Inside Medical Liability

Using Data–and Science–to Limit Defense Costs

AND

Explosive Growth of Cyber Threats

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Asset Protection for Captives

PIAA

BY CHAD C. KARLS

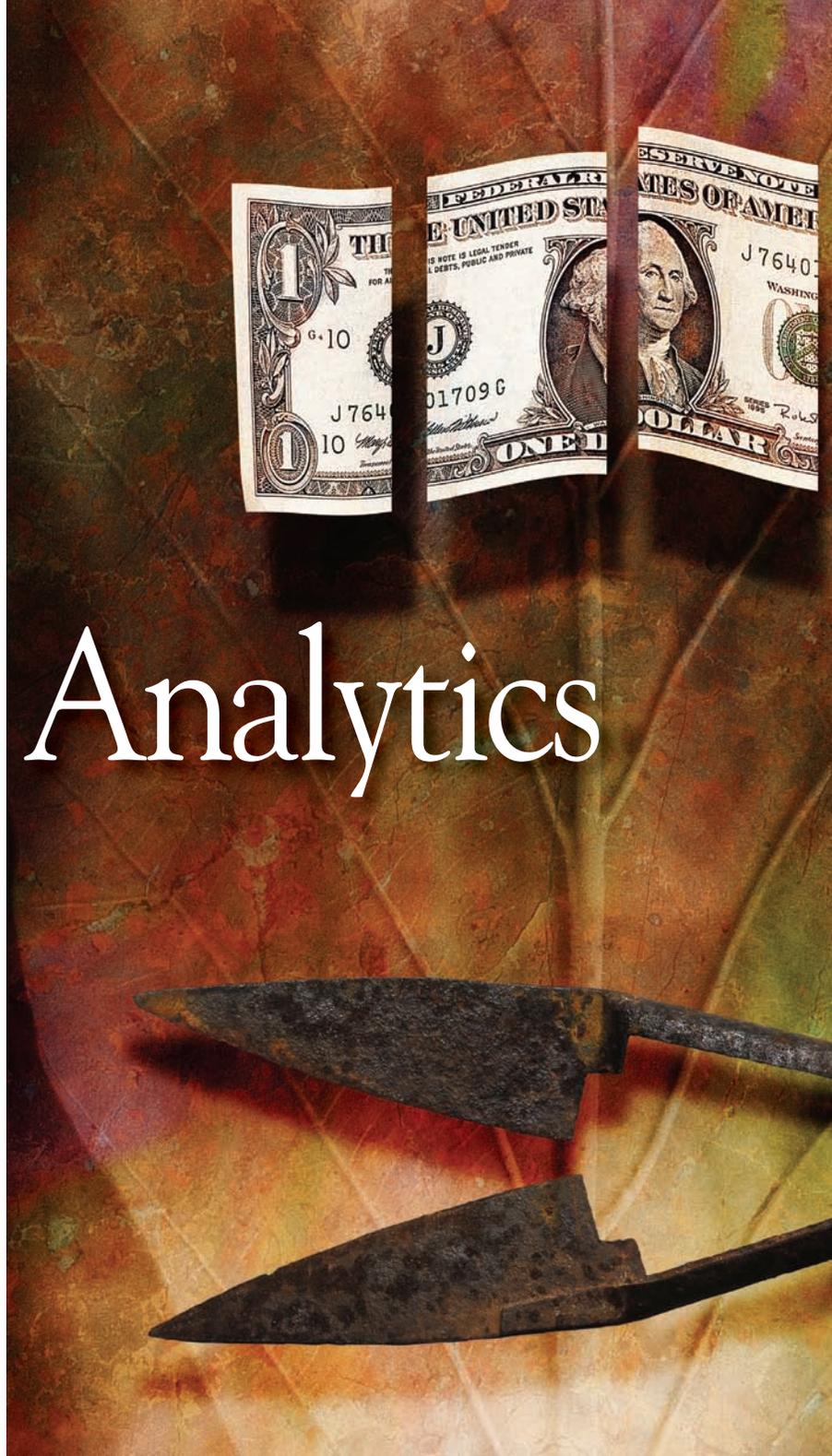# Big Data Analytics

A Practical Application for MPL Insurers

D efense costs for medical professional liability (MPL) insurers have risen dramatically since the start of the century. Fifteen years ago, litigation expenditures were approximately one-third of the total cost of managing, defending, and paying MPL claims, with indemnity payments to claimants comprising the other two-thirds. Since then, defense cost trends have significantly outpaced indemnity trends to the point where, for many companies, defense costs have become their single largest expenditure.

