Evaluating the Patient-Centered Medical Home: Potential and Limitations of Claims-Based Data

By Michael Stanek and Mary Takach

A medical home is an enhanced model of primary care in which care teams attend to the multi-faceted needs of patients and provide whole person comprehensive and coordinated patient-centered care. Sustained financial support for medical home initiatives at both the state and federal level is ultimately contingent on the ability to show results, making evaluation a priority. Evaluations are consistently designed to measure cost and quality outcomes, and increasingly, provider and patient satisfaction. The purpose of this paper is to provide states with information on how claims-based data can be used to evaluate medical homes. The report highlights two states: Oklahoma, which has a Medicaid-based medical home initiative and Rhode Island, which has a multi-payer medical home pilot.

This brief was informed by a May 4, 2010, NASHP webcast entitled "Evaluating the Patient-Centered Medical Home: Potential and Limitations of Claims-Based Data." During this Commonwealth Fund-supported webcast, NASHP facilitated a discussion between a national expert on primary care performance measurement and representatives from the Rhode Island and Oklahoma medical home initiatives. Discussion during a post-webinar technical assistance call involving eight consortium states and three mentor states also contributed to this brief.

Oklahoma’s and Rhode Island’s Medical Home Initiatives

The Oklahoma Health Care Authority (OHCA) transformed its SoonerCare (Medicaid) program to a patient-centered medical home model on January 1, 2009. Prior to this time, SoonerCare relied on partially capitated, risk-adjust-
ed payments to primary care providers in which routine office visits, case management, and basic laboratory work were covered by a per member per month fee and all other services were paid fee-for-service. The change to a new payment model was required to be budget neutral — the fee-for-service and encounter claims data provided OHCA with the confidence to make the change. The new primary care payment model provides:

- Fee-for-service plus stratified per member per month care coordination fees
- Enhanced incentive payments
- Transitional payments for year one

Rhode Island’s Chronic Care Sustainability Initiative (CSI RI) is a state-led multi-payer medical home demonstration pilot. All payers in Rhode Island (except Medicare fee-for-service), prominent purchasers and the state’s largest provider organizations are represented in the CSI Collaboration. The Rhode Island Office of the Health Insurance Commissioner convenes the pilot’s stakeholders but the collaboration is managed by a private entity, Health Progress. The Rhode Island medical home pilot is occurring in two phases: the first, lasting from October 2008 to September 2010, involves five practices and more than 37,000 patients; the second, running from April 2010 to March 2012, involves eight practices and more than 33,000 patients. CSI practices receive:

- Fee-for-service plus $3 per member per month care coordination fee
- Payment for salary and benefits of a dedicated on site care manager

**WHAT ARE CLAIMS DATA?**

Claims data (one type of administrative data) are defined as “large, computerized data files generally compiled in billing for healthcare services such as hospitalizations.” Despite their uniformity and population-wide availability, claims data provide only limited clinical information and are mostly useful for measuring:

- Processes reflecting the technical quality of care delivery, such as determining whether a specific test was performed
- Utilization and costs of care

Claims-based data cannot generally be used to measure:

- Practice structure (e.g. ownership—solo vs. group practice—or number of physicians)
- Patient or provider satisfaction

As such, presenters found claims data to be most valuable for evaluating the effects of a medical home intervention and reporting provider performance to motivate practice performance. Also, because there can be a significant time lag between the provision of a health care service and its appearance in claims data files, these data are generally less useful for guiding individual practice performance improvement efforts.

**ADVANTAGES OF USING CLAIMS-BASED DATA TO EVALUATE MEDICAL HOME INITIATIVES**

Since claims data are submitted by health care providers on an ongoing basis in the normal course of doing business, they offer a unique set of advantages for evaluating medical home initiatives.

**Claims based data may allow the ability to look back in time.** In many cases, claims data can be used to establish a pre-intervention baseline to determine the effects of a PCMH, and compare control practices to pilot practices. Evaluation efforts in both Oklahoma and Rhode Island rely on the pre-intervention baseline provided by claims data.

