# Online Supplement: Methods Appendix

## Additional Details on Data Sources, Eligibility, Attribution, and Regression Modeling

## Additional Details on Qualitative Data Collection

### Details on Quantitative Data Sources

Our quantitative analyses relied on Medicare administrative and claims data and other data sources, described below.

- **Medicare Enrollment Data Base (EDB).** This file was used to identify days of eligibility for the MAPCP Demonstration and provide an estimate of the fraction of the demonstration period for which beneficiaries are eligible. This file also provided beneficiary demographic and Medicare eligibility information for the analyses.

- **Historical Denominator File.** This file was used to provide information needed to assign beneficiaries to low, medium, and high risk categories based on the Hierarchical Condition Category risk score.

- **Medicare TAP files.** The TAP files contained inpatient, hospital outpatient, physician, skilled nursing facility, home health agency, hospice, and durable medical equipment claims for demonstration and comparison beneficiaries from January 2011 onward. These files were used to create our outcome measures of interest.

- **Medicare National Claims History (NCH) files.** This file was used to obtain claims for hospital inpatient services, outpatient services, physician, durable medical equipment, home health, and hospice services before 2011.

- **Lists of practices and beneficiaries in other CMS initiatives that were excluded from comparison group practices and beneficiaries.** Practices and beneficiaries identified in these lists, generated from the Master Data Management (MDM) file, were excluded from the comparison group. The other CMS initiatives included the Medicare Health Care Quality Demonstration, Independence at Home Demonstration, Health Quality Partners, Physician Group Practice Transitional Demonstration, and Comprehensive Primary Care Initiative. Further, organizations participating in the FQHC Advanced Primary Care Practice Demonstration were identified by a CMS contractor, not in the MDM, and excluded from the comparison group.

- **Area Resource File**. Area-level characteristics, including mean population density and household income, were obtained from this file.

#### *Medicaid Data*

We received Medicaid enrollment, fee-for-service (FFS) claims, and managed care encounter files from all MAPCP Demonstration states. In some cases, we received additional files related to attribution, primary care provider assignment, and provider information.

**Enrollment and Eligibility Files.** These files include information used to identify periods of Medicaid enrollment and other items, such as why an individual was enrolled in Medicaid (i.e., low income or disability), date of birth, sex, and race/ethnicity.

**FFS Claims Files.** These files detail the services rendered to a Medicaid FFS beneficiary, including the type of service rendered, the dates on which services were rendered, the service provider, and the amount paid to the provider.

**Managed Care Encounter Files.** Managed care encounter data include the similar types of information available in FFS claims, except that some states (Michigan, Pennsylvania, and Minnesota) do not record the amount paid to the provider.

**Attribution Files.** Vermont, Michigan, Pennsylvania, and North Carolina provided files to identify the MAPCP Demonstration or comparison group providers or practices with whom a beneficiary was associated.

**PCP Assignment Files.** New York, Rhode Island, and Maine provided files linking Medicaid beneficiaries to an assigned primary care provider. We used these files to attribute beneficiaries to demonstration or comparison group practices.

**Provider Files.** These contained data on individual providers and/or practices. We used these files to attribute beneficiaries to demonstration or comparison group practices.

## Time Period for Claims Analysis

| Demonstration Period Start Date | Demonstration Year One End Date | Demonstration Year Two End Date | Demonstration Year Three End Date | Months of Demonstration Data | Pre-Demonstration Period Start Sate |
|---|---|---|---|---|---|
| **New York, Rhode Island, Vermont**<br><br>**7/1/2011** | 6/30/2012 | 6/30/2013 | 12/31/2014 | 42 | 1/1/2006 (Medicare)<br>1/1/2008 (New York Medicaid)<br>10/1/2006 (Rhode Island Medicaid)<br>1/1/2007 (Vermont Medicaid) |
| **North Carolina**<br><br>**10/1/2011** | 9/30/2012 | 9/30/2013 (Medicare)<br><br>3/31/2013[2] (Medicaid) | 12/31/2014 (Medicare)<br><br>3/31/2013[2] (Medicaid) | 39 (Medicare)<br><br>18 (Medicaid) | 1/1/2006 (Medicare)<br>10/1/2009 (Medicaid) |
| **Maine, Minnesota,[1] Michigan, Pennsylvania**<br><br>**1/1/2012** | 12/31/2012 | 12/31/2013 | 12/31/2014 | 36 | 1/1/2006 (Medicare)<br>1/1/2008 (Maine Medicaid)<br>1/1/2007 (Minnesota, Michigan Medicaid)<br>5/1/2006 (Pennsylvania Medicaid) |

NOTES:

[1] Minnesota started the MAPCP Demonstration on 10/1/2011, but due to data issues, attribution was only possible from 1/1/2012 onward. For this reason, Minnesota was considered a member of Cohort 3 for analysis purposes. Since the MAPCP Demonstration's impact was not expected to happen immediately, we did not expect this change to significantly impact the quantitative results.

[2] North Carolina changed its Medicaid Management Information System (MMIS) in 2013. As a result, we were unable to obtain complete Medicaid data files for the period from April 2013 through December 2014.

