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NORDIC ECONOMIC POLICY REVIEW

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Summary

Risk adjustment models can establish appropriate payments and incentives for delivering superior primary care, particularly to people with chronic conditions, through health-based capitation and performance assessment in a patient-centered medical home (PCMH). The practical issues and administrative structures for implementing bundled PCMH payment that we discuss are relevant for single-payer Scandinavian countries as well as the US. Feasibility is supported by the “virtual all-payer” PCMH pilot of one US health plan.

Keywords: primary care, risk adjustment, patient-centered medical home, capitation, primary care activity level (PCAL).

JEL classification numbers: I13, I18, I11.

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Promoting health and improving the quality of health care while controlling costs are the core objectives of every health care system. An approach that is receiving growing attention in the US seeks to change the organizational structures and incentives for primary care practitioners to enable and motivate them to do better on these dimensions. Ash and Ellis (2012) have recently described how risk adjustment can be used to dramatically change primary care payment, whereby instead of being reimbursed for each service provided (fee-for-service [FFS] reimbursement), primary care providers receive a comprehensive monthly bundled payment plus substantial performance-based bonuses. Although this payment framework could be adopted by any health care system, it is particularly well-suited for financing a practice operating as a patient-centered medical home (PCMH). We will discuss several implementation issues, describe how one health plan customized a risk-adjusted primary care capitation model to pay three practices in a “virtual all-payer” PCMH pilot, and discuss lessons for other countries.

1. Background

The American Academy of Pediatrics initiated the idea of a “medical home” in 1967 to create a central source for all medical information about a child, especially for those with special needs (Sia et al., 2004). As conceptualized by Barbara Starfield and the US Institute of Medicine, the four core functions of the medical home were to provide “accessible, comprehensive, longitudinal, and coordinated care in the context of families and community” (National Academy of Sciences, 1996). “Patient-centeredness” was added in 2001 when seven US national family medicine organizations sought to emphasize the need to manage the care of each “whole person” for whom the practice takes responsibility.

In the US, much discussion has focused on how to promote efficiency and quality by changing payment incentives for the PCMH. Goroll et al. (2007) and Goroll (2008, 2011) argue that the best payment system to support the PCMH would have: 1) a capitated budget (that is, a bundled base payment) to support all, and only, primary care activities for the practice’s panel and 2) strong performance incentives, such as potentially large bonus payments to reward practices for cost containment, clinical

quality and patient satisfaction. To function fairly and well, both the overall budget and the performance measure calculations must be risk-adjusted: the budget, so as to match each practice's resources with its patients' needs; and performance measures, so that the practice is rewarded for better-than-expected outcomes among the specific patients for whom it takes responsibility. Ash and Ellis (2012) developed risk adjustment models to support both the base and performance assessment needs of this approach.

Denmark, the Netherlands, Norway and the UK (Gosden et al., 2001) have used bundled payment to partially or fully replace FFS for primary care; however, such primary care payment has rarely been implemented in the US, particularly in the context of the PCMH. Of the 42 US PCMH pilots described on the Patient Centered Primary Care Collaborative (PCPCC) web site in June 2011 that specified payment reforms, all but one used FFS reimbursement to make most of their payments to practices (PCPCC, 2008, 2011). The most common arrangement is a small (USD 2 to USD 5) per-member per-month (PMPM) management fee add-on to FFS to support the enhanced expectations for PCMH care (Bitton et al., 2010). Performance bonus payments and rewards for achieving higher tiers of accreditation as a PCMH are common but, once more, with one exception, the words "risk adjustment" do not appear (PCPCC, 2011). Key publications by three influential medical home adopters – Kaiser Permanente (Liang, 2010), Group Health Cooperative of Puget Sound (Reid et al., 2009), and Geisinger Health Plan (Paulus et al., 2008) – also say nothing about risk adjustment.

To our knowledge, only one PCMH implementer in the US, the Capital District Physicians' Health Plan (2011) (CDPHP), has embraced risk-adjusted primary care capitation as proposed by Ash and Ellis. CDPHP is a not-for-profit network model HMO with about 350 000 members and 10 000 providers almost exclusively in New York State (Feder, 2011). Under the plan's pilot, three practices with 18 full-time-equivalent physicians initiated practice transformation in mid-2008, and payment changed to "capitation plus bonus" in January 2009. The pilot included patients with both private and public (Medicare and Medicaid) insurance. Citing estimated cost savings of USD 8 per member per month in the first two years, CDPHP recently extended the new payment system to cover 350 providers caring for over 35 000 members (Feder, 2011). Participating

practices received start-up funding to facilitate transformation, and FFS has largely been replaced by claims-based, risk-adjusted primary care capitation plus bonus payments for exceeding normative expectations. Importantly, the new payment system applies to all patients in participating practices, not just those for whom the plan accepts financial risk. CDPHP processes FFS claims for all visits, and continues to receive fees from outside insurers such as Medicare and Medicaid, but uses primary care capitation and significant bonuses to influence the provider behavior.