- Oklahoma Health Care Authority plans to conduct a comparative analysis of medical home practices pre- and post-HAN affiliation using claims data to evaluate its new Health Access Network (HAN) pilots. OHCA will use predictive modeling software to determine if the HANs result in better quality of care.
- Rhode Island’s CSI pilot evaluation will use claims data to determine if the intervention has had an impact on patients, including changes in care processes and intermediate outcomes, and if the intervention is associated with changes in the cost of care.

**Claims data can point to gaps in care.** In Montana, nurse care managers in the state’s Medicaid Health Improvement Program use claims data in predictive modeling software. The software sends care alerts that remind nurses to ask patients
if they have received certain screenings, immunizations, and blood work. The time lag associated with using claims data (discussed in the next section) presents challenges to using that data for prompt care alerts, but overall, Montana has found claims data to be a useful tool, particularly for reminding providers to talk to patients about screenings necessary for their conditions.

### Claims data allow researchers to observe all billed care.
This includes care delivered outside medical home practices (e.g., care delivered in specialty practices, in other primary care practices, and emergency care). Used in this way, claims data can determine if medical home initiatives have been successful in satisfying potential evaluative criteria, such as decreasing hospitalizations and use of emergency services.

### Claims data benefit from the availability of nationally endorsed performance measure specifications.
The Healthcare Effectiveness Data and Information Set (HEDIS) measures developed by the National Committee for Quality Assurance allow for comparison among health care systems and are chosen on the basis of their adherence to three core principles: relevance, scientific soundness, and feasibility. The OHCA annually collects 16 HEDIS measures. The data from 2009 is currently being analyzed and should be available from the OHCA late in the summer of 2010.

### Claims data are relatively inexpensive to obtain.
Claims data are already being collected and warehoused by Medicaid agencies and health plans for business purposes. The low cost of obtaining claims data can be especially beneficial when control practices do not have the resources necessary to invest in other forms of data collection (such as registry analysis or chart review). Health plans in Rhode Island will provide the medical home pilot with claims-based utilization measures in four areas: inpatient, emergency department, pharmacy, and outpatient specialty and primary care.

In addition to the claims-based utilization measures Rhode Island is collecting, the CSI pilot will also examine five clinical measures: two for coronary artery disease, two for diabetes, and one home-grown measure of depression care. Notably, Rhode Island found it very difficult to collect HEDIS depression measures through an EMR. As a result, Rhode Island developed its own depression measure—the percent of adults in the measurement year who were screened for depression—that could be obtained from EMRs of participating practices.

### Claims data may offer the ability to assess disparities based on race, ethnicity, or socioeconomic status.
Medicaid agencies may be able to augment claims data with information collected during eligibility determination about the patient’s race, ethnicity, or income. In addition, payers may be able to use claims data, especially patient names and addresses, in conjunction with data from other sources—such as the U.S. Census—to estimate attributes such as race, ethnicity, and socioeconomic status. Although these estimates are inexact and should be used with caution, they may provide useful information that is sometimes absent from other data sources (such as practice disease registries).

### Challenges of using claims-based data
There are limitations to the use of claims data to evaluate medical home initiatives. Anticipating these limitations and their potential solutions will help build a more robust evaluative process.

### Obtaining claims data often requires negotiating data use agreements with health plans and the Centers for Medicare and Medicaid Services (CMS).
Data use agreements are legally binding agreements between the plans and the evaluator that serve both to inform data users of the plan’s confidentiality requirements for handling the information and to obtain agreement to abide by these requirements. Since each health plan may have its own requirements for using data, securing data use agreements can be time-consuming.

