

# Readmission Rates in the CKD Population

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United States Renal Data System

USRDS

## Jencks 2009 NEJM Paper

- Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. *N Engl J Med.* 2009 Apr 2;360(14):1418-28.
- Medicare Provider Analysis and Review (MEDPAR) file; October 2003 – December 2004
- 11,855,702 discharges between Oct 1 and Dec 31, 2003, followed through Dec 2004

# Jencks 2009 NEJM Paper

Interval after Discharge	Patients at Risk at Beginning of Period	Cumulative Rehospitalizations by End of Period	Cumulative Deaths without Rehospitalization by End of Period
0-30 days	2,916,460 (100.0)	579,903	(19.6)
31-60 days	2,277,816 (76.9)	834,369	(28.2)
61-90 days	1,992,394 (67.3)	1,006,762	(34.0)
91-180 days	1,802,797 (60.9)	1,325,645	(44.8)
181-365 days	1,458,581 (49.3)	1,661,396	(56.1)

# Predictors of Rehospitalization within 30 Days

<b>Variable</b>	<b>Hazard Ratio (95% CI)</b>
<b>Race</b>	
Black	1.057 (1.053 - 1.061)
Other	1.000
<b>Age</b>	
< 55	1.000
55-64	.983 (.978 - .988)
65-69	.999 (.989 - 1.009)
70-74	1.023 (1.012 - 1.035)
75-79	1.071 (1.059 - 1.084)
80-84	1.101 (1.089 - 1.113)
85-89	1.123 (1.111 - 1.136)
> 89	1.118 (1.105 - 1.131)
<b>ESRD</b>	<b>1.417 (1.409 - 1.425)</b>

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**ESRD**

**1.417 (1.409 - 1.425)**



## USRDS Analysis - Methods

- Period prevalent 2009 hemodialysis patients, Medicare as primary payer, age 20 and older.
- Live hospital discharges were included from January 1 to December 1, 2009, and were identified as index hospitalizations.
- Excluded rehabilitation claims, transfers, and discharges with a same-day admission to long-term care and critical access hospitals.
- After discharge, patients were followed for first rehospitalization within 14 or 30 days, or death.

# Results

- 148,883 hemodialysis patients
- 62% of patients had at least one discharge
- 365,348 discharges from January 1 through Dec 1 2009.

Characteristic	Column %	Characteristic	Column %
Age		Primary cause	
20-44	11.3	Diabetes	47.3
45-64	37.5	Hypertension	28.3
65-74	25.0	Glomerulonephritis	8.5
75+	26.2	Other	15.9
Gender		Hospital discharges	
Male	52.2	1	42.4
Female	47.8	2	23.7
Race		3	13.7
White	56.3	4	8.1
African Am.	38.4	5+	12.1
Other	5.3		
Ethnicity			
Hispanic	14.0		
Non-Hispanic	86.0		