## Attribution Process

*Identification of Demonstration Medicare FFS Beneficiaries*

To be eligible for participation in the MAPCP Demonstration, Medicare beneficiaries had to meet the following eligibility criteria each quarter:

- Be alive;
- Have Medicare Parts A and B;
- Be covered under traditional Medicare FFS;
- Have Medicare as the primary payer for health care expenses;
- Reside in the state-specified geographic area for its initiative; and
- Be attributed to a MAPCP Demonstration participating practice.

All Medicare beneficiaries meeting these six criteria were eligible for evaluation. They also had to be attributed to a participating PCMH for at least 3 months over the course the demonstration evaluation period. Beneficiaries were attributed to practices quarterly. We attributed beneficiaries to practices on the basis of the plurality of evaluation and management (E&M) visits to providers with primary care specialties. States chose the exact E&M codes they wanted to use for purposes of attribution to a demonstration practice. A list of each state's E&M codes can be found in Appendix B of the MAPCP Final Report.

*Identification of Demonstration Medicaid Beneficiaries*

We used two approaches to identify Medicaid beneficiaries for the demonstration group: (1) attribution based on designated primary care provider (PCP), and (2) claims-based attribution. We chose the approach most closely aligned with the procedure used in a MAPCP Demonstration state to attribute Medicaid beneficiaries to practices for Medicaid PCMH payments purposes. Beneficiaries were attributed to practices quarterly. Because all MAPCP Demonstration states except Rhode Island included children in their PCMH initiatives, children were included in the Medicaid analysis, and pediatric primary care practices participating in each state's initiative were incorporated into the attribution process.

In **Maine, Michigan, North Carolina, Pennsylvania, and Rhode Island,** we attributed beneficiaries based on a beneficiary's designated PCP or practice. The demonstration group in these states included Medicaid managed care or primary care case management enrollees whose designated PCP is in a participating MAPCP Demonstration practice. Michigan, Southeast Pennsylvania, and North Carolina identified demonstration beneficiaries when they provided the Medicaid claims data to RTI. For Maine and Rhode Island, we attributed beneficiaries to providers and then providers to the appropriate MAPCP Demonstration participating practice.

For the first 3 quarters of **Minnesota's** demonstration period, we attributed beneficiaries to practices using a plurality of E&M visits rule among providers with primary care specialties. Beginning with the fourth quarter of Minnesota's demonstration, we used a hybrid approach that

first assigned beneficiaries using the plurality of MAPCP Demonstration care coordination claims[1]; for those beneficiaries without care coordination claims, assignment was based on a plurality of E&M visits to providers with primary care specialties belonging to a demonstration practice.

**New York's and Vermont's** PCMH initiatives used different approaches for attributing their Medicaid FFS beneficiaries and their Medicaid managed care enrollees. Vermont attributed Medicaid beneficiaries not in managed care to PCMH practices using a plurality of claims for E&M visits over a 24-month look-back period. Vermont's Medicaid managed care enrollees were included in the PCMH initiative if their assigned PCP was practicing in a primary care participating in the PCMH initiative. Medicaid FFS beneficiaries in New York were attributed to a practice using a two-step process. First they were attributed to a primary care physician using the plurality of E&M visits during a 12-month look-back period, and then they were attributed to a PCMH practice if the primary care physician to whom they were attributed was practicing in a primary care practice in the PCMH initiative. Medicaid managed care enrollees in New York were included in the demonstration group if their designated PCP was practicing in a primary care practice participating in the PCMH initiative.

*Rolling Entry into the MAPCP Demonstration and Intent-to-Treat Study Design*

The MAPCP Demonstration allowed for rolling entrance of practices into and out of the demonstration. In addition, Medicare and Medicaid beneficiaries were allowed to enter the demonstration on a rolling basis, and they could lose eligibility during the demonstration if the practice to which they were attributed withdrew from the state initiative. Rolling entry meant that a beneficiary's specific start date to which they were introduced to the MAPCP Demonstration could be after the state began its participation in the MAPCP Demonstration. Medicare FFS and Medicaid beneficiaries also lost eligibility when they no longer met the criteria listed above. For evaluation purposes, however, once a Medicare or Medicaid beneficiary was eligible for the MAPCP Demonstration for at least 3 months, the beneficiary was always included in the evaluation sample. If beneficiaries lost Medicare or Medicaid eligibility at any time after they were attributed to a MAPCP Demonstration practice, their outcomes during those periods of lost eligibility were treated as missing because we did not have claims data for them during those times. Thus, we considered the MAPCP Demonstration an intent-to-treat study design.

We constructed an eligibility fraction variable reflecting the length of time the beneficiary was eligible each quarter and used it as an analytic weight in all claims-based analyses. We defined the eligibility fraction for each quarter as the total number of eligible days during the quarter, divided by the total number of days alive in the quarter.[2]

*Identification of Medicare and Medicaid Comparison Beneficiaries*

[1] Minnesota was approved to submit claims for care coordination claims.

[2]For Medicare analyses, we restricted the denominator to days alive, which effectively prevented inflating outcomes during the quarter in which a beneficiary died. For Medicaid analyses, death dates were not available in the Medicaid data (except for North Carolina), and so we could not modify the eligibility fraction to account for days alive. For Medicaid analyses of North Carolina, which had beneficiary death dates, we followed the methodology used for Medicare.

Our primary comparison group was comprised of Medicare and Medicaid beneficiaries who met MAPCP Demonstration eligibility and attribution criteria but were attributed to practices that did not have NCQA PCMH recognition.