Making matters even more challenging for the industry is the fact that these increasing defense costs are happening during a period with significant top-line pressures as a result of the competitive rate environment and the ongoing consolidation in healthcare. As a result,

many companies have undertaken a critical review of their operations in an effort to control their increasing expense ratios. No department or functional area is immune to these discussions. No outlay is overlooked—"How much value do we get out of that sponsorship?" No cost is too small—"Should we give away golf balls or pens at our booth?"

Yet, ironically, the single largest expense category for the industry, loss adjustment expenses, is frequently subject to the least scrutiny. The reasons for this are twofold: (1) the same level of detail companies have for other categories is not available for review of this category, and

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Advances in the science of "big data" analysis offer MPL insurers something they've never had before— an opportunity to bring science to the art of claims handling.

(2) the art of handling individual claims, each with its own unique circumstances, does not lend itself to analysis. Or so it seems, anyway.

So how do the industry's rising defense costs fit into the broader discussion regarding big data analytics? In addressing this question, it is helpful to first define this relatively new and still evolving science.

"Big data"—what is it?

"Big data" is big in more ways than one. A Google search for the term garners 777,000,000 hits in 0.33 seconds. Compare that to 485,000,000 hits in 0.53 seconds for the term "baseball," a concept so revered in this country it has been dubbed our "national pastime."

But what is it, exactly?

The term "big data" refers to the expanding capability of computational techniques and technologies, enabling the almost instantaneous processing of enormous amounts of data that were, until recently, unmanageable due to their vast size and complexity.

But the value of big data analytics has as much to do with the size of the data sets as it does with the astonishing speeds with which new technologies can now analyze large pools of data. Vitally important to these analyses is the precision with which sophisticated algorithms can instantly troll the data and extract patterns or trends from those data sets; valuable nuggets of hidden knowledge that

would otherwise be overlooked are revealed.

A white paper from the Software & Information Industry Association notes that the value of big data analytics is its "ability to capture, comingle, store, verify and analyze relevant data, and then integrate the results into established processes to derive innovative practical outcomes."[1]

It is the last part of this definition that is the most important— deriving innovative and practical outcomes from the data. Innovation that can be applied within an entity's operations has long been a hallmark of successful organizations, whether in the military, business, or baseball.

The book, and later film, *Moneyball* dramatizes an early example of how innovation through analytics can provide a measurable competitive advantage in an industry that, until that point, was managed almost exclusively by experience and judgment. The film shows how the Oakland Athletics baseball team brought science to what was previously considered the "art" of baseball management, by employing big data analytics to find and sign the most cost-effective professional baseball players.

They did so by listening to what the data was telling them in terms of what new metrics were important for winning baseball games. Then, they built their strategies and roster with the assistance of those metrics. The result was that the A's, and their modest payroll, made it to the post-season far more often than one would have predicted if they had used traditional experience and judgment alone.

Big data analytics is already being used to drive retail sales, by matching individual customer preferences with precisely targeted advertising. It is being employed to unsnarl traffic in big cities, reduce operating costs for businesses and nonprofits, predict the frequency and severity of big storms, and—most noteworthy for the purposes of this article—big data analytics is quickly becoming an essential tool for MPL insurance companies trying to get a handle on their ballooning defense costs.

MONEYBALL

Do MPL defense costs qualify as big data?

To their credit, MPL defense firms provide their clients with very detailed descriptions of their activities as reflected in their invoices, showing exactly how much time and money has been spent on each individual task within the litigation process. These descriptions are so detailed, in fact, that the information quickly becomes overwhelming for any person, or persons, to review.

How massive is the amount of information law firms provide to their MPL clients? We estimate that if one were to print out and stack up all of the defense attorney invoices an average PIAA insurer receives in a single year, the pile of those bills would be taller than a three-story building (32 feet), and weigh as much as the average adult Alaskan brown bear—almost 900 pounds (Figure1)!

The fact is that while insurers employ entire departments dedi-cated to managing and mitigating indemnity payments, relatively few resources are committed to understanding, managing, and ultimately developing data-driven best practices in regard to the $25 million the average-sized PIAA company typically spends every year in defense costs. This is not because insurers don't want that information, but rather, because there has been no reliable method they could use to extract it from that 32-foot-high mountain of data points—until now.

Bringing science to the art of claims handling

The new and rapidly advancing science of big data analytics offers MPL insurers the opportunity to absorb the massive amount of legal invoice data as it is being reported, take a deep dive into it, and—with the help of sophisticated algorithms—quickly derive valuable insights that can be used to better understand and manage the claims process.

The result is precise, actionable information that insurers can utilize to evaluate and manage their defense strategies—even as cases are progressing from discovery to depositions, from the expert witness prep phase to trial and beyond.