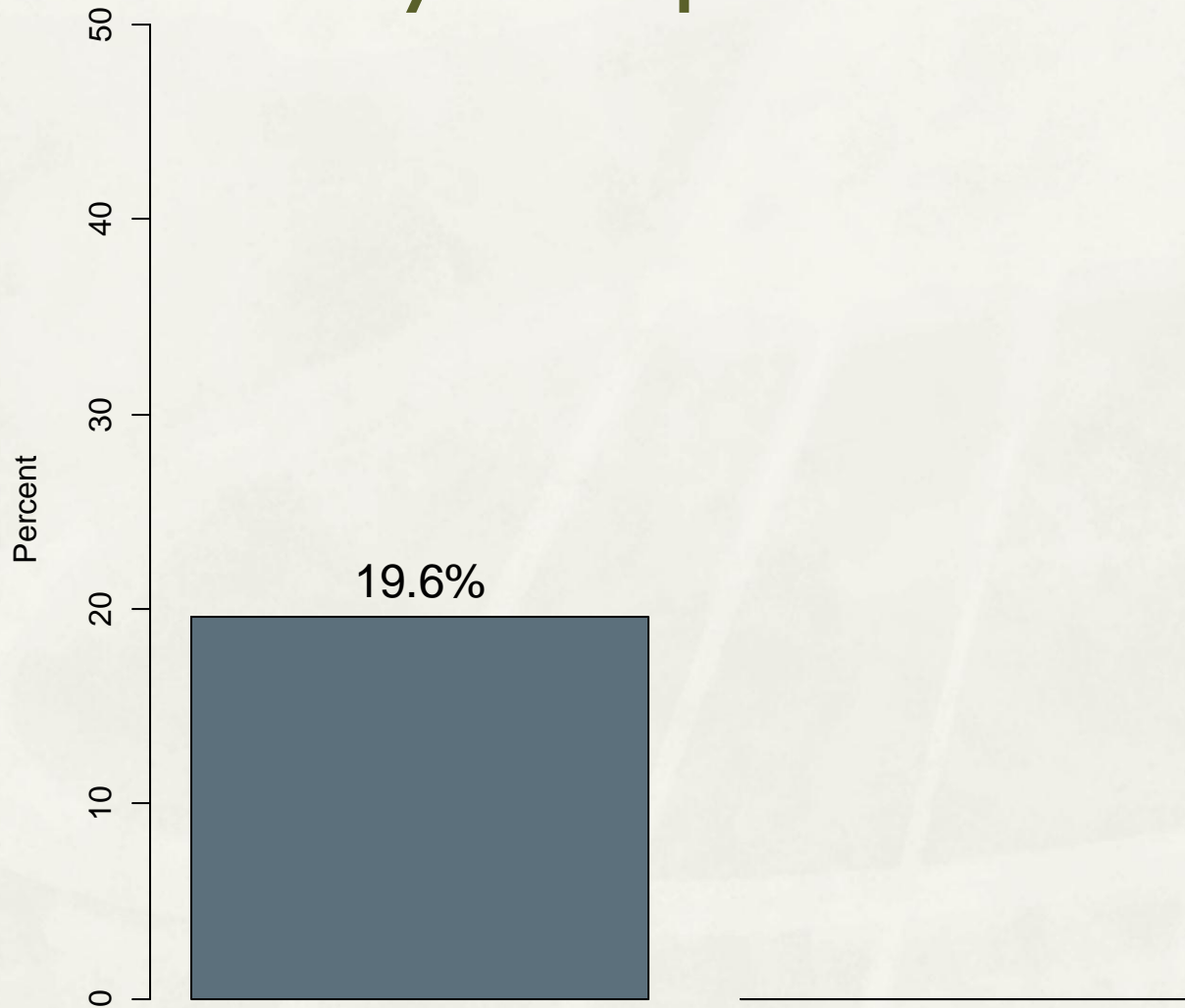


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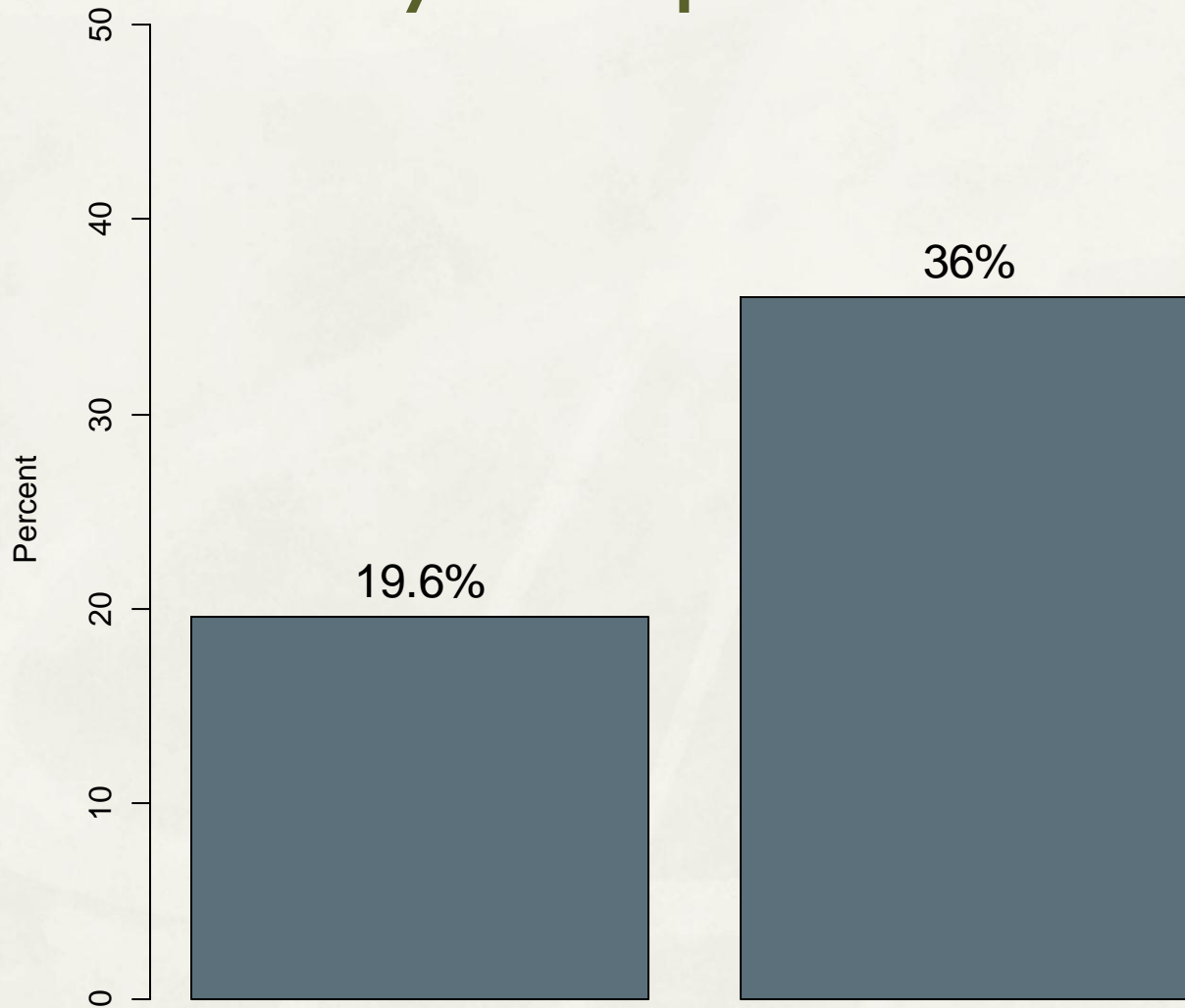
- 148,883 hemodialysis patients
- 62% of patients had at least one discharge
- 365,348 discharges from January 1 through Dec 1 2009.
- 58% had multiple discharges:

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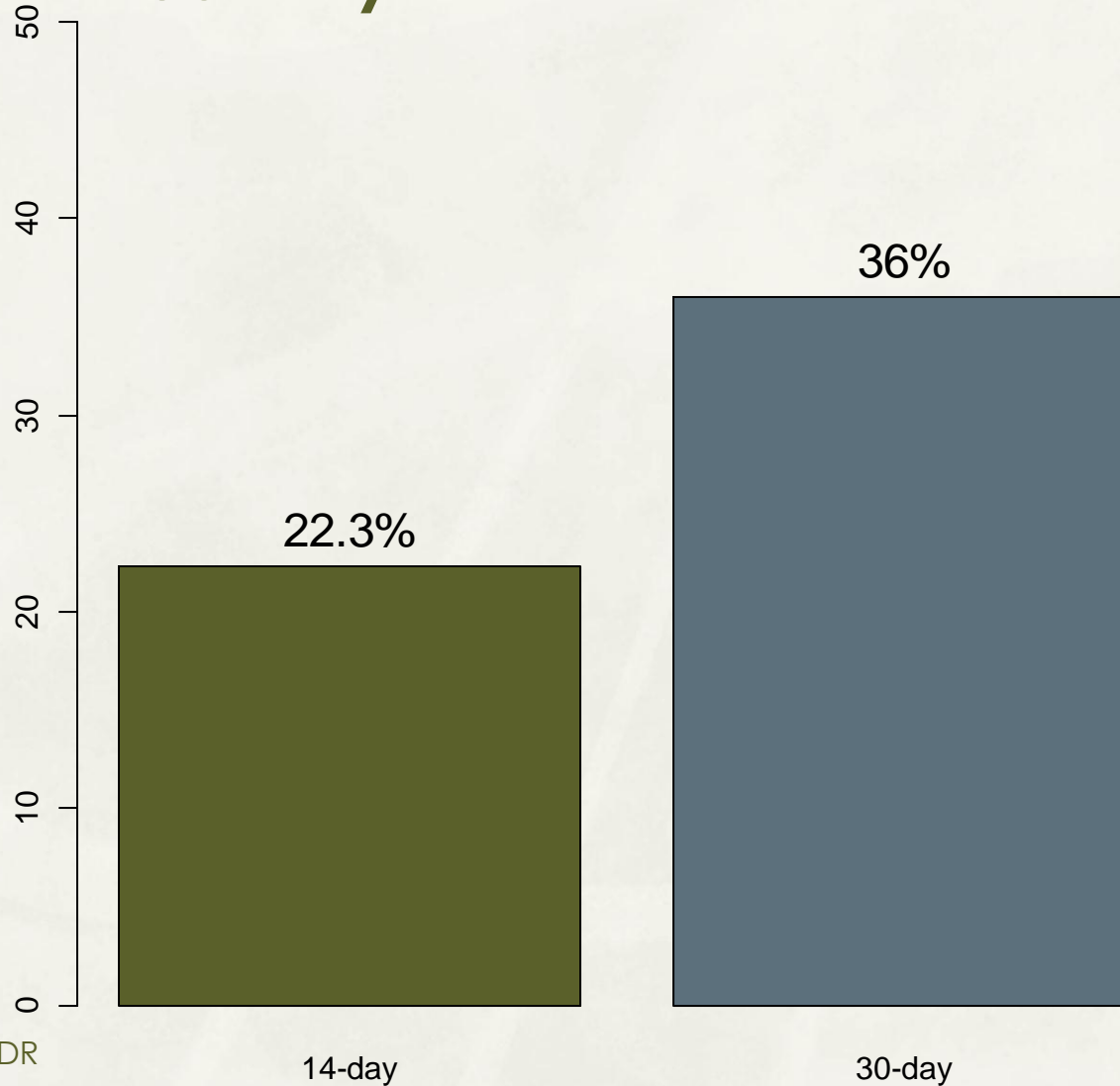
# All-cause 30-Day Rehospitalization