We used a three-step approach to identify comparison beneficiaries for all eight MAPCP Demonstration states:

1. Identification of a geographic area within each state from which we could identify comparison primary care practices;

2. Identification of primary care practices within this geographic area that were not participating in the state's PCMH initiative; and

3. Identification of beneficiaries who met the MAPCP Demonstration eligibility criteria and could be attributed to a comparison group practice identified in Step 2.

We began by identifying the counties in which each state implemented its PCMH demonstration. If the demonstration practices were scattered throughout the state (as was the case in Maine, Michigan, Minnesota, Pennsylvania, and Rhode Island), we drew comparison practices from the MAPCP Demonstration counties. If the demonstration practices dominated in their respective geographic areas (as was the case in New York's Adirondack region and North Carolina's rural counties), then we selected comparison practices from counties with similar characteristics elsewhere within the same state but outside the geographic area of the state PCMH initiative. In Vermont so many primary care practices participate in the Vermont PCMH demonstration that we had insufficient sample size to create a within state comparison group. Therefore, we drew comparison practices for Vermont from New Hampshire for the Medicare analysis and New York for the Medicaid analysis. In both circumstances, characteristics of the geographic area and of the target populations were not substantially different from Vermont. Further, a key consideration for the Medicaid analysis was the availability of Medicaid claims data, and since New York was a participating MAPCP state that had provided Medicaid claims data for this evaluation, we leveraged the data available.

After we finalized the comparison counties, we generated a list of non-MAPCP participating primary care and multispecialty medical practices in those counties from Medicare claims data. For the Medicaid analysis, we supplemented this list of comparison group primary care practices with a list of non-MAPCP participating pediatric primary care practices identified through physician data from SK&A (a commercial firm that compiles a comprehensive list of physicians practicing in the United States).

After selecting the comparison practices, in some cases we determined that the mix of comparison group practices was not similar enough to the demonstration practices within the state. We found that we needed to supplement the comparison group with more federally qualified health centers [FQHCs], rural health clinics [RHCs], critical access hospitals [CAHs]) if a state initiative included FQHCs, RHCs, or CAHs as primary care practices.[3] We either

[3]To identify FQHCs, RHCs, and CAHs to supplement the comparison group, we used organizational National Provider Identification numbers in claims data and organizations listed in the National Plan and Provider Enumeration System.

looked out of the state to supplement a state's comparison group sample, or we looked within the state but outside of our target comparison group counties. When we looked out of state, we only looked among the other participating MAPCP Demonstration states. The table below presents the original comparison counties for the MAPCP Demonstration states, and notes where we expanded the comparison area to obtain additional FQHCs, RHCs, and CAHs from counties in and/or out of the MAPCP Demonstration state. We chose states to supplement other states' comparison groups based solely on their possession of the necessary provider type. For example, when we needed to supplement non-PCMH FQHCs in New York, we selected them from Michigan because Michigan was participating in the MAPCP Demonstration and had non-PCMH FQHCs. When we needed to look out of state to obtain additional FQHCs, RHCs, or CAHs to supplement the Medicare comparison group, we were unable to also acquire the Medicaid claims for these out-of-state practices. In some cases, this resulted in poor balance across the MAPCP Medicaid demonstration group and the Medicaid comparison group with respect to practice type, even after reweighting comparison observations to achieve more similarity across the demonstration and comparison groups. While poor balance is a limitation, our evaluation approach does not rely solely on having perfect balance across the MAPCP and comparison groups because we also use regression modeling to adjust impact estimates for differences in the MAPCP and comparison groups.

**Demonstration and comparison areas by MAPCP Demonstration state**

| State | Demonstration area | Original comparison areas | Expansion areas |
|---|---|---|---|
| **Maine** | 11 counties in the southern part of state | For Medicare and Medicaid: Same as demonstration counties | None needed |
| **Michigan** | 40 counties | For Medicare and Medicaid: Same as demonstration counties | None needed |
| **Minnesota** | 24 counties | For Medicare and Medicaid: Same as demonstration counties | None needed |
| **New York** | 7 counties in Adirondack region | For Medicare and Medicaid: 16 counties in upstate New York | For Medicare: Any FQHCs or CAHs in non-demonstration counties in New York plus 19 additional non-PCMH FQHCs from counties in Michigan<br>For Medicaid: Any FQHCs or CAHs in non-demonstration counties in New York |
| **North Carolina** | 7 mostly rural counties scattered across the state | For Medicare and Medicaid: 16 counties in the remainder of the state | For Medicare: Any RHCs or CAHs in non-demonstration counties in North Carolina<br>For Medicaid: Any RHCs or CAHs in non-demonstration counties in North Carolina with attributed Medicaid enrollees |
| **Pennsylvania** | 4 counties in northeast region, 5 counties in southeast region | For Medicare and Medicaid: Same as demonstration counties | None needed |
| **Rhode Island** | 3 westernmost counties in state | For Medicare and Medicaid: Same as demonstration counties | None needed |

| State | Demonstration area | Original comparison areas | Expansion areas |
|---|---|---|---|
| **Vermont** | All 14 counties in state | For Medicare: 10 counties in New Hampshire<br>For Medicaid: same as New York's comparison group | For Medicare: Any FQHCs in Massachusetts<br>For Medicaid: None needed |

CAH = critical access hospital; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; RHC = rural health clinic.

