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**Iowa Health
Information
Technology and
Meaningful Use
Landscape
in 2015**

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Preface

This report presents the results of an environmental scan study requested by the Iowa Department of Human Services (IDHS) and Iowa Medicaid Enterprise (IME) to evaluate the landscape of Iowa's health information technology (IT), including participation in the Centers for Medicare & Medicaid Services' (CMS) Electronic Health Records (EHR) Incentive Programs (also known as Meaningful Use programs) among three different types of healthcare organizations and providers in Iowa: eligible hospitals, eligible professionals who are not dentists, and eligible professionals who are dentists.

Researchers at The University of Iowa College of Public Health and Public Policy Center conducted this study with funding provided by IDHS and IME. Information and conclusions presented in this report are the responsibility of the authors and do not represent the views of the IDHS or IME.

Acknowledgments

The authors would like to thank the Iowa Department of Human Services (IDHS) and Iowa Medicaid Enterprise (IME) for their collaboration throughout this project. This comprehensive assessment of health IT and Meaningful Use landscape would not have been possible without the funding and support from the IDHS and IME.

Many individuals were critically important to the project, including Carrie Ortega and other staff at the IDHS and IME who assisted with the development of the survey instruments. We are especially grateful for Carrie's outreach efforts, which greatly improved the survey response rates.

We want to thank our colleagues at the Department of Health Management and Policy (HMP) in the College of Public Health and the Public Policy Center (PPC) for their assistance and support throughout the project. Colleagues who assisted with the development of the survey instruments include Dr. Marcia Ward and Chance Finegan, both from HMP's Center for Health Policy and Research. Colleagues who assisted with the data collection process include Dr. Frederick Boehmke, Christine Bricker, Mark Koehler, and Beth Cook from the Iowa Social Science Research Center at PPC. Special thanks go to Christine Bricker for her remarkable efforts in managing the online survey process, including following up with the survey recipients multiple times to increase response rates. Fred Ullrich, Senior Research Specialist, and Nuno CV Solano de Almeida, Research Associate from HMP, provided exceptional research support during the data coding and analysis phase of this project.

Finally, we would like to thank the respondents who took the time and effort to complete the online survey. The important information they provided set the foundation for our assessments, and will be instrumental for this environmental scan to support the state's health IT planning.

Executive Summary

The Centers for Medicare and Medicaid Services' (CMS) Electronic Health Records (EHR) Incentive Programs (also known as the Meaningful Use programs) were established, through provisions of the American Recovery and Reinvestment Act of 2009 (ARRA), to provide incentive payments to eligible professionals (EPs), eligible hospitals, critical access hospitals (CAHs), and Medicare Advantage Organizations to promote the adoption and meaningful use of interoperable health IT and certified EHRs. The CMS Meaningful Use

programs have accelerated the adoption and utilization of health IT and certified EHR systems nationally. However, significant challenges and barriers exist as healthcare organizations and professionals attempt to adopt and meaningfully use health IT and certified EHR systems and to participate in the Incentive Programs. The challenges and barriers may vary by the stage of adoption as well as by different types of program participants. Different types of technical assistance are needed to help eligible professionals and hospitals to better achieve the goals of the Meaningful Use programs specifically and health IT/EHR in general.

The University of Iowa research team was tasked with conducting an environmental scan of the health IT and Meaningful Use landscape in Iowa to provide evidence to support the state's health IT planning and technical assistance. Between August and October of 2015, we conducted a Health IT and Meaningful Use Assessment Survey in Iowa. The assessment survey targeted three types of respondents that had attested to CMS Meaningful Use programs and had received at least one incentive payment in and/or prior to 2015: eligible hospitals (hospital version), eligible professionals who are not dentists (practice version), and eligible professionals who are dentists (dental practice version). A total of 41 hospitals, 237 practices, and 12 dental practices responded to the assessment survey, which represented 43.2%, 27.1%, and 20.3% response rates respectively.

The Health IT and Meaningful Use Assessment Survey revealed notable findings:

- The trends of EHR adoption accelerated since 2010. Among the three respondent groups, 52% of hospitals, 80% of practices, 78% of dental practices have adopted their primary EHR system since 2010.
- Participation in the Meaningful Use programs progressed over time. In both the hospital and practice samples, respondents indicated moving from the Adopt, Implement, and Upgrade stage to Meaningful Use Stage 1 and Stage 2. Participation in Meaningful Use Stage 2 in the hospital and practice samples accelerated in 2014. However, the dental-practice sample has largely remained in the Adopt, Implement, or Upgrade stage.
- Perceptions of Meaningful Use benefits varied by respondent type. Hospital and dental-practice respondents responded more positively toward potential Meaningful Use benefits compared to practice respondents. Capturing accurate and complete patient information was perceived by all three respondent groups as the most agreeable benefit of Meaningful Use.
- Perceptions of Meaningful Use challenges also varied by respondent type. Hospital respondents perceived meeting the required threshold for certain measures as the greatest challenge. Practice respondents considered reduced productivity as the greatest challenge. Dental-practice respondents were mostly concerned about the difficulty in gathering necessary information and documentation for attestation.
- Help with implementing clinical quality improvements, informational sessions regarding attestation requirements and processes, and assistance with using information from the EHR to attest to Meaningful Use were identified as the most helpful form of assistance by the hospitals, practices, and dental practices respectively.
- A majority of the hospital respondents plan to achieve Meaningful Use Stage 3 (82.9%) and continue to report data for Meaningful Use even without the incentive payment (60.98%). Smaller percentages of practice respondents indicated the same plans (59.5% plan to achieve Meaningful Use Stage 3 and 22.4% plan to report data without the incentive payment).

- The frequency of using HIE for exchanging patient health information remained low as a large percentage of respondents in all three groups rarely or never used HIE. Respondents also indicated the lack of support from their EHR systems to utilize HIE mechanisms, which suggests an area for improvement.

Chapter 1 – Background

The Centers for Medicare and Medicaid Services' (CMS) Electronic Health Records (EHR) Incentive Programs (also known as the Meaningful Use programs) were established, through provisions of the American Recovery and Reinvestment Act of 2009 (ARRA), to provide incentive payments to eligible professionals (EPs), eligible hospitals, critical access hospitals (CAHs), and Medicare Advantage Organizations to promote the adoption and meaningful use of interoperable health IT and certified EHRs. Use of certified EHR systems is required to qualify for incentive payments. The Office of the National Coordinator for Health Information Technology (ONC) has issued rules defining certified EHR systems, and has identified entities that may certify systems (more information available at <http://www.healthit.gov>). Two different versions of the Incentive Program were established: the Medicaid EHR Incentive Program and the Medicare EHR Incentive Program. These programs are part of a broader effort to accelerate the adoption of Health IT and qualified EHRs.

Based on final rules specified by CMS, the general goal of Meaningful Use Stage 1 was data capturing and sharing. The criteria of this stage of Meaningful Use focused on: 1) electronically capturing health information in a standardized format; 2) using that information to track key clinical conditions; 3) communicating that information for care coordination processes; 4) initiating the reporting of clinical quality measures and public health information; and 5) using information to engage patients and their families in their care. Meaningful Use Stage 2 focused on advancing clinical processes with the following criteria: 1) more rigorous health information exchange (HIE); 2) increased requirements for e-prescribing and incorporating lab results; 3) electronic transmission of patient care summaries across multiple settings; and 4) more patient-controlled data.

The goal for Meaningful Use Stage 3 is to improve outcomes, which will focus on the following criteria: 1) improving quality, safety, and efficiency, leading to improved health outcomes; 2) decision support for national high-priority conditions; 3) patient access to self-management tools; 4) access to comprehensive patient data through patient-centered HIE; and 5) improving population health.

In addition to the three stages of Meaningful Use, the Medicaid EHR Incentive Program (and only the Medicaid program) allows eligible professionals and eligible hospitals to receive incentive payments in the first year of participation through an option called "Adopt, Implement, or Upgrade," commonly known as "AIU." The AIU option is offered in recognition that certain eligible professionals and hospitals may not be ready to "meaningfully use" certified EHR technology and need initial up-front resources to "adopt, implement, or upgrade" the certified EHR technology in order to participate in the program.

The CMS Meaningful Use programs have accelerated the adoption and utilization of health IT and certified EHR systems nationally. Underlying this large investment and rapid progress in EHR adoption is the belief that interoperable EHR systems are better tools for supporting efficient and high-quality care that will benefit patients, providers, and the nation's health care system. However, significant challenges and barriers exist as healthcare organizations and professionals undertake the journey of adopting and meaningfully using health IT and certified EHR systems and participating in the Incentive Programs. The challenges and barriers may vary by the stage of adoption as well as by different types of program participants. Different types of technical assistance are needed to help eligible professionals and hospitals to better achieve the goals of the Meaningful Use programs specifically and health IT/EHR in general. Therefore, the objective of this study is to conduct



an environmental scan of the health IT and Meaningful Use landscape in Iowa to provide evidence to support the state's health IT planning and technical assistance. Topics that are under scanning in this study include:

State of health IT engagement

- EHR Incentive Programs participation
- EHR vendor/version/certified edition
- Institutionalization of EHR and EHR capabilities within the organization
- Usage of health information exchange
- Level of interoperability and capabilities
- Event notifications and use within organization and/or between organizations
- Practice in social services referrals, Health Risk Assessment, and Health Home

Chapter 2 - Methods

2.1 Survey Design

Three versions of the survey were designed for three different types of respondents: eligible hospitals (hospital version), eligible professionals who are not dentists (practice version), and eligible professionals who are dentists (dental practice version). We distinguished dentists from other eligible professionals because, based on EHR Incentive Programs participation data, a large majority of dentists in Iowa had attested to and remained at the Adopt, Implement, or Upgrade stage; and thus, were not suited to answer certain questions such as challenges in attesting to Meaningful Use Stage 2 and plans for achieving Meaningful Use Stage 3.

The survey instruments were developed using a multi-stage process. This process was initiated by the Iowa Medicaid Enterprise that developed the first draft of the survey instruments. The University of Iowa (UI) research team received the draft survey instruments in May 2015. The UI research team then, in a close collaboration with IME, refined and enhanced the instruments by: 1) adding/refining questions about timeline of EHR adoption and Meaningful Use participation, perceived benefits and challenges in attesting to Meaningful Use, assistance needed to continue to meet Meaningful Use requirements, plans for future participation among other questions; 2) researching the most commonly adopted EHR systems in different healthcare settings to be listed in the survey; and 3) restructuring sections and questions for a better flow. Through an iterative process, which involved working with IDHS and IME stakeholders and research by the UI research team, the research team produced multiple revisions of the instruments. The final version was approved for programming into the online survey on July 15, 2015. The online survey was sent to pilot testers, and testers' feedback was incorporated. The survey fieldwork was launched on August 17, 2015.

2.2 Sampling Frame

The research team received the sampling frame for each of the three survey target groups from IME in August 2015. The sampling frames were based on the Meaningful Use attestation data, which included all eligible hospitals and practices with eligible professionals in Iowa that had attested to the CMS EHR Incentive Programs and had received at least one incentive payment in and/or prior to 2015. The initial contact lists from the attestation data had gone through a careful deduplication and validation process conducted by IME staff. The final contact lists contained 95 hospitals, 876 practices, and 59 dental practices. The Iowa Social Science Research Center at the Public Policy Center sent an electronic invitation to these three groups of survey targets and weekly email reminders until the close of the survey fieldwork.

2.3 Response Rate

When the survey fieldwork closed on October 16, 2015, a total of 41 hospitals, 237 practices, and 12 dental practices had completed their respective assessment survey. After coding and screening the raw data, we identified 6 hospital respondents, 33 practice respondents, and 3 dental-practice respondents that had missed responding to a large number of the survey questions (incomplete responses), which reduced the effective response rates. Table 2.1 below presents the sample size, raw and effective response rates for the three versions of the survey.

Table 2.1 Sample Size and Response Rate

| | Sample Size | Response | Raw Response Rate | Effective Response | Effective Response Rate |
|-------------------------------|--------------------|-----------------|--------------------------|---------------------------|--------------------------------|
| Hospital Survey | 95 | 41 | 43.2% | 35 | 36.8% |
| Practice Survey | 876 | 237 | 27.1% | 204 | 23.3% |
| Dental Practice Survey | 59 | 12 | 20.3% | 10 | 16.9% |

We retained the incomplete survey responses in the analysis because we believed that the information provided by these respondents were valuable for understanding the specific questions where their answers were available. Due to the fact that the number of responses varied by question, we listed this information for each results Table/Figure in this report for more accurate interpretations. Given the relatively low response rates (especially for the Practice and Dental Practice surveys), we suggest that the results from this study should be used to evaluate general patterns and trends rather than the exact numbers or percentages for any particular questions.

Chapter 3 – Hospital Health IT and Meaningful Use Assessment

This chapter discusses results of the hospital version of the Health IT and Meaningful Use Assessment Survey. This survey targeted eligible hospitals that had attested to CMS Meaningful Use programs and had received at least one incentive payment in and/or prior to 2015. The survey focused on seven areas of assessment and the results are reported in the following seven corresponding sections.

Hospital characteristics

- Participation in CMS Meaningful Use programs
- Perceived benefits and challenges in Meaningful Use
- Assistance needed to continue to meet Meaningful Use requirements
- Future plan for Meaningful Use participation
- Electronic Health Records adoption and use
- Health Information Exchange capacity

3.1 Hospital Characteristics

Research questions:

- *What types of hospitals participate in this study?*
- *What are the sizes of the participant hospitals?*
- *What are the participant hospitals' affiliation statuses with health systems?*
- *What services do the participant hospitals offer?*

To assess basic characteristics of the hospitals, questions were asked about the hospitals' type, size, system affiliation, and service offering. Table 3.1 describes the types of hospitals that participated in this study.

Table 3.1 Hospital Type (n=38)

| | Count | Percent |
|---|--------------|----------------|
| Critical Access Hospital (CAH) | 28 | 73.7% |
| Non-CAH Community/General Hospital | 9 | 23.7% |
| Specialized Hospitals | 1 | 2.6% |
| Total | 38 | 100% |

- Critical Access Hospitals (CAH) were the most common respondent type (73.7%) with non-CAH community/general hospitals following as the second most common type (23.7%).

To gauge the sizes of the participant hospitals, we asked the respondents to report the number of inpatient beds in their hospital. As shown in Figure 3.1, among the 41 hospitals that participated in this study, 29 hospitals are small hospitals with 25 or fewer inpatient beds (70.7%), 4 hospitals have 26-200 beds (9.8%), 4 hospitals have 201-500 beds, and 4 hospitals have more than 500 beds (9.8%). A few respondents completed the assessment on behalf of a hospital network or health system with multiple hospitals.

Figure 3.1 Hospital Size

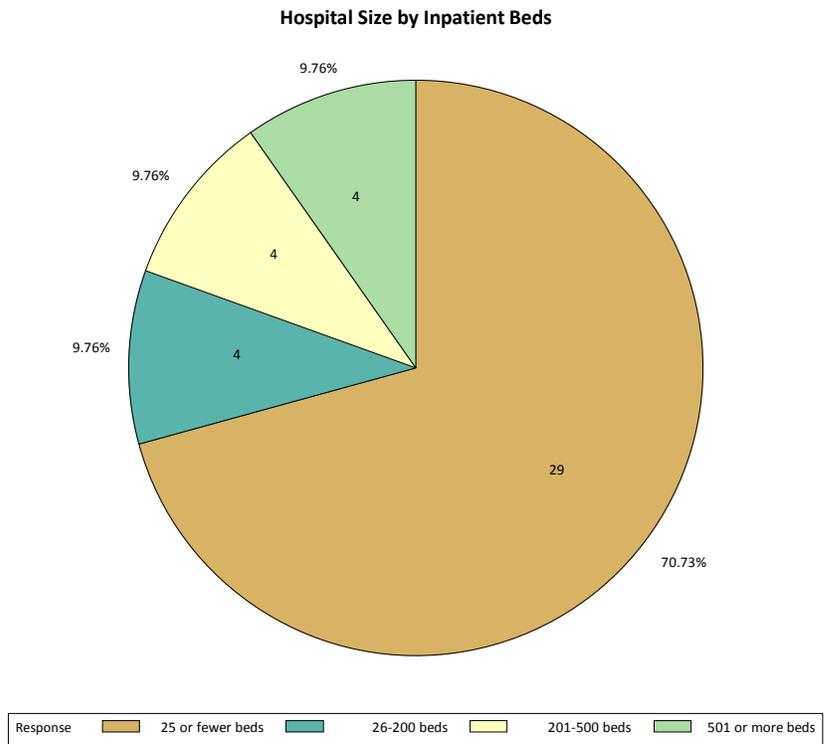


Table 3.2 and Table 3.3 show the number and percentage of participant hospitals that are affiliated with a health system and the type of affiliation they have with the health system.

Table 3.2 Hospital Affiliation with Health System (n=38)

| | Count | Percent |
|--------------|-----------|-------------|
| Yes | 17 | 44.7% |
| No | 21 | 55.3% |
| Total | 38 | 100% |

- Of the 38 respondents that reported system affiliation status, 17 respondents or 44.7% indicated that their hospitals had an affiliation with a health system.

Table 3.3 Type of System Affiliation (n=16)

| | Count | Percent |
|--|-----------|-------------|
| Non-ownership, contract managed by the health system | 10 | 62.5% |
| Owned in whole or in part by the health system | 4 | 25.0% |
| Other non-ownership affiliation - CAH affiliation | 2 | 12.5% |
| Total | 16 | 100% |

- The most common type of system affiliation reported was a non-ownership, contract management affiliation (62.5%), followed by ownership affiliation (25.0%) and other non-ownership affiliation (12.5%, and disclosed by both respondents as CAH affiliation).

Table 3.4 shows the number and percentage of participant hospitals that offer different services. The services are ordered from the most commonly offered to the least commonly offered in the table.

Table 3.4 Hospital Services Offered (n=38)

| | Count | Percent |
|--------------------------------|--------------|----------------|
| Emergency Department | 38 | 100.0% |
| General Medical/Surgical Units | 37 | 97.4% |
| Outpatient Surgery | 37 | 97.4% |
| Outpatient Clinics – On Site | 33 | 86.8% |
| Outpatient Clinics – Off Site | 22 | 57.9% |
| Skilled Nursing Facility | 21 | 55.3% |
| Intensive Care Unit | 15 | 39.5% |
| Home Health | 15 | 39.5% |
| Special Care Unit | 2 | 5.3% |
| Total | 111 | |

- The most common services offered by the participant hospitals include: Emergency Departments (100%), General Medical/Surgical Units (97.4%), and Outpatient Surgery (97.4%).

In addition to the hospital characteristics discussed above, the respondents were asked to report the type and number of staff FTEs that were allocated to perform EHR and/or Meaningful Use activities. Table 3.5 below describes the number and percentage of participant hospitals that have allocated different types of staff FTEs to activities related to EHR/Meaningful Use. The total number of FTEs that were allocated for EHR/Meaningful Use ranges from 0 to 27 FTEs with an average of 3.2 FTEs in the sample hospitals.

Table 3.5 EHR/Meaningful Use Staff FTE (n=37)

| | Count | Percent |
|--|--------------|----------------|
| Information technology/Informatics staff | 34 | 91.9% |
| Administrative/Office staff | 16 | 43.2% |
| Clinical staff | 15 | 40.5% |
| Other | 4 | 10.8% |

3.2 Participation in Meaningful Use

Research question:

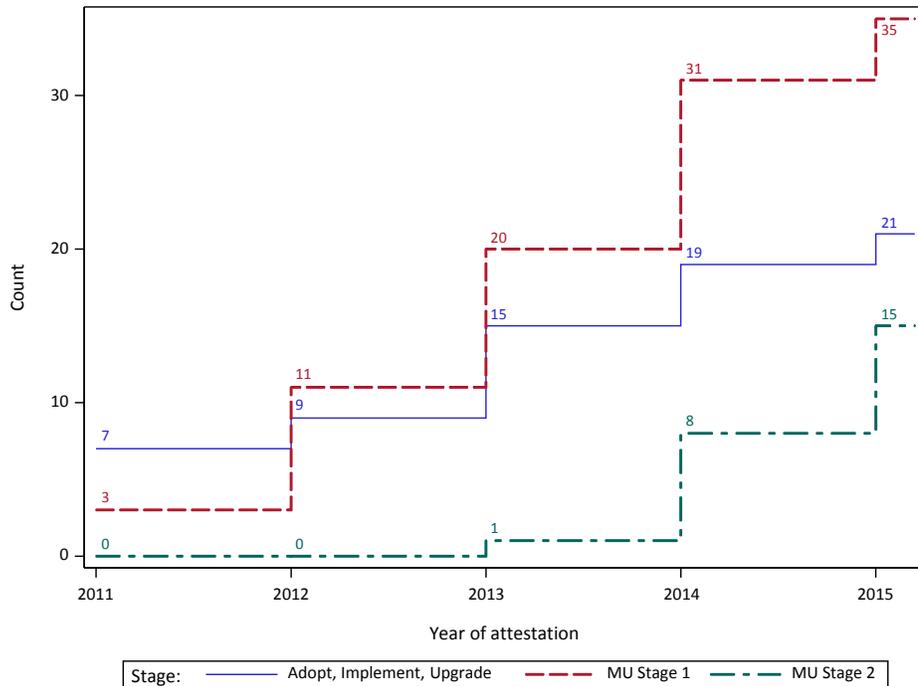
- What are the trends of hospital participation in different stages of Meaningful Use from 2011 to 2015?

To gather information on hospitals' participation in CMS Meaningful Use programs, respondents were asked to indicate in what year between 2011 and 2015 their hospitals attested to the three stages of Meaningful Use (i.e., Adopt, Implement, or Upgrade, Meaningful Use Stage 1, and Meaningful Use Stage 2). Table 3.6 summarizes the number and percentage of hospitals that attested to each stage of Meaningful Use in each attestation year. Figure 3.2 shows the cumulative number of participant hospitals that have attested to Meaningful Use grouped by different stages.

Table 3.6 Number of Hospitals Attesting to Meaningful Use

| | Count | Percent |
|------------------------------|--------------|----------------|
| 2011 (n=8) | | |
| Adopt, Implement, or Upgrade | 7 | 87.5% |
| MU Stage 1 | 3 | 37.5% |
| MU Stage 2 | 0 | 0.0% |
| 2012 (n=9) | | |
| Adopt, Implement, or Upgrade | 2 | 22.2% |
| MU Stage 1 | 8 | 88.9% |
| MU Stage 2 | 0 | 0.0% |
| 2013 (n=14) | | |
| Adopt, Implement, or Upgrade | 6 | 42.9% |
| MU Stage 1 | 9 | 64.3% |
| MU Stage 2 | 1 | 7.1% |
| 2014 (n=18) | | |
| Adopt, Implement, or Upgrade | 4 | 22.2% |
| MU Stage 1 | 11 | 61.1% |
| MU Stage 2 | 7 | 38.9% |
| 2015 (n=12) | | |
| Adopt, Implement, or Upgrade | 2 | 16.7% |
| MU Stage 1 | 4 | 33.3% |
| MU Stage 2 | 7 | 58.3% |

Figure 3.2 Cumulated Numbers of Hospitals Attested to Meaningful Use by Stage



- As shown in Table 3.6, as the Meaningful Use programs progressed over time, the percentage of hospitals attested to the Adopt, Implement, or Upgrade stage decreased. More hospitals moved toward attesting to Meaningful Use Stage 1 and Stage 2.
- As shown in Figure 3.2, among the hospitals that responded to the survey, there was a steady accumulation in the number of hospitals attesting to Meaningful Use Stage 1.
- Among the hospitals that responded to the survey, the most noticeable uptake in attesting to Meaningful Use Stage 2 occurred in 2014, which continued in 2015.

3.3 Perceived Benefits and Challenges of Meaningful Use

Research questions:

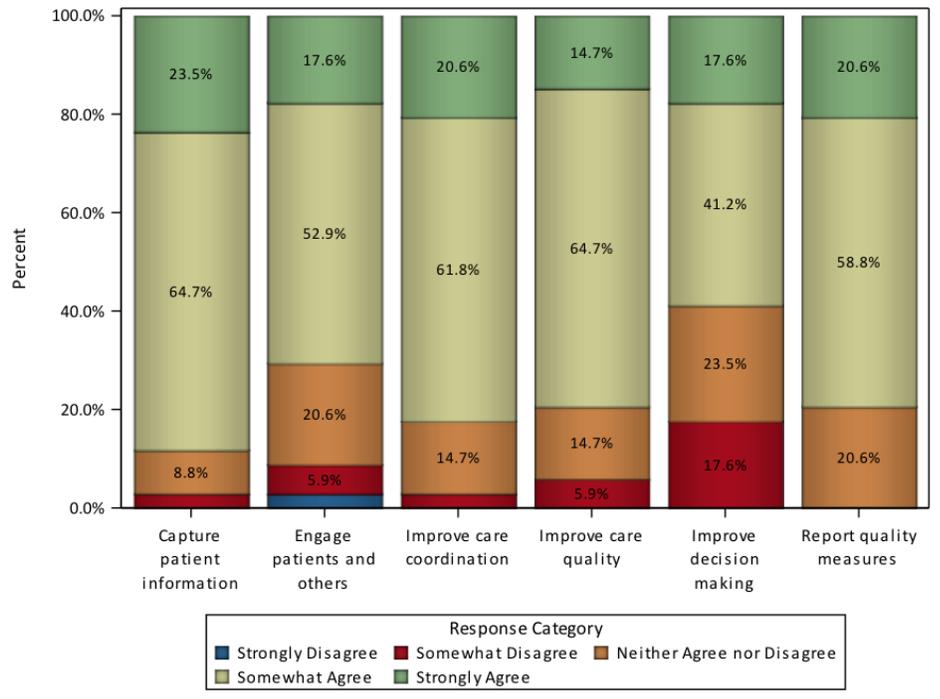
- *What benefits do hospitals perceive in achieving Meaningful Use?*
- *What challenges do hospitals perceive in attesting to Meaningful Use?*
- *Which Meaningful Use Stage 2 measures do hospitals have difficulty in meeting the required threshold?*

To evaluate the perceived benefits of Meaningful Use, participants were asked the question: “From your hospital’s perspective, how much do you agree with the following statements about benefits?” Table 3.7 below describes the number and percentage of hospitals that responded to various benefits of Meaningful Use. The survey items (i.e., benefits) in the table are ordered from the highest to the lowest percentage of combined positive responses (i.e., “Strongly agree” and “Somewhat agree”). Furthermore, the percentage data are presented in Figure 3.3.

Table 3.7 Perceived Meaningful Use Benefits – Hospital (n=34)

| | | Strongly Agree | Some-what Agree | Neither Agree nor Disagree | Some-what Disagree | Strongly Disagree |
|--|---|-----------------------|------------------------|-----------------------------------|---------------------------|--------------------------|
| MU will help us capture accurate and complete patient information | n | 8 | 22 | 3 | 1 | 0 |
| | % | 23.5% | 64.7% | 8.8% | 2.9% | 0.0% |
| MU will help us improve care coordination processes | n | 7 | 21 | 5 | 1 | 0 |
| | % | 20.6% | 61.8% | 14.7% | 2.9% | 0.0% |
| MU will help us report quality measures for value-based purchasing (VBP) or other pay-for-performance programs | n | 7 | 20 | 7 | 0 | 0 |
| | % | 20.6% | 58.8% | 20.6% | 0.0% | 0.0% |
| MU will help us improve care quality and safety for our patients | n | 5 | 22 | 5 | 2 | 0 |
| | % | 14.7% | 64.7% | 14.7% | 5.9% | 0.0% |
| MU will help us engage patients, their families, and other providers in care | n | 6 | 18 | 7 | 2 | 1 |
| | % | 17.6% | 52.9% | 20.6% | 5.9% | 2.9% |
| MU will help us improve medical decision making | n | 6 | 14 | 8 | 6 | 0 |
| | % | 17.6% | 41.2% | 23.5% | 17.6% | 0.0% |

Figure 3.3 Meaningful Use Benefits Perceived by Participant Hospitals



- The greatest perceived Meaningful Use benefit, as measured by the sum of strongly agree and somewhat agree responses, was that Meaningful Use will help hospitals capture accurate and complete patient

information (88.2%). The highest percentage for 'strongly agree' was also the perceived benefit of capturing accurate and complete patient information (23.5%).

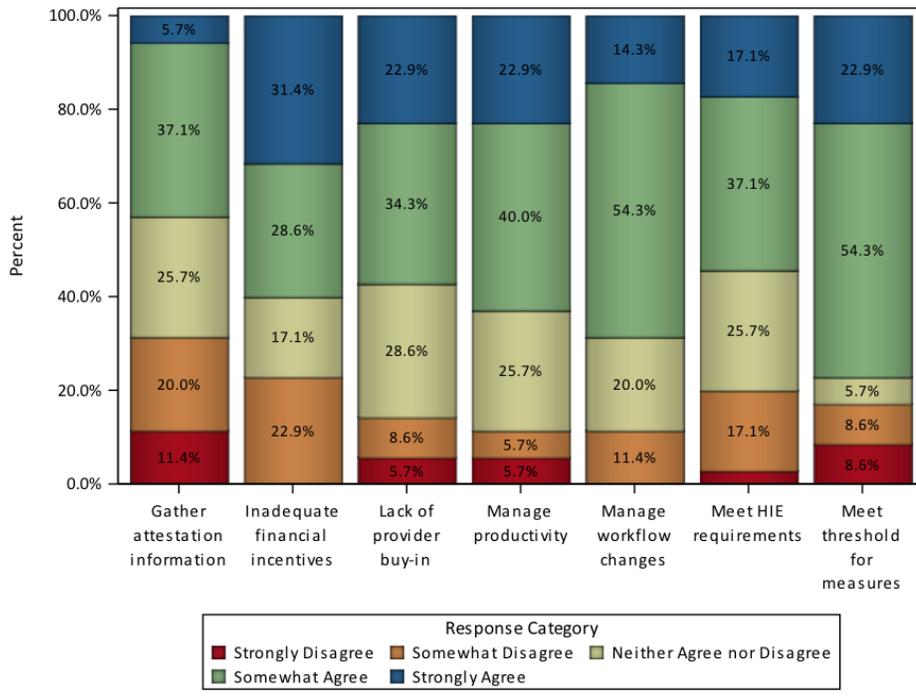
- All six potential Meaningful Use benefits received more than 50% combined positive responses from the participants. Four benefits received more than 75% combined positive responses including capturing patient information, improving care coordination, reporting quality measures, and improving care quality and safety.
- The least perceived Meaningful Use benefit was that Meaningful Use will help hospitals improve medical decision making (58.8%), which also had the highest percentage of negative response (17.6%).

Participants were asked about challenges in achieving and/or attesting to Meaningful Use with the question: "From your hospital's perspective, how much do you agree with the following statements about challenges?" Table 3.8 and Figure 3.4 describe the number and percentage of eligible hospitals that responded to various Meaningful Use challenges. The survey items (i.e., challenges) are ordered from the highest to the lowest percentage of combined positive responses in the table.

Table 3.8 Perceived Meaningful Use Challenges – Hospital (n=35)

| | | Strongly Agree | Some-what Agree | Neither Agree nor Disagree | Some-what Disagree | Strongly Disagree |
|--|---|-----------------------|------------------------|-----------------------------------|---------------------------|--------------------------|
| We had difficulty meeting the required threshold for certain measure(s) | n | 8 | 19 | 2 | 3 | 3 |
| | % | 22.9% | 54.3% | 5.7% | 8.6% | 8.6% |
| We had difficulty dealing with the workflow changes necessary to attain MU | n | 5 | 19 | 7 | 4 | 0 |
| | % | 14.3% | 54.3% | 20.0% | 11.4% | 0.0% |
| Productivity was/will be reduced to attain MU | n | 8 | 14 | 9 | 2 | 2 |
| | % | 22.9% | 40.0% | 25.7% | 5.7% | 5.7% |
| MU financial incentives are inadequate relative to the investment needed | n | 11 | 10 | 6 | 8 | 0 |
| | % | 31.4% | 28.6% | 17.1% | 22.9% | 0.0% |
| We had a lack of buy-in from our providers to pursue MU | n | 8 | 12 | 10 | 3 | 2 |
| | % | 22.9% | 34.3% | 28.6% | 8.6% | 5.7% |
| We had/will have difficulty meeting Health Information Exchange (HIE) requirements | n | 6 | 13 | 9 | 6 | 1 |
| | % | 17.1% | 37.1% | 25.7% | 17.1% | 2.9% |
| We had difficulty gathering necessary information and documentation for MU attestation | n | 2 | 13 | 9 | 7 | 4 |
| | % | 5.7% | 37.1% | 25.7% | 20.0% | 11.4% |

Figure 3.4 Meaningful Use Challenges Perceived by Participant Hospitals



- The greatest perceived challenge, as measured by the sum of strongly agree and somewhat agree responses, was that hospitals have difficulty meeting the required threshold for certain measures (77.2%). The highest percentage for ‘strongly agree’ alone was the inadequate incentives (31.4%).
- Other significant challenges perceived by hospital participants include dealing with the workflow changes (68.6% combined positive responses), reduced productivity (62.9%), gathering necessary information and document for attestation (62.8%), and inadequate incentives (60.0%).
- Several other Meaningful Use challenges were identified by survey participants, including time consuming, provider shortage, difficulty in using portal, changes in CMS rules, and technology not being able to meet requirements.