2. New administrative functions

The CDPHP experience plus our conversations with physicians and policy makers suggest that three functions, undertaken by one or more entities, are needed to support fundamental payment reform for the PCMH:

- Manage financial and data processing tasks. We assign this function to a medical home *administrator*.
- Act as financial guarantor. The medical home *sponsor* provides start-up money for the transition to a PCMH practice, and covers any shortfalls, thus ensuring that providers receive the funds dictated by agreed-upon formulas.
- Provide a governance structure for the sponsor and participating PCMH practices and payers that agree to the payment structure. This is a medical home *consortium*. Consortium members commit to a process for making binding decisions, for example, specifying the procedures and activities included in the medical home innovation and how performance measures and bonus payments will be calculated.

We provide more details on each function and its responsible entity below.

2.1 Role of the administrator

The administrator signs contracts with participants, pools data confidentially, calibrates and implements risk-adjustment models for base and bonus payments, shares information with stakeholders, collects survey

information, and makes risk-based payments. These functions could be performed by a regional or national health plan or payer, but will likely be more acceptable to providers and patients if conducted more locally. The administrator should be incentivized to achieve PCMH goals and authorized to enforce data sharing and data standardization while ensuring confidentiality.

In most Scandinavian countries, the government has already contracted with all physicians, so the role of the administrator could be delegated to a local authority. In the US, the administrator has the more challenging task of signing agreements with *participating practices* governing data and payment arrangements. Revenue information, for example, is needed to calculate and implement financial flows. If participation is voluntary, as in US pilots, practices may participate for diverse reasons, including: to receive start-up funds supporting practice transformation, to replace onerous FFS constraints with a steady income to support the activities that clinicians find valuable, and the opportunity to increase earnings.

In the US, the administrator must also sign agreements with *participating payers* committing them to sharing data and cost savings within the consortium. There is a potential “free-rider” problem with payers, since non-participants also benefit from their patients receiving better care. Possible inducements for joining include: the expectation that improved information can facilitate better management, the fact that only participating payers receive timely reports describing expected and actual costs and utilization, the prestige of participating in a cutting-edge reform, or the opportunity to more directly improve the incentives for plan enrollees.

2.2 Role of the sponsor

It takes time and costs money to transform a practice, so it may take a while for savings to accrue. Furthermore, information on shared savings and bonus calculations will not be available immediately. Thus, a sponsor must be prepared to support the start-up costs without any immediate financial return. In the US, the Centers for Medicare and Medicaid Services (the federal agency responsible for insuring the elderly, persons with disabilities, and the poor), or some/all of the participating payers, could function as a sponsor. During the phase-in, the sponsor ensures that

practices receive financial and technical support for activities such as training, improving medical record system functionality, new contracting, etc. Ongoing support for such activities must eventually be funded from base and bonus payments.

CDPHP was its own sponsor, bearing the cost of practice transformation for its pilot (an estimated USD 85 000 per physician), including the costs associated with treating non-CDPHP patients. TransforMed and Verisk Health Inc. assisted with implementing practice change and calculating risk-adjusted base payments, respectively (Ash and Ellis, 2012; Feder, 2011; Grumbach et al., 2009).

2.3 Role of the consortium

The consortium brings together the sponsor, participating practices and participating payers, and defines the group among which base payment funds are pooled and bonus funds allocated. Since a consortium's practices collectively generate net savings and share in it, not all practices may wish to participate in the same consortium. In a dense market area, such as a major city, several consortia might form. Greater efficiencies and geographic equity are likely if a single entity administers all consortia within fairly large geographic regions.

Consortium participants, both practices and payers, collectively determine the services included in the primary care bundle and specify how savings (losses) are shared and bonus payments determined. For institutional and data consistency, it may be easier to create consortia from existing provider networks or payer groups. However, an important goal is to achieve comparable data, with calculations and payment transfers cutting across payers and provider networks. Some consortium functions will require antitrust relief.