For Medicare, practices with fewer than 30 attributed Medicare FFS beneficiaries per year were deleted from the pool of comparison group practices, but those practices were included in the comparison group of the Medicaid analysis. Practices with few Medicare FFS beneficiaries had attributed Medicaid beneficiaries, so these practices were not excluded from the Medicaid analyses. Further, practices involved in other CMS PCMH initiatives or practice-based demonstrations were deleted from the list of comparison practices. These initiatives include the FQHC Advanced Primary Care Practice Demonstration, Medicare Health Care Quality Demonstration, Independence at Home Demonstration, Health Quality Partners, Physician Group Practice Transitional Demonstration, and Comprehensive Primary Care Initiative. We identified practices participating in these initiatives through the CMS Master Data Management (MDM) provider extract file; and identified organizations participating in the FQHC Advanced Primary Care Practice Demonstration with assistance from the FQHC demonstration evaluation contractor. Practices with NCQA PCMH recognition also were excluded from the pool of comparison group practices. This information was updated annually.

The same protocol used to attribute individual Medicare or Medicaid beneficiaries to a specific MAPCP Demonstration practices was used to assign comparison beneficiaries to each comparison practice, with one exception: in Medicare, comparison group beneficiaries were attributed to a comparison group practice annually rather than each quarter. In Medicaid, we attributed comparison group beneficiaries to comparison group practices quarterly, just as was done for the Medicaid demonstration beneficiaries. Further, for the Medicaid analysis, Michigan and Southeast Pennsylvania identified comparison group beneficiaries when they provided the Medicaid claims data to RTI; these states used lists of comparison group practices identified by RTI to facilitate identification of beneficiaries attributed to those practices.

Once a beneficiary was attributed to a MAPCP Demonstration participating practice, the beneficiary was no longer eligible to be attributed to a comparison group practice. Given the size of the MAPCP Demonstration comparison groups, the numbers of beneficiaries switching status were very small; removing them thus had negligible impact on comparison groups' outcomes over time.

The set of MAPCP Demonstration practices and attributed beneficiaries was constantly changing during the course of the study because of the entrance of new practices, the withdrawal of others, and attrition resulting from death or other loss of participation eligibility. To emulate this situation among the comparison groups, we checked comparison group eligibility quarterly and removed from the comparison group any beneficiaries no longer meeting the demonstration eligibility criteria. Further, we also checked quarterly to determine if any comparison group practices had become participants in any other demonstrations or initiatives mentioned above; if so, we removed them and their attributed beneficiaries from the comparison group, effective in

the quarter in which the practice began participating in the other initiative. Lastly, we conducted a "true-up" of the comparison groups in Medicare annually by reapplying the beneficiary assignment algorithm at the end of each year. This process added new beneficiaries, removed those no longer receiving the plurality of their services from a comparison group practice, and removed beneficiaries and practices from the comparison group if their assigned practice received NCQA recognition as a PCMH during the year. Because most comparison groups already contained nearly all existing primary care practices in the area, the true-up process generally produced few changes in the composition of comparison practices.

**Regression Modeling**

The statistical approach for the quantitative data analysis consisted of estimating difference-in-differences (D-in-D) regression models. Under the D-in-D specification, in a linear specification (i.e., ordinary least squares (OLS) used for modeling expenditures), a *negative* value corresponds to *slower growth* in expenditures for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, which could occur in one of the following ways:

- Average expenditures increased among comparison beneficiaries and decreased among MAPCP Demonstration beneficiaries;
- Average expenditures increased among both groups but at a slower rate among MAPCP Demonstration beneficiaries; or
- Average expenditures decreased among both groups but at a faster rate among MAPCP Demonstration beneficiaries.

Conversely, a *positive* value corresponds to *faster growth* in expenditures for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, which could also occur in one of three ways:

- Average expenditures increased among MAPCP Demonstration beneficiaries and decreased among comparison beneficiaries;
- Average expenditures increased among both groups but at a slower rate among comparison beneficiaries; or
- Average expenditures decreased among both groups but at a faster rate among comparison beneficiaries.

While the OLS model has strong assumptions of normality of the outcome, the OLS model still produces unbiased estimates even when the normality assumption is violated as long as errors are uncorrelated and have a constant variance (Gauss-Markov Theorem). However, we can and do control for the correlation and variance in errors with clustered standard errors. Additionally, the model yields estimates that are readily interpretable because the results are in dollars and do not require additional transformation.

For utilization outcomes, for the Medicare analysis, we used a negative binomial version of the D-in-D specification. Interpretation of the D-in-D parameter is similar. However, a negative value corresponds to a decrease in the rate of events for the MAPCP Demonstration

beneficiaries relative to comparison beneficiaries, whereas a positive value corresponds to an increase in the rate of events for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, in these nonlinear variants.

Visit outcomes for the Medicaid analysis were analyzed using logit regression. Because the non-elderly adults and children comprising our sample use services less frequently than the elderly Medicare population, negative binomial models did not fit the Medicaid data well. Therefore, we modeled visit outcomes as a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. For these outcomes, we first estimate a logit model and then use the estimated coefficients to calculate the change associated with the demonstration during each quarter of the demonstration. The estimated coefficients measures, in each demonstration quarter, the increase or decrease in the likelihood of an outcome occurring among beneficiaries assigned to MAPCP Demonstration practices.

