

# The Power of Great Data Visualization!

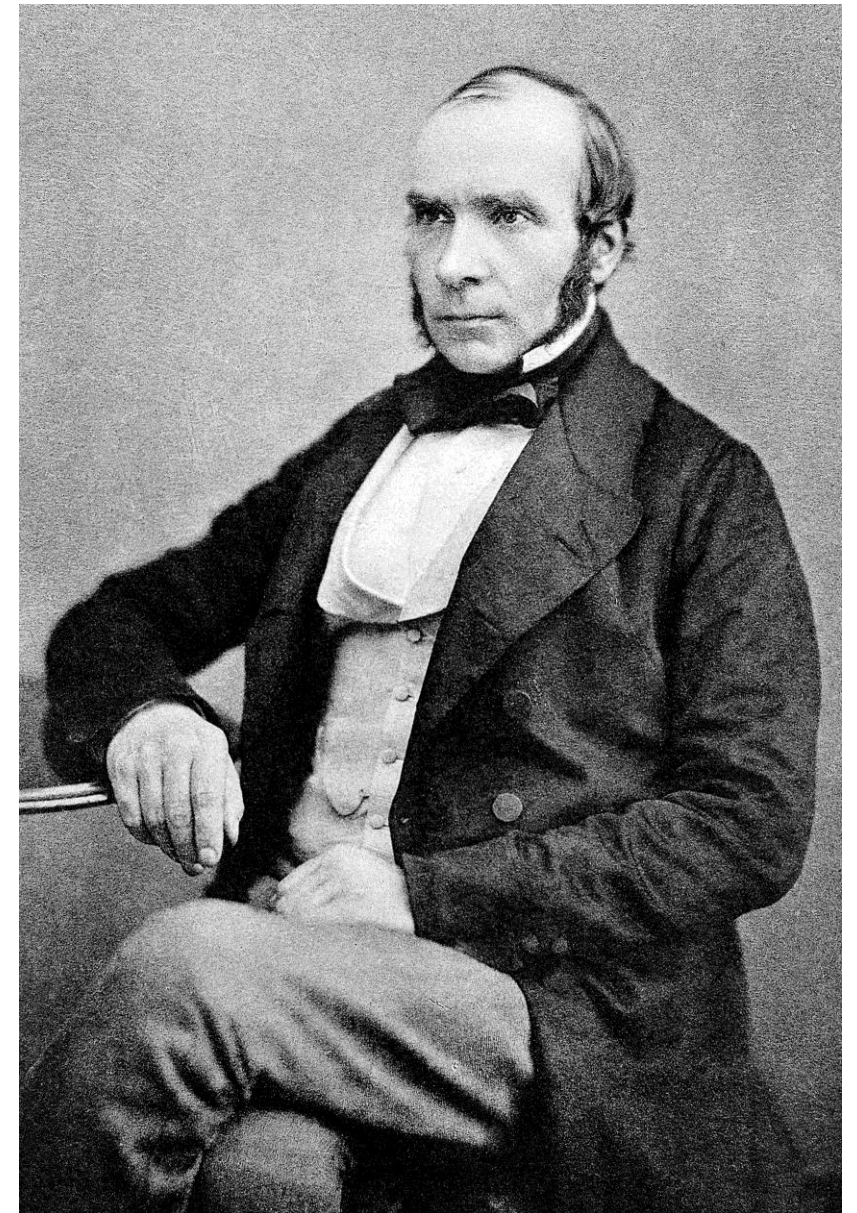
**Charles Hu, MD FAMIA**  
Medical Director, Clinical Informatics

Thursday, June 6, 2019



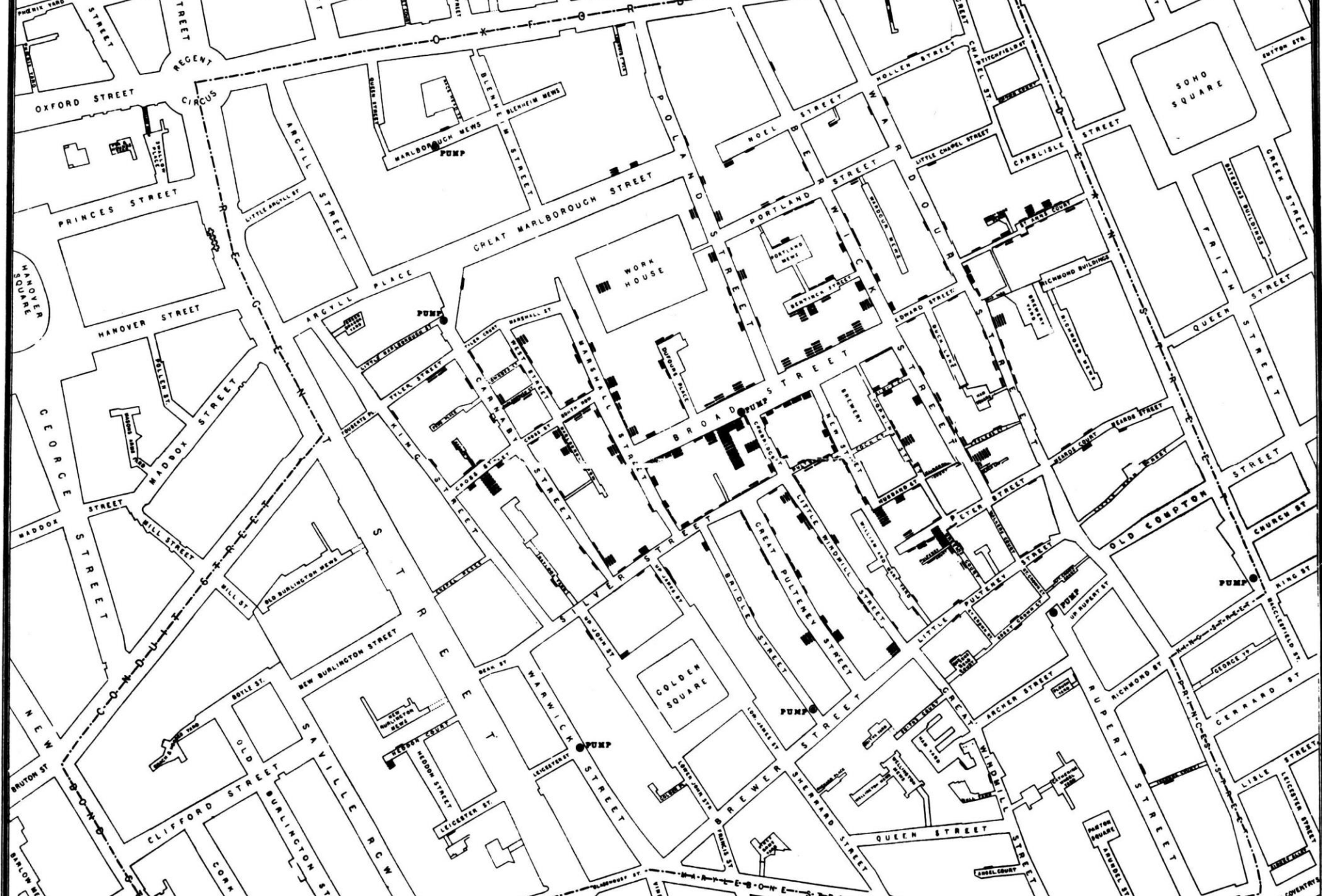
EMANUEL Medical Center	GOOD SAMARITAN Medical Center	MERIDIAN PARK Medical Center	MOUNT HOOD Medical Center	SALMON CREEK Medical Center	SILVERTON Medical Center	
RANDALL CHILDREN'S HOSPITAL Legacy Emanuel		LEGACY MEDICAL GROUP	LEGACY HEALTH PARTNERS	LEGACY HOSPICE	LEGACY LABORATORY	LEGACY RESEARCH





