Insurer Payment Lags to Physician Practices: An Opportunity to Finance Electronic Medical Record Adoption

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Abstract

Objectives: Physician payments from public and private payers are still largely paper-based, so significant payment lags are prevalent across all reimbursement systems. Electronic Medical Record use has the potential to reduce payment lag and improve health system performance.

Methods: We use a claims data set of 100,000 covered lives from a national employer to examine mean accounts receivable (AR) payment times by provider type, physician specialty, and state. Eleven physician specialty disciplines are included in the analysis of mean AR and days of payment lag. We also include a coefficient of variation (CV) of physician claims processed by place of delivery and correlation (R^2: r-squared) values between mean days of AR and mean CV.

Results: We find significant variation in mean AR days by provider type and physician specialty. There is also a great deal of variation in payment processing lags by state. We find a range of correlations between mean AR days and mean CV by provider type of service ($R^2=0.6288$), physician specialties ($R^2=0.662$), and the state of service ($R^2=0.1247$).

Conclusions: Low EMR adoption rates impact how all payer types pay physicians. The elimination of paper-based claims (and their associated lag times) could be achieved through the adoption of basic practice management systems bundled with EMRs. There is sufficient health savings from shortening the AR lag time period for insurer payment to providers to finance EMR adoption even with without federal HITECH incentives to practices.

Keywords: EMR; Insurance; Physician specialty

Introduction

Physicians navigating a wide array of public and private insurance reimbursement systems to secure their financial survival have long been concerned with revenue cycle management. Specifically, revenue cycle management requires practices to manage their finances with a time lag weeks to months between providing a service to a patient and subsequent third party insurance reimbursement. Managing the payment lag associated with the differing payment methods has taken on added significance with the adven t of Electronic Medical Records (EMR), which promises to improve efficiency in the U.S. healthcare system. Further, health care reform under PPACA [1] is expected to expand enrollment in Medicaid and state-based Health Insurance Exchanges, so there is greater urgency in the search for system efficiency and the hope of finding it in EMRs [1]. A 2005 RAND study identified and confirmed potential system-wide savings related to comprehensive EMR adoption [2]. We complement these findings using a large claims data set and additional detail by physician specialty. The use of tools by physicians to manage their revenue has taken on added significance since PPACA will expand enrollment in Medicaid as well as state-based Health Insurance Exchanges [3].

Widespread EMR adoption is intended to effect cost savings in public programs such as Medicare and Medicaid [4]. However, Jha found that merely 1.5% of nonfederal hospitals report having a comprehensive EMR system, and just 7.6% report having even a basic system in place [5]. In a related study, researchers found similarly low EMR adoption rates among physician practices; merely 4% reported a comprehensive EMR system [6], while 13% had a basic system. In 2009, the American Recovery and Reinvestment Act (ARRA) committed more than $34 billion toward EMR adoption efforts [7].

We argue that health payment system reform is an important strategy by measuring the time lag between services rendered and payment as the opportunity cost to be gained from implementing a comprehensive EMR. To that end, this paper has three aims: First, it seeks to refresh the 2005 RAND economic model to consider providers' financial costs and benefits as they relate to 2009 economic stimulus incentives meant to spur EMR adoption. Second, it introduces a research method for determining the extent of lag in insurance revenue cycles using a large national sample claims data. Because common lags in payments (of 30 to 90 days) represent real debts to hospitals, physicians, employers, and consumers, a reduction in these lags may provide sufficient incentive for physicians to take an EMR investment seriously. Finally, this paper reports the findings of insurer payment lags by place of service, physician specialty, and state of service.

Methods and Data

Recognizing the potential of revenue cycle improvement as a supplemental strategy to spur widespread EMR adoption, we contend that further analysis of the current revenue cycle will reveal those provider constituencies could benefit from early EMR adoption. Targeting these providers will enable payers and policymakers to leverage adoption momentum as they seek to quickly build a national coalition of providers with comprehensive and interoperable EMR systems. To create a coalition target list, we evaluate processed insurance

claims data by provider type, physician specialty, and state location of provider services.

Our data comes from a large commercial insurance carrier with a nearly national employer contract. This data represents over 100,000 covered lives for dates of service in 2006 and 2007 [8].This period was chosen because it predates federal EMR adoption incentives. The data used focuses exclusively on physician and ambulatory care provider claims, and includes all available data fields from the Centers for Medicare and Medicaid (CMS) 1500 form (commonly referred to as the Part B Medicare claims data fields). This is the de facto standard form used by commercial insurance carriers [9].

