The Centers for Medicare & Medicaid Services' Office of Research, Development, and Information (ORDI) strives to make information available to all. Nevertheless, portions of our files including charts, tables, and graphics may be difficult to read using assistive technology.

Persons with disabilities experiencing problems accessing portions of any file should contact ORDI through e-mail at ORDI_508_Compliance@cms.hhs.gov.

Contract No.: 500-00-0033/T.O. 05
MPR Reference No.: 6138-155

MATHEMATICA
Policy Research, Inc.

Using Payment Incentives to Improve Care for the Chronically Ill in Medicare: First Year Implementation of the Medicare Care Management Performance Demonstration (MCMP)

March 4, 2009

Suzanne Felt-Lisk
Christopher Fleming
Brenda Natzke
Rachel Shapiro

Submitted to:

U.S. Department of Health and Human Services
Centers for Medicare and & Medicaid Services
C3-23-04 Central Building
Mail Stop C3-19-07
7500 Security Blvd.
Baltimore, MD 21244-1850

Project Officer:
Lorraine Johnson

Submitted by:

Mathematica Policy Research, Inc.
600 Maryland Ave., SW, Suite 550
Washington, DC 20024-2512
Telephone: (202) 484-9220
Facsimile: (202) 863-1763

Project Director:
Lorenzo Moreno

ACKNOWLEDGMENTS

This report was made possible by many administrative and clinical health professionals in the practices participating in the demonstration—who have very busy schedules—taking time to share their experiences with us. Lorraine Johnson oversaw this work for CMS, and she and other colleagues at CMS and the Agency for Healthcare Research and Quality provided helpful comments on an earlier draft of this report, as did Lorenzo Moreno and Beth Stevens of MPR. Arnold Chen of MPR and Robert Miller of the University of California, San Francisco led some of the site visits on which the report is based. Jeffrey Holt provided programming support for the descriptive overview of the first year of the demonstration. Betty Teller edited the report, and Donna Dorsey produced it.

CONTENTS

Chapter **Page**

Chapter **Page**

Chapter **Page**

TABLES

EXECUTIVE SUMMARY

The Medicare Care Management Performance Demonstration (MCMP) is a three-year, CMS-sponsored, pay-for-performance demonstration for primary care physician practices in four states: Arkansas, California, Massachusetts, and Utah. The goals are to improve quality and coordination of care for chronically ill Medicare beneficiaries and to promote adoption and use of health information technology (IT) by small- to medium-sized primary care physician practices. The demonstration responds to the requirement in Section 649 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) that the Secretary of the U.S. Department of Health and Human Services establish a pay-for-performance (P4P) demonstration program with physicians to meet the needs of eligible beneficiaries through the adoption and use of health IT and evidence-based outcome measures. It must be budget neutral. CMS selected Mathematica Policy Research, Inc. (MPR) as the independent evaluator. The purpose of this first report from the evaluation is to provide an overview of implementation of the demonstration during its first year and to describe the implementation and operational experiences of eight primary care practices in each of the four states participating in the demonstration.

BACKGROUND

Demonstration Structure and Incentives. Under the MCMP demonstration, enrolled physicians practicing primary care are eligible to earn incentive payments for (1) reporting quality measures for congestive heart failure (CHF), coronary artery disease (CAD), diabetes, and the provision of preventive health services during a baseline (predemonstration) period; (2) achieving specified standards on 26 clinical performance measures during the three-year demonstration period; and (3) at their option, submitting clinical quality measures to CMS electronically using an electronic health record (EHR) that meets industry standards specified by the Certification Commission for Healthcare Information Technology (CCHIT). Incentive payments, paid out annually in a lump sum to the practice or designee, are calculated on a per-patient basis depending on performance, then multiplied by the number of relevant chronically ill Medicare fee-for-service beneficiaries. The maximum any single practice could receive is $192,500 over the three years of the demonstration. In the first year of the demonstration, practices submitted the baseline data and received a corresponding incentive for reporting them.

Goals of the Evaluation. The main goal of the evaluation is to provide CMS with valid estimates of the incremental effect, or *impact*, of providing performance-based financial

incentives on the quality of care, use of Medicare-covered services, adoption and use of health IT, and Medicare costs of the chronically ill Medicare beneficiaries served by the demonstration practices. The evaluation also includes an implementation analysis and a synthesis. The implementation analysis is studying the experience of practices with the demonstration's reporting and incentives, their experience with adopting and using health IT and care management processes, and the factors that helped or hindered the practices' efforts. Finally, the synthesis will combine the practice-specific analyses, using impact estimates and implementation analysis findings, to draw inferences about the types of practices that appear to be most successful. It will also examine the generalizability and scalability of the demonstration.

Data Sources and Methods. During late June and September 2008, a two-person research team met in-person for one to two hours with practitioners and staff from eight demonstration practices in each state.[1] The visited practices in each state were selected to be geographically feasible to visit in a single visit (though not all in the one city), and to provide a mix in terms of urban/rural location, number of physicians, number of fee-for-service Medicare beneficiaries in total, and number of beneficiaries with each condition.

Topics were (1) experience with the demonstration and their perspectives on it, (2) response to the demonstration, (3) adaptation of practice operations as health IT is implemented and effects observed, (4) factors helpful and harmful to adopting and implementing health IT, (5) context—other incentives, reporting programs, and health IT initiatives that may affect implementation and participation, (6) adoption of care management, and (7) quality performance awareness and improvement. Detailed documentation was prepared for each practice and a statewide synthesis drafted within a few weeks following each visit (see Part II). Based on reviewing the syntheses, we identified overall themes and then coded each practice on relevant themes and facts based on our detailed notes, in order to prepare the counts to support cross-site synthesis (see Chapter III). In addition, secondary data sources were utilized, including demonstration data on enrollment and withdrawals, practice application data, and the Area Resource File. The Office Systems Survey (OSS), collected by another CMS contractor, provided information on practices' use of health IT as of 2007.

RESULTS

Overview of First-Year Implementation. Medicare's Quality Improvement Organizations (QIOs) enrolled 699 physician practices in the demonstration prior to the start date of July 1, 2007. A year later, approximately 640 were participating, serving more than 177,000 beneficiaries with chronic conditions in the four participating states. The nine percent of practices that withdrew or were disenrolled in the first year were predominantly solo practitioners and/or practices in medically underserved areas. Some of these practices may have been disenrolled because they closed or re-organized. The reasons for withdrawal are unknown at this time, but will be explored through telephone contacts to a sample of withdrawn practices.

[1] The one exception was a practice whose key personnel did not show up for the appointment nor make themselves available to reschedule; we substituted another practice and conducted the discussions by telephone.

First-Year Implementation as Experienced by the 32 Visited Practices. Practices we visited often commented on value of the baseline data submission process in terms of generating greater awareness of care and/or documentation gaps. They also frequently complimented QIO staff for their responsiveness to questions during the process.

At the same time, the data submission effort was labor-intensive, according to many visited practices; five had calculated that the cost of their effort was greater than the incentive payment they received for reporting the quality measures. Several were unsure if they would submit data in the coming year, because they were uncertain whether the potential reward was worth the effort. Half of these tentative practices consisted of solo practitioners. Many practices with EHRs felt frustration as their EHRs did not facilitate submission very well, due to system limitations, variations in use within the practice, or both. The level of awareness of the demonstration among physicians in the visited practices was low (one or fewer physicians knowledgeable) in at least a third of the practices. Physicians involved in other pay-for-performance programs were often unable to distinguish MCMP from other programs.

Response to the Incentives. More than half the visited practices reported that the demonstration had in some way prompted increased emphasis on the demonstration measures or related guidelines. A majority reported improved documentation of care, and about half reported at least one specific action other than improved documentation. The generally modest responses these practices undertook included enhancements or improved use of EHR systems, increased outreach to beneficiaries, and/or changes in the care process.

Prospects for Future Change. Practices are interested in continuing to improve use of their EHR for care management, although the changes are likely to be incremental and slow. At present, purchased EHR products must often be customized if they are to provide good support for care management; many visited practices either lacked the ability or support to customize their EHRs, or were waiting for a new/upgraded system with better capability. Others visited had been able to customize their EHRs, but had not yet been able to establish a practice-wide process for accomplishing care management. Day-to-day pressures and the tradition of largely autonomous practice within group practice arrangements suggest that incremental rather than transformational changes are a realistic goal for most practices. Nearly half the visited practices identified some form of increased patient engagement or outreach as the next step they would take in improving care management.

Factors Outside the Practice Influencing Pace and Types of Change. Several factors outside the practice appear to be influencing the pace and types of change: (1) the decisions of larger organizations that are affiliated with or own many of the practices, (2) incentives from other payers, and (3) the timing and success of EHR product developments. When practices are affiliated with or owned by larger organizations, the larger organizations often control the distribution of MCMP and other payers' incentives to the practices (if any) and heavily influence EHR use, care management, and/or demonstration response. The influence of incentives from other payers was seen mostly in Massachusetts, where three-fourths of the visited practices described a specific response to the demonstration beyond improved documentation, compared with half or fewer in the other states. In Massachusetts, other payers' initiatives—specifically provider network tiering and pay-for-performance programs—were clearly a factor in the

practices' interest in improving their use of EHRs and adopting care management. EHR product developments may affect the timing of changes, since 9 of the 24 practices with EHRs were expecting to implement a new system or upgraded EHR. Of the eight visited practices without EHRs, two were expecting to implement one within the next two years.

CONCLUSION[2]

In its first year, the demonstration successfully managed the submission of baseline clinical data from more than 90 percent of the practices that initially enrolled in the demonstration, garnering positive comments about the support provided during the submission process and the value of the process in terms of generating greater awareness of care and/or documentation gaps in the participating practices. However, the high level of effort required for practices to submit the data became clear through the data submission process, and is a significant threat to continued high participation rates for the demonstration, as practices contemplate whether the potential reward is worth the submission effort.

The site visit reports highlight the effort required and the complexity of assembling all the necessary pieces to support effective care management in primary care, from establishing system capability to effecting workflow changes in the office across all practitioners. In addition, factors outside both the practices and the demonstration, such as EHR product quality, other payers' initiatives (or lack thereof), and the agendas of larger organizations that own some of the practices, influence the practices' interest in improving use of EHRs and adopting more care management. Given this reality, along with a low level of awareness of the demonstration in about a third of the practices, the demonstration may be realistically expected to prompt incremental rather than large care improvements. Thus, the likelihood of observing short-term impacts on key outcomes measured through claims, such as expenditures measures and those quality measures where documentation improvements will not help the practices, may be low.

That being said, most practices were moving in a positive direction. While improving documentation was the most common response to the demonstration, those actions may at the same time improve patient care, as care needs are discovered in the course of completing missing documentation. Further, a subset of practices (14 of 32) could point to at least one other type of action already taken as a result of the demonstration with potential to help improve performance, and most had in mind next steps that they would like to take to improve further, particularly toward more and better patient engagement/outreach.

For now, practices generally view the demonstration as in keeping with "where health care is going," and many told us that their interest in improving care, not just the potential financial reward, motivated them to participate. But practices are not monolithic, and it is likely that we typically spoke with the most motivated people in the practice. Clearly these leaders could benefit from tips and ideas on how to spread their techniques and enthusiasm more broadly

[2] Note that findings are based on a relatively small sample of practices selected non-randomly, and therefore cannot be assumed to hold for the full set of demonstration practices.

within their practices, given the relatively individualistic, autonomous subcultures that exist. In addition, some practices are developing a wealth of experience on the use of medical assistants to facilitate care management and improve documentation and EHR use; this could be shared with those practices that have not yet attempted to change their workflow.

In conclusion, MCMP appears to have prompted positive operational changes in many of the visited practices, although to date the changes are typically inconsistently applied based on practitioner and staff time and interest. Many practices would like to do more if their time and systems permit. Only time will tell if the system upgrades many are expecting to facilitate better use of EHRs and care management will materialize in time for additional response to occur during the demonstration timeframe.

PART I

SYNTHESIS REPORT

CHAPTER I

INTRODUCTION

The Medicare Care Management Performance Demonstration (MCMP) is a three-year pay-for-performance demonstration for primary care physician practices in four states: Arkansas, California, Massachusetts, and Utah. The goals are to improve quality and coordination of care for chronically ill Medicare beneficiaries and to promote adoption and use of information technology by small- to medium-sized primary care physician practices. The demonstration responds to the requirement in Section 649 of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) that the Secretary of the U.S. Department of Health and Human Services establish a pay-for-performance (P4P) demonstration program with physicians to meet the needs of eligible beneficiaries through the adoption and use of health IT and evidence-based outcome measures. It must be budget neutral. Under the demonstration, enrolled practices must submit quality measure data each year; in return they receive a pay-for-reporting amount during the first year for reporting baseline data, followed by a demonstration payment based on their quality scores after each demonstration year. They can receive an additional payment amount by reporting their data electronically via an electronic health record (EHR) that is certified by the Certification Commission for Health Information Technology (CCHIT).

The Centers for Medicare & Medicaid Services (CMS) selected Mathematica Policy Research, Inc. (MPR) as independent evaluator of the demonstration. The main goal of the evaluation is to provide CMS with valid estimates of the incremental effect, or *impact*, of providing performance-based financial incentives on the quality of care, use of Medicare-covered services, adoption and use of health IT, and Medicare costs of the chronically ill Medicare beneficiaries served by the demonstration practices. The evaluation also includes an implementation analysis to study the implementation of the demonstration and the operational responses of the demonstration practices; and a synthesis analysis, which will use impact estimates and implementation analysis findings to draw inferences about the types of practices that appear to be most successful (Moreno et al. 2007). As required by CMS, the synthesis will be the basis for a CMS report to Congress and will be included in the final evaluation report.

The purpose of this first report from the evaluation is to describe implementation of the demonstration during its first year and to describe the implementation and operational

experiences of eight primary care practices in each of the four states participating in the MCMP demonstration. Within Part I, Synthesis Report, Chapter I is introductory, Chapter II provides an overview of implementation and demonstration practice characteristics, Chapter III synthesizes our findings from practice contacts across states, and Chapter IV offers a brief conclusion and discussion of implications and items to watch as the demonstration and evaluation continue. Part II provides a summary of site visit findings for each of the four states. Appendix A displays the characteristics of the demonstration practices that were visited and those that were not visited.

A. THE DEMONSTRATION IN CONTEXT

The United States is facing continuing cost increases in health care with no relief in sight (Draper and Ginsburg 2007). Yet despite high overall system cost, individuals often do not get recommended services (McGlynn et al. 2003). Chronic care represents a strong target for improvement on both cost and quality fronts. According to analysis by the Congressional Budget Office, more than three-fourths of high-cost beneficiaries had one of seven chronic conditions in 2001 (CBO 2005). And beneficiaries with chronic conditions receive recommended care only 56 percent of the time and may experience potentially avoidable admissions (McGlynn et al. 2003, MedPAC 2006). Also, the fragmentation of the current health care system is likely to adversely affect their care more than healthier groups. Patients with chronic conditions rely heavily on primary care physicians to help manage their conditions.

- The MCMP demonstration establishes a pay-for-performance program with physicians to help meet these well-established needs among eligible Medicare beneficiaries. There is widespread consensus that financial incentives offer a critical tool for improving the "value" (combination of cost and quality) of our health care (IOM 2006). But a clear understanding of the shape and size that such incentives should take to be most effective remains elusive. Most pay-for-performance efforts have not been analyzed with rigorous enough methods to yield conclusions; those that have been showed modest and narrow positive effects (Christianson et al. 2007). Of note, however, is a recent study of 79 physician groups under pay-for-performance in Massachusetts (an MCMP demonstration state), which found that physician practices with a pay-for-performance incentive on a measure were more likely to have taken a specific quality improvement action to improve performance on that measure (Mehrotra et al. 2007).

In this context, the MCMP demonstration makes a unique contribution in several respects. It:

- ***Tests pay-for-performance in a fee-for-service environment.*** While pay-for-performance has become relatively common among private sector managed care firms (with a 2007 survey documenting at least 138 programs [Baker and Delbanco 2007]), there has previously been little use of such incentives outside managed care.

- ***Focuses on small- to medium-sized practices.*** While some movement toward consolidation has occurred, small practices continue to provide a large proportion of physician care in the U.S. (Liebhaber and Grossman 2007); it is critical to understand

whether and in what specific ways financial incentives can influence these practices. The most-studied pay-for-performance programs have involved medical groups rather than individual practices.

- ***Was structured to recognize the interrelationship between health IT and quality improvement and reporting,*** and is positioned to evaluate it. In a large California private sector pay-for-performance program, medical groups that met the program's criteria for use of health IT in 2006 scored 18 percent better on clinical measures than those with no health IT (IHA 2007). To be eligible for MCMP, practices must have participated in the Doctors Office Quality–Information Technology (DOQ-IT) program, in which Medicare's QIOs assisted participating physician practices to adopt electronic health records and move toward using them for quality improvement. Also, the additional payment for electronic submission of data under the demonstration encourages adoption of electronic health records systems among participating practices. While no EHR was required for participants of the DOQ-IT program, and none is required for MCMP participation, the two links above result in a demonstration that (1) is built upon a set of practices that is at least aware of the potential uses of EHRs and is often using them, and (2) provides encouragement for practices to develop electronic quality measure reporting capability, a capability which can also be used for internal monitoring of their performance. Such internal monitoring can, in turn, serve them well toward meeting their quality improvement goals under the demonstration.

B. DEMONSTRATION DETAILS: TARGETED PRACTICES AND INCENTIVE STRUCTURE

1. Targeted Practices

The MCMP demonstration targeted practices serving at least 50 traditional fee-for-service Medicare beneficiaries with selected chronic conditions for whom the practices provide primary care. Under this demonstration, physicians practicing primary care[3] in practices with 10 or fewer physicians (although there may be exceptions) are eligible to earn incentive payments for (1) reporting 26 quality measures for congestive heart failure (CHF), coronary artery disease (CAD), diabetes, and the provision of preventive health services during a baseline (predemonstration) period; (2) achieving specified standards on clinical performance measures during the three-year demonstration period; and (3) at their option, submitting clinical quality measures to CMS electronically using an electronic health record (EHR) that meets industry standards specified by the Certification Commission for Healthcare Information Technology (CCHIT).

[3] The following physician specialties are eligible to participate in the MCMP demonstration if they provide primary care: general practice, allergy/immunology, cardiology, family practice, gastroenterology, internal medicine, pulmonary disease, geriatric medicine, osteopathic medicine, nephrology, infectious disease, endocrinology, multispecialty clinic or group practice, hematology, hematology/oncology, preventive medicine, rheumatology, and medical oncology.

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) authorized a total of four demonstration sites in both urban and rural areas.[4] CMS chose Arkansas, California, Massachusetts, and Utah as the four demonstration states. The QIOs in these four states recruited the practices based on relationships built through CMS's DOQ-IT project. Only practices participating in DOQ-IT were eligible to participate in the demonstration. Recruitment of demonstration practices began in January 2007. The demonstration began on July 1, 2007, and will end in June 2010.

Demonstration practices are defined by one or more tax identification numbers (TINs). Physicians will be linked to each practice using individual Medicare provider identification numbers (PINs). Medicare beneficiaries who live in a demonstration state and are treated for the targeted conditions by primary care providers or by medical subspecialties likely to provide primary care, and who are covered under traditional fee-for-service Medicare for both Part A and Part B coverage, will be identified as linked to these practices.[5] Through several contractors, CMS collects data from the practices on the clinical measures for the baseline period and all three years of the demonstration.

2. Incentive Structure

The demonstration practices are eligible to receive up to three incentive payments: (1) an initial payment for reporting baseline clinical quality measures, (2) an annual payment for performance based on practices' score on clinical quality measures, and (3) an additional bonus if measures are reported from a CCHIT-certified EHR.

