Private Practice Administrative Costs Influenced by Insurance Payer Mix

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Abstract

Background: Increased staffing and oncology drug costs per physician, combined with decreased drug revenue, have made private hematology-oncology practices susceptible to increased financial risk. We hypothesized that practices with a higher combined commercial insurance (CCI) mix would experience greater inefficiencies in insurance billing (IB) processes and higher IB administrative costs.

Methods: A cross-sectional survey was administered to a national pool of private hematology-oncology practices. Practices were identified through the ASCO online registry. Participants self-reported insurance information. *T* and Wilcoxon rank sum tests were used to compare high (50% or more) Medicare payer mix groups and high (50% or more) CCI payer mix groups for practice operation indicators. These tests were also used to compare denial processing cost per Medicare patient and CCI patient.

Results: Among the 33 practices that responded to the survey, the mean total IB administrative cost for high Medicare payer mix groups was \$191,646.25 (standard deviation [SD], \$173,031.63), significantly lower ($P = .0454$) than the mean for high CCI groups at \$476,280.00 (SD, \$475,408.57). The mean annual cost per IB support staff member was significantly higher ($P = .0453$) in the high CCI group at \$49,778.67 (SD = \$14,896.32) compared with the mean cost in the high Medicare group, which was \$39,413.08 (SD, \$12,068.17). Medicare patient denial processing cost was significantly lower ($P = .0237$) than that for CCI patients.

Conclusion: Practices with a high Medicare payer mix experience both lower mean cost per FTE IB support staff member and total overall IB administrative cost. Processing denials for reimbursement for Medicare patients requires fewer practice resources than does processing for CCI patients.

Introduction

It is estimated the US health care system incurs an annual excess of \$98 billion in administrative and insurance costs, primarily resulting from fractioned, multistate, and private multipayer models.¹ Previous studies have estimated private practice administrative cost to be 27% of annual physician revenue. Insurance- and billing-related costs are estimated to be 14% of annual practice revenue.² Few studies, however, have surveyed insurance-related administrative cost specific to hematology-oncology practices, and those that have done so have included only sample sizes.³ Hematology-oncology physicians in private practice have been at the forefront of the battle against cancer in the US health care system, administering 80% of all chemotherapy treatments in the country.⁴ Yet anecdotal evidence suggests that small and midsized private oncology practices are struggling with decreasing revenue as Medicare and private payers enact cost-containment strategies.⁵ Increased staffing cost per physician, combined with both a 20% increase in the cost of drugs per physician and a dramatic decrease in drug revenue—from 33.4% to 16.0%—between 2005 and 2006, have left hematology-oncology specialties susceptible to increased financial liability.^{6,7} A recent editorial in *Journal of Oncology Practice* identified practice efficiency as a critical factor necessary to ensure practice survival, citing decreased administrative cost as the target goal.⁸

Financial pressures for private hematology-oncology practices are additionally exacerbated by the increasingly opaque and

complex procedural models used by private health insurance companies in their billing practices. As a result, private hematology-oncology practices are required to shoulder extensive administrative expenditures, even as they experience an upsurge in procedural denials for many of their billing codes.⁹ The American Medical Association was recently prompted to take action on this issue and created the National Health Insurer Report Card to monitor the timeliness, transparency, and accuracy of claims processing by payer groups and assessed considerable need for improvement by private payers.¹⁰ The American Medical Association reported that Medicare accurately paid contracted rates for 98% of claims, a much greater efficiency rate than that of Aetna at 71% or UnitedHealthcare at 62%.¹¹ Woodhandler et al¹² argued that national costs related to insurance billing (IB) processing are derived from an inefficiency caused by the complexities of a highly fragmented, multipayer health care system; they suggested that mitigation of cost expenditures may be enhanced by mobilizing toward a single-payer system. With the American Cancer Society having estimated 1,437,180 new cancer diagnoses in 2008 alone,¹³ it is critical that private hematology-oncology practices remain viable to ensure that Americans have access to oncology treatment. Therefore, budgetary concerns related to the national health care system must be addressed.

