**EXECUTIVE SUMMARY**

**OBJECTIVE:**

The main objective is to find the major drivers of the costs and processing time of the claims, and find the ways to reduce or avoid the impact of the factors, and make particular recommendations for our client. To reach this goal we need to bring our data and ideas from the phase 1, and to use the model to acquire more detailed information and useful facts. Finally we can use these information to provide more useful strategies to improve the competitive advantages for our client company.

**INITIAL HYPOTHESIS:**

Our initial hypothesis is based on the observations from the various visualizations we developed.

Lets us summarize the various keysight findings of phase 1.

Hypotheses regarding the relationships between variables with respect to the payments and time can be summarized as follows

* We predicted that age and total average cost would have positive relationship, that is the total average cost will increase as age increases.
* Payment and time give to cases involving litigation and fatality is more. The observations in general conform with the logic.
* If a case is indemnity, the payment and time will be higher than the cases are medical only or report only.
* Claims with higher total days of service i.e. service start and end dates , increase tend to have higher amount of total paid and the relationship increases positively

**KEY FINDINGS**

We built two logistic regression models, one to determine the factors that determine the longevity of the claims processing and the other to find the factors influencing the high  
payments. For the first model, it was found that sum of all transactions, age of the claimant, the claim type and body part associated with the injury. The odds and impact for low duration model is described as follows:

* The regression model asserts that older the claimants are, the possibility for the claim to be of longer duration diminishes.
* For every indemnity claim, the odds are 15.7% in favour of making the claim processing time to be longer than expected.
* There is nearly 52% chance for any multipart injury to end up as a long duration claim.
* Head injuries and lower extreme injuries have a modest 15% average odds of reducing the processing time.
* For every non-standard code injury, the odds that the claim duration will be longer is reduced by 69%.
* Finally, if it is not a small injury, the odds for a longer duration is reduced by 15%.

In the next model, the high transaction payment is considered as the response variable. On inspection we find that the duration of the claim, the claimant age, claims that are not denied by the agency, claims involving indemnity, and various injuries confined to specific body part regions as the significant factors. The odds and impact for low duration model is described as follows:

* The claim duration and the claimant age both have minimal odds of increasing the payments, yet they do significant damage to the processed claim.
* For every claim that is not denied, the odds for increase in high payments is by 75%.
* The odds are as much as 54% in favour of increasing the high payments involved for every indemnity claim occurrence.
* The head and neck injuries constitute about an average odd of 24% towards the possibility for a claim involving high transaction amounts.
* For every multipart injury, the odds of a high payment claim increase by 38%.
* There’s further proof that the small injuries have more possibilities to be involved in high payment claim than other serious injuries. This is from the fact for every non-small injury, the odds of high payment decrease by 8.5%.

**RECOMMENDATIONS**

1. Our recommendation for resolving the issue with indemnity claims is to implement AI based claims processing system. Developing AI models can be tiresome, but a claims management system powered by cognitive algorithms with self-learning capabilities can reduce the workload of people so that they can be dedicated to more sensitive cases and the validation of claims tend to be more accurate avoiding fraudulent claims.

2. The next possible solution for the problem in claims related to a specific body part is intertwined with how efficiently we process the indemnity claims. The value based care payment allows the insured to choose the doctor or healthcare system of his choice. This could drastically reduce un-wanted revisits, bring down the collective claims processing duration and costs.

3. Finally while dealing with the small injuries like strain, sprain and contusion, our recommendation is to constantly review the system data and ensure that claims involving small injuries are flagged, so that they the insured can be given exposure to much efficient treatment methods like telemedicine or treated by more dedicated medical personnel.