

# SAS® GLOBAL FORUM 2017

April 2 – 5 | Orlando, FL

## A Novel Approach to Calculating Medicare Hospital 30-Day Readmissions for the SAS® Novice

Karen E. Wallace  
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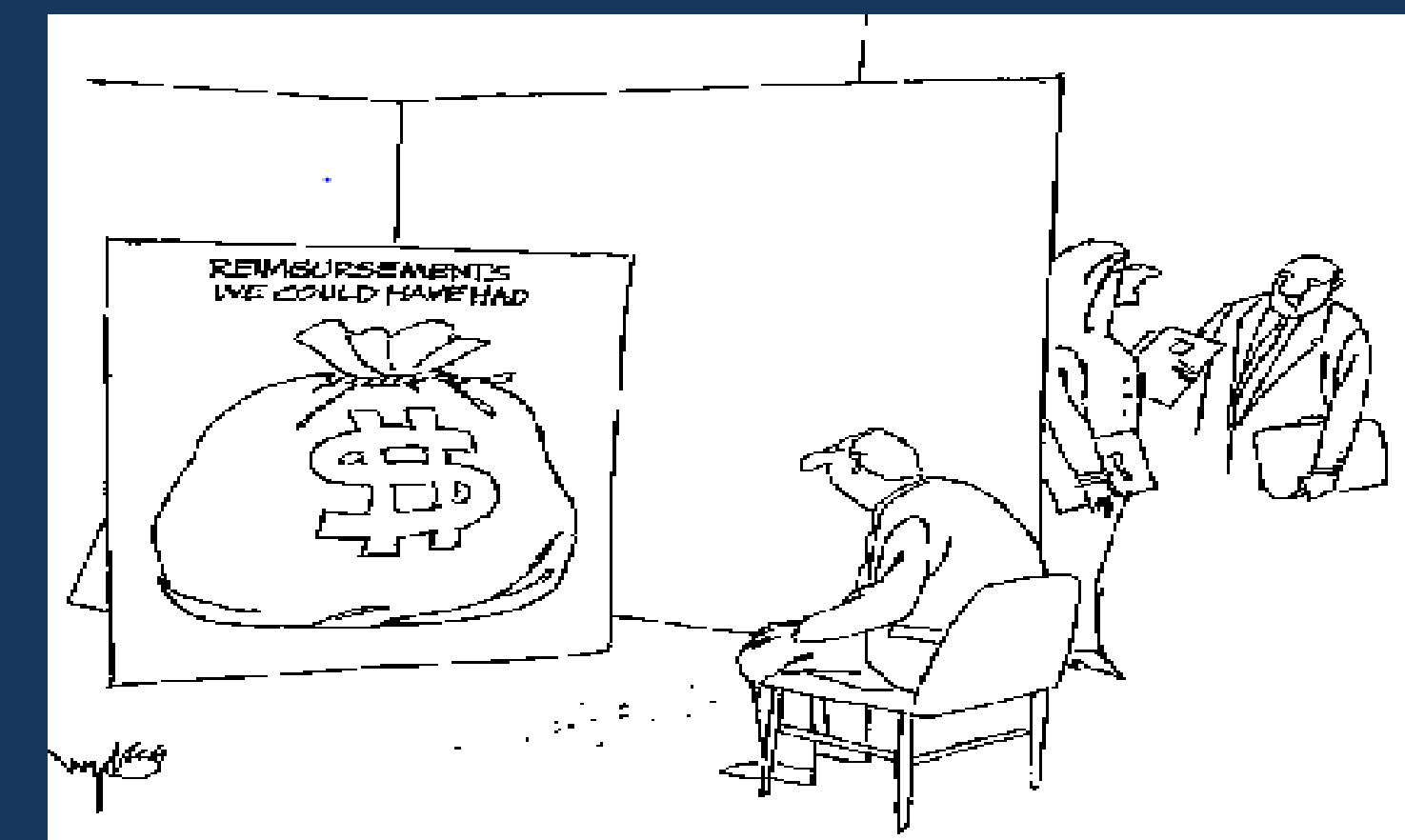
USERS PROGRAM





