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What a CIO Wants You to Know about Workers' Compensation Data Analytics

Executive Briefing David Chandler, CPCU Senior Vice President & Chief Information Officer PMA Companies



PMA Executive Briefings explore strategies necessary to effectively manage workers' compensation costs.

In this series of *PMA Executive Briefings*, we've covered how data analytics improves outcomes in workers' compensation programs, both in pre-loss and post-loss, and also in identifying long-term trends in stewardship reports.

Now we take a macro perspective from PMA's CIO, David Chandler, who has over 30 years' information technology expertise. He has a Master of Science in Business Intelligence from St. Joseph's University and is scheduled to complete a Master of Science in Predictive Analytics from Northwestern University in 2017.

In this issue, Mr. Chandler examines the overall impact of data analytics in workers' compensation, the emergence of predictive modeling and the future of workers' compensation data analytics.

Impact of Data Analytics in Workers' Compensation

Data analytics has impacted virtually every aspect of workers' compensation. The workers' compensation industry now has better technology, models and data, all of which enable better decisions to be made. These decisions are far-reaching and range from how to more effectively prevent losses for client-specific situations to the best strategies to prevent opioid abuse to assessing the most effective medical options for an injured worker. Data analytics has had a particularly significant impact on claims management — specifically, using data and insights to help assess the potential trajectory of claims and intervene if red flags are detected. Predictive analytics can help determine when there is potential for more complex risk, so the claim can be assigned to a claims professional

and nurse case manager with the most appropriate skill set and experience. The goal is to use data to assess the most likely course of claims and use this information to help improve treatment and reduce costs with intervention.

Predictive analytics also helps to determine the impact of co-morbidities – complicating factors like smoking, obesity and diabetes – and other health, psychological and lifestyle factors of the injured worker. For example, an injury may appear to be a routine back strain requiring minor treatment, but predictive analytics assesses the impact of the factors complicating recovery and return to work, such as the worker's weight or their commuting distance from work. With this data, the insurance company/TPA can intervene sooner and work with medical professionals to adjust the injured worker's treatment plan based on these factors.

Predicting Future Claims Outcomes

"Predictive modeling" describes the behind-thescenes process of deploying advanced algorithms to project future claims outcomes. It does this by evaluating variations in severity within similar injuries. So rather than evaluating a claim based on the overall injury class, predictive modeling provides a multi-dimensional view of each risk, providing us with a more precise view of what to expect.

We are also seeing growth in prescriptive modeling. While predictive modeling tells us what to expect, prescriptive modeling addresses what should be done to achieve the best claim outcome.

In the workers' compensation industry, the use of prescriptive and predictive modeling continues to evolve and advance. We are moving away from

3 Key to Success

When looking at what makes data analytics effective in a workers' compensation program, there are three keys to success:

- Creating data-driven environments that are based on the increasing importance of data. In other words, the workers' compensation program should embrace the use of data and analytics to achieve optimal outcomes.
- Cultural acceptance Data analytics and, in particular, predictive analytics, helps by adding another layer of expertise in making claims management decisions. In today's workers' compensation industry, employers, and insurance companies/ TPAs are making this cultural shift and gaining more trust in data analytics and predictive models.
- Clean, consistent data Models will continue to yield better results as more data is collected and used to analyze claims, and the data becomes more precise and complete.

generating models once during the life of a claim; now we are running them as often as daily, giving us the ability to account for any changes in the data that may impact outcomes. This is possible due to significant advancements in technology that have removed technology costs and capacity as barriers.

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Future Trends

Data analytics in general and predictive modeling specifically will continue to evolve and be used by insurance companies/TPAs to a much greater extent during the next 10 years. They will continue to learn much more about how to use data analytics to facilitate a better recovery and an optimal returnto-work trajectory for injured workers.

From the risk control side, the industry will continue to grow in its knowledge of how to prevent injuries and address worker behaviors and co-morbidities based upon data analytics. We see the evolution of risk assessments providing better insight into potential losses, perception and co-morbidity surveys that analyze underlying root causes of workers' compensation claim trends, and the availability of wearable technology that monitors and alerts employees to hazards and at-risk behaviors and conditions.

Like many applications of technology, advancements in data analytic methodologies will allow for the use of artificial intelligence, or machine learning.



The models deployed will be similar to how our own brain learns, using software that will enable them to improve on their own.

Data analytics is having a significant impact on the workers' compensation industry today. Over the next decade we expect its influence to continue increasing, thus allowing us to do a better job of preventing losses, improving claims outcomes when losses do occur and helping injured workers recover and return to work.

About the Author



David Chandler, Senior Vice President & Chief Information Officer, leads the development and implementation of the information services innovation, strategy, infrastructure, and systems for PMA Companies. Mr. Chandler has over 30 years of experience in information technology, including ten years in the workers' compensation field.

He has a Bachelor of Science degree from Carnegie Mellon University, Pittsburgh, PA, an MBA from the University of North Carolina-Greensboro, and a Master of Science degree in Business Intelligence from St. Joseph's University in Philadelphia, PA, as well as the Chartered Property Casualty Underwriter designation. He is scheduled to complete the Master of Science degree in Predictive Analytics from Northwestern University in 2017.

