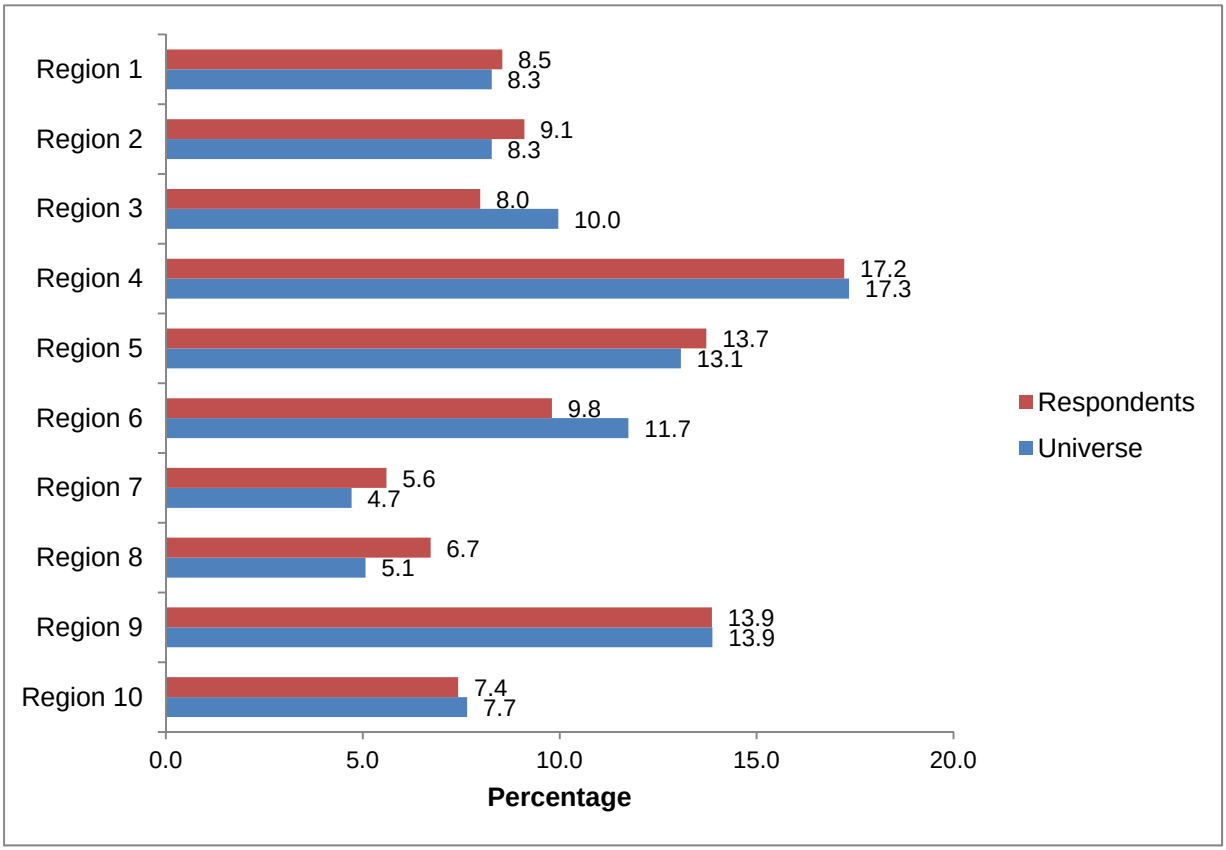
- Distribution of health centers by HRSA Region;
- Health center size (based on total number of patients);
- Average number of patients;
- Average number of full-time equivalent physicians;
- Medicaid patients as a percent of total patients;
- Uninsured patients as a percent of total patients.

The first characteristic examined was distribution by HRSA region. The ten HRSA regions are comprised of the following states and territories:

- Region 1: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.
- Region 2: New Jersey, New York, Puerto Rico, Virgin Islands.
- Region 3: Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia.
  Region 4: Alabama, Georgia, Florida, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee.
- Region 5: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin.
- Region 6: Arkansas, Louisiana, New Mexico, Oklahoma, Texas.
- Region 7: Iowa, Kansas, Missouri, Nebraska.
- Region 8: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming
- Region 9: Arizona, California, Hawaii, Nevada, Guam, American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Republic of the Marshall Islands, Republic of Palau.
- Region 10: Alaska, Idaho, Oregon Washington.

Figure 1 shows the distribution of health centers by HRSA region for both Readiness Survey respondents and the universe of health centers. There was no statistically significant difference between respondents and the universe in the distribution of health centers by HRSA region (chi-square(9) = 11.07, p = 0.2708).

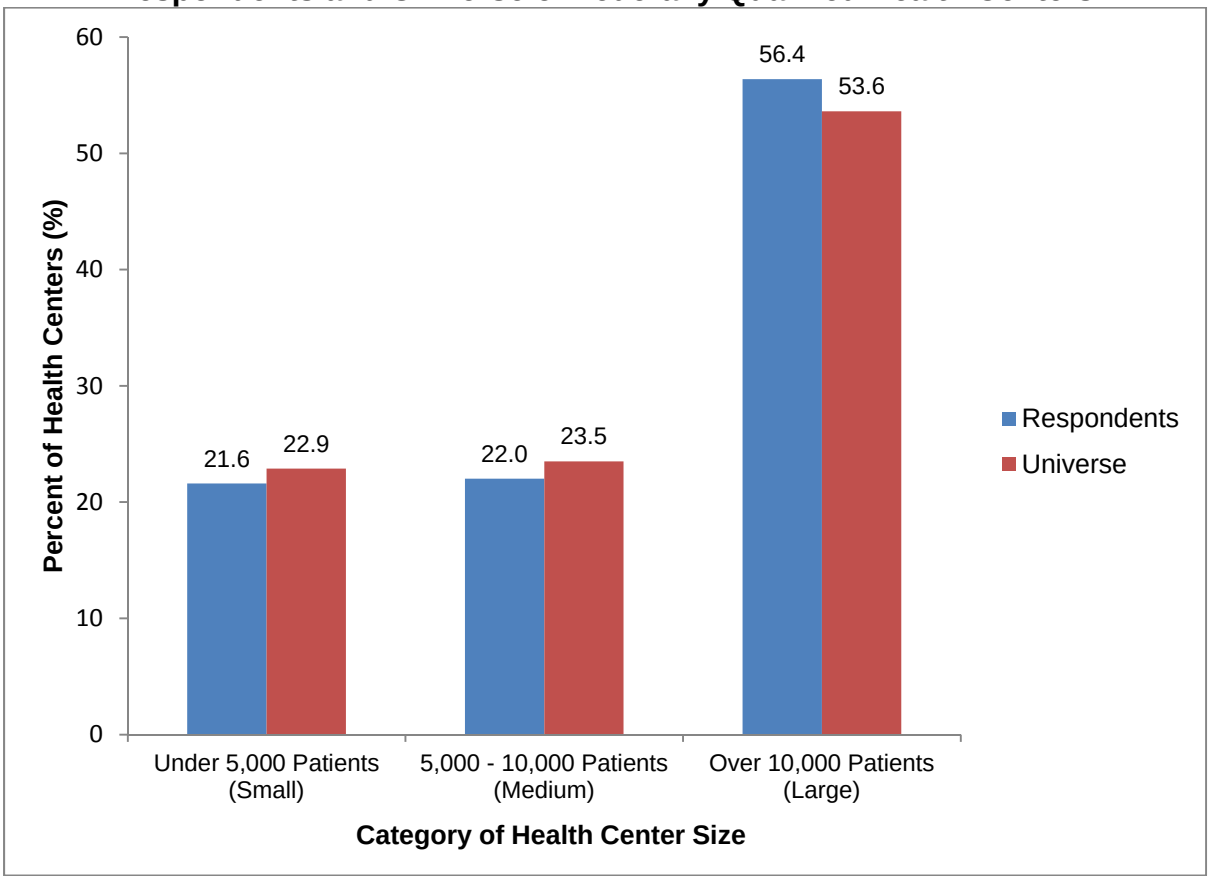
Figure 1. Distribution of Health Centers by HRSA Region: Readiness Survey Respondents vs. Universe



Notes: n = 714 for Respondents and n=1,124 for the Universe.

Figure 2 shows data on health center size for both Readiness Survey respondents and the universe of Section 330 (FQHC) grantees. The variable for health center size was coded as a categorical variable based on the number of patients seen by health centers in the 2009 UDS year. The variable levels were: Under 5,000 patients (small), between 5,000 and 10,000 patients (medium), and over 10,000 patients (large). There was no statistically significant difference between survey respondents and the universe of health centers in terms of health center size (chi-square(2) = 2.19, p = 0.3345).

Figure 2. Comparison of Health Center Size between Readiness Survey Respondents and Universe of Federally Qualified Health Centers



Note: n=713 for Respondents, which was limited to those respondents whose self-reported UDS patient volume matched that reported in the 2009 UDS file.

Table 2 compares average number of physicians, average number of total patients, percentage of Medicaid patients and percentage of uninsured patients for survey respondents and the universe of FQHCs.

Table 2. Comparison of Selected Health Center Characteristics for Readiness Survey Respondents and Universe of Federally Qualified Health Centers

Characteristic	Respondents (n=713)	Universe (n=1,124)
Average number of physicians	8.9	8.1
Average number of total patients	17,939	16,582
Percent of Medicaid patients	32.7%	32.1%
Percent of uninsured patients	40.6%	40.9%

For all four measures, there were no statistically significant differences between survey respondents and the universe of FQHCs. Specifically, there were no differences between the two groups in average number of physicians ($t(71) = 1.816$, $p = 0.0698$), average number of total patients ($t(71) = 1.793$, $p = 0.0734$), percent of Medicaid patients ($t(71) = 0.896$, $p = 0.3701$) or percent of uninsured patients ($t(71) = -0.396$, $p=0.6915$).

Because there were no statistically significant differences between the reporting group and the universe based on the key characteristics there was no need to weight for analysis.

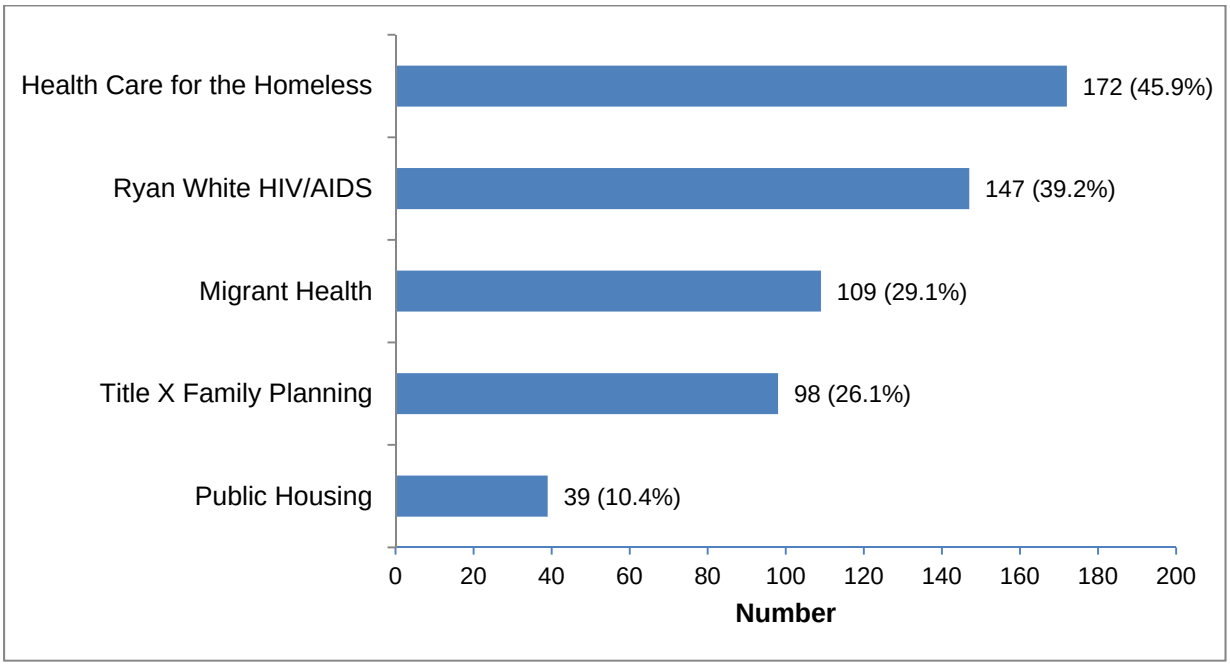
PART 2: ORGANIZATIONAL CHARACTERISTICS

This section discusses the following: 1) Status of Special Populations funding; 2) Location of health center in rural or urban setting; and 3) Status and type of on-site health IT staff.

2A. Special Populations Funding

Health center respondents reported their status regarding special focus on special populations. Figure 3 below provides the frequency of health centers self-reporting their various sources of federal funding streams: Health Care for the Homeless, Public Housing, Migrant Health, Ryan White HIV/AIDS and Title X Family Planning. These categories are not mutually exclusive, as a health center may receive and report funds from more than one source.

Figure 3. Special Populations Funding

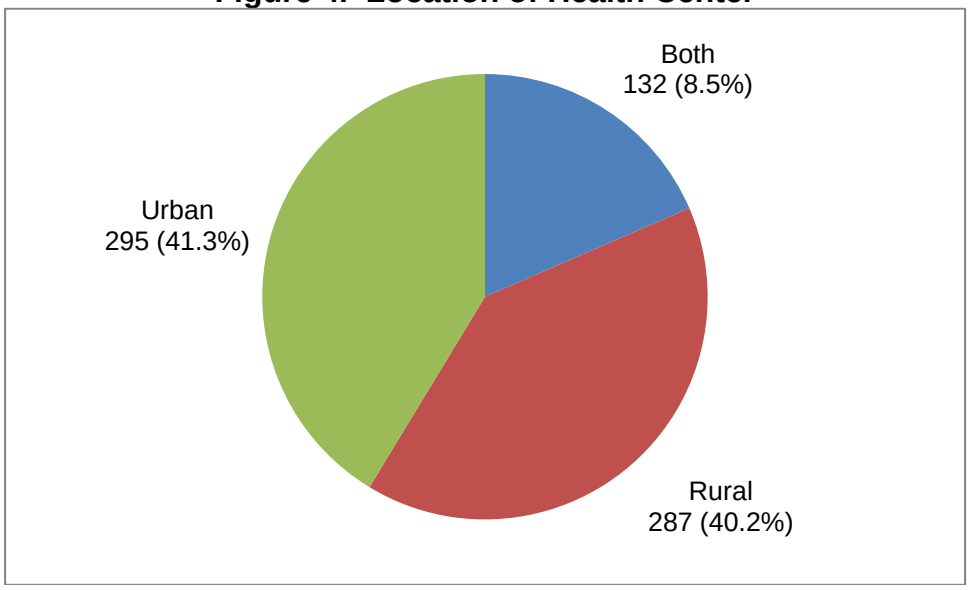


Note: n = 375 responses. Percent is calculated as the frequency of the category of special populations divided by the number of health centers responding to the question. The categories for Special Populations funding are not mutually exclusive.

2B. Location

Figure 4 below displays the distribution of health centers by location type. About equal numbers of health centers reported either an urban or rural location (295 and 287 health centers respectively, each representing about 40 percent); and 132 health centers (8.5 percent) reported both urban and rural locations.

Figure 4. Location of Health Center

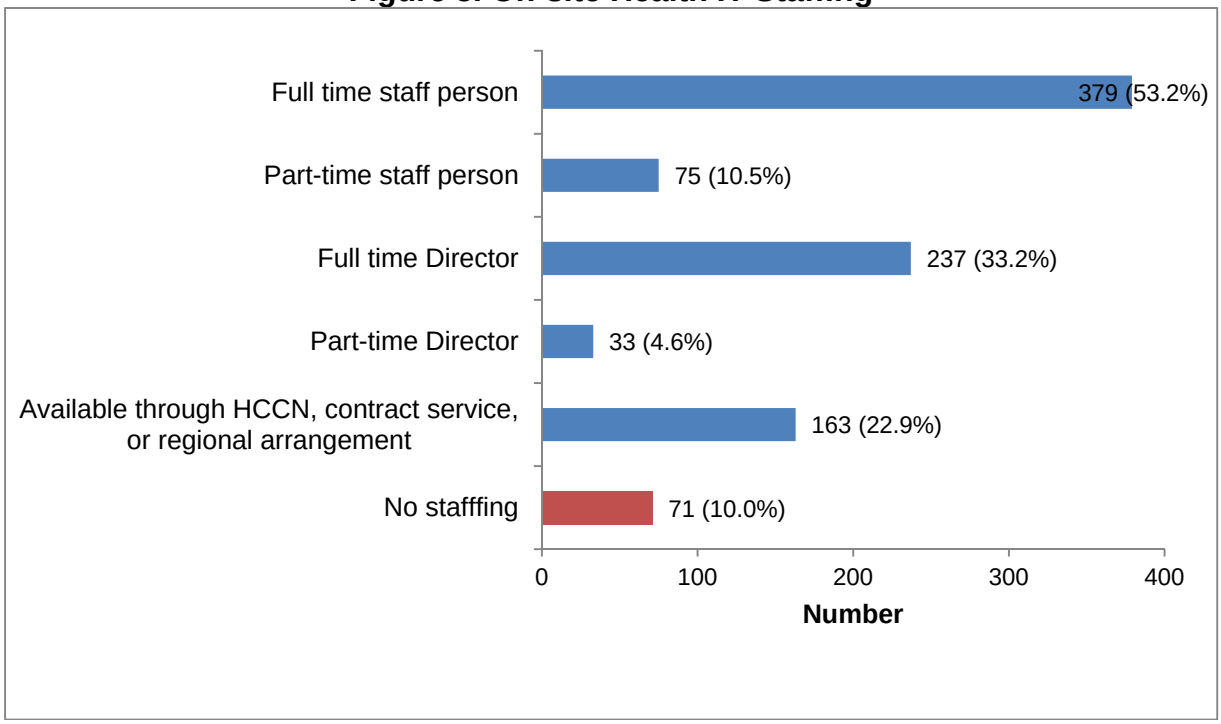


Note: n= 714 responses.