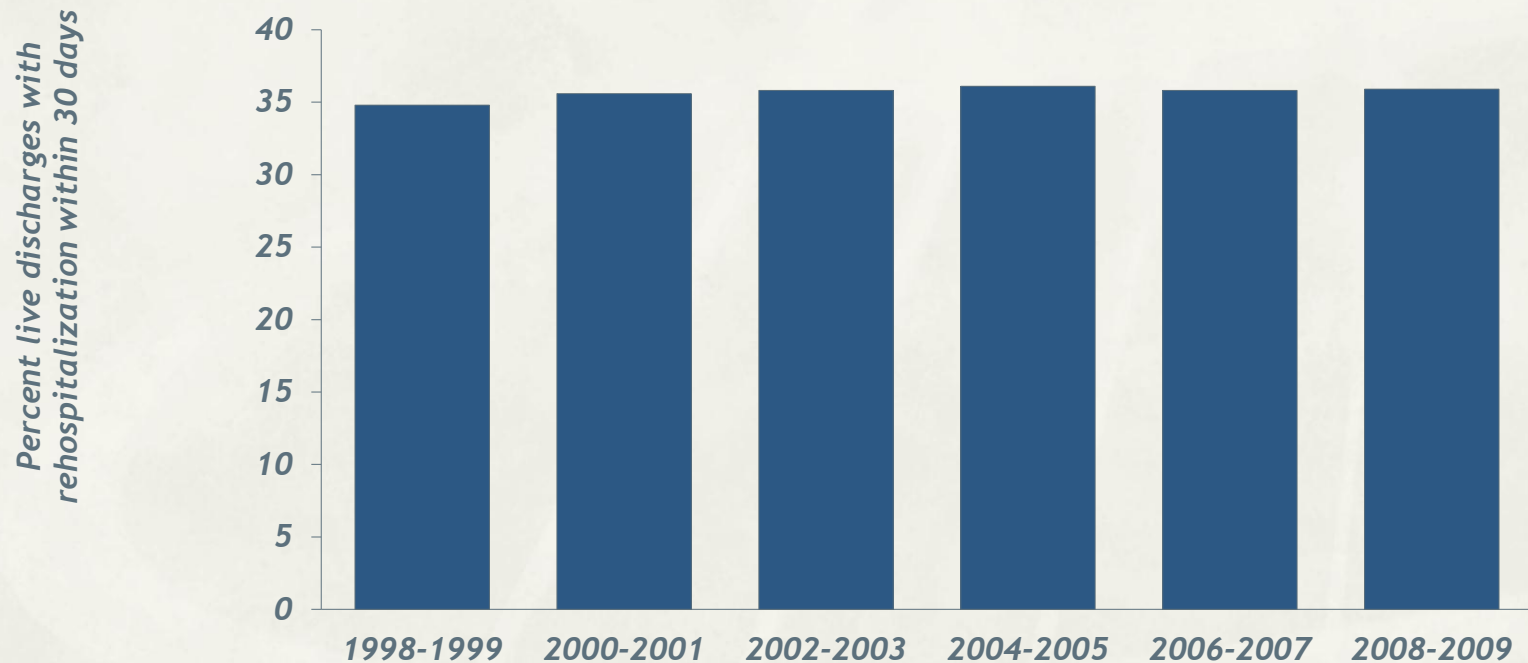
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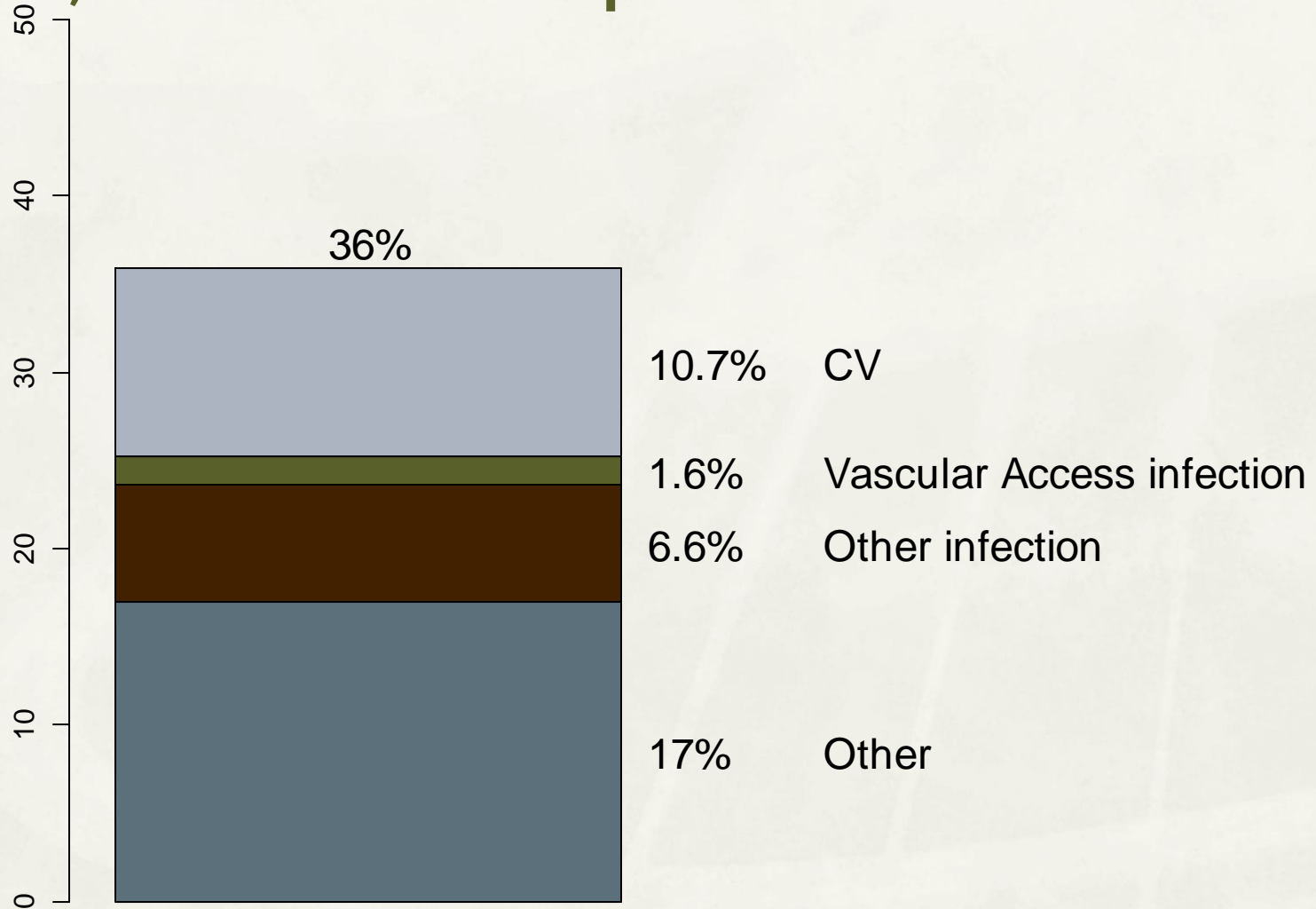
# ESRD, All-cause Rehospitalization, 14-day vs. 30-day