First, in year 1, they will receive an incentive of $20 per beneficiary per category (up to $1,000 per physician, to a maximum of $5,000 per practice) for reporting baseline clinical quality measures. The payment is set low relative to amounts available in future years because it is only for reporting—the practice's score on the quality measures is irrelevant, and all practices who report will receive the same amount.

Second, after each of the three demonstration years, based on the clinical measures data that the practices report, CMS will calculate a composite score for each chronic condition (as well as the preventive measures), based on the sum of the points achieved for each measure associated with that condition, divided by the maximum possible points. To score full points for a measure,

[4] In addition, the statute requires that one site be "in a state with a medical school with a Department of Geriatrics that manages rural outreach sites and is capable of managing patients with multiple chronic conditions, one of which is dementia."

[5] Beneficiaries for whom Medicare is not the primary source of insurance coverage or whose care is managed by a hospice program will be excluded from the demonstration. In addition to three primary target chronic conditions—congestive heart failure, coronary artery disease, and diabetes mellitus—the other eligible conditions are Alzheimer's disease or other mental, psychiatric, or neurological disorders; any heart condition (such as arteriosclerosis, myocardial infarction, or angina pectoris/stroke); any cancer; arthritis and osteoporosis; kidney disease; and lung disease. These conditions are identified through ICD-9-CM diagnosis codes available in Medicare claims data (Wilkin et al. 2007).

practices must achieve measure values in the top quartile of the most recent HEDIS®[6] data for the measure. Where HEDIS standards are not available for a measure, a 75 percent compliance rate will be used as the threshold for full points. Practices achieving between a 30 and 90 percent composite score for a condition will receive prorated incentive amounts, while those achieving at least 90 percent will receive the maximum incentive amount. For the second and third year, the minimum composite score to receive payment will increase to 40 and 50 percent, respectively. Physicians will be eligible for payments of up to $70 per beneficiary for meeting standards related to a specific chronic condition. Beneficiaries who have more than one condition will be counted in each of the relevant groups. For preventive services, physicians will be eligible for a payment of up to $25 per beneficiary with any chronic condition. Physicians will be eligible to earn up to $10,000 per year for performance on all clinical measures. The maximum annual payment to any single practice will be $50,000, regardless of the number of physicians in the practice.

Third, practices with a CCHIT-certified EHR system that can extract and submit performance data to CMS electronically will be eligible to increase the incentive payment by up to 25 percent, or $2,500 per physician (up to $12,500 per practice) per year during the demonstration period for electronic submission. Thus, practices could receive up to $192,500 over the three years of the demonstration (including the baseline period).

C. DATA SOURCES AND METHODOLOGY

Chapter II of this report draws on several data sources to provide an overview of demonstration implementation and practice characteristics in each state. We first list these sources, then explain the methodology used for the practice contacts that form the basis for Chapter III and Part II.

1. Secondary Data Used in Chapter II

Office Systems Survey. The Office Systems Survey (OSS) instrument was created for the DOQ-IT program (which preceded the MCMP, as noted above) to capture a detailed picture of physician offices' use of electronic health records, registries, and e-prescribing systems. Demonstration practices completed the Office Systems Survey in fall 2007. OSS data used in Chapter II include the number of physicians in each practice and information on their use of health IT. Nearly all the demonstration practices completed this survey, as it is required for continuing participation.

Demonstration Data from ARC. Another CMS contractor, Actuarial Research Corporation (ARC), maintains the database of practices enrolled in the MCMP demonstration and the baseline data submitted by them, and processes CMS claims data to identify qualifying chronically ill beneficiaries served by each practice. ARC provided these data to us and we used

[6] Healthcare Effectiveness Data and Information Set. HEDIS is a registered trademark of the National Committee for Quality Assurance (NCQA).

them to count the number of participating practices and withdrawals, identify whether withdrawn practices submitted baseline data, and calculate descriptive statistics on the number of chronically ill patients served by each practice.

Area Resource File. The Area Resource File (ARF) was used to identify urban/rural location based on metropolitan vs. non-metropolitan counties (a crude but commonly used measure of rurality). The ARF also told us which practices were located in medically underserved areas.

Practice Application Data. Practice names and notes from the practice application form were used in Chapter II to count the number of practices that were part of a larger medical group or integrated health system. On the application form, practices were asked to use the notes section to indicate other information about their practice such as multiple locations, affiliations, and services provided. While certainly not complete, this field was populated with enough information about affiliations that we deemed it useful to identify when practices were part of a larger organization so as to discern a minimum overall level of control by larger organizations among the demonstration practices and identify any major differences apparent by state.

HMO Penetration. Statewide HMO penetration for July 2007 was drawn from Kaiser Family Foundation's State Health Facts website.[7] They calculated HMO penetration figures based on industry (InterStudy HealthLeaders) and census data. HMOs have historically been leaders both in providing information to practices about which patients are and are not receiving recommended services, and in incentivizing practices for improvement. HMO penetration is relevant here because practices in heavy managed care environments may be more familiar with and interested in care management.

2. Practice Contacts Methodology

For each state we selected eight demonstration practices for case study. Demonstration practices were visited by a two-person team in person during late June (two states) and September (two states) 2008.[8]

To select practices for site visits, we reviewed data from the applications database (provided by ARC) and their location on a road atlas to identify eight demonstration practices in each of the four states that we could feasibly visit on a single site visit, and that would provide a mix in terms of urban/rural location, number of physicians, number of fee-for-service Medicare beneficiaries in total, and number of beneficiaries with each condition. To be more specific, drawing from the practice applications database, we first created a table for each state that displayed practice name, city, number of physicians, Medicare FFS beneficiaries, number of

[7] http://www.statehealthfacts.org/comparemaptable.jsp?ind=349&cat=7

[8] The one exception was a practice whose key personnel did not show up for the appointment nor make themselves available to reschedule; we substituted another practice and conducted the discussions by telephone.

beneficiaries with each target condition, and the practice organization description.[9] Next, for three states (Arkansas, Utah, and Massachusetts), we located all demonstration practices on a road atlas before selecting areas of the state to visit, and categorized the practices into rough geographic regions. We then selected two regions to visit in each state, re-sorted the table by region for easier review, and selected practices within each region. In California, because of its size, we selected two base cities to visit first—one in northern and one in southern California.

In reviewing practice names and descriptions, in many cases it was evident that the practice was owned or managed by a particular practice group; if so we made an effort to ensure a range of both independent and owned/managed practices. After we had tentatively selected sites, we reviewed their Office Systems Survey (OSS) data to ensure a mix of health IT experience.

We were able to visit 22 of the 32 originally selected practices, and successfully secured replacements for the rest. When replacements were necessary, we selected substitutes that as closely as possible matched the characteristics of the originally selected practice that declined a site visit.

Normally, discussions were held with at least two people per practice—a physician and another person most knowledgeable about the demonstration. Often, the other person most knowledgeable about the demonstration was the office manager, but sometimes it was a nurse or administrative staff member who had prepared the data for submission. The discussions lasted one to two hours per practice, depending on the situation. At times, practices on their own initiative included additional physicians, administrators, nurses, or corporate staff to add to the discussion. In two cases, solo practitioners themselves were the only interviewees; staff that had previously helped them submit data to the demonstration had left their employment.

Key topics covered during discussions with demonstration practices were:

- Experience with the demonstration and their perspectives on it
- Adaptation of practice operations as health IT is implemented, and effects observed
- Factors that helped or hindered practices in adopting and implementing health IT
- External factors that may affect the demonstration's impact, such as other incentives, reporting programs, and health IT initiatives
- Experience with care management processes, and their views on care management
- Quality performance awareness (such as whether the practice tracks its own performance or reviews performance reports from other payers)

[9] The practice organization descriptions vary but usually mention ownership, range of services, and/or location information, for example, one says "4 locations, hospital-owned clinic, primary and specialty services [lists the services])" and another says "offer full spectrum of care – managed by Intermountain Healthcare."

These topics were specifically adapted for those practices that had no health IT in place, where the discussion also included details about their views on and any plans for adopting health IT. In regard to the topic of practices' experience with the demonstration, note that in the first year, the only responsibilities of demonstration practices were to complete the OSS survey and submit baseline data. For our discussions, we selected only practices that had completed the OSS,[10] so the main topic pertaining to demonstration experience was submission of baseline data. The topics of care management and health IT were explored as information on these topics from the two rounds of site visits may offer insights on the reasons for findings from our impact analysis to be conducted later in the evaluation.

Detailed documentation was prepared for each practice and a statewide synthesis drafted within a few weeks following each visit. Based on reviewing the syntheses, we identified overall themes and then coded each practice on relevant themes and facts based on our detailed notes in order to prepare the counts embedded throughout the text of Chapter III.

[10] Of the 699 practices that were participating in MCMP as of July 1, 2007 (the first day of the demonstration), 679 completed the Office Systems Survey.

CHAPTER II

OVERVIEW OF IMPLEMENTATION

Understanding the characteristics of the demonstration practices and their practice environment lays a critical foundation for generating and interpreting impact analysis findings later in the evaluation. Monitoring the extent and characteristics of withdrawn practices may also help CMS understand the dynamics of participation in pay-for-performance programs by small practices, a topic of great relevance as CMS plans to expand these types of efforts. This chapter begins with a summary of the number of practices and associated beneficiaries in the demonstration. The remainder of the chapter describes the practice environment and practice characteristics of demonstration practices—including practice size, use of health information technology (health IT), practice caseload, and affiliations. The chapter ends with a summary of major differences by state. Except at the beginning of the chapter, the chapter describes the set of practices participating as of July 1, 2008 in order for the information to be most relevant going forward.

A. SCOPE OF THE DEMONSTRATION

Medicare's Quality Improvement Organizations (QIOs) enrolled 699 physician practices in the demonstration prior to the start date of July 1, 2007 (Table II.1). A year later, 640 were participating, serving more than 177,000 beneficiaries with chronic conditions in the four participating states.

About 9 percent of the enrolled practices withdrew or were disenrolled in the first year. Some practices were disenrolled because they merged with other practices; others closed. (Table II.2). In terms of their practice characteristics, practices that withdrew or were disenrolled tended more frequently to be solo practitioners and serve far fewer chronically ill Medicare beneficiaries per practice, and were mostly located in medically underserved areas (69 percent of the withdrawals vs. 15 percent of those that remained). Although the withdrawn (or disenrolled) practices were predominantly solo practitioners in three of the four states, this was not the case for California, where only 10 of the 26 withdrawing practices were solo practitioners. A sample of those that withdrew will be interviewed in the coming year to ascertain their reasons for withdrawal. This information will be included in the final evaluation report.

Table II.1. Number of MCMP Demonstration Practices and Assigned Beneficiaries

	Total	Arkansas	California	Massachusetts	Utah
Number of participating practices as of:					
July 1, 2007	699	106	236	236	121
July 1, 2008	640	96	210	218	116
Number of beneficiaries with chronic conditions assigned (based on July 2007-June 2008 data) to those practices remaining July 1, 2008*	177,939	36,769	51,161	55,573	34,436

*No beneficiary counts were available for two practices in Arkansas, two in Utah, or one in California; these practices did not submit clinical baseline data, therefore they are not participants in the second demonstration year.

Table II.2. Selected Characteristics of Participating vs. Withdrawn[a] Practices

	Overall		Arkansas		California		Massachusetts		Utah	
	P	W	P	W	P	W	P	W	P	W
Number of Practices	640	62	96	9	210	26	218	22	116	5
% Urban	84	92	40	67	97	92	100	100	70	100
% Practices in Medically Underserved Area	15	69	47	89	12	89	7	50	6	20
Mean # Beneficiaries w/Chronic Conditions per Practice	278	180	406	183	233	134	298	216	302	257
% Solo Practitioners	31	49	40	56	34	38	29	55	24	80
% with Health IT[b]	83	na	89	75	80	86	92	na	85	na

[a] Includes both practices that withdrew voluntarily and those that were disenrolled because they closed or merged with another practice. The number of participating plus withdrawn practices does not equal the number of practices as of July 1, 2007 because several practices split administratively after the start of the demonstration. That is, in several cases, multiple practice sites that originally applied to the demonstration as a single practice were approved to be considered as separate practices.

[b]Practice has an EHR, and/or uses electronic software to generate prescriptions, and/or uses a stand-alone electronic registry to track patients with chronic illness, as reported in the Office Systems Survey, Fall 2007. Figures for Massachusetts and Utah are not shown because data on health IT were only available for two and one of the withdrawn practices, respectively. Due to the missing data for these states, the overall figure for withdrawn practices is also not shown.

B. PRACTICE ENVIRONMENT OF THE DEMONSTRATION

Geographic Location. Demonstration practices in two of the participating states (Massachusetts and California) are nearly all urban practices, while demonstration practices in the other two states are mixed and include many rural as well as urban practices. Arkansas is the only state in which most of the demonstration practices are rural (Table II.3).

Table II.3. Practice Environment of the Demonstration

	Overall (N=640)	Arkansas (N=96)	California (N=210)	Massachusetts (N=218)	Utah (N=116)
% Urban	84	40	98	99	70
% in a Medically Underserved Area	15	47	12	8	6
Statewide HMO Penetration (percent of state population in an HMO)	na	3	47	35	30

Medically Underserved Areas. Nearly half (47 percent) of demonstration practices in Arkansas are located in medically underserved areas. The percentages in the other states are far lower, with only 6 to 12 percent in underserved areas.

Statewide HMO Penetration. In California, nearly half of the state's residents are in HMOs (47 percent). At the other extreme, only 3 percent of Arkansas residents are in HMOs. Massachusetts and Utah also have high HMO penetration relative to most states in the U.S., but less than California (35 and 30 percent, respectively). California, Massachusetts, and Utah represent the second-, fourth-, and seventh-highest HMO penetrations in the country. Managed care organizations have tended to implement pay-for-performance efforts and send lists to encourage practices to follow up with patients needing recommended services, therefore HMO penetration may give a crude indication of whether practices in the state are likely to have experience with these types of initiatives (Baker and Delbanco 2007).

C. PRACTICE SIZE

The percentage of demonstration practices that are solo practitioners ranged from 24 percent in Utah to 40 percent in Arkansas. The four states were similar in the proportion of demonstration practices with two to 10 physicians. Between 59 and 66 percent of demonstration practices were this size. A small minority of practices in all the states had more than 10 physicians; Utah had the highest percentage, with such practices accounting for 9 percent of demonstration practices.

Table II.4. Practice Size

	Overall (N=636)	Arkansas (N=96)	California (N=210)	Massachusetts (N=214)	Utah (N=116)
Mean # Physicians	3.9	3.1	4.0	3.8	4.8
% Solo Practitioners	31	40	34	29	24
% with 2-3 Physicians	28	28	22	32	34
% with 4-10 Physicians	35	31	40	34	33
% with >10 Physicians	5	1	4	6	9

D. HEALTH IT PENETRATION[11]

Across the demonstration, 83 percent of demonstration practices reported using health information technology (health IT) as of fall 2007, meaning an electronic health record (EHR), e-prescribing system, and/or e-registry (Box II.1 and Table II.5). However, the percentage of demonstration practices using any particular type of product or function of health IT is much lower and more variable across states. For example, Massachusetts' high health IT experience number (92 percent) is driven largely by the high proportion of demonstration practices using e-prescribing (77 percent); the percentages in that state using EHRs and registry functions are relatively lower (55 and 38 percent, respectively). In fewer than half of the demonstration practices are physicians reviewing and acting on any reminders of care, and only about one-third are using their EHRs or a stand-alone registry to notify any patients of overdue preventive service visits.[12]

Still, with 63 percent of demonstration practices using an EHR, the demonstration practices have a higher health IT implementation rate than most small- to medium-size practices in the U.S. In late 2007, only 9 percent of physicians in practices with 1 to 3 physicians had any electronic medical record system (DesRoches et al. 2008), whereas the comparable figure for demonstration practices with 1-3 physicians is 69 percent.[13] The relatively high percentage of health IT users in the demonstration reflects the requirement that only practices participating in the DOQ-IT program were eligible to participate in the demonstration.

[11] In this report, we provide an overview of health IT use. The evaluation will be providing CMS with more detailed tables on use of health IT at baseline and followup after the second administration of the Office Systems Survey. For purposes of this report, use of a function is reported if a practice reported using the function for any of its patients.

[12] 310 out of 640 practices (48 percent) reported physicians review and act on EHR-based reminders of care, and 203 out of 640 (32 percent) reported notifying patients of overdue preventive service visits.

[13] In other words, 259 of the 378 demonstration practices with 1-3 physicians had an EHR.

Box II.1. Types of Health Information Technology

Electronic Health Record (EHR): An EHR is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Implementation of specific functions within an EHR system may vary based on the goals set by a practice and could include entering progress notes; providing decision support within the patient encounter; generating lists of patients who need services for follow-up; and using computerized provider order entry for laboratory tests, imaging, and prescriptions.

E-Prescribing System: Electronic prescribing tools are designed to generate prescriptions and to conduct other functions related to medication prescribing, such as checking for drug-drug interactions and drug allergies against a patient's list of current medications. They may either be components of an EHR or comprise a stand-alone system; they sometimes may be hand-held devices. Practices may use e-prescribing to select the medications they are prescribing, and/or to transmit the prescription to a pharmacy.

Electronic Patient Registry (E-Registry): An electronic patient registry is an electronic system, either a component of an EHR or a stand-alone system, that is designed to: identify patients with specific diagnoses or medications; identify patients overdue for specific therapies; facilitate prompt ordering of specific laboratory tests or recommended medications; and facilitate prompt communication with patients requiring follow-up.

Key patterns in health IT use include:

Use of EHR

- Sixty-three percent of demonstration practices used an EHR in fall 2007.
- Viewing laboratory and radiology results for at least some patients, and reviewing and acting on reminders for care, were common among practices using EHRs (86, 79, and 78 percent, respectively).
- Placing laboratory and radiology orders (for any patients) was less common among practices using EHRs (59 and 53 percent, respectively).

State-to-State Differences

- Use of an EHR was highest in Utah (about three-fourths), and lowest in Arkansas and Massachusetts (just over half).
- Utah practices using EHRs were more likely to be placing laboratory and radiology orders than were practices in other states.
- Reviewing and acting on reminders of care activities based on the EHR was less common in Massachusetts than in the other states (68 percent of EHR users vs. 78 to 88 percent in the other states).

Table II.5. Percentage of All Demonstration Practices Using Health IT, by Function, Fall 2007

	Overall (N=639)	Arkansas (N=96)	California (N=211)	Massachusetts (N=216)	Utah (N=116)
Any health IT use (EHR, registry, or e-prescribing)	83	69	80	92	85
EHR Use and Plans					
Uses an EHR	63	54	67	55	76
Plans to begin using EHR within 2 years	35	13	19	18	7
Of practices using an EHR, percent that:					
Use EHR to view laboratory results	86	88	84	80	94
Use EHR to place laboratory orders	59	58	57	54	69
Use EHR to view radiology results	79	79	77	78	84
Use EHR to place radiology orders	53	52	48	48	65
Use EHR to review and act on reminders of care	78	88	78	68	83
E-Prescribing					
Prescribes electronically	67	51	64	77	67
Of practices using e-prescribing, percent that:					
Prescribe using an electronic, stand-alone system	22	12	16	36	8
E-prescribe such that the e-prescribing uses an electronic list of current patient meds	97	96	96	95	99
Transmit prescriptions electronically	55	47	57	59	49
Use of Registry Functions					
Uses any registry function	45	39	49	38	55
Of practices using a registry function, percent that:					
Use stand-alone registry	10	0	17	12	2
Use registry or EHR to notify patients of overdue visits for preventive services	71	70	72	80	58
Use registry or EHR to generate educational info for patients (preventive services)	74	86	58	83	81
Use registry or EHR to list patients needing preventive services	76	70	75	83	70

Source: Office Systems Survey, Fall 2007.