However, CSI RI does not have data use agreements with payers in the state. Each health plan is analyzing its own data and providing it to the project. (Rhode Island does not have an all-payer claims database.) Each payer’s obligation to provide this information is spelled out in contracts signed as part of its participation in the CSI Collaboration; these contracts also provide specifications to ensure that each plan is measuring the same utilization parameters. Rhode Island has found coordinating payers and getting data back from them to be a challenge because data reporting competes with other health plan priorities. Making the data reporting issue a standing item on the agenda of the CSI Collaboration’s monthly meetings puts pressure on payers. In addition, stronger language on payers’ data reporting responsibilities will likely be included in future contracts.
There is a time lag between the delivery of care and the availability of claims data pertaining to that care. This time lag results from the accumulation of the time it takes a provider to submit a claim for a service and a payer to process, pay and prepare the data from the claim for addition to claims data that can be used for analysis. The lag can range from a few months to more than a year. The lag increases when claims data, perhaps to conduct comparisons, must be obtained from an organization other than the Medicaid agency or health plan that paid for the service. For example, there is usually a year and a half lag between the date a service is delivered to a Medicaid beneficiary and the date that CMS publicly releases the data—this lag results from the accumulated time needed for each state Medicaid agency to send the data to CMS and for CMS’s data quality contractor to review and validate the data. Despite this lag, health plans in Rhode Island CSIs are working to provide data on utilization to practices in as close to real time as possible so practices can use it to follow-up with patients.

Relying on claims data makes it difficult to attribute data to study practices. Patients may see many different providers and figuring out which patient “belongs” to which provider can be difficult. The attribution methodology used in the Rhode Island medical home demonstration relies on a 24-month claims look-back in which members are assigned to particular providers if they were the last primary care provider seen in that period. Moreover, physicians may join or drop out of the medical home initiative, further complicating the attribution process. Due to provider dissatisfaction, Oklahoma discontinued its practice of auto-assigning patients to a medical home if they neglected to choose one but now finds it much more difficult to track patients.

Missing data about individual services or groups of people presents another challenge for using claims data to evaluate medical home initiatives, particularly for researchers tracking care of the uninsured. There are no claims generated for uninsured patients. This missing data is especially challenging for providers such as Federally Qualified Health Centers (FQHCs) that serve a large population of uninsured. “Carve outs” for areas like mental health or pharmacy benefit management may not be readily apparent in claims data, leading to missing data in those areas. In addition, health plans often aggregate claims data by merging multiple files. An error or omission in merging files can result in missing data.

The problem of missing data can be addressed in a few different ways. Evaluators can attempt to acquire the missing data. This can be difficult, as it requires cooperation from the data source and will involve an investment of time and resources. The privacy provisions of the Health Insurance Portability and Accountability Act (HIPAA) and data use agreements will also have to be navigated. Obtaining missing data could require amending an existing data use agreement or negotiating a new one.

If data is missing in a random fashion, imputation of data may be possible. If, on the other hand, an entire block of data is missing (e.g., mental health data), evaluators may turn to patient surveys. It may be possible to analyze a subsample of surveys to gather data on certain missing conditions. Registries can also be useful to obtain missing data that results from caring for uninsured patients.

When using claims data, projects should be aware of inconsistencies in provider identifiers across health plans (including Medicaid). A crosswalk between different health plans’ identifiers may be necessary to ensure that claims are being attributed accurately to providers; a successful claims-based evaluation of a practice requires accurate knowledge of which claims are originating from it. If evaluators intend to translate utilization measures into costs, they should be aware that providers might be paid very different dollar amounts for the same service from different health plans. To avoid skewing cost data, evaluators can multiply utilization data (i.e., the number of times a service was used) by standardized prices rather than the actual price paid; the Medicare fee schedule is a potential source of standardized prices.

Alternatives to Using Claims Data

The use of claims-based data to evaluate medical home initiatives has both advantages and disadvantages. Fortunately, many other modes of evaluation can be used to supplement claims-based evaluations.

Using data from registries or electronic medical records.

Evaluators may get quality data directly from practices through a registry or an electronic medical record (EMR). This approach, however, will be difficult to extend to control practices if they have not invested in EMRs.