*John Snow*



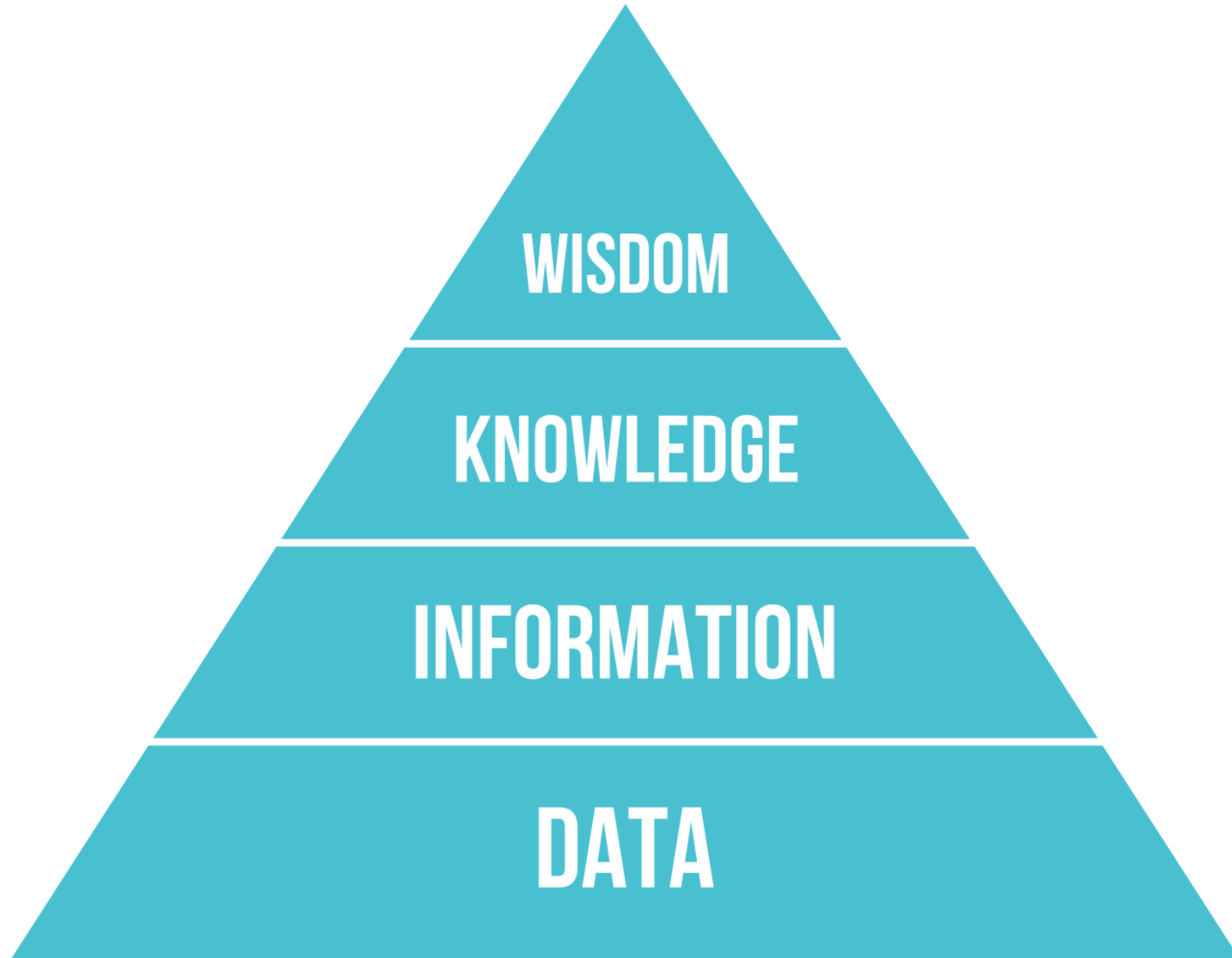






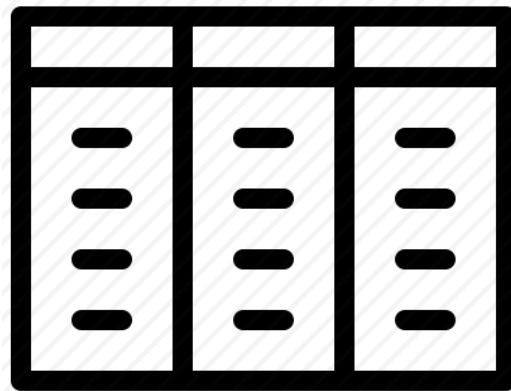




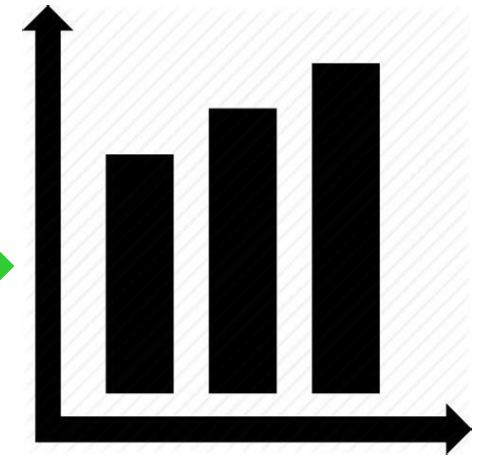
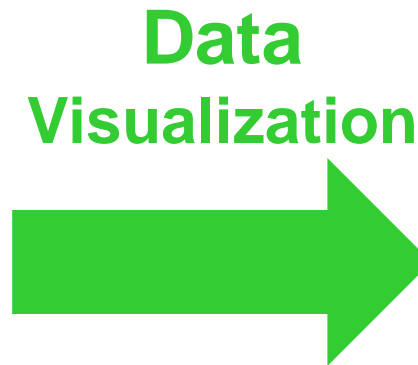