The consortium proposed here resembles an alternative framework that has also been recommended in the US, called an accountable care organization (ACO). Similar to a PCMH, an ACO receives a monthly capitation payment rather than fees, and takes responsibility for controlling costs and maintaining quality for a fixed panel of patients. Both entities must collect and disseminate information to participants and coordinate patient care. However, the ACO is capitated to bear financial responsibility for all medical services – inpatient, outpatient, and pharmacy –

while the bundled payment for the PCMH is only intended to cover primary care services. Strong performance payments and provider feedback to the PCMH are intended to promote the judicious use of other services, including specialty care, hospitals, diagnostic testing and pharmacy. Unlike an ACO, the PCMH consortium does not directly pay for these other services; its practices can influence their use mostly through prudent referrals, by encouraging patient self-care and, in general, by carefully managing their patients' needs.

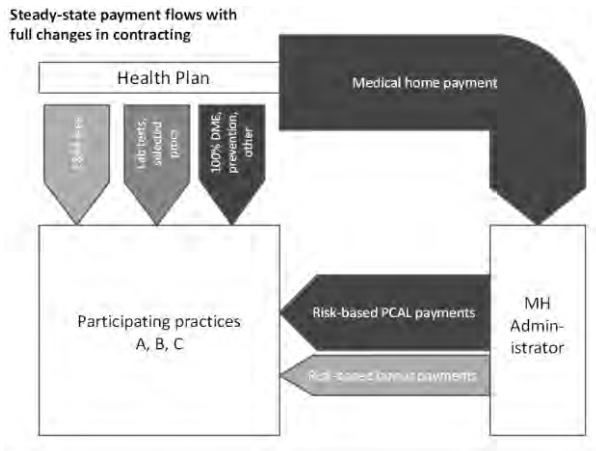
CDPHP was unusual in that it served as the sponsor, administrator, and the consortium for its PCMH pilot. As the only PCMH innovator in its primary market area, it was able to specify the scope of services to be covered by its bundled capitation payment.

3. Payment

3.1 Sample payment flows

In single payer settings (such as the Scandinavian countries), it would be relatively straightforward for the government insurance program to stop directly paying practices on a fee basis and make primary care payments directly to the Medical Home Administrator, as in Figure 1. Risk-adjusted, bundled base payments from the administrator would encourage PCMHs to creatively identify the most valuable care delivery mechanisms, including traditional office visits, group visits, emails, text messages, phone calls, and clinical and social service provision by non-physician PCMH team members. Risk-adjusted bonus payments could further encourage primary care practices to control utilization, maintain quality, and improve patient experience. Even with the payment flows shown in Figure 2, it will be important for the medical home administrator to collect enough information to enable risk adjustment and monitor performance.

Figure 1. Payment flows in a single payer system



Source: Own calculations.

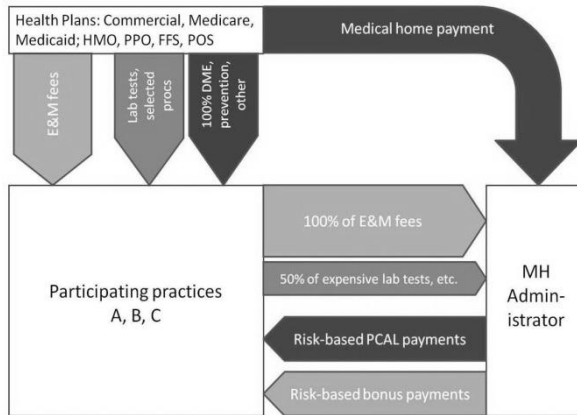
Note: E&M: evaluation and management; DME: durable medical equipment; MH: medical home; PCAL: primary care activity level.

Fees for core services and shared savings are included in the risk-adjusted bundled medical home payment, and the administrator makes base and bonus payments to the PCMH practices in place of the bulk of their FFS revenue.

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In the US, implementing a PCMH with a new payment system is complicated by the presence of multiple payers, diverse health plans, and many complex and selective contracts between payers and providers. Although streamlined payment flows (such as in Figure 1) are desirable in the long run, Figure 2 describes a more feasible organizational structure for near-term US implementation. It requires a new organization to serve as the administrator, pooling the money and the information needed to make base payments and calculate bonuses. Figure 2 shows how payments might flow in a multi-payer medical home consortium during start-up or even longer term. Base payments would principally be financed via existing FFS payments to the PCMH, while bonus payments, to be sustainable, would eventually have to come from shared savings. Some studies suggest that PCMH savings may be achieved early (Grumbach et al., 2009; Feder, 2011).