In the 2007 update of the *Cancer Trends Progress Report* by the National Cancer Institute and the National Institutes of Health, national cancer treatment expenditure in 2004 for all

cancers combined was estimated at \$72.1 billion, or 4.7% of total US medical spending.¹⁴ Payers and policymakers have moved to reevaluate the economic cost effectiveness of expensive new oncology therapeutics that provide only marginal increases in clinical benefit, influencing practice finances.¹⁵⁻¹⁷ This article evaluates the IB administrative cost data received from nationally surveyed private hematology-oncology practices to assess cost effectiveness of practice management trends, comparing groups with a high Medicare payer mix versus groups with a high CCI payer mix.

Methods

Private hematology-oncology practices were identified as potential study participants utilizing the ASCO online membership directory tool.¹⁸ For this study, participants were limited to physicians who indicated affiliation with a private practice and listed a fax number. In total, 804 faxes were sent to the targeted groups requesting study participation. The fax consisted of a letter explaining the study and a copy of the study survey tool. Participants were provided with the option of returning the completed surveys via fax or e-mail and were given a deadline for submission. Data were received from 36 practices, with a response rate of 4.5% for faxes sent. The low response rate likely resulted from the need to gain authorization from both physicians e-mailed and their practice managers to release financial information for this study.

The private hematology-oncology practice survey instrument was divided into four separate sections, with a total of 23 total questions, and designed to be completed by a practice manager or billing administrator. The different sections included practice demographics (five questions), patient base (three questions), administrative cost information (focusing on staff size, staffing costs, employment trends, and information technology costs; 12 questions), and resource use (one table requiring completion). An internal control was incorporated into the survey to prevent nonsensical numbers of monthly hours allocated to specific IB-related tasks. No participating practices indicated more aggregate hours than staff size would permit.

Survey participants were asked to report the number of full-time equivalent (FTE) employees in four staffing categories: physician, clinical support, business administrative support, and insurance business support staff. Participants were asked to report mean salary and benefit information for both business administrative support staff and IB support staff. Survey respondents were additionally surveyed regarding other costs associated with the IB process, including outsourced billing services and in-practice technology cost. Total IB administrative cost per practice was derived from practice totals for IB support staff cost, IB-related information technology cost, and cost of outsourced IB services.

Survey respondents were asked to estimate the mean number of hours spent per month on various administrative tasks specific to the IB process. To calculate the specific cost of each insurer-

ance-related task, the mean reported number of monthly staff hours required to complete each IB related task for each practice was converted into a percentage of the total hours per month. This percent distribution of resource use per administrative task was then converted into a dollar amount by multiplying across the total IB administrative cost per year; each IB task was subsequently quantified in terms of yearly cost per practice. Respondents were specifically asked to report the monthly proportion of staff hours spent on denial processing tasks, specific to insurer type.

Statistical Analysis

Descriptive statistics were calculated for the study participants as a whole and for groups designated as having a high Medicare payer mix and high CCI payer mix. A practice with a high payer mix was defined as having a payer mix distribution of 50% or more patients with either Medicare or CCI. Three practices providing incomplete FTE IB support staff costs were excluded from analysis. Primary comparisons between practices with a high Medicare payer mix and high CCI payer mix groups were conducted with *t* tests for continuous variables and verified with Wilcoxon rank sum tests calculating significant differences in practice indicators (total IB administrative cost, total IB staffing cost, mean annual FTE IB support staff cost, total IB administrative cost per FTE physician, total IB administrative cost per monthly patient consult, and total IB administrative cost per contracted insurer plan) for the groups. Linear regression models with variance analysis were used to establish correlation between practice turnover and total IB administrative cost.

Results

In total, 33 private hematology-oncology practice responses were analyzed. The majority of practices sampled for this study consisted of medical oncology practices (23 practices; 71.9%). Table 1 provides the distribution of practice demographics in this sample.