2C. On-site Health IT Staff

Figure 5 presents the availability of on-site health IT staff, for the following categories: Full-time staff person, part-time staff person, full-time Director, part-time Director, absence of staff, or services available through Health Center Controlled Network or other contract service or regional arrangement. These categories were not mutually exclusive, as a health center can report more than one category of staff. Over half of health centers (53.2 percent) reported having a full-time staff person dedicated to health IT/MIS. One-third of health centers (33.2 percent) reported having a full-time Director, while a smaller proportion (22.9 percent) reported having IT services available through an HCCN or other arrangement; and 71 health centers (10 percent) reported no on-site IT staff.

Figure 5. On-site Health IT Staffing



Note: n = 713 responses to "Does your organization have on-site health IT staff and/or a Director of IT or MIS? (Check all that apply)." Percent is calculated as the frequency of the category of health IT staff divided by the number of health centers responding to the question. The categories for staffing are not mutually exclusive.

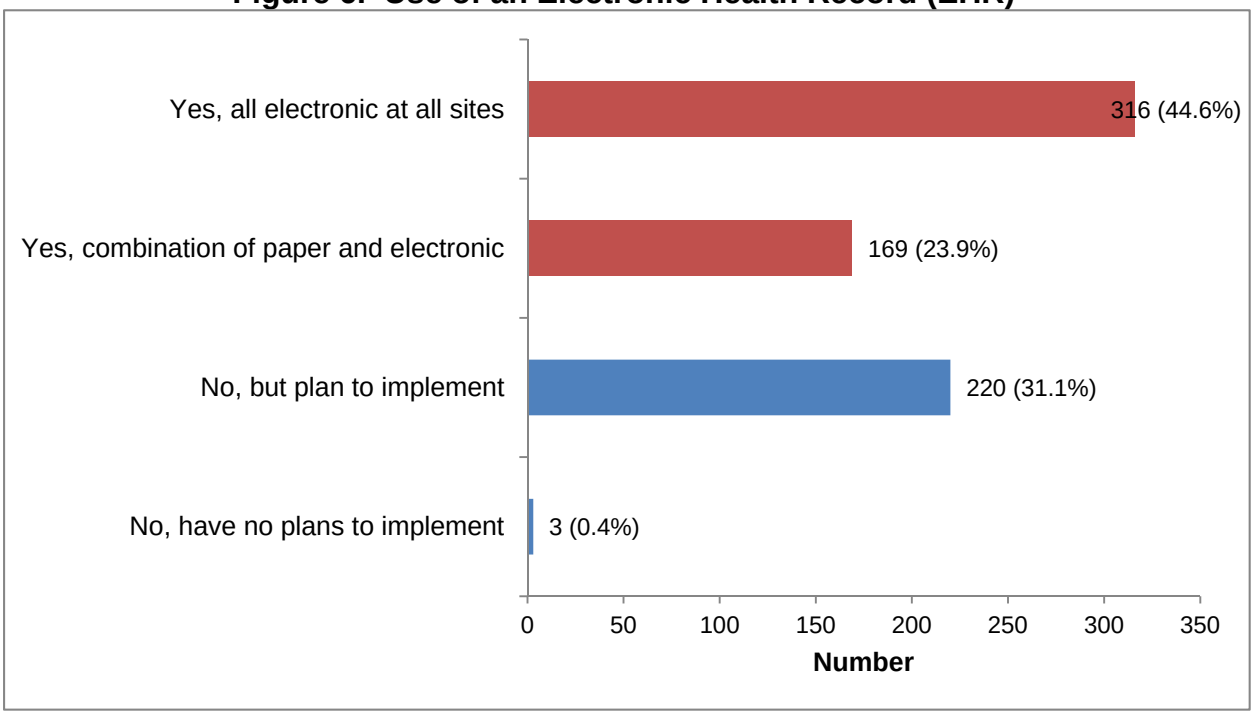
PART 3: ELECTRONIC HEALTH RECORD (EHR) ADOPTION

This section addresses the following topics: 1) Use of an Electronic Health Record (EHR adoption); 2) Type of EHR product; 3) Term of when the EHR went live; 4) Hosting of the EHR; and 5) Expected implementation timetable for centers that have not implemented EHR.

3A. Use of an Electronic Health Record

As shown in Figure 6, nearly 69 percent of health centers reported that they used an electronic health record. The EHR adoption rate consists of 316 health centers reporting "Yes, all electronic at all sites" (44.6 percent) and 169 centers reporting a "combination of electronic and paper" records (23.9 percent). About 31 percent of health centers reported that they plan to implement an EHR.

Figure 6. Use of an Electronic Health Record (EHR)



Note: n = 708 responses "Does your organization use an electronic health record?"

Table 3 presents both Readiness Survey response rates and rates of full or partial EHR adoption by migrant health centers and health centers that target homeless and public housing residents. The rate of EHR adoption was highest among health centers that focus on public housing, with 73 percent reporting either partial or full EHR adoption. Health centers that focus on migrant and homeless populations reported EHR adoption rates comparable to those of all health center respondents.

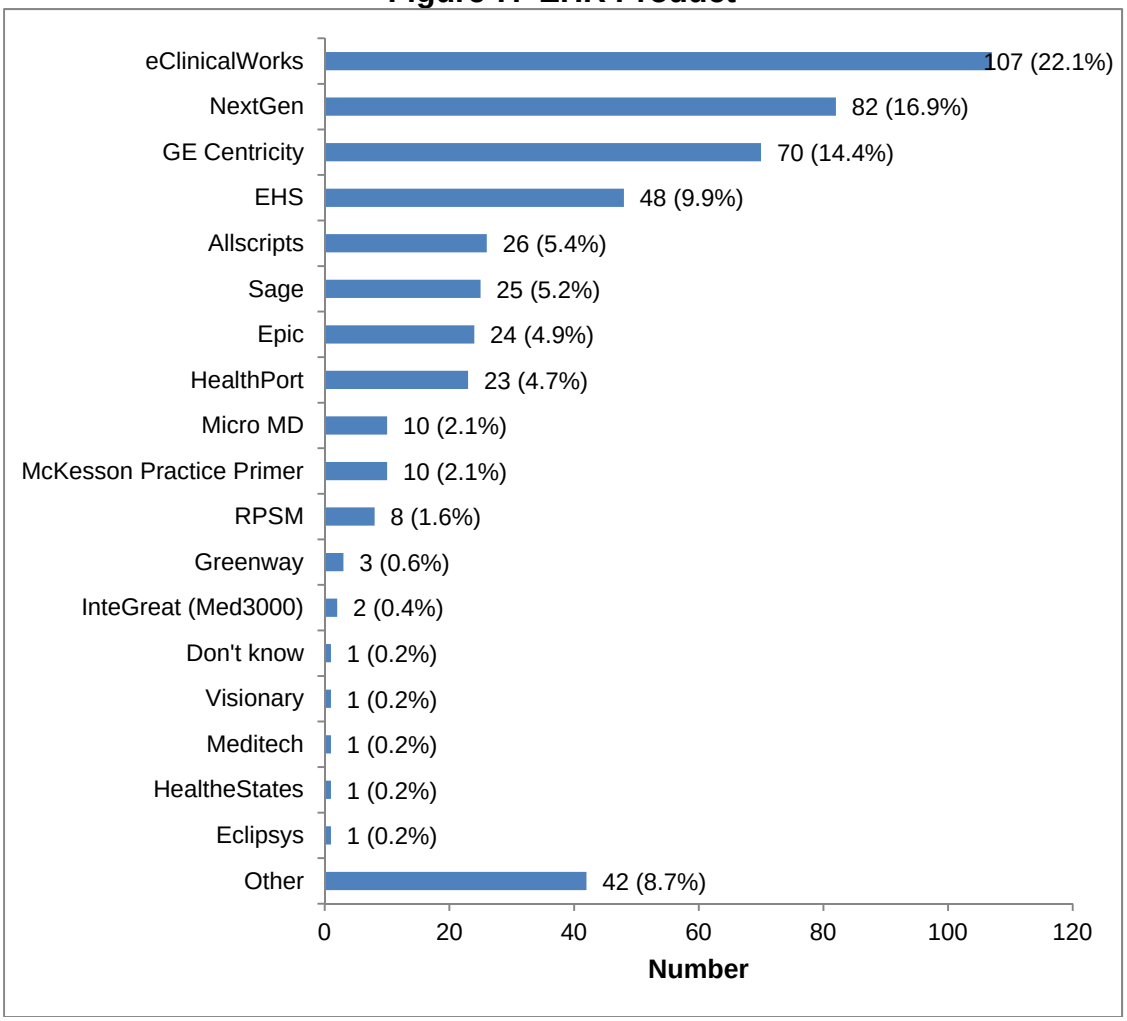
Table 3. "Readiness Survey" Response Rates and EHR Adoption by Migrant, Homeless, and Public Housing FQHCs

	All FQHCs	Migrant Health	Health Care for the Homeless	Public Housing
Survey Response Rate	63.5% (714/1,124)	65.5% (95/145)	72.3% (149/206)	77.4% (41/53)
EHR Adoption (Fully or partially electronic)	68.5% (485/708)	67.3% (64/95)	66.4% (99/149)	73.2% (30/41)

3B. Type of EHR Product

The top four EHR products being used by health centers were eClinicalWorks (22.1 percent), NextGen (16.9 percent), GE Centricity (14.4 percent) and EHS (9.9 percent). Together these four products account for approximately two-thirds of all responding centers. Figure 7 presents all reported EHR products in descending order of frequency. The "Other" category includes several locally developed products as well as products that are replacing ones listed in Figure 7.

Figure 7. EHR Product

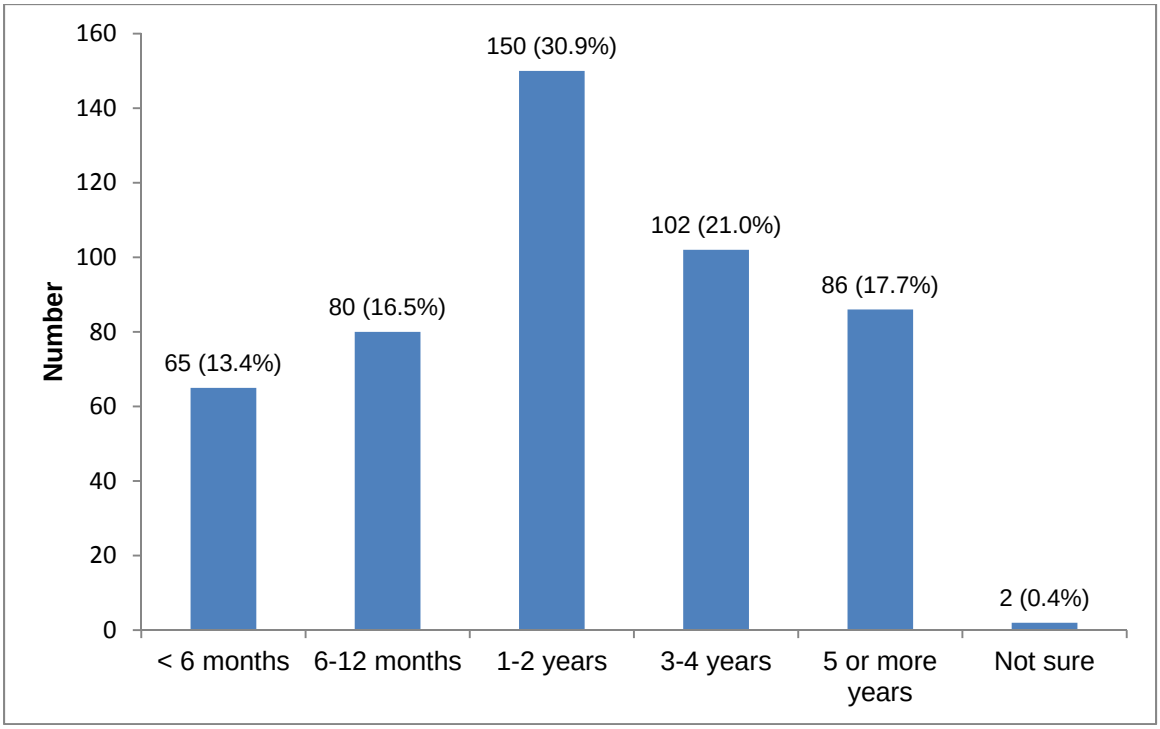


Note: n=485 responses to "Which of the following EHR products is your organization using? (Select only one)."

3C. Term of When the EHR Went Live

Figure 8 presents the term of when the EHR went live among health centers, among the subset of respondents reporting having either a fully or partially implemented EHR (n=485). The survey was fielded in the approximately three-month period from December 7, 2010 through February 28, 2011. Nearly 31 percent of respondents reported going live with an EHR between one and two years prior to the response date, followed by the category of going live three or four years prior (21 percent).

Figure 8. EHR Implementation Term

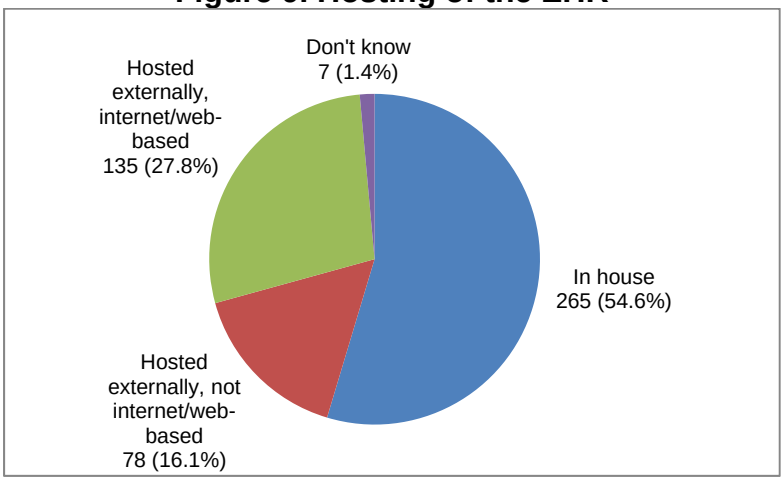


Note: n=485 responses to "How long ago did your organization go live with the EHR? (Check one)."

3D. Hosting of the EHR

Figure 9 presents how the health centers hosted the EHR. Over half (54.6 percent) hosted the EHR in-house, while most of the remaining health centers hosted externally with 28 percent of respondents reporting an external and internet/web-based EHR.

Figure 9. Hosting of the EHR

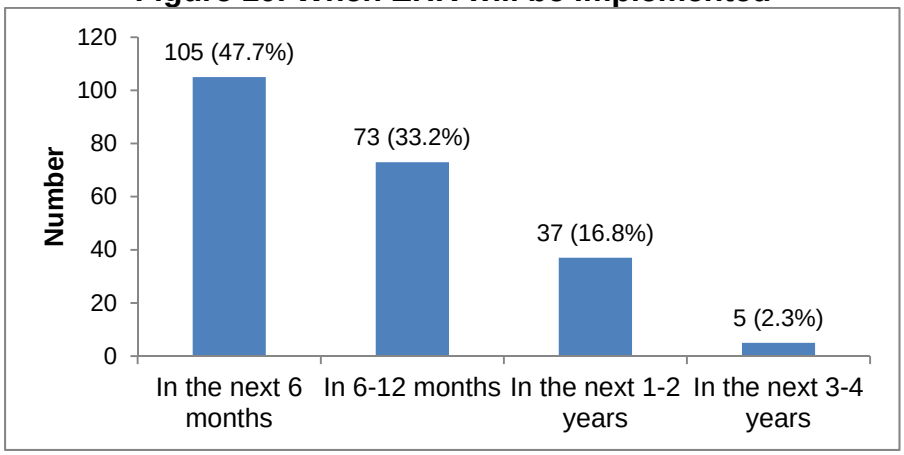


Note: n =485 responses "How does your organization host the EHR? (Check one)."

3E. When will Health Centers Without an EHR Implement the EHR

A total of 220 health centers reported that they have not yet implemented an EHR, but plan on implementing one. Among this subset of respondents, four in five health centers reported that they plan on implementing an EHR within 12 months of the survey response date (between December 7, 2010 and February 28, 2011). Figure 10 presents the distribution of these responses.

Figure 10. When EHR will be Implemented



Note: n=220 responses to "When does your organization plan to implement an EHR? (Check one)."

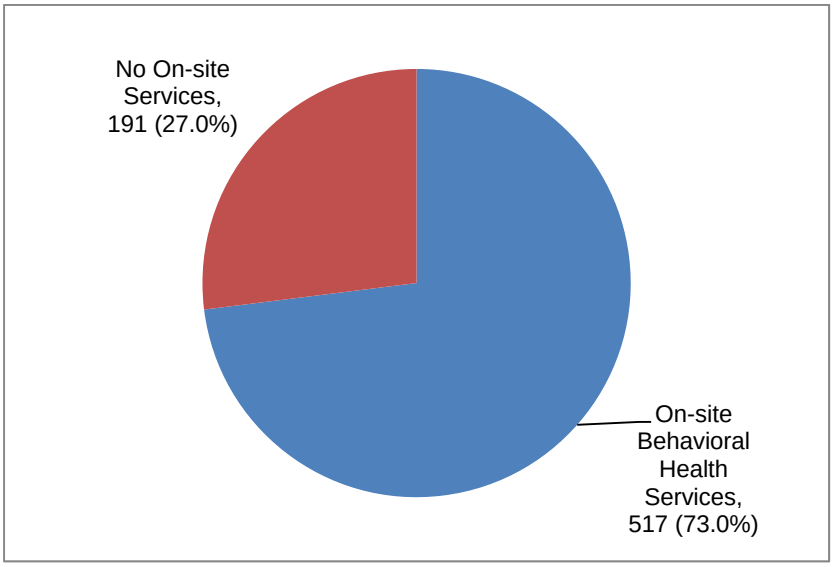
PART 4: BEHAVIORAL HEALTH

This section discusses the following: 1) Provision of on-site behavioral health services among respondents; 2) Format of behavioral health records; 3) Integration of behavioral health records; and 4) Access to a shared problem list and medication list among medical and behavioral health staff.

