

PRIORITIZING LONG-TERM CARE CLAIMS

FOR A LEADING INSURANCE PROVIDER

Elder Research developed a risk scoring model to optimize the management of long-term care claims and to identify those most likely to benefit from customer outreach.

INDUSTRY

- » Healthcare Insurance

BUSINESS NEED

- » Prioritize clinical reviews by predicting changes in claims payout rate. This enables proactive intervention to improve patient experience and reduce operational cost.

SOLUTION

- » Developed a regression model to successfully predict which claims would experience expanded payout over time, identifying claims most in need of clinical review.

BENEFIT

- » Identified cases most likely to benefit from proactive intervention.
- » Provided proactive recommendations of patient service to drive better patient care and more efficient claims management.

THE CHALLENGE

When the client engaged Elder Research, they were interested in understanding whether predictive analytics could determine when or if a long-term care claimant was likely to recover. Knowing when a claimant is likely to recover would allow the client to schedule clinical reviews more efficiently. The goal of this project was to improve the management of long-term care insurance claims by anticipating changes in claim payout rates that occur as patient conditions evolve and caregivers provide expanded care. The client wanted to be more proactive in helping patients and their caregivers manage these changes.

THE SOLUTION

Elder Research worked with the client to understand all of the situations that determine to how claims are paid out over time. The immediate area of opportunity was to objectively prioritize resources for claim customer review by anticipating escalating claim invoices that would likely remain high for many months. Working

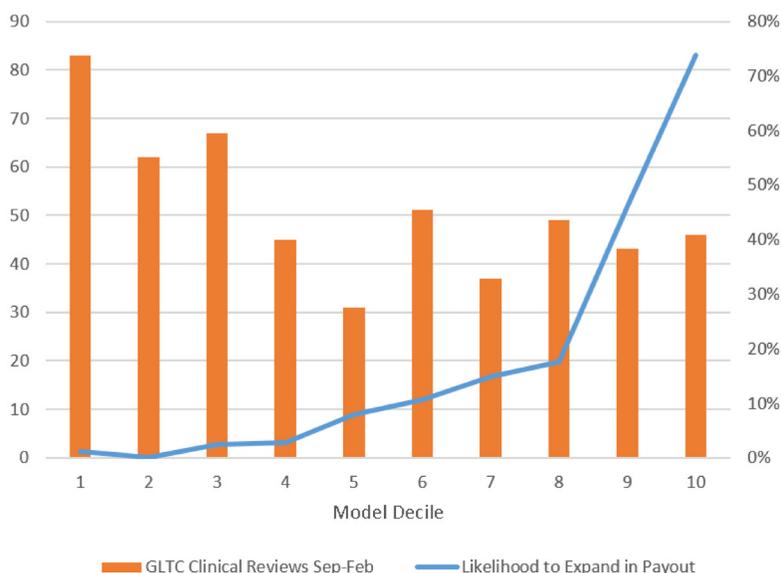


Figure 1. The model showed that performing clinical reviews was not predictive of claim escalation, and claims management could be improved by conducting more clinical reviews for claims most likely to escalate (deciles 8 to 10).

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with the client's subject matter experts, 153 potential features were developed for consideration, including nuanced details of invoice history, changes in care settings, policy limits, and past actuarial assessments. Training data was developed from the analytic data warehouse for nine sequential time periods over eleven years. Claims were identified that experienced escalated invoice amounts for more than six months after the end of each given time period.

Elder Research experts applied best analytics practices to assure that the model would perform well in the future on new claims in new situations. Significant crosschecks were needed to remove the impact of time, macro-economic factors and management. For example, alternate models were tested separately for each time period to ensure that the selected model would be insensitive to the conditions and practices that are known to change over time, such as:

- Internal policies and procedures
- Different portfolio age makeup
- Changing product characteristics
- Macro-economic conditions

RESULTS

The model improved the client's ability to serve their customers' changing needs by identifying cases likely to benefit from proactive intervention. Review of flagged cases enabled the client to provide helpful recommendations to

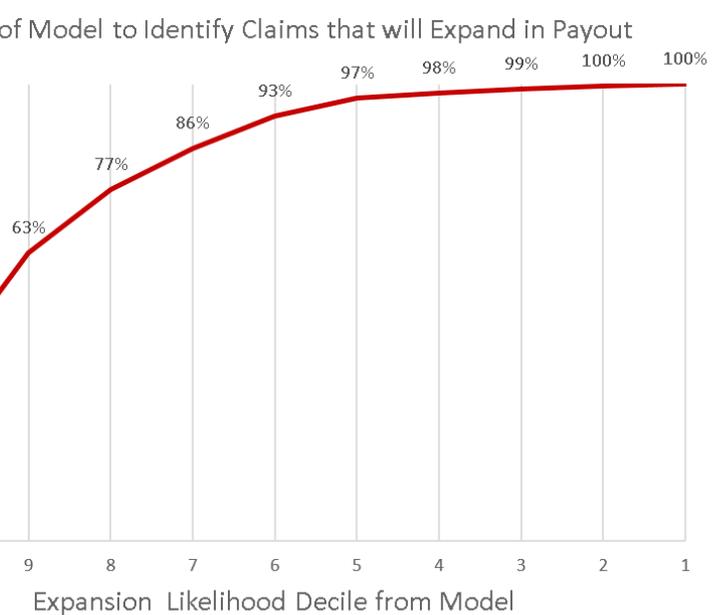


Figure 2. The model successfully identified claims that will expand in payout, with 77% of such claims in the top three (leftmost) deciles.

During this process, multiple modeling algorithms were tested and compared, resulting in a very predictive and stable regression model with 12 selected features. This produced a consistently strong model where the top 30% (deciles 10, 9, and 8) contained 77% of all the claims that would escalate. Finally, to be used in production, the model was deployed in the client's SQL Server environment.

the caregivers for additional patient services before the decisions on the cases were finalized. This improved the patient care experience as well as the management of long-term care claims.

ABOUT ELDER RESEARCH

Elder Research is a recognized leader in the science, practice, and technology of advanced analytics. We have helped government agencies and Fortune Global 500® companies solve real-world problems across diverse industries. Our areas of expertise include data science, text mining, data visualization, scientific software engineering,

and technical teaching. With experience in diverse projects and algorithms, advanced validation techniques, and innovative model combination methods (ensembles), Elder Research can maximize project success to ensure a continued return on analytics investment.

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