For analysis of private hematology-oncology practice indicators, mean values per practice and standard deviation (SD) are reported in parentheses. Descriptive statistics regarding sampled practice indicators are listed in Table 2. Mean annual cost per FTE IB support staff member was \$43,282.33 (SD, \$15,516.27), and mean total annual practice expenditures for IB administrative cost was \$344,842.21 (SD, \$416,607.07) for the sampled group. Administrative costs for hematology-oncology practices are listed in Table 3.

Table 4 provides an analysis of the high-percent Medicare payer mix group (high Medicare; *n* = 12) and high-percent CCI payer mix group (high CCI; *n* = 15) using a two-sample Wilcoxon rank sum test. Total IB administrative cost for the high Medicare group, with a mean cost of \$191,646.25 (SD, \$173,031.63), was significantly lower than that for the high CCI group, with a mean cost of \$476,280.00 (SD, \$475,408.57; *P* = .0454), as illustrated in Figure 1. The mean annual cost per IB support staff member, including both salary

Table 1. Descriptive Statistics of Hematology-Oncology Practices (N = 33)

Characteristic	No.	%
US Census geographic region		
Midwest	11	33.3
Northeast	8	24.2
Pacific	1	3.0
South	10	30.3
West	3	9.1
Population served, No.		
< 50,000	4	12.1
50,000-250,000	11	33.3
250,000-1,000,000	6	18.2
> 1,000,000	12	36.4
Practice specialty		
Medicine	23	71.9
Medicine plus other	6	18.8
Nonmedicine	3	9.1

and benefit expenses, was significantly higher in the high CCI group at \$49,778.67 (SD, \$14,896.32) as compared with that in the high Medicare group at \$39,413.08 (SD, \$12,068.17; $P = .0453$). The proportion of total IB administrative annual cost as part of overall administrative cost per practice was 54.8% (SD, 0.07%), with no significant difference between high Medicare and high CCI groups ($P = .2688$). Indicators of practice size denoted that practices in the high Medicare group were significantly smaller than those in the high CCI group with regard to total monthly patient consults per practice ($P = .0099$) and total FTE physician staff members per practice ($P = .0130$). The total annual IB administrative cost and IB support staff 5-year turnover rate were significantly correlated ($P = .0208$).

The regression models analyzing total annual cost of denial processing as input found no significant association with percent health maintenance organization (HMO) payer mix ($P = .2387$) or percent Medicare payer mix ($P = .5259$). Paired t -test analysis indicated that mean Medicare denial processing cost per established Medicare patient at \$24.29 (SD, \$26.62) was significantly less than mean CCI denial processing cost per CCI monthly established patient at \$57.50 (SD, \$78.08; $P = .0237$).

Discussion

The intention of this study was to lay the foundation for analysis and study design of a larger examination of the administrative costs associated with IB processing specific to private hematology-oncology practices and measure how the increased liability to financial exposure varies by predominant payer mix. Analysis of the sampled practices in this study indicates that Medicare constituted the largest single payer for private hema-

Table 2. Characteristics of Private Hematology-Oncology Practices (N = 33)

Characteristic	Mean	SD
Practice measures, No.		
FTE physicians	6.40	9.56
FTE clinical support staff	25.24	52.85
FTE IB support staff	6.38	8.66
FTE business support staff	6.98	15.09
Contracted insurance plans	21.64	17.61
Total monthly patient consults	1,386	1,860
Practice payer composition, %		
Medicare	44.7	13.4
Medicaid	5.5	5.7
HMO	16.6	15.3
POS	9.5	9.3
PPO	21.6	14.4
Self-pay	2.1	2.1
Combined commercial insurance (HMO, POS, PPO)	47.7	16.0
Retrospective 5-year hiring trends, No.		
IB support staff turnover	1.94	5.69
IB support staff (new positions)	1.03	1.31
Physicians hired (new positions)	1.69	3.02
Predictive 5-year hiring trends, No.		
IB support staff turnover	1.24	4.39
IB support staff (new positions)	1.02	1.74
Physicians hired (new positions)	1.02	1.14