4A. Provision of On-site Behavioral Health Services

Figure 11 presents the distribution of the provision of on-site behavioral health services among survey respondents. 517 health centers (73 percent) provide on-site behavioral health services, while 191 centers (27 percent) do not provide these services.

Figure 11. Provision of on-site behavioral health services

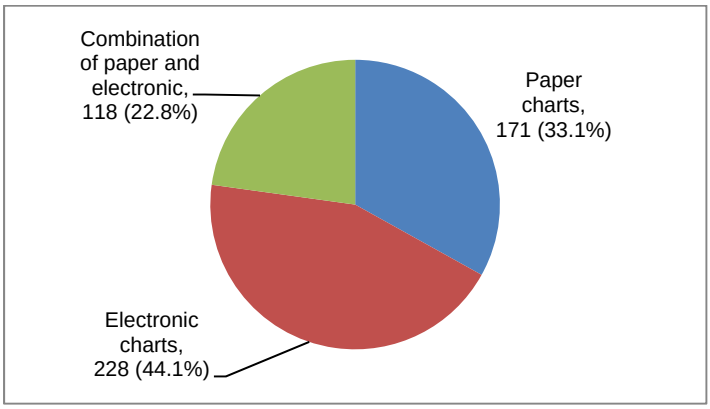


Note: n = 708 responses to "Does your organization provide on-site behavioral health services?"

4B. Format of Behavioral Health Records

Figure 12 presents the distribution of behavioral records by format type (paper or electronic) among health centers reporting the provision of on-site behavioral services. Over 44 percent of these centers have electronic charts only, followed by paper charts only (33.1 percent) and a combination of paper and electronic (22.8 percent).

Figure 12. Format of Behavioral Health Records (Paper or Electronic)

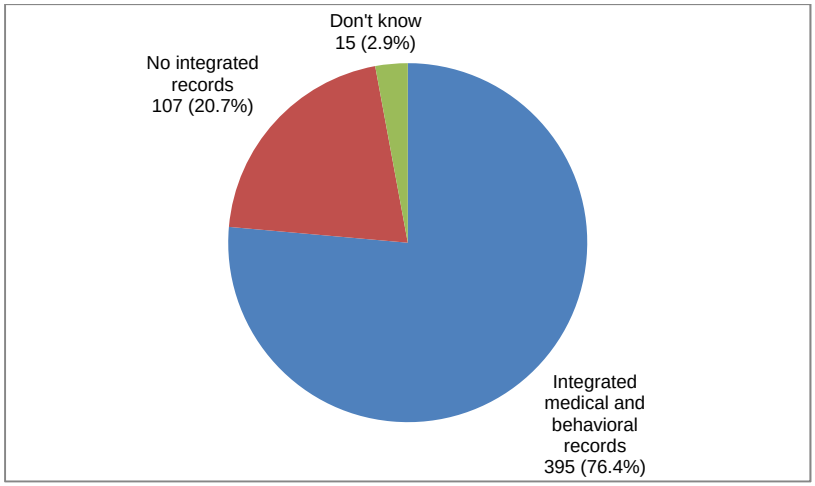


Note: n = 517 responses to "In what format are the behavioral health records?"

4C. Integration of Medical and Behavioral Health Records

Figure 13 shows the status of the integration of medical and behavioral health records (paper or electronic records) among sites providing on-site behavioral health services. Three in four (76.4 percent) health centers reported integrated medical and behavioral health records, while 21 percent reported no integrated records.

Figure 13. Integration of Medical and Behavioral Health Records

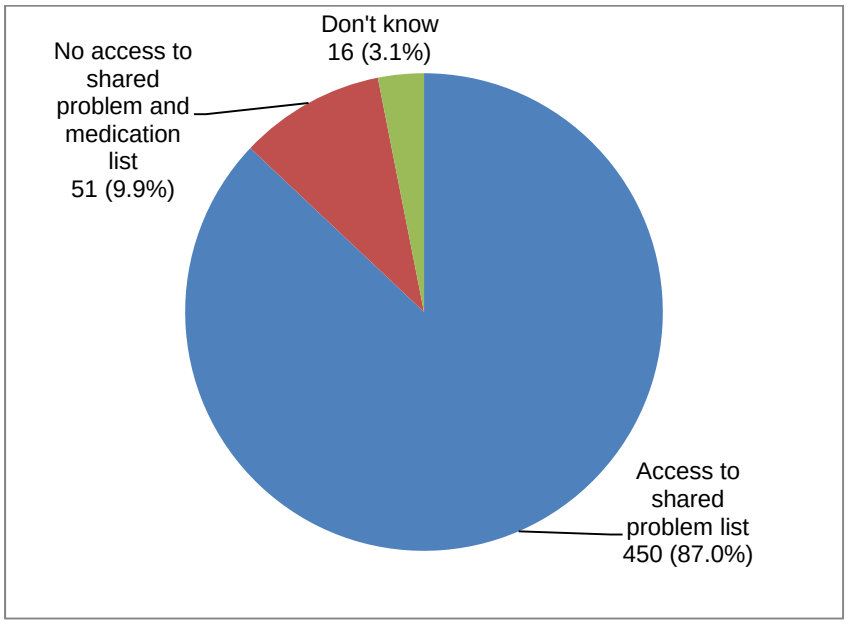


Note: n = 517 responses to "Are the medical and behavioral health records integrated (either paper or electronic)?"

4D. Access to Shared Problem and Medication Lists

Figure 14 shows the status of access to a shared problem list and medication list (paper or electronic records) among sites providing on-site behavioral health services. Nearly nine in 10 respondents (87 percent) reported access to a shared problem list and medication list, while about 10 percent reported no access to a shared list.

Figure 14. Access to a Shared Problem List and Medication List



Note: n = 517 responses to "Do medical staff and behavioral health staff have access to a shared problem list and medication list (paper or electronic)?"

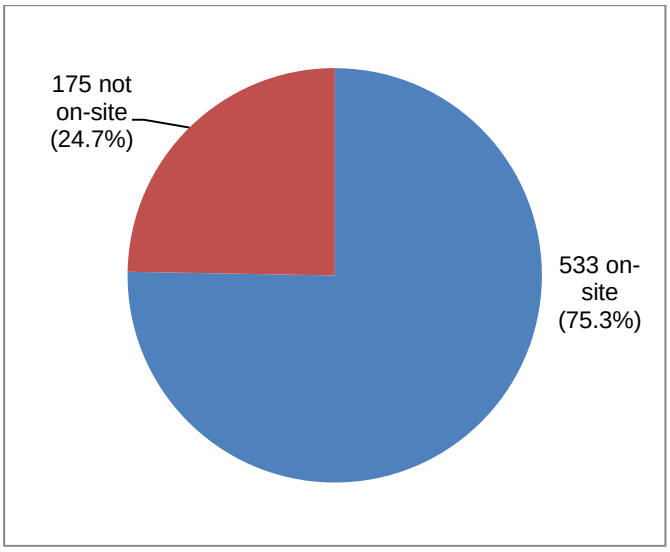
PART 5: ELECTRONIC DENTAL RECORD (EDR) ADOPTION

This section addresses the following topics: 1) Provision of on-site dental services; 2) Use of an Electronic Dental Record (EDR adoption); 3) Type of EDR product; 4) Timeframe of when the EDR went live; 4) Hosting of the EDR; 5) Communication between the EHR and the EDR; and 6) Among those who have not implemented, when the organization will implement an EDR.

5A. Provision of On-site Dental Services

As shown in Figure 15, about three in four health centers provide on-site dental services. This is a slight increase from 70 percent in 2000.[2]

Figure 15. Provision of On-site Dental Services



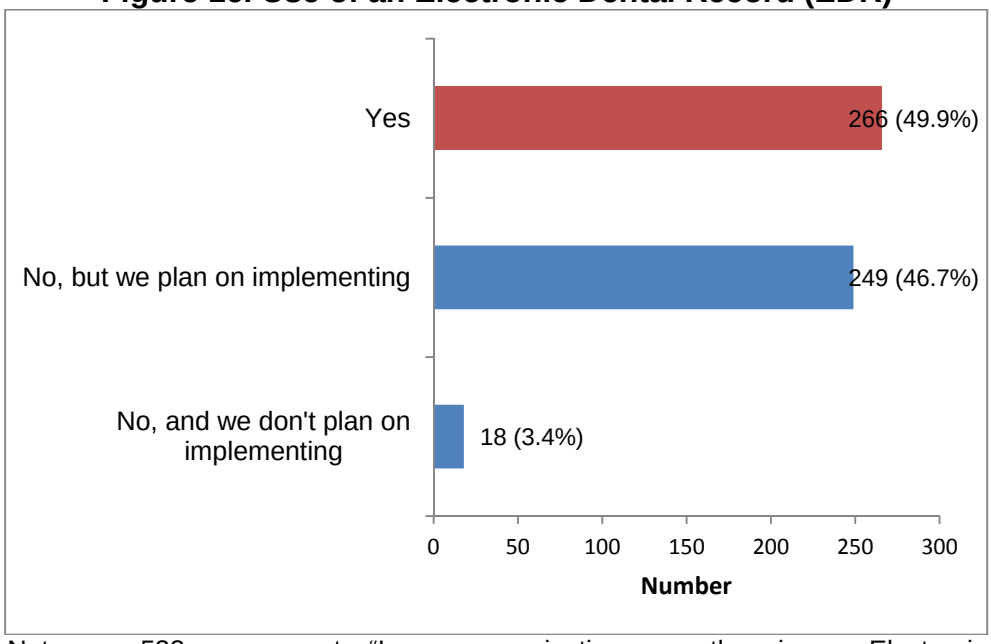
Note: n = 708 responses to "Does your organization provide on-site dental services?"

[2] 2000 Uniform Data System, HRSA.

5B. Use of an Electronic Dental Record

About half of FQHCs that provide on-site dental services reported that they use an EDR. Nearly 47 percent of centers reported that they plan on implementing an EDR, and three percent reported that they have no plans for implementing an EDR. These results are presented in Figure 16 below.

Figure 16. Use of an Electronic Dental Record (EDR)

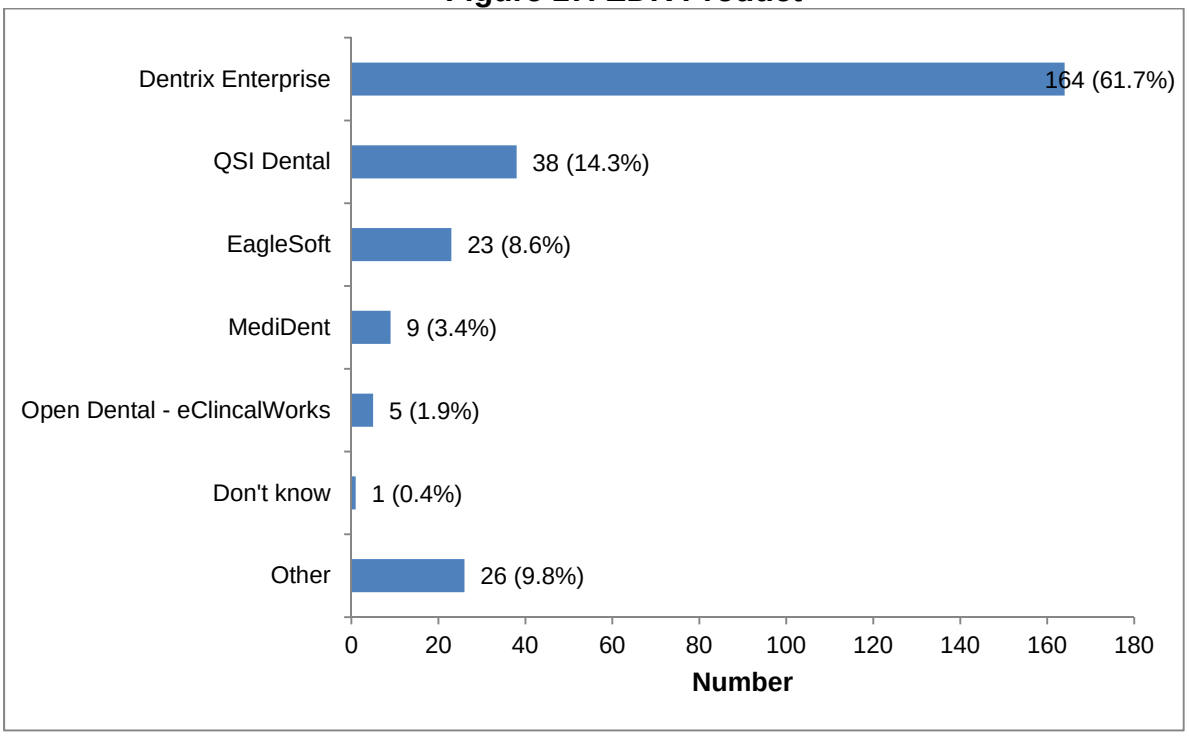


Note: n = 533 responses to "Is your organization currently using an Electronic Dental Record (EDR)? (Check one)"

5C. EDR Product

The EDR product most frequently used by health centers was Dentrix Enterprise, accounting for nearly two-thirds (61.7 percent) of all EDR products used. The next most utilized EDR products were QSI Dental and Eaglesoft, accounting for 14 percent and 9 percent of EDR products used, respectively. Figure 17 presents the distribution of EDR products used by survey respondents.

Figure 17. EDR Product

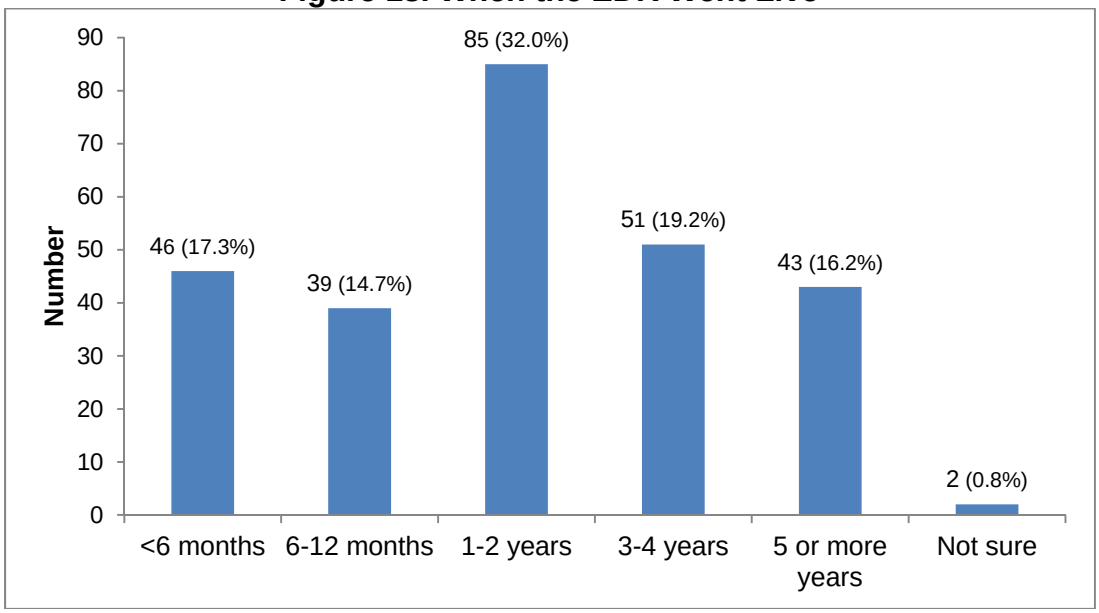


Note: n = 266 responses to "Which of the following EDR products is your organization currently using? (Check one)."

5D. When the EDR Went Live

Figure 18 presents for subset of respondents reporting having an EDR (n=266), the timeframe of when the EDR went live among health centers from the point of survey response in December 7, 2010, through February 28, 2011. Approximately 32 percent of respondents reported going live with an EHR between one and two years prior to the survey, followed by the category of going live three or four years prior (19.2 percent).

Figure 18. When the EDR Went Live

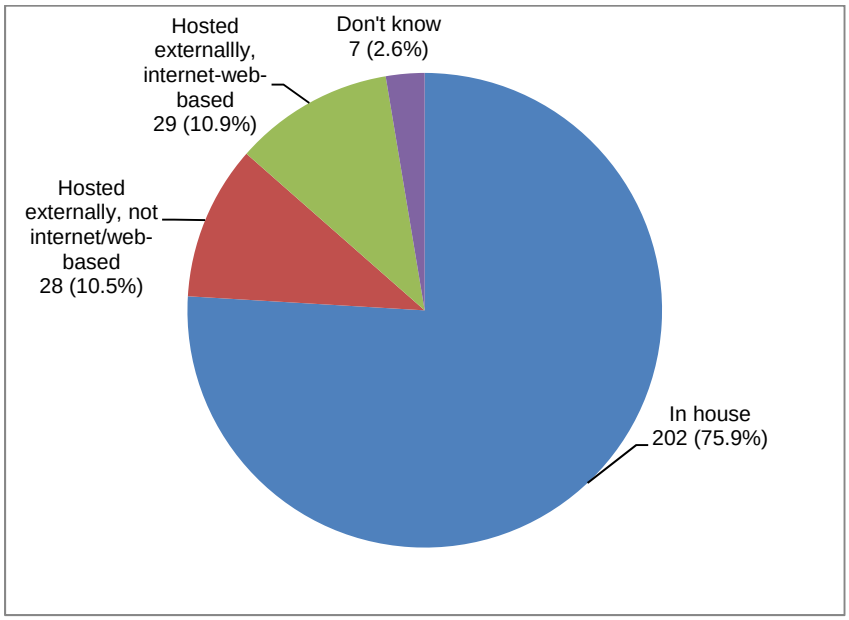


Note: n = 266 responses to "How long ago did your organization go live with the EDR?"