Note: Since all demonstration practices report these data, all differences that appear in the table are real differences in the population of interest (statistical testing is unnecessary).

E-Prescribing

- About two-thirds of demonstration practices (67 percent) used e-prescribing, that is, they used electronic software to generate prescriptions.
- Most practices used e-prescribing within their EHR; only 22 percent of e-prescribing practices used a stand-alone system.
- Nearly all the practices using e-prescribing kept electronic lists of each patient's current medications.
- Only a little more than half the demonstration practices that used e-prescribing (55 percent) actually transmitted any prescriptions to a pharmacy via electronic means. (Note that as of 2008 many pharmacies are not set up to receive electronic prescriptions from physician practices.)

State-to-State Differences

- Use of e-prescribing ranged from about half of demonstration practices in Arkansas to 77 percent in Massachusetts.
- Use of a stand-alone e-prescribing system (that is not within the practice's EHR) was common only in Massachusetts, where 36 percent of the demonstration practices with e-prescribing used such a system.

Use of Registry Functions

- About 45 percent of demonstration practices used an electronic registry to track patients who have a specific chronic illness or receive preventive care for at least one condition.
- Most of the practices that used a registry used it within their EHR; only 10 percent of registry users used a stand-alone system.
- Common uses of the registry included notifying patients of overdue visits, generating educational information for patients, and using the registry to list patients requiring intervention (71 to 76 percent of practices using a registry, demonstration-wide).

State-to-State Differences

- Massachusetts registry users used their registries to notify patients of overdue services (preventive) and to list patients requiring interventions (preventive services) more often than registry users in other states (80 and 83 percent, respectively, in Massachusetts vs. 58 to 72 percent and 70 to 75 percent in other states).
- California practices less frequently used the registries to generate educational information for patients on preventive services (58 percent, vs. 81 to 86 percent in the other states).

E. NUMBER OF ASSIGNED BENEFICIARIES[14] PER PRACTICE

Total Chronically Ill Medicare Fee-for-Service Beneficiaries. The mean total number of assigned Medicare fee-for-service chronically ill beneficiaries per practice was far higher in Arkansas than in the other states—383 compared with 244 in California (and 255 and 297 in Massachusetts and Utah, respectively) (Table II.6). In Arkansas, 56 percent of demonstration practices had 250 or more assigned beneficiaries, compared with only 28 percent in California (and 35 percent in Massachusetts and 38 percent in Utah).

Table II.6. Number of Assigned Beneficiaries per Practice with Chronic Conditions

	Overall (N=640)	Arkansas (N=96)	California (N=210)	Massachusetts (N=218)	Utah (N=116)
Mean # Beneficiaries with Chronic Conditions Per Practice	278.0	383.0	243.6	254.9	296.8
Percent of Practices with >250 Assigned Beneficiaries	38.4	56.3	27.6	34.9	37.9
Mean # Beneficiaries with:*					
Coronary Artery Disease (CAD)	71.1	118.7	52.9	68.4	69.9
Congestive Heart Failure (CHF)	34.8	54.2	28.4	30.8	38.1
Diabetes	106.4	142.6	96.5	93.2	119.4
Other Chronic Condition	214.3	288.5	192.4	202.5	214.6

*Because beneficiaries may have more than one of these conditions, the sum of the means by condition will be more than the mean total per practice.

By Targeted Condition. In all states, diabetes was the most frequent condition of the three targeted conditions, followed by CAD and lastly CHF. However, the extent to which diabetes dominated varied by state. In Arkansas, the mean number of patients with diabetes was only 20 percent higher than the mean number of patients with CAD; in Utah it was 71 percent higher. In all states the mean number of patients per practice with CHF was less than half the mean for diabetes.

Effect of Number of Assigned Beneficiaries on Maximum Potential Incentives. The differences in mean number of assigned beneficiaries by state result in substantial differences in the typical maximum incentive from the demonstration that a physician or practice might expect.

[14] Beneficiaries are assigned to the provider billing the highest number of visits for "office and other outpatient" E&M services during the reporting period (Wilkin et al. 2005).

For a practice in Arkansas with the baseline mean number of beneficiaries in each disease category, the maximum potential incentive would be about $28,245 per year for each of the three pay-for-performance years, or about $9,111 per physician per year. Using mean number of assigned beneficiaries per practice for California, the average maximum potential incentive would be about $18,536 per practice or $4,634 per physician per year. Practices in Massachusetts and Utah fall between these extremes, with about $20,000 and $23,000 maximum incentive per typical practice and about $5,200 and $4,800 per physician per year, respectively.

F. AFFILIATIONS

The practices in the demonstration represent a variety of organizational arrangements. Practice names and/or notes on the application forms indicate that at least 24 to 40 percent in each state are part of a larger medical group or integrated system, with relatively similar figures across three states (32-40 percent) and a lower figure for Arkansas (24 percent) (Table II.7). It is well documented that physicians in larger groups tend to have greater access to information system infrastructure.

In two of the four states—California and Massachusetts—most practices that are not part of a medical group or integrated system are *affiliated* with an Independent Practice Association (IPA), Physician-Hospital Organization (PHO), or medical group. Table II.7 shows that a total of 92 percent of demonstration practices in Massachusetts and 85 percent in California acknowledge an affiliation. While IPAs and PHOs tend to be loose networks, they may still represent potential sources of information or system support for the practice. In contrast, in Utah and Arkansas only 39 and 43 percent of demonstration practices (respectively) are affiliated with an IPA, PHO, or medical group.

Table II.7. Percent of Demonstration Practices Affiliated with Larger Groups

	Overall (N=640)	Arkansas (N=96)	California (N=210)	Massachusetts (N=218)	Utah (N=116)
Name or Application Notes Indicate they are Part of a Larger Medical Group or Integrated System*	34	24	40	32	35
Affiliated with IPA, PHO, or Medical Group (from OSS responses)	72	43	85	92	39

*This is a lower-bound percentage, used to ensure consistency across states. Practices that indicated they were hospital-affiliated were not included as we were concerned “affiliation” was used by some practices to indicate the admission patterns of the physicians, whereas in others it meant that the hospital owned the practice.

G. SUMMARY OF MAJOR DIFFERENCES BY STATE

Among the four states, Arkansas is unique in several ways. It is much more rural—nearly half the practices are located in medically underserved areas. It has a higher percentage of solo practitioners and, at the same time, the average practice serves a much higher number of chronically ill Medicare fee-for-service beneficiaries than the other states. Unlike the other states, in Arkansas HMOs have almost no penetration. health IT use was relatively low in Arkansas based on their Office Systems Survey responses, with only just over half the demonstration practices using an EHR and about half doing some electronic prescribing in fall 2007.

The demonstration practices in California and Massachusetts have much in common. They are both nearly all urban and mostly not in underserved areas, the practice size distribution is similar with 29-34 percent solo practitioners, and both have relatively high HMO penetrations (35-47 percent), such that most practices are affiliated with a larger organization in some way. The two states differed however, in health IT use among demonstration practices, with greater use of some key functions in Massachusetts. Electronic prescribing was the norm in Massachusetts (77 percent) and included a substantial proportion of practices with a stand-alone e-prescribing system. Massachusetts practices also commonly use their EHRs to notify patients of overdue services. (California along with other states did less of these things.) However, Massachusetts practices less commonly reviewed and acted on reminders from their EHR for care activities than did other states, including California. California practices less frequently used their EHRs to generate educational information for patients on preventive services than did other states.

The Utah demonstration includes more rural practices (30 percent) than Massachusetts or California, but still the Utah demonstration practices as a whole are much less rural than in Arkansas. In most ways Utah is fairly similar to Massachusetts, with about the same average number of beneficiaries with chronic illness, about the same percentage that are part of a larger medical group or integrated system, and just slightly lower statewide HMO penetration (30 vs. 35 percent). We note that based on the practice names in the practice applications to the demonstration, Utah has a relatively high concentration of demonstration practices owned by a single health system (27 of the 41 practices that are part of a larger group are medical system are part of a single system). However, when they are not owned by a larger organization, Utah practices are much less likely to be affiliated with a larger organization than are those in Massachusetts. EHR use was highest in Utah of all the states (about three-fourths of demonstration practices), and Utah practices were more likely to be placing laboratory and radiology orders electronically than were practices in other states. The fact that many are part of a single system with relatively advanced health IT capabilities probably explains much of this result.

CHAPTER III

SYNTHESIS OF CASE STUDIES ON SMALL PRACTICES' RESPONSE TO INCENTIVES, USE OF HEALTH IT, AND ADOPTION OF CARE MANAGEMENT ACTIVITIES

Site visits to eight practices in each of the four MCMP Demonstration states provided a wealth of information about how demonstration practices experienced and perceive the demonstration at the end of its first year. The visits shed light at an early point in the demonstration on how practices are using health IT and the changes EHRs have brought thus far, and how they are adopting care management practices to improve care. In general, the visited practices are similar to the practices not visited (see Appendix A). The notable differences are that those visited tend to be larger and serve more beneficiaries with chronic conditions.

A. PARTICIPATING PRACTICES' FIRST YEAR EXPERIENCE AND PERSPECTIVES ON THE DEMONSTRATION

1. General Perceptions

At the end of the demonstration's first year, key staff interviewed at most of the 32 visited participating practices viewed the demonstration either favorably [15][15] or neutrally [16].[16] One practice viewed the demonstration negatively. The positive and neutral practices generally agreed that the demonstration is helping to align payment with quality performance. Often, practices already participating in other pay-for-performance programs and those not yet

[15] The number of practices applicable to a particular statement is indicated in brackets throughout this chapter.

[16] Neutral practices include practices that both made positive comments and expressed concerns, with neither apparently dominating at this time. Three practices did not give direct views on the demonstration; two were responding to the demonstration in specific ways so we categorized them as positive, while one simply did not respond, so we categorized it as neutral.

participating alike expressed the belief that paying for quality is where the health system is going, and that the demonstration is part of that movement. Many told us they would do well under such payment, and they liked the fact that the demonstration highlighted important areas of care. Half [16] the visited practices specifically mentioned that one motive for their participation was helping to focus the practice on improving quality. Not surprisingly, many [10] also mentioned the potential for financial benefit.

Knowledge of the demonstration was low among physicians in at least a third of the visited practices. While we were able to speak with at least one key staff member and/or physician at the practice who was supporting the demonstration in most of those we visited, about one-third of the practices [10] specifically acknowledged that one or fewer physicians in the practice is knowledgeable about the demonstration. Also, physicians who were involved in other pay-for-performance programs often were unable to distinguish MCMP from other programs.

The set of practices that were more neutral towards the demonstration often appeared disconnected from it, although they frequently voiced support for the concept of pay-for-performance. By disconnected, we mean practices where those we spoke with had little awareness of the demonstration, except that they recognized that they were participating, and some months ago they had submitted data for it. Such practices were more often the smallest ones, and were disproportionately located in Arkansas and Utah [11 of 16]. Some practice staff indicated they were participating in the demonstration because the larger organization that owned them had committed them to it. These "neutral" practices, and the one practice that viewed the demonstration negatively and declared itself no longer participating, were heavily focused on the work required to submit data under the demonstration and whether it was "worth it." Some of the neutral practices are at risk for discontinuing their participation during the remainder of the demonstration (see discussion below).

Even those supportive of the demonstration and pay-for-performance often expressed some concerns. A general concern about pay-for-performance that some physicians expressed is that physicians may begin to turn away patients who do not adhere to their treatment plan, since such noncompliant patients tend to bring down a physician's score [5]. One physician asked "what will happen to those patients if all physicians begin to do that?" At least one physician we spoke with was, in fact, actively beginning to turn away patients who repeatedly refused to cooperate in their own treatment. A second concern was fairness. Several [8] physicians complained that the measures in pay-for-performance programs typically do not take into account differences in patients, including differences in their needs and their adherence to the treatment plan, leaving physicians with lower scores on a 100 percent scale than they should have, if they are being compared to the ideal maximum score. An example was given of a 340-pound patient with diabetes who has no intention of losing weight. The physician felt that he should get credit if he sees the patient four times over the next month in a series of attempts to educate and persuade him to care for himself in a better way, but then not be penalized in the score of diabetes measures, since he has made a valiant effort to change the patient's behavior. Another, who sees many nursing home patients, cited an example of a woman near the end of her life for whom a mammogram may not be appropriate.

2. Financial Expectations over the Full Demonstration Period

Financial incentives are the core feature of the demonstration. The degree to which practices are knowledgeable about the incentives may provide a clue as to whether the incentives are prompting a response. If there is a mismatch between the actual and perceived incentives, response may take place based on the perceived incentives. For example, if a practice believes the amount of reward is likely to be very large, even if the true probability of a very large reward is low, it may make changes due to its belief until such time as it learns differently. At the time of our visits, a surprisingly large number of visited practices [24] did not have specific financial expectations from the demonstration. Of the eight that did, three were owned by larger organizations that had made the calculations regarding all their participating practices. Some practices without specific expectations made general statements about whether they believed the financial reward would be a little or a lot. Of the 32 practices, eight characterized the likely gain as either small [7], or mentioned an amount under $5,000 for the practice [1]. Three characterized the likely gain as large, and another six mentioned an amount of between $31,000 and $267,000 per practice;[17] the remainder simply did not or could not comment on the likely gain.

In several instances, the larger organization owning the practice controls the incentive dollars from the demonstration [6 of 11 instances involving larger organization ownership]. It was clear that some of these owner organizations saw benefit from the pooling of demonstration payouts from participating practices in order to support infrastructure changes and/or compensate for a centralized data submission process. Staff at two of the involved practices noted that while the sum probably would not make much difference at the individual practice level, it could be helpful when pooled at the central level in supporting infrastructure to assist all the practices. In other cases, the distribution of rewards between the central and practice levels had yet to be negotiated or made clear to the individual practices. During our second round of visits planned for the final year of the demonstration, it will be interesting to observe whether practices that were part of these larger controlling entities made operational changes as frequently and aggressively as other practices.

At least half the practices we visited recognized that they (or their parent organization) had received a payment from CMS for submitting baseline data under the demonstration. CMS paid up to $5,000 to practices who reported the baseline data, and while most recalled amounts between $600 and $5,000, two practices were confused and cited higher amounts, perhaps mixing up MCMP payment with other incentive payments they may have received.

[17] Note that the amount of $267,000 per practice exceeds the maximum possible under the demonstration, indicating this practice was unaware of the demonstration maximums (described in Chapter I).

3. Experience Submitting Baseline Measures

Practices' experience with the demonstration in the first year primarily consisted of submitting baseline clinical data using a submission tool provided by their QIO. Many practices [18] made some positive comments about the process of data submission, stating that the process helped them see gaps in their patients' care, although often they attributed the gaps to incomplete documentation rather than to true gaps in care. As one physician who did acknowledge gaps in care put it, "It's an eye-opener to find you've been treating a patient for a long time and they never received an echocardiogram." The ways in which the practices had assembled the clinical data to submit to the demonstration varied, from a solo practice where the physician himself abstracted and submitted the data, to a nurse at the practice assembling it (most common), to using the staff or electronic resources of the larger ownership organization to do it. Electronic submission of baseline data was not possible for most practices, although eight hoped to be able to submit electronically this year.

A sizable majority of practices [21 of 32] described the data submission process as labor-intensive, including many practices using EHRs. In fact, five practices had specifically calculated that the effort cost the practice more than the payment it received from CMS for baseline data submission. For example, one said they had calculated staff had done $28,780 worth of work, and the baseline submission payment was $5,000. We also heard many examples with variations on the following, "I spent at least four Saturdays getting the data together. We were told that [our EHR system] would extract the data in a way that would facilitate submitting the MCMP data. It didn't work, though." Disappointment in their EHR systems' ability to produce the needed measures was a common theme.

A major reason why the effort needed to be manual rather than electronic was that often, the placement of key items needed for the data submission was not standardized within the practice's EHR, therefore requiring a patient-by-patient look-up effort that was tedious and time-consuming. Further, some items typically require long look-back periods, so that even practices that had been using EHRs for some time may not have a patient's pneumococcal vaccine (for example) recorded from the time period predating the office's conversion to an EHR system. Clearly, there was ample room for variation in the effort applied to reach the most complete data possible for the demonstration; in the extreme, one practice said it knew its measures would be incomplete but it submitted only what was obtainable from the EHR system.

The practice staff we spoke with who submitted the baseline data generally gave high marks to the QIO staff who assisted them with the technical aspects of submission. Most said the submission process went smoothly in terms of the technical process of uploading the data, or had a few bumps that were worked out with relative ease [19]. While there were a few criticisms of trainings and the instruction book (for example, one commented that the instruction book seemed geared to "IT people."), we heard frequent compliments on the QIO staff's responsiveness to questions, across all states [20].

Looking forward, six of the visited practices were unsure whether they would submit data this year, or said they were not planning to do so [2], for the following reasons:

- Now that the cost of data submission is better known due to the baseline data effort, skepticism as to whether participation is "worth it" [3]
- Staff turnover, specifically the departure of the nurse who submitted the baseline data (2 solo practitioners)
- Solo practice physician would have to do it himself and stated he does not have time [1]

Three of the eight, or 38 percent of the solo practitioners we visited, appeared to be backing away from the demonstration, as noted above, compared with 13 percent of other practices.

B. DIRECT RESPONSE TO THE INCENTIVES

A majority of practices visited said that the demonstration has increased their emphasis on the measures or related guidelines in some way, though many were unable to describe specific actions the practice had taken as a result of the demonstration. Most practices responded to the demonstration's first year either with no concrete changes or with incremental improvements in documentation, modest EHR system enhancements, and/or other modest changes to enhance care for chronically ill Medicare patients. Table III.1 summarizes the different types of responsive actions the practices described. Note that the table describes only actions that the practices directly attributed to the demonstrations. The broader perspective of actions taken to improve system use and quality are described in sections C and D below. In most cases, the actions taken applied practice-wide; in a handful of practices [5], activities already underway for other segments of the practice's patient population were extended to Medicare.

The 16 practices with a specific response beyond improved documentation were spread throughout the demonstration; six in Massachusetts, four in Utah, and three each in Arkansas and California. The fact that Massachusetts has six such practices seems to fit with the state's extensive experience with managed care and pay-for-performance—that is, the demonstration's incentives seem to coincide with the practices' overall business interests. However, it is unclear why response was not greater in California, which has similar characteristics. Many of the practices in California did not see a need for additional care management. We cannot tell whether (1) this lower level of response in California is a matter of different practice cultures in the two states (that is, given the same information and incentives, practices in Massachusetts are more interested in pursuing improvement); (2) California practices were performing so well at the start of the demonstration that they do not need to improve to expect financial benefit from the demonstration; or (3) our pick of practices for site visits happened to make this response appear different when in fact, if we knew the responses among all the demonstration practices, we would find no differences between the two states.

Table III.1. Actions Reported in Year One in Response to the Demonstration

Type of Action	Number of Practices[a]	Examples
Improved Documentation	18	Asked practitioners to document foot exams and heart failure education in a way that can be captured electronically
		Made changes to chart structure to take into account what they need to track
		Major effort to obtain documentation for women who had mammograms elsewhere
		Physicians now said to be more aware of the need to provide better documentation (such as reason patient did not have colonoscopy)
EHR System Change	5	New registry
		Built templates into EHR for diabetes, CHF[b]
		Tailored EHR point-of-service alerts to better match MCMP measures
Other EHR-Related	3	Pulled reports on patients who need mammograms, pneumonia vaccines, etc., for followup
		Organized information better in the EHR to help see what patients need
Outreach to Beneficiaries	4	Now uses EHR lists of patients needing mammography or colonoscopy to send reminder letters
		Now sends letters, makes calls, and schedules mammograms for patients needing them
		Sends educational mailing to newly diagnosed CHF patients
Change in Care Process	4	Now does more preventive health at every visit; nursing staff talk to patient about preventive services, set up for immunization if needed.
		Shortened routine prescription length for diabetic patients to three months to force timely monitoring visits. Increased receptionist responsibility to flag patients with diabetes and put reminders in charts.
		Nurse inputs information during pre-visit planning; labs done before visit.
		Medical assistants check for preventive service needs, give immunizations if needed
Other	9	Expanded existing order sets and best practices information to mirror the demonstration.
		Developing a new flow sheet—non-electronic*
		Expanded quarterly physician-specific listing/scorecard to cover CHF and CAD
		Designated a nurse practitioner as a diabetes specialist; began to standardize documentation in EHR.
		Planning a report card for CHF patients with target levels and service frequencies for key items, per guidelines
Total with Any of the Above	24	
Total with a Specific Action Other than Documentation Improvement	14	

CHF = Congestive Heart Failure.
CAD = Coronary Artery Disease.