Abbreviations: SD, standard deviation; FTE, full-time equivalent; IB, insurance billing; HMO, health maintenance organization; POS, point of service; PPO, preferred provider organization.

tology-oncology practice as a whole at 44.7% (SD, 13.4%). Therefore, the federal reimbursement policy of the Medicare Modernization Act of 2003¹⁹ impacts nearly half of the practice patient mix and revenue source.²⁰ Immediate effects of the Medicare Modernization Act of 2003 and resulting changes in private commercial insurers have led private hematology-oncology practices to consolidate and increase staffing ratios to manage their combined IB activities.²¹ Because of the extensive size of Medicare and the public flashpoint of health care costs, modifications in federal reimbursement paradigms unarguably influence change in reimbursement policies and payment behavior of private health care payers.²²

The private commercial insurers, consisting of HMO, preferred provider organization (PPO), and point of service (POS) plans, together represent 47.7% (SD, 16.0%) of the payer mix; they represent a source of revenue equally important as Medicare and are not significantly different from the Medicare payer mix of the surveyed practices ($P = .5529$). Unlike the reimbursement process for Medicare, which involves one homogenous

Table 3. Administrative Costs for Private Hematology-Oncology Practices (N = 33)

Characteristic	Mean		SD	
	\$	%	\$	%
Sampled administrative resource use (annual cost)				
Per FTE IB support staff member (salary plus benefits)	43,282.33		15,516.27	
Per FTE business support staff member (salary plus benefits)	59,658.66		34,378.10	
Outsourced IB services	4,148.39		14,357.02	
IB-related IT equipment and services	3,071.61		118,600.27	
Calculated administrative resource use (total annual practice cost)				
FTE IB support staff	272,302.37		351,188.05	
FTE business support staff	379,533.29		625,973.67	
IB administration	344,842.27		416,607.07	
Administration	724,375.56		962,531.03	
Calculated annual IB task-specific resource use (n = 32)				
Insurance status verification	28,358.93	10.96	36,242.67	6.31
Prior authorization	33,851.59	12.72	41,230.12	7.04
Charge capture	45,697.89	20.54	41,442.52	9.94
Billing collections	84,591.22	25.61	167,088.62	13.17
Reconciliation	28,520.03	13.26	39,365.81	9.59
Denial processing	44,469.86	13.93	84,142.45	7.72
Management of outsourced services	5,957.76	2.41	1,4502.55	4.45
Other tasks	854.99	0.57	2,371.04	1.57
Calculated annual denial processing resource use by payer (n = 31)				
Medicare	12,063.23	28.48	21,072.48	20.57
Medicaid	3,937.45	9.98	7,396.83	11.88
HMO	14,438.31	25.08	33,999.09	20.48
PPO	6,981.12	14.16	17,045.67	11.75
PPS	9,587.26	22.30	16,139.58	12.53

Abbreviations: SD, standard deviation; FTE, full-time equivalent; IB, insurance billing; IT, information technology; HMO, health maintenance organization; PPO, preferred provider organization; PPS, point of service.

system, the billing process for private commercial insurers requires that IB support staff interact with multiple electronic systems to retrieve approximately equivalent patient reimburse-

Figure 1. Mean insurance billing administrative cost for hematology-oncology practices. CCI, combined commercial insurance.

ments. To maximize reimbursement from payers, private practices employ a series of resource-intensive best-practice techniques intended to minimize bad debt and payment denials. Elements of this include: information management at the front end to ensure correct authorization of services and at the back end for claims tracking systems; modified operational procedures, which are intended to avoid potential pitfalls that would result in claims denials; increased staff ratios of IB personnel; and increased use of internal protocols for compliance, which are intended to fulfill notification protocols and increased documentation requirements for procedures.²² Therefore, it is conceivable that there may be significant differences in resource use required to complete IB processes between groups with a high Medicare payer mix—predominately engaging in a single reimbursement vehicle—and groups with a high CCI payer mix, adjusting to multiple billing systems. Standardized measurement of key practice performance indicators has recently become a central component of community-based practice management trends.⁶ Thus, we can sample these indicators