5E. Hosting of the EDR

Figure 19 presents how health centers with an EDR hosted the EDR. Three in four (75.9 percent) health centers hosted the EDR in-house, while most of the remaining health centers hosted externally with nearly 11 percent of respondents reporting an external and internet/web-based EDR.

Figure 19. Hosting of the EDR

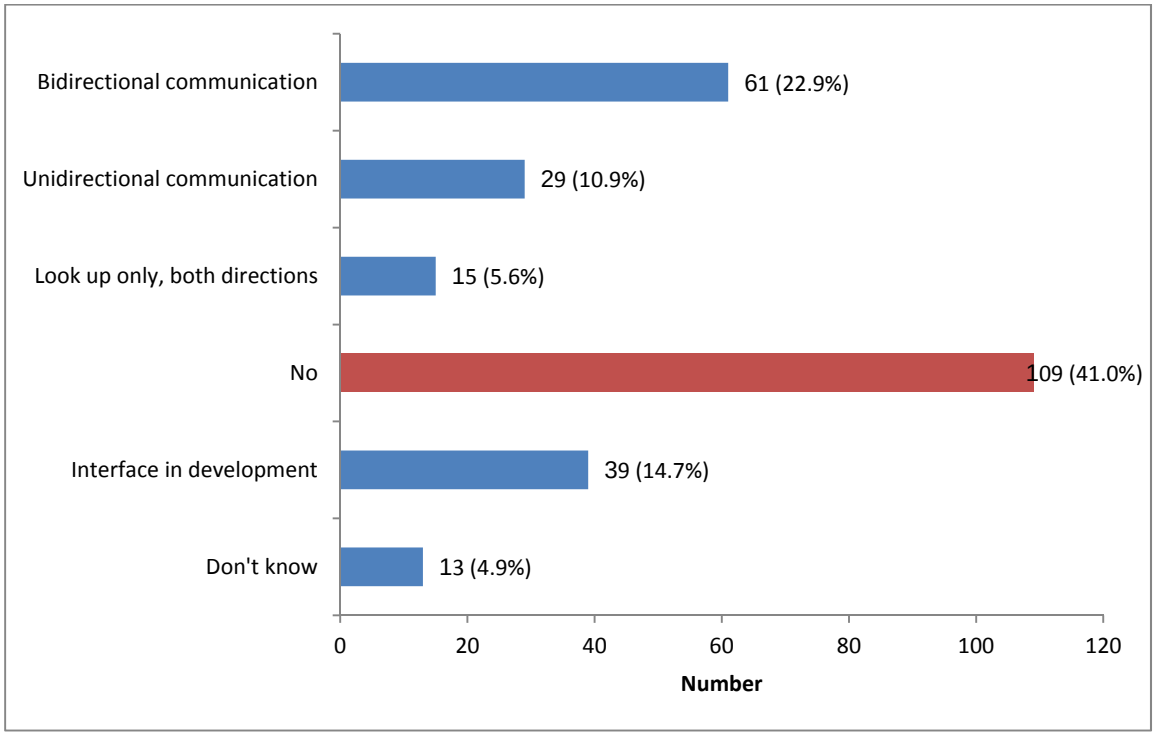


Note: n = 266 responses to "How does your organization host the EDR?"

5F. Communication between the EHR and EDR

Among health centers with an EDR, respondents reported the type of communication or interface, if any, between the EHR and EDR. Figure 20 presents these findings. Bidirectional communication refers to the transfer of information, in both directions, between the EHR and EDR platforms. Unidirectional communication indicates that information moves only in one direction, and that users on the other platform may only look up or view information. The status "look-up only" indicates that information may be viewed by users in either platform, but not transferred. Approximately 41 percent of respondents reported that there is no communication between the EHR and EDR. About 40 percent of health centers reported that there was communication between the two systems, with 23 percent of centers indicating bidirectional communication, 11 percent of centers reporting unidirectional communication, and six percent reporting look-up capacity from both platforms.

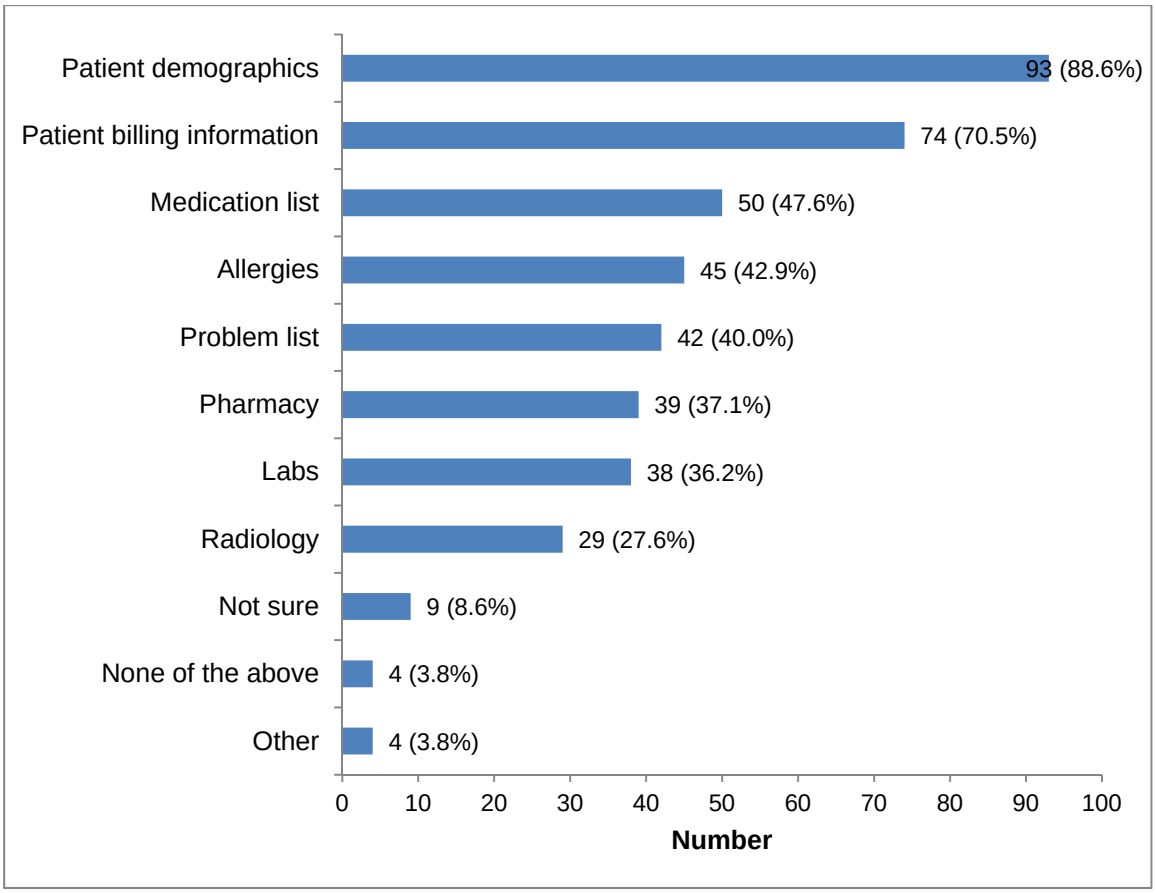
Figure 20. Communication between the EHR and EDR



Note: n = 266 responses to "Is there communication between the EHR and the EDR? (Check one)"

Figure 21 presents what kind of information is accessible between the EHR and EDR, among the subset of health centers reporting unidirectional communication, bidirectional communication or look-up capability in both directions (n = 105). The categories of information are not mutually exclusive, as a health center could report more than one type of information accessible between the two systems. The category most frequently shared across the systems was patient demographics, with nearly 89 percent of health centers reporting this as accessible information. The next most frequent category was patient billing information (70.5 percent).

Figure 21. Information Accessible Between the EHR and EDR

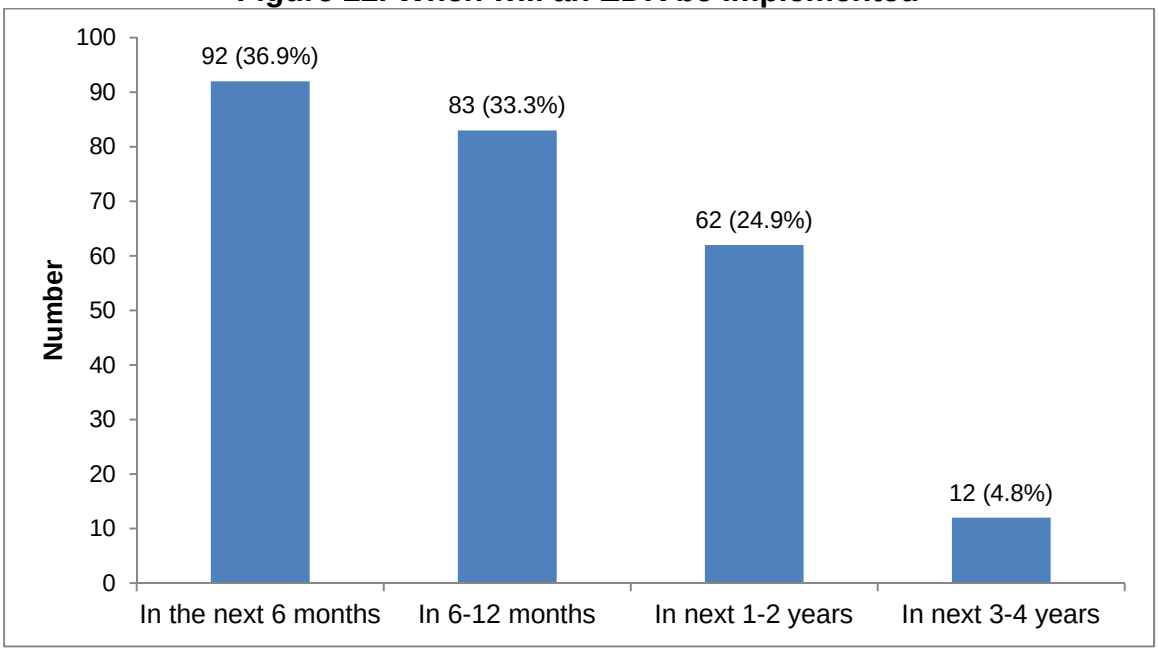


Note: n = 105 responses to "If yes [communication between the EHR and EDR], what information is accessible between the two systems? (Check all that apply)." Percentages are calculated as the number of respondents for each information category divided by 105 health centers. Respondents can report more than one information category.

5G. When will Health Centers Without an EDR Implement an EDR

A total of 249 health centers reported that they have not implemented an EDR, but plan on implementing one. Among this set of respondents between December 10, 2010 and February 28, 2011, approximately 37 percent of respondents indicated that they plan on implementing an EDR within 6 months, followed by those reporting EDR implementation in 6-12 months (33.3 percent). Figure 22 presents the distribution of these responses.

Figure 22. When will an EDR be Implemented



Note: n = 249 responses to "When does your organization plan to go live with an EDR? (Check one)."

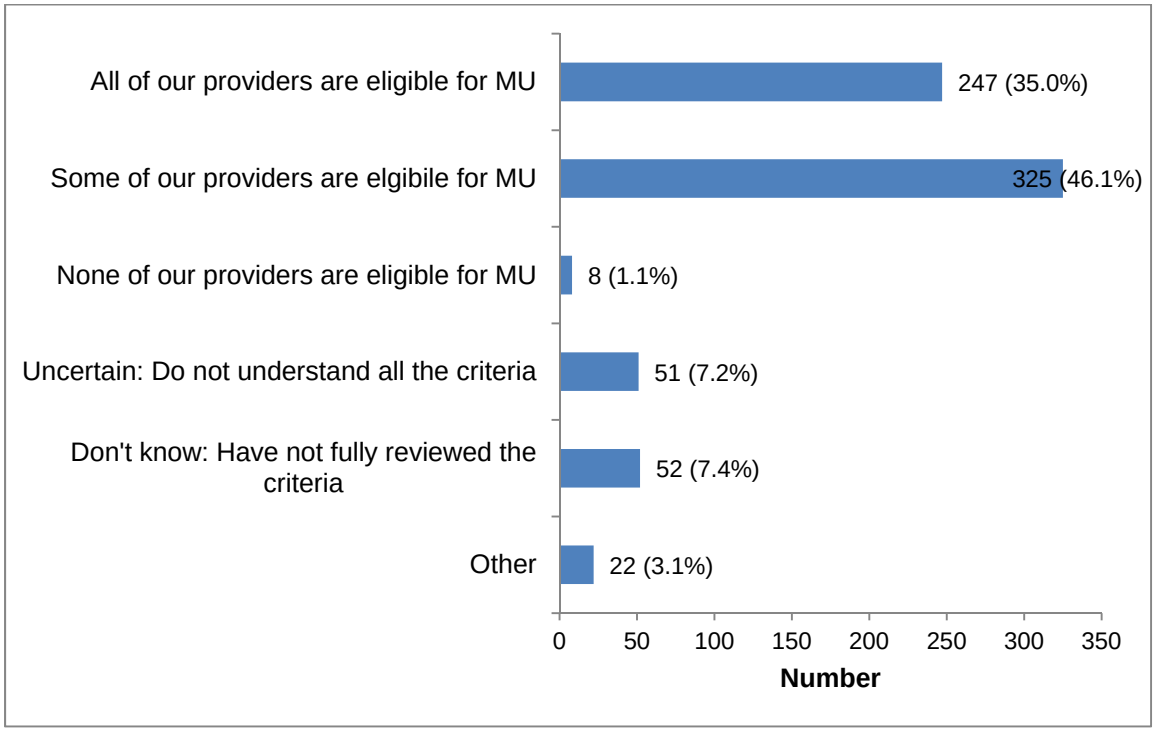
PART 6: MEANINGFUL USE (MU)

This section addresses the following topics: 1) Provider eligibility for Meaningful Use (MU) of health IT; 2) Readiness to comply with Stage 1 Meaningful Use measures; 3) Timeline to apply for Medicaid MU incentives; and 4) Challenges and barriers that the health center is facing in complying with MU measures.

6A. Provider Eligibility for Meaningful Use of Health IT

The Centers for Medicare and Medicaid Services (CMS) in 2011 began to offer incentives through the Medicaid program to practices that demonstrate that eligible providers have achieved "Meaningful Use" of health IT. Figure 23 presents health center assessments of the extent to which their providers are eligible for incentives based on Meaningful Use criteria.

Figure 23. Provider Eligibility for Meaningful Use of Health IT



Note: n=705 responses to "We have reviewed the provider eligibility criteria, and have determined: (Check one)."

6B. Readiness to Comply with Stage 1 Meaningful Use Measures

To be eligible for MU incentives, providers must comply with 25 "Stage 1" Meaningful Use measures. The first fifteen of these measures are known as "Core Functional" measures, which are all required for compliance. The second set of the remaining ten measures are known as "Menu Set" measures, which will be discussed later below.

The Core Functional measures are:

- Uses CPOE for medication orders;
- Implements drug-to-drug and drug-allergy interaction checks;
- Generates and transmits permissible prescriptions electronically (eRx);
- Records patient demographics;
- Maintains an up-to-date problem list of current and active diagnoses;
- Maintains an active medication list;
- Maintains active medication allergy list;
- Records and charts changes in vital signs;
- Records smoking status for patients 13 years old or older;
- Implements one clinical decision support rule;
- Reports ambulatory clinical quality measures;
- Provides patients with an electronic copy of their health information;
- Provides clinical summaries for patients for each office visit;
- Exchanges key clinical information among providers of care;
- Protects electronic health information.

Table 4 presents health center responses on both current readiness and expected future compliance with the fifteen Core Functional measures. Among the fifteen measures, the measure with the highest current rate of compliance is "records patient demographics" (82.1 percent), followed by "maintains an active medication list" (75.9 percent), "maintains active medication allergy list" (75.2 percent) and "records and charts changes in vital signs" (75 percent). The measure with the lowest current rate of compliance is "provides patients with an electronic copy of their health information" (26.3 percent), followed by "provides clinical summaries for patients for each office visit" (34.5 percent).

Table 4. Readiness for Meaningful Use Core Functional Measures

CORE FUNCTIONAL MEASURES (Eligible providers must do all 15)	Yes, Now	Yes, by 2012	No, Not by 2012	Unsure
1. Uses CPOE for medication orders	52.3% (360)	32.3% (215)	2.3% (16)	14.1% (97)
2. Implements drug -o -rug and drug - allergy interaction checks	61.6% (424)	29.5% (203)	1.5% (10)	7.4% (51)
3. Generates and transmits permissible prescriptions electronically (eRx)	51.9% (357)	41.6% (286)	2.5% (17)	4.1% (28)
4. Records patient demographics	82.1% (565)	14.2% (98)	0.7% (5)	2.9% (20)
5. Maintains an up-to-date problem list of current and active diagnoses	73.1% (503)	21.7% (149)	1.5% (10)	3.8% (26)
6. Maintains an active medication list	75.9% (522)	19.5% (134)	1.5% (10)	3.2% (22)
7. Maintains active medication allergy list	75.2% (517)	19.8% (136)	1.5% (10)	3.6% (25)
8. Records and charts changes in vital signs	75.0% (516)	19.9% (137)	1.3% (9)	3.8% (26)
9. Records smoking status for patients 13 years old or older	63.5% (437)	29.2% (201)	1.3% (9)	6.0% (41)
10. Implements one clinical decision support rule	43.8% (301)	36.3% (250)	1.6% (11)	18.3% (126)
11. Reports ambulatory clinical quality measures	53.9% (371)	34.2% (235)	2.5% (17)	9.5% (65)
12. Provides patients with an electronic copy of their health information	26.3% (181)	53.3% (367)	4.7% (32)	15.7% (108)
13. Provides clinical summaries for patients for each office visit	34.5% (237)	50.2% (345)	4.2% (29)	11.2% (77)
14. Exchanges key clinical information among providers of care	42.4% (292)	41.9% (288)	3.3% (23)	12.4% (85)
15. Protects electronic health information	70.9% (488)	23.6% (162)	1.6% (11)	3.9% (27)

Note: n = 688 responses.