Further, the regression specification allowed us to provide impact estimates that can vary from quarter to quarter throughout the demonstration. We accomplish this by including indicators that represent each calendar quarter before and after a person is assigned to a MAPCP Demonstration or comparison group practice. These quarterly time indicators allowed for flexible control of outcome trends across both the pre-demonstration and demonstration periods. We then interacted each demonstration quarterly indicator with (1) the indicator representing whether the beneficiary was in the MAPCP Demonstration group or the comparison group and (2) an indicator that the demonstration quarter was a quarter in which the beneficiary was assigned to a practice. These interactions allowed us to estimate a separate D-in-D parameter for each demonstration quarter, and thereby allowed the impact of the MAPCP Demonstration intervention effect to grow or decline in potentially different ways throughout the demonstration period. However, we do not present each of the quarter-specific D-in-D estimates. Rather, we present overall averages of the quarter-specific D-in-D estimates. This summarized the evidence in a way that allows us to focus on overall trends in impact estimates.

All regression analyses also included clustered standard errors because enrollees were clustered by assigned MAPCP or comparison group practice.

**Covariates Used in Regression Modeling**

In the table below, we summarize the analytic variables used in the regression modeling, and we indicate which variables were used in the Medicare analysis, the Medicaid analysis, or both. If a sociodemographic characteristic was only used in Medicare and not Medicaid, or vice versa, it was because the characteristic did not appropriately fit the data. For example, having end state renal disease (ESRD) is a unique feature of enrollment for Medicare, not Medicaid, and the HCC risk score was developed for the Medicare population while the Chronic Illness and Disability Payment System risk score was developed for Medicaid. Details on how the variables were constructed can be found in Appendix D of the Final Report.

## Sociodemographic characteristics, practice- and area-level characteristics, and outcomes for the Medicare and Medicaid analyses

| Variable | Medicare | Medicaid |
|---|---|---|
| **Sociodemographic Characteristics** | | |
| Age | X | X |
| Race | X | X |
| Urban place of residence | X | X |
| Gender | X | X |
| Dually enrolled in Medicare and Medicaid | X | X |
| Enrolled due to disability | X | X |
| Enrolled due to ESRD | X | |
| Institutionalized | X | X |
| HCC risk score | X | |
| Charlson Index | X | |
| Comorbid conditions | X | X |
| Chronic Illness and Disability Payment System Score | | X |
| Presence of perinatal conditions | | X |
| Continuously enrolled in Medicaid | | X |
| Enrolled in Medicaid FFS or managed care | | X |
| **Practice- and Area-Level Characteristics** | | |
| Practice type | X | X |
| Percentage of providers in the practice who were primary care providers | X | X |
| Size of the assigned practice | X | X |
| Household income (County) | X | X |
| Population density (County) | X | X |

Details on Qualitative Data Collection (Site Visit Interviews)

Site visits to MAPCP Demonstration states occurred a total of three times during the evaluation period: in the fall of 2012, 2013, and 2014. The focus of the Year One interviews was to understand more thoroughly how each state initiative was being implemented, what was or was not working well, and any early lessons learned. The interviews focused on two stages of implementation experience (i.e., before and after CMS joined each state initiative) and how the entrance of Medicare (and in some cases, Medicaid) changed the states' initiatives. In Year Two of the demonstration, interviews focused on changes and implementation experiences that had occurred since the Year One site visits in 2012. In Year Three, interviews focused on changes and implementation experiences occurring since the Year Two site visits in 2013. In Year Three, we also focused each state's future plans for its PCMH initiative.

The goal of the site visit interviews was timely identification of actionable promising practices for CMS and participating states. We also sought to understand the potential impact on implementation, practice transformation, and outcomes for Medicare and Medicaid beneficiaries and special populations, including those with behavioral health conditions.

The evaluation team developed protocols for the interviews designed to address specific research questions. Each major research question was "translated" into a set of topics and questions tailored to specific respondent types and state initiatives. The evaluation team produced six generic respondent protocols and then customized them based on state-specific features to ensure that specific and unique features of state initiatives were captured adequately during the interviews. Interview topics covered the following domains:

(1) changes made over time to transform into a medical home, including development of new or improved relationships with other types of providers,
(2) successes and challenges implementing medical home transformation activities,
(3) the use of health information technology and clinical and cost data to guide quality improvement and care coordination,
(4) expected and observed impacts on patients, with specific focus on individuals enrolled in Medicare and/or Medicaid; and
(5) lessons learned from participating in the demonstration.

Two example interview protocols are included at the end of this appendix for illustrative purposes. We note that the protocols differ slightly between states and between different respondent types because we modified the protocols to reflect state-specific features.

Respondents were selecting based on their involvement in a state's MAPCP Demonstration. Respondent types included:

(1) state officials,
(2) physicians and administrators of practices or health care systems participating in the demonstration,

(3) individuals representing community health teams (or other teams of providers supporting participating primary care practices),
(4) individuals representing payer organizations, including Medicaid,
(5) individuals representing local chapters of physician and clinical professional associations, and
(6) patient advocates and individuals representing Offices of Aging.

A team of four to eight staff was deployed to each state to conduct interviews. Site visit teams were composed of researchers with different types of substantive and methodological expertise, and they were matched to respondent types (e.g., physician researchers interviewing physicians; researchers with state policy expertise interviewing state officials).