**Database**



**Data**

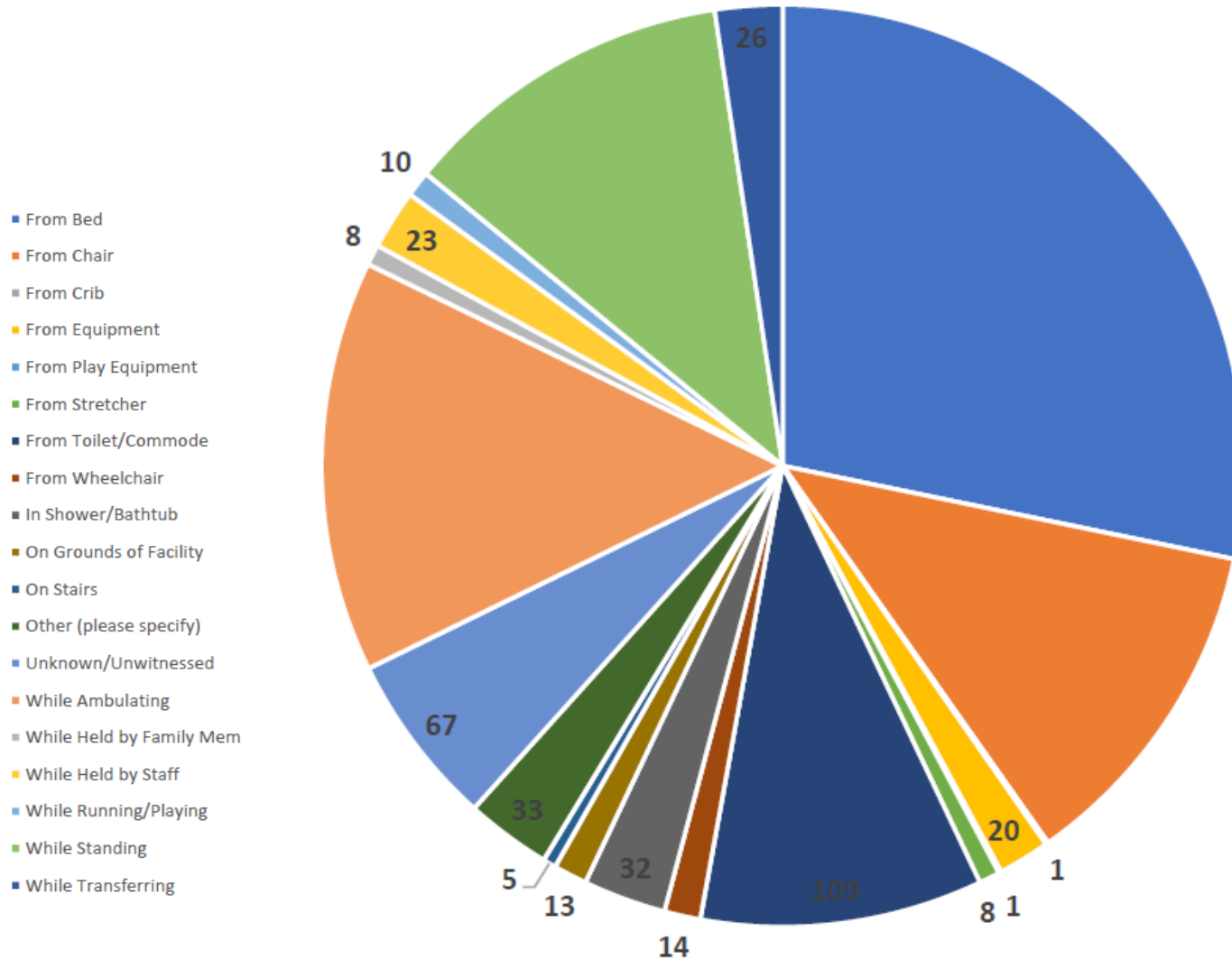


**Insights**

# Data Visualization: Don'ts



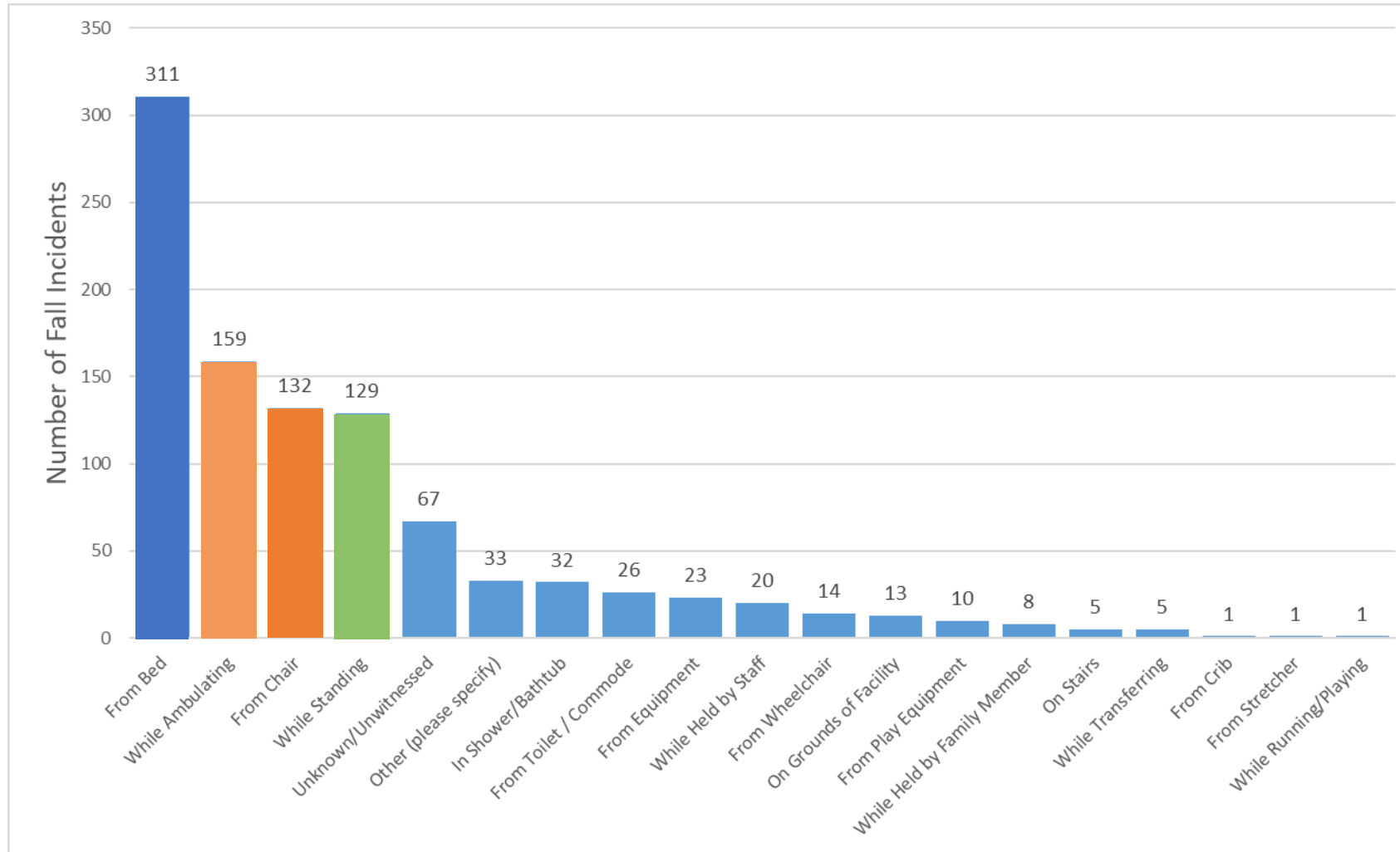
**Total Falls by Fall Type**  
February 2018 to January 2019



## Don't:

- Don't use pie charts

## Total Falls by Fall Type February 2018 to January 2019



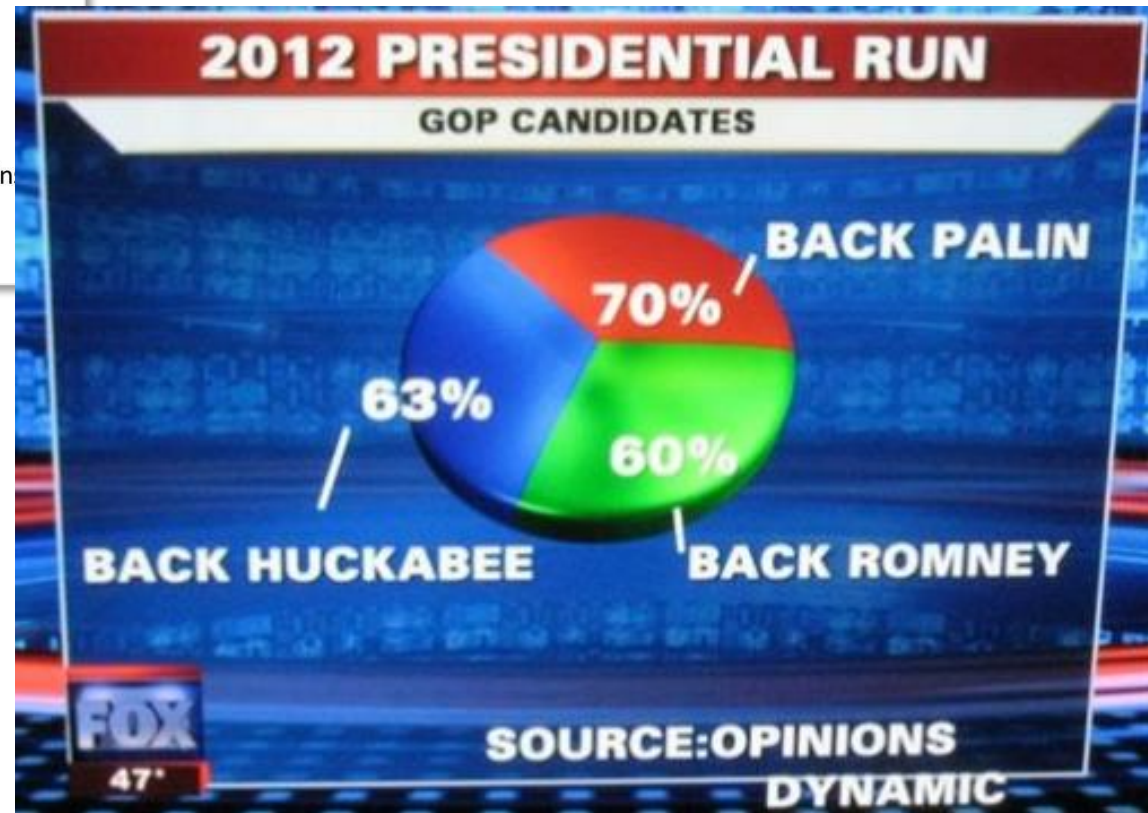
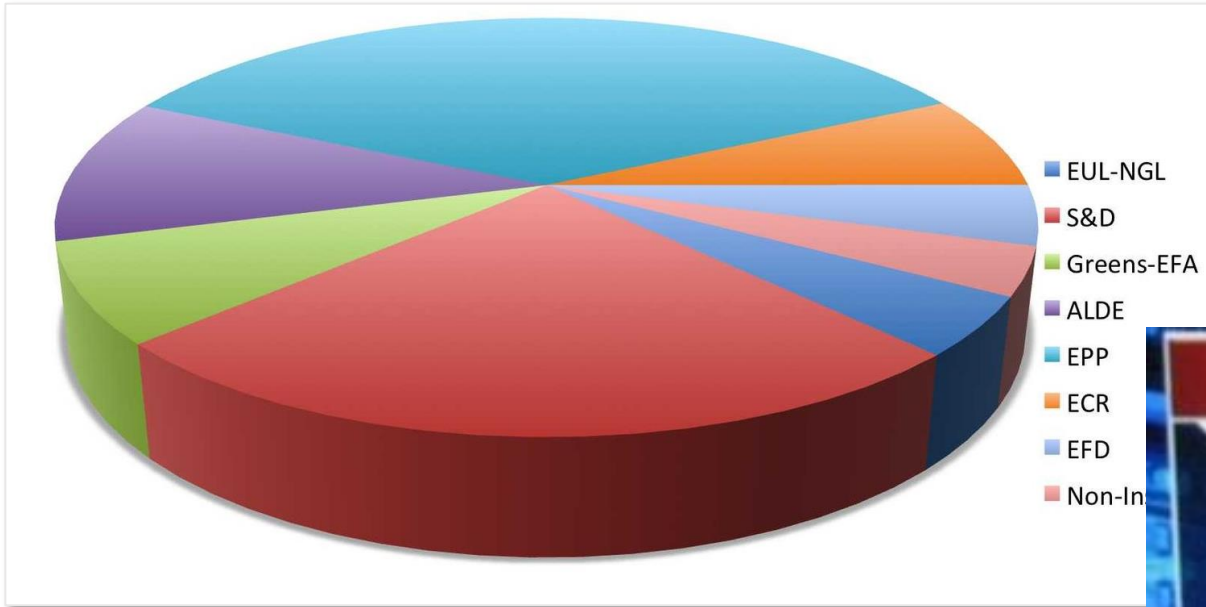
## Don't:

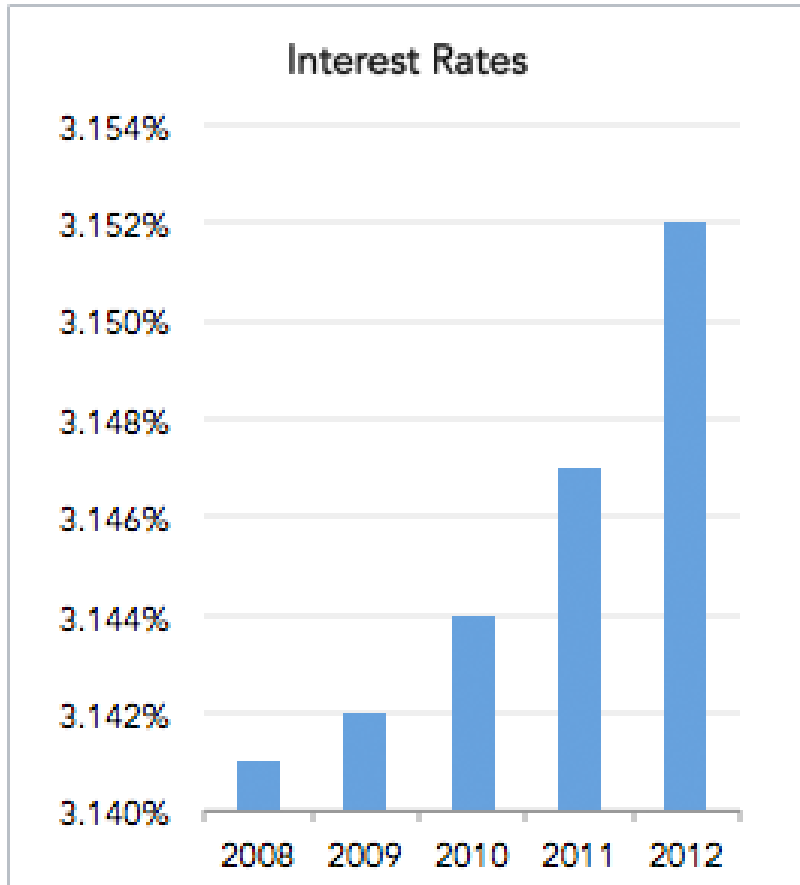
- Don't use pie charts



## Don't:

- Don't use pie charts

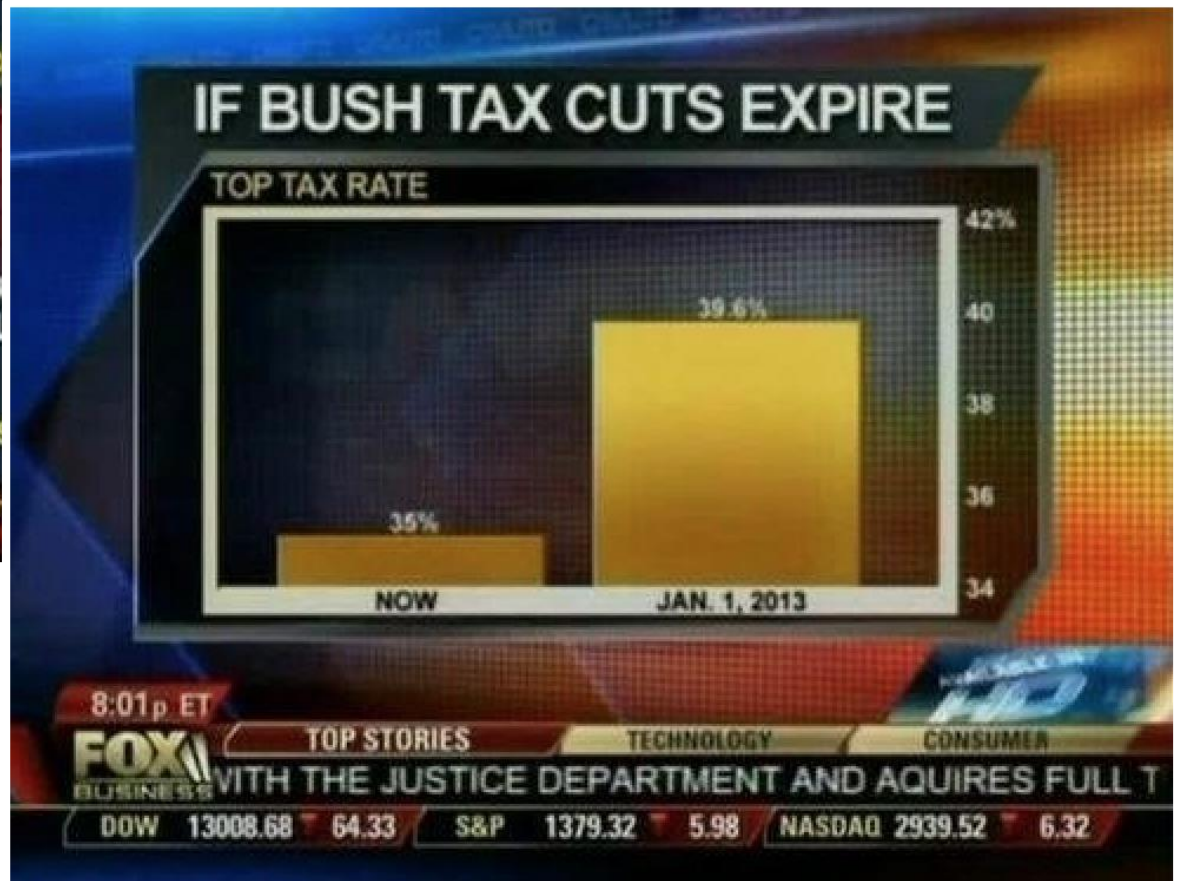
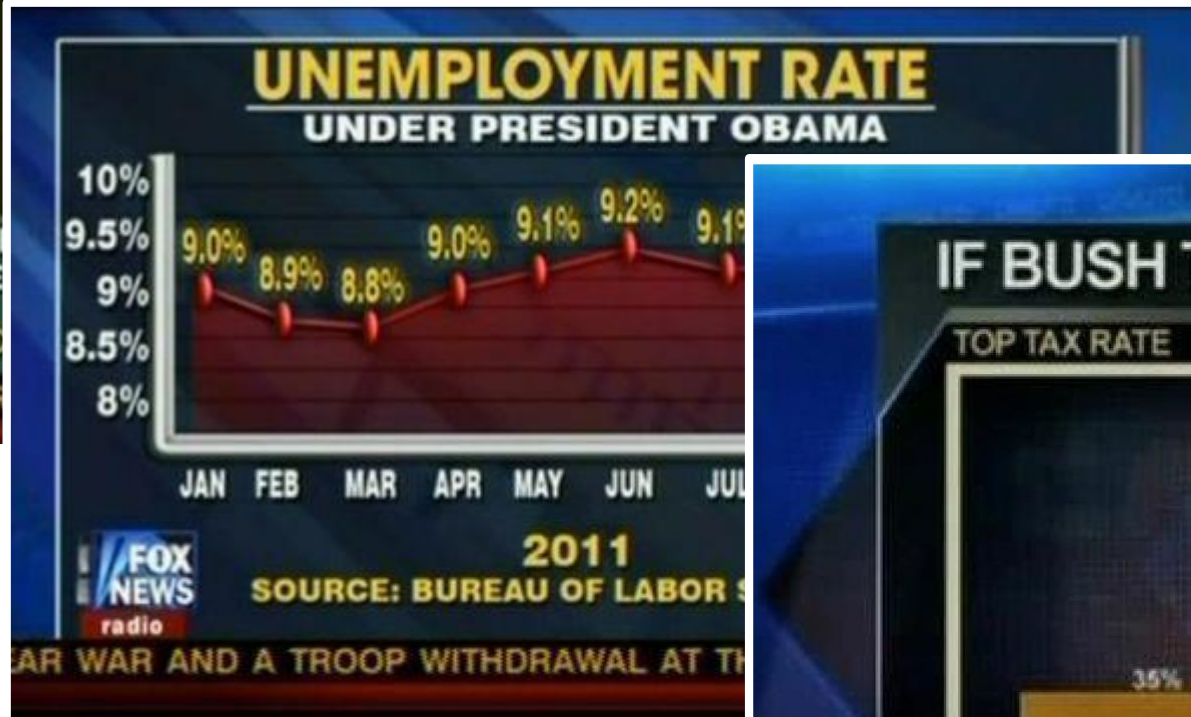




## Don't:

- Don't use pie charts
- Don't use misleading axes





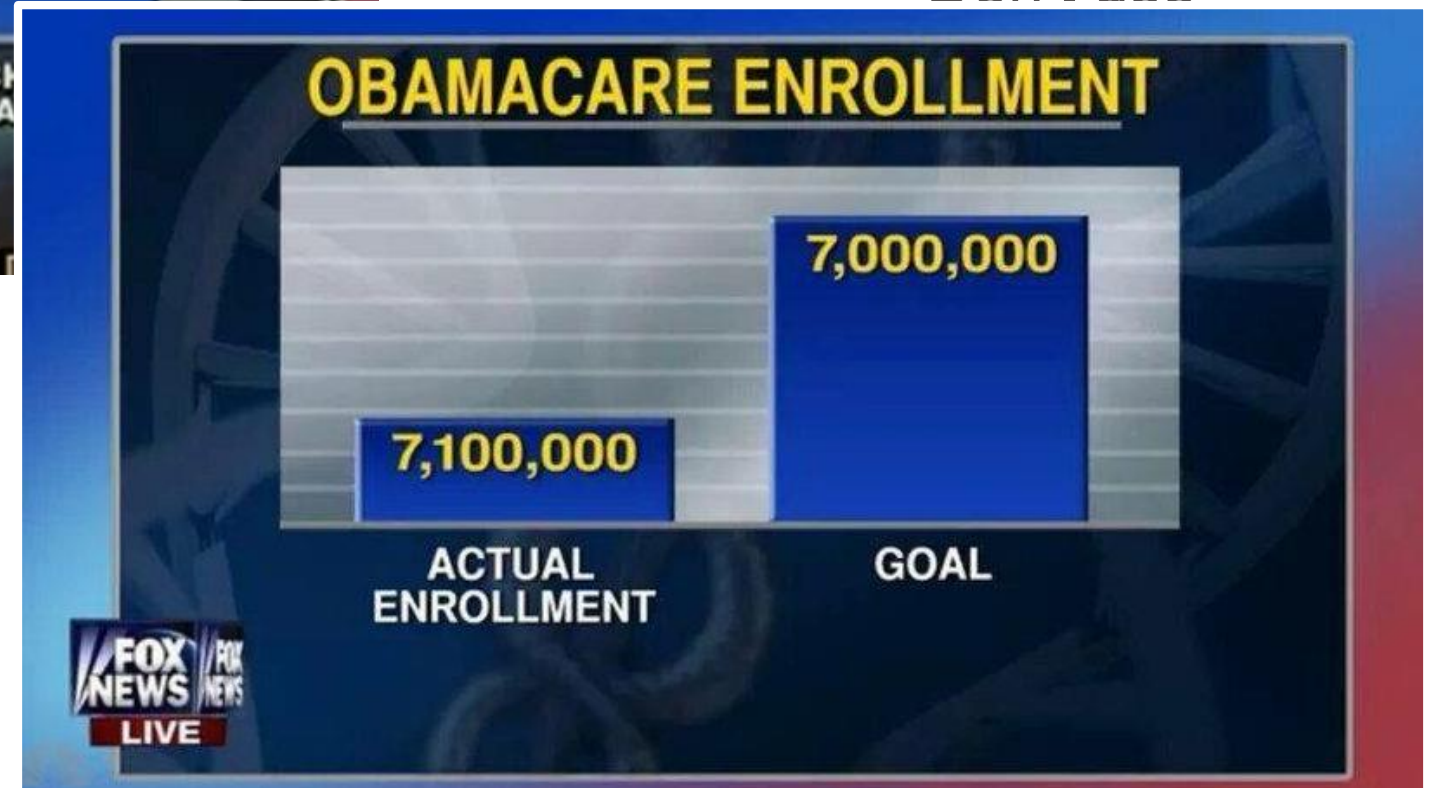
## Don't:

- Don't use pie charts



## Don't:

- Don't use pie charts
- Don't use





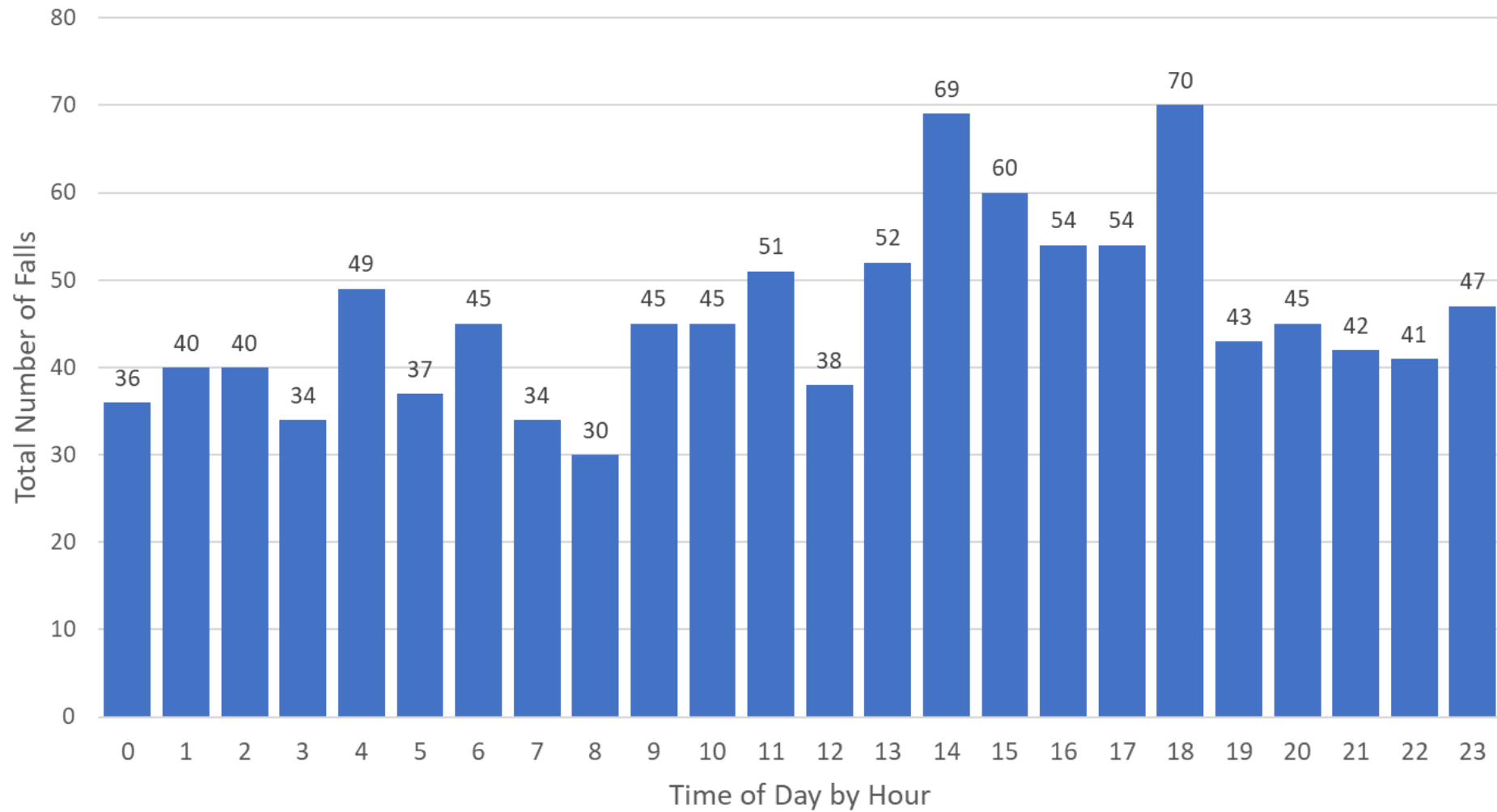
Number of Falls by Time of Day  
February 2018 to January 2019

## Don't:

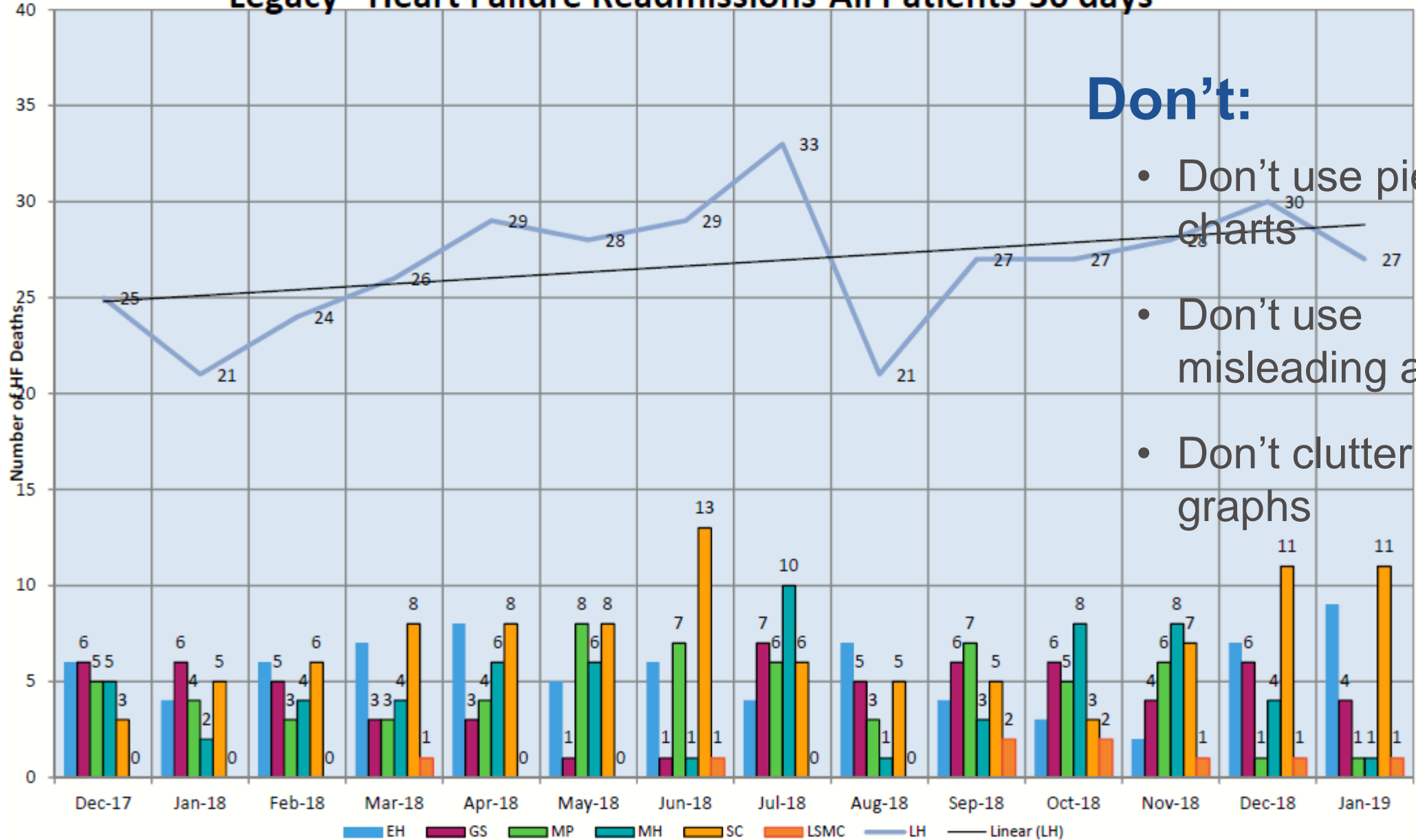
- Don't use pie charts
- Don't use misleading axes

