* Table 1 show the summary regression of capsule on detection of capsular involvement. Small p value on this model suggests the detection of capsular involvement is statistically significant. An odd ratio of 5.36 means for a patient who have a detection of capsular involvement would more likely to be diagnosed with prostate cancer 5.36 times more than patients who do not have a detection of capsular involvement. In other words, 5.36 times more meaning 436% more.

Table 1. Summary regression of capsule on detection of capsular involvement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Term | estimate | SE | statistics | P value | Odd Ratio |
| Intercept | -0.580 | 0.114 | -5.10 | 0 | 0.560 |
| dcaps2 | 1.68 | 0.382 | 4.39 | 0 | 5.36 |

* Table 2 shows a summary regression of capsule on detection of capsular involvement and prostatic specific antigen value and Table 3 show regression of the same variables with an additional interaction term of the two variables. AIC for model with interaction term is smaller than model without an interaction term. This suggest that the model with an interaction term is better. However, the differences between the AIC are not as large suggesting the model with interaction term might not be too different from model without interaction term. Looking at the odd ratio, mode with interaction term seems to have relatively larger odd ratios of the coefficient. This indicates that the model with interaction terms have stronger slopes. Looking at p values of model with interaction term, the interaction term has large p values (0.102). This means that the interaction term is not statistically significant in the model. In conclusion, I would pick the model without interaction term to continue with the analysis.

Table 2. Summary regression of capsule on dcaps and psa

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Term | estimate | Odd Ratio | SE | statistics | P value | AIC |
| Intercept | -1.15 | 0.3155 | 0.164 | -7.04 | 0 | 457.15 |
| dcaps2 | 1.25 | 3.5048 | 0.407 | 3.08 | 0.0021 |
| psa | 0.0438 | 1.0447 | 0.0093 | 4.72 | 0 |

Table 3. Summary regression of capsule on dcaps, psa, and interaction term

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Term | estimate | Odd Ratio | SE | statistics | P value | AIC |
| Intercept | -1.23 | 0.2918 | 0.175 | -7.04 | 0 | 456.98 |
| dcaps2 | 1.83 | 6.2290 | 0.556 | 3.29 | 0.001 |
| psa | 0.0502 | 1.0515 | 0.0107 | 4.70 | 0 |
| dcaps2:psa | -0.0318 | 0.9687 | 0.0194 | -1.64 | 0.102 |

* This analysis will continue access the model quality using diagnostics. After checking for the residuals, cook’s distant, multicollinear, etc., we should be able to tell if the model of capsule on detection of capsular involvement and prostatic specific antigen would be the final model.