Modelling Patient Satisfaction
Rachael Hamilton-Keene, Department of Mathematics and Statistics,
La Trobe University

Patient satisfaction is important because preliminary research suggests that patient satisfaction is related to health outcomes (1), and because patients are (directly or indirectly) paying customers. Patient satisfaction surveys are a standard tool for evaluating health care programs.

The aim of this project was to determine the key drivers that distinguish between satisfied and non-satisfied patients at a regional Victorian hospital. Over 2000 questionnaires that included patient ratings of various factors and overall satisfaction were completed between 1999 and 2003. Logistic regression was used to analyse this data set because it gives us the best fitting, yet prudent, model to describe the relationship between a binary response variable and several explanatory variables (2).

The forward likelihood-ratio stepwise technique of binary logistic regression was used. This method involves assessing importance of each explanatory variable, adding one at a time until remaining variables no longer contribute significantly to the model. The explanatory variables that are included in the model are the key drivers of patient satisfaction.

The key drivers associated with patient satisfaction found were (in order of importance):
- Prompt transport to room upon arrival.
- Quick response to patient needs.
- Attendance to patients emotional needs.
- Special diet explained before discharge.
- Satisfaction with meal quality.

These findings will be useful to the hospital because they highlight the importance of factors such as efficient management of patients by admission staff. Staff can then be informed of the value of their role in ensuring patient satisfaction.

I found the project both enjoyable and beneficial because it gave me experience not only in multivariate data analysis, but also in cleaning up a large data set, dealing with missing data, obtaining approval from two Human Research Ethics Committees, and presenting research results to various audiences.

References
1. Carr-Hill, R. (1992). The measurement of patient satisfaction. *Journal of Public Health Medicine, 14,* 236-249.
2. Hosmer, D. W., & Lemeshow, S. (2000). Applied Logistic Regression. (2nd ed.). John Wiley & Sons, New York.