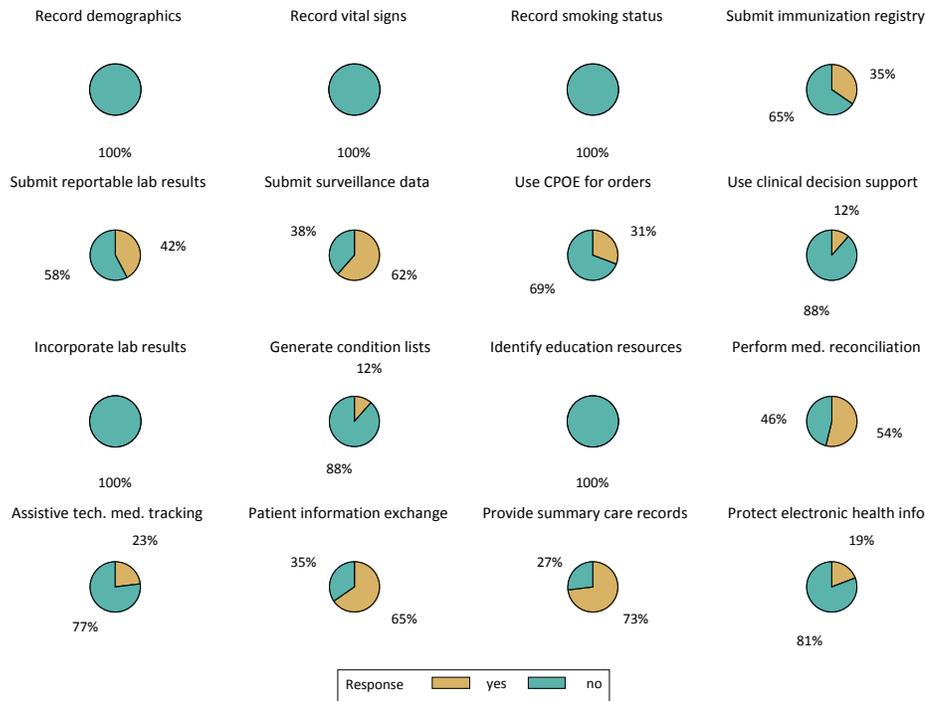
When respondents indicated that they had difficulty meeting the required threshold for certain Meaningful Use measures, the survey prompted them with an additional question: “Which MU Stage 2 measures did/will your organization have challenges meeting the required threshold?” Table 3.9 and Figure 3.5 describe the number and percentage of eligible hospitals that indicated having difficulty meeting threshold for each of the Meaningful Use Stage 2 measures. The survey items (i.e., Meaningful Use Stage 2 measures) are ordered from the highest to the lowest percentage of hospitals indicated that they had or will have difficulty meeting the measure threshold.

Table 3.9 Challenges Meeting MU Stage 2 Threshold – Hospital (n=26)

| | Count | Percent |
|--|--------------|----------------|
| Provide a summary care record for each care transition or referral | 19 | 73.1% |
| Provide patients the ability to view online, download, and transmit hospital admission information | 17 | 65.4% |
| Submit electronic syndromic surveillance data | 16 | 61.5% |
| Perform medication reconciliation | 14 | 53.8% |
| Submit electronic reportable laboratory results | 11 | 42.3% |
| Submit electronic data to immunization registries | 9 | 34.6% |
| Use CPOE for medication, laboratory, and radiology orders | 8 | 30.8% |
| Automatically track medications using assistive technologies | 6 | 23.1% |
| Protect electronic health information | 5 | 19.2% |
| Use clinical decision support for high-priority health conditions | 3 | 11.5% |
| Generate lists of patients by specific conditions | 3 | 11.5% |
| Record required patient demographics | 0 | 0.0% |
| Record required vital signs | 0 | 0.0% |
| Record smoking status | 0 | 0.0% |
| Incorporate clinical lab test results | 0 | 0.0% |
| Identify patient-specific education resources | 0 | 0.0% |
| Total | 111 | |

- A total of 26 hospital participants (out of 27) identified one or more specific MU Stage 2 measures that the hospitals had or will have difficulty meeting the threshold.
- The most challenging MU Stage 2 measure to meet was providing a summary care record for each care transition or referral (73.1%), followed by providing patients the ability to view online, download, and transmit hospital admission information (65.4%), and submitting electronic syndromic surveillance data (61.5%).

Figure 3.5 Challenges in Meeting MU Stage 2 Threshold – Hospital



3.4 Assistance Needed to Continue to Meet Meaningful Use Requirements

Research question:

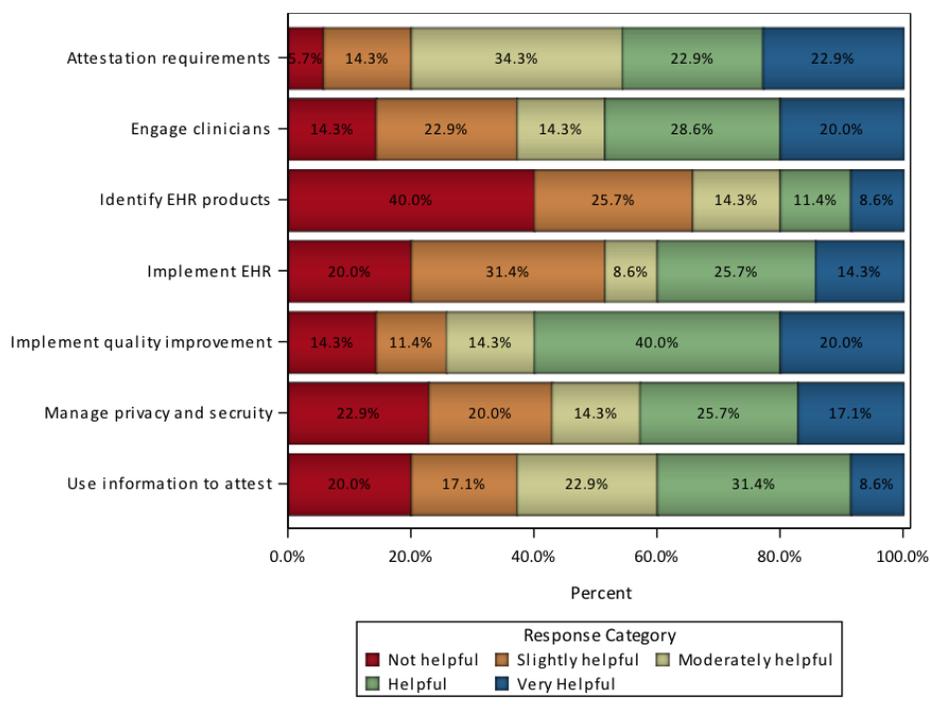
- *What types of assistance would be helpful for hospitals to continue to meet the requirements of Meaningful Use?*

To assess what types of assistance would be helpful from the hospitals' perspective as they continue to attest to and meet the requirements of Meaningful Use, participants were asked the question: "To what extent would the following types of assistance be helpful for your hospital to continue to meet the requirements of MU?" Table 3.10 describes the number and percentage of hospital responses to possible assistance for Meaningful Use. The survey items (i.e., assistance) in the table are ordered from the highest to the lowest percentage of combined positive responses (i.e., "Very Helpful" and "Helpful"). Furthermore, the percentage data are presented in Figure 3.6.

Table 3.10 Assistance Needed to Continue to Meet MU Requirements – Hospital (n=35)

| | | Very Helpful | Helpful | Moderately Helpful | Slightly Helpful | Not Helpful |
|--|---|---------------------|----------------|---------------------------|-------------------------|--------------------|
| Assistance with implementing clinical quality improvements to better manage the health of our patients | n | 7 | 14 | 5 | 4 | 5 |
| | % | 20.0% | 40.0% | 14.3% | 11.4% | 14.3% |
| Assistance to engage clinicians in incorporating EHR into the workflow | n | 7 | 10 | 5 | 8 | 5 |
| | % | 20.0% | 28.6% | 14.3% | 22.9% | 14.3% |
| Informational sessions regarding attestation requirements and processes | n | 8 | 8 | 12 | 5 | 2 |
| | % | 22.9% | 22.9% | 34.3% | 14.3% | 5.7% |
| Assistance with privacy and security and other legal or policy issues related to use of health information | n | 6 | 9 | 5 | 7 | 8 |
| | % | 17.1% | 25.7% | 14.3% | 20.0% | 22.9% |
| Technical assistance in EHR implementation including making necessary workflow changes | n | 5 | 9 | 3 | 11 | 7 |
| | % | 14.3% | 25.7% | 8.6% | 31.4% | 20.0% |
| Assistance with using information from the EHR to attest to numerators, denominators, and exclusions | n | 3 | 11 | 8 | 6 | 7 |
| | % | 8.6% | 31.4% | 22.9% | 17.1% | 20.0% |
| Assistance in identifying EHR products that meet our hospital's needs | n | 3 | 4 | 5 | 9 | 14 |
| | % | 8.6% | 11.4% | 14.3% | 25.7% | 40.0% |

Figure 3.6 Assistance Needed to Continue to Meet MU Requirements – Hospital



- Help with implementing clinical quality improvements to better manage the health of patients was identified as the most helpful form of assistance, as measured by the sum of very helpful and helpful responses (60.0%). The highest percentage for “very helpful” assistance was identified as informational sessions regarding attestation requirements and processes (22.9%).
- Most types of assistance were perceived as very helpful or helpful (combined percentage for the positive responses ranges from 40% to 60%) except “assistance in identifying EHR products that meet our hospital’s needs” that received only 20.0% combined positive response.

3.5 Future Plan for Meaningful Use

Research questions:

- *What are the hospitals’ plans for continuing to achieve Meaningful Use?*
- *What barriers do hospitals perceive as they move toward Meaningful Use Stage 3?*

To evaluate the future plans of the hospitals regarding Meaningful Use, we asked two questions: 1) “Is your hospital planning to achieve MU Stage 3?” and 2) “Does your hospital plan to continue to report data for Meaningful Use even without the incentive payment?” Table 3.11 and Figure 3.7 describe the responses for the first question; and Table 3.12 and Figure 3.8 describe the responses for the second question.

Table 3.11 Hospital Plan to Achieve MU Stage 3 (n=41)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 34 | 82.9% |
| No | 2 | 4.9% |
| No Response | 5 | 12.2% |
| Total | 41 | 100% |

Figure 3.7 Hospital Plan to Achieve MU Stage 3

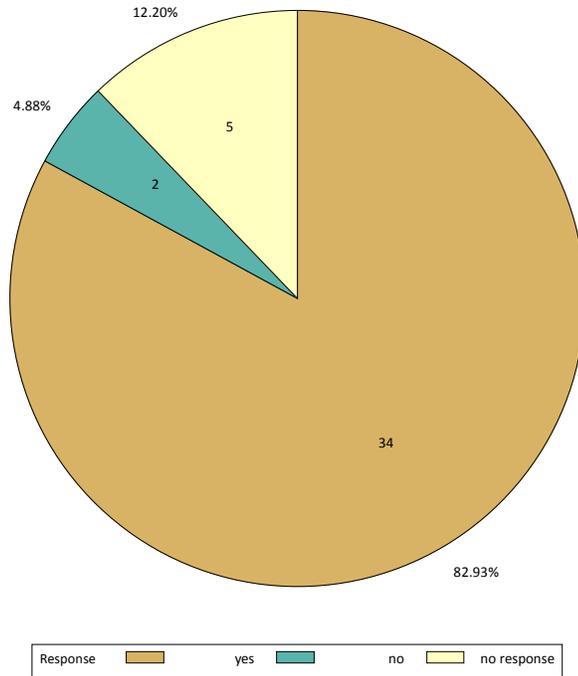
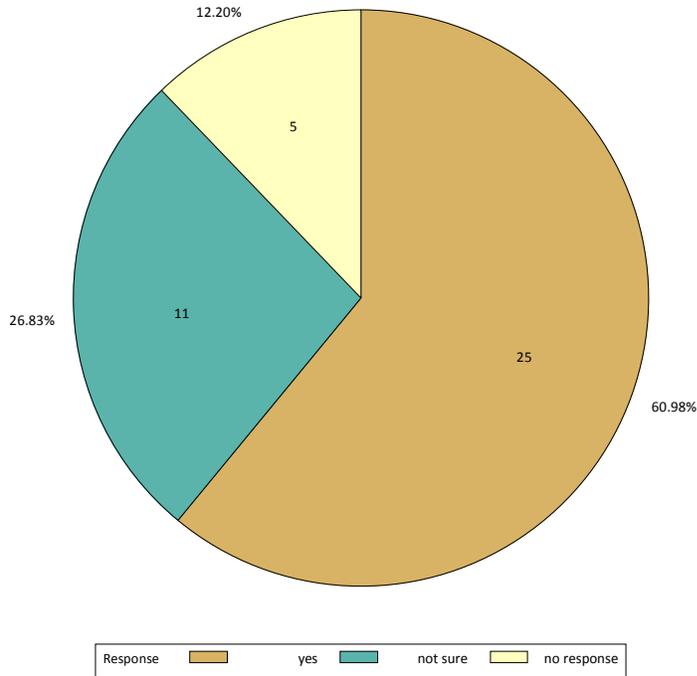


Table 3.12 Hospital Plan to Continue to Report Data (n=41)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 25 | 61.0% |
| No | 0 | 0.0% |
| Not Sure | 11 | 26.8% |
| No Response | 5 | 12.2% |
| Total | 41 | 100% |

Figure 3.8 Hospital Plan to Continue to Report Data



- Among the 41 participant hospitals, 34 hospitals indicated that they plan to achieve Meaningful Use Stage 3 (82.9%).
- Twenty five hospitals indicated that they plan to continue to report data for Meaningful Use even without the incentive payment (60.98%).
- No hospital indicated a clear intention to stop to report data for Meaningful Use.

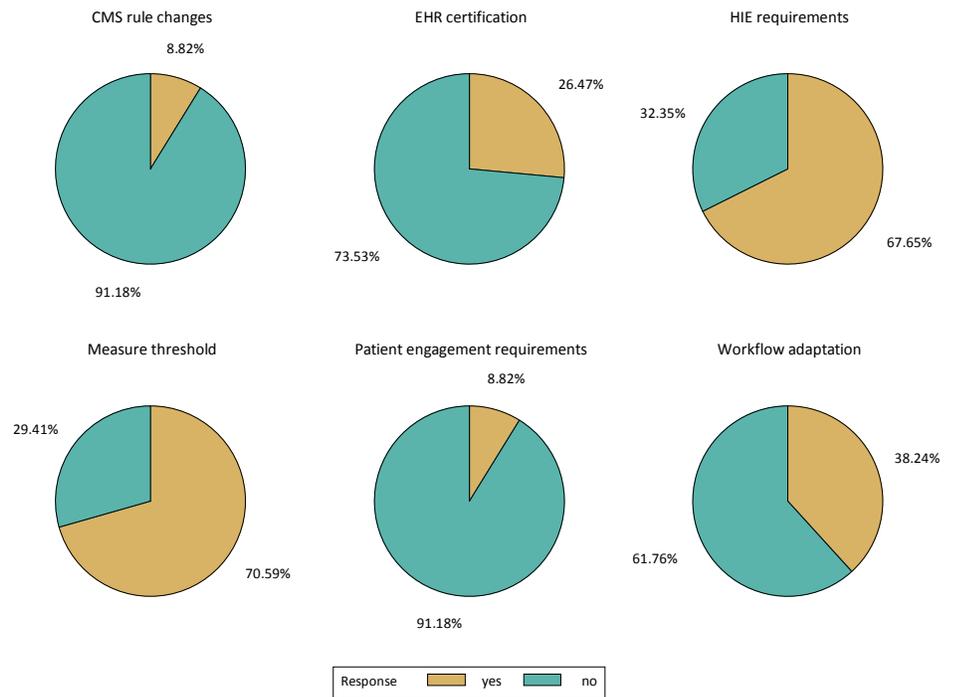
Table 3.13 presents information on anticipated challenges for moving toward Meaningful Use Stage 3, with the challenges ordered from the highest to the lowest anticipated. Figure 3.9 shows the percentage of participant hospitals that identified each of the challenges for achieving Meaningful Use Stage 3.

Table 3.13 Anticipated Challenges for Meeting MU Stage 3 -Hospital (n=34)

| | Count | Percent |
|---|-----------|---------|
| Measure threshold requirements will be difficult to meet | 24 | 70.6% |
| Health information exchange requirements will be difficult to meet | 23 | 67.6% |
| Technical assistance needed to adapt the workflows to meet MU Stage 3 | 13 | 38.2% |
| EHR vendor may not be able to meet certification requirements (CEHRT) by the deadline | 9 | 26.5% |
| CMS rule change and finalization | 3 | 8.8% |
| Patient portal and engagement requirements | 3 | 8.8% |
| Total | 75 | |

- The highest anticipated challenge as hospitals move toward Meaningful Use Stage 3 is measure threshold (70.6%).
- The second significant anticipated challenge is health information exchange requirements (67.6%).
- When asked to name anticipated challenges that were not listed in the original survey, two challenges were identified by respondents: one for changes in CMS rules related to Meaningful Use Stage 3 and the other for patient portal and engagement requirements. Both challenges were nominated by three different respondents.

Figure 3.9 Anticipated Challenges for Meeting MU Stage 3 – Hospital



3.6 EHR Adoption and Use

Research questions:

- *What Electronic Health Records (EHR) systems have been adopted in the hospitals?*
- *When did the hospitals first adopt their primary EHR system and what is the current adoption status?*
- *Who used the EHR system in the hospitals?*
- *How were EHR functionalities and data used in the hospitals?*

To evaluate the status of hospital EHR adoption and use, questions were asked about the EHR systems that were adopted, time of adoption, stage of adoption, current use of EHR functionalities, and other EHR practices. The respondents were first asked to report the name of their hospitals' primary EHR system and the names of the secondary and tertiary EHR systems if such systems existed. Table 3.14 summarizes the ten most commonly used EHR systems in the participant hospitals and number of hospitals that use each of these systems.

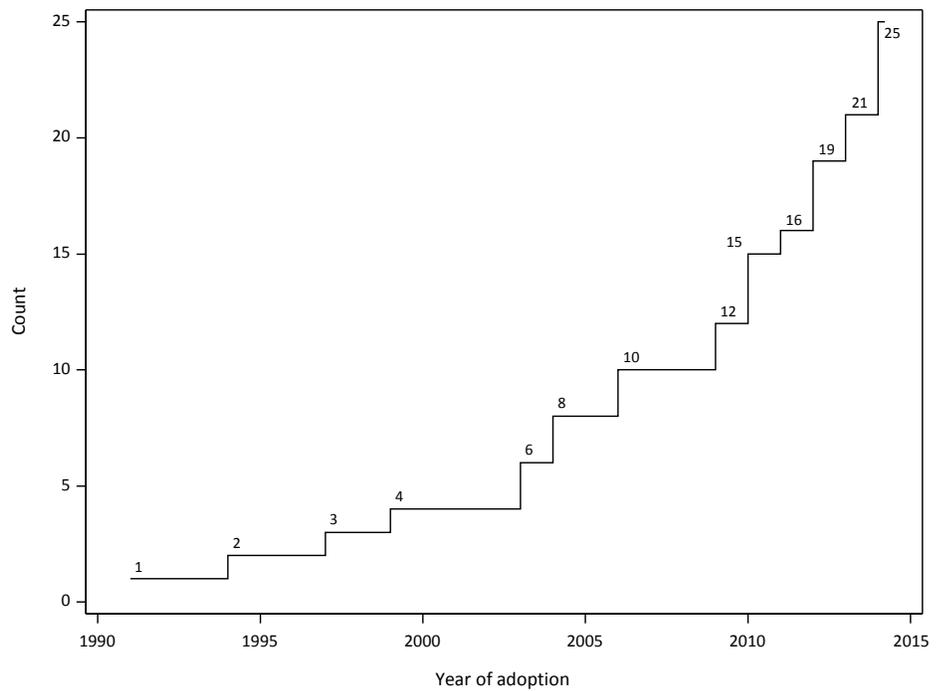
Table 3.14 Commonly Used EHR Systems

| | Primary EHR | Secondary EHR | Tertiary EHR |
|-------------|-------------|---------------|--------------|
| Epic | 12 | 0 | 0 |
| McKesson | 7 | 0 | 0 |
| Cerner | 5 | 1 | 0 |
| Healthland | 4 | 1 | 0 |
| CPSI | 4 | 1 | 0 |
| MEDITECH | 3 | 1 | 1 |
| NextGen HIS | 1 | 1 | 0 |
| MEDHOST | 1 | 0 | 0 |
| NTT Data | 1 | 0 | 0 |
| Sunquest | 0 | 3 | 0 |

- Epic, McKesson, and Cerner are the most commonly used primary EHR systems in the hospitals that participated in this study.

Figure 3.10 shows the cumulative number of hospitals that adopted primary EHR systems over time based on the responses to the survey question: "Which year did your hospital first adopt the primary EHR system?"

Figure 3.10 Trend of Primary EHR Adoption over Time – Hospital



- Twenty five hospitals reported the year in which they adopted their primary EHR system. Among them, the earliest adoption occurred in 1991.
- The trend of EHR adoption accelerated since 2010 as 13 out of 25 hospitals adopted their primary EHR system between 2010 and 2015.

Using the Healthcare Information and Management Systems Society (HIMSS) EHR Adoption Model, an 8-stage model that tracks progress in EHR adoption (<http://www.himssanalytics.org/provider-solutions>), as the benchmark, the respondents were asked to evaluate which stage best described their hospital's current EHR adoption status. Table 3.15 describes the number and percentage of participant hospitals in each of the HIMSS EHR adoption stages. Furthermore, the percentage data are also presented in Figure 3.11.

Table 3.15 Current Stage of EHR Adoption – Hospital (n=35)

| | Count | Percent |
|--|-------|---------|
| Stage 0: All three ancillaries not installed (some clinical automation may exist; lab/pharmacy/radiology not installed) | 0 | 0.0% |
| Stage 1: All three ancillaries installed (lab/pharmacy/radiology installed) | 0 | 0.0% |
| Stage 2: Patient-centered clinical data using basic system-to-system exchange (data fed to clinical data repository [CDR] for providers to access and review results) | 3 | 8.6% |
| Stage 3: Normalized patient record using structural interoperability. First level of decision support for error checking such as for drug interactions. Some level of picture archive and communication system [PACS]. | 4 | 11.4% |

| | | |
|---|-----------|-------------|
| Stage 4: Care coordination based on actionable data using a semantic interoperable patient record (computerized physician order entry [CPOE], 2nd level clinical decision support for evidence-based protocols) | 0 | 0.0% |
| Stage 5: Closed loop medication administration (fully implemented in at least one patient care area. Electronic medication administration and bar coding integrated with CPOE and pharmacy for patient safety) | 7 | 20.0% |
| Stage 6: Structured documentation and full imaging (full physician documentation using structured templates, PACS to enable providers to view all images via an intranet or secure network) | 15 | 42.9% |
| Stage 7: Medical record fully electronic and information exchange is enabled (clinical information shared via health information exchange network (e.g., other hospitals, clinics, etc.)) | 6 | 17.1% |
| Total | 35 | 100% |

- A majority of the hospitals that participated in this study were in an advance stage of EHR adoption with 80.0% in Stages 5-7.
- A few hospitals are currently in Stage 2 or Stage 3 in which more advance functionalities and health information exchange are not yet implemented.

Figure 3.11 EHR Adoption Stage – Hospital

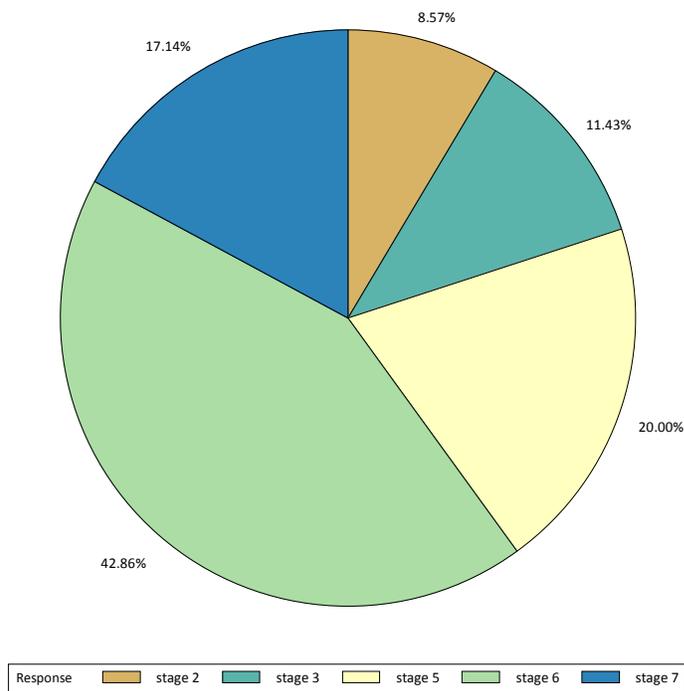


Table 3.16 summarizes the data regarding what service areas in the hospitals that are currently using the EHR systems. The percentage of EHR utilization was calculated by the ratio between the number of hospitals that used EHR in a service area and the number of hospitals that indicated offering such service.

Table 3.16 Service Area in Hospital Currently Using EHR (n=35)

| | Service Offered | EHR Used in Service Area | Percent |
|--------------------------------|------------------------|---------------------------------|----------------|
| Emergency Department | 38 | 31 | 81.6% |
| General Medical/Surgical Units | 37 | 34 | 91.9% |
| Outpatient Surgery | 37 | 30 | 81.1% |
| Outpatient Clinics - On Site | 33 | 23 | 69.7% |
| Outpatient Clinics - Off Site | 22 | 17 | 77.3% |
| Intensive Care Unit | 15 | 15 | 100.0% |
| Skilled Nursing Facility | 21 | 5 | 23.8% |
| Home Health | 15 | 15 | 100.0% |

- The three most commonly offered services in the sample hospitals – Emergency Department, General Medical/Surgical Units, and Outpatient Surgery – all have high percentage of EHR utilization (percentage ranges from 81.1% to 91.9%).
- Outpatient clinics of the participant hospitals have relatively low rate of EHR utilization (69.7% for on-site clinics and 77.3% for off-site clinics).
- Skilled nursing facilities (SNF) of the participant hospitals have the lowest rate of EHR utilization (23.8%).

Among the 22 hospitals indicating that they have off-site outpatient clinics, 11 reported that the hospital and off-site clinics use the same, interconnected EHR system with automatic transfer of patient information (50%). Two hospitals reported that the hospital and off-site clinics use different, but interconnected EHR systems with automatic transfer (9%). Eight hospitals reported that they use different and separate EHR systems than their off-site clinics, which requires using additional steps such as paper or fax to transfer patient information (36%).

To assess the use of EHR functionalities, we asked the respondents to indicate which of the standard EHR functionalities were available in their hospitals' EHR systems and were routinely used by the providers. Table 3.17 and Figure 3.12 summarize patterns of functionality availability and utilization in hospitals' EHR systems.

Figure 3.12 EHR Functionality Availability and Use – Hospital

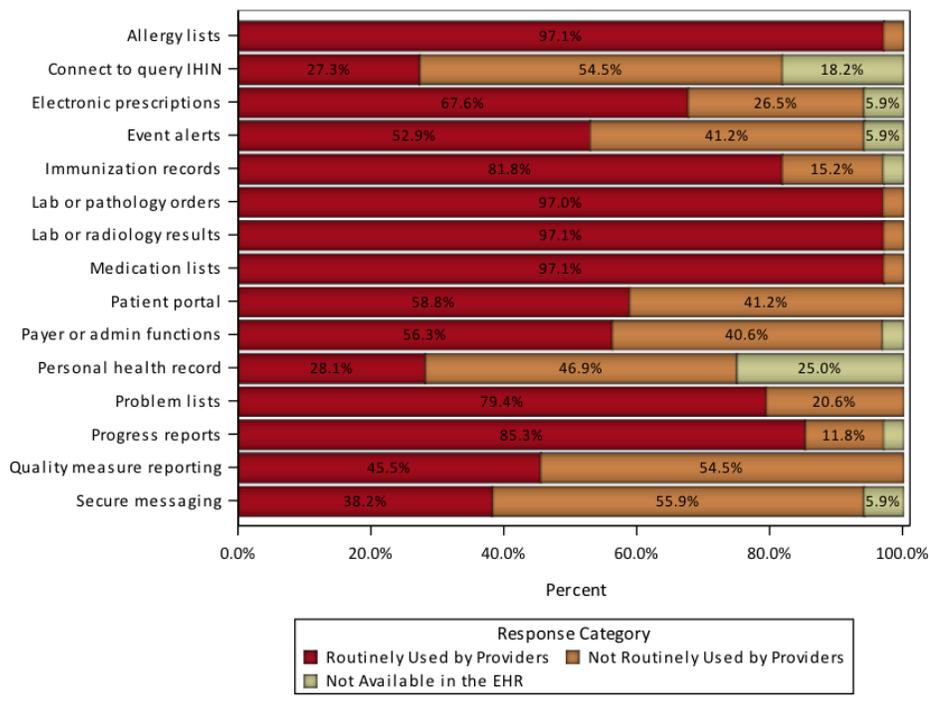


Table 3.17 Functionalities Available and Used in Hospital EHR System (n=34)

| | | Routinely Used by Providers | Not Routinely Used by Providers | Not Available in the EHR |
|------------------------------------|---|------------------------------------|--|---------------------------------|
| Patient allergy lists | n | 33 | 1 | 0 |
| | % | 97.1% | 2.9% | 0.0% |
| Patient medication lists | n | 33 | 1 | 0.0 |
| | % | 97.1% | 2.9% | 0.0% |
| Lab or radiology test results | n | 33 | 1 | 0 |
| | % | 97.1% | 2.9% | 0.0% |
| Lab or pathology orders | n | 32 | 1 | 0 |
| | % | 97.0% | 2.9% | 0.0% |
| Progress reports | n | 29 | 4 | 1 |
| | % | 85.3% | 11.8% | 2.9% |
| Immunization records | n | 27 | 5 | 1 |
| | % | 81.8% | 15.2% | 3.0% |
| Patient problem or procedure lists | n | 27 | 7 | 0 |
| | % | 79.4% | 20.6% | 0.0% |
| Electronic prescriptions | n | 23 | 9 | 2 |
| | % | 67.6% | 26.5% | 5.9% |
| Patient portal | n | 20 | 14 | 0 |
| | % | 58.8% | 41.2% | 0.0% |
| Payer or admin functions | n | 18 | 13 | 1 |
| | % | 56.3% | 40.6% | 3.1% |

| | | | | |
|---------------------------|---|-------|-------|-------|
| Event alerts | n | 18 | 14 | 2 |
| | % | 52.9% | 41.2% | 5.9% |
| Quality measure reporting | n | 15 | 18 | 0 |
| | % | 45.5% | 54.5% | 0.0% |
| Secure messaging | n | 13 | 19 | 2 |
| | % | 38.2% | 55.9% | 5.9% |
| Personal health record | n | 9 | 15 | 8 |
| | % | 28.1% | 46.9% | 25.0% |
| Connect to query IHIN | n | 9 | 18 | 6 |
| | % | 27.3% | 54.5% | 18.2% |

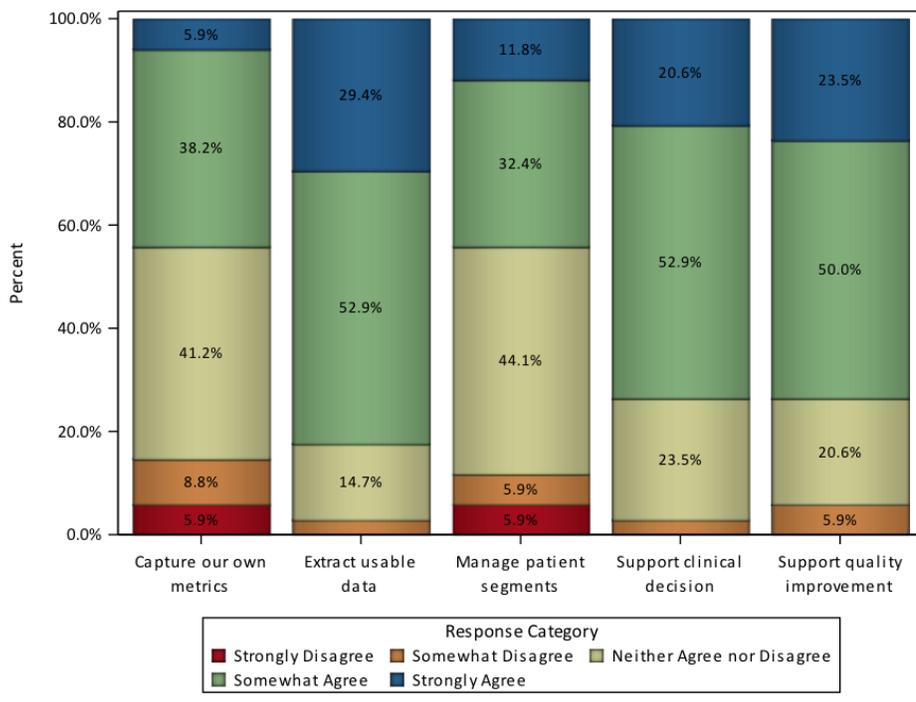
- The highly utilized EHR functionalities include patient allergy lists, patient medication lists, lab or radiology test results, and orders for lab or pathology tests (routinely used by 97% of providers).
- The functionalities that are less routinely utilized include quality measure reporting, secure messaging, personal health record, and connect to query the Iowa Health Information Network (IHIN). These functionalities are routinely used by providers in less than 50% of the participant hospitals (percentage ranges from 27.3% to 45.5%).
- Among the less routinely utilized functionalities, it is noticeable that 25.0% of the participant hospitals' EHR systems do not offer the personal health record function. This echoes the anticipated challenges of meeting patient engagement requirements identified by a few hospitals as they move toward Meaningful Use Stage 3.