Figure 2. Payment flows in a multi-payer, diverse benefit plan setting



Source: Own calculations.

Note: HMO: health maintenance organization; PPO: preferred provider organization; FFS: fee for service; POS: point of service; E&M: evaluation and management; DME: durable medical equipment; MH: medical home; PCAL: primary care activity level. To simplify contracting, PCMH practices continue to receive FFS payments from all payers for all services, but the revenue from evaluation and management fees and fractions of lab tests and other fees are credited by the administrator towards the PCAL base payment. Bonus payments are funded by a medical home supplement based on shared savings.

In either setting, the administrator must receive total payments that are sufficient to enable high-quality primary care. In the US, many primary care practices do not receive adequate funds that enable the more innovative forms of care (e.g., email, group meetings and expanded non-physician treatment). As calibrated in Ash and Ellis, payments need to reflect patients' expected needs, rather than the actual volume and mix of services delivered. Compared to FFS, this could change the incentives quite radically. The figures also illustrate that FFS reimbursement can be selectively used to explicitly encourage some services, such as vaccinations, by maintaining FFS billing for these services on top of the base payments. Less demonstrably useful services, including expensive primary-care-oriented laboratory tests or imaging, could be excluded from the bundled payment but only partially reimbursed at a level that covers, at most, the operating (marginal) costs. For example, the PCMH might be allowed to retain 50 percent of the full fee for certain imaging tests, with the rest having to come from its base payment. The administrator will need to monitor the spending on FFS-reimbursed services performed by

the PCMH. Lower-than-expected costs of overused services can potentially increase bonuses (CDPHP, 2011).

3.2 Payment calculations

In Ash and Ellis (2012), we provide details on how the administrator might calculate each patient's primary care activity level (PCAL), so as to ensure that practices receive the sum of their patients' PCALs. The payment for each person for each eligible month is the product of a PCAL normalized risk score (nRS) – reflecting the relative resources needed by each patient based on their age, gender, and diagnoses and expressed as a fraction (multiplier) of the average resources needed – and the average PMPM cost for delivering high-quality primary care.

The average PMPM could be calculated by dividing the total available dollars for base payments by the number of member-months covered. For example, if the agreed-upon PCMH spending pool were USD 20 million for 500 000 member months, the base payment for a patient with PCAL = 1 would be $(\text{USD } 20 \text{ million} / 500\,000) = \text{USD } 40 \text{ PMPM}$. This base amount can also be adjusted to reflect benefit plan and payer pricing differences, as further discussed below.

3.3 Accommodating diverse payers

One major hurdle to implementing primary care capitation in the US is incorporating payers and health plans with diverse benefit features and fees for the same services. For example, the allowed charges for Medicare and Medicaid patients are typically below those for commercial patients, and health maintenance organizations (HMOs) often negotiate discounts for various procedures. Furthermore, payers differ in their benefit coverage: some pay a fixed percentage of the allowed fee, while others require deductibles and fixed fees. How can bundled payments be implemented in the face of payer diversity?

For its PCMH pilot, we helped CDPHP modify the Verisk Health PCAL risk score to recognize differences in its revenues among federal and state government and employer premiums. Rather than choosing a single multiplier B for all patients, the CDPHP multiplier varied by payer category (see Table 1). Informed by its own internal regressions and other

calculations based on benefit design, CDPHP calculated the initial base payments as $A+B*nRS$, where A and B are as shown in Table 1. Even though all pilot practices achieved Level 3 accreditation as a PCMH from the US National Center for Quality Assurance (NCQA) and implemented state-of-the-art electronic health records, CDPHP continued to use claims-based diagnoses, rather than electronic health records data, mainly because of the inadequacies of the electronic systems (Feder, 2011). Future implementers may wish to investigate further refinements to the payment formula to better account for cost sharing in PCMH base payments.

