# THE SENIC PROJECT

## Study on the Efficacy of Nosocomial Infection Control

## (SENIC PROJECT)

### Introduction

Since nosocomial infection becomes a serious problem among US hospitals, in 1974, the Center for Disease Control launched a nationwide study to evaluate approaches to infection control. The project is now known as the Study on the Efficacy of Nosocomial Infection Control, or SENIC project. Because nosocomial infections not only result in morbidity and mortality but also have contributed substantially to the increasing cost of hospital care, the primary objective of the study was to determine whether infection surveillance and control programs have reduced the rates of nosocomial (hospital-acquired) infection in United States Hospitals. The data set consists of a random sample of the 113 hospitals selected from the original 338 hospitals surveyed. The data are for the 1975-1976 study period.

11 variables are recorded. We define infection risk as the response variable and all the rest as (potential) explanatory variables. Abbreviations of the variable name are listed below:

| Variable Name | Explanation |
|---|---|
| *risk* | Infection risk: average estimated probability of acquiring infection in hospital (in percent) |
| *length* | Length of stay: average length of stay of all patients in hospital (in days) |
| *age* | Average age of patients (in years) |
| *culturing* | Routine culturing ratio: ratio of number of cultures performed to number of patients without signs or symptoms of hospital acquired infection times 100 |
| *Xray* | Routine chest X-ray ratio: ratio of number of X-ray performed to number of patients without signs |
| *beds* | Number of beds: Average number of beds in hospital during study period |
| *medschool* | Medical School Affiliation: 1=Yes, 2=No |
| *region* | Geographic region where 1=NE, 2=NC, 3=S, 4=W |
| *census* | Average number of patients in hospital per day during study period |
| *nurses* | Average number of full-time equivalent registered and licensed practical nurses during study period. |
| *service* | Percent of 35 potential services and facilities that are provided by the hospital |

Our goal is to investigate and model the relationship between infection risk and the factors that might have caused the risk, using regression analysis. The process includes model selection and specification, parameter estimation, and model adequacy checking.