Interim Data Analysis Plan: Project 2

Eleanor Cotton

Summary/Goal

- Data about death rate of heart surgery patients
  - 44 VA hospitals
  - 3 years worth of data (6-6 month intervals)

- Estimate the death rate for the most current 6 month period
  - For each hospital
- Estimate the expected death rate
  - Use all 3 years of data
  - Adjusted for comorbidities (such as BMI, ASA, surgery type, etc.)

Data Overview

Table One: Descriptive Statistics

Variable	All Months
N	26518
Procedure (% (n))	
Valve Surgery	18.42 (4884)
Cabbage Surgery	75.9 (20126)
NA	5.69 (1508)
ASA (% (n))	
1	0.08 (21)
2	3.99 (1059)
3	18.36 (4870)
4	0.08 (21)
5	3.99 (1059)
NA	18.36 (4870)
Weight (mean ± sd)	169.03 ± 34.75 (Missing = 1855)
Height (mean ± sd)	65.49 ± 2.56 (Missing = 1855)
BMI (mean ± sd)	27.66 ± 5.26 (Missing = 1855)
Albumin (mean ± sd)	3.89 ± 0.5 (Missing = 16496)
30 day mortality (% (n))	3.27 (868)

Table Two: Hospital Characteristics

Hospital	Number Died	Number Seen	Death Rate	CABG Surgery %	% of ASA = 4	Average BMI
9	0	105	0	73.33	72.38	26.13
19	0	113	0	73.45	68.14	28.39
32	0	93	0	78.49	68.82	28.78
33	0	113	0	78.76	69.91	28.76
42	0	107	0	74.77	64.49	28.75
44	0	98	0	79.59	69.39	28.58
23	6	97	6.19	70.1	61.86	28.35
7	7	105	6.67	83.81	70.48	26.02
31	7	104	6.73	73.08	67.31	28.98
30	10	117	8.55	76.92	68.38	28.86
17	13	93	13.98	76.34	79.57	28.65
34	14	99	14.14	78.79	63.64	28.73

Analysis Plan

- Perform logistic regression with death as the outcome
  - Adjusting for BMI, procedure type, and ASA
  - Albumin has too much missing data→ not to be included in model
- Get an estimate of the death rate from the model
  - Different estimate for each hospital based on each patients estimated probability of death
- Use bootstrapping to get an estimate of the variance around that rate
- Investigate missing data
  - Determine if it appears random or not