To assess hospitals' practice in using EHR data, the respondents were asked the question: "To what extent do you agree with the following statements about your organization's practice in using EHR data?" Table 3.18 and Figure 3.13 summarize patterns of use of EHR data.

Table 3.18 Hospital Practice in Using EHR Data (n=34)

| | | Strongly Agree | Somewhat Agree | Neither Agree nor Disagree | Somewhat Disagree | Strongly Disagree |
|--|---|-----------------------|-----------------------|-----------------------------------|--------------------------|--------------------------|
| We were able to extract usable data from the EHR system | n | 10 | 18 | 5 | 1 | 0 |
| | % | 29.4% | 52.9% | 14.7% | 2.9% | 0.0% |
| Used the EHR data to support continuous quality improvement activities | n | 8 | 17 | 7 | 2 | 0 |
| | % | 23.5% | 50.0% | 20.6% | 5.9% | 0.0% |
| Used the EHR data to support clinical decision making | n | 7 | 18 | 8 | 1 | 0 |
| | % | 20.6% | 52.9% | 23.5% | 2.9% | 0.0% |
| Used the EHR data to segment and manage particular groups of patients | n | 4 | 11 | 15 | 2 | 2 |
| | % | 11.8% | 32.4% | 44.1% | 5.9% | 5.9% |
| We developed and captured our own metrics in the EHR system | n | 2 | 13 | 14 | 3 | 2 |
| | % | 5.9% | 38.2% | 41.2% | 8.8% | 5.9% |

Figure 3.13 Hospital Practice in Using EHR Data



- A majority of participant hospitals, as measured by the sum of percentages of strongly agree and somewhat agree responses, were able to extract usable data from their EHR systems (82.3%), use the data to support continuous quality improvement activities (73.5%) and clinical decision making (73.5%).
- Lower percentages of participant hospitals were able to use data to segment and manage particular groups of patients (44.1%) and develop and capture their own metrics (44.1%).

3.7 HIE Capacity

Research questions:

- *What is the current practice in hospitals regarding sharing data with outside providers?*
- *What is the current practice in hospitals regarding generating and sharing information related to inpatient and/or emergency room admissions, discharges, and transfers?*
- *What is the current practice and capacity in hospitals regarding utilizing different HIE mechanisms?*

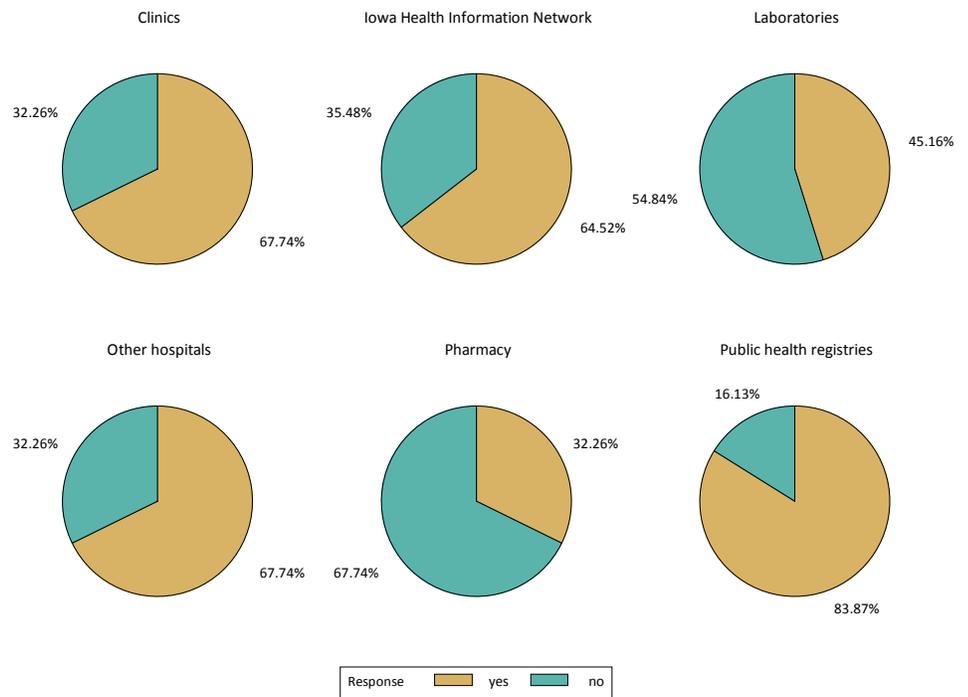
To evaluate hospitals’ Health Information Exchange (HIE) capacity and practice, questions were asked about their current data sharing activities, capacity and practice in generating and sharing inpatient and/or emergency room admissions, discharges, and transfers (ADT) information, and the use of HIE mechanisms. The respondents were first asked to indicate any types of providers outside of the hospital with whom they currently share data. Table 3.19 and Figure 3.14 summarize the pattern of current data sharing activities among the participant hospitals.

Table 3.19 Hospital Share Data with Outside Providers or Networks (n=33)

| | Count | Percent |
|---|-------|---------|
| Public health (cancer registry, immunization registry, disease reporting) | 26 | 78.8% |
| Other hospitals | 21 | 63.6% |
| Clinics | 21 | 63.6% |
| Iowa Health Information Network (IHIN) | 20 | 60.6% |
| Laboratories | 14 | 42.4% |
| Pharmacy | 10 | 30.3% |
| Other | 1 | 3.0% |
| None | 1 | 3.0% |

- Among the participant hospitals, more than 60% currently share data with public health agencies/registries, other hospitals, and clinics.
- IHIN is also widely used by participant hospitals for sharing data (60.6%).

Figure 3.14 Hospital Share Data with Outside Providers or Networks



The respondents also indicated their interest in sharing data with providers that they are not currently sharing data with by answering the question: “Among those that are currently NOT sharing data with your hospital, who would your hospital like to share data to be more effective?” Table 3.20 describes the number and percentage of hospitals indicated their interest in sharing data.

Table 3.20 Hospital Interest in Sharing Data (n=25)

| | Count | Percent |
|---|--------------|----------------|
| Other hospitals | 13 | 52.0% |
| Clinics | 12 | 48.0% |
| Public health (cancer registry, immunization registry, disease reporting) | 11 | 44.0% |
| Iowa Health Information Network (IHIN) | 10 | 40.0% |
| Pharmacy | 8 | 32.0% |
| Laboratories | 6 | 24.0% |
| SNF | 4 | 16.0% |

- Respondents indicated strong interests in sharing data with other hospitals, clinics, and public agencies/registries that they don't currently share data with.

Tables 3.21 – 3.23 below summarize the data on hospitals current practice in generating and sharing information related to inpatient and/or emergency room ADT.

Table 3.21 Process to Generate Inpatient/ER ADT Data – Hospital (n=34)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 33 | 97.1% |
| No | 1 | 2.9% |
| Total | 34 | 100% |

Table 3.22 Sharing ADT Data with Clinical Care Teams – Hospital (n=33)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 24 | 72.7% |
| No | 9 | 27.3% |
| Total | 33 | 100% |

Table 3.23 Where are ADT Data Disseminated – Hospital (n=24)

| | Count | Percent |
|---|--------------|----------------|
| Within the hospital – clinical care team or case manager | 22 | 97.1% |
| The patient's primary care provider outside your hospital/health system | 11 | 45.8% |
| IHIN | 9 | 37.5% |
| Health system or parent organization | 8 | 33.3% |
| Payer, insurance company, and/or managed care organization | 7 | 29.2% |
| Other – Nebraska Health Information Initiative | 1 | 4.2% |

- Nearly all of the participant hospitals (97.1%) have the capacity and

process in place to generate ADT information with only one exception.

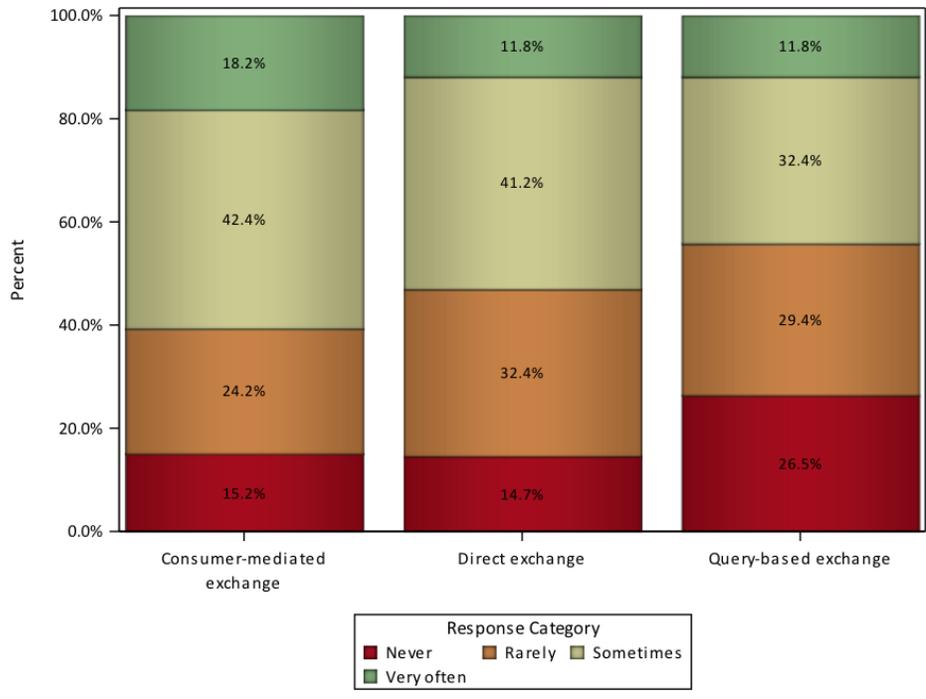
- However, only about three quarters of the hospitals (72.7%) share ADT information with clinical care teams.
- Furthermore, when considering sharing ADT information outside the hospital such as with the patient’s primary care provider, IHIN, health system or parent organization, and payers, the percentage of hospitals that current practice such data sharing is much lower (percentage ranges from 29.2% to 45.8%).

The respondents were asked to evaluate their practice and capacity to use different HIE mechanisms with two questions: 1) “How frequently does your organization use the following HIE mechanisms for exchanging patient health information?” and 2) “To what extent does your hospital’s EHR system(s) currently equip your providers to utilize the following HIE mechanisms?” Table 3.24 and Figure 3.15 describe frequency of participant hospitals using different HIE mechanisms. Table 3.25 and Figure 3.16 describe the extent to which the EHR systems adopted by participant hospitals equip them to use different HIE mechanisms.

Table 3.24 Frequency of Use HIE for Exchanging Patient Health Information – Hospital (n=34)

| | | Always | Very Often | Sometimes | Rarely | Never |
|----------------------------|---|---------------|-------------------|------------------|---------------|--------------|
| Consumer-mediated exchange | n | 0 | 6 | 14 | 8 | 5 |
| | % | 0.0% | 18.2% | 42.4% | 24.2% | 15.2% |
| Query-based exchange | n | 0 | 4 | 11 | 10 | 9 |
| | % | 0.0% | 11.8% | 32.4% | 29.4% | 26.5% |
| Direct exchange | n | 0 | 4 | 14 | 11 | 5 |
| | % | 0.0% | 11.8% | 41.2% | 32.4% | 14.7% |
| Other | n | 0 | 0 | 1 | 0 | 1 |
| | % | 0.0% | 0.0% | 50.0% | 0.0% | 50.0% |

Figure 3.15 Frequency of Use HIE for Exchanging Patient Health Information

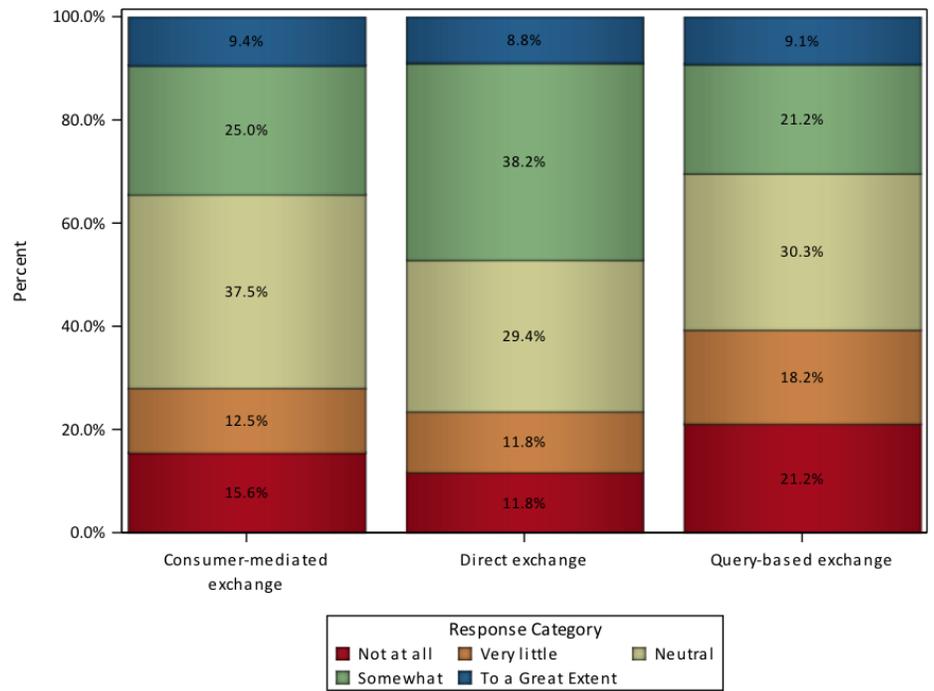


- The frequency of using HIE for exchanging patient health information remains low as the majority of the participant hospitals only rarely or sometimes use HIE or never use HIE.
- None of the respondents indicated that using HIE is a standard practice (i.e., always used) in their hospital.
- Besides the common HIE mechanisms listed in the question, one respondent indicated that their hospital use CareLink as the mechanism for HIE.

Table 3.25 EHR System Support of HIE Mechanisms – Hospital (n=34)

| | | To a Great Extent | Some-what | Neutral | Very little | Not at all |
|----------------------------|---|-------------------|-----------|---------|-------------|------------|
| Consumer-mediated exchange | n | 3 | 8 | 12 | 4 | 5 |
| | % | 9.4% | 25.0% | 37.5% | 12.5% | 15.6% |
| Query-based exchange | n | 3 | 7 | 10 | 6 | 7 |
| | % | 9.1% | 21.2% | 30.3% | 18.2% | 21.2% |
| Direct exchange | n | 3 | 13 | 10 | 4 | 4 |
| | % | 8.8% | 38.2% | 29.4% | 11.8% | 11.8% |

Figure 3.16 EHR System Support of HIE Mechanisms – Hospital



- The highest supported HIE mechanism by hospital EHR systems, as measured by the sum of percentages of somewhat and to a great extent supported, is direct exchange (47.0%).
- The lowest supported HIE mechanism is query-based exchange (30.3%).
- Overall, judging by the high percentages of respondents that indicated lack of support from their EHR systems to utilize HIE mechanisms in general, this is an area that needs significant improvement.

Chapter 4 – Practice Health IT and Meaningful Use Assessment

This chapter discusses results of the practice version of the Health IT and Meaningful Use Assessment Survey. This survey targeted medical practices with eligible professionals who had attested to CMS Meaningful Use programs and had received at least one incentive payment in and/or prior to 2015. Dentists were excluded from this version of the survey because a large majority of dentists in Iowa had attested only to the Adopt, Implement, or Upgrade stage of Meaningful Use; and thus, were only suited to answer certain questions, which we discuss in Chapter 5. The practice survey focused on seven areas of assessment and the results are reported in the following seven corresponding sections.

- Practice characteristics
- Participation in CMS Meaningful Use programs
- Perceived benefits and challenges in Meaningful Use
- Assistance needed to continue to meet Meaningful Use requirements
- Future plan for Meaningful Use participation
- Electronic Health Records adoption and use
- Health Information Exchange capacity

4.1 Practice Characteristics

Research questions:

- *What types of practices participated in this study?*
- *What are the sizes of the participant practices?*
- *What are the participant practices' affiliation statuses with health systems? What services do the participant practices offer?*

To assess basic characteristics of the practice, questions were asked about the practices' type, size, system affiliation, and services offering. Table 4.1 describes the types of practices that participated in this study.

Table 4.1 Practice Type (n=214)

| | Count | Percent |
|--|--------------|----------------|
| Provider-owned medical practice or group | 170 | 79.4% |
| Hospital- or health-system-owned medical group | 14 | 6.5% |
| Community Health Center (e.g., FQHC, RHC) | 11 | 5.1% |
| Chiropractic Clinic | 9 | 4.2% |
| Other | 10 | 4.7% |
| Total | 214 | 100% |

- The large majority of the respondents to our practice survey are provider-owned medical practices or groups (79.4%), followed by hospital- or health-system-owned medical groups (6.5%).
- Nine respondents specifically identified themselves as chiropractic clinics (4.2%). Based on responses to other questions (e.g., service offering and EHR systems adopted), it is evident that the number of chiropractic clinics in our sample is much higher than nine.

- Several other types of organizations were specified by respondents, including two county health departments, one county medical center, one private mental health practice, and three hospitals/health systems responding on behalf of eligible professionals.

The respondents were asked to report the size of their practice. As shown in Figure 4.1, among the 215 respondents who responded to this question, 94 are solo practices (43.7%), 80 are small medical groups with 2-5 providers (37.2%), 14 are medium-sized medical groups with 6-9 providers (6.5%), and the rest 27 are large medical groups with 10 or more providers (12.6%).

Figure 4.1 Practice Size

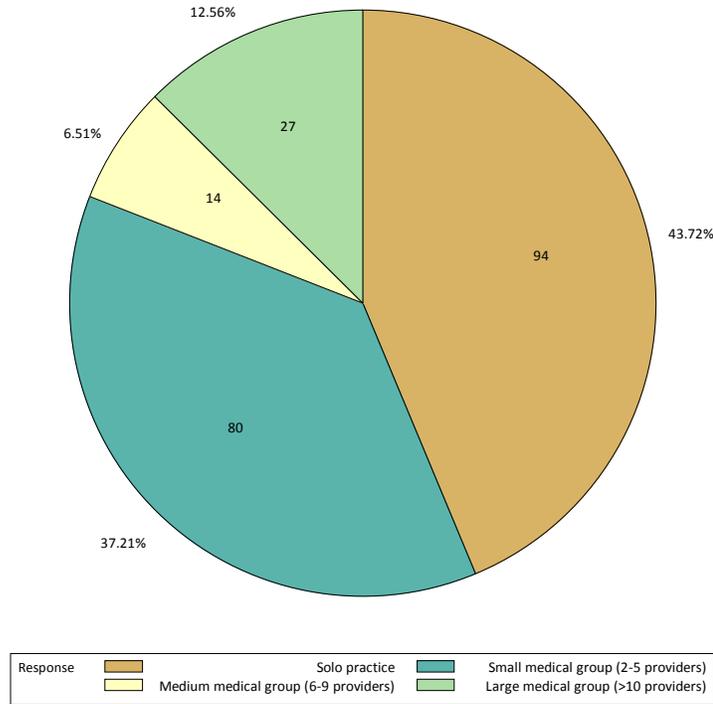


Table 4.2 and Table 4.3 show the number and percentage of participant practices that are affiliated with a health system and the type of affiliation they have with the health system.

Table 4.2 Practice Affiliation with Health System (n=216)

| | Count | Percent |
|--------------|------------|-------------|
| Yes | 16 | 7.4% |
| No | 200 | 92.6% |
| Total | 216 | 100% |

- Only 16 practices reported that they were affiliated with health systems (7.4%). The large majority of the respondents had no system affiliation (92.6%).

Table 4.3 Type of Practice Affiliation (n=16)

| | Count | Percent |
|---|--------------|----------------|
| Owned in whole or in part by the medical group, hospital, or health system | 10 | 66.7% |
| Other non-ownership affiliation | 4 | 26.7% |
| Non-ownership, contract managed by the larger medical group, hospital, or health system | 1 | 6.7% |
| Total | 16 | 100% |

- Among the 16 practices with system affiliation, the most common type of affiliation was ownership-based (10 counts and 66.7%).

Table 4.4 shows the number and percentage of participant practices that offer different primary and specialty services. The services are ordered from the most commonly to the least commonly offered in the table.

Table 4.4 Practice Services Offered

| | Count | Percent |
|--------------------------------|--------------|----------------|
| Primary care | 120 | 55.8% |
| Family or general practice | 61 | 53.0% |
| Chiropractic | 58 | 50.4% |
| Pediatrics | 28 | 24.3% |
| OB/GYN | 24 | 20.9% |
| Internal medicine | 20 | 17.4% |
| Specialty care | 117 | 54.4% |
| Ophthalmology or Optometry | 35 | 37.6% |
| Podiatry | 20 | 21.5% |
| Surgery or Oral Surgery | 17 | 18.3% |
| Psychiatry | 15 | 16.1% |
| Orthopedics | 14 | 9.7% |
| ENT | 13 | 14.0% |
| Radiology | 12 | 12.9% |
| Cardiovascular disease | 11 | 11.8% |
| Allergy, Asthma, or Immunology | 9 | 9.7% |
| Neurology | 9 | 9.7% |
| Endocrinology | 7 | 7.5% |
| Other | 27 | 29.0% |

- Among 215 respondents who reported their service offering, 120 or 55.8% reported that they provide primary care services; and 117 or 54.4% reported offering specialty care services.
- The most common primary care services offered by the participant practices are family or general practice (53.0% of 115 respondents who reported specific primary care services) and chiropractic (50.4%).

- The most common specialty care services offered by the participant practices are Ophthalmology or Optometry (37.6% of 93 respondents who reported specific specialty care services) and Podiatry (21.5%).

In addition to the above practice characteristics, the respondents were asked to report the type and number of staff FTEs that were allocated to perform EHR and/or Meaningful Use activities. Table 4.5 below describes the number and percentage of participant practices that have allocated different types of staff FTEs to activities related to EHR and/or Meaningful Use. As shown in the table, most practices rely on administrative/office staff (70.4%) and/or clinical staff (60.6%) to perform EHR and Meaningful Use tasks.

Table 4.5 EHR/Meaningful Use Staff FTE (n=203)

| | Count | Percent |
|--|--------------|----------------|
| Administrative/office staff | 143 | 70.4% |
| Clinical staff | 123 | 60.6% |
| Information technology/Informatics staff | 44 | 21.7% |
| Other | 15 | 7.4% |

4.2 Participation in Meaningful Use

Research question:

- *What are the trends of practice (i.e., eligible professional) participation in different stages of Meaningful Use from 2011 to 2015?*

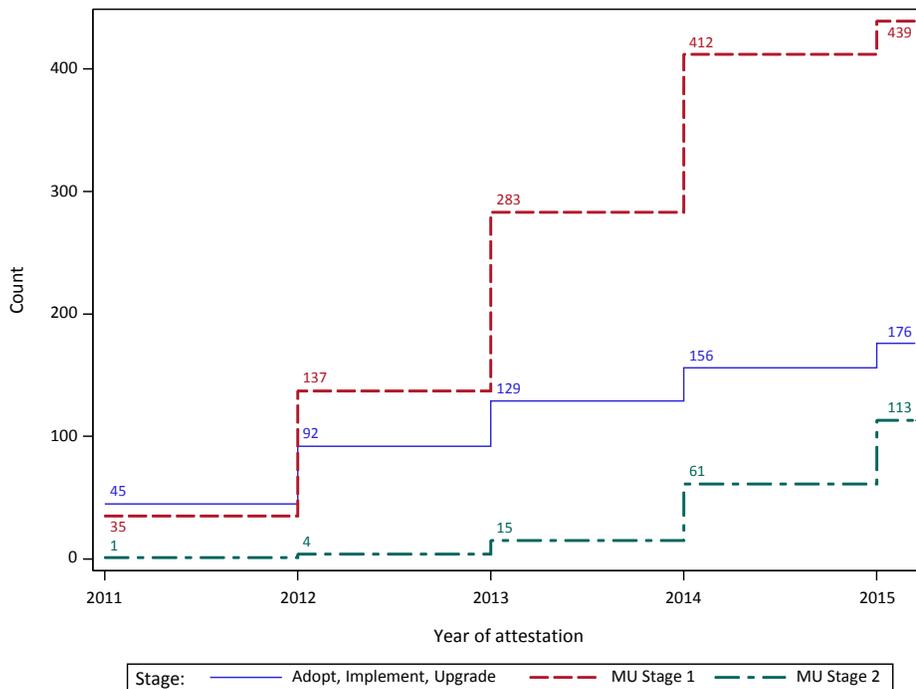
To gather information on practices' participation in CMS Meaningful Use programs, respondents were asked to indicate in what year between 2011 and 2015 their eligible professionals attested to the three stages of Meaningful Use. Table 4.6 summarizes the number and percentage of responding practices that had eligible professionals attesting to each stage of Meaningful Use in each attestation year. Figure 4.2 shows the cumulative number of participant practices that have attested to Meaningful Use grouped by different stages.

Table 4.6 Number of Practices Attesting to Meaningful Use

| | Count | Percent |
|------------------------------|--------------|----------------|
| 2011 (n=72) | | |
| Adopt, Implement, or Upgrade | 45 | 62.5% |
| MU Stage 1 | 35 | 48.6% |
| MU Stage 2 | 1 | 1.4% |
| 2012 (n=129) | | |
| Adopt, Implement, or Upgrade | 47 | 36.4% |
| MU Stage 1 | 102 | 79.1% |
| MU Stage 2 | 3 | 2.3% |
| 2013 (n=169) | | |
| Adopt, Implement, or Upgrade | 37 | 21.9% |
| MU Stage 1 | 146 | 86.4% |
| MU Stage 2 | 11 | 6.5% |

| 2014 (n=166) | | |
|------------------------------|-----|-------|
| Adopt, Implement, or Upgrade | 27 | 16.3% |
| MU Stage 1 | 129 | 77.7% |
| MU Stage 2 | 46 | 27.7% |
| 2015 (n=77) | | |
| Adopt, Implement, or Upgrade | 20 | 26.0% |
| MU Stage 1 | 27 | 35.1% |
| MU Stage 2 | 52 | 67.5% |

Figure 4.2 Cumulated Numbers of Practices Attested to Meaningful Use by Stage



- As shown in Table 4.6, the same patterns of Meaningful Use participation occurred among eligible professionals as among eligible hospitals. As the Meaningful Use programs progressed over time, the percentage of practices attested to the Adopt, Implement, or Upgrade stage decreased. More practices moved toward attesting to Meaningful Use Stage 1 and Stage 2.
- As shown in Figure 4.2, among the practices that responded to the survey, there was a fast accumulation in the number of practices attesting to Meaningful Use Stage 1.
- Among the practices that responded to the survey, the most noticeable uptake in attesting to Meaningful Use Stage 1 was in 2012, which continued in 2013 and 2014. Meaningful Use Stage 2 participation accelerated in 2014 and this trend continued in 2015.

4.3 Perceived Benefits and Challenges of Meaningful Use

Research questions:

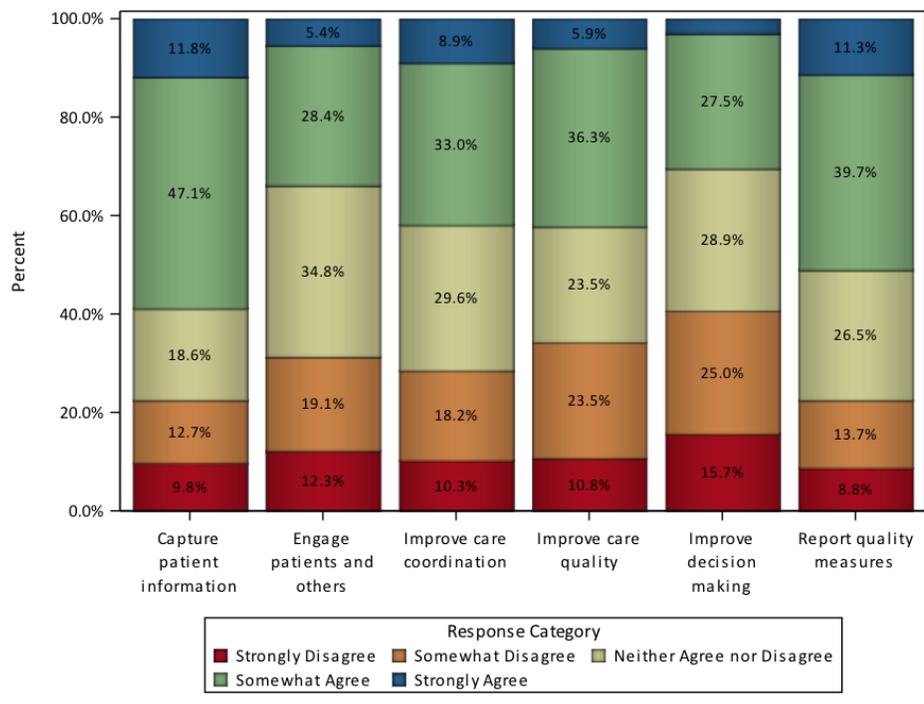
- *What benefits do practices and eligible professionals perceive in achieving Meaningful Use?*
- *What challenges do practices and eligible professionals perceive in attesting to Meaningful Use?*
- *Which Meaningful Use Stage 2 measures do practices and eligible professionals have difficulty in meeting the required threshold?*

To evaluate the perceived benefits of Meaningful Use, participants were asked the question: “From your organization’s perspective, how much do you agree with the following statements about benefits?” Table 4.7 below describes the number and percentage of practices that responded to various benefits of Meaningful Use. The survey items (i.e., benefits) in the table are ordered from the highest to the lowest percentage of combined positive responses (i.e., “Strongly agree” and “Somewhat agree”). Furthermore, the percentage data are also presented in Figure 4.3.

Table 4.7 Perceived Meaningful Use Benefits – Practice (n=204)

| | | Strongly Agree | Somewhat Agree | Neither Agree nor Disagree | Somewhat Disagree | Strongly Disagree |
|--|---|-----------------------|-----------------------|-----------------------------------|--------------------------|--------------------------|
| MU will help us capture accurate and complete patient information | n | 24 | 96 | 38 | 26 | 20 |
| | % | 11.8% | 47.1% | 18.6% | 12.7% | 9.8% |
| MU will help us report quality measures for value-based purchasing (VBP) or other pay-for-performance programs | n | 23 | 81 | 54 | 28 | 18 |
| | % | 11.3% | 39.7% | 26.5% | 13.7% | 8.8% |
| MU will help us improve care quality and safety for our patients | n | 12 | 74 | 48 | 48 | 22 |
| | % | 5.9% | 36.3% | 23.5% | 23.5% | 10.8% |
| MU will help us improve care coordination processes | n | 18 | 67 | 60 | 37 | 21 |
| | % | 8.9% | 33.0% | 29.6% | 18.2% | 10.3% |
| MU will help us engage patients, their families, and other providers in care | n | 11 | 58 | 71 | 39 | 25 |
| | % | 5.4% | 28.4% | 34.8% | 19.1% | 12.3% |
| MU will help us improve medical decision making | n | 6 | 56 | 59 | 51 | 32 |
| | % | 2.9% | 27.5% | 28.9% | 25.0% | 15.7% |

Figure 4.3 Meaningful Use Benefits Perceived by Participant - Practice



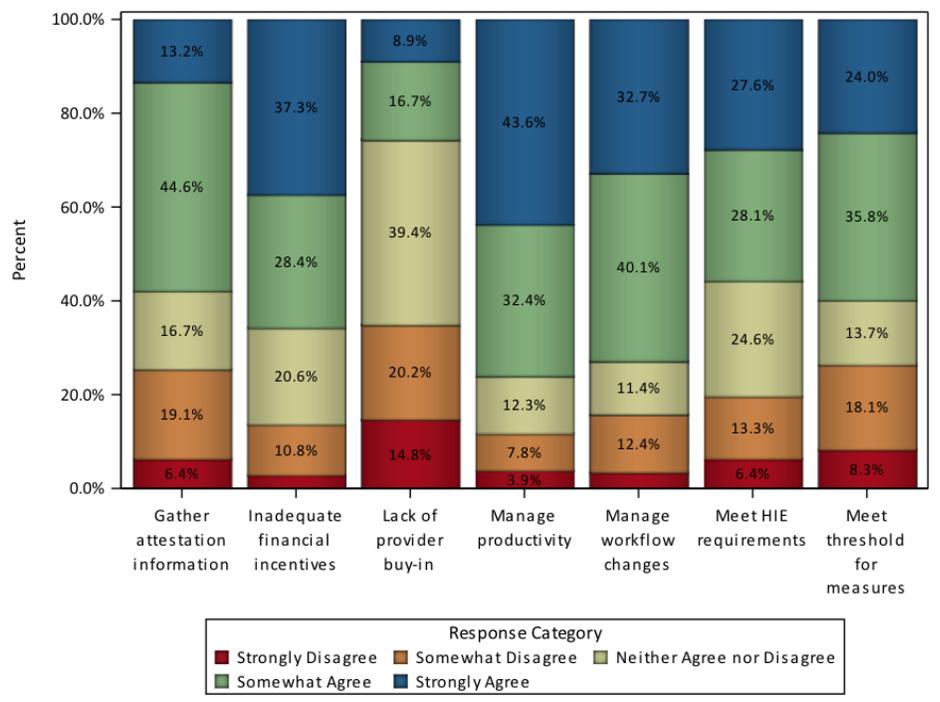
- The greatest Meaningful Use benefit perceived by practices and eligible professionals, as measured by the sum of strongly agree and somewhat agree responses, was that Meaningful Use will help practices capture accurate and complete patient information (58.9%), which is much lower than the percentage of hospitals perceiving the same top benefit (88.2%).
- Comparing to hospital respondents, practice respondents have much lower positive responses to potential Meaningful Use benefits. Only two potential benefits received more than 50% combined positive responses from the respondents (compared to all six in the hospital sample), including capturing patient information and helping practices report quality measures for VBP and pay-for-performance programs.
- The lower levels of enthusiasm toward Meaningful Use in the practice sample are also reflected in the lower percentages of respondents indicating that they strongly agree with the statements about the potential benefits.
- The least perceived Meaningful Use benefit was that Meaningful Use will help practices and eligible professionals improve medical decision making (30.4%), which was also the least perceived benefit in the hospital sample.