## Total Number of Falls by Time of Day

February 2018 to January 2019





# Legacy\* Heart Failure Readmissions-All Patients-30 days

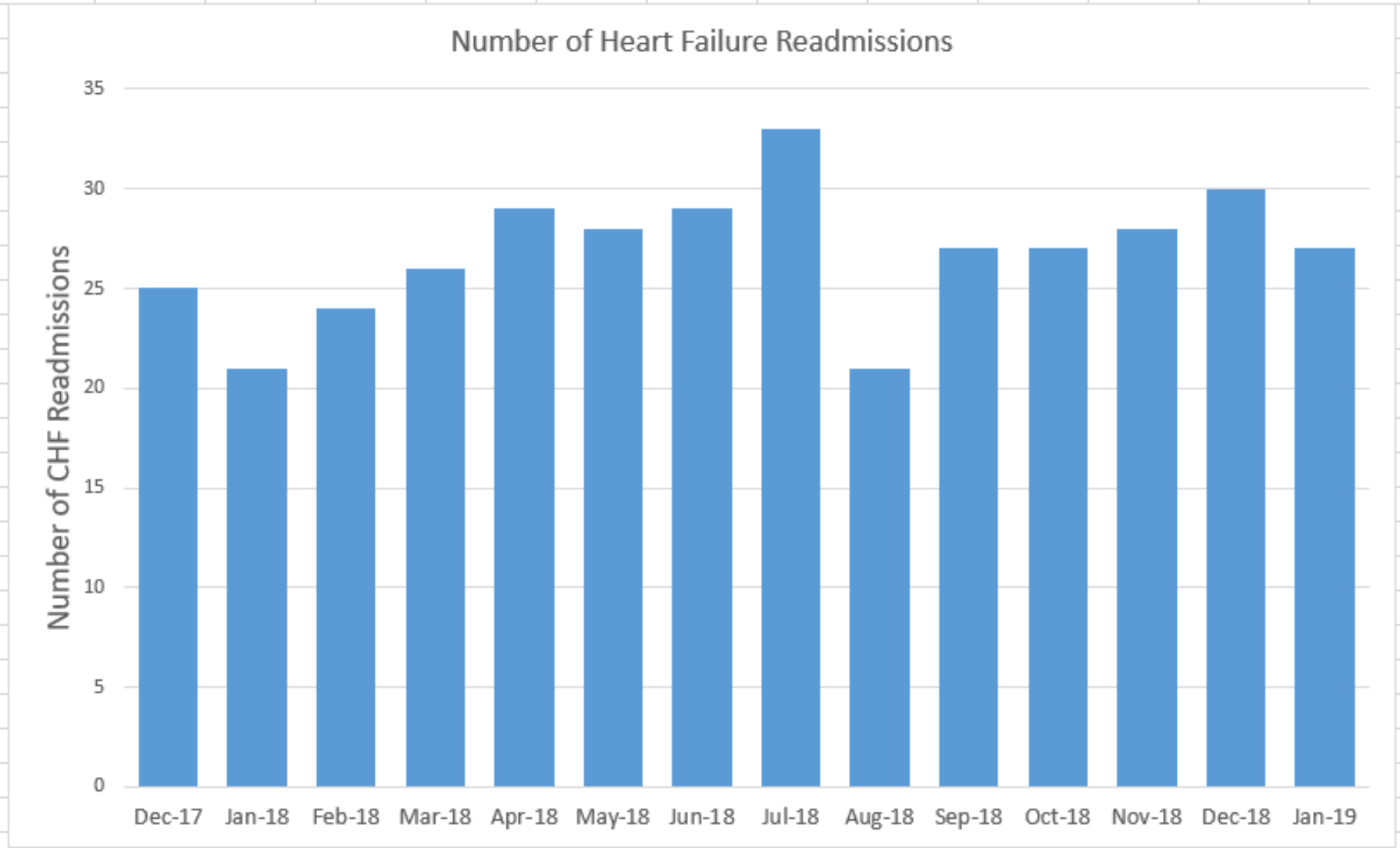


\*Legacy Data=Patients that were DC with coded primary DX of HF at time of D/C and from each hospital



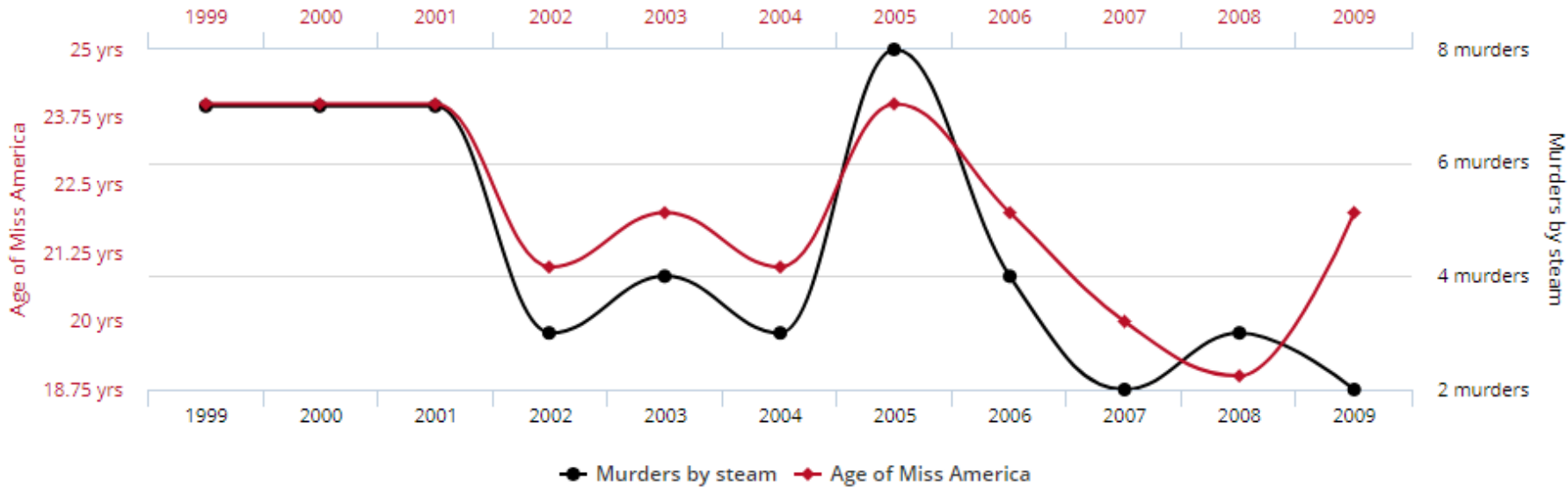
**Hospital**  

- EH
- GS
- LSMC
- MH
- MP
- SC



## Age of Miss America correlates with Murders by steam, hot vapours and hot objects

Correlation: 87.01% (r=0.870127)



tylervigen.com

## Don't:



- Don't use pie charts
- Don't use misleading axes
- Don't clutter the graph
- Don't infer correlation implies causation

Source: [tylervigen.com/spurious-correlations](http://tylervigen.com/spurious-correlations)

# Data Visualization: Do's



**LEGACY SALMON CREEK MEDICAL CENTER**

Numerator: 109,069

Denominator: 127,518

85.53%

**LEGACY SALMON CREEK MEDICAL CENTER**

Numerator: 109,069

Denominator: 127,518

**85.53%**

LSC GENERAL SURGERY 6C

6,888

7,708

89.36%

LSC IMCU 3B

7,526

8,674

86.77%

LSC MED SURG 5C

6,264

6,877

91.09%

LSC MED SURG 5D

6,394

7,029

90.97%

LSC MED SURG ICU 3A

8,283

10,832

76.47%

LSC NICU 4B

1,942

1,998

97.20%

LSC ORTHOPEDICS 6D

9,670

10,429

92.72%

LSC PACU

5,304

5,612

94.51%

LSC PCU 5B

7,211

7,955

90.65%

LSC PCU 6A

8,451

9,292

90.95%

LSC PCU 6B

8,905

9,583

92.92%

LSC WOMENS SVCS 4A

8,493

9,083

93.50%

LSC WOMENS SVCS 4C/D

20,293

28,833

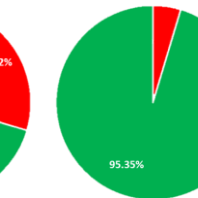
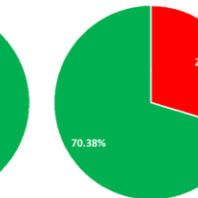
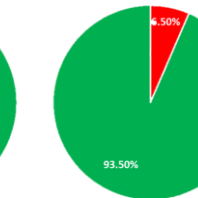
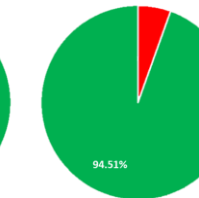
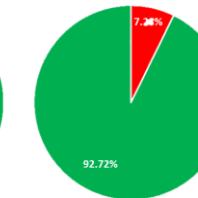
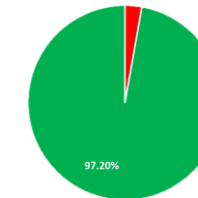
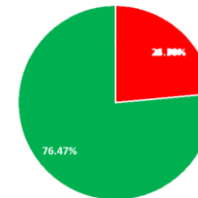
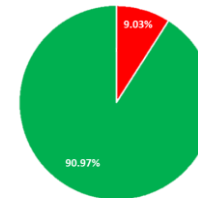
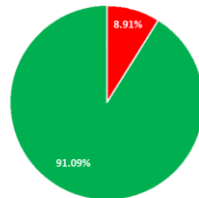
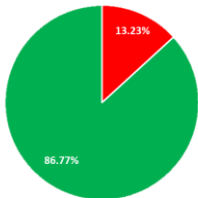
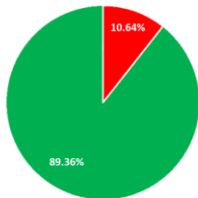
**70.38%**