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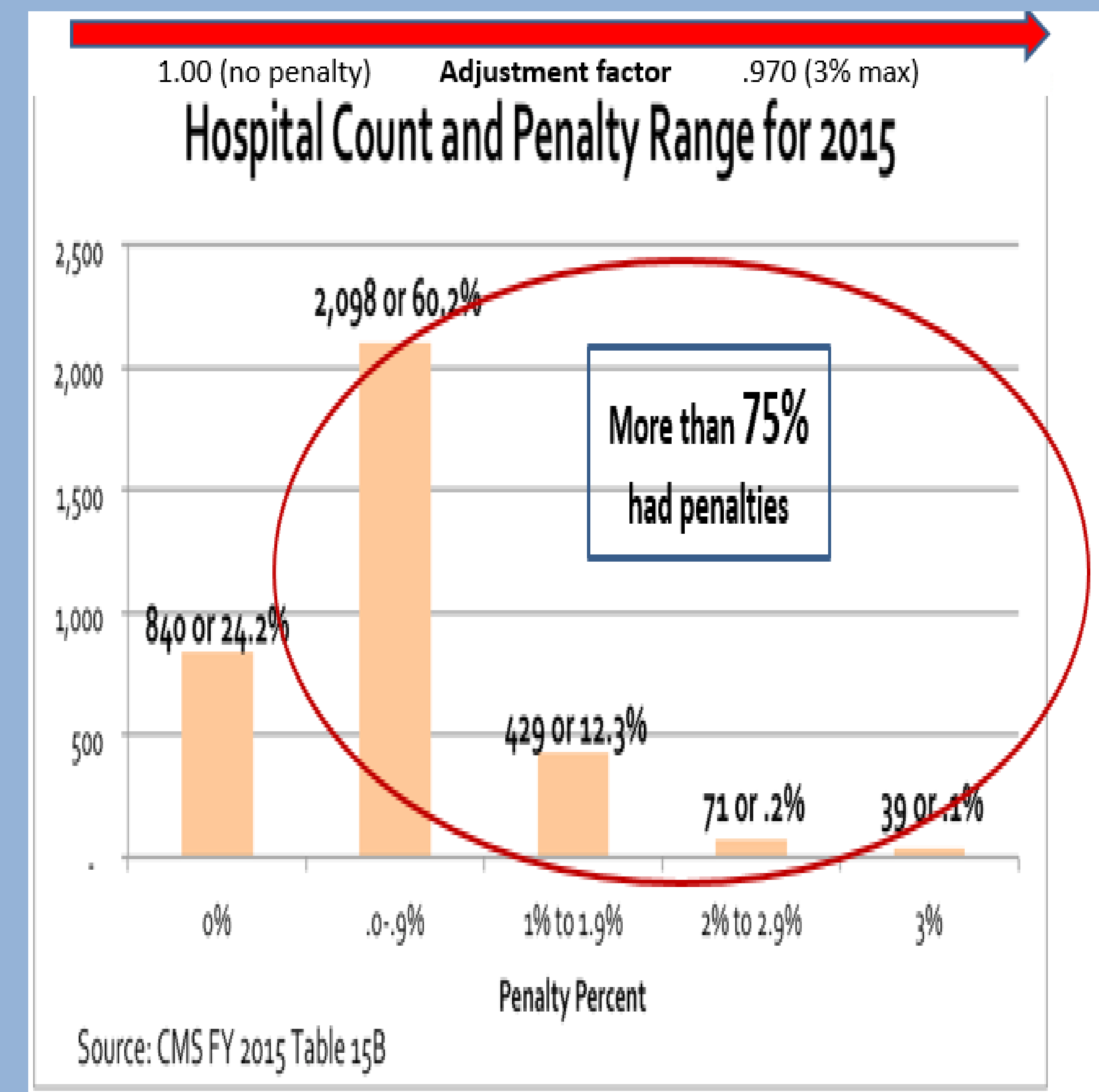
## ABSTRACT / INTRODUCTION

### This E-poster showcases:

- Updated ICD-10 (International Classification of Diseases) coding of:
- Acute Myocardial Infarction, Congenital Heart Failure and Pneumonia
- Using the SAS DATA Step as well as PROC SQL to:
  - 1) De-identify patient data,
  - 2) Calculate sequential admissions, and
  - 3) Subset criteria required

### Introduction:

- Medicare: \$17 B in annual expenditures related to readmissions
- Exposes gaps in the Inpatient Prospective Payment System
- Quality of life issues – caregiver and patient
- KPI used by healthcare facilities to measure success