[a]Some practices implemented more than one type of action, and therefore are counted in multiple categories. The totals shown at the bottom are unduplicated counts of practices, therefore the sum of the number of practices in each action category does not equal the totals.

[b]We considered creation of new templates and flow sheets to be more than simply documentation, since they should also make it easier for the practice to ensure patients are up-to-date on preventive services and their care is within guidelines.

Through the actions noted above or simply by heightened focus among practitioners, many practices reported that in response to the demonstration they had in some way increased their focus on patients with diabetes [10], patients with heart failure or CAD [10], ensuring patients receive appropriate preventive services [7], and/or serving the Medicare population of chronically ill patients [5].

The efforts of a few practices that had mounted relatively more aggressive responses to the demonstration are described in Table III.2.

Table III.2. Selected Practices with Relatively More Aggressive Responses to the Demonstration

Practice Description	Response
Urban, four-physician practice with 65 percent managed care patients and experience with pay-for-performance incentives and tiering of physicians in managed care networks.	Divided staff into teams lead by a physician or nurse practitioner (diabetes team, mammogram team, colonoscopy team). Teams meet bi-weekly to discuss workflow and contacting of those patients who need services. Lists of patients without key services are generated from the EHR to support their work. The practice recently decided to adopt (for a monthly fee) a product that will automatically generate phone calls to every patient missing key services.
Suburban, three-physician practice with about 70 percent of their patient volume already covered under a private-sector pay-for-performance program; Medicare fee-for-service beneficiaries account for about 10 percent of their practice.	Enabled Medicare fee-for-service patients to receive the same type of service already provided to managed care patients in the practice. For patients identified as MCMP-relevant, they now identify those who do not have records of needed tests, and send letters and call these patients. They are developing a summary page in the EHR that gathers necessary measures to upload to MCMP.
Four-physician practice located in a small town, with experience with other pay-for-performance programs and tiering of physicians in managed care networks.	Implemented a preventive health module in their EHR, created by the system-savvy physician who manually entered the relevant clinical guidelines. Using system prompts, at the start of a visit, nursing staff ask about preventive services more than they did prior to the demonstration. For diabetes patients and those needing colon screenings, tetanus shots, and pneumonia vaccines, the practice runs lists and sends reminder letters to patients needing to come in. The practice acknowledges, however, that two of its physicians are less supportive of these efforts, and the staff do not always have time to follow the ideal process for every patient.

The eight practices that did not report any specific response to the demonstration included:

- A disproportionate number of solo practitioners (three of the eight we visited)
- Two practices whose owner organization had made the decision to participate (one a large medical group, one a hospital), where the individual practice had little knowledge about the demonstration.
- One small (two-physician) practice that reports its EHR is functioning poorly and does not support the types of care management changes it would like to make (it is waiting for a new system); serious EHR difficulties were also cited by one of the solo practitioners noted above.
- Two relatively larger practices (8-10 physicians), one of which expects "they are doing the job already" and the demonstration will help offset otherwise low reimbursement, and another where Medicare fee-for-service patients make up fewer than 5 percent of their patients.

C. PRACTICE ADAPTATIONS DURING IMPLEMENTATION OF HEALTH IT

In theory, the demonstration is expected to produce an effect in part through practices' improved and ultimately capable use of health IT to accomplish care improvements. To understand whether this is beginning to happen, we first describe the status of health IT implementation, then changes to practice operations due to the implementation of EHRs, then the benefits practices reported realizing from their EHRs, and finally the factors facilitating and limiting greater use of EHRs. By "implementation" of health IT, we mean the adoption and use of EHRs, chronic disease registries, e-prescribing systems, and any other electronic tools to support improved health care delivery in the practice.

1. The Status of Health IT Implementation in the Practices

Current Status. Three-fourths (24 of 32) of the visited practices were using an HER at the time of our visit. All of these had used their EHR for at least one year (since fall 2007), and 10 (about one-third of visited practices) had first implemented an EHR more than five years ago. The visited practices used a total of at least 15 different EHR products.[18] Satisfaction with their EHR ranged across practices. Of those practices using EHRs [24], most [18] were generally positive about their systems, while six offered serious complaints. For example, one solo practitioner was so frustrated with his EHR that he stated "I'm now facing throwing

[18] Some practices may have referred to their system name in a similar way but may have been using different products by the same vendor. The products practices named included NextGen™, AllScripts™, Centricity™, Chart Logic™, eClinicalWorks™, Help2™ (each used by two to four practices), as well as Epic™, Praxis™, Cerner™, Misys™, Practice Fusion™, Practice Partner™, SOAPware™, and Welford Chart Notes™.

away $40,000 in hardware plus $10-20,000 for data migration, or continuing with this terrible EMR."[19]

Where practices were part of a larger organization, those organizations (for example, hospital systems, larger medical groups) were a strong influence on which system and functions were used [9]. Technical support is often provided by larger affiliated or owner organizations [10] and/or the vendor [6], but several practices [5] told us they had little technical support.

A majority of visited practices [5-7 per state] electronically prescribed medications through their EHR in all states except Arkansas; in Arkansas only three practices did so (of the five Arkansas practices that did not electronically prescribe, two had EHRs and three had no EHR). A common practice was to select the prescription electronically, then fax the prescription to the pharmacy directly through the EHR (without printing it) and/or hand the patient the printed prescription.

Fewer than half the practices with EHRs [10] reported at least one electronic interface with an entity outside their practice-site walls. Laboratory and radiology ordering was most common [10], though limited in scale. Usually the interface was with a single, affiliated larger system, or through an arrangement with one or two laboratory and/or imaging providers. Several [3-4] practices that were part of integrated health systems share clinical data and notes with the hospital in the same organization and vice versa, through a compatible EHR system. Six that were part of larger organizations or had multiple sites share medical charts across the primary care sites within the organization, using the same EHR system. In addition, five practices were able to view laboratory results and other claims-based measures for a subset of their patients through an IPA or PHO web portal (these practices are primarily located in California and Massachusetts, explained more just below). However, this latter ability was limited in that results must be separately keyed into the EHR, and only apply to the subset of patients under that IPA or PHO arrangement. In this respect, it seems little different from the many other practices that receive paper lists of patients who need services or attention from certain payers (such as a list of diabetic patients with hemoglobin A1c above 7 or 9).

Use of health IT products other than an EHR was rare among the visited practices except in California, where six of the practices used a variety of health IT, including stand-alone e-prescribing tools, electronic clinical resources, online healthcare communication programs, and web-based tools provided by IPAs. Several practices use electronic clinical resources; two practices use UpToDate™ to access educational materials, and one practice uses ePocrates™ to access prescription information. In addition, three practices have online communications with their patients. One practice uses a basic e-mail program, and two practices use RelayHealth™, which has secure messaging capabilities. Regarding web-based tools, four of the visited California practices reported that their IPA provides them with a web portal through which they can view individual clinical measures data for each of their patients, as well as summary data that show the practice's compliance (overall and by individual physician) on collected clinical

[19] Those we spoke with often used "EMR" (for electronic medical record) interchangeably with EHR.

measures that are used to compute pay-for-performance program scores. IPA-provided health IT capabilities have two major differences from those available within the practice: (1) they often focus on chronic/preventive care populations, whereas EHR capabilities do not; and (2) they focus solely on IPA patients, rather than on all patients. While the IPA provides health IT capabilities both through portals and EHR services/support, the two types of capabilities are not integrated at the practices. It is possible that the availability of these portals could lessen practices' interest in expending effort to learn to better use their EHRs relative to a situation where care management could only be facilitated by the EHR.

Future Plans. Nine of the visited practices currently using EHRs are expecting to implement a new system or an upgraded EHR. Five are planning for this to occur in the next year. The others were unsure of the timing, which is out of their control and dependent on the decisions of a larger organization and/or the vendor. For five of the nine practices awaiting an upgraded system, further improving their care management is dependent on the more advanced capabilities of the system they await.

Three practices (located in Utah and Massachusetts) were in the process of or thinking about purchasing complementary health IT applications (that is, separate health IT applications that would work with their EHR). Two of these were applications that would generate automated reminder phone calls and/or letters to patients for needed visits. The third was a web-based application that, while expensive, the solo practitioner believes would allow him to retain his current, flawed EHR system and still do care management, rather than having to purchase an entirely new system.

Of the eight practices not currently using EHR systems, two have concrete plans to begin using one (one in early 2009, and one in October 2010). One of these practices had been using an EHR, but the organization was bought by another firm with a different, incompatible system. The practice has returned to paper operation until a new EHR system is installed in 2010. The other six practices do not have plans to implement an EHR; reasons included the high cost of purchase, the physicians' older age, and uncertainty about whether there would be a return on their investment (particularly given older age). In one case, the solo practitioner had a "bad experience" with an EHR in the past, and is waiting for better interoperability among systems before trying again. In another, a small group practice with financial difficulties cannot afford an EHR, and is considering selling the practice to a larger organization that would provide them with one.[20]

Practices reported some activity toward establishing additional interoperability, usually by their affiliated organizations, although they did not appear to be expecting large changes in the near future. For example, the director of a hospital affiliated with one of the practices in Massachusetts stated they cannot establish a two-way interface for laboratory and radiology (allowing both placement of orders and review of results), but they belong to a physician-

[20] Although the practice would like an EHR, the potential sale is being driven not by EHR availability but by the practice's larger financial issues.

hospital organization (PHO)[21] and are working with this organization to establish a one-way interface to allow the practice to view results. None of the visited practices mentioned any regional health information exchange efforts.

2. Changes to Practice Operations Due to the Implementation of EHRs

To implement EHRs, practices must decide whether and how to "go paperless," how to handle information about care outside the practice in the context of an EHR, and may make other changes to staff responsibilities designed to maximize the benefits of their EHR. The major change in staff responsibilities in the practices we visited was the greater use of medical assistants. These changes are discussed below.

Going Paperless. Fifteen of the 24 practices with EHRs operate on a paperless or almost paperless basis,[22] whereas eight are routinely using paper charts as well as their EHR. A few examples of how some of those that recently went paperless include:

- When the practice went "live," they created a new file for each patient as if they were new patients; each patient was asked to complete a four-page form.
- The practice began using the EHR in mid-November 2007. They scanned "everything" between May and June 2007, and now they are paperless.
- The physician bought the EHR in order to open a new, paperless practice.
- The practice ran a list of all its patients with diabetes and put their diagnoses into a form on the EHR, then put other selected common diagnoses on the same form. Vital signs for two months were keyed in, and two years' worth of records were scanned in. The practice hired temps to input the data in addition to using their own staff.

As noted above, ten of the practices we visited had implemented their first EHR more than five years ago; often these practices had switched systems since their first EHR, and reported that switching, while still somewhat painful, was less difficult than initial implementation of the EHR.

Half of the practices [4 of 8] where both EHRs and paper charts continue to be used are slowly transitioning to their EHR. For example, in two practices the EHR is used for everything ongoing except for certain ordering functions. In another, medical assistants input the data for three patients per doctor per day into the new system, while in another, physicians vary in how quickly they are adopting the system, leading the practice to estimate a timeframe of three years before the majority of patients will be in it. Two practices said they need to use paper as well as their EHR to ensure accurate records because of "bugs" or unreliability of their EHR. Two

[21] A physician-hospital organization is a joint venture between one or more hospitals and a group of physicians.

[22] An example of "almost paperless" is a practice that keeps only neonatal charts in paper.

practices did not offer a rationale, but rather expressed anxiety and frustration about the inefficiency of using two systems.

Fifteen practices recalled difficult weeks or months upon initial implementation of their EHR, accompanied by a schedule slow-down. Some people—both administrative staff and physicians—adapted more easily to the change than others. At the time of our site visits, 13 of the 20 practices that had multiple physicians and were using EHRs told us there is still considerable variation among physicians in how and how well they use the system. In the extreme case, the practice was so decentralized that those we spoke with could not tell us anything about how others in the practice used the EHR; they were just beginning to talk to each other about standardizing some aspects of their use for the benefit of all of them. Three practices specifically mentioned that this inconsistency in use had made it more difficult to locate key data pertaining to MCMP measures.

Handling Information About Care Outside the Practice. Adopting an EHR requires a change in the way information is handled about care outside the practice, since paper results from other providers can no longer simply be inserted in a folder. Practices face choices about what data (if any) they will key in, and what documents they will scan. One practice sends correspondence to other practices to indicate whether their patients have had certain tests. The receiving practice checks off the appropriate box and faxes it back; it is then able to be entered directly into the medical record. Other practices mentioned having to key in test results, even when they were available to view them electronically, and scan in documents sent from other providers.

Greater Use of Medical Assistants (MAs). Greater use of MAs[23] represented a significant and recent shift in the practice operations of about one-third of the visited practices. This shift was seen in all states except Arkansas, and was usually related to the practices' desire to use their EHRs for better care management.[24] MAs' jobs were said to be getting more interesting and more important, as they were being enlisted to interact more with patients prior to their visit with the physician, to do more data entry, and to conduct outreach between visits to patients needing tests. More specifically, the changes include:

- ***Data entry to improve completeness of EHRs*** [6]: One practice hired a second MA for each physician as they implemented their EHR, in order to type during exams. Before this change, two physicians in particular were discontented with the EHR and

[23] Medical assistants can be licensed or unlicensed health care workers who perform administrative and clinical tasks that keep the offices of health practitioners running smoothly. Historically, they are most often trained on the job, although formal education is offered at many vocational or technical schools and community colleges, and certification can be obtained by taking a test offered by the National Board of Medical Examiners and the American Association of Medical Assistants.

[24] Since one or two practices without EHRs also increased their use of MAs, a trend toward greater use of MAs may be due to factors other than, or in addition, to adoption of EHRs.

their backlog of documentation was growing. Other comments were less specific, such as, "MAs put all the data in [the EHR]," or "MAs are doing more data entry."

- ***Interviews with patients as first step in visit* [5]:** MAs have begun routinely asking patients certain questions prior to their meeting with the physicians, including family history, smoking status, and recent receipt of services such as a hemoglobin A1c test or lipid profile.

- ***Outreach* [3]:** MAs do outreach to patients who need tests or appointments; one does so at the time an appointment is scheduled, calling the patient to ensure needed tests are done before the visit, and in at least two other practices MAs help call those on lists of patients who are missing key tests (one list generated from an EHR, one generated by the affiliated IPA).

- ***Other*:** In two practices, MAs' jobs changed as part of a larger shift in practice staffing; in one case the MA now prepares pending orders based on alerts in the EHR before patient visits, and in another the MAs participate on care teams charged with improving mammogram rates, diabetes care, colonoscopies, and other aspects of care.

Other Major Changes in Staff Responsibilities. Two practices reported making other major changes in staff responsibilities to accompany their EHR adoption. A third practice is owned by a large group that plans on making more systematic changes across all its practices over the coming year. Table III.3 highlights the efforts of the three practices.

3. Reported Benefits of Health IT Use

In 12 of the visited practices (located in all four states), those we spoke with told us EHRs had improved the quality of patient care. In fact, the examples listed in Table III.4 suggest EHRs have great potential for helping practices improve care. While most practices provided a "short list" of one or two specific quality benefits, if all sites were able to realize all the benefits mentioned across sites, then it is easy to imagine that EHRs would substantially transform primary care.

More complete and/or more accurate documentation was a reported result of implementing an EHR for 17 of the 24 practices with EHRs. This improvement was achieved with a time cost for many practices: nine said they spend more time on administrative versus clinical functions as a result of implementing their EHR. However, one physician objected to the framing of our inquiry, commenting that, "I wouldn't necessarily call documentation an administrative function. It is a part of good clinical care."[25]

[25] The report authors agree, but it may still be useful to report shifts in time spent on this function to provide an understanding of the changes that take place with EHR implementation.

Table III.3. Major Operational Changes Underway or Planned in Three Practices

Practice Description	Operational Change Underway or Planned
Urban practice with four physicians and three nurse practitioners, with 65 percent managed care patients and experience with pay-for-performance incentives and tiering of physicians in managed care networks	Established the position of an EHR project manager, building on the tech-oriented talent of one of its pre-existing administrative staff. The EHR project manager spends about half her time troubleshooting the EHR, when staff have a need, and running reports, often for the disease management teams (explained in Table III.2, first practice). She is responsible for generating reminder letters to patients who need services, as well as correspondence to other practices to obtain results for patients who had tests elsewhere that are not documented in their records. Staff responsibilities have increased, which they reportedly like because it makes them feel like "little experts." The EHR project manager also reports that before the EHR effort, the practice staff did not discuss how to work more efficiently; now that is a regular topic of discussion at weekly EHR meetings. The practice reports two fewer FTEs than prior to EHR implementation.
Urban practice with four primary care physicians, one nurse practitioner, and two physician assistants participating, plus nine other providers in the practice (obstetrics/gynecology, pediatrics, ophthalmology, podiatry); part of a large integrated health system	Well after they first implemented their EHR, they implemented a care team model with more responsibilities for MAs. Everyone has a two-way, hand-held radio. The MA (or nurse) rooms the patient and writes the chief complaint. Often the MA sees a pop-up alert in the EHR that a service is needed, and puts it in as a pending order, which makes it easier for the doctor. The doctor enters the room and when ready radios the MA to come in to write orders, take notes, draw blood, coordinate schedules for imaging, and so on. The integrated health system is implementing this model at all its primary care sites, and adds that there is a preventive health questionnaire that the MA is asked to complete with the patient at the start of the visit.
Urban practice with four physicians and one physician assistant that is part of a large, integrated delivery system including more than 10 primary care practices (physicians are employees of the system)	The owner organization is planning to work this year with physicians and support staff in the owned practices to consistently document information in the EHR that can then populate their diabetes registry, and to then use the registry for outreach. The relevant EHR functions are operational and the registry is in place, but the systematic effort needed for it to be complete and consistent and thereby improve care at a significant level has not yet taken place. Also, a report for patients with diabetes has been developed, and implementation is planned. The main task is to clearly designate responsibilities for these tasks and adjust the workflow.

