Incidence of 30 Day Return to Hospital Following Same Day Discharge Total Hip Arthroplasty

- Data Collection Spreadsheet Headings & Statistical Analysis Plan -

Donald J Young, MD, FRCPC
VGH/UBCH Dept of Anesthesiology & Perioperative Care
Vancouver General Hospital & UBC Hospital
Vancouver, BC, Canada

Oct 6, 2019

Incidence of 30 Day Return to Hospital Following Same Day Discharge Total Hip Arthroplasty

STAR STUDY SPREADSHEET COLUMN HEADINGS & STATISTICAL ANALYSIS PLAN:

A) SPREADSHEET COLUMN HEADINGS:

Data from chart reviews will be collected into the following five spreadsheets.
Spreadsheet 1 will be the De-identifier spreadsheet, the only data collection apparatus containing any personal identifiers. This spreadsheet will be retained only by the PI and stored on a password protected personal computer without any "off-site" or cloud based storage. Spreadsheet 1 information will be distributed to Research Personnel in paper form only.
Spreadsheet 2 will be an all patients list that will segregate patients into one of the three cohorts being studied.
Spreadsheet 3 will retain data from the "STAR Eligible & Discharged Same Day" cohort.
Spreadsheet 4 will retain data from the "STAR Eligible, NOT Discharged Same Day" cohort.
Spreadsheet 5 will retain data from the "NOT STAR Eligible" cohort.
The Data collection venue for de-identified Spreadsheets 2 to 5 will be Redcap (©).

1) De-Identifier:

Patient Study Number	MRN	Date of Surgery	Last Name	First Name	Date of Birth	Age	Gender

2) All Patient List:

Patient Study Number	Removed From STAR Pathway (Y or N)	Discharged On Day Of Surgery (Y or N)

3) Discharged Day of Surgery:

Patient Study Number	PACU Arrival Time	Discharge Home Time	Duration of Hospital Stay (min)	Hospital Re-encounter (Y or N)	Days Post-op at time of Re-encounter	Nature of Surgical Problem/ Complication	Anesthesia Checklist Complete (Y or N)

4) NOT Discharged Day of Surgery:

Patient Study Number	Reason Not D/C'd Same Day - General	Reason Not D/C'd Same Day - Specific	Days In Hospital Post-Op	Hospital Re-encounter (Y or N)	Days Post-op at time of Re-encounter	Nature of Surgical Problem/ Complication	Anesthesia Checklist Complete (Y or N)

5) Removed from STAR Pathway Prior to Surgery:

Patient Study Number	Reason for STAR Removal - General	Reason for STAR Removal - Specific	Days in Hospital Post-Op	Hospital Re-encounter (Y or N)	Days Post-op at time of Re-encounter	Nature of Surgical Problem/ Complication	Anesthesia Checklist Complete (Y or N)

B) <u>STATISTICAL ANALYSIS PLAN</u>:

Statistical analysis will focus on the Primary and Secondary Outcomes (incidence of 30 and 7 day return to hospital encounters for surgical related assessment, complications &/or treatments respectively). Demographic data of patient age and gender will also be statistically analyzed.

Statistical analysis will be conducted with the aid of a Statistician affiliated with the UBC Department of Statistics, and the use of "R" software for statistical computations (© "The R Foundation"). Data will be reported as percentages or means +/- confidence intervals as appropriate.

Demographic data (age and gender) will be statistically compared between the three cohorts as follows. Age, being a numerical discrete variable, will be compared using Kruskal-Wallis Rank Sum Test. Gender, being a binomial variable, will be compared using Pearson's Chi-Squared test with Yates Correction for Continuity.

The Primary Outcome Statistical Analysis will be conducted as follows.

The two-tailed "null" (H_o) and "alternate" (H_A) hypothesis testing is as follows:
H_o = Incidence of 30 day return to hospital not significantly different between compared groups
H_A = Incidence of 30 day return to hospital is significantly different between compared groups

Data from each of the cohorts will be plugged into the following three (A, B & C) 2 X 2 outcome tables:

Tables For Comparative Statistics:
A)

	Number of Patients with 30 Day Encounters or Complications	Number of Patients with NO 30 Day Encounters or Complications
Eligible & Same Day Dishcarged		
Eligible & NOT Same Day Discharged		

B)

	Number of Patients with 30 Day Encounters or Complications	Number of Patients with NO 30 Day Encounters or Complications
Eligible & Same Day Discharged		
Not Eligible for Same Day Discharge		

C)

	Number of Patients with 30 Day Encounters or Complications	Number of Patients with NO 30 Day Encounters or Complications
Eligible & Same Day Discharged		
Both: Eligible & NOT Same Day Discharged AND Not Eligible for Same Day Discharge		

The categorical dichotomous outcome data from each of these 2 X 2 tables will be assessed for statistically significant differences using Pearson's Chi-Squared test with Yates Correction for Continuity, unless expected values are less than 10 (with degrees of freedom of 1) in which case Fisher's Exact Test will be used. Statistical significance is set at $\alpha = 0.05$.

Secondary Outcome analysis for 7 day return to hospital comparison will use the same statistical formatting, substituting the 7 day rate for the 30 day rate in each of these tables.