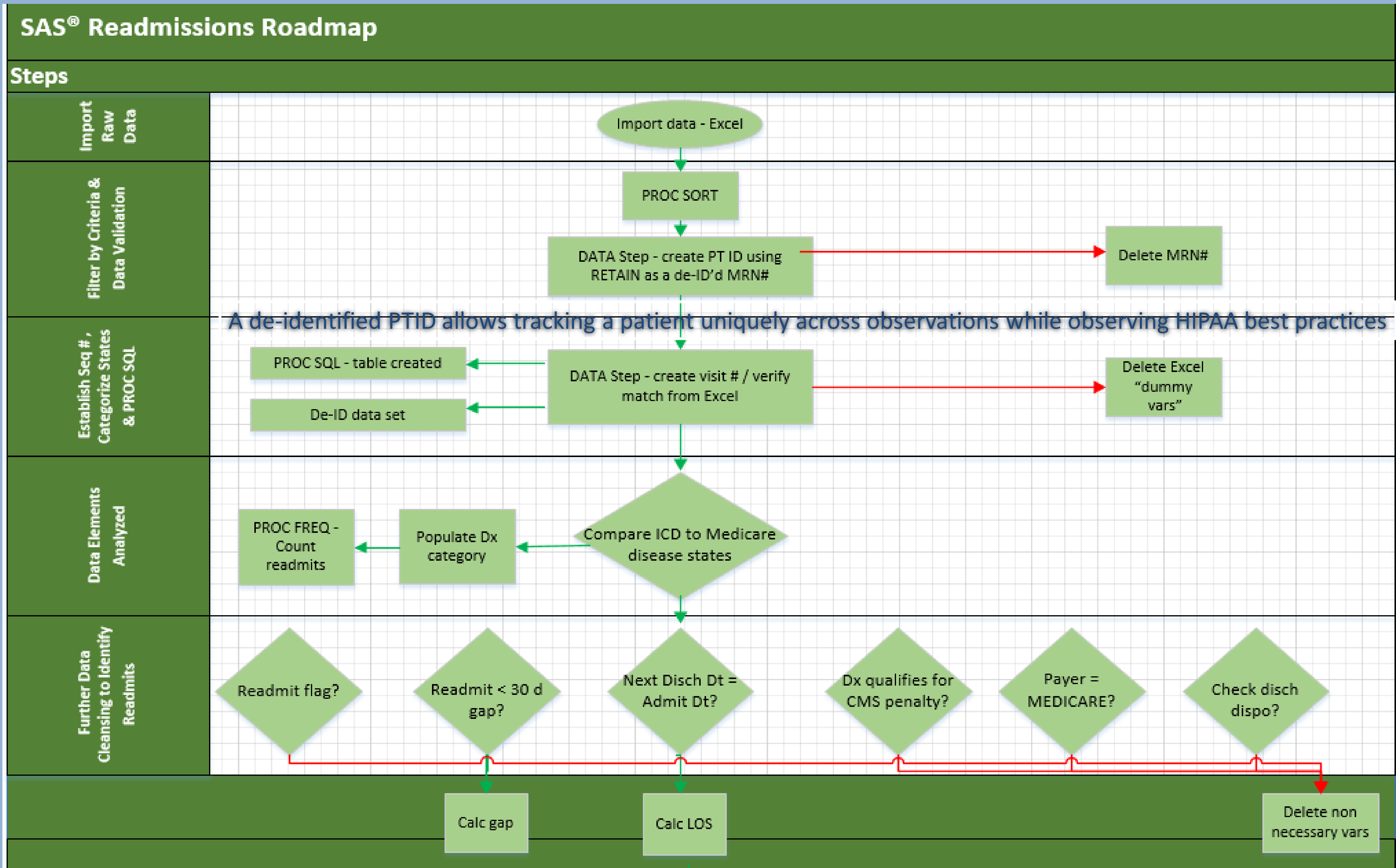


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## METHODS



Two comparative data sets:

1. June 2015 and
2. January 2016

### Minimum necessary data elements:

- Discharge date
- Discharge disposition
- Medical record number (MRN)
- Payer upon admission
- Primary disease state





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## RESULTS

Getting to the results with two different options:

- DATA Step

Sub-steps:

1. De-identify MRN
2. Sequence readmits & categorize the disease states
3. Determine gaps between sequential readmits
4. Calculate LOS

- PROC SQL

Sub steps:

1. Combining several DATA steps into one block of code to produce steps 1 – 4 from the DATA Step
2. Use of an inner join

Patient ID	SeqNo	Readmissions	ICD9/10 Primary Diagnosis	ICD9/10 Grouping	Gap to Readmission (d)	Length of Stay (d)	Index Date	Index Reference Date	Discharge Date	Discharge Disposition
92	2	1	428.33	CHF	1	8	2015-06-03	2015-06-02	2015-06-10	O/P HOME/SELF CARE (ROUTINE)
155	2	1	402.01	CHF	1	2	2015-06-02	2015-06-01	2015-06-03	O/P HOME/SELF CARE (ROUTINE)
155	3	2	402.1	CHF	2	5	2015-06-05	2015-06-03	2015-06-09	O/P HOME/SELF CARE (ROUTINE)

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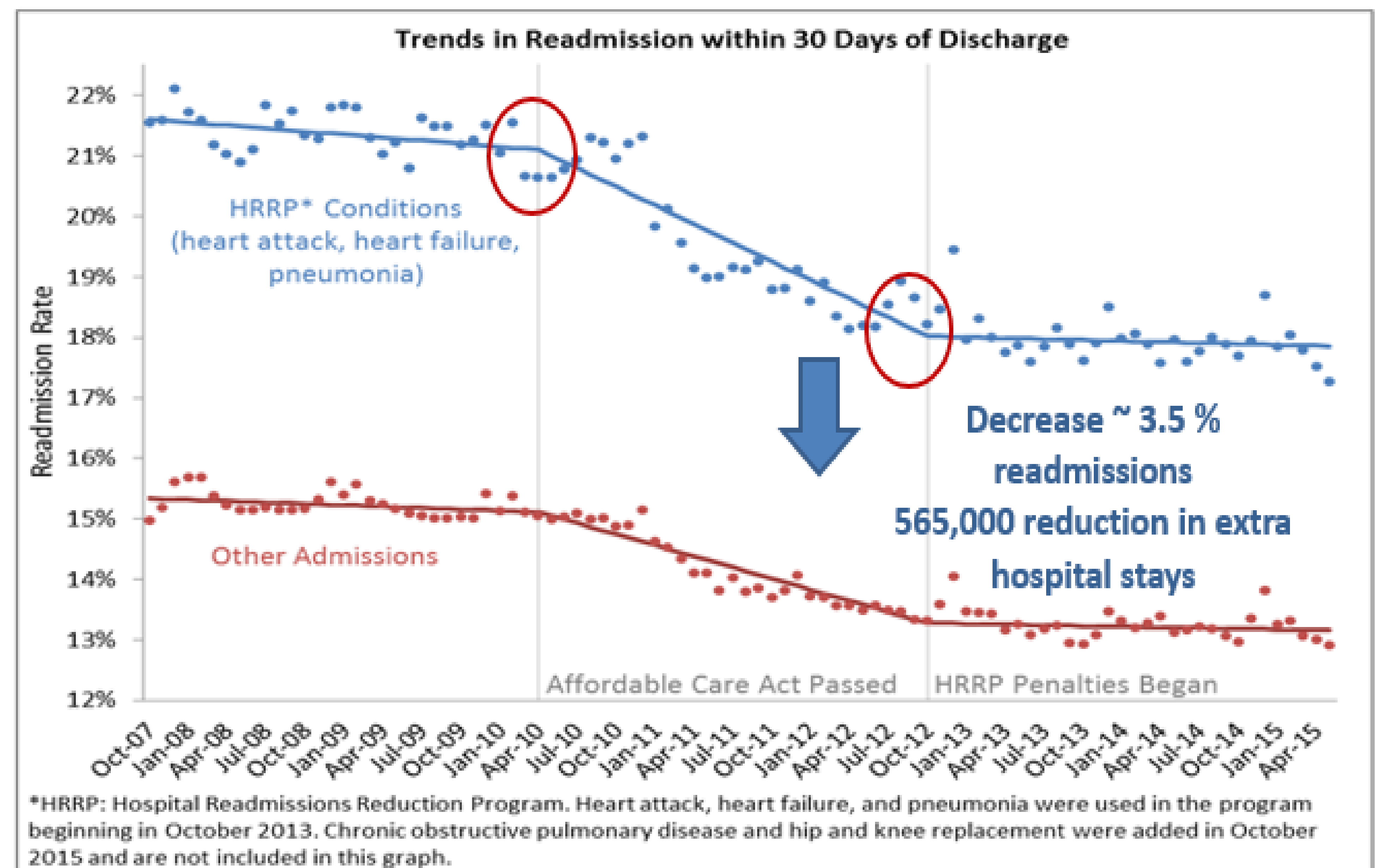
## CONCLUSIONS