Participants were asked about challenges in achieving and/or attesting to Meaningful Use with the question: “From your organization’s perspective, how much do you agree with the following statements about challenges?” Table 4.8 and Figure 4.4 describe the number and percentage of practices and eligible professionals that responded to various Meaningful Use challenges. The survey items (i.e., challenges) are ordered from the highest to the lowest percentage of combined positive responses in the table.

Table 4.8 Perceived Meaningful Use Challenges – Practice (n=204)

| | | Strongly Agree | Some-what Agree | Neither Agree nor Disagree | Some-what Disagree | Strongly Disagree |
|--|---|-----------------------|------------------------|-----------------------------------|---------------------------|--------------------------|
| Productivity was/will be reduced to attain MU | n | 89 | 66 | 25 | 16 | 8 |
| | % | 43.6% | 32.4% | 12.3% | 7.8% | 3.9% |
| We had difficulty dealing with the workflow changes necessary to attain MU | n | 66 | 81 | 23 | 25 | 7 |
| | % | 32.7% | 40.1% | 11.4% | 12.4% | 3.5% |
| MU financial incentives are inadequate relative to the investment needed | n | 76 | 58 | 42 | 22 | 6 |
| | % | 37.3% | 28.4% | 20.6% | 10.8% | 2.9% |
| We had difficulty meeting the required threshold for certain measure(s) | n | 49 | 73 | 28 | 37 | 17 |
| | % | 24.0% | 35.8% | 13.7% | 18.1% | 8.3% |
| We had difficulty gathering necessary information and documentation for MU attestation | n | 27 | 91 | 34 | 39 | 13 |
| | % | 13.2% | 44.6% | 16.7% | 19.1% | 6.4% |
| We had/will have difficulty meeting Health Information Exchange (HIE) requirements | n | 56 | 57 | 50 | 27 | 13 |
| | % | 27.6% | 28.1% | 24.6% | 13.3% | 6.4% |
| We had a lack of buy-in from our providers to pursue MU | n | 18 | 34 | 80 | 41 | 30 |
| | % | 8.9% | 16.7% | 39.4% | 20.2% | 14.8% |

Figure 4.4 Meaningful Use Challenges Perceived by Participant – Practice



- Practices and eligible professionals were mostly concerned about reduced productivity as a result of attesting to Meaningful Use. Seventy six percent of the respondents indicated that they somewhat or strongly agree that productivity was or will be reduced due to attaining Meaningful Use.

- Other greatly perceived Meaningful Use challenges include difficulty in dealing with workflow changes, inadequate financial incentives, difficulty in meeting the required threshold, difficulty in gathering necessary information and documentation, and difficulty in meeting HIE requirements. All these challenges received more than 50% of combined positive responses.
- Many additional Meaningful Use challenges were identified by survey respondents, which can be summarized with the following categories: time consuming and taking time away from patients, diminishing level of care, patient information security concerns, interoperability challenge, difficulty in extracting useable and valuable information, does not fit certain type of practices, and patient portal and engagement requirements challenge.

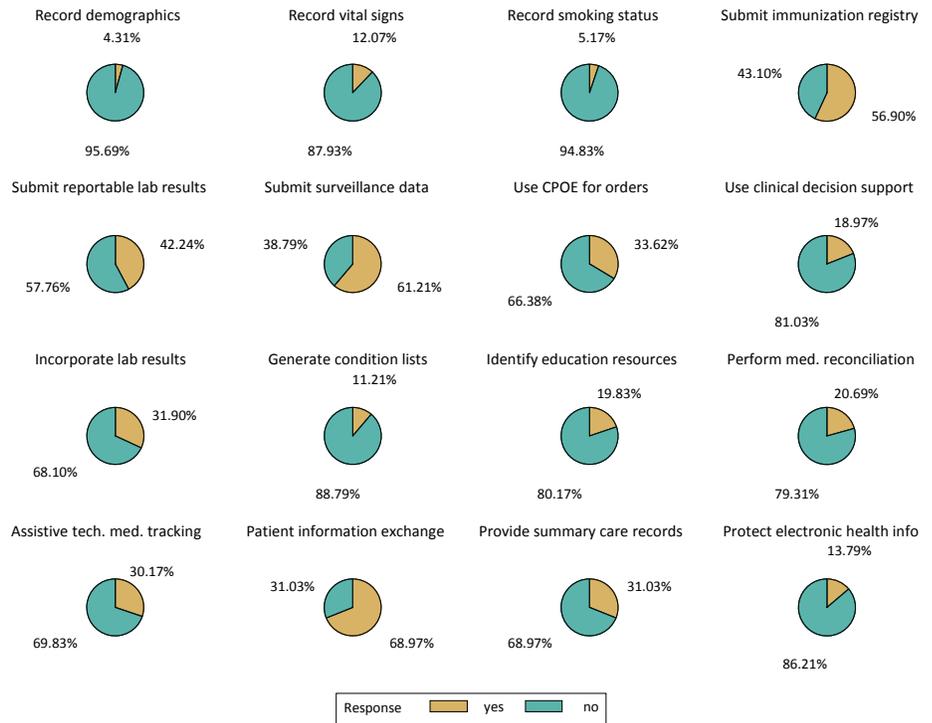
When respondents indicated that they had difficulty meeting the required threshold for certain measures, the survey prompted them with an additional question: “Which MU Stage 2 measures did/will your organization have challenges meeting the required threshold?” Table 4.9 and Figure 4.5 describe the number and percentage of practices and eligible professionals that indicated having difficulty meeting threshold for each of the Meaningful Use Stage 2 measures. The survey items (i.e., Meaningful Use Stage 2 measures) are ordered from the highest to the lowest percentage of respondents indicated that they had or will have difficulty meeting the measure threshold.

Table 4.9 Challenges Meeting MU Stage 2 Threshold – Practice (n=116)

| | Count | Percent |
|--|--------------|----------------|
| Provide patients the ability to view online, download, and transmit hospital admission information | 80 | 69.0% |
| Submit electronic syndromic surveillance data | 71 | 61.2% |
| Submit electronic data to immunization registries | 66 | 56.9% |
| Submit electronic reportable laboratory results | 49 | 42.2% |
| Use CPOE for medication, laboratory, and radiology orders | 39 | 33.6% |
| Incorporate clinical lab test results | 37 | 31.9% |
| Provide a summary care record for each care transition or referral | 36 | 31.0% |
| Automatically track medications using assistive technologies | 35 | 30.2% |
| Perform medication reconciliation | 24 | 20.7% |
| Identify patient-specific education resources | 23 | 19.8% |
| Use clinical decision support for high-priority health conditions | 22 | 19.0% |
| Protect electronic health information | 16 | 13.8% |
| Record required vital signs | 14 | 12.1% |
| Generate lists of patients by specific conditions | 13 | 11.2% |
| Record smoking status | 6 | 5.2% |
| Record required patient demographics | 5 | 4.3% |
| Total | 536 | 100% |

- A total of 116 practice participants (out of 122) identified one or more specific MU Stage 2 measures that the practices had or will have difficulty meeting the threshold.
- The most challenging MU Stage 2 measure to meet was providing patients the ability to view online, download, and transmit hospital admission information (69.0%), followed by submitting electronic syndromic surveillance data (61.2%), and submitting electronic data to immunization registries (56.9%). The first two challenging measures were similar to what have been identified by hospital respondents.

Figure 4.5 Challenges in Meeting MU Stage 2 Threshold – Practice



4.4 Assistance Needed to Continue to Meet Meaningful Use Requirements

Research question:

- *What types of assistance would be helpful for practices and eligible professionals to continue to meet the requirements of Meaningful Use?*

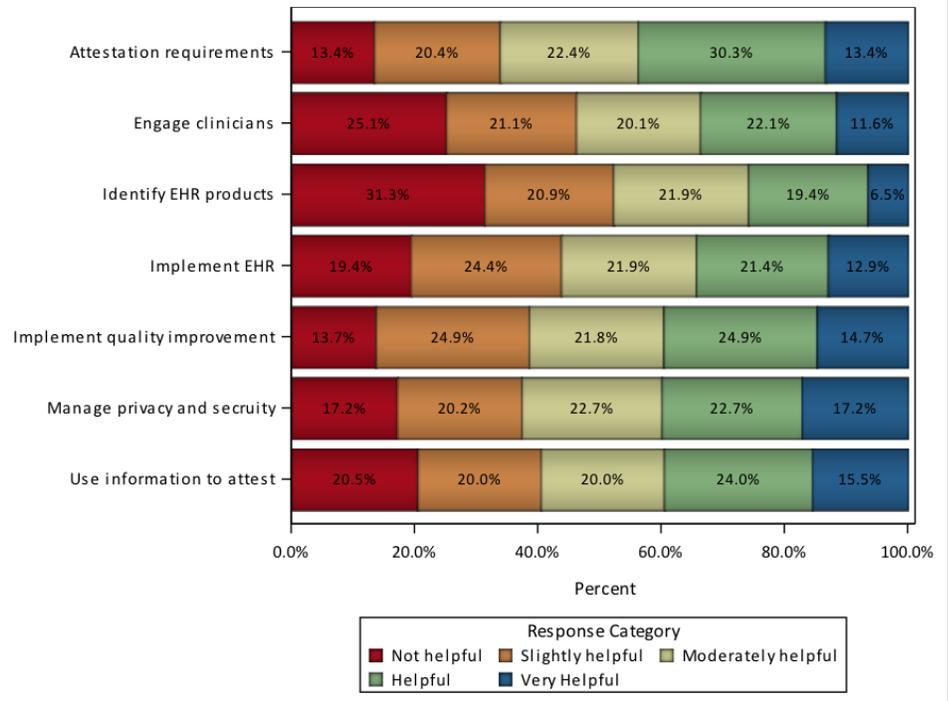
The question “To what extent would the following types of assistance be helpful for your organization to continue to meet the requirements of MU?” was asked to assess types of assistance needed to help practices and eligible professionals continue to attest to and meet the requirements of Meaningful Use. Table 4.10 describes the number and percentage of practice responses to possible assistance for Meaningful Use. The survey items (i.e., assistance) in the table are ordered from the highest to the lowest percentage of combined positive responses (i.e., “Very Helpful” and “Helpful”). Furthermore, the percentage data are presented in Figure 4.6.

Table 4.10 Assistance Needed to Continue to Meet MU Requirements – Practice (n=201)

| | | Very Helpful | Helpful | Moderately Helpful | Slightly Helpful | Not Helpful |
|--|---|---------------------|----------------|---------------------------|-------------------------|--------------------|
| Informational sessions regarding attestation requirements and processes | n | 27 | 61 | 45 | 41 | 27 |
| | % | 13.4% | 30.3% | 22.4% | 20.4% | 13.4% |
| Assistance with privacy and security and other legal or policy issues related to use of health information | n | 34 | 45 | 45 | 40 | 34 |
| | % | 17.2% | 22.7% | 22.7% | 20.2% | 17.2% |
| Assistance with using information from the EHR to attest to numerators, denominators, and exclusions | n | 31 | 48 | 40 | 40 | 41 |
| | % | 15.5% | 24.0% | 20.0% | 20.0% | 20.5% |
| Assistance with implementing clinical quality improvements to better manage the health of our patients | n | 29 | 49 | 43 | 49 | 27 |
| | % | 14.7% | 24.9% | 21.8% | 24.9% | 13.7% |
| Technical assistance in EHR implementation including making necessary workflow changes | n | 26 | 43 | 44 | 49 | 39 |
| | % | 12.9% | 21.4% | 21.9% | 24.4% | 19.4% |
| Assistance to engage clinicians in incorporating EHR into the workflow | n | 23 | 44 | 40 | 42 | 50 |
| | % | 11.6% | 22.1% | 20.1% | 21.1% | 25.1% |
| Assistance in identifying EHR products that meet our organization’s needs | n | 13 | 39 | 44 | 42 | 63 |
| | % | 6.5% | 19.4% | 21.9% | 20.9% | 31.3% |

- Informational sessions regarding attestation requirements and processes were identified as the most helpful form of assistance, as measured by the sum of very helpful and helpful responses (43.7%). The highest percentage for “very helpful” assistance identified was assistance with privacy and security and other legal or policy issues related to use of health information (17.2%).
- Practices in general considered the potential technical assistance as less helpful compared to hospitals.

Figure 4.6 Assistance Needed to Continue to Meet MU Requirements – Practice



4.5 Future Plan for Meaningful Use

Research questions:

- *What are the practices' plans for continuing to achieve Meaningful Use?*
- *What barriers do practices perceive as they move toward Meaningful Use Stage 3?*

To evaluate the future plans of the practices and eligible professionals regarding Meaningful Use, we asked two questions: 1) "Is your organization planning to achieve MU Stage 3?" and 2) "Does your organization plan to continue to report data for Meaningful Use even without the incentive payment?" Table 4.11 and Figure 4.7 describe the responses for the first question; and Table 4.12 and Figure 4.8 describe the responses for the second question.

Table 4.11 Practice Plan to Achieve MU Stage 3 (n=237)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 141 | 59.5% |
| No | 59 | 24.9% |
| No response | 37 | 15.6% |
| Total | 237 | 100% |

Figure 4.7 Practice Plan to Achieve MU Stage 3

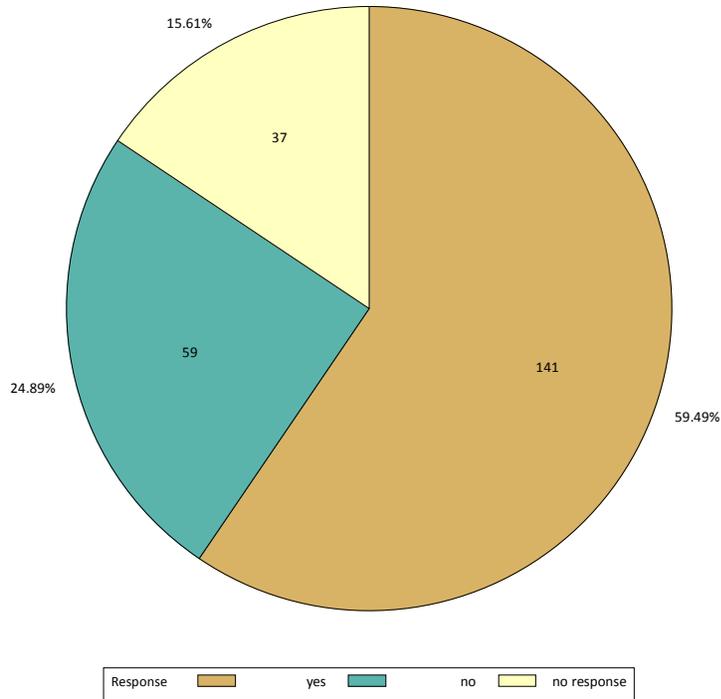
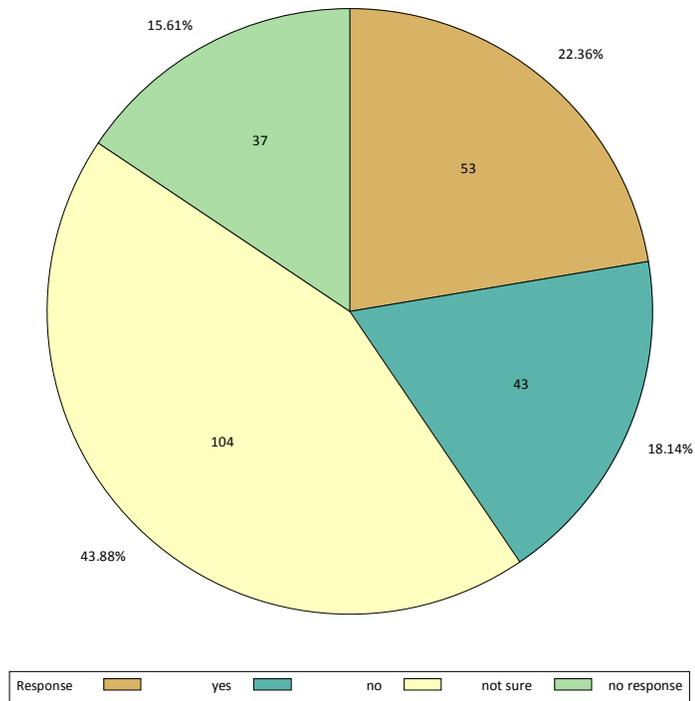


Table 4.12 Practice Plan to Continue to Report Data (n=237)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 53 | 22.4% |
| No | 43 | 18.1% |
| Not Sure | 104 | 43.9% |
| No Response | 37 | 15.6% |
| Total | 237 | 100% |

Figure 4.8 Practice Plan to Continue to Report Data



- Among the 237 respondents, 141 indicated that their organizations plan to achieve Meaningful Use Stage 3 (59.5%), which is lower than the percentage of hospital respondents that indicated the plan to achieve Meaningful Use Stage 3 (82.9%).
- Fifty three respondents indicated that their organization plan to continue to report data for Meaningful Use even without the incentive payment (22.4%), which is also lower than the percentage of hospital respondents with such a plan (60.98%).
- Forty three practices indicated a clear intention to stop to report data for Meaningful Use (18.1%).

Table 4.13 presents information on anticipated challenges for moving toward Meaningful Use Stage 3, with the challenges ordered from the highest to the lowest anticipated. Figure 4.9 shows the percentage of participant practices that identified each of the challenges for achieving Meaningful Use Stage 3.

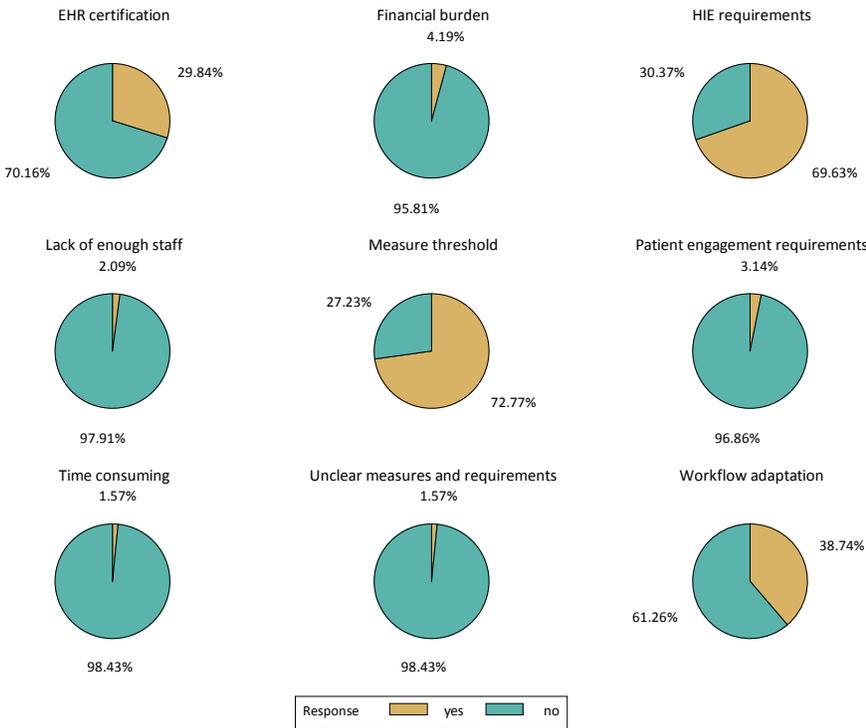
Table 4.13 Anticipated Challenges for Meeting MU Stage 3 - Practice (n=191)

| | Count | Percent |
|---|-------|---------|
| Measure threshold requirements will be difficult to meet | 139 | 72.8% |
| Health information exchange requirements will be difficult to meet | 133 | 69.6% |
| Technical assistance needed to adapt the workflows to meet MU Stage 3 | 74 | 38.7% |
| EHR vendor may not be able to meet certification requirements (CEHRT) by the deadline | 57 | 29.8% |
| Financial burden | 8 | 4.2% |
| Patient portal and engagement requirements | 6 | 3.1% |

| | | |
|------------------|------------|------|
| Not enough staff | 4 | 2.1% |
| Time consuming | 3 | 1.6% |
| Total | 427 | |

- The highest anticipated challenge as practices and eligible professionals move toward Meaningful Use Stage 3 is measure threshold (72.8%). The second highest anticipated challenge is health information exchange requirements (69.6%). The top Meaningful Use Stage 3 challenges perceived by the hospital and practice respondents are the same.
- When asked to name anticipated challenges that were not listed in the original survey, several challenges were identified by practice respondents: financial burden, patient portal and engagement requirements, staff shortage, and time consuming.

Figure 4.9 Anticipated Challenges for Meeting MU Stage 3 – Practice



4.6 EHR Adoption and Use

Research questions:

- *What Electronic Health Records (EHR) systems have been adopted in the practices?*
- *When did the practices first adopt their primary EHR system and what is the current adoption status?*
- *Who used the EHR system in the practices?*
- *How were EHR functionalities and data used in the practices?*

To evaluate the status of practice EHR adoption and use, questions were asked about the EHR systems adopted, time of adoption, stage of adoption, current use of EHR functionalities, and other EHR practices. The respondents were first asked to report the name of their primary EHR system and the names of the secondary and tertiary EHR systems if such systems existed. Table 4.14 summarizes the commonly used EHR systems in the participant practices and

number of respondents that use each of these systems.

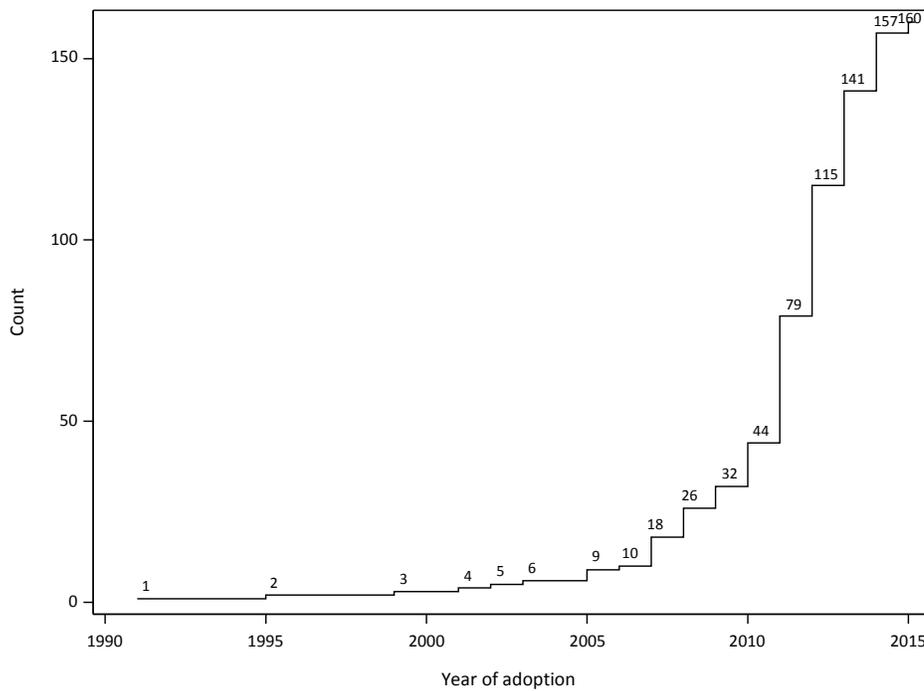
Table 4.14 Commonly Used EHR Systems

| | Primary EHR | Secondary EHR | Tertiary EHR |
|----------------------|-------------|---------------|--------------|
| Chirotouch | 20 | 1 | 1 |
| NextGen HIS | 8 | 1 | 0 |
| Cerner | 8 | 0 | 1 |
| Future Health | 8 | 0 | 0 |
| Greenway Health | 8 | 0 | 0 |
| Allscripts | 7 | 4 | 0 |
| Epic Systems | 7 | 1 | 0 |
| Practice Fusion | 7 | 0 | 0 |
| McKesson | 6 | 2 | 2 |
| Compulinks | 6 | 0 | 0 |
| GE Healthcare | 6 | 0 | 0 |
| eClinicalWorks | 5 | 0 | 0 |
| Eclipse | 5 | 0 | 0 |
| Eyefinity/OfficeMate | 5 | 0 | 0 |
| Practice Director | 5 | 0 | 0 |
| Smart Cloud | 5 | 0 | 0 |
| Aprima | 4 | 0 | 0 |
| Traknet | 4 | 0 | 0 |
| Amazing Charts | 3 | 0 | 0 |
| MEDITECH | 3 | 0 | 0 |
| Revolution | 3 | 0 | 0 |
| Seamless | 3 | 0 | 0 |

- Reflecting diverse settings in which eligible professionals carry out their practice, 63 different EHR systems were reported by the respondents as being adopted by their organization.
- The table presents the 22 EHR systems that were adopted by 3 or more respondents. Chirotouch, NextGen HIS, Cerner, Future Health, and Greenway Health are among the most commonly used systems among the participant practices.

Figure 4.10 shows the cumulative number of practices that adopted primary EHR systems over time based on the responses to the survey question: “Which year did your organization first adopt the primary EHR system?”

Figure 4.10 Trend of EHR Adoption over Time – Practice



- One hundred and sixty practices reported the year in which they adopted the primary EHR system. Among them, the earliest adoption occurred in 1991.
- The trend of EHR adoption accelerated since 2010 as 128 out of 160 practices (80%) adopted their primary EHR system between 2010 and 2015.

The respondents were also asked to evaluate the stage that best described their current EHR adoption status using the HIMSS EHR Adoption Model. Table 4.15 describes the number and percentage of participant practices in each of the HIMSS EHR adoption stages. Furthermore, the percentage data are presented in Figure 4.11.

Table 4.15 Current Stage of EHR Adoption – Practice (n=194)

| | Count | Percent |
|--|-------|---------|
| Stage 0: All three ancillaries not installed (some clinical automation may exist; lab/pharmacy/radiology not installed) | 25 | 12.9% |
| Stage 1: All three ancillaries installed (lab/pharmacy/radiology installed) | 29 | 14.9% |
| Stage 2: Patient-centered clinical data using basic system-to-system exchange (data fed to clinical data repository [CDR] for providers to access and review results) | 25 | 12.9% |
| Stage 3: Normalized patient record using structural interoperability. First level of decision support for error checking such as for drug interactions. Some level of picture archive and communication system [PACS]. | 47 | 24.2% |

| | | |
|---|-----|-------|
| Stage 4: Care coordination based on actionable data using a semantic interoperable patient record (computerized physician order entry [CPOE], 2nd level clinical decision support for evidence-based protocols) | 19 | 9.8% |
| Stage 5: Closed loop medication administration (fully implemented in at least one patient care area. Electronic medication administration and bar coding integrated with CPOE and pharmacy for patient safety) | 5 | 2.6% |
| Stage 6: Structured documentation and full imaging (full physician documentation using structured templates, PACS to enable providers to view all images via an intranet or secure network) | 23 | 11.9% |
| Stage 7: Medical record fully electronic and information exchange is enabled (clinical information shared via health information exchange network (e.g., other hospitals, clinics, etc.)) | 21 | 10.8% |
| Total | 194 | 100% |

- A majority of the practices that participated in this study were in stages 0-4 of EHR adoption (74.7%), which put practice-based EHR adoption in a less advanced stage in general compared to the hospital adoption (80.0% participant hospitals were in stages 5-7).

Figure 4.11 EHR Adoption Stage – Practice

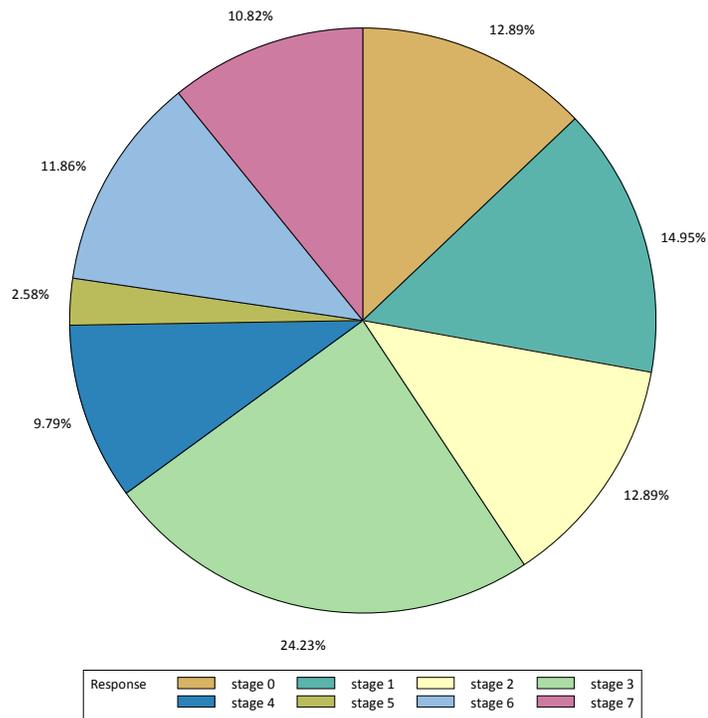
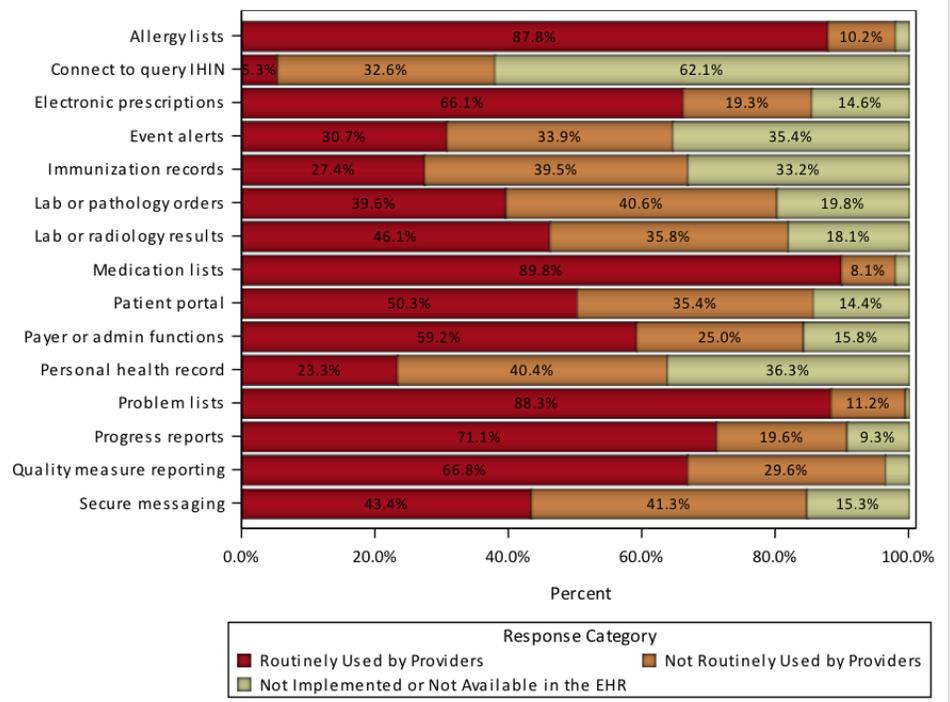


Table 4.16 and Figure 4.12 summarize patterns of functionality availability and utilization in practices' EHR systems based on the question: "Which of the following EHR functionalities are available in your organization's EHR system(s)? If available, please indicate whether the majority of your providers routinely use each of the functionalities." The functionalities in the table are ordered from the highest to the lowest percentage of being routinely used by providers.