# 30-Day Rehospitalization, Adjusted for Age, Gender, Race, Primary Cause of Renal Failure

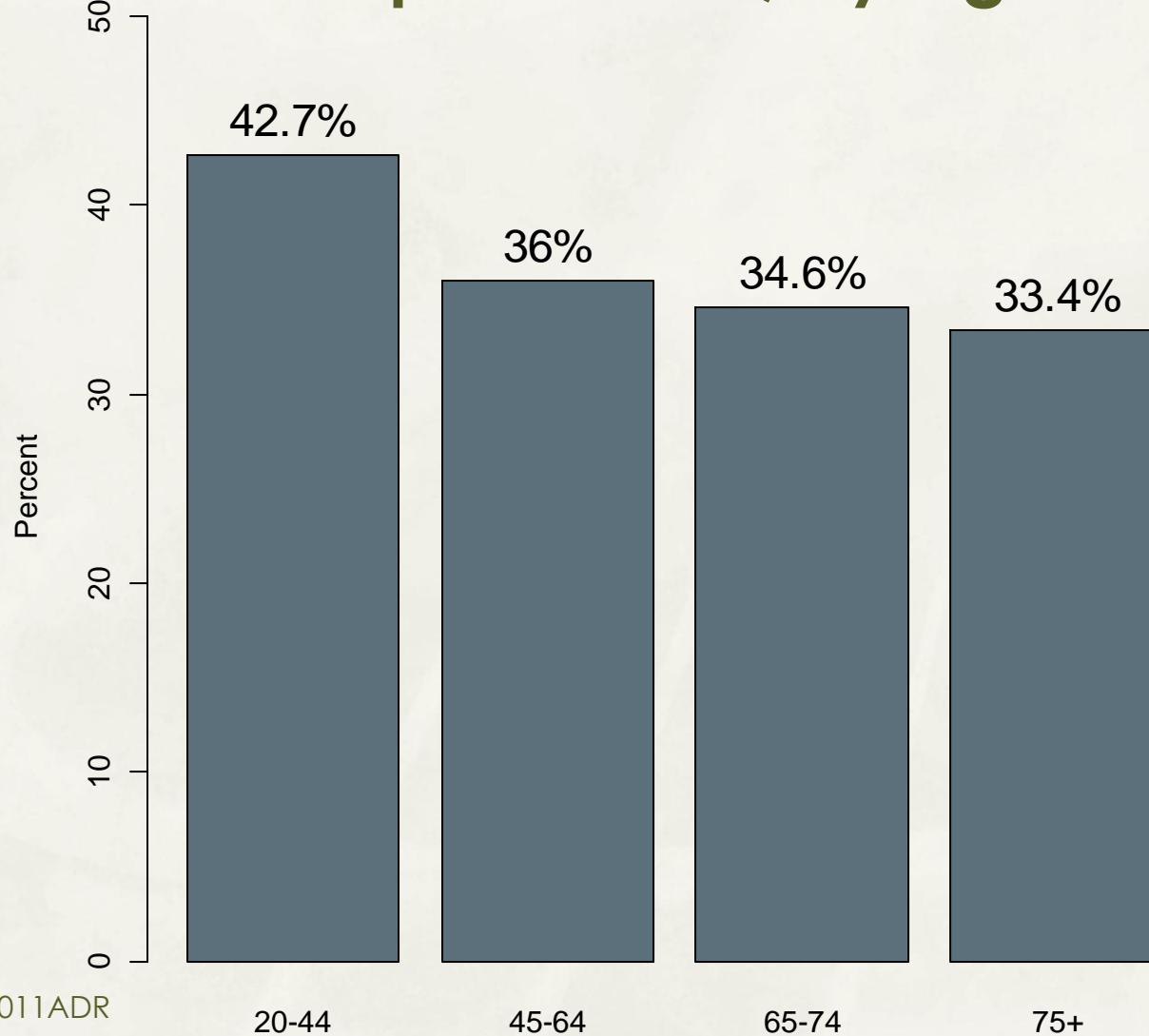


# ESRD, Cause of Rehospitalization

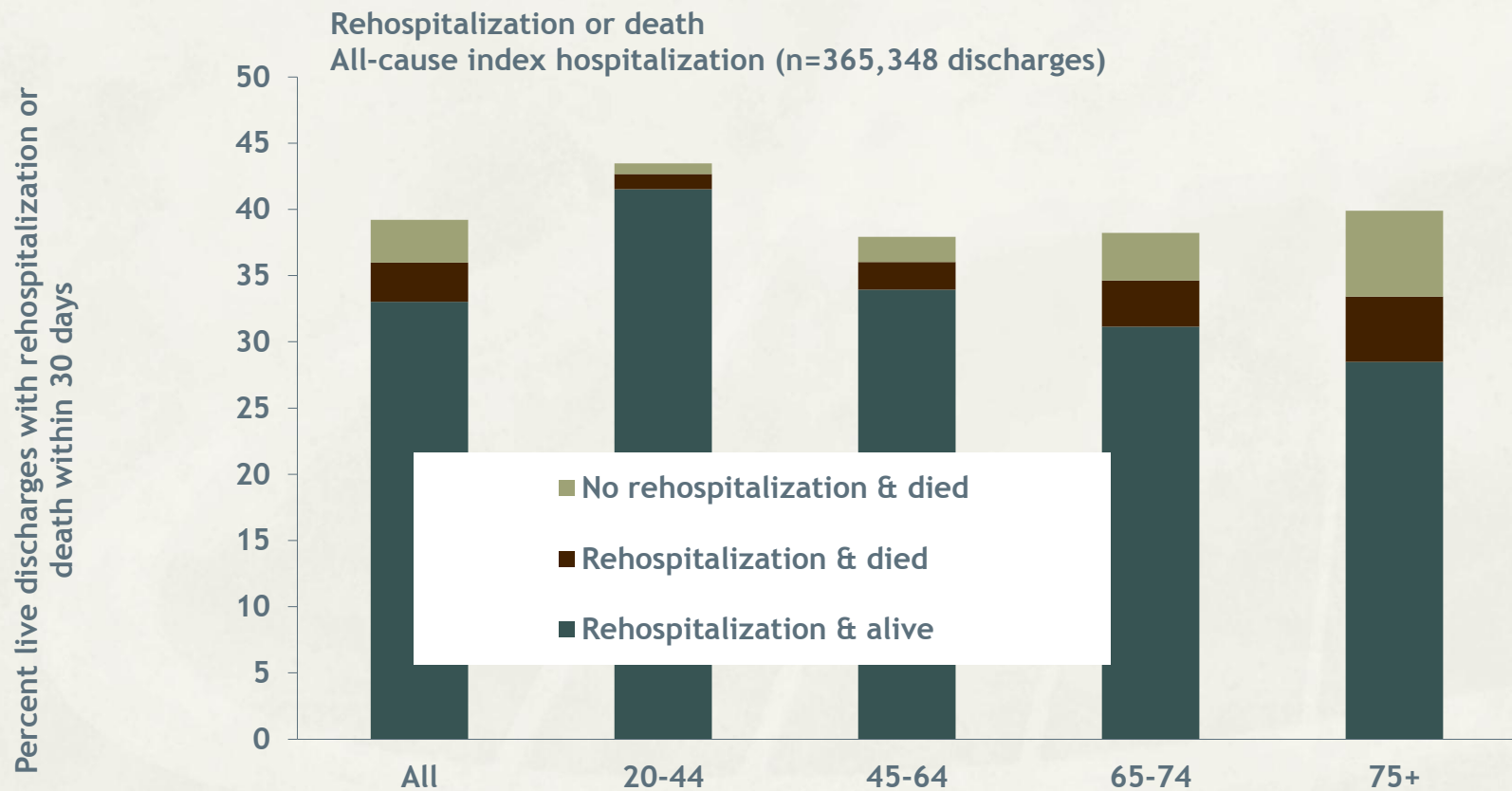




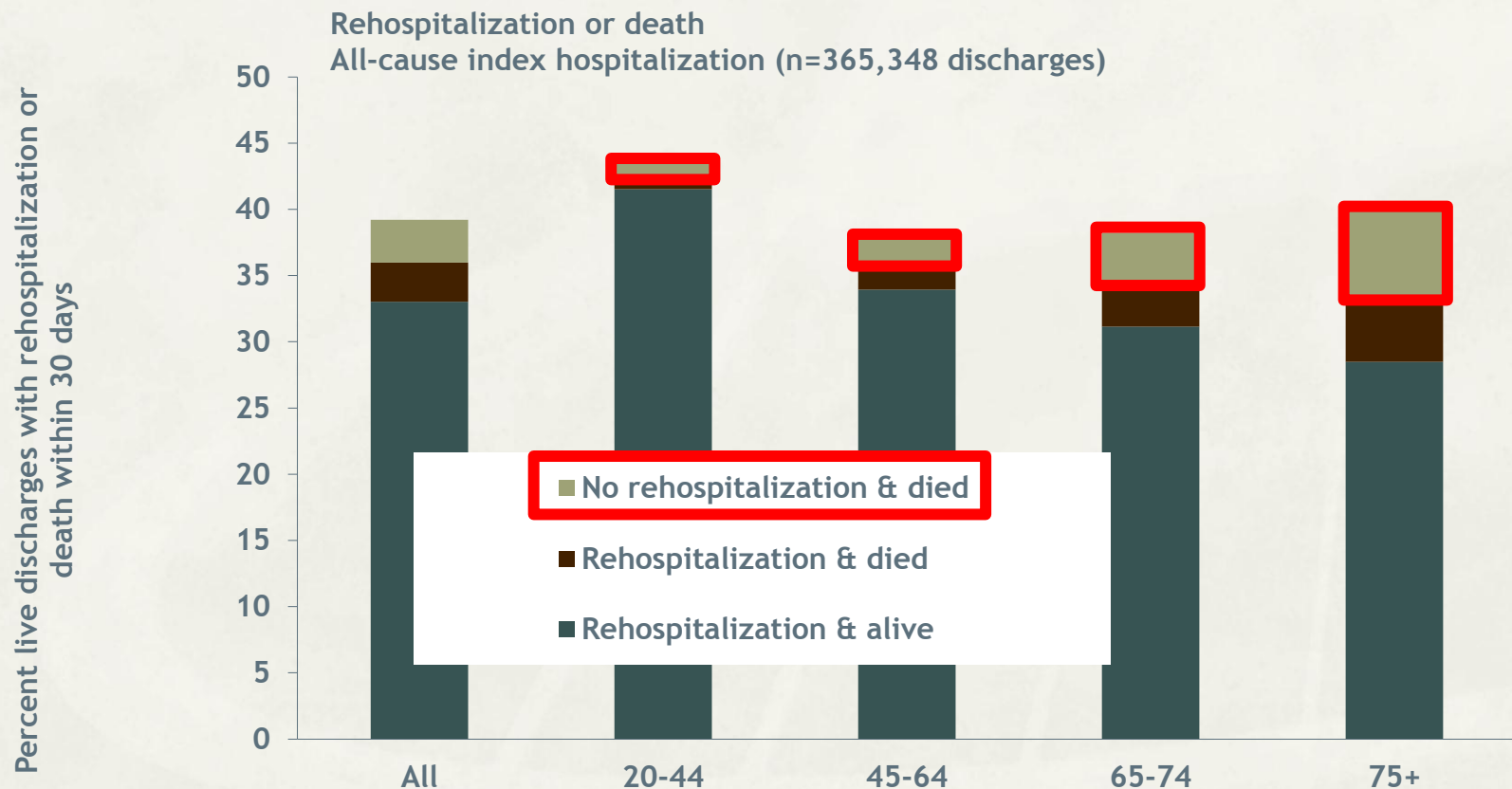
# All-cause Rehospitalization, by Age



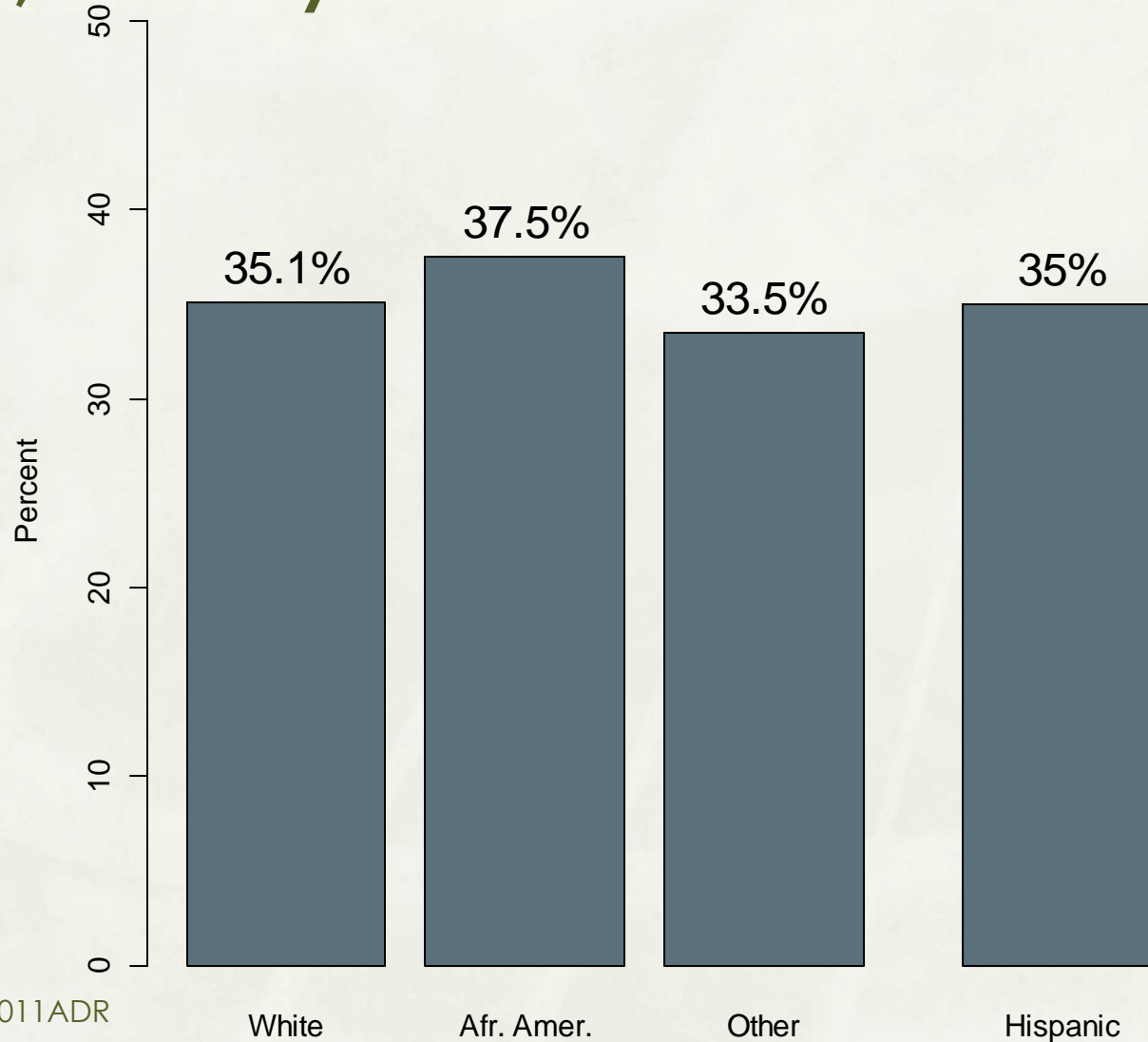
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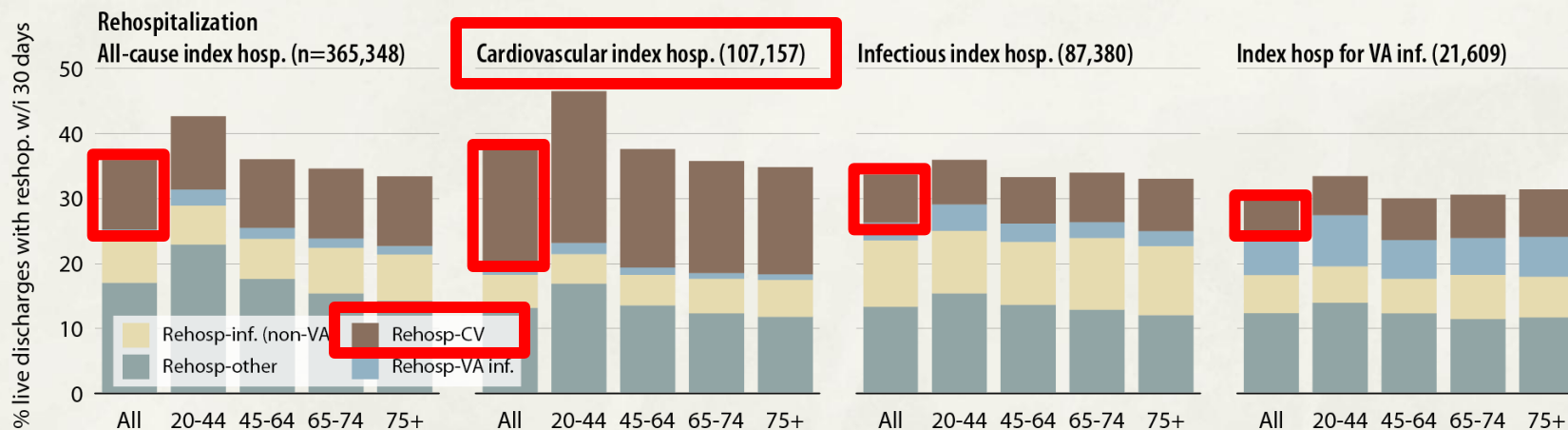