Revenue cycle performance is evaluated on two statistical measurements: mean days Accounts Receivables (AR) and mean coefficient of variation (CV). Mean days AR reflects the number of days it takes from the moment a patient receives care to the moment the physician receives compensation from the appropriate patient associated payer. Mean days AR is the primary financial metric used by bond rating agencies and is strategic focus for provider organization executives [10].

The mean CV is an effective measure of financial planning capabilities for hospitals and physician practices [11]. Mathematically, mean CV measures the standard deviation of the sample relative to the size of the sample mean. Practically, it indicates whether a hospital or physician practice can count on a given payer to reimburse on a consistent time interval for services delivered. The larger the mean days AR and the mean CV, the more costly the revenue cycle for providers. Both statistical measurements are tracked comparatively to identify instances of correlation.

Results

Publicly reported claims processing statistics (from both public and private payers) generally reveal only best-case operations or performance based on skewed sample sets. For example, the *Physician Practice* Payer View rankings assert that all payers reimbursed 5.3% faster and denied 9.0% fewer medical claims over the prior year [12]. The improvement appears impressive until more thorough reading reveals the rankings are based on biased data derived only from Athena Health's national electronic health records [13]. The study contains no paper-based claims data (though such claims are prevalent in system-wide claims processing).

By Place of Service

The following claims processing results reflect the mean days AR and mean CV for physician claims processed based on the place of care delivery.
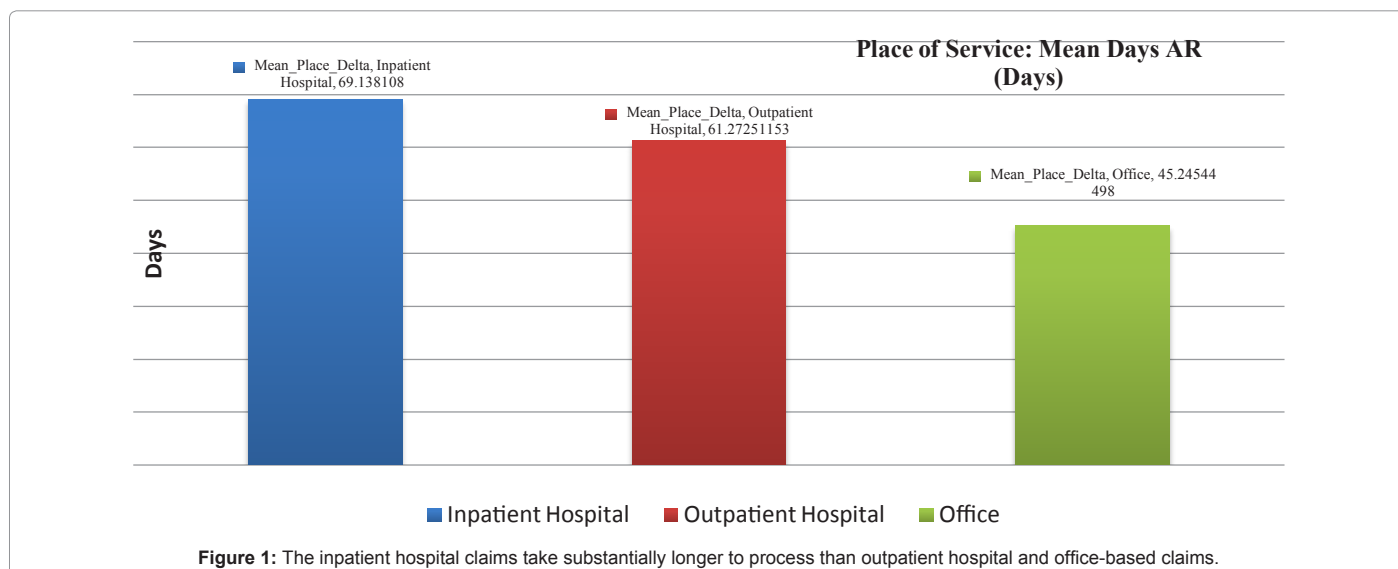