Table 4.16 Functionalities Available and Used in Practice EHR System (n=197)

| | | Routinely Used by Providers | Not Routinely Used by Providers | Not Available in the EHR |
|-------------------------------|---|------------------------------------|--|---------------------------------|
| Patient medication lists | n | 177 | 16 | 4 |
| | % | 89.8% | 8.1% | 2.0% |
| Patient problem lists | n | 174 | 22 | 1 |
| | % | 88.3% | 11.2% | .5% |
| Patient allergy lists | n | 173 | 20 | 4 |
| | % | 87.8% | 10.2% | 2.0% |
| Progress reports | n | 138 | 38 | 18 |
| | % | 71.1% | 19.6% | 9.3% |
| Quality measure reports | n | 131 | 58 | 7 |
| | % | 66.8% | 29.6% | 3.6% |
| Electronic prescriptions | n | 127 | 37 | 28 |
| | % | 66.1% | 19.3% | 14.6% |
| Payer or admin functions | n | 116 | 49 | 31 |
| | % | 59.2% | 25.0% | 15.8% |
| Patient portal | n | 98 | 69 | 28 |
| | % | 50.3% | 35.4% | 14.4% |
| Lab or radiology test results | n | 89 | 69 | 35 |
| | % | 46.1% | 35.8% | 18.1% |
| Secure messaging | n | 85 | 81 | 30 |
| | % | 43.4% | 41.3% | 15.3% |
| Lab or pathology orders | n | 76 | 78 | 38 |
| | % | 39.6% | 40.6% | 19.8% |
| Event alerts | n | 59 | 65 | 68 |
| | % | 30.7% | 33.9% | 35.4% |
| Immunization records | n | 52 | 75 | 63 |
| | % | 27.4% | 39.5% | 33.2% |
| Personal health records | n | 45 | 78 | 70 |
| | % | 23.3% | 40.4% | 36.3% |
| Connect to query IHIN | N | 10 | 62 | 118 |
| | % | 5.3% | 32.6% | 62.1% |

Figure 4.12 EHR Functionality Availability and Use – Practice



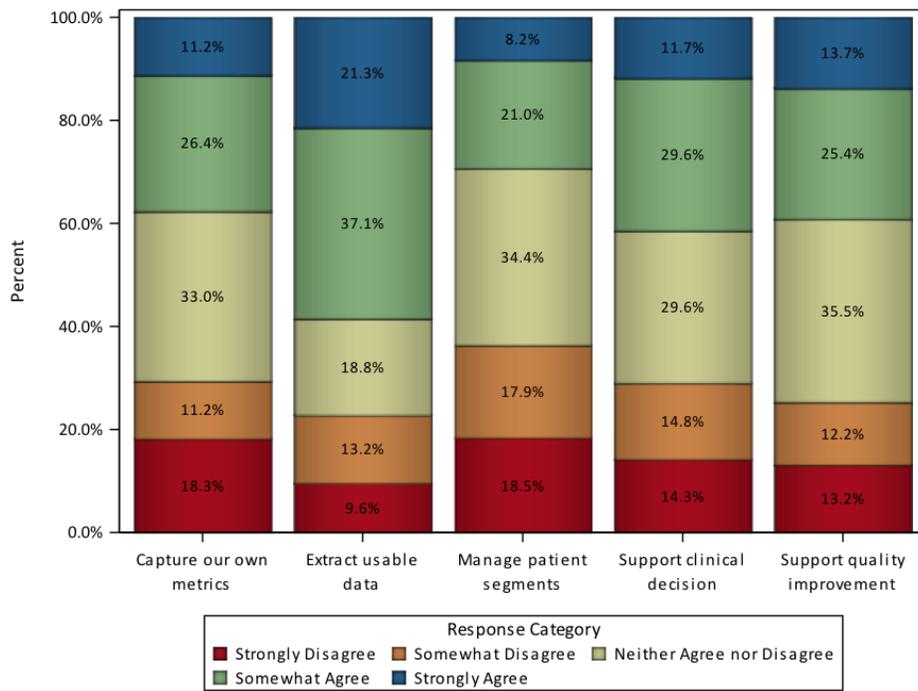
- The highly utilized EHR functionalities include three patient-information functionalities: patient medication lists (routinely used by 89.8% of providers), patient problem lists (88.3%), and patient allergy lists (87.8%).
- Other functionalities that were routinely used by providers in more than 50% of the participant practices include progress reports, quality measure reports, electronic prescriptions, payer or administrative functions, and patient portal.
- The functionalities that are least routinely utilized include immunization administration records (27.4%), personal health record (23.3%), and connect to query the IHIN (5.3%).
- It is important to note that 62.1% of the participant practices' EHR systems do not equip providers the functionality to connect with and query Iowa's state-wide health information network (i.e., IHIN). Other functionalities that are currently unavailable in many EHR systems include the personal health record function (36.3%), alerts or notifications for particular events such as admission, discharge, and transfer (35.4%), and immunization administration records (33.2%). These shortage areas could be the targets for future technical assistance to help practices to adopt and utilize such important EHR functionalities.

Table 4.17 and Figure 4.13 present information on practice respondents' assessment of their practice in using EHR data.

Table 4.17 Practice in Using EHR Data (n=197)

| | | Strongly Agree | Somewhat Agree | Neither Agree nor Disagree | Somewhat Disagree | Strongly Disagree |
|--|---|-----------------------|-----------------------|-----------------------------------|--------------------------|--------------------------|
| We were able to extract usable data from the EHR system | n | 42 | 73 | 37 | 26 | 19 |
| | % | 21.3% | 37.1% | 18.8% | 13.2% | 9.6% |
| Used the EHR data to support clinical decision making | n | 23 | 58 | 58 | 29 | 28 |
| | % | 11.7% | 29.6% | 29.6% | 14.8% | 14.3% |
| Used the EHR data to support continuous quality improvement activities | n | 27 | 50 | 70 | 24 | 26 |
| | % | 13.7% | 25.4% | 35.5% | 12.2% | 13.2% |
| We developed and captured our own metrics in the EHR system | n | 22 | 52 | 65 | 22 | 36 |
| | % | 11.2% | 26.4% | 33.0% | 12.2% | 18.3% |
| Used the EHR data to segment and manage particular groups of patients | n | 16 | 41 | 67 | 35 | 36 |
| | % | 8.2% | 21.0% | 34.4% | 17.9% | 18.5% |

Figure 4.13 Practice in Using EHR Data



- More than 50% participant practices, as measured by the sum of percentages of strongly agree and somewhat agree responses, indicated that they were able to extract usable data from their EHR systems (58.4%). Other relatively common uses of EHR data include using data to support clinical decision making (41.3%) and support continuous quality improvement activities (39.1%).
- Lower percentages of practice respondents indicated that they were able to use EHR data in each of the data-use categories compared to hospital respondents.

4.7 HIE Capacity

Research questions:

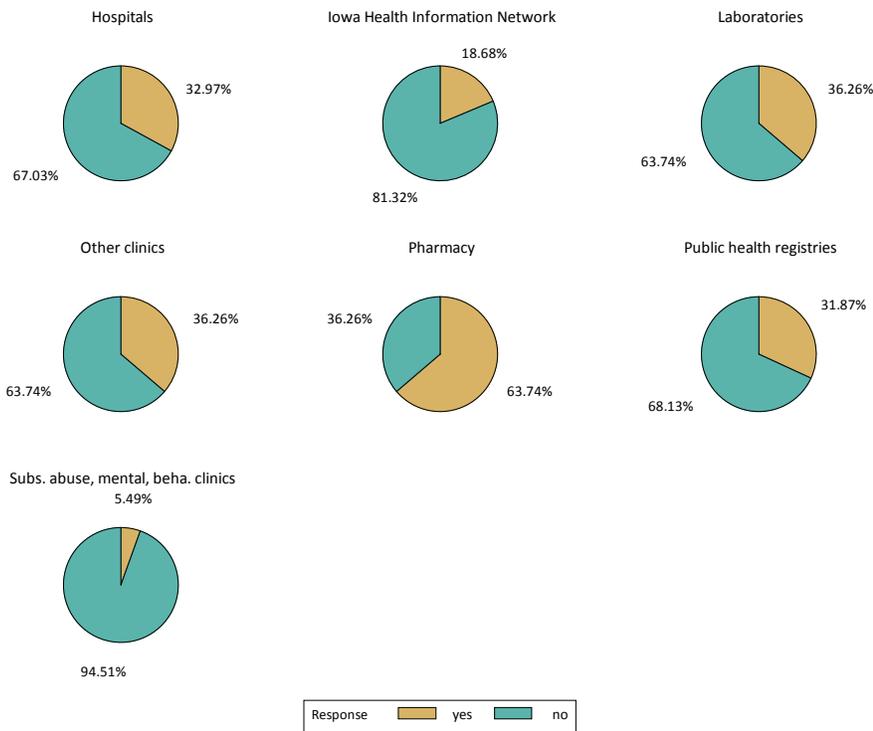
- *What is the current practice in sharing data with outside providers among practices?*
- *What is the current practice in receiving and using information related to inpatient and/or emergency room admissions, discharges, and transfers among practices?*
- *What is the current practice and capacity in utilizing different HIE mechanisms among practices?*

To evaluate practices' Health Information Exchange (HIE) capacity and practice, questions were asked about their current data sharing activities, capacity and practice in receiving and using inpatient and/or emergency room admissions, discharges, and transfers (ADT) information, and the use of HIE mechanisms. The respondents were first asked to indicate any types of providers outside of their organization with whom they currently share data. Table 4.18 and Figure 4.14 summarize the pattern of current data sharing activities among the participant practices.

Table 4.18 Practice Share Data with Outside Providers or Networks (n=190)

| | Count | Percent |
|--|--------------|----------------|
| None | 98 | 51.6% |
| Pharmacy | 58 | 30.5% |
| Other clinics | 33 | 17.4% |
| Laboratories | 33 | 17.4% |
| Hospitals | 30 | 15.8% |
| Public Health | 29 | 15.3% |
| Iowa Health Information Network (IHIN) | 17 | 8.9% |
| Other | 10 | 5.3% |

Figure 4.14 Practice Share Data with Outside Providers or Networks



- Among the participant practices, more than 50% do not share data with any outside providers or entities.
- Among the ones that do share data with outside providers and entities, the most common parties with whom they share data is pharmacies (30.8%), followed by other clinics and laboratories (both at 17.4%).
- IHIN is less used by participant practices for sharing data (8.9%) possibly due to the lack of support for such functionality in practices' EHR systems.

The respondents also indicated their interest in sharing data with providers that they are not currently sharing data by answering the question: "Among those that are currently NOT sharing data with your organization, who would your organization like to share data to be more effective?" Table 4.19 describes the number and percentage of respondents indicated their interest in sharing data.

Table 4.19 Practice Interest in Sharing Data (n=160)

| | Count | Percent |
|---|-------|---------|
| Other clinics | 112 | 70.0% |
| Hospitals | 89 | 55.6% |
| Laboratories | 55 | 34.4% |
| Iowa Health Information Network (IHIN) | 48 | 30.0% |
| Pharmacy | 44 | 27.5% |
| Public Health | 42 | 26.3% |
| Substance abuse, mental health, or behavioral clinics | 30 | 18.8% |

- Respondents indicated strong interest in sharing data with other clinics and hospitals.

To assess the current status of practices receiving and using information related to ADT, we asked respondents whether their organization has a process to receive ADT notifications; and if so, how they receive and use ADT notifications. Tables 4.20 – 4.24 below summarize the data on practices' current status in receiving and using information related to inpatient and/or emergency room ADT.

Table 4.20 Process to Receive Inpatient/ER ADT Notifications – Practice (n=197)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 30 | 15.2% |
| No | 167 | 84.8% |
| Total | 197 | 100% |

Table 4.21 How do Practices Receive ADT Notifications – Practice (n=30)

| | N | Average Use |
|-------------------------|----------|--------------------|
| Fax | 30 | 47.4% |
| Telephone | 30 | 10.8% |
| E-mail | 30 | 2.7% |
| Secure direct messaging | 30 | 3.3% |
| EHR | 29 | 31.2% |
| Other | 30 | 5.6% |

Table 4.22 Frequency in Receiving ADT Notifications – Practice (n=29)

| | Count | Percent |
|-------------------------------|--------------|----------------|
| Real-time as ADT events occur | 10 | 34.5% |
| Daily | 14 | 48.3% |
| Weekly | 1 | 3.4% |
| Other | 4 | 13.8% |
| Total | 29 | 100% |

Table 4.23 Primary Usage of ADT Notifications – Practice (n=28)

| | Count | Percent |
|---|--------------|----------------|
| Inform the primary care provider of the patient | 17 | 60.7% |
| Make contact with patient | 12 | 42.9% |
| Other | 4 | 14.3% |
| We don't use this information | 4 | 14.3% |

Table 4.24 Primary User of ADT Notifications – Practice (n=27)

| | Count | Percent |
|-----------------------------|--------------|----------------|
| Physician | 18 | 66.7% |
| Clinical nurse | 6 | 22.2% |
| Scheduling clerk | 2 | 7.4% |
| Care manager/care navigator | 1 | 3.7% |
| Total | 27 | 100% |

Table 4.25 ADT Notifications for Patient Population – Practice (n=27)

| | Count | Percent |
|--|--------------|----------------|
| All of our patients | 23 | 85.2% |
| A particular group or groups of patients | 4 | 14.8% |
| Total | 27 | 100% |

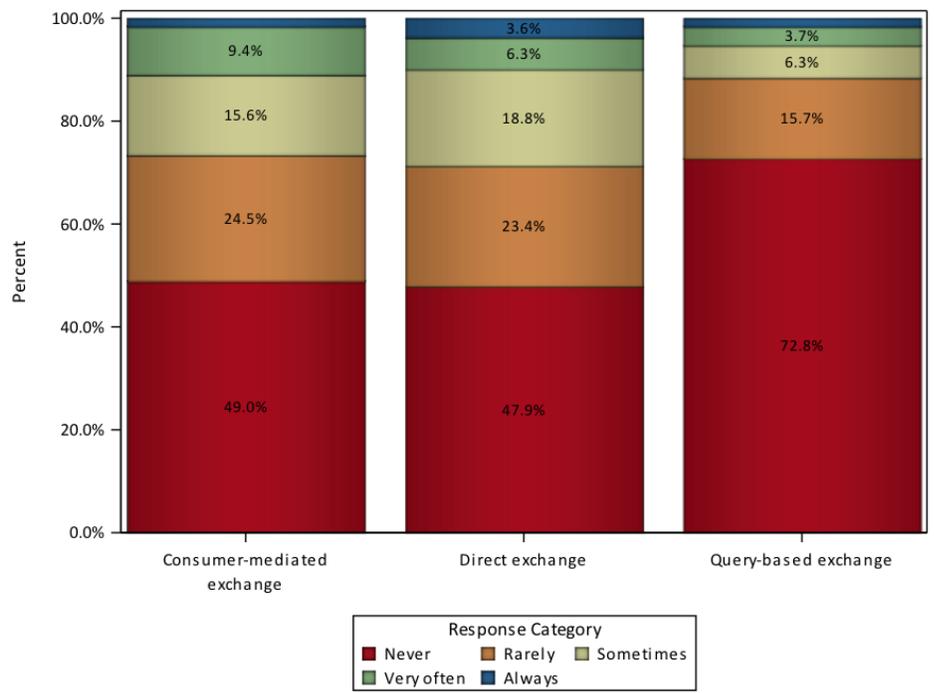
- As shown in Table 4.20, only a small portion of the participant practices (30 counts and 15.2%) have process in place to receive ADT notifications.
- For practices that did have process for receiving ADT notifications, we asked the respondents to indicate the proportion of the notifications that their organization received via different mechanisms. As shown in Table 4.21, the most common mechanism for receiving ADT information is via fax (average proportion 47.4%), followed by EHR systems (average proportion 31.2%).
- Regarding how frequently the participant practices receive ADT notifications, the majority of them receive ADT notifications either daily (48.3%) or as ADT events occur (34.5%) as shown in Table 4.22.
- As shown in Table 4.23, practices most commonly use ADT information to inform primary care provider of the patient (60.7%) and make contact with the patient (42.9%). There are four practices indicated that although they receive ADT notifications, such information was not used.
- As shown in Table 4.24, physicians are the primary users of the ADT information (66.7%).
- As shown in Table 4.25, the large majority of the practices that receive ADT information receive such information for all their patients (23 counts and 85.2%). Only a few practices receive ADT information for particular segments of their patients such as Medicare patients or patients being seen at another facility that is part of the same system as the respondent’s practice.

Lastly, the respondents were asked to evaluate their practice and capacity to use different HIE mechanisms with two questions: 1) “How frequently does your organization use the following HIE mechanisms for exchanging patient health information?” and 2) “To what extent does your hospital’s EHR system(s) currently equip your providers to utilize the following HIE mechanisms?” Below, we present data on frequency of using different HIE mechanisms in Table 4.26 and Figure 4.15; and data on HIE capacity supported by the EHR system in Table 4.27 and Figure 4.16.

Table 4.26 Frequency of Use HIE for Exchanging Patient Health Information – Practice (n=192)

| | | Always | Very Often | Some-times | Rarely | Never |
|----------------------------|---|---------------|-------------------|-------------------|---------------|--------------|
| Consumer-mediated exchange | n | 3 | 18 | 30 | 47 | 94 |
| | % | 1.6% | 9.4% | 15.6% | 24.5% | 49.0% |
| Query-based exchange | n | 3 | 7 | 12 | 30 | 139 |
| | % | 1.6% | 3.7% | 6.3% | 15.7% | 72.8% |
| Direct exchange | n | 7 | 12 | 36 | 45 | 92 |
| | % | 3.6% | 6.3% | 18.8% | 23.4% | 47.9% |
| Other | n | 1 | 1 | 0 | 1 | 2 |
| | % | 20.0% | 20.0% | 0.0% | 20.0% | 40.0% |

Figure 4.15 Frequency of Use HIE for Exchanging Patient Health Information

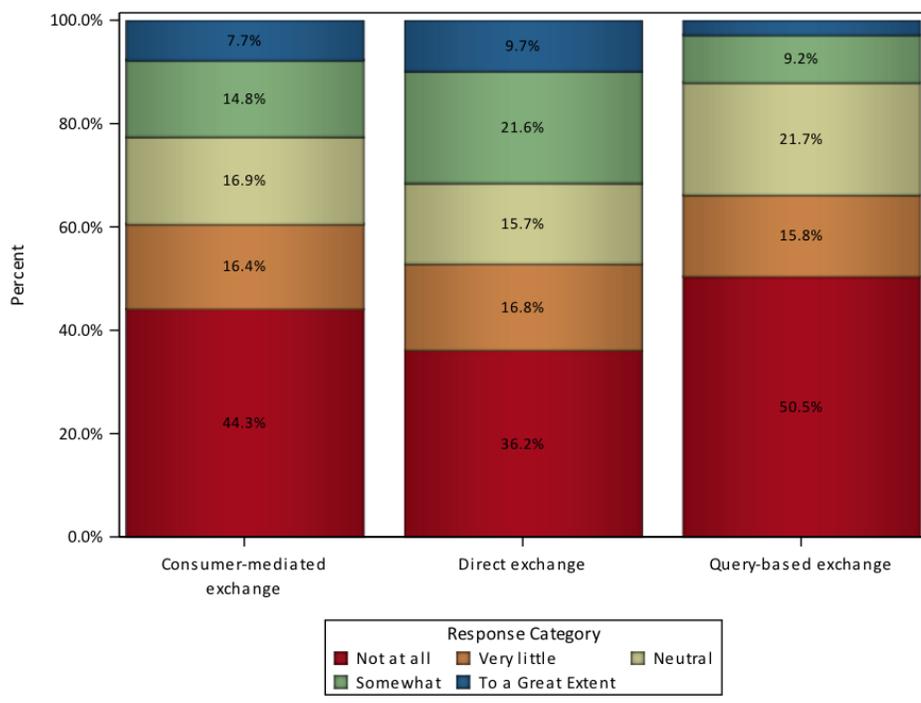


- The frequency of using HIE for exchanging patient health information remains low as the majority of the participant practices only rarely or sometimes use HIE or never use HIE. This observation is similar to the use of HIE in the hospital sample.
- A few respondents indicated that using HIE is a standard practice (i.e., always used) in their practice (7 counts for direct exchange, 3 count for query-based, and 3 counts for consumer-mediated exchange).

Table 4.27 EHR System Support of HIE Mechanisms – Practice (n=185)

| | | To a Great Extent | Somewhat | Neutral | Very little | Not at all |
|----------------------------|---|-------------------|----------|---------|-------------|------------|
| Query-based exchange | n | 5 | 17 | 40 | 29 | 93 |
| | % | 2.7% | 9.2% | 21.7% | 15.8% | 50.5% |
| Consumer-mediated exchange | n | 14 | 27 | 31 | 30 | 81 |
| | % | 7.7% | 14.8% | 16.9% | 16.4% | 44.3% |
| Direct exchange | n | 18 | 40 | 29 | 31 | 67 |
| | % | 9.7% | 21.6% | 15.7% | 16.8% | 36.2% |

Figure 4.16 EHR System Support of HIE Mechanisms – Practice



- The highest supported HIE mechanism by practice EHR systems, as measured by the sum of percentage of somewhat and to a great extent supported, is direct exchange (31.3%).
- The lowest supported HIE mechanism is query-based exchange (11.9%).
- Similar to the finding from the hospital sample, the lack of support from practices’ EHR systems for utilizing HIE mechanisms is an area that needs significant improvement.

Chapter 5 – Dental Practice Health IT and Meaningful Use Assessment

This chapter discusses results of the dental practice version of the Health IT and Meaningful Use Assessment Survey. The survey focused on six areas of assessment and the results are reported in the following six corresponding sections.

- Practice characteristics
- Participation in CMS Meaningful Use programs
- Perceived benefits and challenges in Meaningful Use
- Assistance needed to continue to meet Meaningful Use requirements
- Electronic Health Records adoption and use
- Health Information Exchange capacity

5.1 Practice Characteristics

Research questions:

- *What types of dental practices participated in this study?*
- *What are the sizes of the participant dental practices?*
- *What are the participant dental practices' affiliation statuses with health systems?*
- *What services do the participant dental practices offer?*

Questions about dental practice type, size, system affiliation, and service offering were evaluated to determine basic characteristics of these practices. The types of dental practices that participated in this study are depicted in Table 5.1.

Table 5.1 Organization Type (n=12)

| | Count | Percent |
|--|--------------|----------------|
| Provider-owned medical practice or group | 9 | 75.0% |
| Hospital- or health-system-owned medical group | 1 | 8.3% |
| Community Health Center (e.g., FQHC, RHC) | 1 | 8.3% |
| Other – non-profit social service agency | 1 | 8.3% |
| Total | 12 | 100% |

- Provider-owned medical practices or groups were the most common respondent type (75.0%). Other provider types include hospital- or health-system-owned dental practice, community health center, and non-profit social service agency.

Respondents were asked to specify which size of medical group that their dental practice is. As shown in Figure 5.1, among the 12 dental practices that participated in this study, 6 are solo practices (50.0%), 4 are small practices with 2-5 providers (33.3%), 1 is a medium-size practice with 6-9 providers (8.3%), and 1 is a large practice with more than 10 providers (8.3%)

Figure 5.1 Practice Size

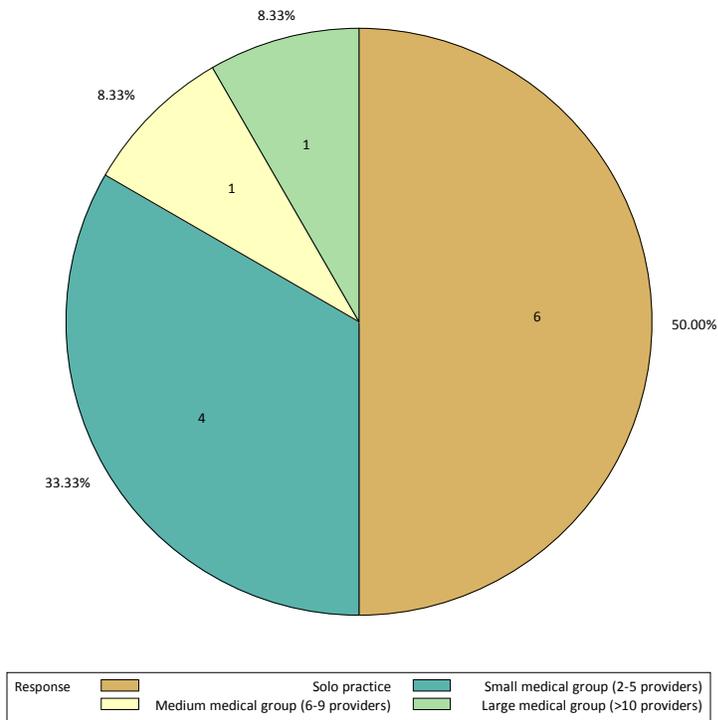


Table 5.2 and Table 5.3 show the number and percentage of participant dental practices that are affiliated with a health system and the type of affiliation they have with the health system.

Table 5.2 Practice Affiliation with Health System – Dental Practice (n=12)

| | Count | Percent |
|--------------|-----------|-------------|
| Yes | 1 | 8.3% |
| No | 11 | 91.7% |
| Total | 12 | 100% |

- Only one (8.3%) out of the 12 respondents indicated that their dental practice had an affiliation with a health system.

Table 5.3 Type of Practice Affiliation – Dental Practice (n=1)

| | Count | Percent |
|---|----------|-------------|
| Owned in whole or in part by the medical group, hospital, or health system | 1 | 100.0% |
| Other non-ownership affiliation | 0 | 0.0% |
| Non-ownership, contract managed by the larger medical group, hospital, or health system | 0 | 0.0% |
| Total | 1 | 100% |

- The only type of system affiliation reported was an ownership in whole or in part by the medical group, hospital, or health system affiliation (100.0%).



Table 5.4 displays the number and percentage of participant dental practices that offer different services. The services are first compared by general to specialty dental services, and then from the most commonly to the least commonly offered specialty services in the table.

Table 5.4 Practice Services Offered – Dental practice (n=12)

| | Count | Percent |
|--|--------------|----------------|
| General dentistry | 9 | 75.0% |
| Specialty dental services | 5 | 41.7% |
| Pediatric dentistry | 5 | 100.0% |
| Endodontics | 2 | 40.0% |
| Oral and maxillofacial surgery | 2 | 40.0% |
| Periodontics | 2 | 40.0% |
| Prosthodontics | 2 | 40.0% |
| Orthodontics and dentofacial orthopedics | 2 | 40.0% |
| Oral and maxillofacial pathology | 1 | 20.0% |
| Laser (treatments) | 1 | 20.0% |

- A majority of the participant dental practices offer general dentistry (75.0%). Within the specialty dental services category, pediatric dentistry was most commonly offered (offered by 100.0% of the five respondents who deliver specialty services).

Respondents were also asked to report the type and number of staff FTEs that were allocated to perform EHR and/or Meaningful Use activities. The number and percentage of participant dental practices that have allocated these FTE is depicted in Table 5.5. Similar to other medical practices, most dental practices rely on administrative/office staff (83.3%) and/or clinical staff (58.3%) to perform EHR and Meaningful Use tasks.

Table 5.5 EHR/Meaningful Use Staff FTE – Dental practice (n=12)

| | Count | Percent |
|--|--------------|----------------|
| Administrative/office staff | 10 | 83.3% |
| Clinical staff | 7 | 58.3% |
| Information technology/Informatics staff | 4 | 33.3% |

5.2 Participation in Meaningful Use

Research question:

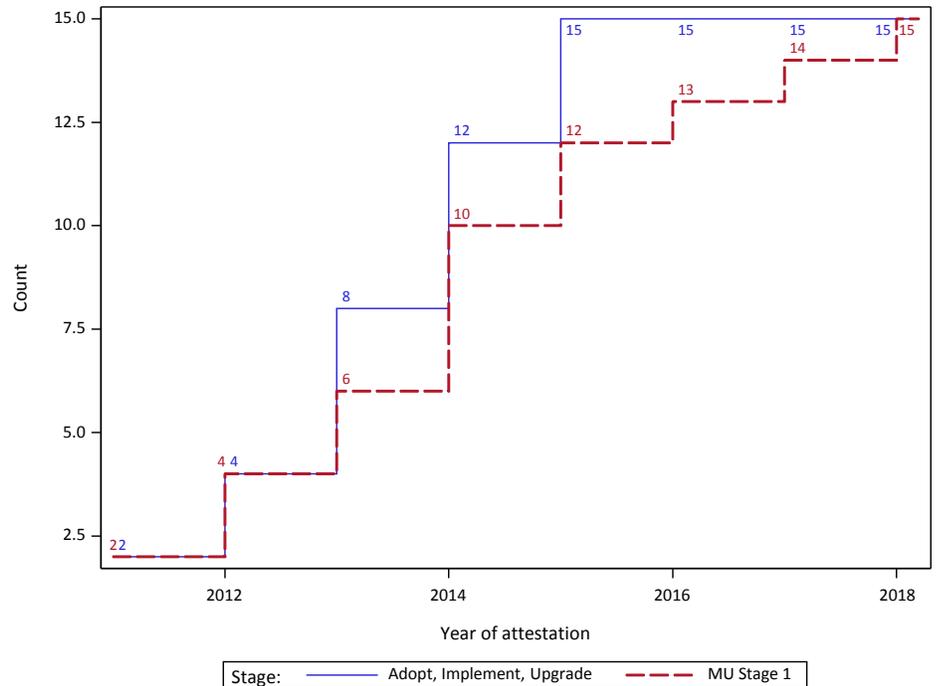
- *What are the trends of dental practice participation in different stages of Meaningful Use from 2011 to 2015?*

Respondents were asked to indicate in what year between 2011 and 2015 their dental practice attested to the Adopt, Implement, or Upgrade stage or Meaningful Use Stage 1 along with their future prediction for attestation of Meaningful Use. Table 5.6 indicates dental practices' participation in CMS Meaningful Use programs. Figure 5.2 shows the cumulative number of participant dental practices that have attested to Meaningful Use grouped by different stages.

Table 5.6 Number of Practices Attesting to Meaningful Use – Dental Practice

| | Count | Percent |
|---------------------------------------|--------------|----------------|
| 2011 (n=3) | | |
| Adopt, Implement, Upgrade | 2 | 66.7% |
| MU Stage 1 | 2 | 66.7% |
| 2012 (n=3) | | |
| Adopt, Implement, Upgrade | 2 | 66.7% |
| MU Stage 1 | 2 | 66.7% |
| 2013 (n=5) | | |
| Adopt, Implement, Upgrade | 4 | 80.0% |
| MU Stage 1 | 2 | 40.0% |
| 2014 (n=6) | | |
| Adopt, Implement, Upgrade | 4 | 66.7% |
| MU Stage 1 | 4 | 66.7% |
| 2015 (n=4) | | |
| Adopt, Implement, Upgrade | 3 | 75.0% |
| MU Stage 1 | 2 | 50.0% |
| 2016 (n=1) | | |
| Adopt, Implement, Upgrade | 0 | 0.0% |
| MU Stage 1 | 1 | 100.0% |
| 2017 (n=1) | | |
| Adopt, Implement, Upgrade | 0 | 0.0% |
| MU Stage 1 | 1 | 100.0% |
| 2018 (n=1) | | |
| Adopt, Implement, Upgrade | 0 | 0.0% |
| MU Stage 1 | 1 | 100.0% |
| Do not plan to pursue MU (n=1) | | |
| Adopt, Implement, Upgrade | 1 | 100.0% |
| MU Stage 1 | 1 | 100.0% |

Figure 5.2 Cumulated Numbers of Practices Attested to Meaningful Use by Stage



- As shown in Table 5.6 and Figure 5.2, dental practices that participated in this study were active in attesting to the Adopt, Implement, or Upgrade stage of the EHR Incentive Program from 2011 to 2015, which was limited to the first year of attestation. Participation in Meaningful Use Stage 1 remained low.
- As shown in Figure 5.2, by practices' prediction, the cumulated number of dental practices attested to Meaningful Use Stage 1 will catch up between 2015 and 2018, which indicates dental practices' interests in continuing to pursue Meaningful Use.

5.3 Perceived Benefits and Challenges of Meaningful Use

Research questions:

- *What benefits do dental practices perceive in achieving Meaningful Use?*
- *What challenges do dental practices perceive in attesting to Meaningful Use?*

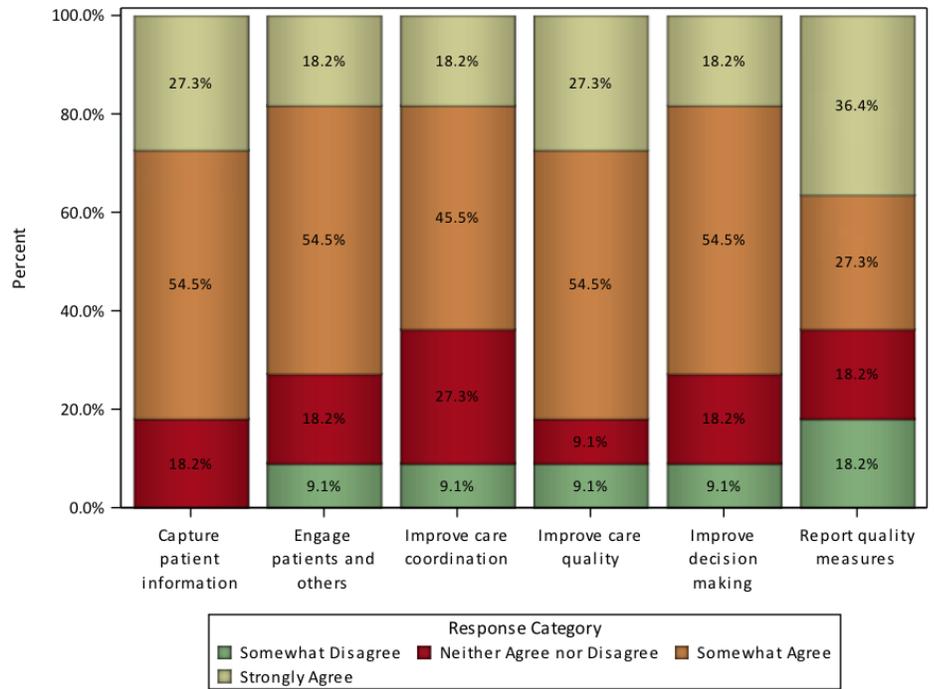
To evaluate the perceived benefits of Meaningful Use, participants were asked the question: "From your organization's perspective, how much do you agree with the following statements about benefits?" Table 5.7 below describes the number and percentage of dental practices that responded to various benefits of Meaningful Use. The survey items (i.e., benefits) in the table are ordered from the highest to the lowest percentage of combined positive responses (i.e., "Strongly agree" and "Somewhat agree"). Furthermore, the percentage data are presented in Figure 5.3.