To manage and analyze the large volume of primary qualitative data, we used the qualitative data analysis software NVivo. Our analysis focuses on how implementation—particularly practice transformation, relationships with other providers (e.g., specialists and hospitals), and links with other community organizations—progressed and changed during the demonstration. When evaluating each state MAPCP Demonstration using qualitative data, we conducted within-state case studies.

**Example Interview Protocol for a State Official**

## About the Respondent

1. *[If we don't have this information from the prior site visit:]* What is your current role in [state agency]?

2. *[If we don't have this information from the prior site visit:]* How long have you worked on the PCMH Pilot?

## Getting the Demonstration Up and Running

3. How has implementation of the PCMH Pilot gone over the past year? (e.g., agreements with practices, plans, and community care teams; the expansion to 50 additional practices; data collection; payment)?

    a. What has gone well?

    b. What hasn't gone so well?

4. Over the past year, what external factors have most affected the state's ability to implement the PCMH Pilot? (We are most interested in factors outside of your control, like the state budget or other federal initiatives.)

    a. Could you give us a sense of how the political environment in your state has been affecting the PCMH Pilot?

5. What strategies were **successful** in keeping payers involved in the PCMH Pilot over the past year?

6. What strategies were **unsuccessful** in keeping payers involved in thePCMH Pilot over the past year?

7. Over the past year, what challenges have private and/or public payers faced in participating in the PCMH Pilot?

    a. How have you tried to overcome those challenges?

    b. What has worked?

    c. What hasn't worked?

8. Is the state providing information or services to participating medical home practices to specifically address the needs of Medicare and Medicaid patients, including dual eligibles?

    a. *[If so:]* Please describe.

        i. Do any of these new services focus on improving access? If so, how?

ii. Do any of these new services focus on improving care coordination or care transitions from hospital to home? If so, how?

b. *[If not:]* Why not?

9. Is the state doing anything specifically aimed at helping practices serve other special patient populations? (Special populations can include: children; racial minorities; non-English speakers; people living in rural or inner-city areas; and persons with chronic illnesses, mental illnesses, and disabilities.)

   *a. [If so:]* Please describe.

   *b. [If not:]* Why not?

## Practice Transformation

10. We understand your state requires practices to become certified using NCQA standards to participate in the PCMH Pilot. How do you use this medical home assessment information? For example, do you use it guide to learning collaborative activities?

11. We understand that the state offers practices technical assistance to support the development of greater medical home capacity, through monthly webinars, calls with quality improvement coaches, and regional practice support sessions hosted by [insert organization]. First of all, have I accurately captured the kinds of assistance you are providing?

    a. What kind of feedback have you gotten on this technical assistance?

       i. What aspects of this technical assistance are people finding most helpful?

       ii. What aspects of your technical assistance have you modified, or are you in the planning to modify, in response to feedback from practices or others?

12. What major changes have practices, including the 50 practices that joined during the expansion at the beginning of the year, participating in the PCMH Pilot focused on making in the past year?

    a. To what extent are practices making changes aimed at addressing the needs of Medicare and Medicaid beneficiaries or other special patient populations? Please provide an example.

    b. How, if at all, do you feel these changes impact patient access?

    c. How, if at all, do you feel these changes impact care coordination or care transitions from the hospital to home?

    d. How, if at all, do you feel these changes impact patient and family engagement? For example, identifying and involving key family members involved in care, self-management skills, and development of care plans or shared decision making?

13. We understand that in the PCMH Pilot, practices receive per member per month payments. Do you have any information on how participating practices have used their medical home payments from Medicare, Medicaid, and private payers over the past year?

    a. In your opinion, did the payments practices are receiving from Medicaid, Medicare, and private payers through PCMH Pilot give health care providers enough resources to invest in needed medical home infrastructure?

    b. In your opinion, have providers generally been pleased or disappointed in the medical home payments?

        i. What has been the implication for their participation and level of effort?

14. Besides encouraging *practices* to become medical homes, some states are supporting *other types of organizations*, like community health teams or disease management firms, to achieve greater care coordination and improve patient outcomes. In this state, we understand you are using community care teams (CCTs) to provide additional care management support to participating practices' most complex patients. Do I have that right?

    a. Has the state made any adjustments to these programs in the past year?

    b. What aspects of these activities seem to be working well?

    c. What implementation challenges have you encountered with these activities? (What's not going so well?)

    d. Has the roll out of behavioral health home organizations had an impact on CCTs? If yes, how have CCTs been affected?

**Health Information Technology**

15. We know that as part of the PCMH Pilot's 10 core expectations, practices are required to integrate health information technology (e.g. a registry, electronic medical record, personal health records, health information exchange, etc.) into their work. Besides these health IT tools and systems, what other types of health information technology are being promoted in the PCMH Pilot?

    a. Are practices required or incentivized to have electronic health records, disease registries, or to exchange health information with other providers electronically?

    b. What health IT tools or systems do you believe have been most useful to practices in improving care coordination over the past year?

    c. What kinds of challenges and successes have practices faced in the diffusion and implementation of health IT?

16. What has the state and the participating payers done to encourage medical home practices to use health IT over the past year?

a. Are practices encouraged to participate in Medicaid and Medicare meaningful use programs? If so, how?]