Figure 1 shows that inpatient hospital claims take substantially longer to process than outpatient hospital and office-based claims. The almost 8-day difference between the inpatient and outpatient setting, along with a nearly 14-day difference between inpatient and office-based care delivery, suggests inpatient physicians would most readily welcome EMR adoption in exchange for payment reform. Among other provider organizations, inpatient hospitals had a lower mean days AR (69.1) than military treatment facilities (171.1), hospice centers (136.0), home-based care (119.5), and skilled nursing facilities (75.3). Ambulatory surgical centers had a mean days AR (59.9) lower than outpatient hospitals (61.3) but still greater than office-based claims (45.2). Only independent laboratories (30.5) had mean days AR lower than office-based physicians.
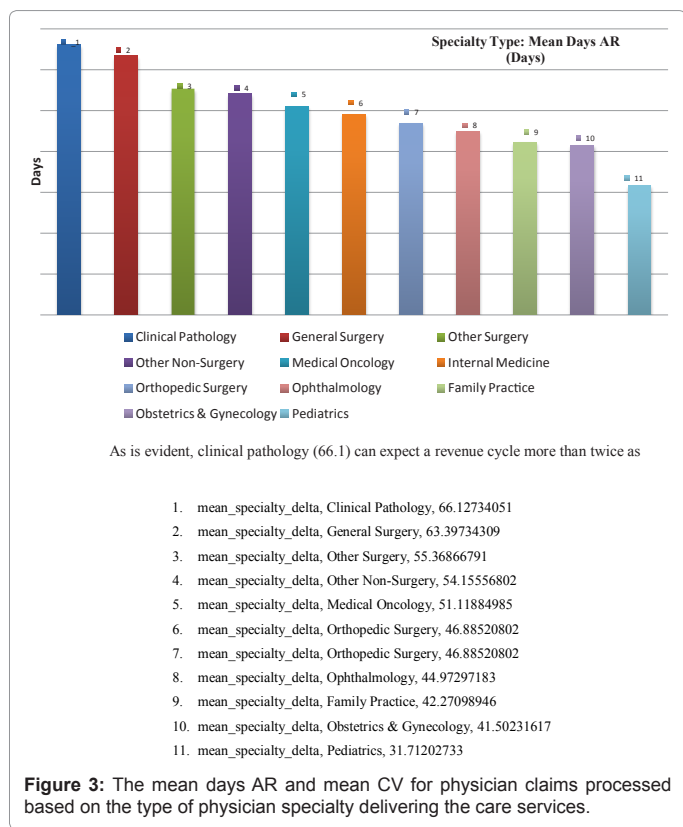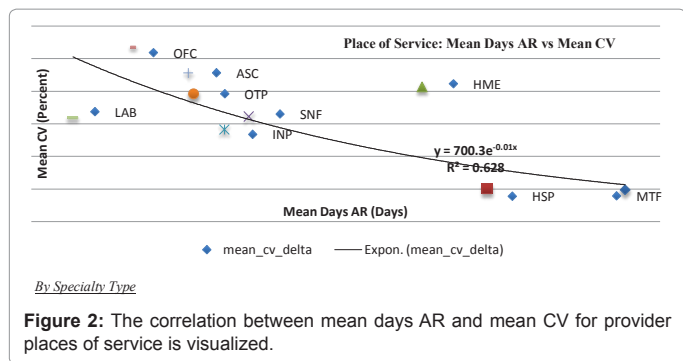
Office-based physician claims processing may benefit from a lower mean days AR, but it turns out to have the highest mean CV (535.5) of all provider places of service. Ambulatory surgical centers (456.2) and home-based care (413.4) are the next highest. Outpatient hospitals (391.9) rank fourth-worst, below skilled nursing facilities (322.4) and independent laboratories (318.2). Inpatient hospitals (282.0) rank third-best to hospice centers (100.5) and military treatment facilities (97.1). The fact that the best mean CV is still close to 100% indicates that all provider organizations lack a consistent expectation of when they will receive reimbursement from payers.

The correlation between mean days AR and mean CV for provider places of service is visualized below. The squared correlation coefficient of R^2 (0.6288) indicates that the trend line in Figure 2 has correlation value.

By Specialty Type

The claims processing results in Figure 3 show the mean days AR and mean CV for physician claims processed based on the type of physician specialty delivering the care services.

Figure 1: The inpatient hospital claims take substantially longer to process than outpatient hospital and office-based claims.

By Specialty Type

Figure 2: The correlation between mean days AR and mean CV for provider places of service is visualized.