Table III.4. Quality Benefits Practices Reported Realizing from their EHRs

Type of Quality Benefit (number who mentioned this, of 24 using EHRs)	**Examples**
Medication safety (5)	Fewer mistakes are made, "especially at the end of days when I am tired"
	Fewer mistakes due to handwriting causing miscommunication
	Tracking of refills and medication profiles means less chance of making a mistake
	Able to check medications against allergies and drug-drug interactions
Better communication of important clinical information among providers (5)	Fact that information is readily available doctor-to-doctor, is not lost, and is timely, is an EHR-related benefit to the patient
	Able to quickly print a chart summary for a patient to send with them if they need to be transferred to a hospital
	Ability to open patient records from a remote location, such as home or a connected hospital, should clinical issues arise
	Timelier test results coming into the EHR from connected organizations
	Problem lists more integrated, can be communicated between providers
Patients more likely to receive needed tests/services due to better tracking of these (3)	Better organized data allows physicians and nurses to see missing tests
	Tracking of preventive health services is one of the two best benefits of the EHR for patients
Alerts/reminders at point-of-service (3)	Pop-ups enable physicians and nurses to better ensure patients are getting needed tests and services
Providing patients with information from the EHR during the visit (2)	Physician often shows patients trends in their own data (such as weight or blood pressure), and this is helpful in getting them engaged in their treatment plan
EHR facilitates follow-up with patients to encourage their compliance with guidelines (2)	Diabetic patients with hemoglobin A1c over 8 are identified and called to make sure there are ways defined to improve their care or compliance
	Follows up with patients who were prescribed beta-blockers, to encourage their compliance with the regimen and to encourage them to come in for needed preventive services

Efficiency benefits were reported less frequently than quality and documentation benefits. Six practices located in California and Utah reported becoming more efficient as a result of their EHR. While the reason why these and not other practices realized efficiency benefits was not apparent from the discussion, one practice noted that after a transition period the doctors became good at charting during patient visits and the time per patient visit became shorter, allowing them to work fewer hours and see more patients—thus making the practice more profitable and "allowing us to participate in things like [the demonstration]." Another of these practices changed its workflow to ensure patients with diabetes and hyperlipidemia have lab work done before coming into the office, "so the whole appointment process is much faster because the physician is able to address everything in the visit with the lab results in hand."

4. Factors Facilitating Use of EHRs

Practices that had made or were making progress in using their EHRs more fully had devoted considerable effort to customizing the products to facilitate their use for care management. Specifically, 12 practices had someone within the practice or owner organization (usually a physician) with both the motivation and skill to develop custom templates which display organized data when each chart is opened, adjust reminder features to provide physician prompts related to the guidelines the practice is most focused on, and otherwise customize the purchased product.

Looking beyond skill to motivation, many practices had a physician [13] and/or administrative [9] champion for improving use of their EHR, and this energy was helping the practice move toward greater use.

Being owned by or affiliated with a larger organization was also a facilitating factor for EHR use among the visited practices. For example, seven of 11 owned practices we visited were paperless (64%), compared to seven of 21 non-owned practices (33%). Larger organizations that owned multiple practices tended to have system-wide plans for rolling out EHRs and supporting implementation as they did so.

Aside from the fact that all need customization, some EHR products are easier to use and better than others—and better products as well as better user support clearly facilitated fuller use of EHRs. However, our methodology does not allow us to identify which of the EHR systems used by the sample of visited practices are the better products. Several pieces must be in place for a practice to successfully use its EHR—among them, solid product structure, sufficient underlying infrastructure, technical support for implementation, and at least average aptitude on the part of the end user. As is discussed below, when EHR use is not fully successful, it is difficult to determine which piece is missing via interviews like those for this study.

5. Factors Limiting Greater Use of EHRs for Care Management

Characteristics of the EHR systems themselves were often a factor limiting greater use of practices' EHRs for care management. Table III.5 summarizes system limitations mentioned by the visited practices, both those practices that were satisfied overall and those that were not.[26] Some of the limitations mentioned below undoubtedly could be overcome with better instruction or assistance to the practice. (It is possible that discussion within the physician community about these types of limitations also discourages adoption among practices who have not yet adopted EHRs.)

[26] This table does not provide examples, since the specific examples are likely to be system-specific rather than generalizable across practices.

Table III.5. EHR System Limitations Mentioned by Visited Practices with EHRs

System Limitation	Number of Practices, of 24 with EHRs
Unable to generate lists of patients with certain criteria	8
Technical bugs in the system; doesn't work as advertised	7
Lack of technical support or adequate training to use the EHR well	6
No condition-specific prompts or reminders	6
Alerts are overpowered, alert the physician too much	4
No standard place to put key data in the chart	4
Takes too many clicks to do things	4
Hard to find things with so many documents attached	3

At times, the solutions to the system problems described by the practices, such as no standard place to put key data in the chart, inability to generate lists of patients with certain criteria, or no condition-specific prompts or reminders, may be technically possible.[27] If so, the solutions would require customization of the practice's EHR product accompanied by agreement within the practice to use the feature. This first requires a combination of effort and/or financial cost (for example, hiring someone to create the templates the practice wants if the practice does not have someone in-house with the skill); then organizations must find a way, through leadership or incentive, to persuade other physicians and staff to use the feature in a common manner. One of the two owners of a four-physician practice stated that the practice had managed to customize its EHR to a point where it could do significant care management, however, the two salaried physicians are not using the system consistently because they view it as more work.

The lack of sound information about what the EHR products could do at the time of purchase also appeared to have led to more limited use of EHRs in some practices, since they bought systems that did not fit their needs. In several cases physician practices were terribly disappointed with them. Some acknowledged not knowing at the time the right questions to ask about the candidate systems. In a couple of these cases, the practice mentioned that the QIO had steered them toward a product they were later disappointed with. In another case, the practice was enamored with the product's advertised ability to "learn from the doctor" (the product did not include standardized templates). However, it reported that in fact, what the system learned from one doctor could not be transferred to other physicians' work stations, leaving each doctor on his/her own in using the system. Another small practice had purchased a system that was

[27] Those we spoke with were often uncertain when describing a limitation whether the capability was there somewhere in their system but they did not know it, and if it was there they would need to customize it to use it, or whether it truly did not exist.

geared toward large practices, so that many of the features and assumptions in it did not apply to its circumstances.

The high up-front cost of EHRs for small practices is another major factor in their use. While cost was cited as a major reason for not having an EHR among those we visited without them, addressing cost alone would not necessarily lead to adoption among all those practices. The practices without an EHR and no plans for one usually cited cost plus one other factor as the reason for not having or seeking an EHR, with the two other reasons being the age of physicians or larger financial difficulties in the practice. Because MCMP practices were recruited from among DOQ-IT practices, their perspectives on cost are expected to greatly understate cost relative to its true place as a barrier to implementation nationally. That is, it seems likely that practices that agreed to participate in the DOQ-IT program are, on average, more receptive to, interested in, and/or financially able to adopt EHRs compared with other practices nationally.

Practices we visited also told us they weighed cost as they chose their EHR products, and so the higher cost of higher-quality products had likely contributed to their system choice when they were dissatisfied. However, those practices that purchased the system independently (rather than it being imposed from a larger corporate entity) and described their thinking about acquiring an EHR system usually pointed to factors other than cost as well. A product's compatibility with the practice's billing system was an important consideration mentioned by some practices. Other factors varied widely. For example, two practices mentioned above were attracted by the features that later disappointed them; one being initially attracted to a system that "learns from you" rather than including many standardized templates, and another that envisioned growth in their practice attracted to a system built for large practices that had a lot of versatility.

Other reasons why practices have not progressed further in using their EHRs are day-to-day office pressures as well as the lack of a strong motivator (champion or incentive) to improve system use. One solo practitioner has designated one day a month as his administrative day, when he tries to make time to think about the bigger picture of his practice, including EHR issues. An organization that owns one of the visited practices pays nurses two hours per day in addition to the hours when patients are in the office, so that they have some time to assist with things like outreach to patients who are overdue for certain tests. However, the norm was simply for the practice staff to talk about what they would like to do, and work in what change they could into their regular practice schedule. Change appears to occur slowly by this method (and whether it results in measurable quality improvement is open to question), however, it is a less harsh way of embarking on change than a more structured plan. A few practices were in or had recently experienced periods of extreme stress, when they had lost staff and remaining staff were overworked. Such practices are not able to make changes in their operations or EHR use until staffing returns to normal.

Practices we visited in Utah, California, and Arkansas were, overall, facing relatively weak incentives for system improvement. They were not finding financial incentives to improve use of their EHR systems outside the demonstration. While Massachusetts practices also did not face direct incentives for EHR system use, they seemed to link better EHR use to either (1) the potential for better performance on the (significant) pay-for-performance programs they participate in and/or (2) the possibility of allowing their physicians to place in the "top tier" for

quality in the tiered networks of managed care organizations. California practices were often using IPA-provided online tools to help them achieve pay-for-performance goals; as noted above, it may be that these tools reduce the sense of urgency regarding using the EHR for similar purposes. In Utah, pay-for-performance programs existed, sponsored by at least one major managed care firm, but the incentives for most practices were relatively small. Arkansas practices were just "getting their feet wet" with pay-for-performance.

D. ADOPTION OF CARE MANAGEMENT STRATEGIES

Care management activities provide the critical link between the MCMP financial incentives and the outcomes and cost improvements hoped for under the demonstration. Therefore, understanding how care management is occurring and changing in the demonstration practices, and the realities and opportunities for demonstration incentives to influence care management were key goals of the site visits.

Current Activities. At least one specific care management technique was being utilized at 29 of the visited practices. While most [17] could name at least one standardized care management process that is part of the office's regular operation, as practices increased the number or consistency of their care management activities, many [9] explained they did so by making it easier for practice staff to do the right thing, rather than by mandating a process that would ensure that guideline-appropriate care would always take place. For example, drug-drug interactions warnings are programmed into most EHRs, however, individual providers in the practice may suppress or ignore them. Similarly, many practices receive lists of patients from payers whose claims and lab records indicate they may need services. While many practices use these lists for following up with patients, follow-up (when it occurs) is usually at the discretion of the individual's listed provider and their assistant, and often those we spoke with were not aware of the extent to which follow-up actually occurs practice-wide. More than three-fourths of the visited practices (25 of 32) would like to do more care management. However, in only seven practices (located exclusively in California and Massachusetts) did we take away from the discussion the sense that care management was an important priority for the practice.

Table III.6 lists the main types of care management activities practices described.

We found much less current care management activity around the specific topic of patient engagement/outreach among visited practices in Arkansas than in the other states. This may have been due to the historic absence of managed care in the state. This is of special concern given the fact that much of the state's population lives in medically underserved areas (as described in Chapter II). Arkansas practices also are not poised to "catch up" on this dimension of care management, that is, only one practice described a care management "next step" that involved patient engagement/outreach to patients.

Table III.6. Types of Care Management Activities in Visited Practices

Care Management Activities	Number of Visited Practices with Each Activity, of 29 with Some Activity
Visit Process	
One or more standardized processes (for example, the medical assistant completes questionnaire with a patient before the visit)	17
Alerts/reminders used at point-of-service	13
EHR displays key data all in one place when chart is opened	9
Patient Engagement/Outreach	
Staff work from lists received from payers listing patients who need services, contacting those on the lists	15
Reminder letters and calls to patients due for an appointment	12
Routinely generate and provide condition-specific or preventive service information to patients	12
Show and talk with patients about trends in their data	7
Patients with diabetes are routinely referred to a diabetic educator or for classes at the affiliated hospital	7
Data from Other Providers	
Proactive process to obtain data from patients' other providers	3

Next Steps. Nearly half [14] of the visited practices told us that some form of increased patient engagement/outreach was a next step they would want to take in increasing care management. More specifically, these types of next steps included:

- Many [9] would like to begin or increase their reminder letters and calls to patients who need services; to facilitate this, some [4] mentioned they hope to be able to generate lists of such patients.
- A couple are planning or thinking about giving patients (such as diabetes or heart failure patients) a "report card" that would show their goals and progress.
- One is hoping to expand its current "MyDocAnytime" program so that the nurse practitioner would proactively call the patients to check on them. The program provides 40-50 of the practice's most vulnerable patients with a direct phone number that rings on the doctor or nurse practitioner's cell phone.
- One is considering hiring a dietary counselor or diabetes counselor, and another a potential educator for CHF and CAD.

- One would like to expand on a recent patient education effort for CHF to mail educational materials to patients with other diseases, because "it's hard to get in everything in a 15-minute visit or get a patient to retain everything."

- One organization that owns a visited practice hired a "practice enhancement coordinator" to try to work with owned practices to help them structure more care management (particularly outreach to patients missing services); the next step is for her to become more active and effective with the practices, allowing them to do more care management.

Although the types of activities and plans may sound impressive when listed as above, in fact, current care management activities are relatively thin among the 32 practices visited, with few activities per practice, often applied to subsets of patient populations, and conducted in an ad hoc rather than systematic manner. Many of the next steps listed above may be more wishes than plans, given uncertain timetables, daily work pressures/competing priorities, and a limited business case. Practices are most often looking to further improve their documentation as a means to improve their performance scores, rather than undertaking more ambitious care management efforts. In sum, we think the practices we visited are probably more interested in care management than the average across the nation, because of their previous involvement in the DOQ-IT program, in which education was provided to practices on how EHRs could help improve care management. Yet even in these practices, while we met some impressive individuals with thoughtful ideas and innovative, small-scale initiatives, there was a wide gap between the possible and the actual with respect to care management.

CHAPTER IV

KEY FINDINGS AND CONCLUSION

Ten key findings are articulated below, related to demonstration participation and experience, year one responses to the demonstration, prospects for future change, and outside factors influencing the pace of change. The findings are followed by a brief conclusion.

A. KEY FINDINGS

Demonstration Participation and Experience

1. Higher-than-expected level of effort was required for practices to submit the data for the demonstration, although many also made positive comments about the submission process.

Two-thirds of the visited practices described the data submission effort as labor-intensive, with five of the 32 having calculated that their cost to prepare the data for submission was more than the payment received. Several of the visited demonstration practices were unsure if they would submit data in the coming year because they were uncertain whether the potential reward was worth the effort. Many practices with EHRs felt frustration with systems that did not facilitate submission very well, due to system limitations, variations in use within the practice, or both. At the same time, many told us the process of submission had helped them see gaps in their patients' documented care. The practices did not encounter technical problems submitting the data, and they frequently complimented QIO staff on their responsiveness to questions during data preparation and submission.

2. Solo practitioners and practices in underserved areas appear to be backing away from the demonstration in disproportionate numbers compared with other practices.

Withdrawals in the first year were predominantly solo practitioners and practices in medically underserved areas. In addition, solo practitioners we visited were less likely than group practices to report a specific response to the demonstration. Three of the six visited practices that were unsure whether they would submit data this year were solo practices.

3. The level of awareness of the demonstration among physicians in the visited practices was low in at least a third of the practices.

At most practices visited we met with at least one key staff member and/or physician who was supporting the demonstration, but about a third of the practices acknowledged that only one or fewer physicians in the practice is knowledgeable about the demonstration. Physicians we spoke with who were involved in other pay-for-performance programs were often unable to distinguish MCMP from other programs.

Practices' Year One Responses to the Demonstration

4. Participation had reportedly increased practices' emphasis on measures or related guidelines, with the main focus on improving documentation.

More than half the visited practices said the demonstration increased their emphasis on the measures or related guidelines in some way; about half reported at least one specific action taken beyond improved documentation. A majority reported improved documentation, either as a result of specific action, such as asking practitioners to document foot exams and heart failure education in a particular way that can be captured electronically, or through no specific action but as a result of the demonstration highlighting in practitioners' minds the need to better document the measures.

5. Practices that took specific actions beyond improving their documentation responded to the demonstration with mostly modest changes, including EHR system enhancements, increased outreach to beneficiaries, and/or changes in care process.

EHR-related changes included building templates into the EHR for diabetes and CHF, tailoring EHR point-of-service alerts to better match the demonstration measures, and organizing information better in the EHR more easily recognize what services patients need. Increased outreach to beneficiaries includes sending letters, making calls, and scheduling mammograms and/or colonoscopies for patients who need them, and an educational mailing to newly diagnosed CHF patients. Changes in care process include having medical assistants check for preventive service needs and give immunizations if needed, ensuring lab tests are complete before visits, and increasing receptionists' responsibility to flag patients with diabetes and put reminders in the charts. Most often, practitioners and staff took these actions some of the time, when they had time and inclination. Thus, although when listed sequentially the changes may sound impressive, in fact, care management in the visited practices is characterized by few activities per practice, often applied to subsets of the population, and conducted in an ad hoc rather than a systematic manner.

Prospects for Future Change

6. Most demonstration practices are interested in more fully using their EHRs for care management, but change can be expected to be incremental and slow.

At this time, the EHR products in place in the visited practices required extensive customization to support care management. Many of the practices lacked either the ability or the support to customize their EHRs for care management, or they are waiting for a new/upgraded system with better capability. Once system capability to support care management is established, processes for actually accomplishing the care management must then be adopted, ideally by all practitioners. But day-to-day pressures and the tradition of practitioner autonomy even within a practice, along with varying skill sets and degrees of interest among practitioners and other office staff, make incremental rather than transformational change the realistic goal for most practices. At the time of the visits, demonstration practices were in various stages in the progression just described, all with much room for further progress. They also faced relatively weak incentives to speed their progress, considering the totality of the demonstration along with other pay-for-performance initiatives, except perhaps in Massachusetts.

7. Increased patient engagement/outreach is the "next step" in care management for many practices, but less so in Arkansas.

Nearly half the visited practices told us some form of increased patient engagement or outreach would be a next step they would take in increasing care management. Many wanted to begin or increase reminder letters and calls to patients who need services; to facilitate this, some mentioned they hope to be able to generate lists of such patients with their EHRs. Arkansas practices were much less likely to be already performing patient engagement/outreach activities, and only one practice in Arkansas described a care management "next step" that involved patient engagement/outreach.

Factors Outside the Practice Influencing Pace and Types of Change

8. When practices are affiliated with or owned by larger organizations, the larger organizations often control the distribution of incentives to the practices (if any), and heavily influence EHR use, care management, and/or demonstration response.

Demonstration-wide, about a third of practices' names or application notes indicated that the practices are part of a larger medical group or integrated health system, while 72 percent reported an affiliation with an IPA, PHO, or medical group. The site visits made clear the relatively profound influence these larger organizations have on the demonstration practices with respect to their EHR use, care management, and/or demonstration awareness and response. With respect to EHR use, the larger systems provide technical and system implementation support at a higher level than we saw at independent practices, and some practices that had recently become part of a system (such as two in Utah) had to switch systems for compatibility. Regarding care management, examples of system influence include one system's in-house development of a diabetes registry that would work alongside the EHR in all the system's practices, and another practice where the next step in care management was said to be whatever the IPA decides to do

across practices—they would participate, but the IPA would lead. In two examples of system influence on demonstration awareness, one system had focused on system-level EHR changes to date and had not materially discussed the demonstration with the practices, while in another case the practice told us someone at the system that owns them must have agreed to participate in the demonstration, but they did not know much about it.

9. More visited practices in Massachusetts were responding to the demonstration in specific ways than were practices in other states; this appeared to be related to the presence of relatively potent incentives from other payers in the state.

Three-fourths (six of eight) of Massachusetts practices visited described a specific response to the demonstration beyond improved documentation, compared with half or fewer in the other states. Massachusetts also provided two of the three examples of relatively more aggressive responses to the demonstration, with one practice having designated teams organized around diabetes, mammograms, and colonoscopies that meet bi-weekly to discuss workflows and making patient contacts to those who need services. Other payers' initiatives—provider network tiering and pay-for-performance programs—were clearly a factor in Massachusetts practices' interest in improving their use of EHRs and in adopting more care management. A question the evaluation will continue to explore in the second round of site visits is why California practices—which are also subject to these types of pressures—did not as frequently report making operational changes due to the demonstration.

10. The timing and success of EHR product developments may play a significant role in the pace of change.

Nine of the 24 visited practices currently using an EHR were expecting to implement a new or upgraded EHR, either within the next year or with uncertain timing depending upon the decisions of a larger organization and/or vendor. For about half the waiting practices (five of the nine), further improving their care management is dependent on the more advanced capabilities of the new or upgraded system. Of those without EHRs, two were expecting to implement one within the next two years.