17. To what extent are EHR requirements and related clinical quality measures used by the PCMH Pilot aligned with Medicare and Medicaid Meaningful Use (MU) measures? For example, have stage 1 and Stage 2 MU requirements to collect demographic information, provide on-line access to patients, or report particular clinical quality measures been incorporated into the medical home assessment or recognition criteria?

**Data Exchange**

18. Over the past year, has there been any major change in the types of utilization, cost or quality information you receive from payers or practices as part of the PCMH Pilot? If so, please describe. What was the nature of the change, what was it made, and what impact is it having?

    a. How do you use the utilization, cost, or quality information?

19. What other types of data is the state receiving from payers and practices about their patients? (This could be program eligibility data, clinical data, or other patient-level data.)

20. Over the past year, have there been any major changes in the kinds of utilization, cost and quality information the state give practices participating in the PCMH Pilot? If so, please describe. What was the nature of the change, why was it made, and what impact is it having?

**Outcomes**

*[Note to interviewer: Try to ask respondents to identify medical home features that contributed to the observed impacts, or features that could be added to the initiative to improve outcomes.]*

21. Over the past year, what impacts have you observed it having on patients?

    a. Is there evidence of improvements in:

        i. Access to care?
        ii. Coordination of care? (including care transitions)
        iii. Patient and family participation in clinical decision-making?
        iv. Patients engaging in healthier behaviors and self-managing their conditions better?
        v. Increased delivery of preventive services?
        vi. Reduced use of acute care? (e.g., ED visits, hospitalizations, readmissions)
        vii. Improved health care quality, patient safety, and patient experience and/or satisfaction?

    b. What impact has the initiative had on Medicaid beneficiaries and other special patient populations? (Special populations can include: Medicare and Medicaid beneficiaries; dual eligibles; children; racial minorities; people in rural or inner-city areas; and persons with chronic illnesses, mental illnesses, and disabilities.)

22. What have been the major barriers to achieving the goals of this initiative over the past year?

a. *[Prompt, if needed:]* What are the major barriers for the state?

b. For private payers?

c. For practices, or other affected providers, such as hospitals?

d. *[If applicable:]* For community care teams?

e. For patients and family caregivers?

## Lessons Learned and Next Steps

23. Over the past year, how successful has the PCMH Pilot been in getting practices to change the way they deliver care?

24. Which features of the PCMH Pilot do you think have the greatest potential to improve outcomes for Medicare and Medicaid beneficiaries, specifically?

    a. Why those features?

25. What lessons has the state learned so far from the PCMH Pilot?

    a. What would the state have done differently, knowing what it knows now?

    b. Are there any aspects of your initiative that the state is considering changing?

26. Do you have any recommendations for the other seven states participating in the MAPCP Demonstration, or thinking of starting their own PCMH Pilot-style initiative?

    a. Any advice for CMS or the Medicare program?

27. In the next year, what are the key issues you'll face related to PCMH Pilot?

28. In the next year, what are the key factors (outside of PCMH Pilot's control) that might impact this initiative? (For example, implementation of health reform more generally, changes in the state government administration, tight state budgets, provider mergers?)

29. What are the state's plans for the upcoming year?

    a. How likely is it that the state will be able to implement everything it has planned for the PCMH Pilot this year?

    b. What are the major challenges to accomplishing these activities?

30. Is there anything else about the PCMH Pilot and the impacts it's having on plans, practices, other types of providers like hospitals, or patients that we haven't covered but that would be important for us to know about?

**Example Interview Protocol for a Primary Care Practice**

## About the Respondent

1. *[If we don't have this information from the prior site visit:]* What is your role in this [office / clinic / hospital]?

2. *[If we don't have this information from the prior site visit:]* How long have you worked here?

## Changes to How Care is delivered

3. What major changes did your [office / clinic / hospital] make over the past year? (e.g., focusing on new conditions, improving access through additional evening and weekend hours or same-day appointments, using new care processes to improve care coordination and transitions, adopting new health IT tools, interacting differently with patients and families or caregivers)

    a. Are you participating in Medicaid's health home initiative? If yes, what major changes did your office make over the past year to become a health home?

        i. How has the attestation process to the Medicaid health home portal worked for your practice this past year?

            1. If practice reports issues, please ask them to elaborate.

        ii. Are you now doing additional screenings (e.g., SBIRT) to meet health home requirements?

    b. How does Medicare's decision to continue participating in the PCMH Pilot through the end of 2016 affect the changes you have made in the past year?

4. Over the past year, have there been any changes in:

    a. Your after-hour availability?

    b. Efforts the practice has undertaken to improve patient self-management skills and/or engage in care planning and shared decision-making?

    c. How you communicate with patients who do not speak or cannot read English?

    d. The extent to which you involved patients and families or caregivers in practice quality improvement or redesign efforts?

    e. The extent to which Medicare or Medicaid patients or special populations (e.g., dual eligibles, patients with chronic conditions) are willing and able to engage in these patient and family or caregiver engagement activities?

5. Which of these changes have been most challenging to incorporate into your [office / clinic / hospital]'s day-to-day operations? Why have they been challenging to do?

6. Over the past year, have there been any major changes in whether and how you use dedicated care coordinators, either those on-staff in your [office / clinic / hospital] or employed by some other organization? If so, please describe the major changes.