Table 5.7 Perceived Meaningful Use Benefits – Dental Practice (n=11)

| | | Strongly Agree | Some-what Agree | Neither Agree nor Disagree | Some-what Disagree | Strongly Disagree |
|--|---|-----------------------|------------------------|-----------------------------------|---------------------------|--------------------------|
| MU will help us capture accurate and complete patient information | n | 3 | 6 | 2 | 0 | 0 |
| | % | 27.3% | 54.5% | 18.2% | 0.0% | 0.0% |
| MU will help us improve care quality and safety for our patients | n | 3 | 6 | 1 | 1 | 0 |
| | % | 27.3% | 54.5% | 9.1% | 9.1% | 0.0% |
| MU will help us improve medical decision making | n | 2 | 6 | 2 | 1 | 0 |
| | % | 18.2% | 54.5% | 18.2% | 9.1% | 0.0% |
| MU will help us engage patients, their families, and other providers in care | n | 2 | 6 | 2 | 1 | 0 |
| | % | 18.2% | 54.5% | 18.2% | 9.1% | 0.0% |
| MU will help us report quality measures for value-based purchasing (VBP) or other pay-for-performance programs | n | 4 | 3 | 2 | 2 | 0 |
| | % | 36.4% | 27.3% | 18.2% | 18.2% | 0.0% |
| MU will help us improve care coordination processes | n | 2 | 5 | 3 | 1 | 0 |
| | % | 18.2% | 45.5% | 27.3% | 9.1% | 0.0% |

- The perceived Meaningful Use benefit that was of the greatest help, as measured by the sum of strongly agree and somewhat agree responses, was that MU will help capture accurate and complete patient information (81.8%). The highest percent for the single response of ‘strongly agree’ was that MU will help report quality measures for value-based purchasing (VBP) or other pay-for-performance programs (36.4%).
- All six potential Meaningful Use benefits received more than 50% combined positive responses from the participants. Two benefits received more than 75% combined positive responses including capturing patient information and improving care quality and safety.
- Comparing to other practices, dental practices responded more positively toward potential benefits of Meaningful Use, which is comparable to the hospital responses.

Figure 5.3 Meaningful Use Benefits Perceived by Participant – Dental Practice



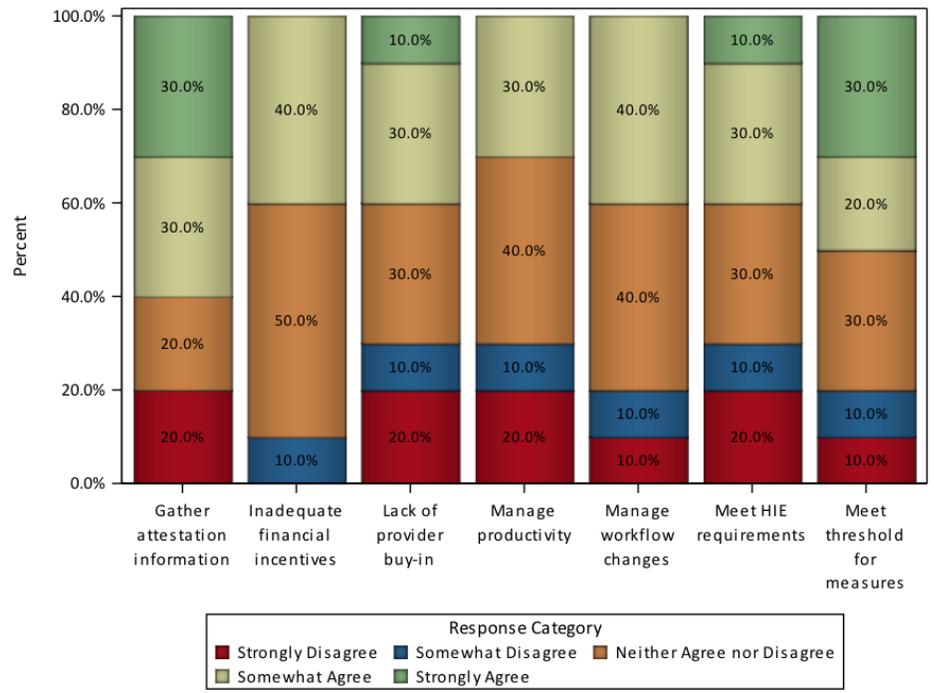
Through a question asking participants to assess how much they, “agree with the following statements about challenges,” participants’ perceptions of Meaningful Use challenges were measured. Table 5.8 and Figure 5.4 describe the number and percentage of eligible dental practices that responded to various Meaningful Use challenges. The survey items (i.e., challenges) are ordered from the highest to the lowest percentage of combined positive responses in the table.

Table 5.8 Perceived Meaningful Use Challenges – Dental Practice (n=10)

| | | Strong-ly Agree | Some-what Agree | Neither Agree nor Disagree | Somewhat Disagree | Strong-ly Dis-agree |
|--|---|------------------------|------------------------|-----------------------------------|--------------------------|----------------------------|
| We had difficulty gathering necessary information and documentation for MU attestation | n | 3 | 3 | 2 | 0 | 2 |
| | % | 30.0% | 30.0% | 20.0% | 0.0% | 20.0% |
| We had difficulty meeting the required threshold for certain measure(s) | n | 3 | 2 | 3 | 1 | 1 |
| | % | 30.0% | 20.0% | 30.0% | 10.0% | 10.0% |
| We had a lack of buy-in from our providers to pursue MU | n | 1 | 3 | 3 | 1 | 2 |
| | % | 10.0% | 30.0% | 30.0% | 10.0% | 20.0% |
| We had/will have difficulty meeting Health Information Exchange (HIE) requirements | n | 1 | 3 | 3 | 1 | 2 |
| | % | 10.0% | 30.0% | 30.0% | 10.0% | 20.0% |
| MU financial incentives are inadequate relative to the investment needed | n | 0 | 4 | 5 | 1 | 0 |
| | % | 0.0% | 40.0% | 50.0% | 10.0% | 0.0% |
| We had difficulty dealing with the work-flow changes necessary to attain MU | n | 0 | 4 | 4 | 1 | 1 |
| | % | 0.0% | 40.0% | 40.0% | 10.0% | 10.0% |
| MU Measures are not appropriate or relevant to scope of our practice | n | 2 | 1 | 4 | 1 | 2 |
| | % | 20.0% | 10.0% | 40.0% | 10.0% | 20.0% |
| Productivity was/will be reduced to attain MU | n | 0 | 3 | 4 | 1 | 2 |
| | % | 0.0% | 30.0% | 40.0% | 10.0% | 20.0% |

- Dental practices were mostly concerned about the difficulty in gathering necessary information and documentation (60% combined positive responses) and in meeting the required threshold for certain measures (50%). This could be due to their unique practice setting that may not fit into the standard requirements.
- Several other Meaningful Use challenges were also commonly shared by dental practices, including difficulty in getting provider buy-in, HIE requirements, inadequate financial incentives, and difficulty in dealing with workflow changes.

Figure 5.4 Meaningful Use Challenges Perceived by Participant – Dental Practice



5.4 Assistance Needed to Continue to Meet Meaningful Use Requirements

Research question:

- *What types of assistance would be helpful for dental practices to continue to meet the requirements of Meaningful Use?*

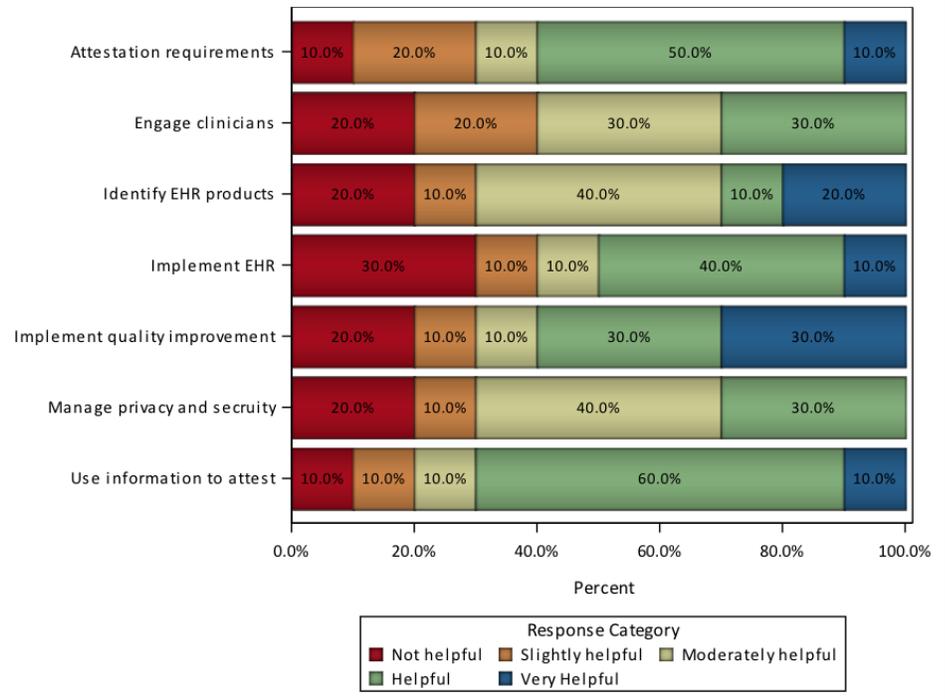
To assess what types of assistance would be helpful from the dental practice’s perspective as they continue to attest to and meet the requirements of Meaningful Use, participants were asked the question: “To what extent would the following types of assistance be helpful for your organization to continue to meet the requirements of MU?” Table 5.9 describes the number and percentage of dental-practice responses to possible assistance for Meaningful Use. The survey items (i.e., assistance) in the table are ordered from the highest to the lowest percentage of combined positive responses (i.e., “Very Helpful” and “Helpful”). Furthermore, the percentage data are presented in Figure 5.5.

Table 5.9 Assistance Needed to Continue to Meet MU Requirements – Dental Practice (n=10)

| | | Very Helpful | Helpful | Moderately Helpful | Slightly Helpful | Not Helpful |
|--|---|---------------------|----------------|---------------------------|-------------------------|--------------------|
| Assistance with using information from the EHR to attest to numerators, denominators, and exclusions | n | 1 | 6 | 1 | 1 | 1 |
| | % | 10.0% | 60.0% | 10.0% | 10.0% | 10.0% |
| Assistance with implementing clinical quality improvements to better manage the health of our patients | n | 3 | 3 | 1 | 1 | 2 |
| | % | 30.0% | 30.0% | 10.0% | 10.0% | 20.0% |
| Informational sessions regarding attestation requirements and processes | n | 1 | 5 | 1 | 2 | 1 |
| | % | 10.0% | 50.0% | 10.0% | 20.0% | 10.0% |
| Technical assistance in EHR implementation including making necessary workflow changes | n | 1 | 4 | 1 | 1 | 3 |
| | % | 10.0% | 40.0% | 10.0% | 10.0% | 30.0% |
| Assistance in identifying EHR products that meet our organization’s needs | n | 2 | 1 | 4 | 1 | 2 |
| | % | 20.0% | 10.0% | 40.0% | 10.0% | 20.0% |
| Assistance with privacy and security and other legal or policy issues related to use of health information | n | 0 | 3 | 4 | 1 | 2 |
| | % | 0.0% | 30.0% | 40.0% | 10.0% | 20.0% |
| Assistance to engage clinicians in incorporating EHR into the workflow | n | 0 | 3 | 3 | 2 | 2 |
| | % | 0.0% | 30.0% | 30.0% | 20.0% | 20.0% |

- Assistance with using information from the EHR to attest to numerators, denominators, and exclusions was identified as the most helpful form of assistance, as measured by the sum of very helpful and helpful responses (70%). The highest percentage for “very helpful” was identified as assistance with implementing clinical quality improvements (30.0%).
- Two other types of assistance that were perceived by dental practices as very helpful or helpful (combined percentage of the positive responses for 50% or higher) are informational sessions regarding attestation requirements and processes and technical assistance in EHR implementation including making necessary workflow changes.

Figure 5.5 Assistance Needed to Continue to Meet MU Requirements – Dental practice



5.5 EHR Adoption and Use

Research questions:

- *What Electronic Health Records (EHR) systems have been adopted in the dental practices?*
- *When did the dental practices first adopt their EHR system?*
- *What is the current status of EHR utilization in dental practices?*
- *How were EHR functionalities and data used in the dental practices?*

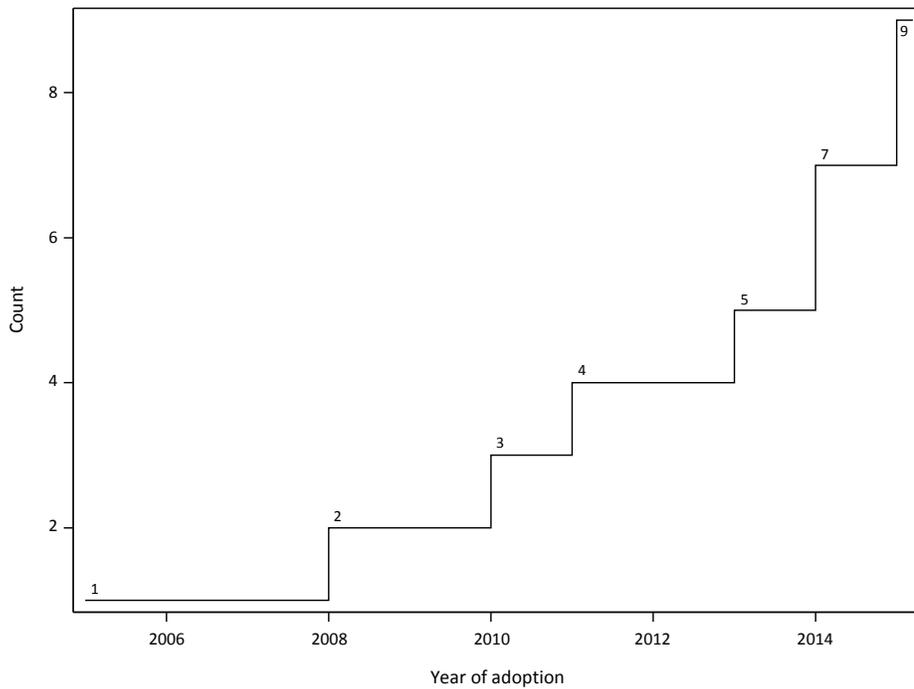
To evaluate the status of dental practice EHR adoption and use, questions were asked about the EHR systems that were adopted, time of adoption, current use of EHR functionalities, and other EHR practices.

The respondents were first asked to report the name of their practices' EHR system. The EHR systems that identified as being adopted by respondents include:

- Curve Dental
- Dentrix
- Eaglesoft
- Emdeon Clinician
- Macpractice
- NextGen
- Practice Fusion
- Total Dental

Figure 5.6 shows the cumulative number of dental practices that adopted EHR systems over time based on the responses to the survey question: "Which year did your organization first adopt the primary EHR system?"

Figure 5.6 Trend of EHR Adoption over Time – Dental Practice



- Nine dental practices reported the year in which they adopted their primary EHR system. Among them, the earliest adoption occurred in 2005.
- The trend of EHR adoption accelerated since 2013 as 5 out of 9 dental practices adopted their primary EHR system between 2013 and 2015.

Table 5.10 EHR System Routinely Used by Majority of Providers (n=10)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 9 | 90.0% |
| No | 1 | 10.0% |
| Total | 10 | 100% |

- Providers in 90% of the responding dental practices routinely use their EHR systems.

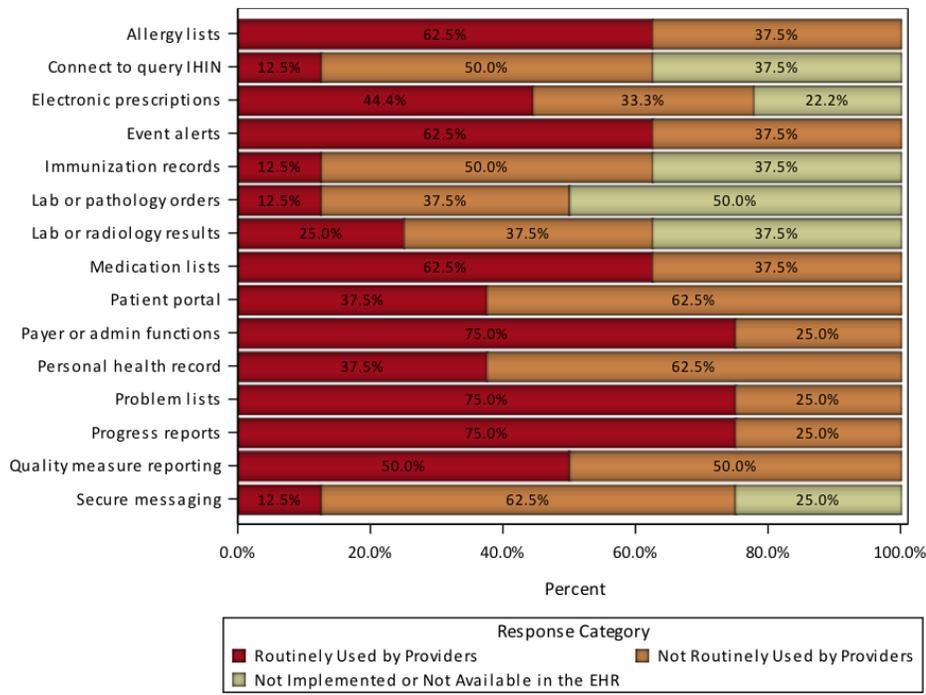
To assess the use of EHR functionalities, we asked the respondents to indicate which of the standard EHR functionalities were available in their practices' EHR systems and were routinely used by the providers. Table 5.11 and Figure 5.7 summarize patterns of functionality availability and utilization in dental practices' EHR systems.

Table 5.11 Functionalities Available and Used in Practice EHR System (n=8)

| | | Routinely Used by Providers | Not Routinely Used by Providers | Not Available in the EHR |
|--|---|------------------------------------|--|---------------------------------|
| Payer or admin functions | n | 6 | 2 | 0 |
| | % | 75.0% | 25.0% | 0.0% |
| Patient problem lists | n | 6 | 2 | 0 |
| | % | 75.0% | 25.0% | 0.0% |
| Progress reports | n | 6 | 2 | 0 |
| | % | 75.0% | 25.0% | 0.0% |
| Patient medication lists | n | 5 | 3 | 0 |
| | % | 62.5% | 19.6% | 9.3% |
| Patient allergy lists | n | 5 | 3 | 0 |
| | % | 62.5% | 19.6% | 9.3% |
| Event alerts | n | 5 | 3 | 0 |
| | % | 62.5% | 19.6% | 9.3% |
| Quality measure reports | n | 4 | 4 | 0 |
| | % | 50.0% | 50.0% | 0.0% |
| Electronic prescriptions | n | 4 | 3 | 2 |
| | % | 44.4% | 33.3% | 22.2% |
| Patient portal | n | 3 | 5 | 0 |
| | % | 37.5% | 62.5% | 0.0% |
| Personal health records | n | 3 | 5 | 0 |
| | % | 37.5% | 62.5% | 0.0% |
| Lab or radiology test results | n | 2 | 3 | 3 |
| | % | 25.0% | 37.5% | 37.5% |
| Secure messaging | n | 1 | 5 | 2 |
| | % | 12.5% | 62.5% | 25.0% |
| Connect to query to Iowa Health Information Network (IHIN) | n | 1 | 4 | 3 |
| | % | 12.5% | 50.0% | 37.5% |
| Immunization records | n | 1 | 4 | 3 |
| | % | 12.5% | 50.0% | 37.5% |
| Lab or pathology orders | n | 1 | 3 | 4 |
| | % | 12.5% | 37.5% | 50.0% |

- Among the dental-practice respondents, the highly utilized EHR functionalities include payer and administrative functions (75%), patient problem lists (75%), progress report (75%), patient medication lists (62.5%), patient allergy lists (62.5), event alerts (62.5%), and quality measure reports (50%).
- The functionalities that are less routinely utilized include secure messaging, connect to query to the Iowa Health Information Network (IHIN), immunization records, and lab or pathology orders (all at 12.5%).
- Among the less routinely utilized functionalities, it is noticeable that a majority of the dental practices' EHR systems do offer these functionalities. The less routine use of these available functionalities may reflect the unique practice settings and patient needs for dental practices.

Figure 5.7 EHR Functionality Availability and Use – Dental Practice

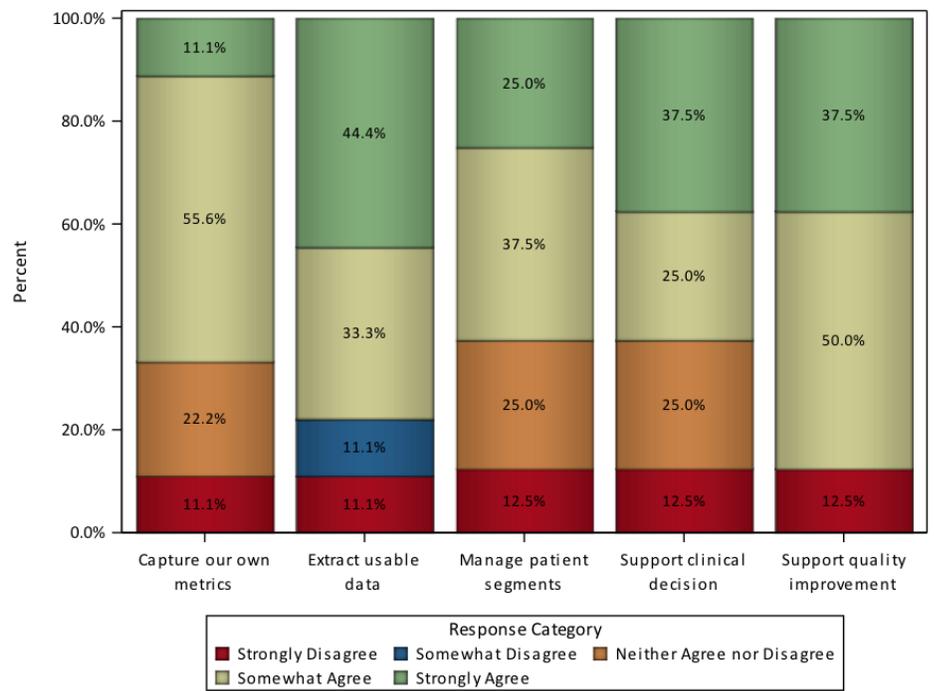


To assess how dental practices use EHR data, the respondents were asked the question: “To what extent do you agree with the following statements about your organization’s practice in using EHR data?” Table 5.12 and Figure 5.8 present information on dental-practice respondents’ assessment of their practice in using EHR data..

Table 5.12 Dental Practice in Using EHR Data (n=9)

| | | Strongly Agree | Somewhat Agree | Neither Agree nor Disagree | Somewhat Disagree | Strongly Disagree |
|--|---|-----------------------|-----------------------|-----------------------------------|--------------------------|--------------------------|
| Used the EHR data to support continuous quality improvement activities | n | 3 | 4 | 0 | 0 | 1 |
| | % | 37.5% | 50.0% | 0.0% | 0.0% | 12.5% |
| We were able to extract usable data from the EHR system | n | 4 | 3 | 0 | 1 | 1 |
| | % | 44.4% | 33.3% | 0.0% | 11.1% | 11.1% |
| We developed and captured our own metrics in the EHR system | n | 1 | 5 | 2 | 0 | 1 |
| | % | 11.1% | 55.6% | 22.2% | 0.0% | 11.1% |
| Used the EHR data to support clinical decision making | n | 3 | 2 | 2 | 0 | 1 |
| | % | 37.5% | 25.0% | 25.0% | 0.0% | 12.5% |
| Used the EHR data to segment and manage particular groups of patients | n | 2 | 3 | 2 | 0 | 1 |
| | % | 25.0% | 37.5% | 25.0% | 0.0% | 12.5% |

Figure 5.8 Dental Practice in Using EHR Data



- A majority of dental-practice respondents, as measured by the sum of percentages of strongly agree and somewhat agree responses, are able to use EHR data in all five specified ways.
- The highest percentages of positive responses are to use EHR data to support continuous quality improvement activities (87.5%) and to extract usable data from their EHR systems (77.7%).

5.6 HIE Capacity

Research questions:

- *What is the current practice in dental practices regarding sharing data with outside providers?*
- *What is the current practice in receiving and using information related to inpatient and/or emergency room admissions, discharges, and transfers among dental practices?*
- *What is the current practice and capacity in dental practices regarding utilizing different HIE mechanisms?*

To evaluate dental practices' Health Information Exchange (HIE) capacity and practice, questions were asked about their current data sharing activities, capacity and practice in receiving and using inpatient and/or emergency room admissions, discharges, and transfers (ADT) information, and the use of HIE mechanisms. The respondents were first asked to indicate any types of providers outside of the dental practice with whom they currently share data. Table 5.13 summarizes the pattern of current data sharing activities among the dental-practice respondents.

Table 5.13 Dental Practice Share Data with Outside Providers or Networks (n=9)

| | Count | Percent |
|--|--------------|----------------|
| None | 6 | 66.7% |
| Public Health | 2 | 22.2% |
| Iowa Health Information Network (IHIN) | 2 | 22.2% |
| Pharmacy | 1 | 11.1% |
| Other clinics | 1 | 11.1% |
| Hospitals | 0 | 0.0% |
| Laboratories | 0 | 0.0% |
| Other | 1 | 11.1% |

- Among the dental practices that responded to this question, two third of them do not currently share data with any other providers or agents.
- A small percentage of dental practices share data with public health agencies/registries (2 counts and 22.2%), IHIN (2 counts and 22.2%), pharmacy (1 count and 11.1%), and other clinics (1 count and 11.1%).

The respondents also indicated their interest in sharing data with providers that they are not currently sharing data by answering the question: “Among those that are currently NOT sharing data with your organization, who would your organization like to share data to be more effective?” Table 5.14 describes the number and percentage of hospitals indicated their interest in sharing data.

Table 5.14 Dental Practice Interest in Sharing Data (n=6)

| | Count | Percent |
|---|--------------|----------------|
| Other clinics | 3 | 50.0% |
| Pharmacy | 2 | 33.3% |
| Public Health | 2 | 33.3% |
| Substance abuse, mental health, or behavioral clinics | 1 | 16.7% |
| Hospitals | 1 | 16.7% |
| Laboratories | 0 | 0.0% |
| Iowa Health Information Network (IHIN) | 0 | 0.0% |

- Respondents indicated some interest in sharing data with other clinics, pharmacy, public agencies/registries, substance abuse/mental health/behavioral clinics, and hospitals that they don’t currently share data with.

To assess the current status of dental practices receiving and using information related to ADT, we asked respondents whether their organization has a process to receive ADT notifications; and if so, how they receive and use ADT notifications. Tables 5.15 – 5.20 below summarize the data on dental practices’ current status in receiving and using information related to inpatient and/or emergency room ADT.

Table 5.15 Process to Receive Inpatient/ER ADT Notifications – Dental Practice (n=10)

| | Count | Percent |
|--------------|--------------|----------------|
| Yes | 4 | 40.0% |
| No | 6 | 60.0% |
| Total | 10 | 100% |

Table 5.16 How do Practices Receive ADT Notifications – Dental Practice (n=4)

| | N | Average Use |
|-------------------------|----------|--------------------|
| Fax | 4 | 63.75% |
| Telephone | 4 | 11.25% |
| E-mail | 4 | 12.5% |
| Secure direct messaging | 4 | 12.5% |
| EHR | 4 | 0.0% |
| Other | 4 | 0.0% |

Table 5.17 Frequency in Receiving ADT Notifications – Dental Practice (n=4)

| | Count | Percent |
|-------------------------------|--------------|----------------|
| Real-time as ADT events occur | 1 | 25.0% |
| Daily | 1 | 25.0% |
| Weekly | 1 | 25.0% |
| Other | 1 | 25.0% |
| Total | 4 | 100% |

Table 5.18 Primary Usage of ADT Notifications – Dental Practice (n=4)

| | Count | Percent |
|---|--------------|----------------|
| Make contact with patient | 2 | 50.0% |
| Inform the primary care provider of the patient | 1 | 25.0% |
| Other – Put information in patient’s file | 1 | 25.0% |
| We don’t use this information | 0 | 0.0% |

Table 5.19 Primary User of ADT Notifications – Dental Practice (n=4)

| | Count | Percent |
|-------------------------------|--------------|----------------|
| Provider | 1 | 25.0% |
| Scheduling clerk | 2 | 50.0% |
| Care manager/care coordinator | 1 | 25.0% |
| Total | 27 | 100% |

Table 5.20 ADT Notifications for Patient Population – Dental Practice (n=3)

| | Count | Percent |
|--|--------------|----------------|
| All of our patients | 2 | 66.7% |
| A particular group or groups of patients | 1 | 33.3% |
| Total | 3 | 100% |

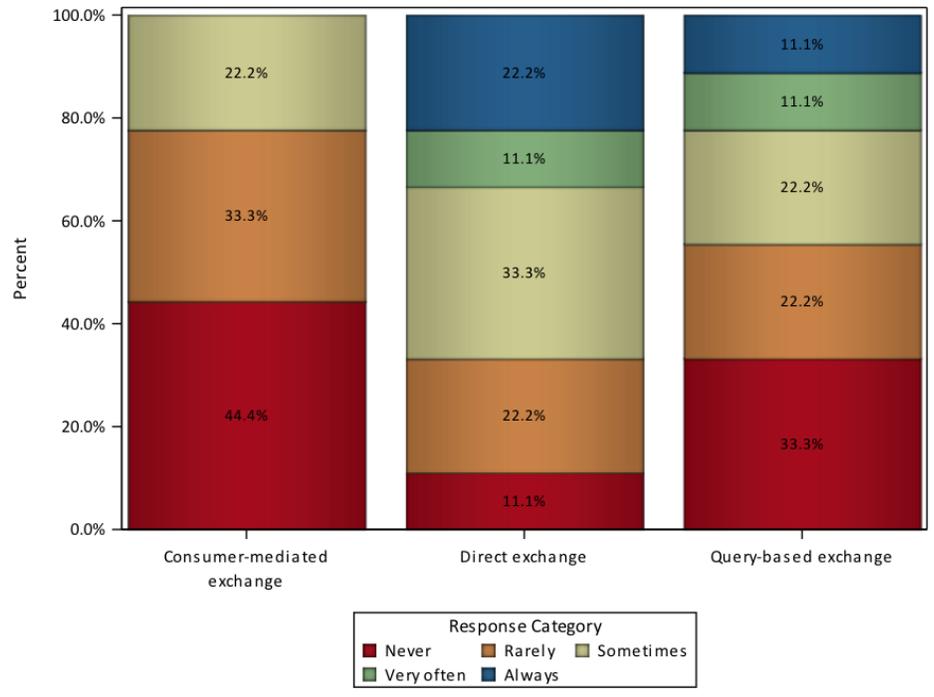
- As shown in Table 5.15, 4 out of the 10 responding dental practices have process in place to receive ADT notifications.
- Among those 4, the most common mechanism for receiving ADT information is via fax (average proportion 63.75%) as shown in Table 5.16. No dental practice has used EHR to receive ADT information.
- Regarding how frequently the participant practices receive ADT notifications, there is no clear common practice. All four dental practices differ in terms of how frequently they receive ADT notifications.
- As shown in Table 5.18, 2 out of 4 dental practices use ADT information to make contact with the patient. The other two practices split between using ADT notifications to inform primary care provider of the patient and put information in patient’s file.
- As shown in Table 5.19, scheduling clerk is the primary user of the ADT information in dental practices based on this very small sample (50.0%).
- As shown in Table 5.20, two third of the dental practices that receive ADT information receive such information for all their patients.

The respondents were asked to evaluate their practice and capacity to use different HIE mechanisms with two questions: 1) “How frequently does your organization use the following HIE mechanisms for exchanging patient health information?” and 2) “To what extent does your hospital’s EHR system(s) currently equip your providers to utilize the following HIE mechanisms?” Table 5.21 and Figure 5.9 describe frequency of participant dental practices using different HIE mechanisms. Table 5.22 and Figure 5.10 describe the extent to which the EHR systems adopted by participant dental practices equip them to use different HIE mechanisms.