# All-cause Rehospitalization, by Race, Ethnicity



# Cause-specific rehospitalization rates in the 30 days following live hospital discharge, by age, 2009

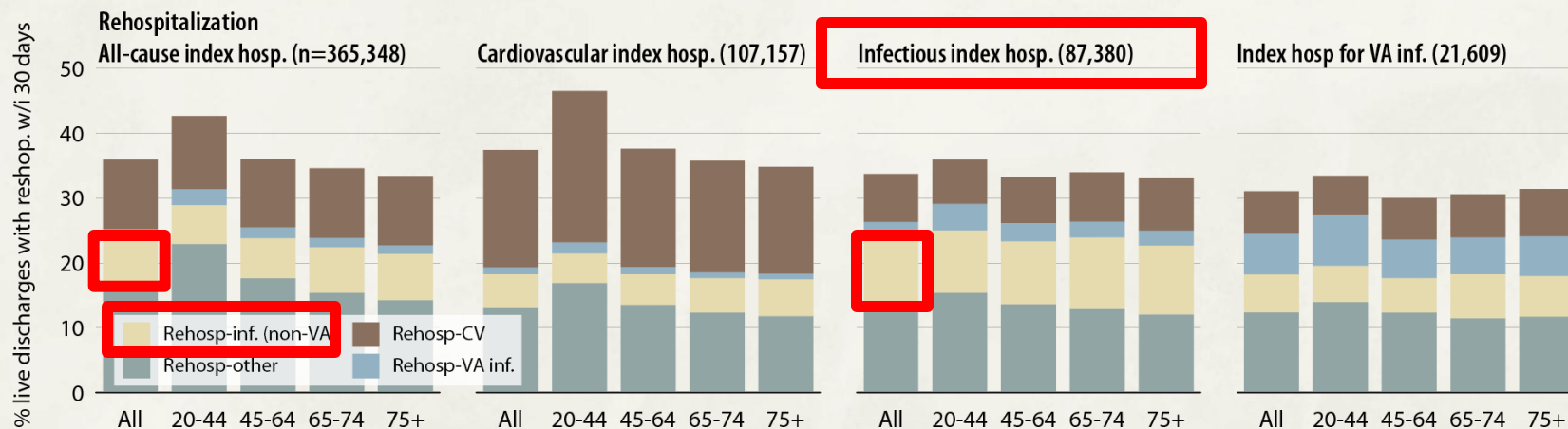
Figure 3.4 (cont.; Volume 2)



Period prevalent hemodialysis patients age 20 & older, 2009; unadjusted.  
 Includes live hospital discharges from January 1 to December 31, 2009.