LSC WOMENS SVCS 5A

3,445

3,613

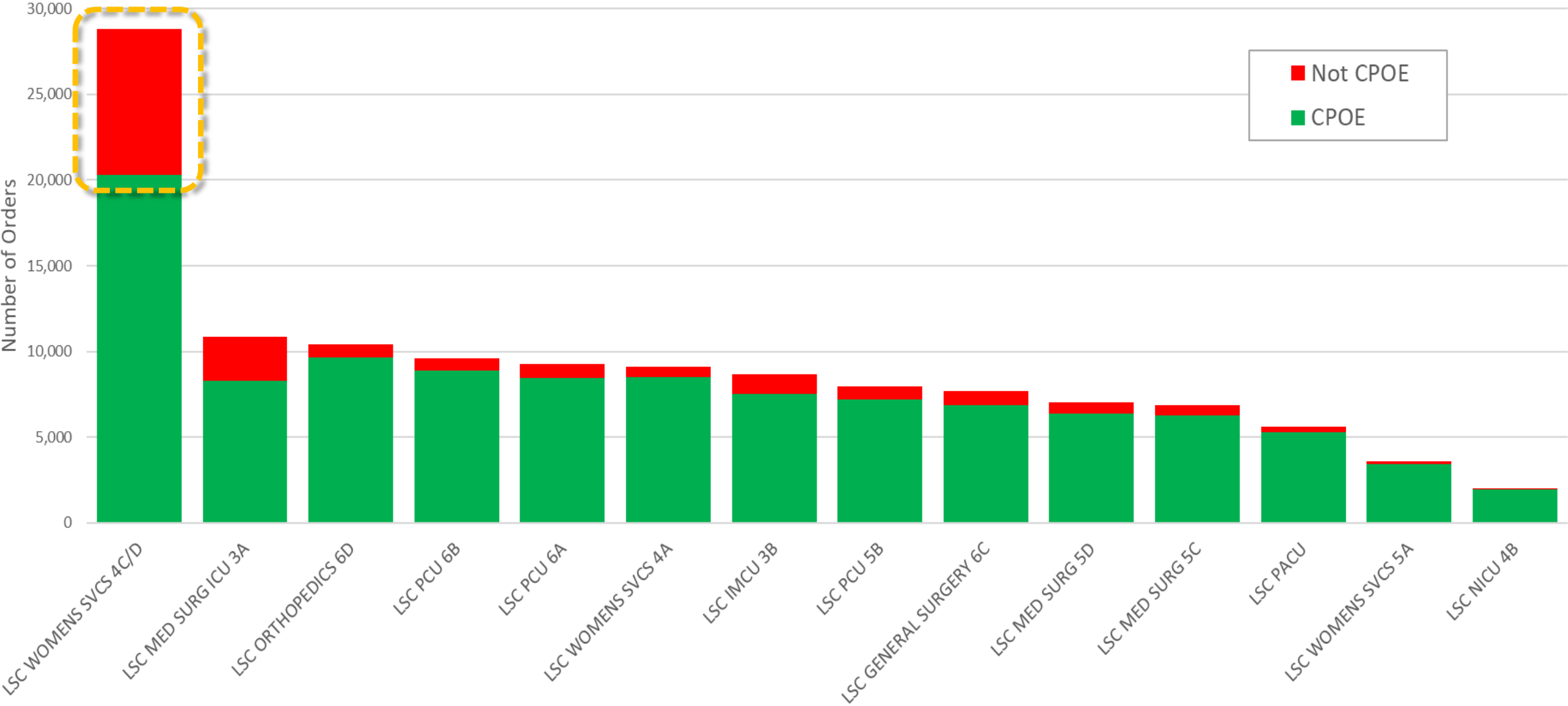
95.35%



# CPOE Performance at Legacy Salmon Creek, by Dept

4/1/2016 to 4/30/2016

Overall Hospital-wide CPOE: 85.5%

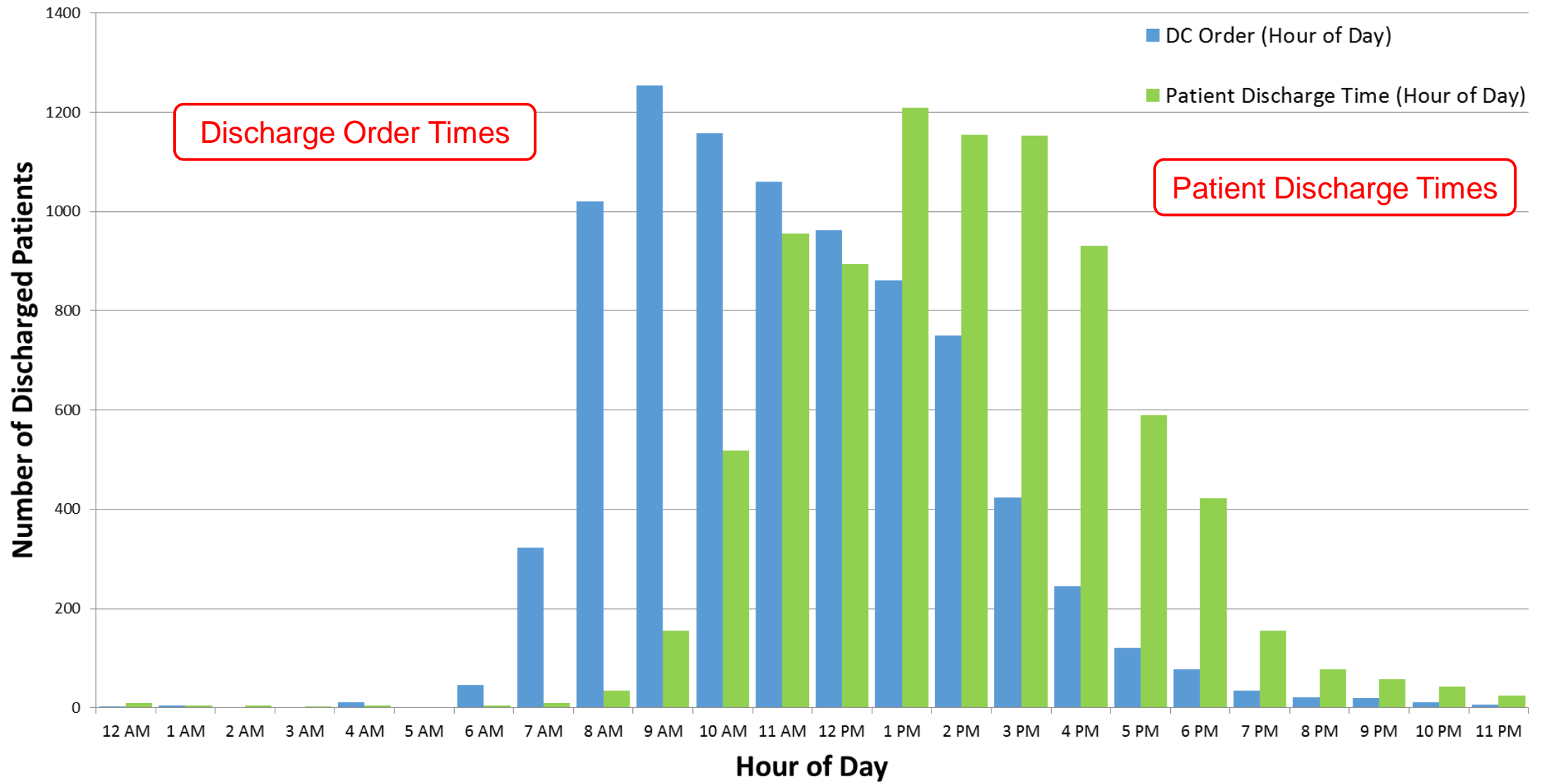




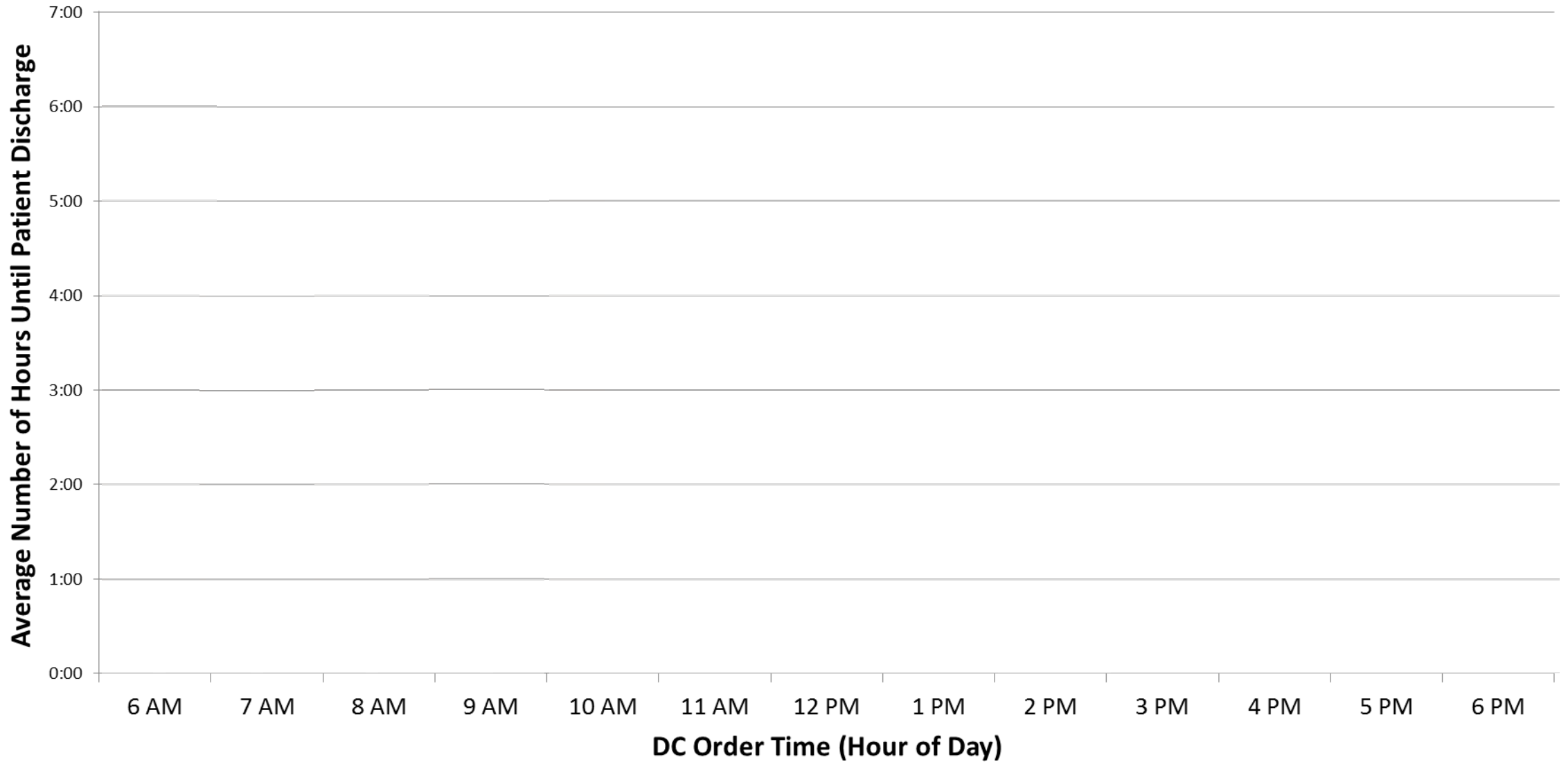
# DC Order Time vs Patient Discharge Time, LMH

1/1/2016 to 4/22/2017

8416 patient discharges

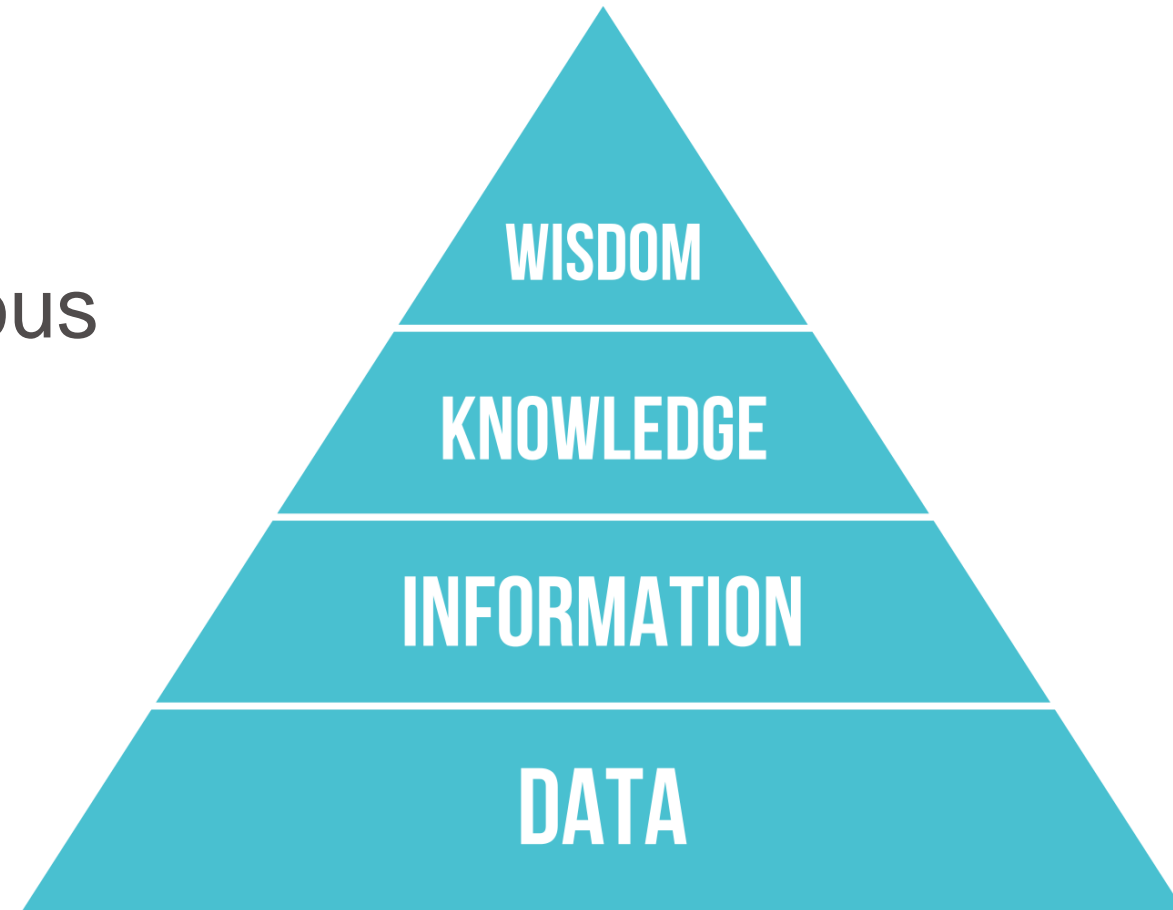


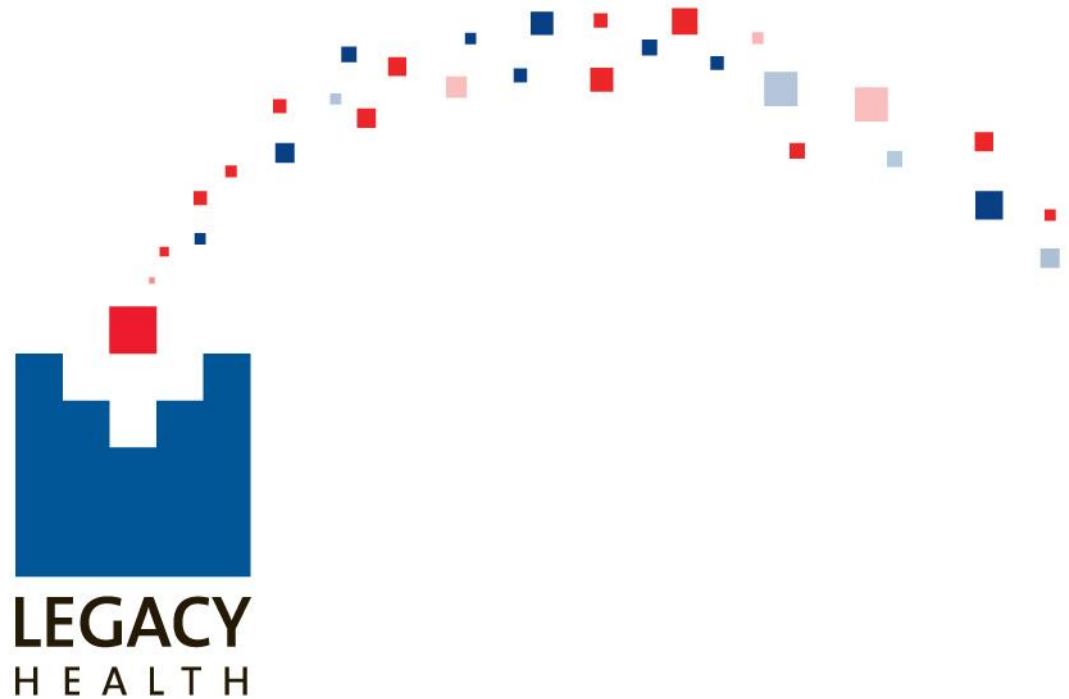
**Average Number of Hours Until Patient Discharge, LMH**  
1/1/2016 to 4/22/2017 (15.5 months)  
for discharges <18 hours & daytime hours, 8033 patient discharges



# Data Visualization Do's:

- Simplify
- Use colors...wisely
- Make the conclusion obvious
- Tell a story with the data





# Thank You



EMANUEL <small>Medical Center</small>	GOOD SAMARITAN <small>Medical Center</small>	MERIDIAN PARK <small>Medical Center</small>	MOUNT HOOD <small>Medical Center</small>	SALMON CREEK <small>Medical Center</small>	SILVERTON <small>Medical Center</small>	
RANDALL CHILDREN'S HOSPITAL <small>Legacy Emanuel</small>		LEGACY MEDICAL GROUP	LEGACY HEALTH PARTNERS	LEGACY HOSPICE	LEGACY LABORATORY	LEGACY RESEARCH