Table 5.21 Frequency of Use HIE for Exchanging Patient Health Information – Dental Practice (n=9)

| | | Always | Very Often | Some-times | Rarely | Never |
|----------------------------|---|---------------|-------------------|-------------------|---------------|--------------|
| Direct exchange | n | 2 | 1 | 3 | 2 | 1 |
| | % | 22.2% | 11.1% | 33.3% | 22.2% | 11.1% |
| Query-based exchange | n | 1 | 1 | 2 | 2 | 3 |
| | % | 11.1% | 11.1% | 22.2% | 22.2% | 33.3% |
| Consumer-mediated exchange | n | 0 | 0 | 2 | 3 | 4 |
| | % | 0.0% | 0.0% | 22.2% | 33.3% | 44.4% |
| Other | n | 0 | 0 | 0 | 1 | 0 |
| | % | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% |

Figure 5.9 Frequency of Use HIE for Exchanging Patient Health Information

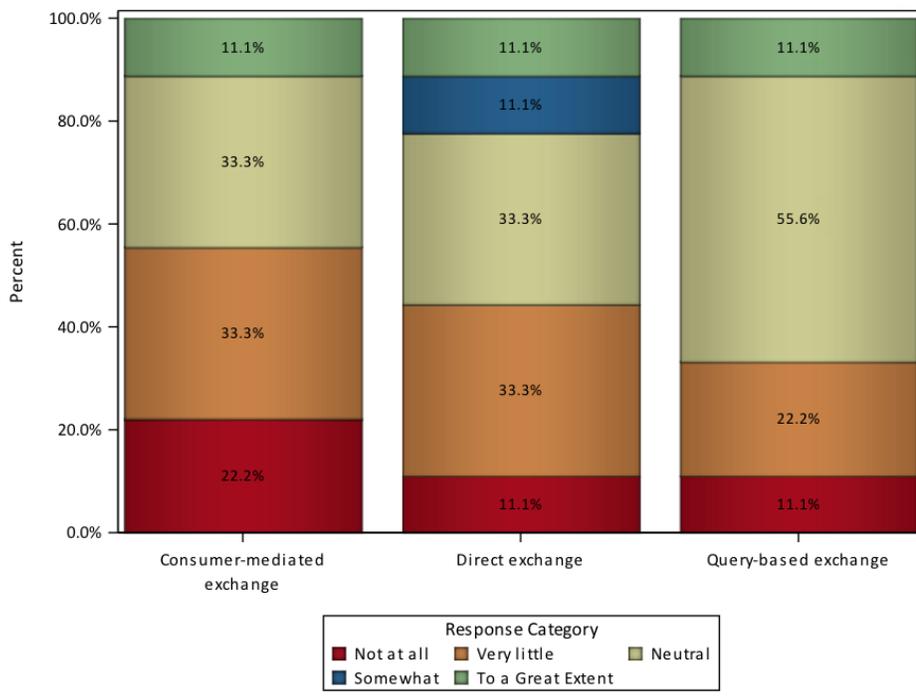


- The frequency of using HIE for exchanging patient health information remains low as the majority of the participant dental practices only rarely or sometimes use HIE or never use HIE.
- A small percentage of dental practices indicated that they always use direct exchange (22.2%) or query-based exchange (11.1%).

Table 5.22 EHR System Support of HIE Mechanisms – Dental Practice (n=9)

| | | To a Great Extent | Some-what | Neutral | Very little | Not at all |
|----------------------------|---|-------------------|-----------|---------|-------------|------------|
| Direct exchange | n | 1 | 1 | 3 | 3 | 1 |
| | % | 11.1% | 11.1% | 33.3% | 33.3% | 11.1% |
| Query-based exchange | n | 1 | 0 | 5 | 2 | 1 |
| | % | 11.1% | 0.0% | 55.6% | 22.2% | 11.1% |
| Consumer-mediated exchange | n | 1 | 0 | 3 | 3 | 2 |
| | % | 1.11% | 0.0% | 33.3% | 33.3% | 22.2% |

Figure 5.10 EHR System Support of HIE Mechanisms – Dental practice



- The highest supported HIE mechanism by dental practices' EHR systems, as measured by the sum of percentages of somewhat and to a great extent supported, is direct exchange (2 counts and 22.2%), which is still very low.
- The other two types of HIE mechanisms are only supported in 1 out of the 9 respondents.

Chapter 6 – Social Service Referrals, Health Risk Assessment, and Health Home

In addition to questions designed specifically for health IT and Meaningful Use assessment, we asked three types of respondents questions about their practice in social service referrals, use of Health Risk Assessment, and current status as Health Home. This chapter discusses the results of this assessment, and is organized in the following three corresponding sections.

- Social service referrals
- Health Risk Assessment
- Health Home

6.1 Social Service Referrals

Research questions:

- *What is the current practice in hospitals, practices, and dental practices regarding making referrals to social services?*
- *What methods do hospitals, practices, and dental practices use to coordinate with social services?*

To assess whether hospitals, practices, and dental practices that participated in this study had process in place to make social service referrals, we asked all three types of respondents the following questions: “Does your hospital/organization have processes in place to make referrals to these social services for your patients as needed? If so, what method of communication is routinely used to coordinate the services?”

Tables 6.1 – 6.3 below summarize the number and percentage of respondents that did make referrals to social services for their patients and the methods they used in coordinating with social services.

Table 6.1 Social Service Referrals – Hospital (n=29)

| | | No Referrals for this service | Fax | Phone | Secure direct messaging | Other method |
|--|---|-------------------------------|------|-------|-------------------------|--------------|
| Domestic violence crisis | n | 3 | 1 | 23 | 0 | 2 |
| | % | 10.3% | 3.4% | 79.3% | 0.0% | 6.9% |
| Natural disaster crisis | n | 6 | 1 | 20 | 0 | 2 |
| | % | 20.7% | 3.4% | 69.0% | 0.0% | 6.9% |
| Mental health crisis | n | 3 | 0 | 23 | 1 | 2 |
| | % | 10.3% | 0.0% | 79.3% | 3.4% | 6.9% |
| Behavioral health crisis | n | 3 | 0 | 24 | 1 | 1 |
| | % | 10.3% | 0.0% | 82.8% | 3.4% | 3.4% |
| Substance abuse crisis | n | 3 | 0 | 24 | 1 | 1 |
| | % | 10.3% | 0.0% | 82.8% | 3.4% | 3.4% |
| Counseling/Mental health care | n | 0 | 0 | 26 | 1 | 1 |
| | % | 0.0% | 0.0% | 92.9% | 3.6% | 3.6% |
| Substance abuse treatment (including drug and alcohol) | n | 2 | 0 | 25 | 1 | 1 |
| | % | 6.9% | 0.0% | 86.2% | 3.4% | 3.4% |
| Smoking cessation | n | 3 | 0 | 18 | 1 | 7 |
| | % | 10.3% | 0.0% | 62.1% | 3.4% | 24.1% |
| Nutrition, weight, and exercise counseling | n | 2 | 1 | 19 | 2 | 5 |
| | % | 6.9% | 3.4% | 65.5% | 6.9% | 17.2% |
| Housing assistance | n | 9 | 0 | 18 | 0 | 2 |
| | % | 31.0% | 0.0% | 62.1% | 0.0% | 6.9% |
| Food assistance | n | 8 | 0 | 19 | 0 | 2 |
| | % | 27.6% | 0.0% | 65.5% | 0.0% | 6.9% |
| Clothing assistance | n | 10 | 0 | 17 | 0 | 2 |
| | % | 34.5% | 0.0% | 58.6% | 0.0% | 6.9% |
| Transportation assistance | n | 3 | 0 | 23 | 0 | 3 |
| | % | 10.3% | 0.0% | 79.3% | 0.0% | 10.3% |
| Childcare assistance | n | 10 | 0 | 16 | 0 | 3 |
| | % | 34.5% | 0.0% | 55.2% | 0.0% | 10.3% |
| Legal assistance | n | 11 | 0 | 16 | 0 | 2 |
| | % | 37.9% | 0.0% | 55.2% | 0.0% | 6.9% |
| Workforce assistance | n | 10 | 0 | 16 | 0 | 3 |
| | % | 34.5% | 0.0% | 55.2% | 0.0% | 10.3% |

- Of the 29 hospitals that provided information on their referral practices, a majority had processes in place to make referrals to all of the social services listed for the question. A large percentage of such referrals were made by phone (percentage of referral by phone ranges from 55.2% to 92.9%).
- The most commonly practiced referrals include referrals to counseling/mental health care (100% of hospital respondents), substance abuse treatment including drug and alcohol (93.1%), and nutrition, weight, and exercise counseling (93.1%).
- The less commonly practiced referrals include legal assistance (62.1%),

clothing assistance (65.5%), childcare assistance (65.5%), and workforce assistance (65.5%).

- When prompted with the question what other method of communication was routinely used to coordinate with social services, hospital respondents identified the following communication methods: 1) nursing assessment triggers consult to social services and call to community resources (used for all types of social services); 2) personal meeting and education documents (used for most types of social services); 3) internal consultation (used for smoking cessation and nutrition, weight, and exercise counseling; 4) RIDE tickets (used for transportation assistance); and 5) internal daycare (used for childcare assistance).

Table 6.2 Social Service Referrals – Practice (n=186)

| | | No Referrals for this service | Fax | Phone | Secure direct messaging | Other method |
|--|---|-------------------------------|------|-------|-------------------------|--------------|
| Domestic violence crisis | n | 71 | 8 | 102 | 2 | 3 |
| | % | 38.2% | 4.3% | 54.8% | 1.1% | 1.6% |
| Natural disaster crisis | n | 108 | 5 | 61 | 3 | 5 |
| | % | 59.3% | 2.7% | 33.5% | 1.6% | 2.7% |
| Mental health crisis | n | 79 | 9 | 89 | 2 | 4 |
| | % | 43.2% | 4.9% | 48.6% | 1.1% | 2.2% |
| Behavioral health crisis | n | 81 | 9 | 87 | 2 | 4 |
| | % | 44.3% | 4.9% | 47.5% | 1.1% | 2.2% |
| Substance abuse crisis | n | 78 | 8 | 90 | 3 | 3 |
| | % | 42.9% | 4.4% | 49.5% | 1.6% | 1.6% |
| Counseling/Mental health care | n | 72 | 11 | 90 | 5 | 5 |
| | % | 39.3% | 6.0% | 49.2% | 2.7% | 2.7% |
| Substance abuse treatment (including drug and alcohol) | n | 76 | 9 | 88 | 5 | 5 |
| | % | 41.5% | 4.9% | 48.1% | 2.7% | 2.7% |
| Smoking cessation | n | 68 | 16 | 72 | 7 | 19 |
| | % | 37.4% | 8.8% | 39.6% | 3.8% | 10.4% |
| Nutrition, weight, and exercise counseling | n | 67 | 17 | 73 | 6 | 18 |
| | % | 37.0% | 9.4% | 40.3% | 3.3% | 9.9% |
| Housing assistance | n | 115 | 5 | 56 | 2 | 4 |
| | % | 63.2% | 2.7% | 30.8% | 1.1% | 2.2% |
| Food assistance | n | 112 | 4 | 59 | 1 | 4 |
| | % | 62.2% | 2.2% | 32.8% | 0.6% | 2.2% |
| Clothing assistance | n | 117 | 3 | 56 | 0 | 4 |
| | % | 65.0% | 1.7% | 31.1% | 0.0% | 2.2% |
| Transportation assistance | n | 97 | 6 | 73 | 1 | 4 |
| | % | 53.6% | 3.3% | 40.3% | 0.6% | 2.2% |
| Childcare assistance | n | 119 | 3 | 53 | 0 | 4 |
| | % | 66.5% | 1.7% | 29.6% | 0.0% | 2.2% |
| Legal assistance | n | 120 | 2 | 55 | 0 | 4 |
| | % | 66.3% | 1.1% | 30.4% | 0.0% | 2.2% |
| Workforce assistance | n | 117 | 5 | 54 | 0 | 4 |
| | % | 65.0% | 2.8% | 30.0% | 0.0% | 2.2% |

- Compared to hospital respondents, practices in general participate less in social service referrals. Of the 186 practices that provided information on their referral practices, a majority had processes in place to make referrals to only half of the social services listed for the question (8 out of 16).
- The social services to which more than 50% of practice respondents make referrals include domestic violence crisis, mental health crisis, behavioral health crisis, substance abuse crisis, counseling and mental health care, substance abuse treatment including drug and alcohol, smoking cessation, and nutrition, weight, and exercise counseling.

- When referrals were made, most of referrals were made by phone.
- The most commonly practiced referrals in practice settings include referrals to smoking cessation (practiced by 63.0% practice respondents), nutrition, weight, and exercise counseling (63.0%), and domestic violence crisis (61.8%).
- The less commonly practiced referrals by practices include childcare assistance (33.5%), legal assistance (33.7%), clothing assistance (35.0%), and workforce assistance (35.0%).

When prompted with the question what other method of communication was routinely used to coordinate with social services, practice respondents identified the following communication methods: 1) case management or care coordination (used for most types of social services); 2) in-house consultation (used for mental health care, substance abuse treatment, smoking cessation, and nutrition, weight, and exercise counseling); and 3) public health services (used for housing, clothing, transportation, childcare, legal, and workforce assistances).

Table 6.3 Social Service Referrals – Dental Practice (n=9)

| | | No Referrals for this service | Fax | Phone | Secure direct messaging | Other method |
|--|---|-------------------------------|------|-------|-------------------------|--------------|
| Domestic violence crisis | n | 4 | 0 | 4 | 1 | 0 |
| | % | 44.4% | 0.0% | 44.4% | 11.1% | 0.0% |
| Natural disaster crisis | n | 4 | 0 | 4 | 0 | 0 |
| | % | 50.0% | 0.0% | 50.0% | 0.0% | 0.0% |
| Mental health crisis | n | 4 | 0 | 3 | 1 | 1 |
| | % | 44.4% | 0.0% | 33.3% | 11.1% | 11.1% |
| Behavioral health crisis | n | 4 | 0 | 3 | 1 | 1 |
| | % | 44.4% | 0.0% | 33.3% | 11.1% | 11.1% |
| Substance abuse crisis | n | 4 | 0 | 3 | 1 | 1 |
| | % | 44.4% | 0.0% | 33.3% | 11.1% | 11.1% |
| Counseling/Mental health care | n | 4 | 0 | 3 | 1 | 1 |
| | % | 44.4% | 0.0% | 33.3% | 11.1% | 11.1% |
| Substance abuse treatment (including drug and alcohol) | n | 4 | 0 | 3 | 1 | 1 |
| | % | 44.4% | 0.0% | 33.3% | 11.1% | 11.1% |
| Smoking cessation | n | 4 | 0 | 4 | 0 | 1 |
| | % | 44.4% | 0.0% | 44.4% | 0.0% | 11.1% |
| Nutrition, weight, and exercise counseling | n | 4 | 0 | 5 | 0 | 0 |
| | % | 44.4% | 0.0% | 55.6% | 0.0% | 0.0% |
| Housing assistance | n | 4 | 0 | 4 | 1 | 0 |
| | % | 44.4% | 0.0% | 44.4% | 11.1% | 0.0% |
| Food assistance | n | 4 | 0 | 4 | 1 | 0 |
| | % | 44.4% | 0.0% | 44.4% | 11.1% | 0.0% |
| Clothing assistance | n | 4 | 0 | 4 | 1 | 0 |
| | % | 44.4% | 0.0% | 44.4% | 11.1% | 0.0% |
| Transportation assistance | n | 3 | 0 | 5 | 0 | 1 |
| | % | 33.3% | 0.0% | 55.6% | 0.0% | 11.1% |

| | | | | | | |
|----------------------|---|-------|------|-------|------|------|
| Childcare assistance | n | 4 | 0 | 5 | 0 | 0 |
| | % | 44.4% | 0.0% | 55.6% | 0.0% | 0.0% |
| Legal assistance | n | 4 | 0 | 5 | 0 | 0 |
| | % | 44.4% | 0.0% | 55.6% | 0.0% | 0.0% |
| Workforce assistance | n | 4 | 0 | 5 | 0 | 0 |
| | % | 44.4% | 0.0% | 55.6% | 0.0% | 0.0% |

- Nine dental-practice respondents provided information on their referral practices of which there is a rough split between those that had processes in place for social service referrals (55.6% for most types of social services) and those that did not have such processes (44.4% for most types of social services).
- When referrals were made, most of referrals were made by phone.

When prompted with the question what other method of communication was routinely used to coordinate with social services, one dental-practice respondent indicated that the provider used EHR to contact social service agencies/providers.

6.2 Health Risk Assessment

Research question:

- *What is the current status in using Health Risk Assessment among practices and dental practices?*

Medicaid has begun offering health risk assessments (HRA) for individuals enrolled in the Medicaid Wellness Plan in Iowa. There are many different types of HRAs that can be conducted. The completed patient risk assessments can be shared with the primary care provider so that care needs are addressed during a visit. To assess the current practice in using HRAs among providers, we asked practice and dental-practice respondents whether they used HRAs and what types of HRAs they used. Tables 6.4 and 6.5 present information on use of HRAs.

Table 6.4 Practice Use of Health Risk Assessment

| | Practice (n=237) | | Dental Practice (n=12) | |
|--------------|------------------|---------|------------------------|---------|
| | Count | Percent | Count | Percent |
| Yes | 82 | 34.6% | 8 | 66.7% |
| No | 113 | 47.7% | 2 | 16.7% |
| No response | 42 | 17.7% | 2 | 16.7% |
| Total | 237 | 100% | 12 | 100% |

- About one third of practice respondents indicated that their organizations currently use HRAs (82 counts and 34.6%). Two third of dental-practice respondents indicated that their practices use HRAs (8 counts and 66.7%).

Table 6.5 Type of Health Risk Assessment Used

| | Practice (n=82) | | Dental Practice (n=8) | |
|--|-----------------|---------|-----------------------|---------|
| | Count | Percent | Count | Percent |
| The Iowa Medicaid HRA (i.e., AssessMyHealth) | 13 | 15.9% | 4 | 50.0% |
| Wellmark HRA | 9 | 11.0% | 1 | 12.5% |
| We develop our own HRA | 23 | 28.0% | 2 | 25.0% |
| Other HRA | 13 | 15.9% | 2 | 25.0% |
| Don't know | 28 | 34.1% | 1 | 12.5% |

- Among practice respondents, 28.0% used HRAs developed by the practices themselves, 15.9% used the Iowa Medicaid HRA, and 11.0% used the Wellmark HRA.
- Practice respondents identified the following other types of HRAs that they used: Medicare, HsWorx, Meridian, Metastar, PQRS, STarT Tool, United HRA, Dartmouth, Functional Medicine, and Humana.
- Half of the dental practices that used HRAs used the Iowa Medicaid HRA, 25.0% used their own HRA, and 12.5% used the Wellmark HRA.
- Dental practices identified two other HRAs: Delta Dental Wellness and Previser.

6.3 Health Home

Research question:

- *What is the current status in participating in the Health Home program among practices and dental practices?*

Iowa Medicaid’s Health Home program is based on the patient-centered medical home (PCMH) model. The goal is to target members with chronic conditions, engage them in their health, coordinate their care, and show improvement in the health of this population. Providers must meet standards outlined by the State and seek PCMH Recognition or Accreditation within 12 months of enrolling in the program. Demonstrate evidence of acquisition, installation and adoption of an electronic health record (EHR) system and establish a plan to meaningfully use health information in accordance with the Federal law. To facilitate a team-based, community focused approach, providers participating as a Health Home must connect to the Iowa Health Information Network (IHIN).

To assess the current status of Health Home, we asked practice and dental-practice respondents whether their organization is a Health Home or is interested in becoming a Health Home and receiving information about the Health Home program. Tables 6.6 – 6.8 present data from this assessment.

Table 6.6 Practice Health Home Status

| | Practice (n=237) | | Dental Practice (n=12) | |
|--------------|------------------|-------------|------------------------|-------------|
| | Count | Percent | Count | Percent |
| Yes | 24 | 10.1% | 4 | 33.3% |
| No | 171 | 72.2% | 6 | 50.0% |
| No response | 42 | 17.7% | 2 | 16.7% |
| Total | 237 | 100% | 12 | 100% |

- A small percentage of practice respondents have already become Health Homes (24 counts and 10.1%).
- Four of the dental-practice respondents have already become Health Homes (33.3%).

Table 6.7 Practice Interest in Becoming a Health Home

| | Practice (n=169) | | Dental Practice (n=6) | |
|--------------|------------------|-------------|-----------------------|-------------|
| | Count | Percent | Count | Percent |
| Yes | 18 | 10.7% | 0 | 0.0% |
| No | 99 | 58.6% | 5 | 83.3% |
| Not sure | 52 | 30.8% | 1 | 16.7% |
| Total | 169 | 100% | 6 | 100% |

- Among those practices that are currently not a Health Home, a majority have no interest in becoming one (58.6%).
- Similar pattern is observed in the dental-practice sample of which 83.3% indicated that they are not interested in becoming a Health Home.

Table 6.8 Practice Interest in Receiving Information about Health Home

| | Practice (n=170) | | Dental Practice (n=5) | |
|--------------|------------------|-------------|-----------------------|-------------|
| | Count | Percent | Count | Percent |
| Yes | 27 | 15.9% | 0 | 0.0% |
| No | 99 | 58.2% | 4 | 80.0% |
| Not sure | 44 | 25.9% | 1 | 20.0% |
| Total | 170 | 100% | 6 | 100% |

- Only a small percentage of practices (15.9%) are interested in learning about the Health Home program.
- No dental practice indicated interest in receiving information about Health Home.

Appendix 1: Hospital Survey Instrument

Assessment of Health Information Technology and Meaningful Use in Iowa Hospitals

You are invited to participate in the Iowa Medicaid Enterprise’s (IME) Health IT Landscape Study. This study is designed to develop knowledge that can be used by healthcare providers in Iowa to improve their electronic health records (EHR) capacity, enhance health information exchange (HIE), and achieve meaningful use of Health IT. This study will help the IME design policies, programs, and technical assistance for helping Iowa providers utilize resources available through the Health Information Technology for Economic and Clinical Health (HITECH) Act funding.

The survey includes questions about your organization’s EHR/HIE capacity and Meaningful Use participation. Therefore, it would be ideal to have an EHR/Meaningful Use expert within your organization complete the survey. The survey will take approximately 25 minutes to complete.

Participation in this study is voluntary. The records of this study will be kept confidential. In any report we publish, we will not include information that will make it possible to identify a subject. The study protocol is approved by the University of Iowa IRB (#201506842).

I have read the above information. I consent to participate in the study.

Yes

No

A. Hospital Demographic Information

1. Hospital Name & ZIP Code: _____

2. Respondent Name: _____

3. Respondent Role in the Hospital. Check all that apply.¹

Doctor (e.g., MD, DO, DDS)

Mid-level practitioner (e.g., ARNP, PA, CNM, CNA)

Nurse (e.g., RN, LPN)

Other clinical staff (e.g., CMA, RRT, RD, social worker, audiologist, PT, OT)

Administrator

Office staff

Information technology/Informatics staff

EHR/Meaningful Use staff

Other – Please specify: *(text box)*

4. Respondent E-mail: _____

5. Respondent Phone #: _____

6. What best describes the type of your hospital?

Critical Access Hospital (CAH)

1 Unless otherwise specified as “Check all that apply”, respondents should select only one option from the list.

- Non-CAH Community/General Hospital
- Tertiary Hospital
- Specialized Hospital (e.g., pediatric, psychiatric)
- Other – Please specify: *(text box)*

7. Is your hospital part of a health system?

- Yes
- No – *Skip to Question 8*

a. What is the name of the health system? _____

b. What best describes your hospital’s affiliation with the health system?

- Owned in whole or in part by the health system
- Non-ownership, contract managed by the health system
- Other non-ownership affiliation – Please specify: _____

8. How many inpatient beds are there in your hospital? _____

9. Which of the following services does your hospital offer? Check all that apply.

- Emergency Department
- General Medical/Surgical Units
- Outpatient Surgery
- Outpatient Clinics – On Site
- Outpatient Clinics – Off Site *(if selected, include Q24; otherwise, skip Q24)*
- Specialty Units (e.g., ICU, CCU, NICU) – Please specify: *(text box)*
- Other (e.g., SNF, Home Health) – Please specify: *(text box)*

10. How many of the following types of staff FTEs are allocated to perform EHR/Meaningful Use activities in your hospital?

- Information technology/Informatics staff _____ (FTEs)
- Administrative/Office staff _____ (FTEs)
- Clinical staff _____ (FTEs)
- Other – Please specify: *(text box)* _____ (FTEs)

B. EHR Incentive Program Participation

The Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs (often referred to as Meaningful Use or MU) provide incentive payments to eligible professionals and eligible hospitals as they adopt, implement, upgrade, or demonstrate meaningful use of certified EHR technology (additional information regarding this incentive program is available at: <http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html>).

11. In which EHR Incentive Program did your hospital participate? Check all that apply.

- Medicare EHR Incentive Program
- Medicaid EHR Incentive Program

12. In what years did your hospital attest to the following stages of meaningful use? Check all that apply.

| | Adopt, Implement, Upgrade | MU Stage 1 | MU Stage 2 |
|------|---------------------------|------------|------------|
| 2011 | | | |
| 2012 | | | |
| 2013 | | | |
| 2014 | | | |
| 2015 | | | |

13. From the hospital’s perspective, how much do you agree with the following statements about benefits in pursuing MU in your hospital? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- MU will help us improve care quality and safety for our patients
- MU will help us capture accurate and complete patient information
- MU will help us improve care coordination processes
- MU will help us improve medical decision making
- MU will help us report quality measures for value-based purchasing (VBP) or other pay-for-performance programs
- MU will help us engage patients, their families, and other providers in care
- Other perceived benefits – Please specify: (text box)

14. From the hospital’s perspective, how much do you agree with the following statements about challenges in pursuing MU in your hospital? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- We had difficulty gathering necessary information and documentation for MU attestation
- We had difficulty meeting the required threshold for certain measure(s) *(if selected, include the next question Q15; otherwise, skip Q15)*
- We had difficulty dealing with the workflow changes necessary to attain MU
- We had a lack of buy-in from our providers to pursue MU
- We had/will have difficulty meeting Health Information Exchange (HIE) requirements
- Productivity was/will be reduced to attain MU
- MU financial incentives are inadequate relative to the investment needed
- Other perceived challenges – Please specify: (text box)

15. The next four questions concern what types of Meaningful Use Stage 2 measures your organization may have

challenges meeting the required threshold.

a. Did/will your organization have challenges meeting the required threshold regarding RECORDING DATA? Check all that apply.

- Record required patient demographics
- Record required vital signs
- Record smoking status

b. Did/will your organization have challenges meeting the required threshold regarding SUBMITTING DATA? Check all that apply.

- Submit electronic data to immunization registries
- Submit electronic reportable laboratory results
- Submit electronic syndromic surveillance data

c. Did/will your organization have challenges meeting the required threshold regarding USING EHR FOR CLINICAL SUPPORT? Check all that apply.

- Use CPOE for medication, laboratory, and radiology orders
- Use clinical decision support for high-priority health conditions
- Incorporate clinical lab test results
- Generate lists of patients by specific conditions
- Identify patient-specific education resources
- Perform medication reconciliation
- Automatically track medications using assistive technologies

d. Did/will your organization have challenges meeting the required threshold regarding PATIENT ENGAGEMENT AND PRIVACY? Check all that apply.

- Provide patients the ability to view online, download, and transmit hospital admission information
- Provide a summary care record for each care transition or referral
- Protect electronic health information

16. To what extent would the following types of assistance be helpful for your hospital to continue to meet the requirements of MU? (5-point scale – Not helpful, Slightly helpful, Moderately helpful, Very Helpful, Extremely helpful)

- Informational sessions regarding attestation requirements and processes
- Help identifying EHR products that meet our hospital's needs
- Technical assistance in implementing EHR products, including making necessary workflow changes
- Assistance to engage clinicians in incorporating EHR into the workflow
- Assistance with privacy and security and other legal or policy issues related to use of health information
- Assistance with using information from the EHR to attest to numerators, denominators, and exclusions
- Assistance with implementing clinical quality improvements to better manage the health of our patients

- Other – Please specify: (text box)

The Centers for Medicare & Medicaid Services (CMS) has proposed draft requirements for MU Stage 3. The Stage 3 requirements focus on the advanced use of certified EHR technology (CEHRT) to promote health information exchange and improved outcomes for patients. MU Stage 3 would focus on clinical decision support for national high priority conditions; improving patient access to self-management tools; improving access to comprehensive patient data through robust, secure, patient-centered health information exchange; and improvements in population health. CMS is proposing that MU Stage 3 would be optional for providers in 2017 and mandatory for all providers beginning in 2018. Additional details regarding MU Stage 3 proposed rule are available on http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Downloads/Stage3_Rule.pdf.

17. Is your hospital planning to achieve MU Stage 3?

- Yes
 No

18. What barriers or challenges do you anticipate your hospital facing as it moves towards MU Stage 3? Check all that apply.

- Measure threshold requirements will be difficult to meet
 Health information exchange requirements will be difficult to meet
 EHR vendor may not be able to meet certification requirements (CEHRT) by the deadline
 We need technical assistance to adapt the workflows to meet MU Stage 3
 Other barriers – Please specify: (text box)

19. Does your hospital plan to continue to report data for Meaningful Use even without the incentive payment?

- Yes
 No
 Not sure

C. Health Information Technology (HIT) Capabilities

20. What is the name(s) of your hospital's current EHR product(s)? If your hospital has more than one EHR, you may select up to three EHR products that are used as the primary, secondary, or tertiary systems.

- Allscripts
 Cerner
 CPSI (Computer Programs and Systems)
 Epic Systems
 FairWarning Technologies
 Healthland
 Iatric Systems
 McKesson

- MEDHOST
- MEDITECH
- NextGen Healthcare Information Systems
- Sunquest Information Systems
- Other – Please specify: (text box)

21. Which year did your hospital first adopt the primary EHR system? _____

22. Which of the following stage best describes your hospital’s current EHR adoption status according to the HIMSS definitions?

- Stage 0: All three ancillaries not installed (some clinical automation may exist; lab/pharmacy/radiology not installed)
- Stage 1: All three ancillaries installed (lab/pharmacy/radiology installed)
- Stage 2: Patient-centered clinical data using basic system-to-system exchange (data fed to clinical data repository [CDR] for providers to access and review results)
- Stage 3: Normalized patient record using structural interoperability (vital signs, nursing notes, care plans, and/or electronic medication administration record. First level of clinical decision support for error checking such as for drug interactions. Some level of picture archive and communication system [PACS]).
- Stage 4: Care coordination based on actionable data using a semantic interoperable patient record (computerized physician order entry [CPOE], 2nd level clinical decision support for evidence-based protocols)
- Stage 5: Closed loop medication administration (fully implemented in at least one patient care area. Electronic medication administration and bar coding integrated with CPOE and pharmacy for patient safety)
- Stage 6: Structured documentation and full imaging (full physician documentation using structured templates, PACS to enable providers to view all images via an intranet or secure network)
- Stage 7: Medical record fully electronic and information exchange is enabled (clinical information shared via health information exchange network (e.g., other hospitals, clinics, etc.))

23. Which service areas in your hospital are currently using the EHR(s) identified above? Check all that apply.

- Emergency Department
- General Medical/Surgical Units
- Outpatient Surgery
- Outpatient Clinics – On Site
- Outpatient Clinics – Off Site
- Specialty Units (e.g., ICU, CCU, NICU) – Please specify: (text box)
- Other (e.g., SNF, Home Health) – Please specify: (text box)

24. How does your organization manage transferring patient information between the hospital and off-site clinics?

- The hospital and off-site clinics use the same, interconnected EHR system with automatic transfer
- The hospital and off-site clinics use different, interconnected EHR systems with automatic transfer
- The hospital and off-site clinics use different, separated EHR systems; and we transfer patient information

with additional steps (e.g., paper, fax)

- Other – Please specify: (text box)

25. Which of the following functionalities are available in your hospital’s EHR system(s)? If available, please indicate whether your providers routinely use each of the functionalities.

| <u>EHR Functionality</u> | <u>Availability & Usage</u> | | |
|---|------------------------------------|--|---------------------------------|
| | Routinely Used by Providers | Not Routinely Used by Providers | Not Available in the EHR |
| a) Patient problem or procedure lists | | | |
| b) Patient allergy lists | | | |
| c) Patient medication lists | | | |
| d) Electronic prescriptions | | | |
| e) Orders for laboratory or pathology tests | | | |
| f) Lab or radiology test results | | | |
| g) Immunization administration records | | | |
| h) Consultation or progress reports | | | |
| i) Quality measure reporting | | | |
| j) Payer or administrative functions (insurance, prior authorization) | | | |
| k) Patient portal that allows access to information | | | |
| l) Patient Personal Health Record (PHR) that allows patients to input information | | | |
| m) Connect to query the Iowa Health Information Network (IHIN) | | | |
| n) Secure messaging | | | |
| o) Alerts or notifications for particular events (e.g., admission, discharge, transfer) | | | |

26. To what extent do you agree with the following statements about your hospital’s practice in using EHR data?
(5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- We were able to extract usable data from the EHR system
- We developed and captured our own metrics in the EHR system
- We used the EHR data to support continuous quality improvement activities
- We used the EHR data to support clinical decision making
- We used the EHR data to segment and manage particular groups of patients

D. Health Information Exchange (HIE) Practices and Plans

27. Does your hospital's EHR currently share data with any of the following providers or health information network **OUTSIDE** of your hospital? Check all that apply.

- Other hospitals
- Clinics
- Laboratories
- Pharmacy
- Public health (cancer registry, immunization registry, disease reporting)
- Iowa Health Information Network (IHIN)
- Other – Please specify: (text box)
- None

28. Does your hospital have a process to generate data related to inpatient and/or emergency room admissions, discharges, and transfers (ADT) so that you have current information regarding patients receiving care at your facility?

- Yes
- No – Skip to Question 31

29. Does your hospital share ADT information with clinical care teams – either within your hospital/health system or outside the hospital/health system – for patient care transition purposes (i.e., not just for billing purposes)?