# Cause-specific rehospitalization rates in the 30 days following live hospital discharge, by age, 2009

Figure 3.4 (cont.; Volume 2)

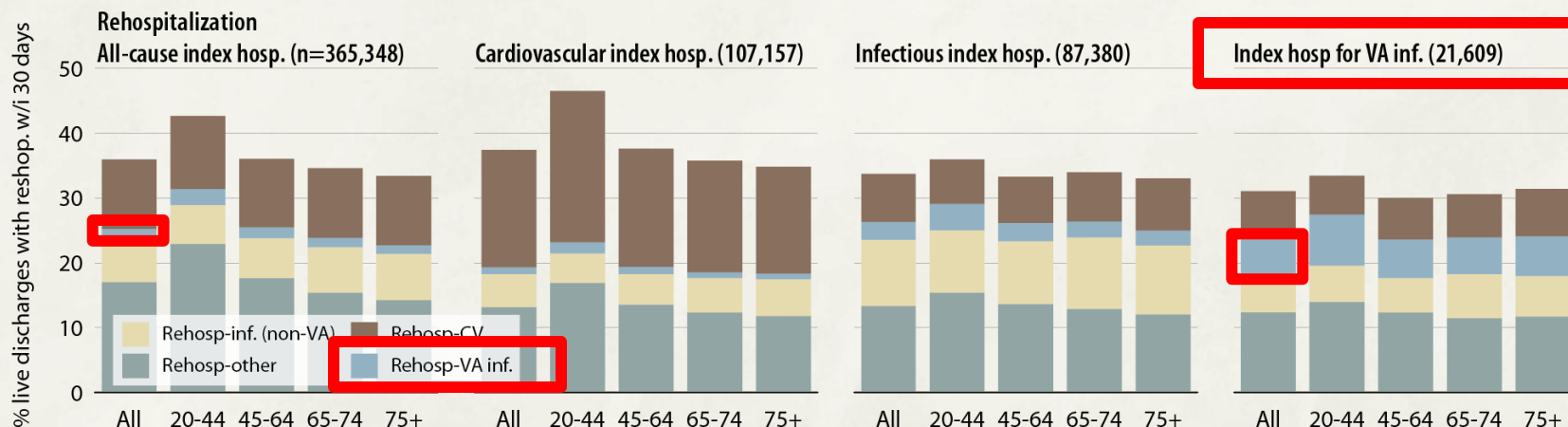


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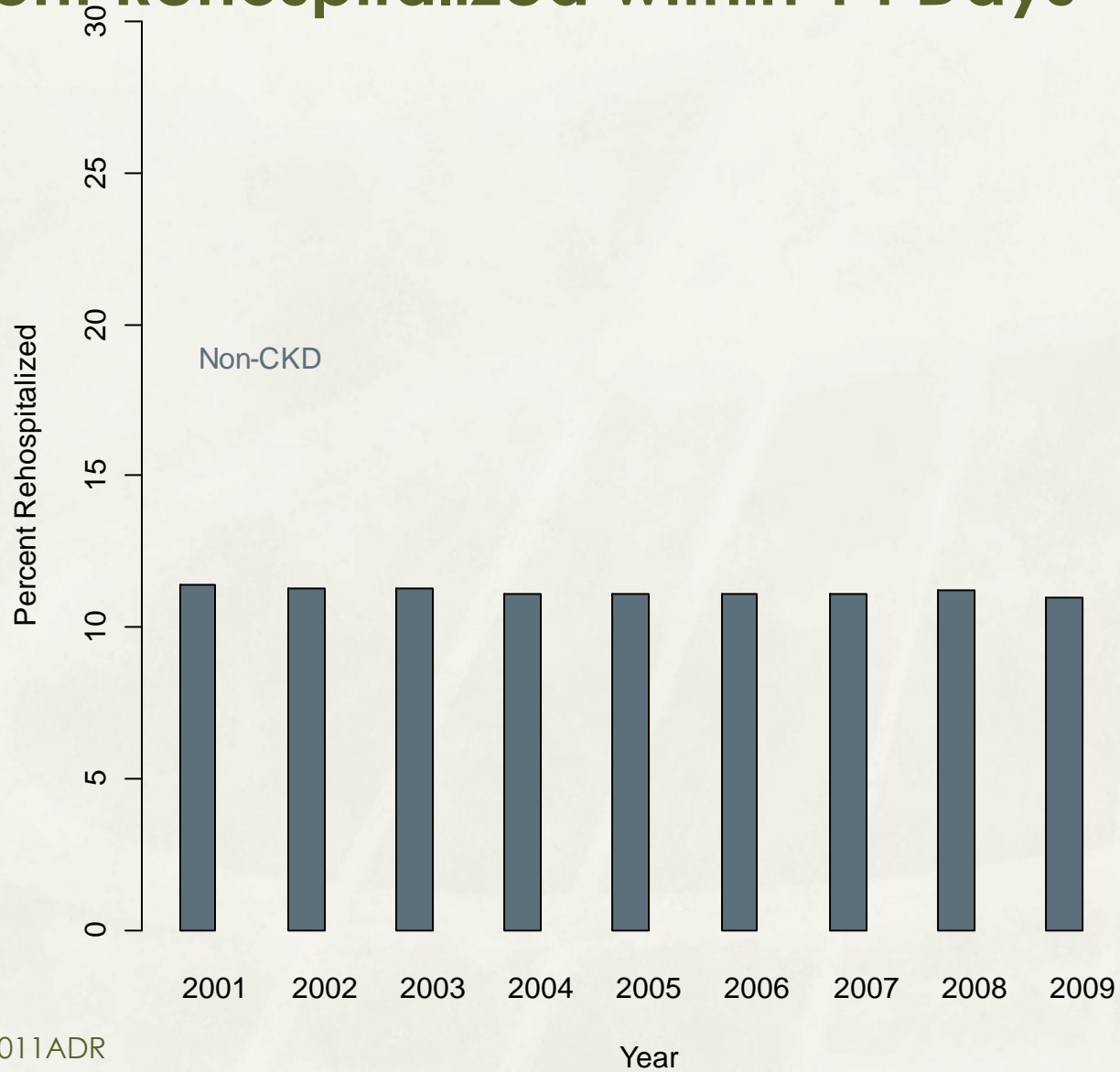


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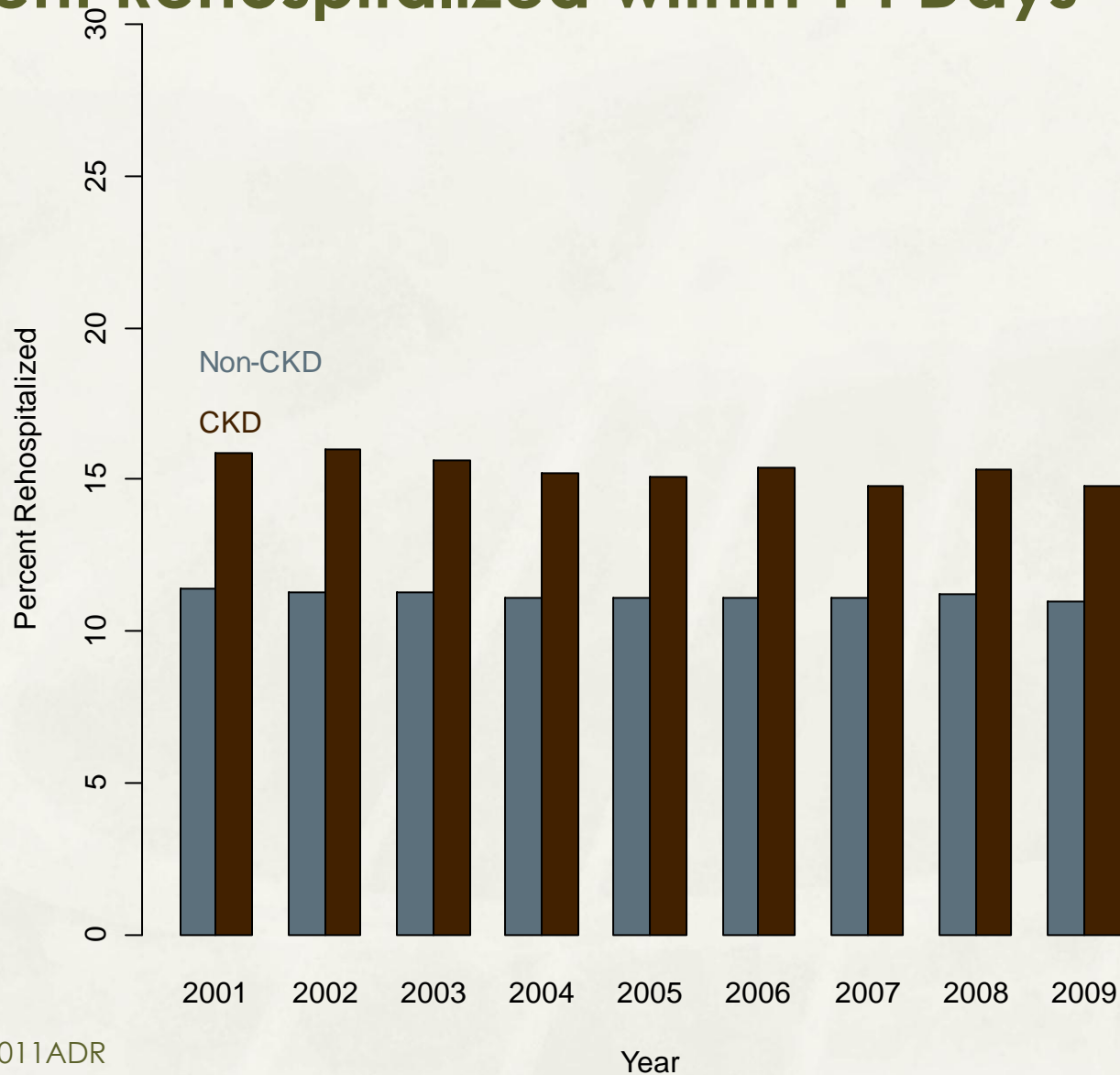
## Rehospitalization in CKD, Non-Dialysis