The algorithms are really a means to an end. They are the computer code that turns "information into data." In data-mining parlance, they bring structure to unstructured data, in this case by normalizing the many varied ways in which the same activities of the litigation process for MPL claims are described (e.g., deposition of the defendant). Once these same activities of the litigation process are referenced identically—that is, have been normalized or structured—we can then begin to analyze and report on them effectively.

So, once this data has been properly prepared and constructed, an MPL insurer is in a position to investigate the efficacy of its claims-handing strategies. Rather than relying on just intuition and judgment, which are often biased by one's outlier and/or most recent experiences, we can allow the data to inform our strategies. We can answer questions like these:
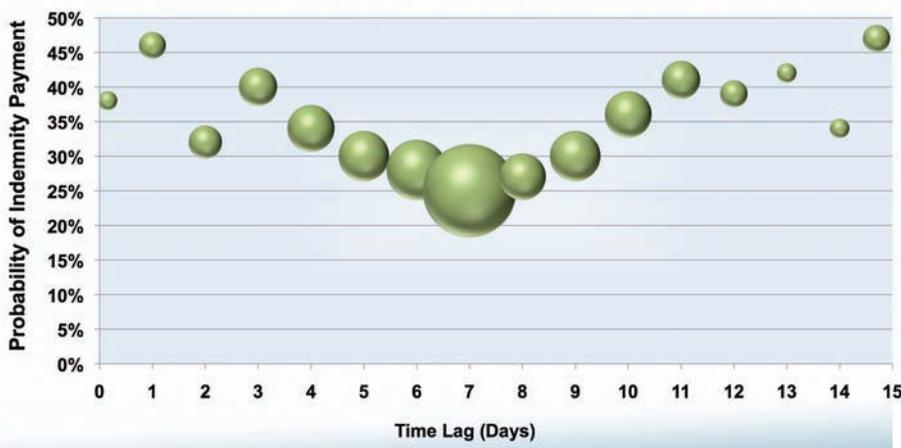
■ Is it an effective strategy to file a motion for summary judgment (MSJ) in a particular venue or with a particular judge, given our historical success rate? How much does it cost to file an MSJ?

■ What is the average cost of an expert deposition and are we taking more of

Figure 1. MPL Defense Costs—and Big Data

➤ Average Annual Defense Costs Paid	$25,000,000
➤ Average Billing Increment	0.21 hours
➤ Average Hourly Rate	$141.86
➤ Average Line Items per Page	11.5
➤ Thickness of 100 Pieces of Paper	17/32 in.
➤ Height of Defense Costs Paper	32 ft. 3¾ in.
➤ Weight of 100 Pieces of Paper	19 oz.
➤ Weight of Defense Costs Paper	866 lbs. 9 oz.

Figure 2. Predictive Analytics—Timing of Deposition Prep

Claim Result Grouped by Deposition Preparation Lag

them now, or has the average cost per deposition increased, or both?

■ What is the optimal lag between preparing our defendant for his or her deposition and the deposition itself, if any? (Figure 2 shows hypothetical data illustrating how this question might be analyzed.)

■ Do we tend to get a better outcome when the lead attorney's hours represent at least X% of the total hours spent on the case?

■ How much does it cost to have our defense firms comply with our 90-day claim summary report, and does the compliance rate correlate with the outcome of the claim?

■ Can we develop a more cost-effective strategy for our record retrieval and court reporting costs?

These, and many more, are the types of questions to which the answers reside in the three stories and 900 pounds of information that, heretofore, the industry has conducted at most a cursory review of for payment purposes only, and then simply shredded.

This is only the beginning; the possibilities are endless, because big data analysis often reveals not only the information we are looking for but the information we did not even know that we *should* be looking for.

Conclusion—still a place for human intuition?

In the film *Moneyball,* some of the major league baseball scouts felt they were being displaced by the team's increasing reliance on analytics. Will big data and algorithms make claims adjusters irrelevant?

Well, major league baseball still relies heavily on the instincts of its scouts, and the same will undoubtedly be the case for MPL insurers. What big data and algorithms do is offer claims departments a powerful new tool, one that will allow them to leverage their experience and judgement even more effectively by supplementing their instincts with data.

As in *Moneyball,* big data analytics is about science supporting something that has always been considered an instinctive art. We are never going to replace the wisdom and instincts of the claims department—their judgement and experience—we can't. But we can supplement their instincts with reliable evidence.

In business and baseball, knowledge is power. The A's lost their competitive advantage only because every major league team followed suit, and today they all use analytics in devising their strategies and building their rosters. MPL insurers have that same opportunity available to them for the first time—using data and science to better manage their largest expense and develop effective defense strategies that are informed by the data. *PIAA*

References
1. "Data-driven innovation, a guide for policymakers: understanding and enabling the economic and social value of data," Software & Information Industry Association (SIIA) White Paper, May 2013.