In the survey, 78 health center respondents reported current compliance (“Yes, Now”) for all 15 Meaningful Use Core functional measures, representing 11 percent of survey respondents.

The second set of Stage 1 Meaningful Use measures is known as “Menu Set” measures. To comply with the Menu Set criteria, a provider must meet measures from among two sets of criteria:

1) At least one of the population health criteria: Meet either Measure #1 (Submits electronic data to immunization registries) or Measure #2 (Submits syndromic surveillance data to public health agencies); and
2) Any four of the remaining eight measures.

The ten Menu Set measures are:

- Submits electronic data to immunization registries (population health measure);
- Submits syndromic surveillance data to public health agencies (population health measure);
- Implements drug formulary checks;
- Incorporates clinical lab test results as structured data;
- Generates lists of patients by specific conditions for QI, outreach;
- Sends reminders to patients for preventive/follow-up care;
- Provides patients with timely electronic access to their health information;
- Identifies and provides patient-specific education resources if appropriate;
- Performs medication reconciliation at relevant transfers of care;
- Provides summary of care record for each transition of care or referral.

Table 5 presents health center responses on current and expected future readiness to comply with the Menu Set measures. For the population health criteria, 38 percent of health centers currently comply with “submits electronic data to immunization registries” while 17 percent comply with “submits syndromic surveillance data to public health agencies.” Among the remaining menu set measures, the measure of “generates lists of patients by specific conditions for QI, outreach” has the highest rate of current compliance (61.5 percent), followed by “incorporates clinical lab test results as structured data” (59.3 percent). The menu set measure with the lowest rate of current compliance is “provides patients with timely electronic access to their health information” (17.2 percent). In the survey, 186 health centers met current criteria (“Yes, Now”) for the Meaningful Use Menu Set measures, representing 27 percent of respondents.

Table 5. Readiness for Meaningful Use Menu Set Measures

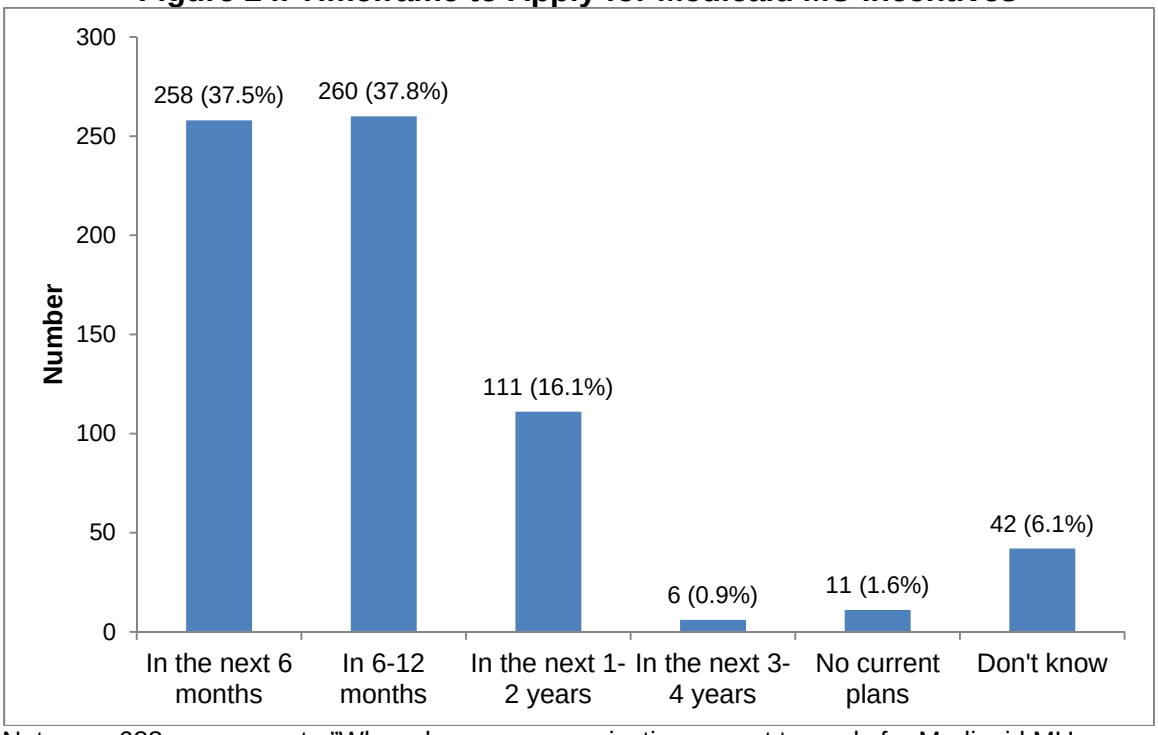
MENU SET MEASURES (Eligible providers must do either #1 or #2 AND any 4 of the remaining #3-10)	Yes, Now	Yes, by 2012	No, Not by 2012	Unsure
1. Submits electronic data to immunization registries (population health measure)	38.4% (264)	41.0% (282)	4.2% (29)	16.4% (113)
2. Submits syndromic surveillance data to public health agencies (population health measure)	17.4% (120)	38.8% (267)	6.7% (46)	37.1% (255)
3. Implements drug formulary checks	41.3% (284)	36.3% (250)	4.2% (29)	18.2% (125)
4. Incorporates clinical lab test results as structured data	59.3% (408)	29.5% (203)	2.0% (14)	9.2% (63)
5. Generates lists of patients by specific conditions for QI, outreach	61.5% (423)	28.6% (197)	1.7% (12)	8.1% (56)
6. Sends reminders to patients for preventive/follow-up care	40.3% (277)	42.3% (291)	4.4% (30)	13.1% (90)
7. Provides patients with timely electronic access to their health information	17.2% (118)	49.6% (341)	9.9% (68)	23.4% (161)
8. Identifies and provides patient-specific education resources if appropriate	49.9% (343)	31.8% (219)	3.6% (25)	14.7% (101)
9. Performs medication reconciliation at relevant transfers of care	34.5% (237)	34.9% (240)	4.7% (32)	26.0% (179)
10. Provides summary of care record for each transition of care or referral	39.5% (272)	35.0% (241)	3.3% (23)	22.1% (152)

Note: n = 688 responses.

6C. Timeframe to Apply for Medicaid MU Incentives

Figure 24 shows the distribution of responses to the question of when, from the point of response in late 2010-early 2011, the health center expects to apply for Medicaid MU incentives. The two most frequently reported timeframes were the periods of within 6 months, and 6-12 months, each accounting for 38 percent of responses. Over 91 percent of health centers plan to apply for Medicaid MU incentives within two years.

Figure 24. Timeframe to Apply for Medicaid MU Incentives



Note: n = 688 responses to "When does your organization expect to apply for Medicaid MU incentives?"

6D. Challenges and Barriers in Complying with the MU Incentives

Health centers provided free-text responses to questions regarding challenges and barriers they face in complying with the Meaningful Use incentives. A total of 535 health centers provided 674 responses (each health center could list multiple challenges and barriers). These responses were then coded by GW researchers into 14 categories.

These categories include:

- Staffing: Training, acceptance, buy-in;
- Costs: Capital, staff, IT consultation;
- Clinical issues: Service integration, etc.
- Workforce redesign, practice transformation;
- Report generation: MU, QI, panels, registries;
- Patient engagement: eAccess, patient portal;
- Internet connectivity;
- Implementation issues;
- Vendor issues: Software, certification;
- Vendor issues: Support, personnel;
- Regional HIE capacity with area providers;
- State readiness: Waivers, procedures, etc.
- Other;
- No challenges/not applicable.

Examples of challenges and barriers reported by health centers include the following:

- *"Waiting for the vendor to release the latest EHR version that is certified for compliance."* (Vendor issues: software, certification)
- *"Frustration that Physician Assistants (PAs) are not eligible providers."* (Other)
- *"Understanding the criteria and clarification from the state of exactly what and how to determine the level of compliance with specific MU measures*." (State readiness)
- *"Our partners (hospitals, pharmacies and referral providers) also need the ability to transfer or receive patient information with technology that is compatible*."(Clinical issues)
- *"Patient portal & internet access are difficult for low income, transient or homeless patients."* (Patient engagement)

Table 6 below presents the frequency and percent of coded free-text responses to the question of challenges and barriers facing the health center in complying with the MU measures. The most frequently cited challenge was staffing (18.1 percent), followed by cost (16.6 percent). Other major challenges include vendor issues concerning software (13.9 percent) and the category of responses classified as "Other challenges and barriers" (10.1 percent).

Table 6. Challenges and Barriers in Complying with the MU Measures

Category of Challenge or Barrier to Complying with MU Measure	Number	Percent (%)
Staffing: Training, acceptance, buy-in	122	18.1
Costs: Capital, staff, IT consultation	112	16.6
Vendor issues: Software, certification	94	13.9
Other	68	10.1
No challenges/not applicable	62	9.2
Implementation issues	59	8.8
State readiness: Waivers, procedures, etc.	36	5.3
Clinical issues: Service integration, etc.	31	4.6
Report generation: MU, QI, panels, registries	22	3.3
Regional HIE capacity with area providers	21	3.1
Patient engagement: eAccess, patient portal	18	2.7
Workforce redesign, practice transformation	13	1.9
Vendor issues: Support, personnel	12	1.8
Internet connectivity	4	0.6
TOTAL	674	100.0

Note: n = 674 coded responses among the 533 unique health centers reporting at least one response. A health center can submit more than one response to the question "What challenges or barriers are you facing in complying with the MU measures?" The percent is calculated as the number of reported challenges/barriers divided by the denominator of 674 responses.

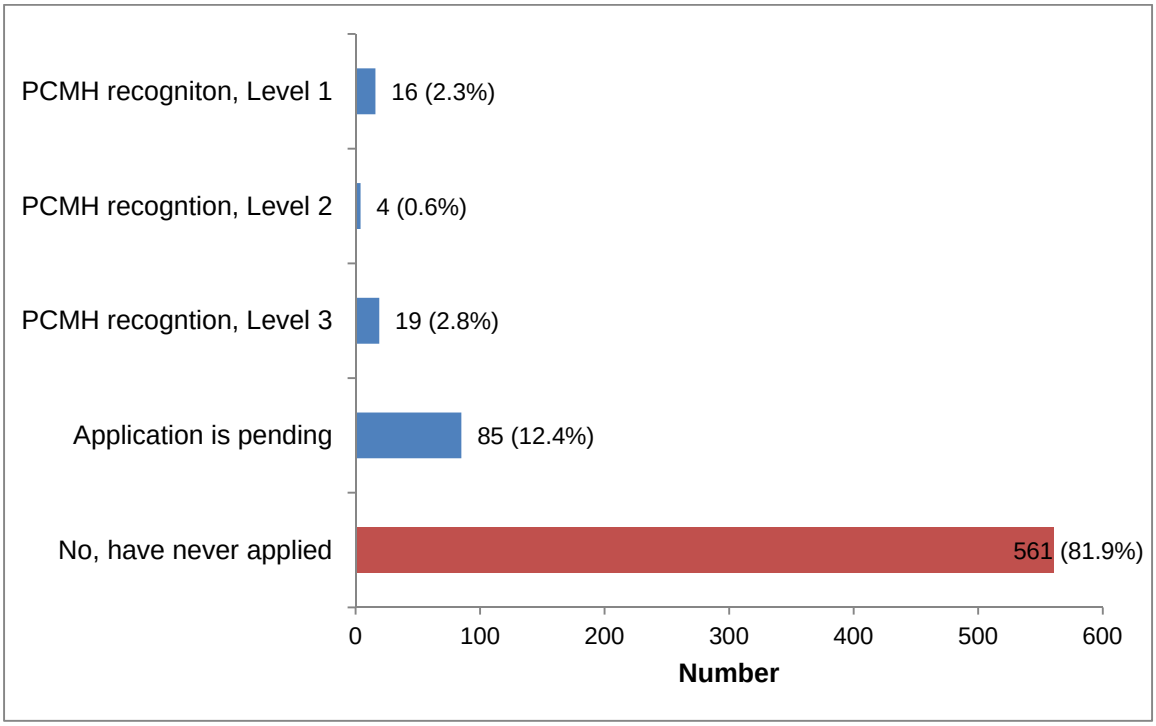
PART 7: PATIENT-CENTERED MEDICAL HOME (PCMH)

This section addresses the following topics: 1) Receipt of PCMH recognition from the National Committee on Quality Assurance (NCQA) at one or more sites; 2) Among health centers without PCMH recognition, timeline for applying to NCQA; 3) Status of considering PCMH recognition from a group other than NCQA; and 4) Challenges and barriers in preparing for or maintaining PCMH designation.

7A. Receipt of PCMH Recognition from NCQA

As shown in Figure 25, nearly 82 percent of health centers have never applied for PCMH recognition. About 12 percent of respondents have an application pending for PCMH recognition. About six percent of respondents have PCMH recognition at some level (Level 1 through 3).

Figure 25. Receipt of PCMH Recognition from NCQA

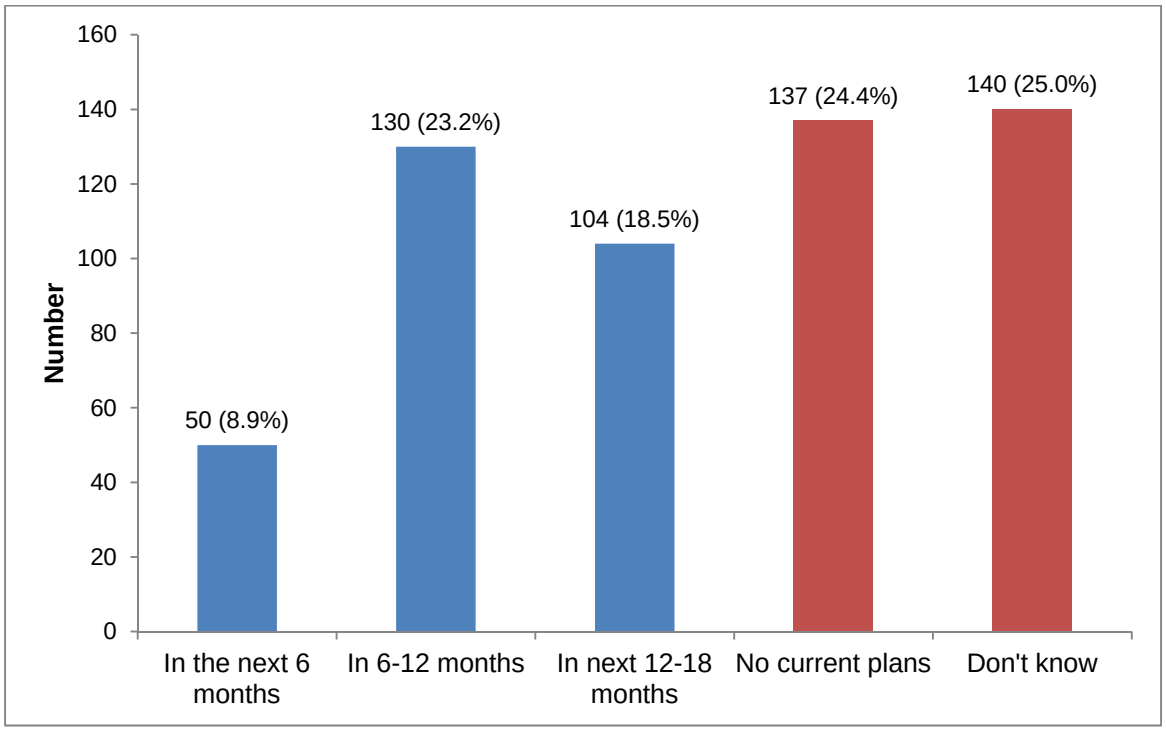


Note: n = 685 responses to "Has your organization received PCMH recognition from NCQA for one or more sites? (Check one)."

7B. Timeframe to Apply for PCMH Recognition

Figure 26 shows the distribution of responses to the question of when, from the time of survey response, the health center expects to apply for PCMH recognition, either from NCQA or another certifying organization, among the subset of respondents indicating that they have never applied for PCMH recognition (n=561). About half of respondents indicated that they either did not know when they would apply (25 percent) or reported no current plans (24.4 percent). About 23 percent of respondents indicated that they would apply for PCMH recognition in 6-12 months.

Figure 26. Timeframe to Apply for PCMH Recognition

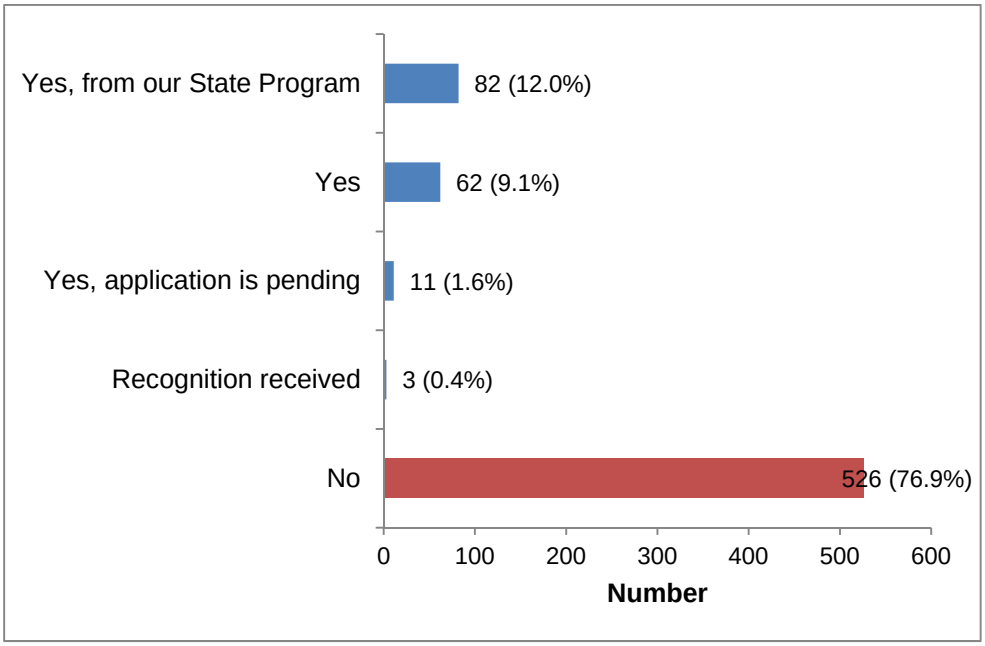


Note: n = 561 responses to "When is your organization planning to apply to NCQA or other certifying organization for PCMH recognition? (Check one)."