B. CONCLUSION[28]

In its first year, the demonstration successfully managed the submission of baseline clinical data from more than 90 percent of all practices that initially enrolled in the demonstration. Practice staff we spoke with frequently complimented the support provided during the submission process and the value of the process in terms of generating greater awareness of care and/or documentation gaps in the participating practices. However, the high level of effort required for practices to submit the data became clear through the data submission process, and is a significant threat to continued high participation rates for the demonstration, as practices

[28] Note that the findings are based on a relatively small sample of practices selected non-randomly, and therefore cannot be assumed to hold for the full set of demonstration practices.

contemplate whether the potential reward is worth the submission effort. The site visits highlighted the effort required and the complexity of assembling all the necessary pieces to support effective care management in primary care, from establishing system capability to effecting workflow changes in the office across all practitioners. In addition, factors outside the practices and outside the demonstration, such as EHR product quality, other payers' initiatives (or lack thereof), and the agendas of larger organizations that own some of the practices, are influences on practices' interests in improving use of EHRs and adopting more care management. Given this reality, along with a low level of awareness of the demonstration in about a third of the visited practices, the demonstration may be realistically expected to prompt incremental rather than large care improvements. Thus, the likelihood of observing short-term impacts on key outcomes measured through claims, such as expenditures measures and those quality measures where documentation improvements will not help the practices, may be low.

That being said, most practices were moving in a positive direction. While improving documentation was the most common response to the demonstration, the actions taken to improve documentation may at the same time improve care, as care needs are discovered in the course of completing missing documentation. Further, a substantial subset of practices (14 of 32) could point to at least one other type of action already taken as a result of the demonstration with potential to help improve performance, and most had in mind next steps that they would like to take to further improve, particularly toward more, better patient engagement/outreach.

For now, practices generally view the demonstration as in keeping with "where health care is going," and many told us their interest in improving care, not just the potential financial reward, motivated them to participate. But practices are not monolithic and we typically probably spoke with the most motivated people in the practice. Clearly the leaders we met with in the visited practices could benefit from tips and ideas on how to spread their techniques and enthusiasm more broadly within their practices, given the relatively individualistic, autonomous subcultures that exist. In addition, the wealth of experience being developed on the use of medical assistants to facilitate care management and improve documentation and EHR use could be shared with those practices that have not yet attempted to change their workflow.

In conclusion, MCMP appears to have prompted positive operational changes in many of the visited practices, although to date the changes are typically inconsistently applied based on practitioner and staff time and interest. Many practices would like to do more if their time and systems permit. Only time will tell if the system upgrades many are expecting to facilitate better use of EHRs and care management will materialize in time for additional response to occur during the demonstration timeframe.

REFERENCES

Baker, Geoffrey, and Suzanne Delbanco. "Pay for Performance: National Perspective; 2006 Longitudinal Survey Results with 2007 Market Updates." The Leapfrog Group and Med-Vantage Inc. Available at http://www.medvantage.com/Pdf/2006NationalP4PStudy.pdf, December 2007.

Bodenheimer, Thomas. "Transforming Practice." *New England Journal of Medicine*, vol. 359, no. 20, November 13, 2008, pp. 2086-2089.

Christianson, Jon B., Sheila Leatherman, and Kim Sutherland. "Paying for Quality: Understanding and Assessing Physician Pay-for-Performance Initiatives" Research Synthesis No. 13, New Jersey: Robert Wood Johnson Foundation, December 2007.

Congressional Budget Office, *High-Cost Medicare Beneficiaries.* Washington, DC: 2005.

DesRoches, Catherine M., et al. "Electronic Health Records in Ambulatory Care—A National Survey of Physicians." *New England Journal of Medicine*, vol. 359, no. 1, pp. 50-60, July 3, 2008.

Draper, Deborah, and Paul Ginsburg. "Health Care Cost and Access Challenges Persist." Center for Studying Health System Change, Issue Brief No. 114, October 2007.

Institute of Medicine. *Rewarding Provider Performance: Aligning Incentives in Medicare*. Washington, DC: National Academies Press, 2006.

Integrated Healthcare Association, "Increased Use of Information Technology by California Physician Groups Supports Better Quality Care." Press Release July 23, 2007. Accessed on November 14, 2008, at http://www.iha.org/Year4_2006_P4Presults_vfinal.pdf.

Liebhaber, Alison, and Joy M. Grossman. "Physicians Moving to Mid-Sized Single-Specialty Practices" Tracking Report #18 Results from the Community Tracking Study, Washington DC: Center for Studying Health Systems Change, August 2007.

Mehrotra, Ateev, Steven D. Pearson, Kathryn L. Coltin, Ken P. Kleinman, Janice A. Singer, Barbra Rabson, and Eric Schneider. "The Response of Physician Groups to P4P Incentives." *The American Journal of Managed Care.* vol. 13, no. 5, pp. 249-255, May 2007.

McGlynn, Elizabeth, et al. "The Quality of Health Care Delivered to Adults in the United States." *The New England Journal of Medicine*, vol. 348, no. 26, pp. 2635-2645.

Medicare Payment Advisory Commission. *Report to the Congress: Increasing the Value of Medicare.* Washington DC, June 2006.

Medicare Payment Advisory Commission. *Report to the Congress: New Approaches in Medicare.* Washington, DC: MedPAC, 2004.

Moreno, Lorenzo, et al. "Evaluation of the Medicare Care Management Performance Demonstration: Design Report." Submitted to CMS, May 25, 2007.

Ostbye, Truls, Kimberly S. H. Yarnall, Katrina M. Krause, Kathryn I. Pollak, Margaret Gradison, and J. Lloyd Michener. "Is There Time for Management of Patients with Chronic Diseases in Primary Care?" *Annals of Family Medicine*, vol. 3, no. 3, June 30, 2005, pp. 209-214.

Wilkin, John, Bryan Dowd, David Knutson, Geoffrey R. Hileman, Erika G. Yoshino, and Meg-Tsung S. Chu. "Medicare Care Management Performance Demonstration Waiver Cost Estimate." June 2005.

PART II

STATE-LEVEL SUMMARY OF PRACTICE CONTACTS

CHAPTER I

ARKANSAS

A. OVERVIEW OF VISITED PRACTICES

The demonstration practices visited in Arkansas are located in the central to southwestern areas of the state. Three practices are located in an urban area, two in a medium-size town (with population of approximately 38,000 people in a county with a population of approximately 95,000), and three in rural areas. They vary greatly in size and affiliation, ranging from solo unaffiliated to large integrated practices. Among the eight practices visited, three are part of larger organizations and five are not. Among the three affiliated practices, one has five internists and one family practitioner and belongs to a multi-specialty group practice of 25 physicians; one employs two family practitioners and two internists/pediatricians and recently merged with a nonprofit health system with 18 medical clinics; and one has 17 physicians on staff and is part of a large university health system. Among the five unaffiliated practices, three are solo practices and the remaining two have three and five doctors respectively (all family practitioners). At the time of the site visits, five practices were using EHRs. Each practice reported seeing Medicare Advantage patients, though reported percentages were small (two practices reported approximately 10 percent of patient panels being Medicare Advantage beneficiaries, while the rest reported less than 5 percent).

B. ENVIRONMENT OF THE DEMONSTRATION

All practices reported some experience with receiving reports on practice performance. Three practices reported receiving reports on efficiency and utilization from private payers or having private insurers visit to perform chart audits. Four practices reported some quality reporting on the part of local hospitals to which they admit. Only one practice reported being paid for performance on quality measures; specifically, the practice reported receiving Medicaid payments for performance on provision of Early Periodic Screening, Diagnosis, and Treatment (EPSDT) services for children. The university's IT department routinely provides physicians at the university-affiliated practice with physician-level reports for ambulatory care given to patients with diabetes.

Three practices affiliated with larger organizations all have or will have EHRs paid for by those organizations. The practice belonging to a multi-specialty group will implement an EHR system in 2009 paid for by the larger group. The practice that recently merged with a local health system will adopt the health system's EHR in 2010, with the health system funding

implementation. The university-affiliated practice uses an EHR system purchased and implemented by the entire university and supported by the university's IT department. This practice loses money and its entire operation (including the EHR) is subsidized by the university. Finally, the five unaffiliated practices received no outside support for EHR adoption and implementation. Four have purchased and implemented EHR systems on their own (two solo physicians and two small groups); the fifth does not currently have an EHR.

C. RESPONSE TO AND PERSPECTIVES ON THE DEMONSTRATION

The demonstration represents the first experience with a pay-for-performance program for seven of the eight practices that we visited. Four practices reported participating in the demonstration because they wanted to see "how they were doing" on the quality measures or because they believed pay-for-performance programs will be more prevalent in the future. Each practice reported that the demonstration has raised staff awareness to clinical guidelines and standards of care. Half of the practices expressed a sense that they had been providing services specified by the demonstration measures, but had not been consistently documenting the provision of such services. One solo practitioner disbursed money received from the demonstration as bonuses to staff, and the university-affiliated practice is considering doing so in the future. Another solo practitioner reported that he is no longer participating in the demonstration due to a lack of staff and the effort required to submit data.

General Views on Pay-for-Performance. Six of the eight physicians interviewed said they like the idea of being paid for performance, in principle, and three explicitly stated their belief that physicians should be held to standards of care. One physician said there is "no better way to get people to comply" with clinical guidelines than to pay them for it. However, five physicians expressed fears that pay-for-performance programs may induce providers to avoid caring for noncompliant or sicker patients, or that such programs may encourage the practice of "cookbook medicine." Similarly, one solo practitioner said that pay-for-performance programs attempt to apply "quantitative measures to a qualitative business" and that they may thus misrepresent whether a provider is truly delivering quality patient care. This physician also believed that a more efficient way to carry out pay-for-performance programs such as the demonstration would be to allow payers after-hours access to EHR systems to perform chart audits.

Reactions to the Demonstration. While most practices (with one exception) reported that the actual process of uploading demonstration data was relatively easy, six practices reported that gathering the data was time-consuming. Practice administrators for the most part did not think amounts awarded for reporting baseline data were enough, given the amount of work required to submit the data. Two practices reported that EHRs did not perform as advertised and did not support data extraction for the demonstration, which added to the burden of collecting data. Two practices also reported problems with the lists they received from CMS.

Others disagreed more generally with the way the demonstration was implemented. Two solo practitioners said the process of pulling data for the demonstration is redundant. They believed CMS should be able to examine performance using its claims data without having practices gather the information. One of the solo practitioners said the demonstration makes it easy for practices to game the system. One physician believed some important elements are

missing in the MCMP quality measures: patient satisfaction (and the doctor-patient relationship) and patient functioning.

Direct Influences of the Demonstration. Each practice reported that the demonstration increased awareness among staff of clinical guidelines and standards of care as represented by the demonstration measures. Each also reported that the demonstration helped improve documentation. One clinic administrator said nurses and some front office staff became more aware of preventive services patients need as well as clinical guidelines to be followed for patients with congestive heart failure (CHF) and coronary artery disease (CAD).

Five practices reported providing more care for CHF patients by more carefully tracking and increasing the provision of echocardiograms, as well as checking whether CHF patients are on beta blockers. One of the solo practitioners reported conducting more hyperlipidemia checks and more consistently reviewing whether patients should be and are taking statins (he is also doing this because he noticed an increase in rates of diabetes and hypertension in the local population). Physicians at the university-affiliated practice will be receiving physician-level reports documenting care provided to patients with CHF and CAD, and the physician at this practice reported that education of CHF patients has improved since the practice began participating in the demonstration. Additionally, four practices reported care for diabetic patients is now more closely monitored, with increased provision of hemoglobin A1c tests and foot exams along with improved documentation and educational efforts.

Because of the demonstration, a solo practice altered its office flow. At the start of patient visits, receptionists now identify patients by condition and insert a flag in the electronic chart if the patient needs a certain service. At this practice, staff now review patients' electronic charts every six months. The clinic administrator reported that the demonstration has allowed the practice to better forecast both staffing requirements and patient needs. The physician said he altered his EHR by adding a few reminders based on the demonstration measures. He also noted a negative effect of the demonstration: he has reduced the amount of time he spends talking with patients because now more time is spent checking labs and reviewing checklists within the EHR.

D. IMPLEMENTATION AND USE OF EHRS

Five practices are currently using EHR systems. Two practices are completely paperless, and a third is nearly paperless with the exception of a handful of older charts. One practice had been using an EHR for about one year, but recently stopped due to its merger with a local health system that uses a different EHR that is incompatible with the practice's old system. This practice will begin using the health system's EHR in 2010. Another practice will begin using an EHR in 2009. A solo practice had thought about acquiring an EHR, but did not and has no plan to do so.

The implementation in some practices was lengthy and incomplete. One practice implemented its EHR a year ago; however, staff continue to use both paper and electronic charts. Similarly, one of the solo practitioners regularly uses his EHR system, but the nurse who performs the administrative and clerical functions does not (this is largely due to lack of experience using computers). A small, unaffiliated practice in the outskirts of Little Rock said it

has high turnover among medical assistants, most of whom lack previous computer experience and require training.

Barriers to Implementation. Barriers to implementing EHR systems included staff resistance, lack of staff experience using computers, and lack of support developing and using EHR systems. The physician at the university-affiliated practice said that not all staff consistently use the system to document patient care; he attributed this in part to lack of training. At an unaffiliated practice in Little Rock, the physician interviewed said the other physicians at the practice are unaware of the capabilities of the EHR system. Furthermore, the administrator at this practice reported that some employees had limited experience with computers, and therefore she had to devote time to helping them use the system. This practice, along with a solo practitioner, reported difficulty in recruiting personnel with adequate computer experience. One Little Rock practice reported a bad experience with the technical support provided by a retail business from which it bought its EHR system. This business, which did not develop the EHR, was recommended by the QIO. Because of poor technical support, the practice has been unable to fully utilize the system's functions.

Facilitators to Implementation. Practices reported that preparation and support received during implementation of EHRs were factors facilitating implementation. Entities providing support to the practices included an EHR vendor and organizations affiliated with the practices such as a university-based IT department and administrative offices of larger group practices. A solo practitioner and his wife (who is the practice administrator) had reviewed several EHR systems and settled on one shortly before he completed his residency, and so were very familiar with system functions once they opened the practice. This practice has been paperless since its inception. A second practice, an unaffiliated family practice, received adequate support from its EHR vendor in Little Rock. For two weeks following implementation, two trainers from the vendor were available to staff on site. The practice was able to systematically reduce its patient schedule. The EHR system of a third practice, the university-affiliated practice, has been in place for eight years and is maintained by the organization's IT department. Practice staff are able to take advantage of EHR programming carried out by a physician of the organization.

E. IMPLEMENTATION OF CARE MANAGEMENT STRATEGIES

Types of Care Management. Practices reported being engaged in a number of care management activities, though mostly in an ad hoc manner. Seven of eight practices explicitly reported using some form of reminders to alert staff to services required by patients. Three of these practices also reported having processes in place whereby nonphysician staff alert physicians and patients to services needed for patients. Three practices reported implementing pop-up reminders within EHRs to remind staff of services needed by various patients. Only one practice reported using its EHR system to generate patient reminders—letters to be mailed to patients. Two practices reported using EHRs to generate lists of patients by condition; these lists are used by staff to review patient histories and to check whether patients need services. At one of these practices, the physician interviewed said that he is the only physician out of five family practitioners who is aware of this function, noting that other physicians are not yet comfortable using the EHR.

Seven of eight practices also reported attempting to educate patients in some form. Across these practices, such activities occurred sporadically. Two practices reported that nurse practitioners focused on providing patient education. At one of these practices, a nurse practitioner had been responsible for educating CHF patients about diet and lifestyle, and the practice tried to make sure these patients met at least once with the nurse practitioner. (However, the nurse practitioner at this practice was recently designated to work in the hospital, so will be lost to the practice.) At the other practice, a nurse practitioner has essentially designated herself as educator. The practice administrator said the nurse practitioner enjoys using the practice's EHR system and WebMD to obtain educational information for patients. At each practice utilizing nurse practitioners in this way, the clinic administrators reported that the educational level (master's degree) of the nurse practitioners is important in their ability to effectively educate patients.

The solo practitioner in rural southwestern Arkansas who began his practice with an EHR system has several care management processes in place. At the beginning of patient visits, nonphysician staff systematically identify patients by condition and "turn on" reminders in the EHR notifying the physician if patients are overdue for certain services. If patients are overdue for services or visits, a receptionist will often phone patients to remind them. The practice has also institutionalized a process whereby staff systematically track and enter lab orders and results into the EHR, allowing them to follow up with patients if orders are not fulfilled. The practice also holds weekly meetings to discuss ways in which patient care can be improved.

In general, the demonstration has not induced any of the practices to think outside of the traditional fee-for-service, face-to-face visit framework. Most of their care management still takes place within the context of patient visits. For example, if a test or check-up is due in three months, the patient is instructed to make a follow-up appointment, and the test is ordered at that visit. Education is provided during patient office visits, even though office visits may be ill-suited to effective patient education (Bodenheimer 2008, and Ostbye et al. 2005). Providers are often busy addressing immediate acute and chronic medical problems, refilling prescriptions, filling out forms, and dealing with myriad other issues, leaving little time for less urgent but equally important matters like patient education.

Plans for the Future. None of the practices offered or contemplated implementing any sort of more advanced care management services such as outgoing telephone calls to patients in between face-to-face visits for education or routine monitoring. Even in-person individual patient education was rarely provided, and there was no mention of group visits. There was also no evidence of any sort of longer-range care planning for individual patients (such as goal-setting and monitoring of progress toward goals) beyond what is currently and customarily done at the end of an office visit. Except for the university practice, none of the practices were really doing any sort of practice- or physician-level tracking of performance for groups of patients; even for the university practice, it was unclear to what extent the physician-level reports were being used.

Practices reported little in the way of concrete plans to initiate additional care management activities. One practice hopes to reinstate education of CHF patients, which it was forced to discontinue when the nurse practitioner responsible was designated to work with hospitalized patients instead. The solo practitioner who provided bonuses to staff using MCMP money

reported being likely to continue to do so, and the university-affiliated practice is considering implementing a similar program whereby physicians will be rewarded for positively contributing to performance on demonstration measures.

CHAPTER II

CALIFORNIA

A. OVERVIEW OF VISITED PRACTICES

The practices visited in California are small- to medium-sized, with between one and eight physicians. Six practices are located in an urban area, and two in a rural area. General internists comprise six of the practices, which range in size from one to eight physicians. The seventh practice is a solo cardiologist's practice that provides primary care to Medicare beneficiaries, and the eighth visited practice is made up of a mix of family practice and internal medicine physicians totaling seven physicians. The physicians in each visited practice are supported by a variety of staff, including office managers, receptionists, medical assistants, technicians, nurse practitioners, and physician's assistants. Seven of the visited practices see Medicare Advantage patients, who represent from under 1 percent to approximately 50 percent of total patients, depending on the practice. There also is a wide range in the percentage of Medicare fee-for-service (FFS) patients seen at each practice. One practice reported that 5 percent of its patients are Medicare FFS, while in another practice the figure was 65 percent.

B. ENVIRONMENT OF THE DEMONSTRATION

All of the practices visited are associated with one or, at most, two independent practice associations (IPAs). This form of practice has a significant presence in California. Seven of the eight practices have an association with just one IPA; one practice is associated with two. IPAs collect and review clinical measure data from the practices and some provide the practices with performance reports and lists of patients who are missing tests or procedures. The percentage of practice patients in IPAs ranges from 15 to 60 percent.

Seven of the eight practices are involved in a pay-for-performance program through their IPA. Among the seven, IPAs provide the practices with bonuses based on their performance overall or on specific items, including patient satisfaction, quality measures, and general tracking of performance regarding patients with conditions including asthma and diabetes. In general, the physicians and office staff in practices that have received payment from IPAs feel that, not counting the incentive received from the MCMP demonstration, they have received enough of an incentive to motivate change in practice behavior in terms of care management, although the extent of changes varies greatly. Only one physician reported that the practice does not receive enough of an incentive from the IPA to influence a change in practice patterns.

C. RESPONSE TO AND PERSPECTIVES ON THE DEMONSTRATION

The visited practices are involved in the demonstration for one of two reasons: (1) to receive the incentive payments or (2) to improve their documentation of quality measures and overall quality of care.