- Medicare data supports improved outcomes
- Reproducible “use case” with ICD-10
- Lends itself to adding many other variables
- Build predictive model for those most “at risk”
- Provide proactive clinical interventions

### Lessons Learned:

- Many ways in SAS® to achieve desired result
- Less hard-coding, more “elegant” coding
- Future steps: Automate, automate, automate!

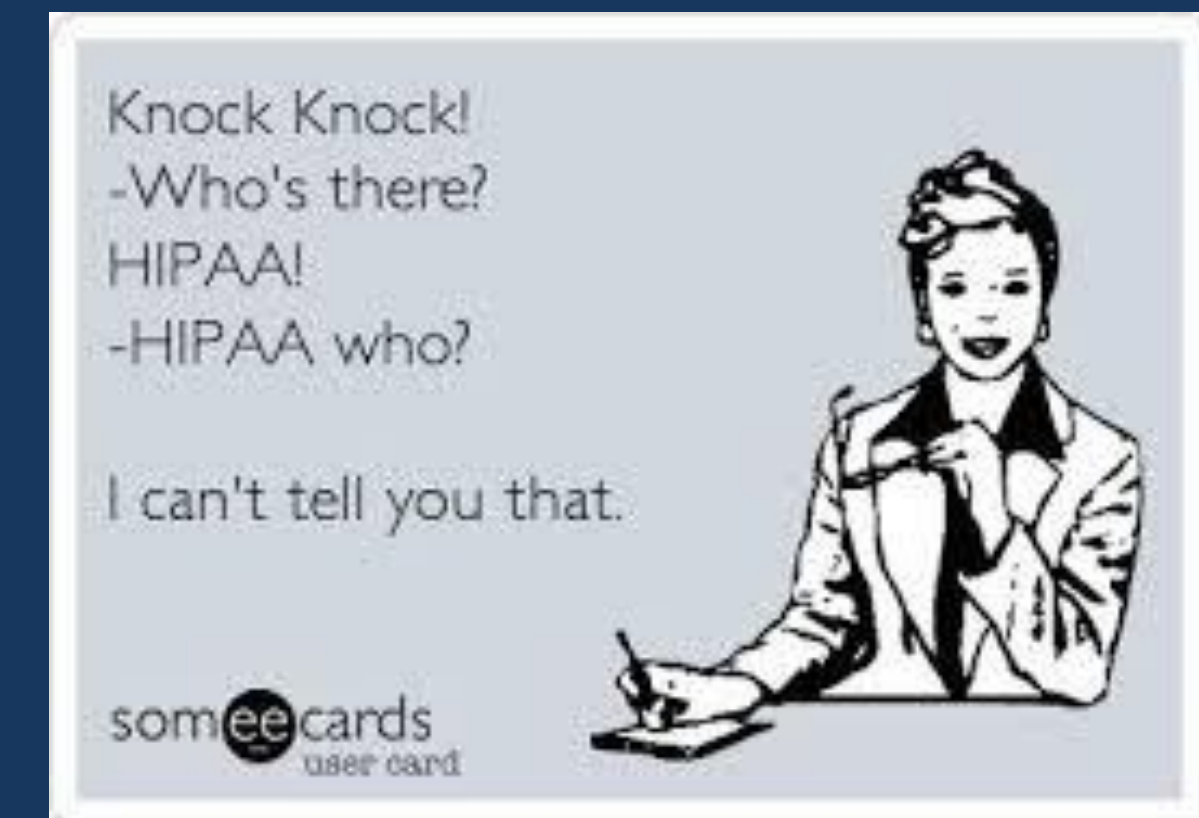
Figure 1. Medicare readmission rates for targeted and non-targeted conditions





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