- Medicare 5% data, 2001-2009
- CKD identified from claims, at least 1 inpatient, home health or SNF claim, or at least 2 Part B or Part A outpatient claims with CKD

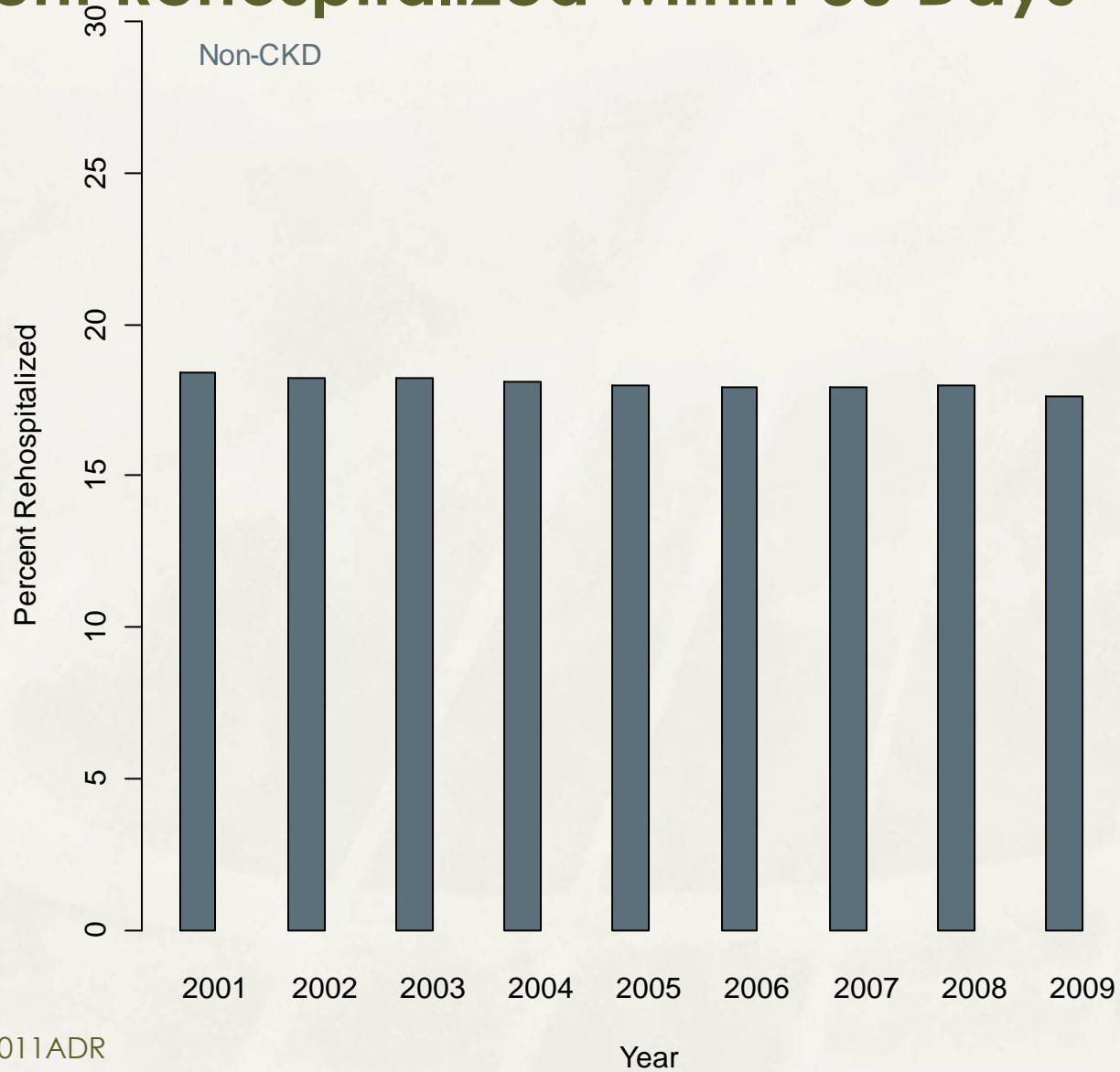
# Percent Rehospitalized within 14 Days



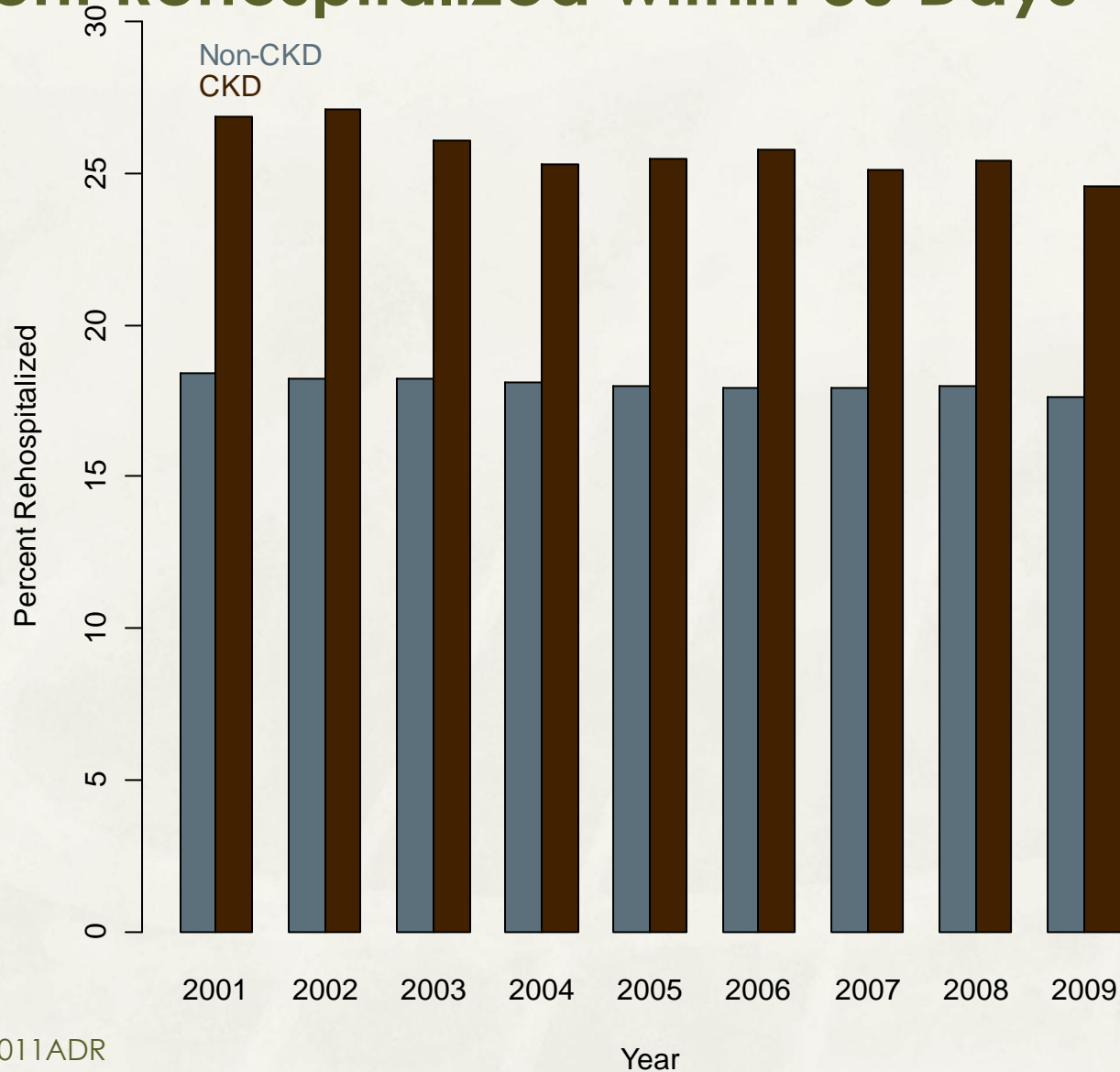
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# Percent Rehospitalized within 30 Days