Table 1. Formulas used by the CDPHP to transform a PCAL normalized risk score into a payer-specific base payment

	Minimum (A)	PCAL nRS slope (B)
Commercial HMO	\$128.80	\$60.69
Commercial non-HMO	\$105.16	\$49.65
Medicare	\$101.83	\$48.08
Medicaid	\$90.74	\$42.74

Example:
 A Medicaid patient with a PCAL of 1.8 would generate an annual base payment of $\$90.74 + (1.8 * \$42.74) = \$167.67$ (or $\$13.97/\text{month}$)

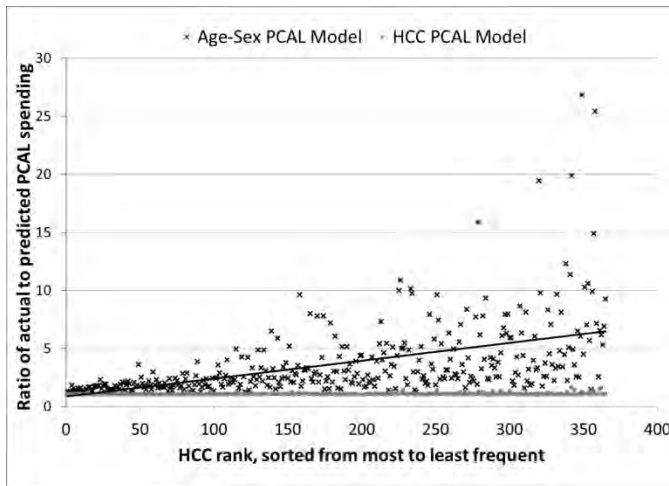
Source: Own calculations.

4. The importance of rich risk adjustment models

As highlighted in the introduction, few PCMH pilots in the US are linked to substantial payment reforms. Moreover, with the exception of CDPHP, only simple models (based on at most age-sex and the presence/absence of a few chronic conditions) are being used to adjust modest per-patient-per-month supplementary payments to FFS. When bundled payments are large, a weak risk adjustment creates a strong incentive for practices to avoid individual patients expected to cost more than the bundled payment. The PCAL payment approach predicts the primary care resources needed using binary flags that signal the presence or absence of 394 medical conditions, called Hierarchical Condition Categories or HCCs for each patient. The US government uses an HCC modeling framework to

calculate payments to private Medicare Advantage plans for their elderly and disabled Medicare enrollees; in Germany, a similar Hierarchical Morbidity Group (HMG) calculation is used to allocate health care money across its sickness funds. Figure 3 shows the ratio of actual to expected spending for each of the 365 condition categories with more than 500 cases (among 17.4 million commercially insured individuals in this sample). The widely scattered X's show the performance of a model using only age and sex to predict PCAL, while the dots hovering around 1 are for the PCAL model using HCCs, age and sex. Actual PCAL expenditures are about 50 percent higher than the age-sex predictions for the most common conditions and are progressively less accurate for rarer HCCs, while the HCC model's payments, by design, are about right for all HCCs. Figure 4 replicates the analysis using the Medicare program's 70 HCCs to predict our PCAL; while this model does better than age and sex alone, it systematically underpays for many conditions, potentially penalizing practices that care for people with these medical problems.

Figure 3. Ratio of actual to predicted PCAL for those 365 condition categories with more than 500 persons each, using the age-sex and HCC models to predict the PCAL proxy

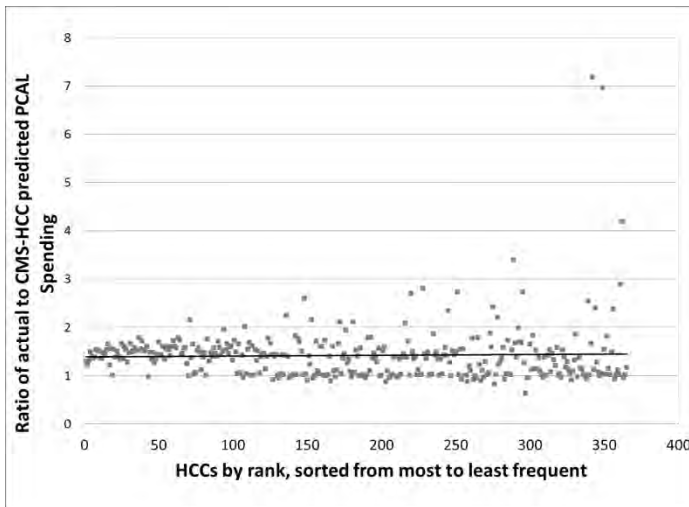


Source: Own calculations.

