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Risk-Based Bonus Payments for the Patient-Centered Medical Home



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Background

The Patient-Centered Medical Home (PCMH) requires fundamental reform of health care financing. We propose a **Risk-Based Comprehensive Payment** system with risk-adjusted base and bonus payments.

Bundled base payments cover the expected cost of primary care services but do not encourage quality. **Bonus payments** incentivize desired outcomes by rewarding better-than-expected performance in clinical quality, efficiency, and patient-centeredness.

Bonus payments can:

- Discourage use of low-value services
- Encourage clinical quality, patient health and satisfaction
- Provide each practice with a fair opportunity to earn appropriate rewards for doing a good job with its mix of simple and complex patients

Base and bonus payments require credible **risk adjustment** to discourage practices from cherry-picking easy patients and dumping difficult ones.

We gratefully acknowledge collaboration with scientists at Verisk Health, Inc, and support from The Commonwealth Fund.

Methods

We estimated models to predict thirteen cost and utilization measures in 17.4 million commercially insured people using diagnoses, age, and sex from Thomson-Reuters MarketScan® 2007 claims data.

Using the same data, we imputed assignment of 456,781 people to 436 medium-sized primary care practitioner (PCP) panels (500 – 5000 patients).

For each measure, a PCP's performance is judged by summing the difference between observed (O) and expected (E) outcomes across panel members.

For each outcome we calculated: mean; coefficient of variation, or $CV = SD/mean$; and both individual and grouped R^2 as measures of predictive accuracy.

Principles for Measuring Performance and Calculating Bonuses

1. Judge performance on observed outcomes in comparison to what is expected given patient characteristics (O vs. E, not just O)
2. Provide opportunities for larger bonuses for larger or more complex panels
3. Weight bonuses to reflect practice case-mix
4. Calculate measures using largest feasible denominators
5. Allow more stable measures to contribute more
6. In groups of correlated measures, down-weight each individual measure
7. Give higher value activities more weight
8. Limit both payer and provider risk
9. Account for extra-medical factors
10. Enable actionable, transparent feedback based on bonus calculations

Predictive Power of Cost and Utilization Measures

Description	Member-level (N=456,781)			PCP-level (N=436)
	Mean	Coeff. of Variation	R^2	Grouped R^2
Number of prescriptions for antibiotics of concern (ABX)	0.571	1.59	29%	94%
Number of prescriptions for all antibiotics (AB)	1.061	4.72	32%	98%
Emergency department visits	0.181	3.49	25%	85%
Advanced imaging tests, in RVUs	3.165	2.36	46%	94%
Total health spending, in dollars	\$3,675	4.01	49%	94%

Results

Using risk models to calculate expected outcomes explained 29-49% of the observed patient-level and 85-98% of practice-level variation in performance, with differential variability.

Deviation from the mean in total health spending is more variable at the PCP level than other more targeted measures.

Example: Antibiotics of Concern (ABX)

Problem: Doctors may over-prescribe **high-cost** or **high-risk antibiotics** (ABX) as identified by the National Committee for Quality Assurance (NCQA).

Clinical guideline development is hard. Doctors say their patients have conditions that warrant ABX prescribing.

Idea: Reward observed ABX use that is less than expected, based on patient illness burden.

Conclusion: Only about half of all AB prescribing is for ABX (571 prescriptions per 1000 person years vs. 1061); however, AB prescribing exhibits nearly 3 times the relative variability ($CV = 4.72$ vs. 1.59). Patient-level factors explain about 30% of the individual-level variability in either measure and 95% of variability across patient panels. Risk-adjusted ABX is an effective bonus measure because it targets an activity that we want doctors to change, and panels can be adequately adjusted for patient-level differences.

Discussion

Bonus calculations should account for case-mix differences across practice panels.

Risk-adjusted payments for less variable outcomes focus incentives on provider-associated, rather than case-mix-driven or random, variations.

Rather than attempting to reward reductions in total health spending, risk-sensitive calculations of more targeted outcomes will better support the goals of a PCMH.