As is evident, clinical pathology (66.1) can expect a revenue cycle more than twice as

1. mean_specialty_delta, Clinical Pathology, 66.12734051
2. mean_specialty_delta, General Surgery, 63.39734309
3. mean_specialty_delta, Other Surgery, 55.36866791
4. mean_specialty_delta, Other Non-Surgery, 54.15556802
5. mean_specialty_delta, Medical Oncology, 51.11884985
6. mean_specialty_delta, Orthopedic Surgery, 46.88520802
7. mean_specialty_delta, Orthopedic Surgery, 46.88520802
8. mean_specialty_delta, Ophthalmology, 44.97297183
9. mean_specialty_delta, Family Practice, 42.27098946
10. mean_specialty_delta, Obstetrics & Gynecology, 41.50231617
11. mean_specialty_delta, Pediatrics, 31.71202733

Figure 3: The mean days AR and mean CV for physician claims processed based on the type of physician specialty delivering the care services.

As is evident, clinical pathology (66.1) can expect a revenue cycle more than twice as long as that of pediatrics (31.7). The approximately 34-day range between clinical pathology spans seven other physician specialties: general surgery (63.4), other surgery (55.4), other non-surgery (54.2), medical oncology (51.1), internal medicine (49.1), orthopedic surgery (46.9), ophthalmology (45.0), family practice (42.3), and obstetrics and gynecology (41.5). The substantial differences in mean days AR across physician specialties presents the most ready target list of early-adopters, given that most physicians identify with their specialty rather than their place of service or state.

Mean CV by specialty type is an even more convincing statistical measurement by which to garner physician support for comprehensive EMR systems in exchange for payment reform. The lowest mean CV is medical oncology (445.9). The largest mean CV by physician specialty type, obstetrics and gynecology, is an unfathomable 1,072.9%; mathematically, one standard deviation is more than 10.729 times the size of the mean days AR. Given the large coefficients of variation, accurate financial planning is nearly impossible for all physician specialties.
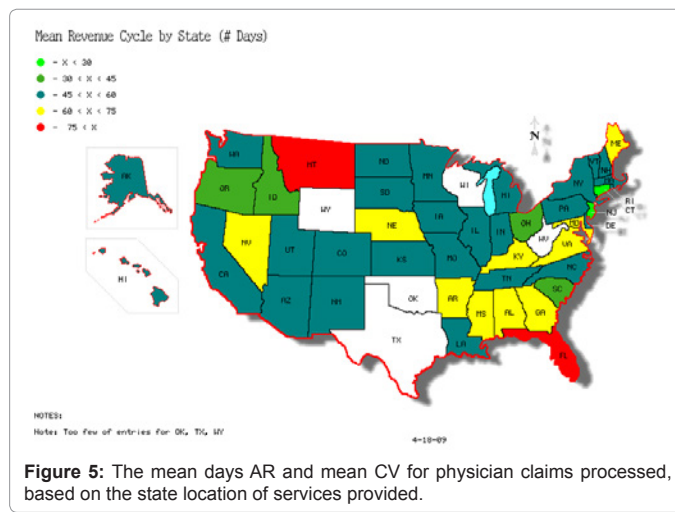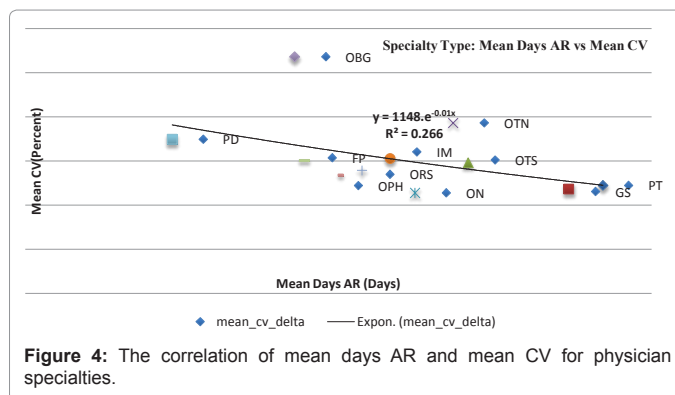
The correlation of mean days AR and mean CV for physician specialties can be reviewed in Figure 4 The squared correlation coefficient of R^2 (0.2662) indicates that the trend line has poor correlation value.

As opposed to the slight correlation in the place of service results, there is no correlational link between mean days AR and mean CV by physician specialty. Other non-surgery specialists may best demonstrate this point, as they receive substantially less consistent reimbursement than specialties with similar mean days AR.