Note: PCAL: primary care activity level; HCC: hierarchical condition category. Regression models predicting the PCAL proxy variable (Y) were estimated using the full sample of 17.4 million people: 1) using only age and sex and 2) using age, sex, and HCCs. Per capita averages were calculated for each model for each of the 394 HCCs, based on actual and predicted PCAL costs for all people with at least one diagnosis in that HCC. HCCs were sorted from most common to least common; each data point is the ratio of actual to predicted spending, shown for 365 HCCs with more than 500 cases, ranging from HCC383 = Screening/ Observation/Special Exams with 750 471 people at the far left to HCC213 = Heart Transplant Complications with 561 people, at the far right.

In Ash and Ellis (2012), we show that customized risk adjustment is also important for assessing performance. First, using only age and sex as predictors leaves a great deal of potentially predictable variation unexplained, creating incentives for practices to avoid taking responsibility for treating the most challenging, chronically ill patients. Second, many performance outcomes (such as total spending, emergency department use and measures of patient satisfaction) may be only weakly correlated with each other, and may have different predictors. Thus, when seeking to hold a practice accountable for the difference between “what would be expected for a particular outcome with a particular patient panel” and the panel’s actual outcome, an outcome-specific regression model should be used to determine what would be expected.

Figure 4. Ratio of actual to CMS-HCC predicted PCAL for those 365 condition categories with more than 500 persons each, using the CMS-HCC model to predict the PCAL proxy



Source: Own calculations

Note: PCAL: primary care activity level; HCC: hierarchical condition category. Regression models predicting the PCAL proxy variable (Y) were estimated using the full sample of 17.4 million people using the 70 CMS-HCCs with 22 age and sex dummy variables. Per capita averages of actual and predicted PCAL were calculated for each of the 394 HCCs, for all people with at least one diagnosis in that HCC. HCCs were sorted from most common to least common; each data point plots the ratio of actual to predicted spending, shown for 365 HCCs with more than 500 cases, ranging from HCC383 = Screening/ Observation/Special Exams with 750 471 people at the far left to HCC213 = Heart Transplant Complications with 561 people, at the far right.

Table 2 illustrates how widely PCAL payments might vary for patients with differing levels of chronic or acute conditions. For example,

while a very healthy person may only require a small fraction of the average level of resources, the PCAL model predicts that a 56-year-old male with uncomplicated diabetes and fluid and electrolyte disorders can be expected to use more than three times the average level. Further, a patient with ophthalmic manifestations from diabetes, back pain and high cholesterol might require more than five times the average level of primary care. Clinically-detailed risk adjustment is needed to capture such variations and reward the PCMH for taking on these complex patients.

Table 2. PCAL payment examples for four patients

Male, Age 16	PCAL nRS = .135	Annual payment = \$65
<ul style="list-style-type: none"> • No medical problems 		
Female, Age 11	PCAL nRS = .557	Annual payment = \$267
<ul style="list-style-type: none"> • Other Non-Chronic Ear, Nose, Throat, and Mouth Disorders • Other Dermatological Disorders 		
Male, Age 56	PCAL nRS = 3.061	Annual Payment = \$1,469
<ul style="list-style-type: none"> • Benign Digestive or Urinary Neoplasm • Diabetes with no complication • Fluid/Electrolyte/Acid-Base Imbalance • Ulcer with Perforation/Obstruction • History of Disease 		
Female, Age 50	PCAL nRS = 4.791	Annual Payment = \$2,300
<ul style="list-style-type: none"> • Diabetes with Ophthalmologic Manifestation • Hyperlipidemia • Endocrine/Metabolic Disorder • Lower Back Pain • Pelvic/Uterine Inflammation • Rehab • Screening • Surgical Misadventure or Complication 		

Source: Own calculations.

4.1 Short-, medium-, and long-term needs for data

Although the risk assessments that provide information for base and bonus payments should ideally use rich data, PCMH implementers must walk before they can run; CDPHP initially chose to use only insurance claims information and rely on continuing FFS billing. Substantial continuity in data requirements is especially helpful during the start-up, since contracting arrangements, patient assignments, and practice behaviors are already in flux.

Later, as bills become unlinked from payments, we must guard against losing the key information currently found in FFS billing, specifically medical diagnoses and procedures coded in standardized formats. This requires developing a standard for “encounter records” or dummy bills and providing incentives to ensure their quality. It is also important to capture key clinical outcomes – such as blood pressure and lipid levels – currently buried in non-standardized, poorly configured electronic medical record systems and measures of the patients’ experience of care (such as is collected in the Consumer Assessment of Healthcare Providers and Systems [CAHPS] survey) of the Agency for Healthcare and Quality (AHRQ, 2011). CDPHP was using the CAHPS survey even prior to the PCMH pilot.