The Rhode Island medical home demonstration requires that practices report clinical quality measurements, either from a disease registry or from an EMR. EMR measures are being used to drive improvement in Rhode Island in a de-identified but practice-specific way. Not only does the potential of this approach for guiding practice-specific quality improvement exceed the possibilities offered by claims-based approaches, providers in Rhode
Island also trust EMR data more than claims data because they know claims were not designed to drive quality improvement. Moreover, EMR data are all-payer, and practices are regularly reviewing internal quality measures from EMRs and comparing across practices and providers; this is much rarer with claims data. Despite these advantages, EMR data from the early quarters of the Rhode Island project are acknowledged by providers to be unreliable. During these quarters, providers in Rhode Island were still learning how to use their EMRs (e.g. where to input the data and how to generate reports) so the data from that period is expected to be incomplete.

**Using data from patient and provider surveys.** Surveys are a common way to determine “medical home-ness.” The formal evaluation of the Rhode Island project will use patient surveys of experiences of care. Oklahoma used provider surveys to assess the effectiveness of its provider education efforts in transitioning to a medical home model.

The Agency for Healthcare Research and Quality’s Consumer Assessment of Healthcare Providers and Systems (CAHPS) and the Ambulatory Care Experiences Survey (ACES) survey developed by the Massachusetts Health Quality Partners in 2002 are commonly used survey tools. Texas is including measurements of patient experience using a modified version of the CAHPS survey in its Health Home pilot. However, service utilization, clinical quality, and trends in per member per month costs will be measured in Texas using claims and encounter data.

**Using alternate metrics.** Other data not captured by claims or EMRs may be useful in evaluating medical home projects. States may choose to evaluate medical home programs using measures of access and appointment availability. This is often done by asking providers to self-report their average time to the third next available appointment. An alternative method is to use a “mystery shopper” approach in which practices are called by evaluators posing as clients and asked about the next available appointment. Montana requires “24-hour direction to care” as a condition for participation in its Health Improvement Program; the method for checking to ensure providers are in compliance is similar to the mystery shopper approach.

Surveying patients directly about appointment access is another approach, although patients often have trouble remembering exactly how long they had to wait for an appointment. However, this approach is also useful for measuring clients’ overall propensity to defer care. Oklahoma tracks the number of patient inquiries to the OHCA regarding access to care issues. The number of inquiries on same day or next day access issues fell from 1,670 in 2008 to just 13 in 2009, the first year of Oklahoma’s medical home initiative. Tier 2 and Tier 3 medical home practices in Oklahoma maintain open appointment slots in the morning and afternoon, which helps to facilitate same-day urgent care. The OHCA attributes the sharp decrease in access inquiries to this practice.

In NASHP’s post-webinar technical assistance call, Kansas expressed an interest in measuring health literacy as part of its evaluation efforts. Kansas was directed to AHRQ toolkits on the subject by mentor state North Carolina, which has connected all networks in the state to the toolkits.

**Conclusion**

Evaluation is crucial for demonstrating the value of medical home initiatives and for identifying areas of potential improvement. Claims offer a readily available and relatively inexpensive source of population-wide data. However, the limitations of claims data make the use of data sources such as patient and provider surveys and EMRs a valuable supplement. Evaluators using claims data must grapple with issues of data use, practice attribution, and missing data.

In designing evaluative criteria, states should take inventory of the data sources available to them. The evaluative potential of EMR data, for example, will be limited if control practices do not have EMRs or if the EMR data only stretches back to the beginning of the medical home initiative, making it impossible to establish a pre-intervention baseline. Claims data, on the other hand, provide the ability to establish pre- and post-interventions comparisons and are a common denominator among medical home initiatives.