Participation Due to Incentives. Half of the practices visited are involved in the demonstration to receive the incentive payment. The goal of one practice, which does not have an EHR, is to document "everything" in order to receive the maximum incentive payment amount each year and save enough money to acquire an EHR system by the end of the demonstration. The office manager in another practice expects to receive the incentive payment for its three participating physicians, with the realization that the ultimate payment amount will depend on the level of care provided at each office visit. One practice, while interested in receiving the maximum amount of reimbursement across all of the years, was frustrated by the amount of work and the cost required to abstract and upload all of the patient data for the demonstration.[29]

Participation Due to Expected Improvement in Quality of Care. The other four practices are involved in the MCMP demonstration to improve quality of care, and they hope to achieve this through more thorough documentation at the practice. The clinical coordinator in one practice said that the practice is participating in the demonstration purely to see whether it is performing above average and following Medicare guidelines; the reimbursement has no bearing on the practice's participation. A physician in another practice noted that he is not influenced by the reimbursement offered by the MCMP demonstration because participating in the demonstration is in line with the practice's current goal of improving patient care. The physician does not expect any financial benefit in the short term; however, as more pay-for-performance programs arise, he expects that the change in patient outcomes will be more important in determining reimbursement. The major factor in improving his practice's performance will be changing the other physicians' attitudes toward performance on quality measures.

Awareness of the Demonstration. Although most of the physicians at the eight practices are participating in the MCMP demonstration, their awareness of the demonstration varies greatly. Both solo practitioners were aware of the demonstration, although one said he is unable to distinguish between MCMP and other similar programs. The other six practices reported that only the lead physician, the office manager, and the office staff directly involved in the data abstraction and submission are aware of the MCMP demonstration. Prospects for greater awareness do not appear good at this time: according to those we interviewed, the physicians and office managers in these six practices, which are comprised of 3 to 8 physicians, have no plans to discuss the practices' involvement in the demonstration or their performance on the collected quality measures, except to make sure that all the necessary documentation is accomplished.

[29] The practice reported total labor costs of $28,780, while it received only $5,000 for submitting the MCMP data.

Direct Influence of the Demonstration. The demonstration has not had a marked impact on the practices' operations, other than to cause physicians and medical assistants to complete more thorough documentation and review of the requested clinical measures before, during, and after patient visits. Overall, medical assistants are increasingly involved in preparation for patient visits and they document some necessary clinical information, such as blood pressure, height, weight, and the reason for the appointment, before the patient sees the physician. Other changes in office work flows as a result of the demonstration include: (1) updated practice forms (progress, patient intake, and medication forms) used during the patient visit to reflect the clinical measures reported for the MCMP demonstration and (2) more proactive care management provided to Medicare beneficiaries (for example, prior to scheduled office visits, office managers and/or office assistants contact patients who do not have records of a test, such as a colonoscopy or a hemoglobin A1c test, so that these tests are scheduled and results reviewed by physicians).

D. IMPLEMENTATION AND USE OF EHRS

Five of the visited practices use EHR systems that were implemented prior to their involvement in the MCMP demonstration. The other three practices visited do not have EHR systems, in large part because they cannot afford them.

Practices with EHRs and Paperless Charts. Three of the practices reported that all of their patient records were completely electronic at the time of the site visit; one practice had been paperless for approximately six years, the second for four and a half years, and the third for two years. One practice considers itself a beta test site for the EHR; at the time of the site visit, the practice was using basic EHR functions (notes, e-prescribing, flagging required tests) and expected to adopt more complex EHR functions in the future. The second practice's EHR was developed by the practice's lead physician over 10 years ago, after which he sold the intellectual property rights to a company for which he serves as chief medical officer. Hence, the practice is the main beta test site for the overall product, and the lead physician is able to add capabilities to the EHR as needed—an unusual situation that cannot be generalized. This practice was able to use many EHR functions, including electronic prescribing; receiving laboratory results directly in the EHR; entering chart notes, patient diagnoses, and medication lists; and using the EHR to generate lists of patients with a specific diagnosis or date of service. The third completely electronic practice uses the EHR to enter chart notes, enter lab orders directly in the EHR, enter and track referrals, and transmit electronic prescriptions directly to the pharmacy.

Practices with EHRs and Paper Charts. Two practices reported that they are using both paper and electronic charts and expect to have a steady transition to a fully electronic system in the next few years.[30] One practice acquired its EHR system through its IPA, which installed the EHR and continues to provide technical assistance. This practice acquired the EHR because the

[30] One practice reported that it would take up to three years to enter all of the patient charts into the system. The other practice did not have a specific time frame for its transition to a fully electronic system; the office manager reported that the practice is implementing more advanced EHR functions over time.

IPA made it affordable; the practice lacked physical space for paper charts, and the EHR will contain data that is more complete and easier to manage and abstract. The second practice is implementing its EHR in stages and receives technical support from its larger medical group. At the time of the site visit, the EHR had the capability of documenting vaccines, tests, medicines, and physician notes, and e-prescribing.

None of the practices with EHRs are using EHR functions extensively to manage chronic/preventive care populations and thus change care management processes. For example, the practices are not using the EHR functions to generate practice/provider performance reports or lists of patients needing services. Furthermore, most practices do not have interfaces with laboratory information systems. Rather, practices use EHR capabilities at the point-of-care, converting paper-based tasks, such as documenting notes and ordering prescriptions, to the electronic system.

Use of Other Health IT. Six of the practices (five with EHRs, one without an EHR) use a variety of other health IT, including stand-alone e-prescribing tools, electronic clinical resources, online healthcare communication programs, and web-based tools provided by the IPAs. In one practice, the interviewed physician uses a stand-alone e-prescribing tool that was provided free of charge on a personal digital assistant device by Caremark. However, he is the only physician in his practice (there are six others) to use e-prescribing.[31] Several practices use electronic clinical resources; two practices use UpToDate™ to access educational materials, and one practice uses ePocrates™ to access prescription information. In addition, three practices have online communications with their patients. One practice uses a basic e-mail program, and two practices use RelayHealth™, which has secure messaging capabilities. None of these systems was seen as difficult to implement.

Four of the visited practices reported that their IPA provides them with a web portal through which they can view individual clinical measures data for each of their patients, as well as summary data that shows the practice's compliance (overall and by individual physician) on collected clinical measures that are used to compute scores for the IPA's pay-for-performance program. IPA-provided health IT capabilities have two major differences from those provided in-house: (1) they often focus on chronic/preventive care populations, whereas EHR capabilities do not, and (2) they focus solely on IPA patients, rather than on all patients. While the IPA provides health IT capabilities both through portals and EHR services/support, the two types of capabilities are not integrated at the practices.[32]

Barriers to Implementation. Among the five practices with EHRs, one practice has encountered a number of errors and flaws in the system, and the interviewed physician feels the practice does not receive enough support from its IPA or the EHR vendor to solve these problems. The one major complaint about the EHR at this practice is that, while it works well

[31] This practice does not have an EHR.

[32] The IPA's web portal systems were not created with the ability to be linked with the various EHR systems; none of the office staff could provide any reasons for this.

and produces a "nice electronic medical record," it has been difficult and cumbersome to use (the office manager and physician who were interviewed reported that there are too many "clicks" and pages to go through to enter simple information), and "is not programmed the way a doctor thinks."

The major barrier to EHR adoption for the three practices without EHRs is the cost of the system. One physician thought his practice would receive the EHR by participating in the demonstration; he could not afford an EHR otherwise. The office manager at another practice said the only way the practice could acquire an EHR is if it joins a large area medical group, which would install its EHR system in the practice; however, EHR adoption is just one of many considerations about whether to join the larger group.

Facilitators to Implementation. Availability of technical support and the affordability of EHRs acquired through the IPA were reported as factors facilitating the adoption and use of EHRs. Most practices did not encounter any difficulties implementing their EHRs or other health IT because of the assistance provided by the IPAs, technical support staff at the practice, and vendor support staff. Implementation of the EHRs tended to take longer than expected; however, for all except one practice, once the systems were implemented and the office staff trained, there did not appear to be any major difficulties in using the systems.

E. IMPLEMENTATION OF CARE MANAGEMENT STRATEGIES

Types of Care Management. In addition to patient lists provided by the IPAs, the practices have a variety of ways to identify patients with chronic conditions and remind them that they need preventive services. These range from monitoring the patient's chart for changes in conditions and updates on procedures the patient received, to proactively following up with the patient, other providers, and laboratories to ensure that the patient has received the recommended care. The majority of these care management processes were in place prior to the practices' participation in the MCMP demonstration, and are not electronic. The processes are influenced largely by the IPA-related incentive and performance improvement programs and in a few cases by the physicians' desire for improvement in care management. Apart from changes in pre-visit routines at some of the practices (described in more detail below), the MCMP demonstration has mainly served to raise further awareness of care quality among physicians and staff at all of the visited practices. Care management processes in place at the time of the site visit included:

- ***Tracking patients using IPA-generated lists of patients.*** The main influence on practices' management of patients with chronic conditions seems to be from the IPAs, which send each practice lists of IPA patients, including medical problem lists (lists of medical conditions that require diagnosis or medical management). However, only five of the eight practices use these lists in their care management processes. In two of these practices, the staff review the IPA lists and send out mailings to patients to notify them when they are due for their next test or visit. Three practices divide the IPA list among the medical assistants to call patients who are not coming in for a required test or service.

- ***Pre- and post-visit procedures.*** As a result of the MCMP demonstration, in six of the eight practices, medical assistants are now increasingly involved in pre-visit procedures, including (1) accessing information on patients who are scheduled to come in for a visit, (2) calling patients to make sure that they get necessary exams and tests either before or during the scheduled visit, and (3) documenting clinical measures before patients see the physician. Only one of the eight visited practices has rigorous post-visit procedures to proactively track down reports from a patient's other providers or missing test results through calls by the medical assistants.

- ***Patient education classes.*** Five practices noted that education classes are available to patients with certain chronic conditions, either through a hospital, an IPA, or elsewhere. At one practice, a contracted dietician holds one-on-one appointments with patients with diabetes twice a week and holds a class quarterly on lipids and diabetes.

- ***Direct access for frail, elderly patients.*** At one practice, a physician who is particularly focused on geriatric and palliative care has given 40 to 50 frail, elderly patients a direct phone number to call in case of emergency.

Plans for the Future. In general, the eight practices visited do not envision implementing any major changes in how they manage care due to the MCMP demonstration; they believe they were already providing a high level of care prior to their participation and will continue to do so. At practices with an EHR system, physicians mentioned that they would like to have the ability to manage groups of patients with specific conditions through the EHR and discussed creating an overall page on the EHR to document clinical measures, but it was unclear when these plans would be implemented.

All of the physicians and office staff mentioned that they would like to improve their performance on the clinical quality measures they report for both the MCMP demonstration and the IPA pay-for-performance programs. Generally, the expected gains and effects on care management processes from the MCMP demonstration are consistent with but less important to the practices than those from IPA-related incentive and performance improvement programs, largely because (1) a greater proportion of the practices' patients are associated with an IPA than with the MCMP demonstration, and (2) the IPAs provide greater incentives to the practices than the MCMP demonstration.

CHAPTER III

MASSACHUSETTS

A. OVERVIEW OF VISITED PRACTICES

The practices visited in Massachusetts are all classified as urban (located in metropolitan counties); however, there is more variation in their geographic location than the classification would suggest: two of them are located in or between small towns, with a significant drive of 40 minutes or more to a city. Four of the eight practices were affiliated with larger organizations (for example, an IPA or health system). Six of the eight practices reported seeing Medicare Advantage patients (two practices did not supply this information). Seven of the eight practices had adopted and were using EHRs. Practices have been using EHRs from 10 months to four years, with four practices having used them for at least two years. At the time of the interviews, seven of the eight practices visited had five or fewer physicians. One multi-specialty practice had 19 physicians, nine of whom are primary care physicians participating in the MCMP demonstration. Of the seven other practices, two were solo practitioners, two included three physicians, two included four physicians, and one included five.

B. ENVIRONMENT OF THE DEMONSTRATION

Influence of Larger Organizations. Each practice receives information on quality and/or efficiency measures from private payers, larger organizations affiliated with the practices, such as physician-hospital organizations (PHOs) and administrative offices of group practices or integrated delivery systems, or both. Two practices receive information on performance/efficiency from a PHO, while another practice had received claims-based information from a PHO but now creates its own reports based on service-related information generated by its EHR system.

Payers in Massachusetts also place physicians into tiers based on quality and/or efficiency measures. Larger organizations connected to several of the practices track performance measures on practices or physicians.

With respect to health IT adoption, practices are also influenced by larger organizations to which they are related in some way. Three of the four practices connected with larger organizations use the EHRs adopted by those organizations; in each case the larger organization chose and paid for the system. The solo practitioners received some consultation from outside entities in choosing an EHR system. One solo practitioner was involved with a committee that

included a group of physicians convened by a local hospital to select an EHR vendor. The other solo practitioner reported that the Massachusetts QIO had recommended a particular EHR system.

Views on Pay-for-Performance. Most physicians supported the concept of pay-for-performance programs; however, they tended to believe that measures associated with such programs are not able to account for noncompliant or the sickest patients. Four physicians and a registered nurse said they believe such programs have the potential to encourage some practices to turn away the sickest patients or misrepresent provider performance. Most participants noted that pay-for-performance is the direction in which the industry is moving, so better documentation of care and utilization of EHRs are steps viewed as necessary to adapt to the emerging environment.

C. RESPONSE TO AND PERSPECTIVES ON THE DEMONSTRATION

Interview participants often did not distinguish the demonstration from other pay-for-performance initiatives in the state. While interview participants reported that private payers' pay-for-performance programs track practices on measures similar to those of the demonstration, the demonstration appears to be expanding on these initiatives for Medicare patients in general, and patients with CAD and CHF in particular. Practices reported that private payers are not tracking measures for these two conditions. The demonstration is motivating practices to collect data on these patients and to begin thinking about implementing care management processes to improve performance on the demonstration measures.

Perspectives on Financial Incentives. Overall, there was significant variation among practices in how the incentives were reported to motivate physicians. Participating practices receiving support from larger organizations were relatively unconcerned with the financial incentives of the demonstration. Only two physicians were able to provide specific numbers as to what they earned or can expect to earn from the demonstration; each of those physicians is at an independent practice (in other words, a practice unaffiliated with a larger organization such as an IPA). The physician interviewed at one of these practices noted that two participating physicians at the practice are salaried and are not motivated by the demonstration's financial incentives because they do not directly receive demonstration money.

One physician practicing within a delivery system viewed the financial rewards as relatively small and agreed that the larger entity that supports the practice's EHR system should receive all the benefits. A participating physician in a practice belonging to an IPA noted that most money from pay-for-performance programs can be made in the private sector. Two solo practitioners reported that the financial burden of submitting data may preclude continued participation in the demonstration. In contrast, a medical director for an affiliated group practice said the practice never would have participated in the demonstration if the incentives were not in place, as they will help defray costs associated with infrastructure maintenance and reconfiguring EHRs across affiliated practices.

Direct Influences of the Demonstration. Participating practices reported that the demonstration is a motivating factor in getting them to more closely monitor Medicare FFS

patients while alerting staff to guidelines for CAD and CHF patients. Because of the demonstration, practices have implemented data collection efforts and are at least considering designing office procedures around care management and preventive services. While data collection is close to being institutionalized at several practices, care management activities tend to occur on an ad hoc basis.

Examples of the demonstration's effects on practice operations include:

- Engaging nonphysician staff with additional responsibilities, such as data collection efforts
- Developing forms within EHRs to capture information pertinent to demonstration measures
- Conducting patient followup to ensure patients receive needed services related to demonstration measures
- Establishing condition-specific workgroups to address demonstration measures

D. IMPLEMENTATION AND USE OF EHRS

Seven of the eight practices visited were using EHRs at the time of the site visits. Implementation of EHR systems is an ongoing process; the levels at which practices were utilizing EHR functions varied widely. Five practices reported using some e-prescribing functions. Four practices reported using disease registries in some way via their EHR systems, though only one practice had implemented the creation of patient self-management plans. Three practices reported using automated reminders. All practices using EHRs reported expending significant effort adapting to and tailoring the systems.

Barriers to Implementation. While barriers to implementing EHRs varied across site visit practices, practices generally reported barriers relating to three factors: (1) lack of staff support, (2) limitations of EHR systems, and (3) limited interoperability of systems across providers. Of the seven practices with EHRs, only one practice reported being completely paperless.

Practices reported a shortage of time or personnel available to fully populate EHRs with patient data. Data migration is a time-consuming process; as contributing factors practices reported having to track down patient charts from other providers or retrieve charts on patients who have not visited the practice in years. Populating EHRs with patient data and retrieving data pertinent to the demonstration from the EHRs were particularly burdensome for the two solo practitioners, both of whom expressed reluctance to continue participating in the demonstration.

All practices with EHRs reported limitations of their EHR system as contributing to the amount of time required to fully implement EHR functions. For example, four practices reported having to devote substantial time to tailoring EHR systems so that registry capabilities could be utilized. Similarly, four practices reported EHR systems not adequately supporting search functions or use of clinical guidelines via on-screen prompts. One of the solo practitioners said his EHR system did not contain separate fields so that he could enter data relevant to patients

with certain conditions; he was instead using a catchall, "past medical history" field to record disparate patient information.

Six practices specifically reported a lack of interoperability between their EHR systems and data systems used by other providers (for example, other physician practices or hospitals) and laboratory or radiology facilities. By "lack of interoperability," we mean the practice's clinical staff could not exchange patient health information electronically. This was a factor viewed by the practices as slowing down full implementation of EHR systems. This issue is related to the problem of lack of staff support to populate EHRs and fully document patient care, as a lack of interoperability increases the time required to track down patient information needed to support EHR functions. Several participants reported that making at least some patient information more easily accessible would save time for staff and allow them to focus on care management activities such as patient follow-up.

Facilitators to Implementation. Some practices were more systematic in the ways they implemented their EHRs, while others appeared to implement EHRs in an ad hoc fashion. Three practices reported initially reducing patient appointments while implementing EHRs, and one of these practices reported building allergy, medication, and problem lists for its patients several months before the practice began documenting within the EHR. Such lists provide detailed medical histories of patients which often serve as the foundation for other system functions such as service reminders and drug-condition or drug-drug interaction alerts. Staff at two practices use forms or questionnaires to gather disease-specific patient data for entry into EHRs, and one practice reported hiring temporary workers to input data into EHRs.

Four practices that reported relatively high levels of staff availability, and commitment to populating EHRs and developing systems to meet the practice's needs, were further along in the implementation process than practices with fewer resources available for these tasks. Three such practices include physicians who took on leadership roles in actively developing EHR systems, tailoring the EHRs to support registry and search functions. Two of these practices have staff members who dedicate 50 percent of their time to EHR development and to assisting other staff in their use of EHRs. One of these practices includes a salaried physician who devotes half his time to EHR development, while the second practice designated an administrative staff member to troubleshoot the EHR system and provide technical support to workgroups organized around demonstration measures. This practice reported that nonphysician staff enjoy using the EHR system because they no longer have to worry about reading doctors' handwriting; this has led to increased responsibilities for staff who are now more actively involved in "keeping a clean database."

E. IMPLEMENTATION OF CARE MANAGEMENT STRATEGIES

Implementation of care management processes varied across practices, though in most cases implementation did not occur on a systematic basis. The demonstration was motivating practices to at least think about implementing care management activities for their Medicare FFS patients. (In most cases, care management prior to the demonstration had been restricted to members of private plans.) The most common care management activity facilitated by the demonstration was

patient follow-up. Use of EHRs for care management required customization of the EHR systems, which not all practices were able to accomplish.

