DEAKIN UNIVERSITY

Descriptive Analytics and Visualisation

MIS 771

ASSIGNMENT ONE

Analysis of Medical Malpractice Insurance Pay-out Data



Submitted by: Ayush Pradhananga

Student ID: 221417078

**Introduction:**

This report involves an analysis on the payouts for medical malpractice lawsuits. As per Harvard School of Public Health, per year cost of malpractice in medical field in the USA was roughly 56 billion in 2010 which accounted for 2.4% of annual healthcare spending. There has been a trend of specialists shifting to safer medicine as a result of increased premiums for medical malpractice insurance. A legislation Medical Liability Reform (MLR) was introduced by the US federal and state government to fix this issue. In this report, I have presented results and findings of my analysis done through descriptive and inferential analysis. Through this report, United Health Group (UHG) can get insights about the payouts for medical malpractice lawsuits.

This report is submitted to United Health Group with complete analysis and interpretation of results as required by the manager. This report presents the findings in the body section in easy-to-understand format, avoiding any jargons that might create confusion. The conclusion section includes the highlights of the findings and states and explains the limitation of this report.

**Body:**

In this section, all the questions asked by my manager Edmond Kendrick is addressed chronologically with proper headers.

**Answer 1.1**

There are 151 claimants with private attorney and 74 claimants without private attorney. The average payout for claimant with private attorney is around $82705 and for claimant without private attorney is around $66054. The average spread from the mean payout amount for claimant with private and those without private attorney are $30732 and $32804 respectively.

At 5% significance level, I have sufficient evidence to conclude that claimants with private attorney do not receive lower or equal payouts than claimants who do not have private attorneys. This means that there is still 5% probability that claimants with private attorney receive lower or equal payouts than claimants with non-private attorneys.

**Answer 1.2**

At 5 per cent significance level, the evidence is sufficient to conclude that private attorney representation is less common in malpractice claims against dermatologists than orthopaedic surgeons. In other words, the proportion of claimants with private attorney is not equal or greater against dermatologists than orthopaedic surgeons.

**Answer 1.3**

At 5 per cent significance level, there is sufficient evidence to come to a conclusion that there is significant difference in private attorney representation between physician specialities. Also, regarding the difference in private attorney representation between physician specialities, I have sufficient evidence that difference in private attorney representation between Anesthesiologists and Dermatologists is significant whereas between other physicians specialities are not significant.

**Answer 1.4**

The overall mean claimed amount by claimants without private attorney is $57320 and with private attorney is $75659. Following is the average claimed amount by claimants based on insurance type:

* Medicare/Medicaid = $64582
* No Insurance = $62869
* Private =$ 71286
* Work Compensation = $ 67221

The experiment concluded three main results:

**Effect of Private attorney on amount claimed:**

At 5% significance level, we have sufficient evidence to say that the mean amount claimed is different between not private and private attorney.

**Effect of Insurance Type on amount claimed:**

With 5% significance, I have insufficient evidence to conclude that there is significant difference in the average amount claimed between insurance types.

**Interaction effect:**

The evidence is not sufficient to draw the inference that there is an interaction between Insurance Type and Private attorney.

For all type of insurance, the amount claimed on average for private attorney was higher.

**Answer 2.1**

At 5% significance level, the evidence is insufficient to draw a conclusion that there is significance difference in average payout across physician specialities. In other words, the average payout does not significantly vary across the physician specialities.

**Answer 2.2**

At 5% significance level, I do not have sufficient evidence that there is significance difference in average payout across physician specialities. Therefore, the average payout for "SEVERE" claims is not greater for Orthopaedic surgeons compared to rest of the specialities.

**Answer 2.3**

After conducting an experiment on the reform and its effectiveness, it was found that with 5% chance of error, there is sufficient evidence to draw conclusion that acceptance rate of high-risk obstetric patients has increased after Medical Liability Reform (MLR) legislation. Hence, the reform has been effective.

**Conclusion:**

Overall, the claimants with private attorney received higher payouts. Also, there seem to be no interaction between private attorney representation and insurance type. The legislation introduced the US federal, and some state government has been effective in increasing the acceptance rate of high-risk obstetric patients by Obstetricians/Gynaecologists.

**Limitations:**

This analysis has certain limitations. Firstly, a deeper analysis and evaluation of data could be done if a larger dataset with more variable like frequency of payouts and all type of insurance were known. Also, the analyses have been conducted in 5% significant level, so a 1% level of significance would have given more precise results.