By State of Provider of Service

Figure 5 shows the mean days AR and mean CV for physician claims processed, based on the state location of services provided. Using a map helps organize the results in a manner that should help inform policymakers considering whether to pursue health information technology through a bottom-up, state and regional focus or a top-down, national information exchange. Currently, claims processing is the largest national electronic exchange of health data, and it will provide important lessons for moving forward with health information exchanges (HIE).

Five categories describe the performance in mean days AR of the 46 states with statistically significant claims-processed sample sizes. The best performing category (colored in bright green) is mean days AR below 30, and it contains only two states: New Jersey (25.4) and Connecticut (29.1). The worst performing category (colored in bright red) represents a mean days AR above 75, and it also contains only two

Figure 4: The correlation of mean days AR and mean CV for physician specialties.

Figure 5: The mean days AR and mean CV for physician claims processed, based on the state location of services provided.

states: Montana (81.0) and Florida (110.9). The remaining breakdown shows five states between 30 and 45 days; 26 between 45 and 60 days; and 11 between 60 and 75 days. The state-by-state performance in claims processing observed in mean days AR yields an early observation that an interoperable information exchange may prove incredibly difficult to build through a bottom-up approach.

Discussion and Policy Implications

The national healthcare debate should not be focused on if EMR adoption should occur, but rather, how the U.S. can best promote quick EMR adoption to facilitate the exchange of health information. Health payment system reform is capable of delivering the demonstrated savings providers need to overcome the initial costs of comprehensive EMR implementation. We believe the Federal Government should begin tackling the how of payment reform through the Federal Employee Health Benefits Plans (FEHBP), since that would allow the federal government to provide a substantial incentive for EMR adoption by mandating payment reform in the areas of common provider identification numbers, online insurance verification, payment assurance, and all electronic-transactions [14].

Common provider identification numbers would act like bank account numbers, enabling a more straight-forward process for directing payment transactions once initiated in the system. Currently, in most parts of the healthcare transaction system, there is only limited access to incomplete data repositories [15], but as part of a spring 2014 call for proposal for FEHBP to participating insurers could require using common provider health identification such as the National Provider Identifier (NPI). This would allow for the efficiency long seen in banking, in which routing and account numbers allow disparate institutions to identify the amount of each transaction and process it in a seamless manner. Currently, healthcare lacks a similar system, and is particularly vulnerable to inefficiencies when beneficiaries change plans during the open enrollment periods.

The introduction of common provider health identification numbers would also support universal access to insurance verification systems online. Currently, only 64% of payers allow provider's access to insurance verification online. Substantial savings from the point of service, collection of co-pays, co-insurance, and high deductibles could be reached by providers in 2014 if the remaining 36% of payers who do not offer online insurance verification were required to do so by the FEHBP [16].

Finally, common provider identification numbers would facilitate the introduction of payment assurance. As part of the 2014 spring call letter, FEHBP could coordinate with payers to establish automatic enrollment in medical-bill-payment or credit line programs that automate payment transactions. With payment assurance, the consumer accepts responsibility for paying any balance after insurance, and the money is drawn automatically from a designated deposit account or credit line. This would minimize changes to the providers' business processes, as the payer would be responsible for adjudicating the claim and determining the breakdown of payer-consumer financial responsibility. Further, providers would receive payments immediately after the payer had completed the adjudication. Consumers would gain convenience and clarity, as payment assurance would reduce the number of different bills received from payers and providers. Perhaps most importantly, payment assurance can be implemented without substantial changes to the current claims processing infrastructure.

McKinsey & Company estimates that even in today's wired world, more than half of the transactions between payers and providers are paper-base [17]. The current annual volume-2.5 billion in claims-costs an estimated $15 billion to $20 billion a year in postage, item processing, and accounting.If insurers, led by the FEHBP model, were to set electronic penetration requirements at 90%, up from the current performance level of roughly 40%, annual payment system savings would exceed $6 billion. This constitutes measurable savings from existing transaction costs that can finance current and future EMR adoption.

Our results demonstrate that the elimination of paper-based claims (and their associated lag times) could be achieved through the adoption of EMRs. Increasing EMR adoption has the potential improve health system effectiveness and optimize practice payments to pay for the technology over the long term. Today practice payment statistics are highly proprietary and are found only in limited information in insurer annual reports and industry survey reports. Our results independently inform the ongoing payment reform discussions by physicians and public policymakers by providing a benchmark metric for tracking how EMR adoption can affect financial health of physician practices as health reform gets under way.

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