Table 4. Comparison of Practice Indicators for High-Percent Medicare Payer Mix Versus High-Percent CCI Mix

Indicator	Overall		High Medicare		High CCI		<i>P</i> (<i>t</i> test)	<i>P</i> (rank sum)
	Mean	SD	Mean	SD	Mean	SD		
No. of participants	33		12		15			
Total annual IB administrative cost, \$	344,476.21	416,883.73	191,646.25	173,031.63	476,280.00	475,408.57	.0453	.0454
Mean annual IB support staff cost, \$	43,282.33	15,516.27	39,413.08	12,068.17	49,778.67	14,896.32	.0568	.0453
No. of monthly patient consultations	1,386.07	1,859.87	666.23	526.17	1,884.27	1,627.81	.0225	.0099
Total No. of FTE IB support staff members	21.64	17.61	19.68	11.88	18.23	9.29	.0505	.0130
No. of FTE physicians	6.4	9.56	2.85	2.5	8.4	9.78	.1822	.4070
Annual IB administrative cost per physician, \$	67,874.36	38,836.65	82,600.24	41,954.29	62,048.61	36,089.25	.0492	
Annual IB administrative cost per plan, \$	21,058.6	27,282.07	11,480.43	9,616.38	33,989.04	36,206.60	.09974	.0733
Proportion of total IB administrative cost to total administrative cost, %	54.8	20.1	53.4	18.5	58.2	22	.2689	

Abbreviations: CCI, combined commercial insurance; SD, standard deviation; IB, insurance billing; FTE, full-time equivalent.

to compare resource use occurring as a result of variations in practice payer mix models.

The primary limitation of this study is its limited sample size. The recruited practices ($N = 33$) were assembled from 23 different US states, with distribution across varying urban, suburban, and rural practice localities and numerous oncology specialties, including medicine, radiation, surgery, hematology, neurologic oncology, breast oncology, gynecologic oncology, and large-mass oncology. However, using the estimated proportion of 54.3% for single-specialty primary care practice costs (ie, overall IB administrative functions to total administrative cost) determined by Kahn et al,² we find our administrative cost ratios match national private-practice trend data at 54.8% (SD, 20.1%). Our 4.5% response rate captures a nationally representative sample of private hematology-oncology practices.

The second notable limitation of this study is our reliance on physician practice administrators to self-report practice information. However, major practice indicators, such as the quantity and cost of FTE support staff, are readily available and avoid recall bias. We did not collect insurance costs associated with individual practice associations, external broker fees, or human resources staff, resulting in underestimation of insurance costs. Additionally, in periods of high billing volume, respondents noted that on occasion, clinical and business administrative staff participate in IB processes, and these costs are not formally captured. Finally, an important methodologic consideration for our study is that we did not include a practice reimbursement rate indicator, because many practices would have been hesitant to provide sensitive financial information; therefore, we could not link practice costs to reimbursement rates for analysis.

The proportion of total IB administrative cost to total administrative cost per private hematology-oncology practice was not significantly different between high Medicare practices at 53.4% (SD, 18.5%) and high CCI practices at 58.2% (SD, 22.0%), indicating that there is no basic staffing design difference in practice operating model between primary sources of revenue. However, high Medicare payer mix practices experienced a significantly lower total IB administrative cost than high CCI payer mix practices did. We could not ascertain in the analysis if the data suggested a greater efficiency in the high Medicare mix practice model or if the small size of the high Medicare mix model is associated with reduced cost. Analysis of practice size indicators for the sampled groups indicated significantly fewer FTE physicians per practice ($P = .0130$) and monthly patient consultations per practice ($P = .0099$) in the high Medicare payer mix practices. These data indicate smaller practices are associated with a higher Medicare mix model and lower IB administrative cost. The marginal IB administrative cost of adding one FTE physician for the sample was an additional \$67,874.4 (SD, \$38,836.65) in the total IB administrative cost. The mean IB administrative cost per physician was not significantly different between high Medicare mix and high CCI mix groups ($P = .1924$).