7C. Considering PCMH Recognition from a Group Other than NCQA

Figure 27 presents health center responses to the question of whether they either have or would consider applying for PCMH recognition from a group other than NCQA. About three in four respondents (76.9 percent) indicated that they would not consider this. About 12 percent of health centers reported that they have received PCMH recognition from a state program.

Figure 27. Considering PCMH Recognition from a Group Other than NCQA



Note: n = 684 responses to "Is your organization considering PCMH recognition from a group other than NCQA? (Check one)."

7D. Challenges and Barriers in Preparing for or Maintaining PCMH Recognition

Health centers provided free-text responses to questions concerning challenges and barriers in preparing for or maintaining PCMH recognition. A total of 438 health centers provided 586 responses (each health center could list multiple challenges and barriers). These responses were then coded into 15 categories.

These categories include:

- Costs: Staff, TA consultation, lost productivity;
- Staffing: Training, support, provider levels;
- Leadership and support;
- Lack of understanding of requirements;
- Project overload, too much happening;
- Workflow redesign, practice transformation;
- Implementation issues;
- Performance reports and improvement;
- Patient tracking, panels, registries;
- Test and referral tracking, e-RX;
- Patient eAccess, patient portal;
- EHR vendor issues, functionality;
- No State or multi-payer incentives/program;
- Other;
- Don't know/not applicable.

Examples of challenges and barriers reported by health centers include the following:

- *"Too many conflicting projects: EHR, EDR, MU, PCMH -- all being considered as major and urgent and the wave of the future, but not well understood or aligned."* (Project overload)
- *"Need to get EHR fully implemented and finish workflow changes before jumping into something new."* (Workflow redesign)
- *"Uncertain about which organization's accreditation to go for: NCQA, JC, AAAHC or State-specific recognition."* (Other)
- *"Self management goal setting, maintaining advanced access, care coordination with appropriate teams."* (Implementation issues)
- *"Leadership turnover (medical director / CEO / COO)"* (Leadership and support)

Table 7 below presents the frequency and percent of coded free-text responses to the question of challenges and barriers facing the health center in preparing for or maintaining PCMH recognition. The most frequently cited challenge was cost (20.3 percent), followed by staffing (19 percent) and lack of understanding of requirements (9.4 percent).

Table 7. Challenges and Barriers to Preparing for or Maintaining PCMH Recognition

Category	Number	Percent (%)
Costs: Staff, TA consultation, lost productivity	119	20.3
Staffing: Training, support, provider levels	110	18.8
Don't know/not applicable	98	16.7
Lack of understanding of requirements	55	9.4
Other	42	7.2
Project overload, too much happening	36	6.1
Leadership and support	32	5.5
EHR vendor issues, functionality	27	4.6
No State or multi-payer incentives/program	18	3.1
Workflow redesign, practice transformation	15	2.6
Implementation issues	9	1.5
Performance reports and improvement	9	1.5
Patient tracking, panels, registries	8	1.4
Test and referral tracking, e-RX	5	0.9
Patient eAccess, patient portal	3	0.5
TOTAL	586	100.0

Note: n = 586 coded responses among the 438 unique health centers reporting at least one response. A health center may submit more than one challenge or barrier on question: "What challenges or barriers are you facing in preparing for or maintaining PCMH designation?" The percent is calculated as the number of reported challenges/barriers divided by the denominator of 586 responses.

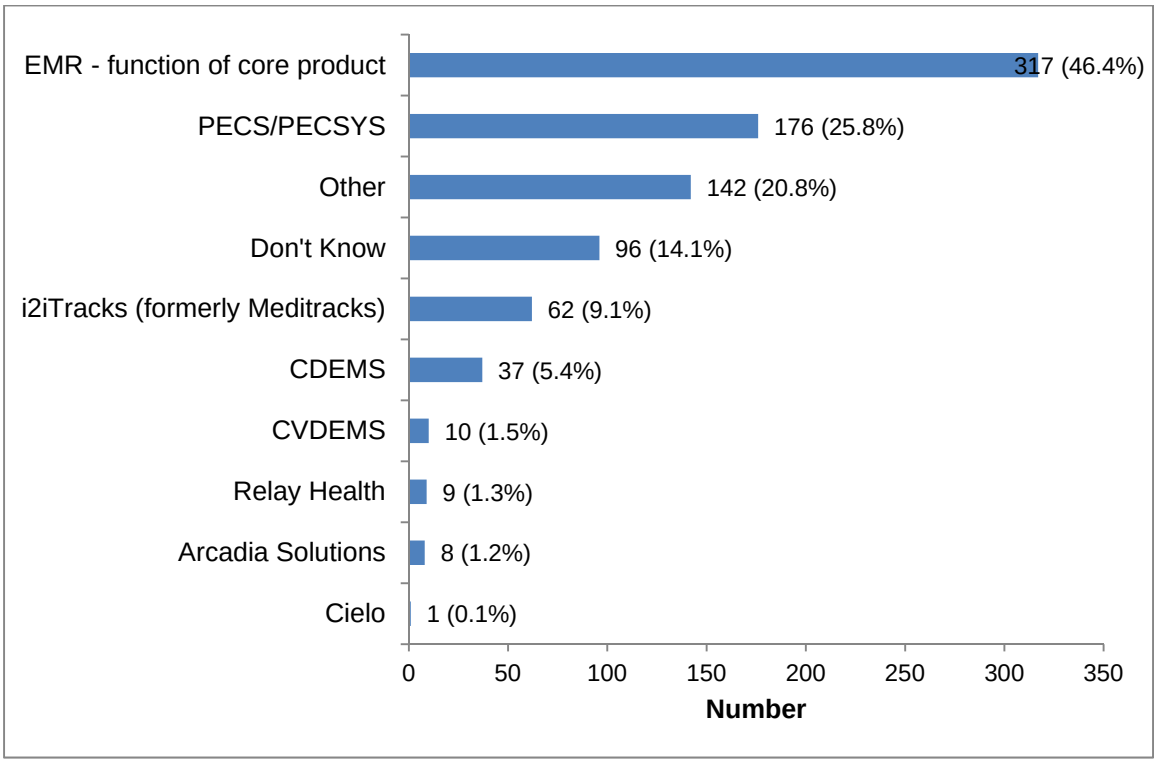
PART 8: PATIENT REGISTRIES/CLINICAL DATA WAREHOUSES

This section addresses the following topics: 1) Patient registry product; and 2) Involvement with local or regional clinical data warehouse project that will or is currently providing information regarding clinical performance on selected measures within and among participating practices.

8A. Patient Registry Product

Figure 28 presents the patient registry products currently in use by health center respondents. A health center could report one or more patient registry product. The most commonly reported patient registry product was EMR (function of core product), with 46 percent of respondents indicating the use of this product. The next most common product was PECS/PECSYS, with 26 percent of respondents reporting the use of this product. About 21 percent of respondents listed patient registry products classified as "Other" product.

Figure 28. Patient Registry Product

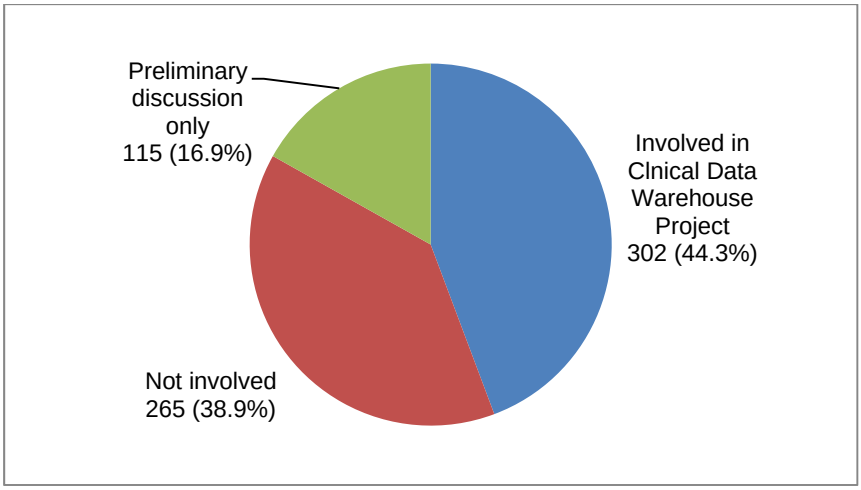


Note: n = 683 responses to "Which of the following patient registry products are currently in use in your organization?" Health centers may report more than one patient registry product. Percentages were calculated by the number of patient registry category divided by the number of respondents.

8B. Involvement with Local or Regional Clinical Data Warehouse Project

Health centers reported their involvement with any local or regional clinical data warehouse project that will or is currently providing information regarding clinical performance on selected measures within and among participating practices. As shown in Figure 29, about 44 percent of health centers report involvement in such a clinical data warehouse project. About 17 percent of centers indicated that they are in preliminary discussions about such a project.

Figure 29. Involvement with Local or Regional Clinical Data Warehouse Project



Note: n=682 responses to "Is your organization currently involved with any local or regional clinical data warehouse project that will or is currently providing information regarding clinical performance on selected measures within and among participating practices? (Check one)."

PART 9: ROLE OF REGIONAL EXTENSION CENTER (REC)

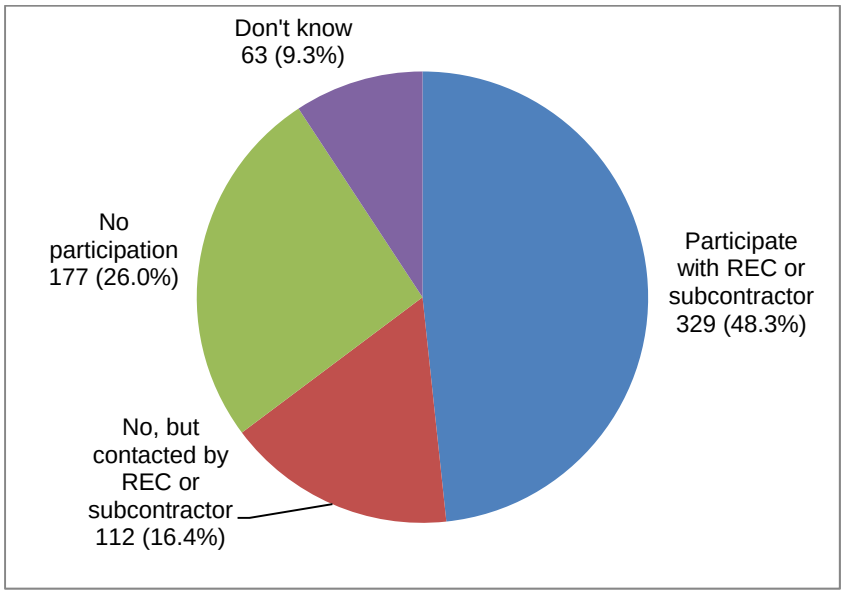
This section addresses the following topics: 1) Participation or collaboration with a Regional Extension Center (REC) or subcontractor; and 2) Assessment of the helpfulness of REC collaboration in advancing efforts to achieve Meaningful Use status.

9A. Participation and Collaboration with Regional Extension Center

Regional extension centers (REC) are funded as part of the Health Information Technology Extension Program. RECs offer technical assistance, guidance and information on best practices to support and accelerate providers' efforts to become meaningful users of EHRs.

As shown in Figure 30, nearly half of health centers (48.3 percent) reported that they participated or collaborated with a REC or subcontractor. About 16 percent of centers indicated that the REC or subcontractor has contacted them, even though the centers have not previously participated or collaborated with them.

Figure 30. Participation and Collaboration with Regional Extension Center

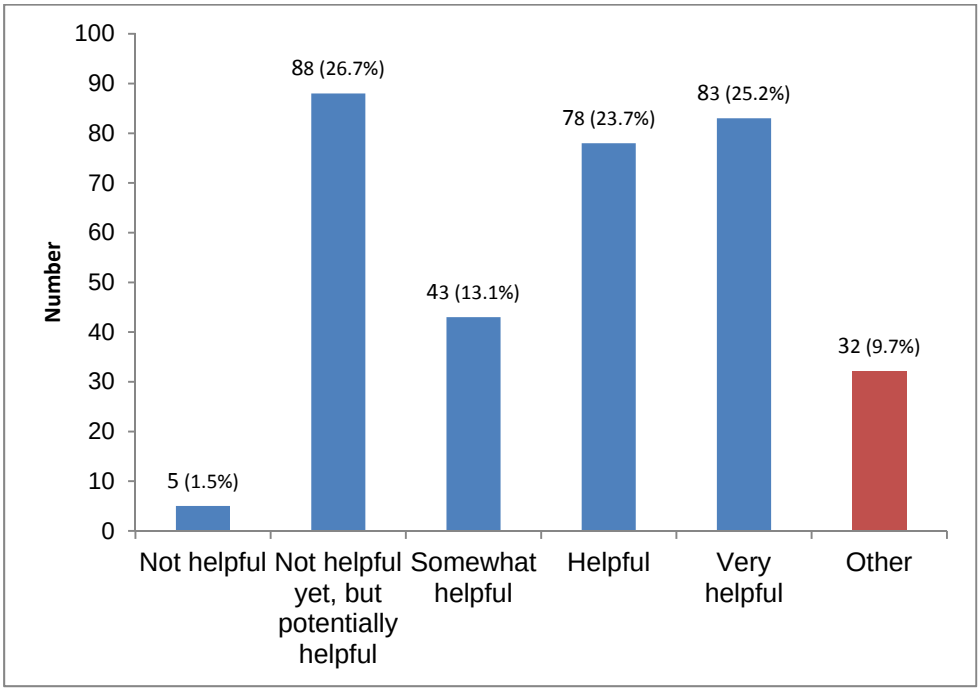


Note: n=681 responses to "Does your organization participate or collaborate with a Regional Extension Center (REC) or subcontractor?"

9B. Assessment of Helpfulness of REC Collaboration to Achieve MU Status

Figure 31 below presents health centers' assessments of the helpfulness of their REC collaboration in achieving MU status, among the subset of respondents reporting that they participate with a REC (n=329). About half of respondents reported either "helpful" (23.7 percent) or "very helpful (25.2 percent) ratings. Over a quarter of respondents indicated that their REC participation was "not helpful yet, but potentially helpful" (26.7 percent).

Figure 31. Level of REC Helpfulness



Note: n=329 responses to "How helpful is this REC collaboration in advancing your efforts to achieve MU status?"

PART 10: TELEMEDICINE/TELEHEALTH

This section addresses the following topics: 1) Provision of clinical telemedicine services; 2) Type of clinical consultation services used in telemedicine; 3) Provision of telehealth services; 4) Type of clinical consultation services used in telehealth; 5) Expectation of integrating telemedicine or telehealth into health center's care delivery model; and 6) Barriers to implementing telemedicine and/or telehealth services.

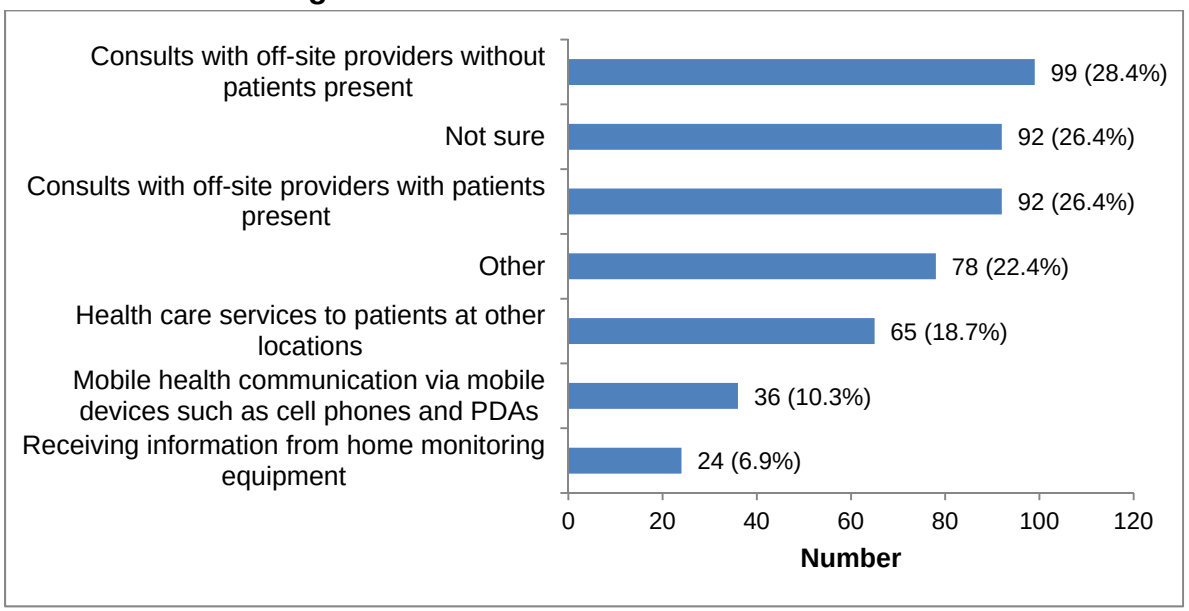
10A. Clinical Telemedicine Services

Telemedicine is the exchange of clinical information from one location to another through electronic audiovisual media to improve patients' health status. The exchange may either be between providers or between the provider and patient. This exchange may be rendered by using audio-visual technology such as webinars or video-conferencing that is interactive in real time (synchronous) or by transmission of clinical information using technology such as an email with document and image transfer that is not real-time interactive (asynchronous, i.e. sending a message or question and waiting for a response).