Regardless of the data sources used, states should be careful to ensure that evaluation metrics remain distinct from the criteria used in the state’s definition of a medical home; if the two are too similar, merely meeting the definition of a medical home will ensure a high score in subsequent evaluations. NASHP consortium states also expressed concerns that practice participation would be discouraged if evaluation standards were set too high. All of these factors must be weighed when a state is designing an evaluative scheme because each will help determine which kinds of data will be most useful to the evaluator.
ENDNOTES


2 The archived webcast can be viewed in full at http://www.nashp.org/archives/1997.

3 In 2009-2010, NASHP is supporting eight consortium states (Alabama, Iowa, Kansas, Maryland, Montana, Nebraska, Texas and Virginia) by providing them with technical assistance, including in-person and distance learning opportunities. The three mentor states that participated in the May 11, 2010 technical assistance call were Minnesota, North Carolina, and Oklahoma.

4 For more information on this model, see the SoonerCare Choice website: http://www.okhca.org/individuals.aspx?id=548.

5 OHCA retained incentive payments, in part because these incentive payments were claims-based and simple to administer.

6 For more information, consult the Quality Partners of Rhode Island website (http://www.qualitypartnersri.org/cfmodules/objmgr.cfm?Obj=PQ_Resources&pmid=122&mid=361&cid=361) or the website of the Rhode Island Office of the Health Insurance Commissioner (http://www.ohic.ri.gov/Employers_Premiums_CSI.php).


9 HANs are community-based entities representing collections of providers. They are organized for the purpose of restructuring and improving the access, quality, and continuity of care to SoonerCare members, the uninsured, and the underinsured. For more information, see http://okhca.org/pdf/HAN_DEFINED_10_2_08.pdf.

10 For more information on the desirable attributes of HEDIS in particular, see: http://www.ncqa.org/tabid/415/Default.aspx. Refer to the National Quality Measures Clearinghouse (http://www.qualitymeasures.ahrq.gov/) or the National Quality Forum (http://www.qualityforum.org/) for more information on nationally recognized claims-based measures.

11 A CMS contractor, the Research Data Assistance Center (ResDAC) at the University of Minnesota, is responsible for providing assistance to researchers who wish to use Medicare or Medicaid data in their research. ResDAC does not provide analytic services, nor does it disseminate CMS data to researchers. However, ResDAC assists researchers in completing the data request packet—which must contain a written request, study protocol, evidence of funding, and Data Use Agreements—that researchers are required to submit to CMS if they are seeking enrollment or utilization data files that contain physician or beneficiary identifiers. ResDAC’s website may be viewed at: http://www.resdac.umn.edu/index.asp.


13 State Medicaid agencies submit claims data files to the Centers for Medicare and Medicaid Services where the data is then sent to a private contractor for quality review and validation (verification of claims data is performed by CMS; a data quality contractor, Mathematica Policy Research, Inc). Once the data is verified as meeting formatting and error rate standards, CMS waits—often for several months—for companion data files to complete review before releasing the claims data to the public. The cumulative effect of delays at the state level in submitting data to CMS and delays at the federal level while CMS holds verified data is a time lag of more than a year and a half between delivery of care and availability of data. See: Stuart Wright. “Memorandum Report: MSIS Data Usefulness for Detecting Fraud, Waste, and Abuse.” (Washington, D.C.: HHS Office of Inspector General, 2009). http://oig.hhs.gov/oei/reports/oei-04-07-00240.pdf.

14 The HIPAA Privacy Rule does allow health information to be released for research purposes but requires certain conditions to be met, such as receipt of Institutional Review Board (IRB) or Privacy Board approval for the release of the information or, as mentioned above, ne-
gotiation of a data use agreement for the release of a limited data set. Additional information on the HIPAA Privacy Rule conditions for the release of health information data for research purposes is available on the U.S. Department of Health and Human Services Office for Civil Rights website: [http://www.hhs.gov/ocr/privacy/hipaa/understanding/coveredentities/research.html](http://www.hhs.gov/ocr/privacy/hipaa/understanding/coveredentities/research.html).


16 AHRQ resources on health literacy can be found at: [http://www.ahrq.gov/browse/hltix.htm](http://www.ahrq.gov/browse/hltix.htm).