Profiling hospital length of stay using the mode
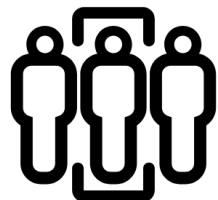
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30th Annual MWSUG CHICAGO 9.29–10.1 2019

Objective

Compare between-hospital length of stay (LOS) for the ***most typical*** postoperative care pathway after common surgical procedures

Want: a measure of central tendency that:
- reflects typical care
- is robust to outliers (e.g. complications)

Materials and Methods

- National Medicare claims data

  639,943 patients   2,236 hospitals

- Colectomy, coronary artery bypass grafting, hip replacement
- Hospitals with 10+ cases/year
- Calculated hospital mean, median, mode LOS (Output 1)
- Compared hospital mean, median, and mode LOS profiles

Results

- Mean, median overestimated typical LOS compared to mode
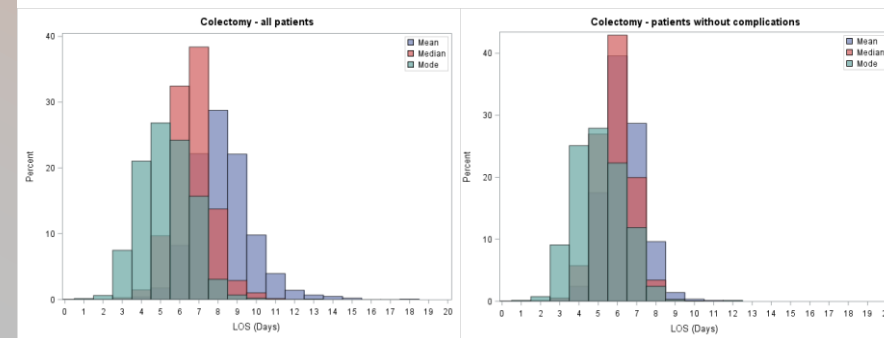- Mode least sensitive to outliers

Figure 1. Hospital mean, median, and mode length of stay distributions for all patients (L) and patients without complications (R), for colectomy

Output 1. Sample code to create and plot **mean, median, and mode length of stay** for each hospital

```
PROC UNIVARIATE DATA=dsn;
    VAR los;
    OUTPUT OUT=modeds
      MEAN=mean
      MEDIAN=median
      MODE=mode;
    BY hospital_id;
RUN;
```

```
PROC SGPLOT DATA=modeds NOCYCLEATTRS;
    HISTOGRAM mean / LEGENDLABEL='Mean' FILLATTRS=graphdata1
      transparency=0.3 binwidth=1 binstart=0 showbins;
    HISTOGRAM median / LEGENDLABEL='Mean' FILLATTRS=graphdata2
      transparency=0.3 binwidth=1 binstart=0 showbins;
    HISTOGRAM mode / LEGENDLABEL='Mean' FILLATTRS=graphdata3
      transparency=0.3 binwidth=1 binstart=0 showbins;
    /*  .. Add plot options .. */
RUN;
```