In the survey, 260 health centers reported providing at least one clinical telemedicine service, representing 38 percent of survey respondents (the denominator excludes respondents who dropped out of the survey prior to the telemedicine/telehealth section).

Figure 32 below shows the distribution of clinical telemedicine services provided by health center respondents. The most frequently reported clinical telemedicine service was "consults with off-site providers without patients present" (28.4 percent), followed by "consults with off-site providers with patients present" (26.4 percent). About a quarter of respondents (26.4 percent) were not sure about their clinical telemedicine services.

Figure 32. Clinical Telemedicine Services



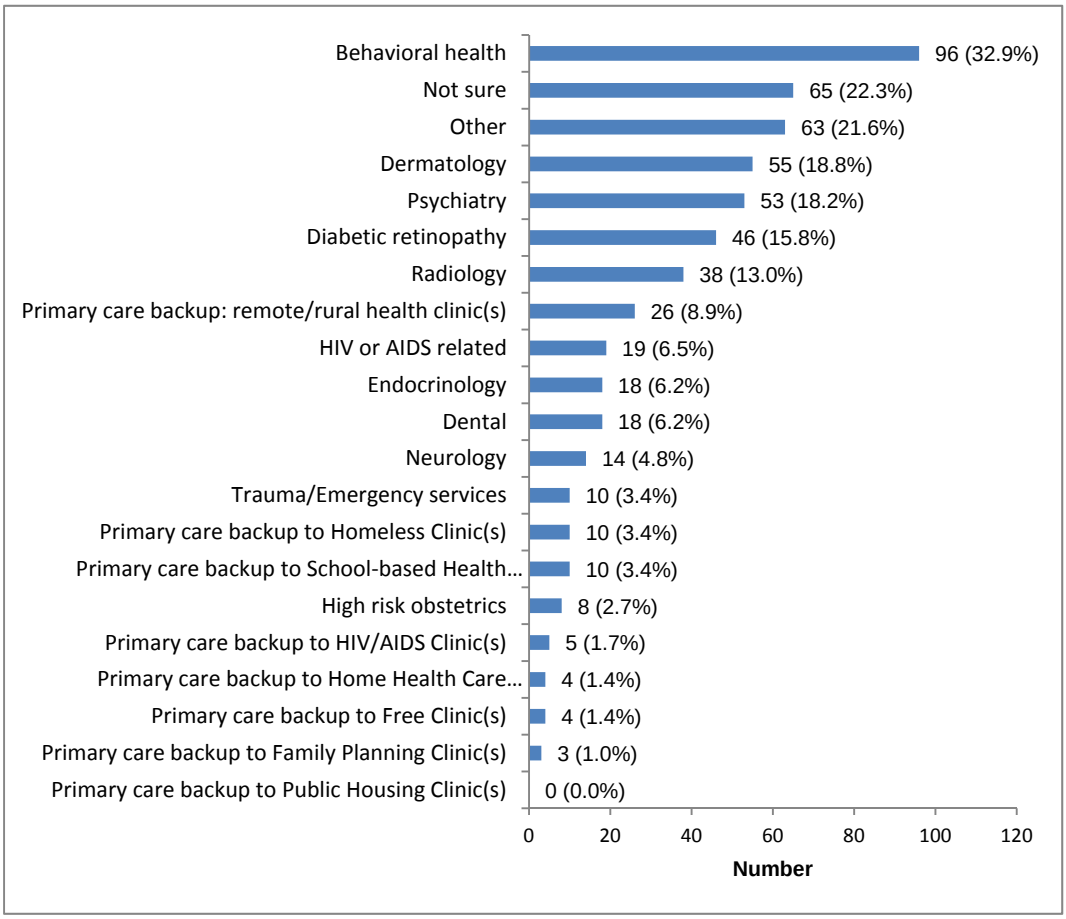
Note: n= 348 responses to "Does your organization provide or participate in any of the following clinical telemedicine services? (Check all that apply. If none, proceed to next question)." A total of 348 health centers reported 486 clinical telemedicine services. Percentages were calculated by dividing the number of clinical telemedicine services by 348, the number of unique health center respondents.

10B. Telemedicine Clinical Consultation Services

In the survey, 310 health centers reported providing at least one telehealth service, representing 46 percent of survey respondents (the denominator excludes respondents who dropped out of the survey prior to the telemedicine/telehealth section).

Figure 33 shows the clinical consultation services offered via telemedicine, either internally within the health center network or externally with other health providers. The most commonly reported clinical consultation service was behavioral health, which includes mental health or substance abuse services (32.9 percent). The next most frequent clinical consultation services were those classified as "other" (21.6 percent), dermatology (18.8 percent) and psychiatry (18.2 percent). Over 22 percent of respondents were unsure about which clinical consultation services they provide.

Figure 33. Telemedicine Clinical Consultation Services



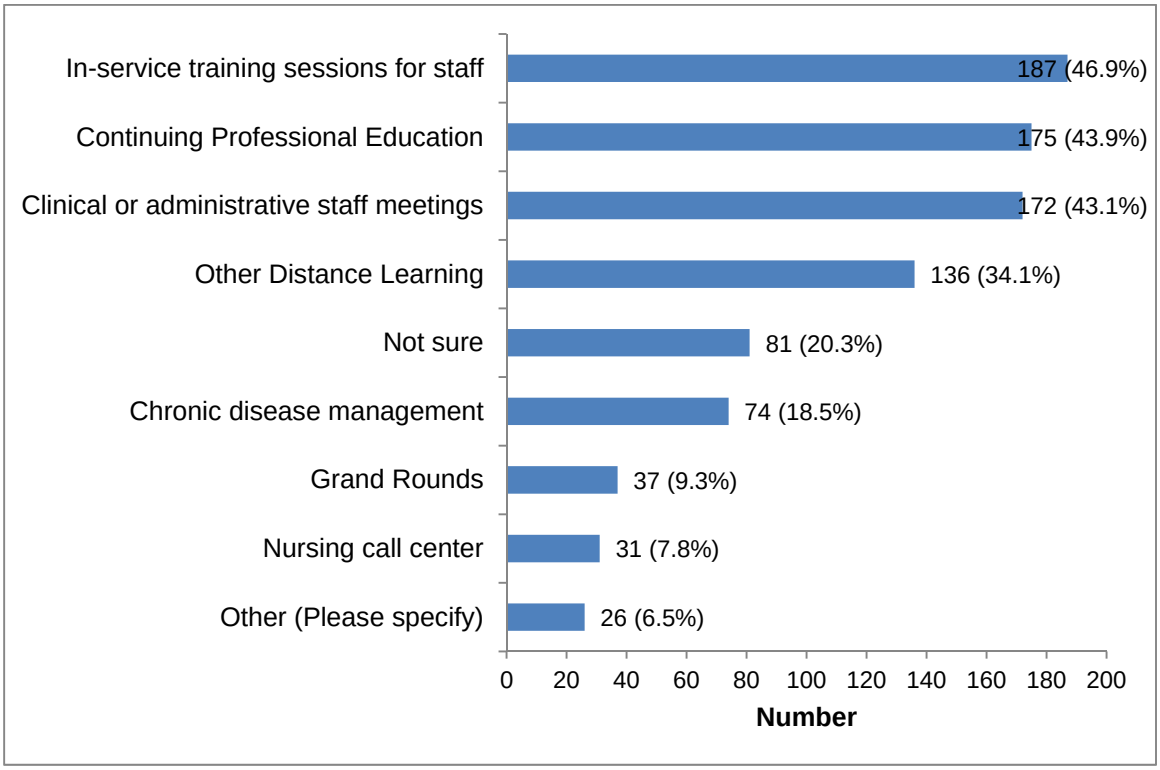
Note: n= 292 responses to "For which type of clinical consultation service(s) does your organization use telemedicine, either internally within your network or externally with other health providers? (Check all that apply)." A total of 292 health centers reported 565 clinical telemedicine services. Percentages were calculated by dividing the number of clinical telemedicine services by 292, the number of unique health center respondents.

10C. Telehealth Services

Telehealth is the delivery of health-related services and information via telecommunications technologies, and is often used to encompass a broader range of health care beyond direct clinical services. As with telemedicine, this information exchange may use either synchronous interactive, real time technology or use asynchronous technology.

Figure 34 below shows the distribution of telehealth services provided by health center respondents. The most frequently reported clinical telehealth services was "in-service training sessions for staff" (46.9 percent), followed by "continuing professional education" (43.9 percent), "clinical or administrative staff meetings" (43.1 percent) and "other distance learning" (34.1 percent).

Figure 34. Type of Telehealth Services Provided

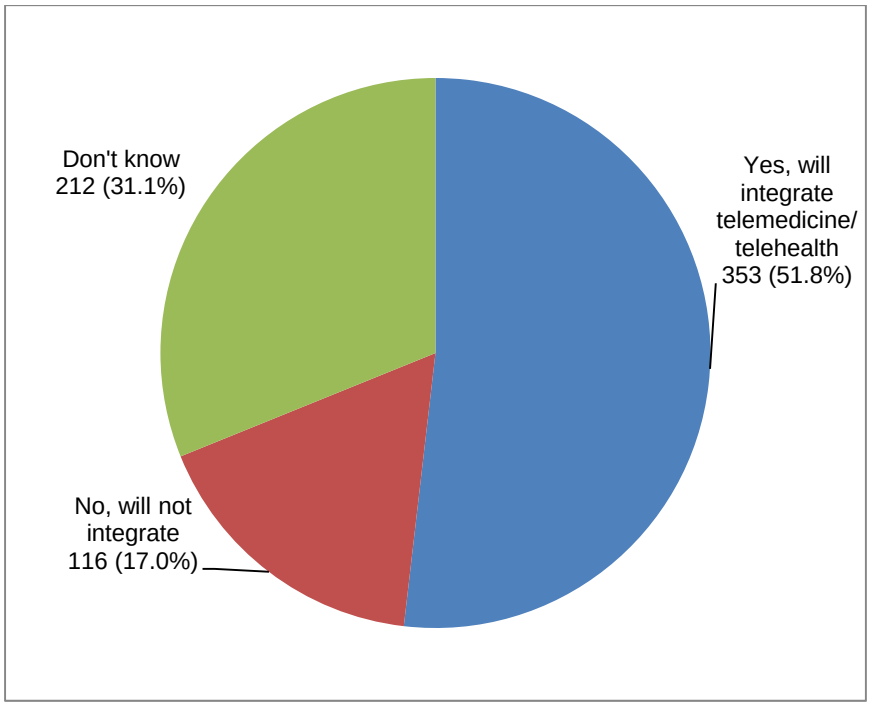


Note: n= 399 responses to "Does your organization provide or participate in any of the following telehealth services, either internally within your network or externally with other organizations or groups? (Check all that apply)." A total of 399 health centers reported 919 telehealth services. Percentages were calculated by dividing the number of telehealth services by 399, the number of unique health center respondents.

10D. Integration of Telemedicine and/or Telehealth into Care Delivery Model

Figure 35 presents the health center responses on the expected future integration of telemedicine and/or telehealth services into their care delivery models. Over half (51.8 percent) indicated that they expect an integration of telemedicine and/or telehealth in their care delivery models within the next 1-2 years, while 17 percent indicated that they do not foresee such an integration.

Figure 35. Integration of Telemedicine and/or Telehealth Into Care Delivery Model

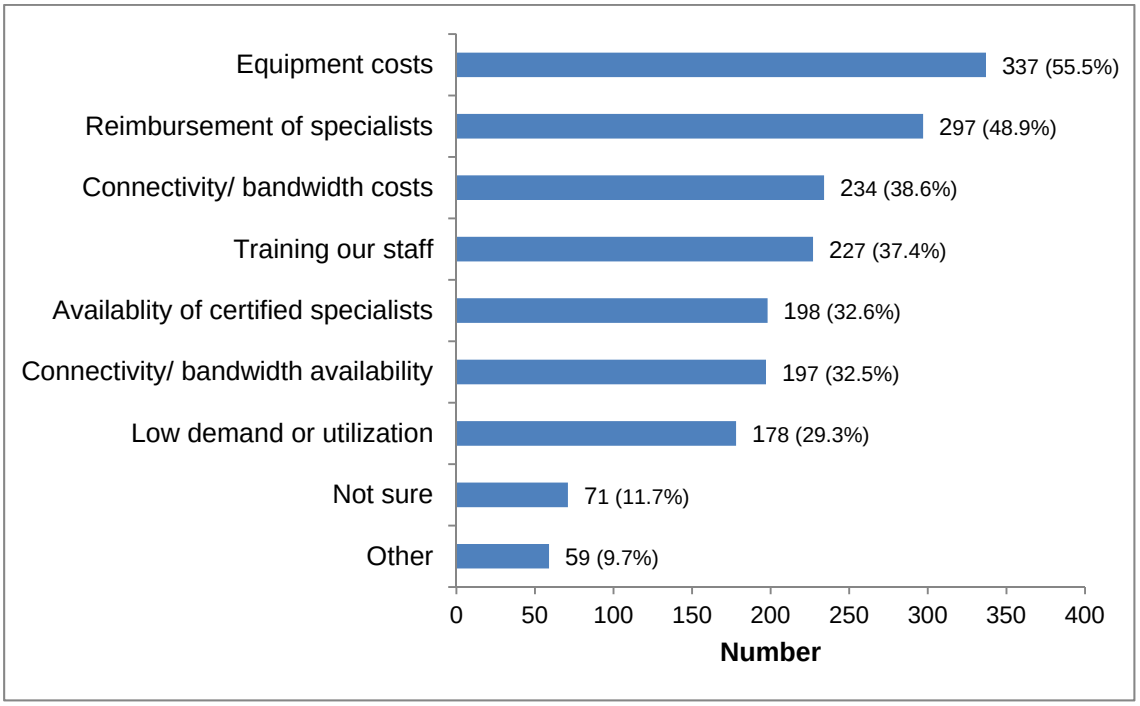


Note: n=681 responses to" Does your organization foresee integrating telemedicine and/or telehealth services into your care delivery model in the near future (1-2 years)?"

10E. Barriers to Implementing Telemedicine and/or Telehealth Services

Figure 36 shows the distribution of reported barriers to implementing telemedicine and/or telehealth services into health centers' care delivery models. The most frequently identified barrier was equipment cost (55.5 percent), followed by reimbursement of specialists (48.9 percent), connectivity/bandwidth costs (38.6 percent) and training of staff (37.4 percent).

Figure 36. Barriers to Implementing Telemedicine and/or Telehealth Services



Note: n = 607 responses to "What does your organization see as barriers to either implementing or expanding telemedicine and/or telehealth services (Check all that apply)." A total of 607 health centers reported 1,798 clinical telemedicine services. Percentages were calculated by dividing the number of clinical telemedicine services by 607, the number of unique health center respondents.

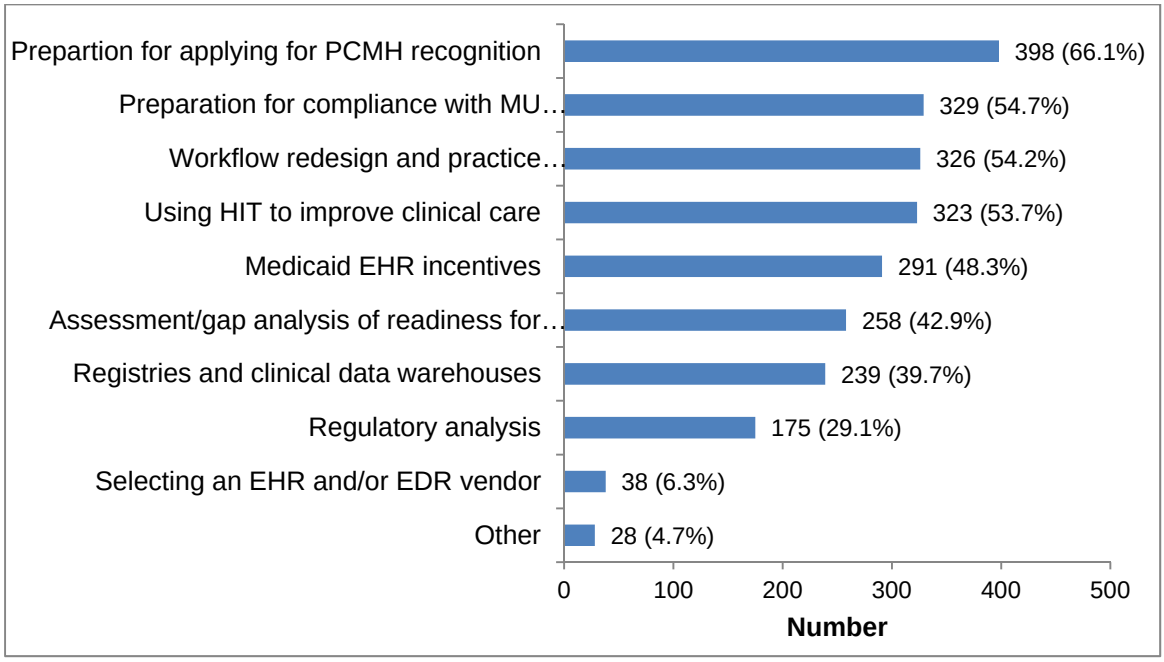
PART 11: TECHNICAL ASSISTANCE (TA) AND TRAINING

This section addresses the following topics: 1) Areas in which health centers are interested in receiving TA or training; 2) Groups currently providing TA or training to health centers; and 3) Health centers' satisfaction ratings of the TA they are currently receiving from the applicable groups.