- Yes
- No – Skip to Question 31

30. Where are your hospital's ADT data feeds disseminated? Check all that apply.

- Within the hospital – clinical care team or case manager
- Health system or parent organization
- The patient's primary care provider outside your hospital/health system
- Payer, insurance company, and/or managed care organization
- IHIN
- Other – Please specify: (text box)

31. How frequently does your hospital use the following HIE mechanisms for exchanging patient health information with providers **OUTSIDE** your hospital/health system? (5-point scale –Never, Rarely, Sometimes, Very often, Always)

- Direct exchange – sending and receiving information between providers using secure direct messaging or e-mail
- Query-based exchange – searching and discovering accessible information (e.g., clinical care summaries) based on a health information exchange network (e.g., IHIN)

- Consumer-mediated exchange – patients having access to their health information online (e.g., using personal health record, patient portal) and managing to share such information with other providers (i.e., patients actively participate in their care coordination)
- Other – Please specify: (text box)

32. To what extent does your hospital’s EHR system(s) currently equip your providers to utilize the following HIE mechanisms to exchange patient health information with providers outside your hospital/health system? (5-point scale –Not at all, Very little, Neutral, Somewhat, To a Great Extent)

- Direct exchange
- Query-based exchange
- Consumer-mediated exchange

E. Other Questions

33. Does your hospital have processes in place to make referrals these social services for your patients as needed? If so, what method of communication is routinely used to coordinate the services?

| Social Services | No Refer- rals for this service | Fax | Phone | Secure direct mes- saging | Other method (please specify) |
|---|---------------------------------------|-----|-------|---------------------------------|----------------------------------|
| A. Crisis assistance | | | | | |
| A1. Domestic violence crisis | | | | | (text box) |
| A2. Natural disaster crisis | | | | | (text box) |
| A3. Mental health crisis | | | | | (text box) |
| A4. Behavioral health crisis | | | | | (text box) |
| A5. Substance abuse crisis | | | | | (text box) |
| B. Counseling/Mental health care | | | | | (text box) |
| C. Substance abuse treatment (including drug and alcohol) | | | | | (text box) |
| D. Smoking cessation | | | | | (text box) |
| E. Nutrition, weight, and exercise counseling | | | | | (text box) |
| F. Housing assistance | | | | | (text box) |
| G. Food assistance | | | | | (text box) |
| H. Clothing assistance | | | | | (text box) |
| I. Transportation assistance | | | | | (text box) |
| J. Childcare assistance | | | | | (text box) |

| | | | | | |
|---|--|--|--|--|------------|
| K. Legal assistance | | | | | (text box) |
| L. Workforce assistance | | | | | (text box) |
| M. Other social services – Please specify (text box) | | | | | (text box) |

THANK YOU for taking the time to complete this survey!!

Appendix 2: Practice Survey Instrument

Assessment of Health Information Technology and Meaningful Use in Iowa Practices

You are invited to participate in the Iowa Medicaid Enterprise’s (IME) Health IT Landscape Study. This study is designed to develop knowledge that can be used by healthcare providers in Iowa to improve their electronic health records (EHR) capacity, enhance health information exchange (HIE), and achieve meaningful use of Health IT. This study will help the IME design policies, programs, and technical assistance for helping Iowa providers utilize resources available through the Health Information Technology for Economic and Clinical Health (HITECH) Act funding.

The survey includes questions about your organization’s EHR/HIE capacity and Meaningful Use participation. Therefore, it would be ideal to have an EHR/Meaningful Use expert within your organization complete the survey. The survey will take approximately 25 minutes to complete.

Participation in this study is voluntary. The records of this study will be kept confidential. In any report we publish, we will not include information that will make it possible to identify a subject. The study protocol is approved by the University of Iowa IRB (#201506842).

I have read the above information. I consent to participate in the study.

Yes

No

A. Practice Demographic information

34. Practice/Organization Name & ZIP Code: _____

35. Respondent Name: _____

36. Respondent Role in the Practice. Check all that apply.²

- Doctor (e.g., MD, DO, DDS)
- Mid-level practitioner (e.g., ARNP, PA, CNM, CNA)
- Nurse (e.g., RN, LPN)
- Other clinical staff (e.g., CMA, RRT, RD, social worker, audiologist, PT, OT)
- Administrator/Administrative staff
- Office staff
- Information technology/Informatics staff
- EHR/Meaningful Use staff
- Other – Please specify: *(text box)*

37. Respondent E-mail: _____

38. Respondent Phone #: _____

39. What best describes your type of organization?

- Provider-owned medical group

² Unless otherwise specified as “Check all that apply”, respondents should select only one option from the list.

- Hospital- or health-system-owned medical group
- Community Health Center (e.g., FQHC, RHC)
- Community Mental Health Center
- Other – Please specify: *(text box)*

40. Is your practice part of a larger medical group, hospital, or health system?

- Yes
- No – *Skip to Question 8*

a. What is the name of the larger medical group, hospital, or health system? _____

b. What best describes your practice’s affiliation with the larger medical group, hospital, or health system?

- Owned in whole or in part by the larger medical group, hospital, or health system
- Non-ownership, contract managed by the larger medical group, hospital, or health system
- Other non-ownership affiliation – Please specify: _____

41. What is the size of your practice?

- Solo practice
- Small medical group (2-5 providers)
- Medium medical group (6-9 providers)
- Large medical group (>10 providers)

42. Which of the following services does your practice offer? Check all that apply.

Primary Care: – *The following options appear if Primary Care is selected*

- Family or general practice
- Internal medicine
- Pediatrics
- OB/GYN
- Chiropractic

Specialty Care: – *The following options appear if Specialty Care is selected*

- Allergy, Asthma, or Immunology
- Cardiovascular disease
- ENT
- Endocrinology
- Neurology
- Orthopedics
- Ophthalmology or Optometry

- Podiatry
- Psychiatry
- Surgery or Oral Surgery
- Radiology
- Other – Please specify: (text box)

43. How many of the following types of staff FTEs are allocated to perform EHR/Meaningful Use activities in your practice?

- Information technology/Informatics staff _____ (FTEs)
- Administrative/Office staff _____ (FTEs)
- Clinical staff _____ (FTEs)
- Other – Please specify: (text box) _____ (FTEs)

B. EHR Incentive Program Participation

The Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs (often referred to as Meaningful Use or MU) provide incentive payments to eligible professionals and eligible hospitals as they adopt, implement, upgrade, or demonstrate meaningful use of certified EHR technology (additional information regarding this incentive program is available at: <http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html>).

44. At least one eligible professional (EP) at your organization has received a Meaningful Use (MU) payment. How many EPs in your organization have attested to the following EHR Incentive Programs?

- Medicare EHR Incentive Program: _____
- Medicaid EHR Incentive Program: _____

45. In what years did the EPs in your organization attest to the following stages of meaningful use? Check all that apply.

| | Adopt, Implement, Upgrade | MU Stage 1 | MU Stage 2 |
|------|---------------------------|------------|------------|
| 2011 | | | |
| 2012 | | | |
| 2013 | | | |
| 2014 | | | |
| 2015 | | | |

46. From your organization’s perspective, how much do you agree with the following statements about benefits in pursuing MU in your organization? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- MU will help us improve care quality and safety for our patients
- MU will help us capture accurate and complete patient information

- MU will help us improve care coordination processes
- MU will help us improve medical decision making
- MU will help us report quality measures for value-based purchasing (VBP) or other pay-for-performance programs
- MU will help us engage patients, their families, and other providers in care
- Other perceived benefits – Please specify: (text box)

47. From your organization’s perspective, how much do you agree with the following statements about challenges in pursuing MU in your organization? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- We had difficulty gathering necessary information and documentation for MU attestation
- We had difficulty meeting the required threshold for certain measure(s) *(if selected, include the next question Q15; otherwise, skip Q15)*
- We had difficulty dealing with the workflow changes necessary to attain MU
- We had a lack of buy-in from our providers to pursue MU
- We had/will have difficulty meeting Health Information Exchange (HIE) requirements
- Productivity was/will be reduced to attain MU
- MU financial incentives are inadequate relative to the investment needed
- Other perceived challenges – Please specify: (text box)

48. The next four questions concern what types of Meaningful Use Stage 2 measures your organization may have challenges meeting the required threshold.

a. Did/will your organization have challenges meeting the required threshold regarding RECORDING DATA? Check all that apply.

- Record required patient demographics
- Record required vital signs
- Record smoking status

b. Did/will your organization have challenges meeting the required threshold regarding SUBMITTING DATA? Check all that apply.

- Submit electronic data to immunization registries
- Submit electronic reportable laboratory results
- Submit electronic syndromic surveillance data

c. Did/will your organization have challenges meeting the required threshold regarding USING EHR FOR CLINICAL SUPPORT? Check all that apply.

- Use CPOE for medication, laboratory, and radiology orders
- Use clinical decision support for high-priority health conditions
- Incorporate clinical lab test results

- Generate lists of patients by specific conditions
- Identify patient-specific education resources
- Perform medication reconciliation
- Automatically track medications using assistive technologies

d. Did/will your organization have challenges meeting the required threshold regarding PATIENT ENGAGEMENT AND PRIVACY? Check all that apply.

- Provide patients the ability to view online, download, and transmit hospital admission information
- Provide a summary care record for each care transition or referral
- Protect electronic health information

49. To what extent would the following types of assistance be helpful for your organization to continue to meet the requirements of MU? (5-point scale – Not helpful, Slightly helpful, Moderately helpful, Helpful, Very helpful)

- Informational sessions regarding attestation requirements and processes
- Help identifying EHR products that meet our organization's needs
- Technical assistance in implementing EHR products, including making necessary workflow changes
- Assistance to engage clinicians in incorporating EHR into the workflow
- Assistance with privacy and security and other legal or policy issues related to use of health information
- Assistance with using information from the EHR to attest to numerators, denominators, and exclusions
- Assistance with implementing clinical quality improvements to better manage the health of our patients
- Other – Please specify: (text box)

The Centers for Medicare & Medicaid Services (CMS) has proposed draft requirements for MU Stage 3. The Stage 3 requirements focus on the advanced use of certified EHR technology (CEHRT) to promote health information exchange and improved outcomes for patients. MU Stage 3 would focus on clinical decision support for national high priority conditions; improving patient access to self-management tools; improving access to comprehensive patient data through robust, secure, patient-centered health information exchange; and improvements in population health. CMS is proposing that MU Stage 3 would be optional for providers in 2017 and mandatory for all providers beginning in 2018. Additional details regarding MU Stage 3 proposed rule are available on http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Downloads/Stage3_Rule.pdf.

50. Is your organization planning to achieve MU Stage 3?

- Yes
- No

51. What barriers or challenges do you anticipate your organization facing as it moves towards MU Stage 3? Check all that apply.

- Measure threshold requirements will be difficult to meet
- Health information exchange requirements will be difficult to meet
- EHR vendor may not be able to meet certification requirements (CEHRT) by the deadline

- We need technical assistance to adapt the workflows to meet MU Stage 3
- Other barriers – Please specify: (text box)

52. Does your organization plan to continue to report data for Meaningful Use even without the incentive payment?

- Yes
- No
- Not sure

C. Health Information Technology (HIT) Capabilities

53. What is the name(s) of your organization's current EHR product(s)? If your organization has more than one EHR, you may select up to three EHR products that are used as the primary, secondary, or tertiary systems.

- Allscripts
- athenahealth
- Cerner
- eClinicalWorks
- e-MDs
- Epic Systems
- Eyefinity/OfficeMate
- GE Healthcare
- Greenway Health
- McKesson
- NextGen Healthcare Information Systems
- Practice Fusion
- Other – Please specify: (text box)

54. Which year did your organization first adopt the primary EHR system? _____

55. Which of the following stage best describes your organization's current EHR adoption status according to the HIMSS definitions?

- Stage 0: All three ancillaries not installed (some clinical automation may exist; lab/pharmacy/radiology not installed)
- Stage 1: All three ancillaries installed (lab/pharmacy/radiology installed)
- Stage 2: Patient-centered clinical data using basic system-to-system exchange (data fed to clinical data repository [CDR] for providers to access and review results)
- Stage 3: Normalized patient record using structural interoperability (vital signs, nursing notes, care plans, and/or electronic medication administration record. First level of clinical decision support for error checking such as for drug interactions. Some level of picture archive and communication system [PACS]).
- Stage 4: Care coordination based on actionable data using a semantic interoperable patient record (comput-

erized physician order entry [CPOE], 2nd level clinical decision support for evidence-based protocols)

- Stage 5: Closed loop medication administration (fully implemented in at least one patient care area. Electronic medication administration and bar coding integrated with CPOE and pharmacy for patient safety)
- Stage 6: Structured documentation and full imaging (full physician documentation using structured templates, PACS to enable providers to view all images via an intranet or secure network)
- Stage 7: Medical record fully electronic and information exchange is enabled (clinical information shared via health information exchange network (e.g., other hospitals, clinics, etc.))

56. Which of the following functionalities are available in your organization’s EHR system(s)? If available, please indicate whether the majority of your providers routinely use each of the functionalities.

| <u>EHR Functionality</u> | <u>Availability & Usage</u> | | |
|--|------------------------------------|--|--|
| | Routinely Used by Providers | Not Routinely Used by Providers | Not Implemented or Not Available in the EHR |
| p) Patient problem or procedure lists | | | |
| q) Patient allergy lists | | | |
| r) Patient medication lists | | | |
| s) Electronic prescriptions | | | |
| t) Orders for laboratory or pathology tests | | | |
| u) Lab or radiology test results | | | |
| v) Immunization administration records | | | |
| w) Consultation or progress reports | | | |
| x) Quality measure reporting | | | |
| y) Payer or administrative functions (insurance, prior authorization) | | | |
| z) Patient portal that allows access to information | | | |
| aa) Patient Personal Health Record (PHR) that allows patients to input information | | | |
| ab) Connect to query the Iowa Health Information Network (IHIN) | | | |
| ac) Secure messaging | | | |
| ad) Alerts or notifications for particular events (e.g., admission, discharge, transfer) | | | |

57. To what extent do you agree with the following statements about your organization’s practice in using EHR data? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- We were able to extract usable data from the EHR system

- We developed and captured our own metrics in the EHR system
- We used the EHR data to support continuous quality improvement activities
- We used the EHR data to support clinical decision making
- We used the EHR data to segment and manage particular groups of patients

D. Health Information Exchange (HIE) Practices and Plans

58. Does your organization's EHR currently share data with any of the following providers or health information network OUTSIDE of your organization? Check all that apply.

- Other clinics
- Substance abuse, mental health, or behavioral clinics
- Hospitals
- Laboratories
- Pharmacy
- Public health (cancer registry, immunization registry, disease reporting)
- Iowa Health Information Network (IHIN)
- Other – Please specify: (text box)
- None

59. Among those that are currently NOT sharing data with your organization, who would your organization like to share data with or receive data from to be more effective?

- Other clinics
- Substance abuse, mental health, or behavioral clinics
- Hospitals
- Laboratories
- Pharmacy
- Public health (cancer registry, immunization registry, disease reporting)
- Iowa Health Information Network (IHIN)
- Other – Please specify: (text box)
- None

60. How frequently does your organization use the following HIE mechanisms for exchanging patient health information with providers OUTSIDE your organization? (5-point scale –Never, Rarely, Sometimes, Very often, Always)

- Direct exchange – sending and receiving information between providers using secure direct messaging or e-mail
- Query-based exchange – searching and discovering accessible information (e.g., clinical care summaries) based on a health information exchange network (e.g., IHIN)

- Consumer-mediated exchange – patients having access to their health information online (e.g., using personal health record, patient portal) and managing to share such information with other providers (i.e., patients actively participate in their care coordination)
- Other – Please specify: (text box)

61. To what extent does your organization’s EHR system(s) currently equip your providers to utilize the following HIE mechanisms to exchange patient health information with providers outside your organization? (5-point scale – Not at all, Very little, Neutral, Somewhat, To a Great Extent)

- Direct exchange
- Query-based exchange
- Consumer-mediated exchange

Some providers have indicated a desire to receive electronic alerts or notifications if their patients are hospitalized or use the emergency room so that they can obtain appropriate patient records, such as a clinical care summary, care plan, and/or medication list.

62. Does your organization have a process to receive notifications from hospitals when your patients experience inpatient and/or emergency room admissions, discharges, and transfers (ADT)?

- Yes
- No – [Skip to Question 35 \(next section\)](#)

63. How does your organization receive those ADT notifications (i.e., what proportion of the notifications your organization receives via the following mechanisms)?

- Fax _____ (%)
- Telephone _____ (%)
- E-mail (regular) _____ (%)
- Secure direct messaging (e.g., IHIN Direct message) _____ (%)
- EHR _____ (%)
- Other – Please specify: (text box) _____ (%)

64. How frequently does your organization receive ADT notifications? (check only one)

- Real-time as ADT events occur
- Daily
- Weekly
- Other – Please specify: (text box)

65. How does your organization use the ADT notification information? Check all that apply.

- We don’t use this information
- Make contact with patient
- Inform the primary care provider of the patient

Other – Please specify: (text box)

66. Who are the primary users of the ADT notification information? Check only one.

- Physician
- Clinical nurse
- Care manager/care navigator
- Scheduling clerk
- Other – Please specify: (text box)

67. Does your organization receive ADT notifications for all of your patients or a particular group of patients?

- All of our patients
- A particular group or groups of patients (e.g., particular) – Please specify: (text box)

E. Other Questions

68. Does your organization have processes in place to make referrals to these social services for your patients as needed? If so, what method of communication is routinely used to coordinate the services?

| Social Services | No Refer- rals for this service | Fax | Phone | Secure direct mes- saging | Other method (please specify) |
|---|---------------------------------------|-----|-------|------------------------------|----------------------------------|
| N. Crisis assistance | | | | | |
| A1. Domestic violence crisis | | | | | (text box) |
| A2. Natural disaster crisis | | | | | (text box) |
| A3. Mental health crisis | | | | | (text box) |
| A4. Behavioral health crisis | | | | | (text box) |
| A5. Substance abuse crisis | | | | | (text box) |
| O. Counseling/Mental health care | | | | | (text box) |
| P. Substance abuse treat- ment (including drug and alcohol) | | | | | (text box) |
| Q. Smoking cessation | | | | | (text box) |
| R. Nutrition, weight, and exercise counseling | | | | | (text box) |
| S. Housing assistance | | | | | (text box) |
| T. Food assistance | | | | | (text box) |

| | | | | | |
|---|--|--|--|--|------------|
| U. Clothing assistance | | | | | (text box) |
| V. Transportation assistance | | | | | (text box) |
| W. Childcare assistance | | | | | (text box) |
| X. Legal assistance | | | | | (text box) |
| Y. Workforce assistance | | | | | (text box) |
| Z. Other social services – Please specify (text box) | | | | | (text box) |

Medicaid has begun recommending health risk assessments (HRA) for individuals enrolled in the Medicaid Wellness Plan. There are many different types of HRAs that can be conducted. The completed patient risk assessments can be shared with the primary care provider so that care needs are addressed during a visit.

69. Do the providers at your organization use standardized HRAs?

- Yes
- No *Skip to Question 38*

70. What HRAs does your organization use? Check all that apply.

- The Iowa Medicaid HRA (i.e., AssessMyHealth)
- Wellmark HRA
- Other HRA – Please specify: (text box)
- We develop our own HRA
- Don't know

Iowa Medicaid's **Health Home** program is based on the patient-centered medical home (PCMH) model. The goal is to target members with chronic conditions, engage them in their health, coordinate their care, and show improvement in the health of this population. Providers must meet standards outlined by the State and seek PCMH Recognition or Accreditation within 12 months of enrolling in the program. Demonstrate evidence of acquisition, installation and adoption of an electronic health record (EHR) system and establish a plan to meaningfully use health information in accordance with the Federal law. To facilitate a team-based, community focused approach, providers participating as a Health Home must connect to the Iowa Health Information Network (IHIN).

71. Is your organization a Health Home?

- Yes – *Skip to the end*
- No

72. Is your organization interested in becoming a Health Home?

- Yes
- No
- Not sure

73. Would your organization like to be contacted and receive more information about the Health Home program?

- Yes
- No
- Not sure

THANK YOU for taking the time to complete this survey!!

Appendix 3: Dental Practice Survey Instrument

Assessment of Health Information Technology and Meaningful Use in Iowa Dental Practices

You are invited to participate in the Iowa Medicaid Enterprise’s (IME) Health IT Landscape Study. This study is designed to develop knowledge that can be used by healthcare providers in Iowa to improve their electronic health records (EHR) capacity, enhance health information exchange (HIE), and achieve meaningful use of Health IT. This study will help the IME design policies, programs, and technical assistance for helping Iowa providers utilize resources available through the Health Information Technology for Economic and Clinical Health (HITECH) Act funding.

The survey includes questions about your organization’s EHR/HIE capacity and Meaningful Use participation. Therefore, it would be ideal to have an EHR/Meaningful Use expert within your organization complete the survey. The survey will take approximately 25 minutes to complete.

Participation in this study is voluntary. The records of this study will be kept confidential. In any report we publish, we will not include information that will make it possible to identify a subject. The study protocol is approved by the University of Iowa IRB (#201506842).

I have read the above information. I consent to participate in the study.

Yes

No

A. Practice Demographic information

74. Practice/Organization Name & ZIP Code: _____

75. Respondent Name: _____

76. Respondent Role in the Practice. Check all that apply.³

- Doctor (e.g., DMD, DDS)
- Other clinical staff (e.g., hygienist, dental assistant)
- Office staff
- Information technology/Informatics staff
- EHR/Meaningful Use staff
- Other – Please specify: *(text box)*

77. Respondent E-mail: _____

78. Respondent Phone #: _____

79. What best describes your type of organization?

- Provider-owned practice
- Hospital- or health-system-owned practice
- Community Health Center (e.g., FQHC, RHC)
- Other – Please specify: _____

³ Unless otherwise specified as “Check all that apply”, respondents should select only one option from the list.

80. Is your practice part of a larger medical group, hospital, or health system?

- Yes
- No – *Skip to Question 8*

a. What is the name of the larger medical group, hospital, or health system? _____

b. What best describes your practice’s affiliation with the larger medical group, hospital, or health system?

- Owned in whole or in part by the larger medical group, hospital, or health system
- Non-ownership, contract managed by the larger medical group, hospital, or health system
- Other non-ownership affiliation – Please specify: *(text box)*

81. What is the size of your practice?

- Solo practice
- Small group (2-5 providers)
- Medium group (6-9 providers)
- Large group (>10 providers)

82. Which of the following services does your practice offer? Check all that apply.

- General Dentistry
- Specialty Dental Services – *The following options appear if Specialty Dental Services is selected*
 - Endodontics
 - Oral and Maxillofacial Pathology
 - Oral and Maxillofacial Surgery
 - Orthodontics and Dentofacial Orthopedics
 - Pediatric Dentistry
 - Periodontics
 - Prosthodontics
 - Laser (Treatments)

83. How many of the following types of staff FTEs are allocated to perform EHR/Meaningful Use activities in your practice?

- Information technology/Informatics staff _____ (FTEs)
- Administrative/Office staff _____ (FTEs)
- Clinical staff _____ (FTEs)
- Other – Please specify: *(text box)* _____ (FTEs)

B. EHR Incentive Program Participation

The Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs (often referred to as Meaningful Use or MU) provide incentive payments to eligible professionals and eligible hospitals as they adopt, implement, upgrade, or demonstrate meaningful use of certified EHR technology (additional information regarding this incentive program is available at: <http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html>).

84. At least one eligible professional (EP) at your organization has received an Adopt, Implement, Upgrade incentive payment. How many EPs in your organization have attested to the following EHR Incentive Programs?

- Medicare EHR Incentive Program: _____
- Medicaid EHR Incentive Program: _____

85. In what years did/will the providers in your organization attest to the following stages of meaningful use? Check all that apply.

| | Adopt, Implement, Upgrade | MU Stage 1 |
|--------------------------|---------------------------|------------|
| 2011 | | |
| 2012 | | |
| 2013 | | |
| 2014 | | |
| 2015 | | |
| 2016 | | |
| 2017 | | |
| 2018 | | |
| Do not plan to pursue MU | | |

86. From your organization’s perspective, how much do you agree with the following statements about benefits in pursuing MU in your organization? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- MU will help us improve care quality and safety for our patients
- MU will help us capture accurate and complete patient information
- MU will help us improve care coordination processes
- MU will help us improve medical decision making
- MU will help us report quality measures for value-based purchasing (VBP) or other pay-for-performance programs
- MU will help us engage patients, their families, and other providers in care
- Other perceived benefits – Please specify: (text box)

87. From your organization’s perspective, how much do you agree with the following statements about challenges in pursuing MU in your organization? (5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- MU measures are not appropriate or relevant to the scope of our practice

- We had difficulty gathering necessary information and documentation for MU attestation
- We had difficulty meeting the required threshold for certain core measure(s)
- We had difficulty dealing with the workflow changes necessary to attain MU
- We had a lack of buy-in from our providers to pursue MU
- We had/will have difficulty meeting Health Information Exchange (HIE) requirements
- Productivity was/will be reduced to attain MU
- MU financial incentives are inadequate relative to the investment needed
- Other perceived challenges – Please specify: (text box)

88. To what extent would the following types of assistance be helpful for your organization to meet the requirements of MU? (5-point scale – Not helpful, Slightly helpful, Moderately helpful, Helpful, Very helpful)

- Informational sessions regarding attestation requirements and processes
- Help identifying EHR products that meet our organization’s needs
- Technical assistance in implementing EHR products, including making necessary workflow changes
- Assistance to engage providers in incorporating EHR into the workflow
- Assistance with privacy and security and other legal or policy issues related to use of health information
- Assistance with using information from the EHR to attest to numerators, denominators, and exclusions
- Assistance with implementing clinical quality improvements to better manage the health of our patients
- Other – Please specify: (text box)

C. Health Information Technology (HIT) Capabilities

89. What is the name(s) of your organization’s current EHR product(s)? _____

90. Which year did your organization first adopt the primary EHR system? _____

91. Is the EHR system routinely used by the majority of providers in your organization?

- Yes – *Skip to Question 20*
- No

92. Does your organization have a plan to have the majority of providers routinely use the EHR system?

- Yes – Please specify the proximate year/month to start: (text box) – *Skip to Q22*
- No – Please specify the reasons: (text box) – *Skip to Q22*

93. Which of the following functionalities are available in your organization’s EHR system(s)? If available, please indicate whether your providers routinely use each of the functionalities.

| <u>EHR Functionality</u> | <u>Availability & Usage</u> | | |
|--------------------------|------------------------------------|--|--|
| | Routinely Used by Providers | Not Routinely Used by Providers | Not Implemented or Not Available in the EHR |
| | | | |

| | | | |
|--|--|--|--|
| ae) Patient problem or procedure lists | | | |
| af) Patient allergy lists | | | |
| ag) Patient medication lists | | | |
| ah) Electronic prescriptions | | | |
| ai) Orders for laboratory or pathology tests | | | |
| aj) Lab or radiology test results | | | |
| ak) Immunization administration records | | | |
| al) Consultation or progress reports | | | |
| am) Quality measure reporting | | | |
| an) Payer or administrative functions (insurance, prior authorization) | | | |
| ao) Patient portal that allows access to information | | | |
| ap) Patient Personal Health Record (PHR) that allows patients to input information | | | |
| aq) Connect to query the Iowa Health Information Network (IHIN) | | | |
| ar) Secure messaging | | | |
| as) Alerts or notifications for particular events (e.g., admission, discharge, transfer) | | | |

94. To what extent do you agree with the following statements about your organization’s practice in using EHR data?
(5-point scale – Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

- We were able to extract usable data from the EHR system
- We developed and captured our own metrics in the EHR system
- We used the EHR data to support continuous quality improvement activities
- We used the EHR data to support clinical decision making
- We used the EHR data to segment and manage particular groups of patients

D. Health Information Exchange (HIE) Practices and Plans

95. Does your organization’s EHR currently share data with any of the following providers or health information network OUTSIDE of your organization? Check all that apply.

- Other clinics
- Substance abuse, mental health, or behavioral clinics

- Hospitals
- Laboratories
- Pharmacy
- Public health (cancer registry, immunization registry, disease reporting)
- Iowa Health Information Network (IHIN)
- Other – Please specify: (text box)
- None

96. Among those that are currently NOT sharing data with your organization, who would your organization like to share data with or receive data from to be more effective?

- Other clinics
- Substance abuse, mental health, or behavioral clinics
- Hospitals
- Laboratories
- Pharmacy
- Public health (cancer registry, immunization registry, disease reporting)
- Iowa Health Information Network (IHIN)
- Other – Please specify: (text box)
- None

97. How frequently does your organization use the following HIE mechanisms for exchanging patient health information with providers OUTSIDE your organization? (5-point scale –Never, Rarely, Sometimes, Very often, Always)

- Direct exchange – sending and receiving information between providers using secure direct messaging or e-mail
- Query-based exchange – searching and discovering accessible information (e.g., clinical care summaries) based on a health information exchange network (e.g., IHIN)
- Consumer-mediated exchange – patients having access to their health information online (e.g., using personal health record, patient portal) and managing to share such information with other providers (i.e., patients actively participate in their care coordination)
- Other – Please specify: (text box)

98. To what extent does your organization’s EHR system(s) currently equip your providers to utilize the following HIE mechanisms to exchange patient health information with providers outside your organization? (5-point scale – Not at all, Very little, Neutral, Somewhat, To a Great Extent)

- Direct exchange
- Query-based exchange
- Consumer-mediated exchange

Some providers have indicated a desire to receive electronic alerts or notifications if their patients are hospitalized or use the emergency room so that they can obtain appropriate patient records, such as a clinical care summary, care plan, and/or medication list.

99. Does your organization have a process to receive notifications from hospitals when your patients experience inpatient and/or emergency room admissions, discharges, and transfers (ADT)?

- Yes
- No – *Skip to Question 32 (next section)*

100. How does your organization receive those ADT notifications (i.e., what proportion of the notifications your organization receives via the following mechanisms)?

- Fax _____ (%)
- Telephone _____ (%)
- E-mail (regular) _____ (%)
- Secure direct messaging (e.g., IHIN Direct message) _____ (%)
- EHR _____ (%)
- Other – Please specify: (text box) _____ (%)

101. How frequently does your organization receive ADT notifications? (check only one)

- Real-time as ADT events occur
- Daily
- Weekly
- Other – Please specify: (text box)

102. How does your organization use the ADT notification information? Check all that apply.

- We don't use this information
- Make contact with patient
- Inform the primary dental provider of the patient
- Other – Please specify: (text box)

103. Who are the primary users of the ADT notification information? Check only one.

- Provider
- Scheduling clerk
- Other – Please specify: (text box)

104. Does your organization receive ADT notifications for all of your patients or a particular group of patients?

- All of our patients
- A particular group or groups of patients (e.g., particular) – Please specify: (text box)

105. Does your organization have processes in place to make referrals to these social services for your patients as needed? If so, what method of communication is routinely used to coordinate the services?

| Social Services | No Refer- rals for this service | Fax | Phone | Secure direct mes- saging | Other method (please specify) |
|--|---------------------------------------|-----|-------|------------------------------|----------------------------------|
| AA. Crisis assistance | | | | | |
| A1. Domestic violence crisis | | | | | (text box) |
| A2. Natural disaster crisis | | | | | (text box) |
| A3. Mental health crisis | | | | | (text box) |
| A4. Behavioral health crisis | | | | | (text box) |
| A5. Substance abuse crisis | | | | | (text box) |
| AB. Counseling/Mental health care | | | | | (text box) |
| AC. Substance abuse treat- ment (including drug and alcohol) | | | | | (text box) |
| AD. Smoking cessation | | | | | (text box) |
| AE. Nutrition, weight, and exercise counseling | | | | | (text box) |
| AF. Housing assistance | | | | | (text box) |
| AG. Food assistance | | | | | (text box) |
| AH. Clothing assistance | | | | | (text box) |
| AI. Transportation assis- tance | | | | | (text box) |
| AJ. Childcare assistance | | | | | (text box) |
| AK. Legal assistance | | | | | (text box) |
| AL. Workforce assistance | | | | | (text box) |
| AM. Other social ser- vices – Please specify: (text box) | | | | | (text box) |

Medicaid has begun recommending health risk assessments (HRA) for individuals enrolled in the Medicaid Wellness Plan. There are many different types of HRAs that can be conducted. The completed patient risk assessments can be shared with the primary care provider so that care needs are addressed during a visit.

106. Do the providers at your organization use standardized HRAs?

- Yes
- No – *Skip to Question 35*

107. What HRAs does your organization use? Check all that apply.

- The Iowa Medicaid HRA (i.e., AssessMyHealth)
- Wellmark HRA
- Other HRA – Please specify: (text box)
- We develop our own HRA
- Don't know

Iowa Medicaid's **Health Home** program is based on the patient-centered medical home (PCMH) model. The goal is to target members with chronic conditions, engage them in their health, coordinate their care, and show improvement in the health of this population. Providers must meet standards outlined by the State and seek PCMH Recognition or Accreditation within 12 months of enrolling in the program. Demonstrate evidence of acquisition, installation and adoption of an electronic health record (EHR) system and establish a plan to meaningfully use health information in accordance with the Federal law. To facilitate a team-based, community focused approach, providers participating as a Health Home must connect to the Iowa Health Information Network (IHIN).

108. Is your organization a Health Home?

- Yes – *Skip to the end*
- No

109. Is your organization interested in becoming a Health Home?

- Yes
- No
- Not sure

110. Would your organization like to be contacted and receive more information about the Health Home program?

- Yes
- No
- Not sure

THANK YOU for taking the time to complete this survey!!