Types of Care Management. Patient follow-up and use of EHRs to monitor the provision of preventive services were the most common types of care management activities reported by the practices. The practice without an EHR reported that diabetes educators were frequently utilized, and the practice participates in patient outreach efforts led by the IPA to which it belongs. Three practices were able to use EHRs to print lists for contacting patients with certain conditions and in need of tests or services. Three of the other practices reported contacting patients for needed tests and services when staff have time to do so. Two practices reported assigning medical assistants to monitor "health maintenance modules" within EHRs to determine whether patients need a colonoscopy or mammogram. One practice reported its EHR contains a pop-up screen that helps nursing staff pose questions to patients about whether they need preventive services.

Practices also reported other care management activities: e-prescribing, use of clinical guidelines, and educating patients via EHRs. All but two of the practices with EHRs use e-prescribing functions within their systems. These functions allow practices to check for drug-drug and drug-condition interactions and, in some instances, to check medications against patient allergy lists within the EHR. Three physicians reported obtaining information on clinical guidelines from government sources or via medical societies such as the American Academy of Family Physicians or the American Board of Internal Medicine. One physician is loading such information into the practice's EHR system because the vendor does not provide this kind of information in its annual software updates. Two physicians reported using EHRs during office visits to educate patients by displaying trend data and utilizing registry functions to provide patients with information about their health status.

While most practices had not yet implemented clinical supports and decision prompts as functions within their EHR system (though some participants indicated such functions were not supported by EHR software), two practices that were particularly far along in the development of their EHR systems had begun to institutionalize care management activities and reported using their EHR systems to support these activities. One practice created workgroups responsible for tracking patients based on the conditions and services tracked by demonstration measures. The workgroups, which are led by either a physician or a nurse practitioner, meet every other week and use reports generated from the EHR to organize their approach to work flows and contacting patients. Additionally, the physician at this practice provides staff information on possible financial rewards based on workgroup performance.

In addition to assigning care management responsibilities to medical assistants and other staff, one practice has created a diabetes report card to be given to patients. The report card is a one-page document that presents information on patient data downloaded from the EHR, including data on the patient's hemoglobin A1c, blood pressure, cholesterol, and body mass index as well as guideline-appropriate target levels and service frequencies.

Plans for the Future. Overall, the practices visited in Massachusetts are in the very early stages of implementing care management activities. Three practices reported that they are

planning to set up automated reminders within EHRs to remind providers of services needed by patients. One practice has contracted with a company that provides a software product allowing for automated phone calls to patients who are overdue on a visit or need a service of some kind. The practice that has created a report card template for diabetes patients is now working to develop a CHF registry, and in the near future plans to create and disseminate educational materials in some form to CHF patients. Another practice is considering providing educational materials, possibly in the form of report cards, to patients with certain conditions (probably diabetes and/or CHF). One physician has created a module within the EHR that will enable the practice to print out self-management plans for certain patients. The practice without an EHR already employs a diabetes educator and is considering hiring an educator for patients with CHF and CAD, as well as acquiring an EHR system.

CHAPTER IV

UTAH

A. OVERVIEW OF VISITED PRACTICES

The practices visited in Utah are small to medium-sized: four have fewer than four physicians (one solo practitioner, one with two physicians, and two with three physicians), and four have between seven and 13 physicians (two with seven, one with eight, and one with thirteen). The physicians are supported by office managers, receptionists/patient service representatives, medical assistants, medical technologists, nurses, physician's assistants, coding consultants, and billing offices. A few practices utilize physician's assistants and nurses, but the majority depends on medical assistants. Four practices are urban, and four are classified as rural because they are in non-metropolitan counties; however only two of the eight had a very rural feel when visited—the other two "rural" practices were in a county adjacent to an urban area and a large town, respectively. The practices see a wide range of Medicare patients as a percent of total patients (10 to 60 percent), with most practices serving few Medicare Advantage patients.[33] Four practices are affiliated with much larger organizations—one with a university health system and three with two different integrated health systems (one of which has its own health plan). These practices tend to look to the larger system for IT change and support and for changes to care processes. These organizations have a large presence and influence in healthcare provision in Utah. Two practices have a relationship with an IPA, but the role of the IPA seems limited. Seven of eight practices are using EHRs.

B. ENVIRONMENT OF THE DEMONSTRATION

The eight visited practices have only limited involvement with other pay-for-performance programs. Only one practice is participating in a pay-for-performance program through an integrated health system's health plan, while another practice was not sure if it participates in other pay-for-performance programs. No practices are participating in any other health IT or EHR initiatives. Two practices reported receiving incentives or bonuses from other sources besides MCMP: both receive quarterly reports from the same integrated health system's health plan. These reports compare practices to other providers and rate individual physicians on quality

[33] Often, practices could not break down their total Medicare population by fee-for-service versus managed care. Of those that could, two thought Medicare Advantage was about 10-11 percent of their total practice volume, while two stated it was between 1 and 5 percent.

measures, some of which overlap with the MCMP measures. One practice indicated that the amount of the bonus is significant for a few physicians, while the other practice categorized the bonus as very small. Both of these practices are associated with larger organizations and also track multiple care measures tied to incentives. A third practice occasionally receives productivity bonuses from some health plans, but the amounts are small and irrelevant. All eight practices receive lists of patients or reports from health plans identifying patients that, according to claims for the health plans, have not had tests or provided care, or are noncompliant.

Feelings about pay-for-performance programs are mixed. Half of the practices like pay-for-performance while the other half do not; two practices noted both positive and negative aspects. The Utah practices are concerned that:

- Pay-for-performance will create additional paperwork for activities physicians already perform. (Practice #2)
- Pay-for-performance may influence some providers to just "buff up their charts to look good." (Practice #3)
- Pay-for-performance will pressure physicians to dismiss patients that make them look bad. This is especially a concern for rural areas, where patients may not have other care options (Practice #7).
- If pay-for-performance is implemented nationally, large systems will have the capability to do reporting and to make the time and money investment while smaller practices will not. Pay-for-performance may put providers out of business, which would affect patients' access to care (especially for small rural practices) (Practice #5).
- Pay-for-performance may decrease payments to physicians. Reimbursement may be affected and fee-for-service may no longer happen (Practice #6).
- The program needs to be easy and straightforward. Pay-for-performance should not be a burden (Practice #7).

C. RESPONSE TO AND PERSPECTIVES ON THE DEMONSTRATION

Expected Gains from Participation. Practices became involved in the demonstration for a several reasons. The most common is that the demonstration is an opportunity to evaluate and improve the practice (particularly with regard to work flow and the EHR). Practices also participate due to pre-existing relationships with the QIO staff; moreover, they want to be early adopters of practice policies that they feel will eventually be mandated. Only one practice explicitly mentioned potential financial benefits as a reason for involvement. In three practices, the larger organization with which they are associated encouraged or required their participation. There was interest in the demonstration at the organizational level of one practice because it was viewed as an opportunity to bring visibility to and focus on quality improvement and help them more quickly achieve programming and electronic registry functions they already desired.

The expected financial gain ranged from $3,000 to $173,000 (for five practices that were able to give an estimate). In gathering these estimates from the sites, three issues stood out. First, two practices, both with low expected gain, commented that the financial gains were not worth the time to participate. (One of these practices is a suburban practice with three physicians while the other is a rural practice with seven physicians.) Second, there were concerns that the practices would not get credit for activities such as patients seeing other providers (and that documentation of those activities would not happen at the demonstration practice). Finally, it seemed that practices either did not really know how much they were going to gain from participating (some practices were not able to give an estimate or estimated a number such as "a few thousand"), or, in practices where estimates were given, only one staff member had an estimate.

Awareness of the Demonstration and Impact. Overall, practices were not very aware of the demonstration and many practice staff either had not seen the baseline report or did not remember how well the practice performed in the baseline report. Typically, the personnel who had seen the baseline report were staff members at the organizational level or administrators in the practice. In each practice, at least one physician was broadly aware of the demonstration, but physician knowledge of specific demonstration conditions, measures, and especially performance was limited. In only two practices were all of the physicians reported to be aware of the demonstration measures and their performance.

A few practices noted positive aspects of the demonstration, the most common of which were that the demonstration helped identify weaknesses and strengths, encouraged practices to improve, and pushed practices to standardize charting, which made it easier to find information. One practice liked that CMS is focusing on primary care and complex patients. Another practice viewed the demonstration as an opportunity to compare their performance to others using the same measures. This practice had also developed tools it might otherwise not have adopted (such as a registry function).

Practices reported either no complaints about the demonstration or larger systematic complaints that may need to be taken into account when expanding the program. Three practices said either that there was nothing they disliked about the demonstration specifically or that there was no downside to the demonstration other than gathering the information. Three practices noted specific concerns:

- Not being able to document measures that were completed a while ago or that were performed by a different physician
- Not having a way to account for instances in which the physician scheduled an appointment that was not kept by the patient (especially important in remote areas where patients do not have local access to care such as eye exams)
- Physicians' fear of "big brother" and a need for flexibility and exceptions because some things, while indicated for a condition, do not always make sense for the individual patient

- Burdensome reporting for meeting targets that do not represent optimal care. For example, the physician in one practice noted that the demonstration target for hemoglobin A1c is 9.0, but his goal is 6.5 for many patients.

Direct Influence of the Demonstration. The demonstration did not have a large impact on the practices' operations, other than more thorough and standardized documentation and, for some practices, a change in the role of medical assistants. In half of the practices, medical assistants were increasingly involved in preparation for patient visits and documentation during and following visits. Their role in documentation includes clinical (such as, test results and visit notes) and patient history information. Another change noted by a few practices involved an emphasis on guideline-specific care, such as performing foot exams or ordering hemoglobin A1c tests for diabetic patients. In addition, the demonstration helped physicians identify aspects of care that they were previously not doing well. In one practice, the QIO redesign changed how they use staff; a midlevel provider now offers diabetes education. Three practices reported no effects due to the demonstration, and others commented that changes have not been very concrete or systematic.

D. IMPLEMENTATION AND USE OF EHRS

Seven practices use EHR systems, all but one of which was implemented prior to involvement in the demonstration. Tactics used to implement the EHR included weekend training sessions, entering patients into the EHR as they had appointments (and pulling information from paper charts to scan into the EHR), and finally, choosing a "go-live" date to start all patients as if they were new patients. This involved asking patients to fill out a four-page form with clinical and demographic information to enter into the EHR). The transition from paper charts to electronic records often involved working longer hours for months and was frequently described as lengthy, painful, and time-consuming. For practices that switched systems, the transition between EHRs was also described as painful, but less so than the original transition from paper. One issue in selecting and implementing the EHR was physicians not knowing how to use a computer or type (often overcome by using voice recognition software or having medical assistants type). For a few practices, the larger organization chose the EHR system and supported the implementation. The one practice that does not have an EHR cited cost, age of the physician, and status as a solo practitioner as reasons for not implementing an EHR.

The QIO helped some practices with their EHR, but not others, depending on whether or not the QIO was familiar with the practice's system. However, not all practices, especially those further along in EHR implementation, saw a need for assistance from the QIO regarding their EHR.

The seven practices with EHRs have had them between four months and eight years. A few practices are using their second EHR system. None of the practices with EHRs are heavily using the functions in those systems to manage chronic or preventive care. For example, automatic alerts to physicians to flag patient needs based on patient-specific criteria were used only rarely: only a few practices used these at all, and where they were used they were used for only a few conditions or services (such as preventive services or diabetes). One practice has a registry

function that is a sister system on the side of its EHR (this is the only health IT other than an EHR used by any visited Utah practice). This is the only practice able to use its registry function for outreach instead of point-of-service. Other practices are interested in using their EHRs to create letters, reminders, or lists of patients due for a visit or test. Many practices reported problems interfacing with laboratories to order tests or review results electronically. Five practices use e-prescribing. A few practices have electronic resources for physician and patient education. All but one practice use an EHR for all visits; the exception is the practice that has had an EHR for the shortest time. Practices using EHRs also retain historic paper charts, but either do not use them at all or use them only as a crutch or reference. A few practices are not able to use their EHR efficiently due to problems noted below.

Changes due to EHRs and Other Health IT. After implementing EHRs and other health IT, the most common change—made by four of the seven practices with EHRs—was to alter the role of the practice's medical assistants. Examples of tasks now performed by medical assistants include asking patients more questions (for example, completing a family history before the physician sees the patient), putting data such as test and lab results into the EHR, pulling paper charts to enter information into the EHR from referrals and tests, and addressing care alerts. One practice has changed the way the physicians work with MAs and now uses a team design model. The physicians, nurses, and MAs use two-way hand-held radios to coordinate the visit between the doctor and the nurse or MA. In another practice, some older physicians do not support the EHR, so the medical assistants handle it. Another change in operations is change in the care provided. One of the practices said its main change was that it adopted more detailed care for diabetics; now physicians examine patients' feet, check hemoglobin A1c tests, and can review and confirm that they are providing care according to guidelines.

In two practices, recent changes due to health IT were limited because they originally moved to the EHR a few years ago. Finally, two practices did not make any real changes because they are either not yet routinely using their EHR or cannot use the EHR efficiently.

Benefits of Health IT. Some practices reported efficiencies and a decrease in time per visit (often after an initial increase in time during the transition), while others indicated that using the EHR takes longer than paper charts. One practice reported that the EHR made it more profitable. The physicians previously spent two hours at the end of each day documenting the care they provided; now they do so during the visit, so they work fewer hours and see more patients. However, another practice reported spending more time on visits since documentation takes longer.

Five practices noticed similar benefits for patients: documentation is cleaner; information—including patient history, labs, and medication—is readily available to the physician in an electronic and easily found format; information is not lost and is timely; and continuity of care is better. At one of these practices, the EHR resulted in a shorter waiting time for patients, improving the patient-provider relationship. At another, all communication is logged, which enhanced the practice's ability to follow up with patients. Confidentiality was better assured at one practice, since notes are no longer typed into paper charts; previously anyone in the office could pull the chart and look at the patient information. Another practice now orders some lab work in advance so they can discuss the results with the patient during the visit. At this practice,

patients are said to be pleased that their EHR can be seen, as necessary, in all of the other care sites within the system to which the practice belongs. One negative effect is that some patients dislike having the physician on the computer during the visit, but many patients do not mind.

Barriers to Implementation. Most practices had difficulties implementing and/or using their EHRs. Two common problems were lack of IT support and issues with standardization of documentation.

Other problems include EHR system issues: the EHR not working as advertised**;** physicians not being able to use templates built by other physicians; problems interfacing with other facilities; and difficulty documenting care performed by outside providers. Staff issues also created barriers to EHR use: some providers were resistant to change; some older physicians could not type, and staff turnover exacerbated confusion with changes when the system was upgraded. In addition, resource (time and money) constraints were problematic.

Some practices worked with IT staff to smooth out problems. One practice noted that it has to strike a balance between seeing patients and performing activities that will eventually make the practice more efficient. Only one practice reported that they do not have difficulties in using health IT. However, this practice acknowledged that the staff do not know all the functions of the EHR system. Two practices said they are satisfied overall and able to use their system fairly well, despite a few issues.

Facilitators to Implementation. Practices often noted two things as helpful with health IT—physician or administrator effort in research or training, and software support either from the EHR vendor or the larger organization. In practices with template-driven EHRs, staff members' ability to build templates was beneficial. Practices preferred local IT support.

E. IMPLEMENTATION OF CARE MANAGEMENT STRATEGIES

Overall, care management and the effects of the demonstration on care management were limited. Most practices did not implement any new care management as a result of the demonstration. In one practice, the demonstration generally emphasized good diabetes care, but the practice is not doing systematic care management because staff are unable to use the EHR well. The following activities are performed (sometimes inconsistently) by at least a few practices: tracking patients using lists of patients created internally or by health plans, flagging patient charts for age or condition, using reminders (pop-up alerts) in the EHR, making notes in the patient chart (usually facilitated by medical assistants), printing a visit summary for the patient, conducting patient education, and holding meetings to discuss care. The solo practitioner (the only practice without an EHR) is using templates for CHF, diabetes, lipids, and high blood pressure in his paper charts, as well as compiling all hemoglobin A1c results for all patients into one booklet, providing take-home information regarding health maintenance activities and diabetes, following up on lists from payers of patients who are not meeting hemoglobin A1c test guidelines (for example), and checking patient records for needed care when prescription refills are requested. These activities were ongoing prior to the practice's involvement in the demonstration. Two practices outlined specific care management practices that were a result of

the demonstration—one created best practice alerts and developed a registry function, while the other created the role of diabetes educator.

Practices had limited results with care management. Two practices saw better care for diabetic patients. One practice said that the emphasis on heart failure in the hospital spilled over to physicians in the clinic. Effects were limited because some practices were unable to use their EHR efficiently.

All seven practices using an EHR felt that the care management functions of their current system were not being fully used; this was influenced by the fact that several practices were awaiting upgrades or new systems. Funding and uncertainty about switching to a new system limit the level of effort put into using the current EHRs for care management. Inappropriate pop-ups and an inability to use the EHRs for outreach frustrated a few practices that would like to do more care management activities.

Plans for the Future. The practices are planning several next steps, which involve a desire to get the EHR working well, getting the most out of the EHR (using all of the functions to actually see results), and a desire to be able to do outreach based on information in the EHR. One practice would like to adopt more care management practices, but is looking to the larger organization to lead this effort. Another practice would like to document better, work as a group, and interface with other doctors to capture information, but explained that improving the use of the current EHR would require technical support resources that are scarce because the system to which they belong is prioritizing planning for a switch to a new EHR system. One practice's next steps are undetermined, since it is concerned about clinic income being hurt by patients not meeting the measures. The solo practitioner without an EHR plans to develop a new template to better detect kidney disease.

APPENDIX A

CHARACTERISTICS OF CASE STUDY PRACTICES

	All Case Study Practices	Other Practices	Arkansas		California		Massachusetts		Utah	
			Case Study	Other	Case Study	Other	Case Study	Other	Case Study	Other
Practice Environment	(N=32)	(N=608)	(N=8)	(N=88)	(N=8)	(N=202)	(N=8)	(N=210)	(N=8)	(N=108)
% Urban	72	85	38	40	100	98	100	100	50	71
% in Medically Underserved Area	13	14	13	50	25	11	13	7	0	6
Practice Size										
Mean # Physicians	5.7	3.8	4.5	3.0	4.8	3.9	5.3	3.7	8.1	4.5
% Solo Practitioners	28	31	38	40	38	33	25	29	13	25
% with 2-3 Physicians	19	29	13	30	0	23	25	33	38	33
% with 4-10 Physicians	47	35	50	30	63	40	38	33	38	32
% with >10 Physicians	6	5	0	1	0	4	13	5	13	9
Health IT Use (Fall 2007)										
Any health IT use (EHR, registry, e-prescribing)	84	83	88	67	75	80	100	91	75	86
Uses of EHR	72	62	75	52	63	67	75	54	75	76
Prescribes electronically	66	67	50	51	75	64	75	77	63	68
Uses registry (EHR or stand alone)	53	44	38	39	63	48	63	38	50	56
Mean # Beneficiaries with Chronic Conditions Per Practice	433	270	543	368	393	238	404	249	394	290
Percent of Practices with >250 Eligible Beneficiaries	56	35	75	55	75	27	50	34	50	37
Percent of Practices Affiliated With Larger Groups										
Name or application notes indicate they are part of a larger group or integrated system*	25	35	25	24	13	41	38	32	25	36
Affiliated with IPA, PHO, or medical group	63	73	38	43	100	84	88	92	25	40

*We did not correct or update the classification for the site visit practices based on information from our visits, to preserve the comparison. The classification turned out to be correct in Massachusetts, and one practice off in Arkansas and California (one practice actually owned by a large entity and not counted, and one counted but not actually owned). In Massachusetts, three additional practices were owned by larger entities, two by a hospital and one by a medical group.