Eventually, it will be highly desirable to:

- Incorporate additional risk factors (such as socioeconomic status, housing or food instability, language and literacy barriers, and more detailed information on prior health status);
- Learn how to identify problems with data capture and, potentially, fraud; and
- Measure, track, and help establish the value of new kinds of health care utilization (including email and phone contacts, behavioral health interventions, and health coaching) and learn how to provide feedback to multiple stakeholders.

4.2 Coding creep

A concern with linking payments to diagnosis-based risk adjustment is that practices can increase their payments through aggressive coding. While auditing to detect fraud should be part of any health care payment system, even without fraud, payment-driven increases in coding intensity are well documented (Rosenberg et al., 2000; Angeles and Park, 2009). In response, we note that the map from diagnostic codes to measured illness in these models was designed to limit the sensitivity to variations in coding. Further, where such maps are used in the Medicare Advantage program, the government regularly recalibrates payment formulas to undo the extra money that program-wide increased coding intensity would otherwise entail. With recalibration, only *differential* upcoding under-

mines the purpose of the risk adjustment, which provides each practice with the resources its patients need. As US states assemble all-payer databases and data from patient medical records become standardized, it should be easier to achieve comparability across practices. Finally, patient care can benefit from increased attention to diagnosing and tracking medical conditions. At the same time, the incentives to over-code illnesses seem less harmful than the FFS incentives to over-provide low-value, but well-reimbursed, services.

4.3 Retrospective patient assignment and reconciliation

A fundamental challenge to implementing an all-payer PCMH in the US is that many health plans, including conventional Medicare, do not require enrollees to designate a single practice as their primary care practitioner (PCP). Another concern is that a PCMH might game the payment system by enrolling patients (to receive their bundled payments), but then focus their efforts and billing on patients not assigned to their PCMH (for whom they could continue to bill). How can we start a PCMH in the US even in the current, highly imperfect setting in which patients are not required to choose a PCP as their sole source for primary care and some (but not all) PCPs are transforming to a PCMH?

CDPHP chose not to require that patients definitively pick a PCMH practice; it used an *ex post* (retrospective) assignment algorithm that assigns patients to the practice that provided the plurality of their primary care. A similar *ex post* approach has been used in other studies, some of which have found that the patient choice of PCPs and the performance measures of these PCPs are relatively stable across years (Medicare Payment Advisory Commission, 2009; Ginsburg, 2011). Less stability has been reported by Mehrotra et al. (2010) when they assigned individual episodes to specific physicians under 12 attribution rules. While a variety of assignments are possible, what seems most attractive for the PCMH is that patients be assigned to a participating PCMH at the end of a year based on the plurality of their qualifying primary care visits or other contacts such as emails, telephone calls, or home visits (Sorbero et al., 2006). For a patient with no provider contact in a given year, the norm is to use information from the previous year. Patients with no contact with a PCMH over a two-year period presumably generated little to no primary-

care-related activities and remain unassigned. Allowing patients to select practices either within or outside the PCMH consortium facilitates the implementation, particularly in multi-payer settings where most plans do not require primary care provider selection. It is plausible that switching practices could be infrequent and as manageable with *ex post* as with *ex ante* assignment. Risk adjustment seeks to mitigate the selection problem by making payments match the patients; the goal is to make providers *financially* indifferent to whether their patients are sicker or healthier.

Ex post assignment also defeats gaming by “patient swapping,” where two practices each receive base payments for their previously assigned patients, but also earn FFS payments when they each provide most of the care for patients who “belong to” the other practice. With *ex post* assignment, regardless of which practice a patient was considered to belong to, the practice that submits bills for most of her FFS primary care services will get all of her bundled payment. *Ex post* patient assignment also mitigates the incentive to stint on providing care: if a practice underserves an enrolled patient, then either the patient 1) remains assigned to that practice, which receives her base payment but also potentially a poor service rating that worsens its bonus measures, or 2) switches to another PCP, causing her bundled payments to be redirected there. It is not clear whether the generosity of the bundled PCP payment will induce competition that results in too many or too few primary care services being provided. However, the incentives will differ from traditional FFS payment, and these bundled prices give payers a new pricing tool for promoting efficiency.