7. What kind of services do CCTs and/or other local community health resources provide to your [office / clinic / hospital] and/or your patients?

8. Are you also working with behavioral health home organizations for your Medicaid patients? Which of your Medicaid patients are referred to the behavioral health home organizations for services? What services does this organization provide to your office and/or your patients?

9. How does Medicare's decision to continue participating in the PCMH Pilot through the end of 2016 affect how you partner with CCTs, behavioral health organizations, and/or other local community health resources going forward?

### Health IT

10. Over the past year, have there been any major changes in the EHR or broader health IT capabilities of your practice? If so, please briefly describe.

11. Over the past year, have there been any significant changes in how your [office / clinic / hospital] typically **exchanges** (**gives information or receives information)** health information with other providers (e.g., physical and mental health specialists, diagnostic testing or laboratory) and health care facilities, such as hospitals or nursing homes, or CCTs? If so, please describe.

    a. Over the past year, have you used the health information exchange to exchange information with other providers?

12. How does Medicare's decision to continue participating in the PCMH Pilot through the end of 2016 affect how your practice and its future plans with regard to your health IT and exchange of health information?

## **Payment**

13. Over the past year, your [office / clinic / hospital] has received private payer, Medicaid, and Medicare payments to engage in medical home-related activities. How has your [office / clinic / hospital] used those medical home payments over the past year?

14. Are Medicare's medical home payments adequate for allowing you to continue to invest in medical home development and sustain effective medical home activities? Why or why not?

15. How does Medicare's decision to continue participating in the PCMH Pilot through the end of 2016 impact how you carry-out your medical home activities? How does this decision impact any future investments you may make in PCMH transformation?

a. What plans, if any, do you have to seek additional financial support for PCMH transformation and related activities or to join other initiatives?

## Performance Monitoring

16. To what extent have you changed the types of quality and safety measurement activities your [office / clinic / hospital] has engaged in under the PCMH Pilot over the past year? For example, collecting and sharing data on clinical quality measures or paying a vendor to collect patient experience surveys?

    a. Have there been any major changes in the **preventive service measures, chronic care measures, or safety measures** you collect and report? If so, which ones?

    b. What does your [office / clinic / hospital] do with these quality results?

    c. Does Medicare's decision to continue participating in the PCMH Pilot through the end of 2016 impact the kinds of performance data you will collect and report?

17. Have you seen the Primary Care Practice Report produced by [insert organization] and generated using commercial claims data before?

18. Have you seen the Practice Feedback Reports generated by RTI and using Medicare claims data?

19. Have you seen the Medicare beneficiary utilization files that your organization receives through a portal and produced by RTI?

    i. Do you use the web portal?

    ii. [If the respondent is aware of the web portal but does not use it:] Why not?

    *[If yes to the RTI Practice Feedback Reports, and/or Medicare bene utilization files:]*

    b. What do you do with the information provided in these files?

    c. What aspects of these files have been most useful in helping your organization change the way you deliver care over the past year?

    d. What features are not as helpful, or need improvement?

20. Have there been any major changes to the way you monitor utilization and cost information you receive from any payers (not just Medicare), providers, the state, etc?

    *[If yes:]*

    a. What do you monitor?

    a. What do you do with the data?

b. To what extent do you think these activities will change, if at all, given Medicare continued participation in the PCMH Pilot through 2016?

## Outcomes

[Note to interviewer: Try to ask respondents to identify medical home features that contributed to the observed impacts, or features that could be added to the initiative to improve outcomes.]

21. Over the past year what impacts has the PCMH Pilot had on your patients?

a. Is there evidence of improvements in:

i. Access to care?

ii. Coordination of care? (e.g., care transitions)

iii. Patient and family or caregiver participation or behavior? (e.g., patients engaging more in decisions and managing their care)

iv. Access to and use of social services and other community-based resources?

v. Delivery of preventive services? (e.g., cancer screenings, smoking cessation, weight management, influenza vaccination)

vi. Use of acute care? (e.g., emergency department visits, hospitalizations, readmissions)

1. Are you participating in the Choosing Wisely campaign? If yes, over the past year, how has that campaign impacted use of acute care?

vii. Health care quality and patient safety?

viii. Patient experience and/or satisfaction?

ix. Other?

x. To what extent do you see similarities or differences in impact on publicly (i.e., Medicare, Medicaid, and special populations) versus the privately or commercially insured?

1. To what extent do you see similarities or differences in impact among the publicly insured? For example, do you see different impacts on Medicare versus Medicaid beneficiaries or any particular special populations?

## Overall Impressions

22. What do you see as the pros and cons of participating in the PCMH Pilot?

a. What lessons have you learned about practice transformation from the PCMH Pilot?

b. What would your [office / clinic / hospital] have done differently, knowing what you now know?

c. How will this experience help you with future initiatives, if at all?

d. Does your experience with the PCMH Pilot make you more or less inclined to want to participate in similar initiatives in the future?

23. Have you developed a sustainability plan with help from [insert organization] and their quality improvement specialists?

24. How does Medicare's decision to continue participating through the end of 2016 affect your participation in the PCMH Pilot?

25. What advice do you have for state officials setting up multi-payer medical home initiatives in other states?

26. Is there anything else about the PCMH Pilot and its potential impact on your [office / clinic / hospital] or Medicare and Medicaid beneficiaries that we haven't covered that would be important for our team to know?