11A. Areas in Which Health Centers are Interested in Receiving TA or Training

As shown in Figure 35, the most frequently reported TA or training area requested by health centers was for preparation for applying for PCMH recognition (66.1 percent). Over half of health centers also reported interest in receiving TA or training in preparation for compliance with MU measures (54.7 percent), workflow redesign and practice transformation (54.2 percent) and using HIT to improve clinical care (53.7 percent). The least frequently reported area of interest in technical assistance or training was selecting an EHR and/or EDR vendor (4.7 percent).

Figure 37. Areas in Which Health Centers are Interested in Receiving TA or Training

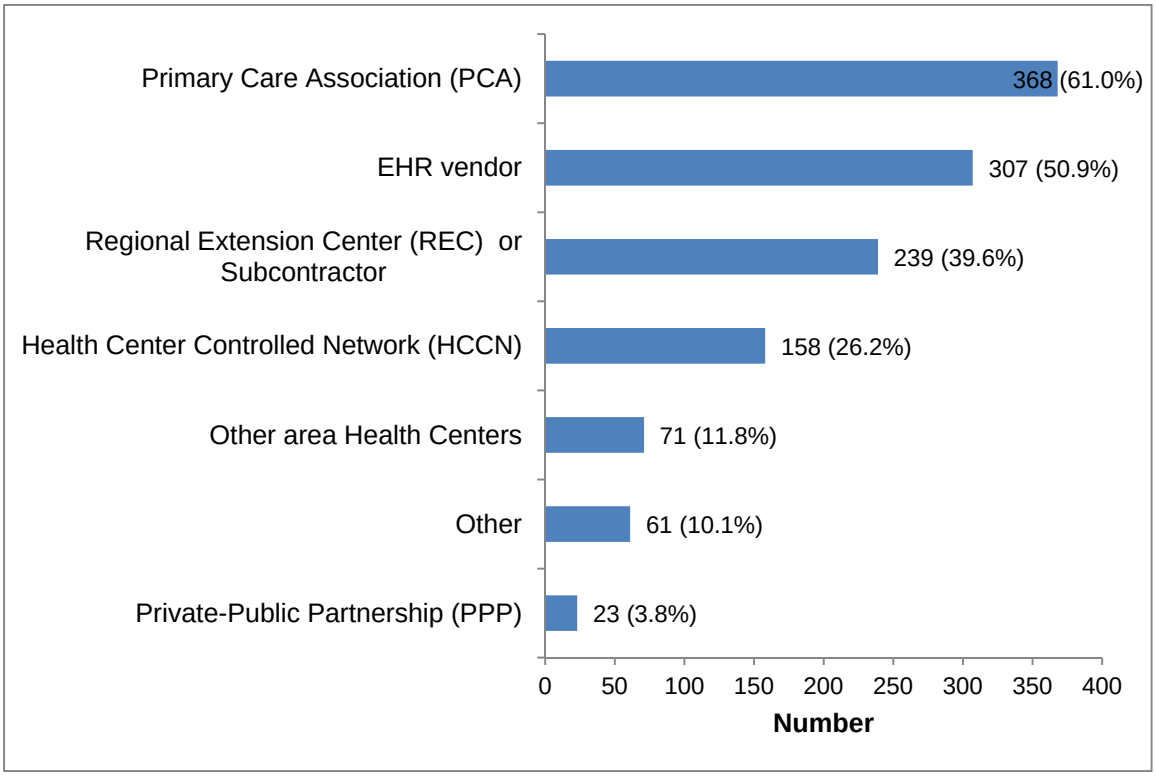


Note: n = 602 health center responses to "In which areas are you interested in receiving TA or training? (Check all that apply)." A total of 602 health centers reported 2,405 responses for areas of interest in receiving TA or training. A health center could report more than one area of interest. Percentages were calculated by dividing the number of TA or training interest areas by 602, the number of unique health center respondents.

11B. Groups Providing TA or Training to Health Centers

Figure 38 presents the distribution of groups currently providing TA or training to health centers in any of the areas mentioned above in Figure 35. The most frequently reported group providing TA or training was primary care associations (61 percent). The next most frequently reported groups were EHR vendors (50.9 percent) and regional extension centers (39.6 percent).

Figure 38. Groups Providing TA or Training to Health Centers



Note: n = 603 health center responses to "From which groups are you currently receiving TA or training? (Check all that apply)." A total of 603 health centers reported 1,227 responses for groups providing TA or training. A health center could report more than one group. Percentages were calculated by dividing the number of categories of groups providing TA or training by 602, the number of unique health center respondents.

11C. Satisfaction Ratings of TA or Training that Health Center is Receiving

Table 8 below presents reported satisfaction ratings of health centers on TA or training being received by the applicable groups as identified in Figure 36. The ratings are based on a scale in which the lowest satisfaction rating is 1 and the highest satisfaction rating is 5. The highest average satisfaction rating were reported for training offered by primary care associations (3.76), "other groups" (3.73) and health center controlled networks (3.68). The group receiving the lowest average satisfaction rating was Private-Public Partnerships (2.97).

Table 8. Satisfaction Ratings of TA or Training that Health Center is receiving

Group Providing TA or Training	1 (Low)	2	3	4	5 (High)	Not Applicable	Rating Average	Response Count
EHR Vendor	7.1% (38)	10.3% (55)	25.0% (134)	27.6% (148)	14.2% (76)	15.9% (85)	3.37	536
PCA	4.4% (22)	4.8% (24)	20.9% (104)	27.5% (137)	24.3% (121)	18.1% (90)	3.76	498
HCCN	4.4% (17)	2.6% (10)	9.0% (35)	17.8% (69)	12.6% (49)	53.6% (208)	3.68	388
Other area Health Centers	2.0% (7)	5.9% (21)	12.0% (43)	18.7% (67)	8.9% (32)	52.5% (188)	3.56	358
REC or Subcontractor	6.1% (26)	6.1% (26)	15.4% (66)	17.3% (74)	14.7% (63)	40.4% (173)	3.48	428
Private Public Partnership	2.9% (9)	1.3% (4)	1.9% (6)	2.9% (9)	1.9% (6)	89.0% (275)	2.97	309
Other	1.1% (3)	1.4% (4)	4.9% (14)	8.0% (23)	5.2% (15)	79.4% (228)	3.73	287

Note: n=631 unique health center responses. A health center can submit one or more satisfaction ratings for applicable groups providing TA or training.

DISCUSSION

Full or partial adoption of electronic health records among health centers has increased from 49 percent in 2008 to 69 percent at the end of 2010.[3] This is substantially higher than the 2010 estimates of adoption among office-based physicians, which is 51 percent.[4] In addition to general quality improvement goals, this advanced adoption level among health centers may be explained by a number of factors:

- Prior experience with reporting performance measures to HRSA[5] as well as use of electronic patient registries to monitor and track patients with selected conditions as part of population health improvement programs.[6]
- Greater use of multi-disciplinary and team-based care.[7] For example, the integration of behavioral health into primary care has been a long-standing initiative among health centers.[8] Survey results show a high proportion (73 percent) of centers reporting on-site behavioral health services and a similarly high proportion (76 percent) with integrated medical and behavioral health records, and potentially shared access to problem and medication lists.
- Increasing need for easier access to patient information to support comprehensive care, such as dental programs. The survey found that 75 percent of health centers report having on-site dental services, and 50 percent of these centers have electronic dental records. A bidirectional interface between medical records and dental records allows medical and dental clinicians to have easy and timely access to useful clinical information (e.g., problem list, allergies, medication list) at the point of care.. Although only 23 percent of respondents report having bidirectional interfaces between their medical and dental systems, about 70 percent of centers providing on-

[3] Lardiere M., A National Survey of Health Information Technology (HIT) Adoption in Federally Qualified Health Centers. National Association of Community Health Centers, June 9, 2009. Available at: http://www.nachc.com/client/NACHC%202008%20HIT%20Survey%20Analysis_FINAL_6_9_091.pdf (Accessed October 26, 2011)

[4] Hsiao, CJ, Hing E, et al., Electronic Medical Record/Electronic Health Record System of Office-based Physicians: United States, 2009 and Preliminary 2010 State Estimates. National Center for Health Statistics, December 2010.

[5] Since 1996, federally-funded health centers began reporting financial, clinical, and outcomes data to HRSA's Uniform Data System (UDS).

[6] Gaylin D., Goldman S., et al., Community Health Center Information Systems Assessment: Issues and Opportunities. National Opinion Research Center (NORC), University of Chicago, October 2005.

[7] Medicare Payment Advisory Commission, Report to the Congress: Medicare and the Health Care Delivery System (Chapter 6). June 2011.

[8] Lardiere M., Jones E., and Perez M., NACHC 2010 Assessment of Behavioral Health Services in Qualified Health Centers. National Association of Community Health Centers, January 2011. Available at: http://www.nachc.org/client/NACHC%202010%20Assessment%20of%20Behavioral%20Health%20Services%20in%20FQHCs_1_14_11_FINAL.pdf (Accessed October 26, 2011)

site dental services without an EDR plan on implementing an EDR within one year.

- A high level of interest in applying for Medicaid MU incentives within two years (91 percent), and a relatively high rate of participation in Regional Extension Centers (REC) funded in each state directly by the Federal Office of the National Coordinator for Health Information Technology (ONCHIT) to provide technical assistance, guidance and information on best practices to support and accelerate the meaningful use of HIT. Approximately half (48 percent) of health centers are involved with a REC, and an additional 17 percent have been contacted by a REC.

The increased adoption and use of EHRs can also be attributed to HRSA's long-standing national strategy emphasizing quality improvement.[9] Most notably, in the late 1990s, HRSA instituted the Health Disparities Collaborative (HDC) program to encourage health centers toward a culture of continuous measurement and improvement of access and care delivery.[10] The HDC program also provided stand-alone electronic registry products to health centers, at no cost. These included Chronic Disease Electronic Management System (CDEMS), Cardiovascular and Diabetes Electronic Management System (CVDEMS) and Patient Electronic Care System (PECS), all of which were designed to facilitate better documentation of preventive and case management services, and support tracking of their impact on health outcomes, particularly for patients with chronic health conditions.[11] HRSA's early efforts resulted in greater familiarity and comfort with the adoption of electronic care management tools. Although these specific products are no longer supported by HRSA, the findings show that 33 percent of health centers still report using one of these population-centered "registry" products which may be integrated with their patient-based EHR products.

Finally, an increasing number of health centers are participating in regional clinical data warehouses or data marts which support the aggregation of all health-related information for individuals who receive services from multiple health providers, including hospitals and emergency departments, and are foundational to population health improvement efforts. The survey found that 44 percent of all respondents are currently involved with a local or regional clinical data warehouse project, and that an additional 17 percent are in preliminary discussions with such projects. This requires a high level of provider cooperation to effectuate data migration and interoperability.

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[9] http://www.hrsa.gov/about/strategicplan.html (Accessed October 26, 2011)

[10] Hupke C., Camp, A.W., et al., Transforming Diabetes Health Care Part 1:, Changing Practice. *Diabetes Spectrum* 2004; 17(2):102-106.

[11] Chin, M. Quality improvement implementation and disparities: the case of the health disparities collaboratives. *Med Care*. 2010 Aug; 48(8):668-75.

Yet, despite a high level of readiness and various supports to achieve the meaningful use of HIT and the practice transformation necessary for PCMH recognition, there is a relatively low level of interest in applying for PCMH recognition, with 49 percent of health centers reporting either no current plans or uncertainty about seeking such recognition. Furthermore, only 13 states have grantees with any level of NCQA recognition, with one to four grantees per state -- except for New York, which has 18 grantees with PCMH recognition.[12] The top reported challenges for applying for PCMH recognition include high cost and staff training and support (across all provider levels). Of particular note, the most frequently identified area of interest for additional TA and training is "Applying for PCMH recognition." HRSA recently established the Patient-Centered Medical/Health Home Initiative to promote and support medical home recognition[13] and awarded $32 million to 904 health centers to support health center efforts to achieve, maintain, or increase the level of PCMH recognition.[14] This effort should drive health center interest in achieving PCMH recognition, while providing the resources needed for technical assistance.

The reported level of satisfaction with technical assistance and training suggests significant room for improvement. Health centers report the highest overall levels of satisfaction with TA and training provided by PCAs and HCCNs. This appears to reflect the long-standing role of PCAs and HCCNs in working with health centers on an array of TA and training areas as covered by their respective National Cooperative Agreements (PCAs) or grant awards (HCCNs). However, no category of training providers met or exceeded an average satisfaction score of 4 (out of 5). Technical assistance and training provided by "Private-Public Partnerships" and EHR vendors received the lowest reported levels of satisfaction, falling below the average score of 3.

In sum, the findings indicate substantial progress in several areas related to HIT preparedness and adoption. However, cost and staffing challenges and the relative lack of understanding of PCMH requirements and their impact on workflow, practice l transformation and clinical quality remain to be addressed. This suggests a high need for continued funding and technical assistance and a more targeted and coordinated effort among various agencies and organizations to communicate the importance of universal adoption of EHRs, full compliance with meaningful use measures, and PCMH recognition.

[12] This is consistent with New York being the only state with over 200 recognized practice sites out of 1,506 recognized sites in the United States as of December 31, 2010; from www.ncqa.org.
[13] http://bphc.hrsa.gov/policiesregulations/policies/pdfs/pal201101.pdf (Accessed October 31, 2011)
[14] On September 20, 2011, each of the grantees received $35,000 to help achieve PCMH recognition. Available at http://www.hhs.gov/news/press/2011pres/09/20110929b.html (Accessed October 31, 2011)

APPENDIX: SUMMARY OF FINDINGS

EHR Adoption:

- 69 percent have adopted EHR, with 45 percent fully electronic at all sites and 24 percent partially implemented (combination of electronic/paper records)
- 81 percent of health centers without an EHR plan to implement one within one year
- The top EHR vendors are eClinicalWorks, NextGen, GE Centricity and EHS

Behavioral Health:

- 73 percent of health centers provide on-site services
- 76 percent have integrated records with medical charts
- 87 percent report that medical staff and behavioral health staff have access to a shared problem list and medication list

Dental:

- 75 percent of health centers provide on-site dental services
- 50 percent of centers have an electronic dental record (EDR)
- The top EDR vendors are: Dentrix, QSI Dental and Eaglesoft
- Only 23 percent of respondents have bidirectional interfaces between medical and dental records systems

Meaningful Use:

- Compliance with individual MU Core Functional Measures ranges from 26 percent to 82 percent
- Compliance with individual MU Menu Set Measures ranges from 17 percent to 62 percent
- 91 percent of health centers plan to apply for Medicaid MU incentives within two years
- The top reported challenges/barriers to compliance are: staff training, staff acceptance, costs and vendor software and certification

PCMH Recognition from the National Committee for Quality Assurance (NCQA):

- Less than 6 percent of centers have received PCMH recognition
- 82 percent have never applied
- 49 percent of centers had no plans to apply or did not know if they would apply
- The top reported challenges/barriers in applying or maintaining PCMH recognition are: cost, staff training/support and lack of understanding of requirements

Patient Registries/Regional Clinical Data Warehouse Projects:

- 46 percent of health centers are using the core registry function of their EHR
- 33 percent are using one of the no-cost stand-alone registry products provided by HRSA as part of the Health Disparities Collaboratives (PECS/PECSYS, CDEMS or CVDEMS)
- 79 health centers are using 3rd party registries: i2iTracks, Relay Health and Arcadia Solutions
- 44 percent of health centers are currently involved with a regional clinical data warehouse project
- 16 percent were in discussions with a regional clinical data warehouse project

Regional Extension Centers (RECs):

- 48 percent of health centers are currently involved with a Regional Extension Center
- 16 percent are in discussions with a REC

Telemedicine/Telehealth:

- 38 percent of health centers provide at least one clinical telemedicine service. Among health centers providing clinical telemedicine services, the most common services are: consults with off-site providers without patient present (28 percent); consults with off-site providers with patients present (26 percent); and provision of services to patients at other locations (19 percent).
- The top reported telemedicine clinical consultation services are behavioral health (33 percent), dermatology (19 percent) and psychiatry (18 percent)
- 47 percent of health centers provide at least one telehealth service. Among health centers providing telehealth services, the most common services are: In-service training for staff (47 percent); Continuing Professional Education (44 percent), and Clinical or administrative staff meetings (43 percent)
- 52 percent of health centers expect to implement or expand telemedicine or telehealth services within one to two years

Technical Assistance (TA) & Training:

- The top reported areas of interest for TA or training are:
    - Applying for PCMH recognition;
    - Complying with MU measures;
    - Workflow redesign and practice transformation;
    - Using HIT to improve clinical care.
- The top groups providing TA and training to health centers are: PCAs, EHR vendors, RECs and HCCNs
- The highest levels of satisfaction are with PCAs and HCCNs, while the lowest levels of satisfaction are with Private-Public Partnerships and EHR vendors

ERRATA (12/12/2011)

Corrections were made for Table 1, which shows “Readiness Survey” response rates by state and territory. Response rate data for the state of Mississippi were added to the table, as they were omitted in the previous version. The number of respondents and the accompanying response rates for six states (Arizona, New Mexico, New York, Ohio, Texas and Washington) were corrected based on the identification of six respondents who had entered incorrect state information. These responses were identified through cross-checking data on city, state, and UDS number. In sum, the following corrections were made to Table 1:

- Mississippi was added
- Arizona was reduced to 13 (-1)
- New Mexico was reduced to 8 (-1)
- New York was increased to 36 (+1)
- Ohio was increased to 18 (+1)
- Texas was increased to 32 (+1)
- Washington was reduced to 18 (-1)

None of the corrections affect the national survey response rate or any of the other estimates presented in the Databook.