The mean annual cost of an IB FTE support staff member was significantly lower for high Medicare mix practices ($P = .0453$) than for high CCI mix practices. These data may be of great importance to hematology-oncology management in the effort to reduce labor costs without impacting reimbursement efficiencies. Presumably, the Medicare Electronic Data Interchange System and paired claims processing system can be used by less experienced, less skilled, and ultimately less costly em-

ployees, because the majority of patient volume will require mastery of a single Medicare claims system.

For this sample group, the mean number of contracted insurance plans per practice was 21.6 (SD, 17.61), with a mean cost of \$21,058.60 (SD, \$27,282.07) for each contracted insurance plan. It is interesting to note that there was a significantly higher total IB administrative cost per contracted plan ($P = .0492$) in high CCI groups, with high CCI practices incurring an additional \$22,508.60 in expenses to contract with one additional insurance plan, compared with one additional commercial plan for the high Medicare group. These trend data suggest diminishing marginal returns for each additional contracted insurance plan for practices composed of a high CCI payer mix.

Analysis of the cost of denials per established Medicare patient and cost of denials per established CCI patient illustrates the different billing efficiencies experienced by practices that differ by payer. We specifically looked at denial claims because of the notable decline in private insurance paid claims in comparison with Medicare.⁹ Processing the technical and clinical denials of claims for CCI patients costs private hematology-oncology practices a mean of \$36.32 more per patient, compared with the cost for Medicare patients ($P = .0237$). This extra IB administrative cost is in addition to bad debt accrued from denials of claims for chemotherapeutic agents and other procedures. CCI denial processing costs for physicians are inherently greater as a result of the complexity of managing billing on multiple systems and added training required for personnel.

Regression data analysis comparing total IB administrative cost with individual payer practice composition (Medicare, Medicaid, HMO, POS, PPO) and CCI composition (HMO, POS, PPO) did not demonstrate significant linear correlations. However, the model indicated the highest IB administrative costs were associated with practices that approximated a 50% to 50% split between Medicare and CCI payer mixes. This data trend is interesting to note; however, additional studies are needed to compare total insurance administrative cost with practice revenue and bad debt write-off. Such an analysis could help determine whether the 50% Medicare–50% CCI split represents a lucrative payer mix ratio or a grave inefficiency that costs practices more in administration than the amount they receive in revenue.

In conclusion, sampled practice data indicated a clear increase in IB administrative cost for practices operating with a high mix of patients covered by private insurers, despite cost of IB administrative ratios similar to that of practices with a high mix of

Medicare patients. The resulting differences in expenditure between the groups may be explained by the labor-intensive IB requirements for practices with a high CCI payer mix attempting to retrieve claims reimbursement. There was clearly a greater cost associated with processing denials of claims for CCI patients than for Medicare patients, consistent with existing literature on rising denial trends.⁹ There was a definite association between smaller practices and higher Medicaid mix. However, because of the limitations of the cross-sectional study design, we could not establish if there was a preference for a specific payer mix in an attempt to limit cost. Future studies should evaluate practice management protocols used to limit labor cost associated with complex multiple commercial IB systems.

Private hematology-oncology practices continue to provide high-quality cancer care despite the implementation of cost-containment tactics by payers.^{23,24} Rising expenses and difficulty obtaining adequate reimbursement must not be allowed to impede on the ability of private hematology-oncology practices to treat patients. Additional research to help identify viable and efficient physician practice models is imperative to ensure that patients with cancer have access to and continue to receive quality treatment through the private practice format of hematology and oncologic health care delivery.

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