Although a prospective framework is possible, to ensure that payments more closely match the needs of practices (which should not be placed at too much financial risk), we have proposed concurrent risk adjustment for base and performance measures. In addition, changes in plan enrollment and patient assignment to practices cannot be prospectively determined. Thus, payments will need to be made based on preliminary estimates and reconciled later. However, retrospective reconciliation is a necessary feature of any bonus payment system, and is already being used for bundled payment in the Medicare Advantage and CDPHP programs. It requires no fundamental change in payment practice.

5. Conclusion

We have described an administrative structure to support a patient-centered medical home (PCMH) in either the single-payer systems in Scandinavian countries or the US multipayer setting with diverse health plans and contractual arrangements. Central to our discussion are three key administrative functions: sponsorship, information processing, and collaborative contracting, assigned, respectively, to a *sponsor*, a *medical home administrator*, and a *medical home consortium*. These entities could be existing or new organizations, depending on the organizational context.

The goals of primary care payment reform are to improve health and health care and reduce costs. Early results from PCMH pilots suggest that practice transformation is feasible and may be able to achieve these goals (Grumbach et al., 2009). To promote the adoption of bundled payments, sponsors may initially guarantee that total practice base payments are at least as large as existing practice revenue, but eventually base payments should go up or down to reflect the “effective size” (that is, the number and the complexity) of the practice. Given their increased responsibilities, bonus plus base payments seem likely to require greater payments to primary care practices than they currently receive – which currently are only about 6 to 7 percent of total health care spending in the US (Arvanites, 2009). The hope is that increasing primary care spending by perhaps as much as 2 percent of total spending can save more than that through avoidable emergency room visits, imaging, tests, and hospitalizations. Given that PCPs in Scandinavia receive a higher proportion of total health resources than in the US, less of an increase in PCP payments may be needed; however, the change from FFS to bundled payment may still create powerful new incentives.

This paper provides many specifics on how payment reform for the PCMH might be implemented. We take heart in this daunting transformation, in how one early adopter was able to deal with the complexities and thrive accommodating existing price discounts and cost sharing of diverse payers and insurance plan types with different contractual fees received. While we do not claim that the implementation we describe is in any sense optimal, it is demonstrably feasible. This detailed description of how transformative the payment for primary care can be and how it has

been implemented shows one way in which the PCMH ideal of cost-effective, high-quality primary care can emerge in the absence of centrally-dictated payment reforms.

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Comment on Ellis and Ash: Payment in support of effective primary care for chronic conditions

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Commonly, the responsibilities and financing of health treatment are extremely fragmented. This is the essential point of departure of the study, and it is observed that such fragmentation leads to many undesirable shortcomings – inefficiency in the utilization of resources, quality loss, increased risks for patients and adverse effects just to mention a few. Per definition, this is the case in the US health care system, but it also holds true for Scandinavian countries due to a traditional practice of decentralization of many decisions regarding health care delivery as well as its financing. For standard (i.e. uniquely coded) diagnosis treatment, there is a long tradition for overcoming the aforementioned shortcomings during the implementation of concepts like shared care, integrated care etc. However, for non-standard diagnoses (i.e. diagnoses that cannot be uniquely coded), practice lags considerably behind. This does, in particular, cover many chronic conditions – type II diabetes just to mention one well-known example.

The present study aims at filling this gap by offering a three-legged framework for the improvement of responsibility handling and financial management in order to ensure three tasks: A start-up transformation of the fragmented system for finance and management (including the payment for start-up); the integration of financial and data processing tasks

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management; and the continual governance and development of these two and related tasks.

Generally, given the lagging-behind in the development of continuous care for non-standard treatments of chronic diseases in particular, this study appears highly relevant for economic policy and decision makers. Furthermore, the suggested operational plan seems well described, sufficiently detailed and convincing. Especially, the study seems to be well founded in existing developments, including several contributions from the authors; see, for example, Ash and Ellis (2012) and further references therein.

A couple of suggestions for future developments or extensions to the study follow. First, while the proposal is carefully argued and appears convincing, it is still cast in soft terms. Specifically, it may win from simulation studies aiming at analyzing its performance under varying assumptions and circumstances. Second, given that the study is naturally embedded in a (macro) economic policy setting, some system considerations may relevantly be considered. In particular, this could involve the trade-off effect between investments in improved treatment and investments in onset prevention. For a stimulating study with an introduction to such approaches and further references, see Homer and Hirsch (2006).

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