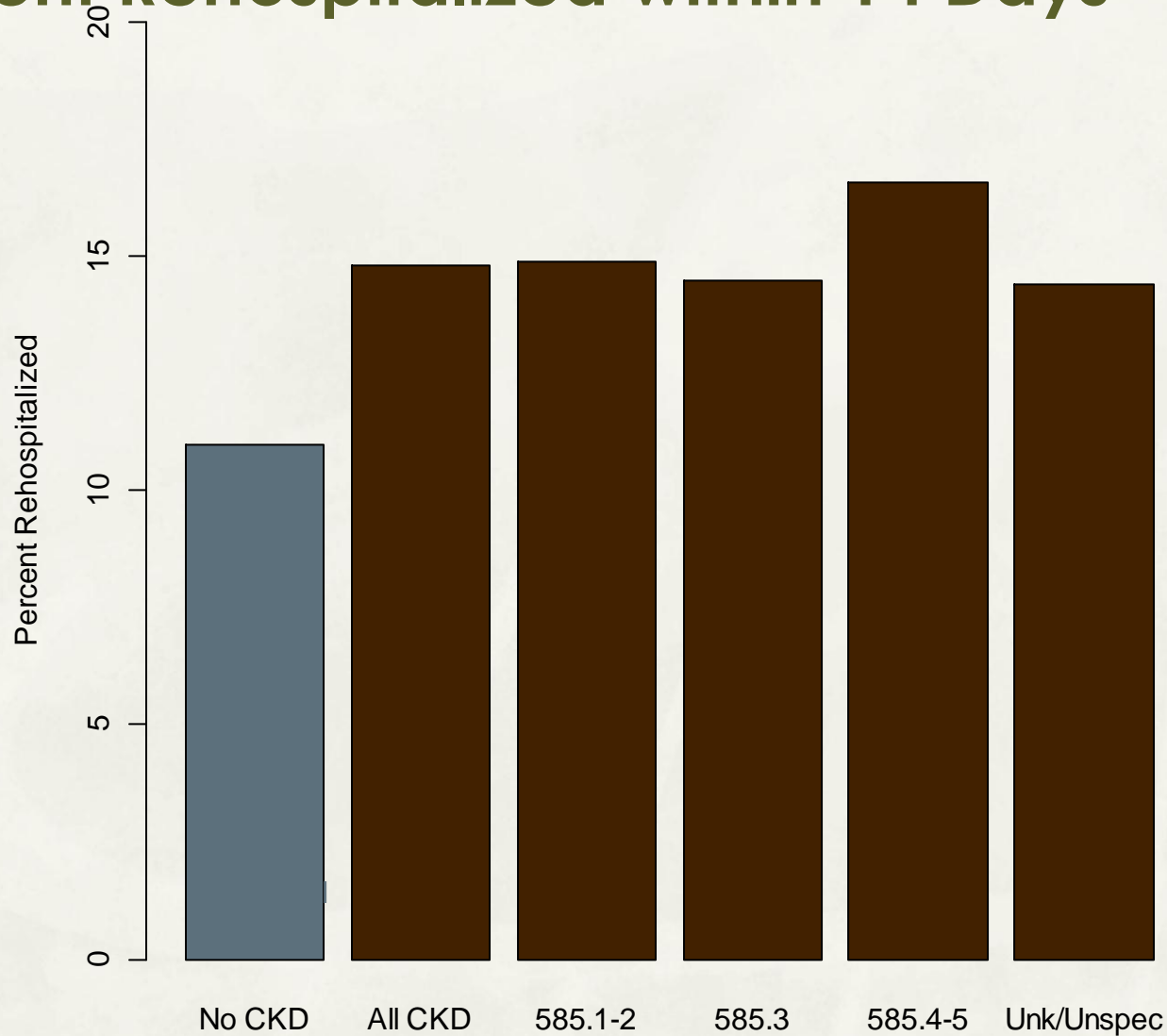


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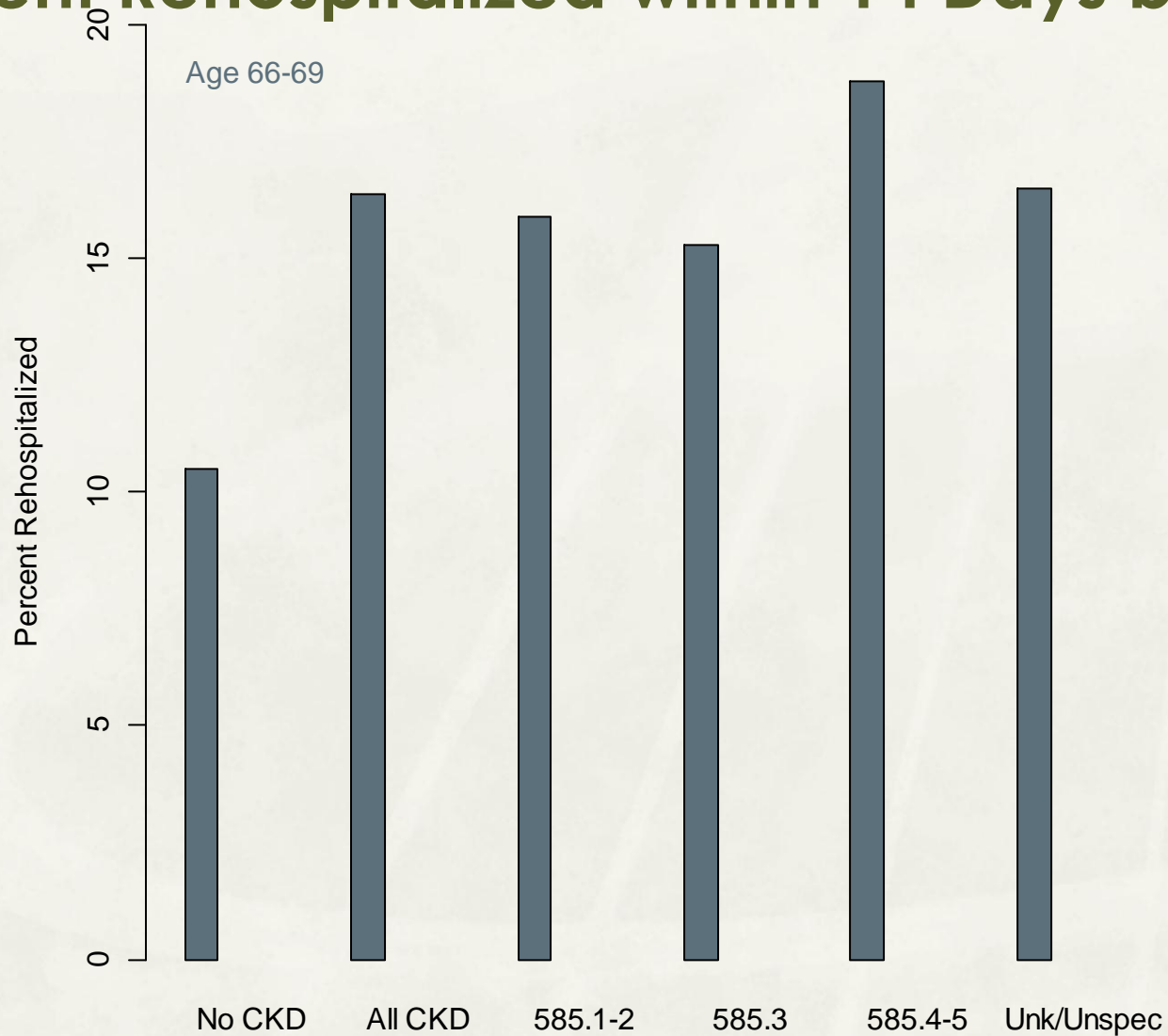




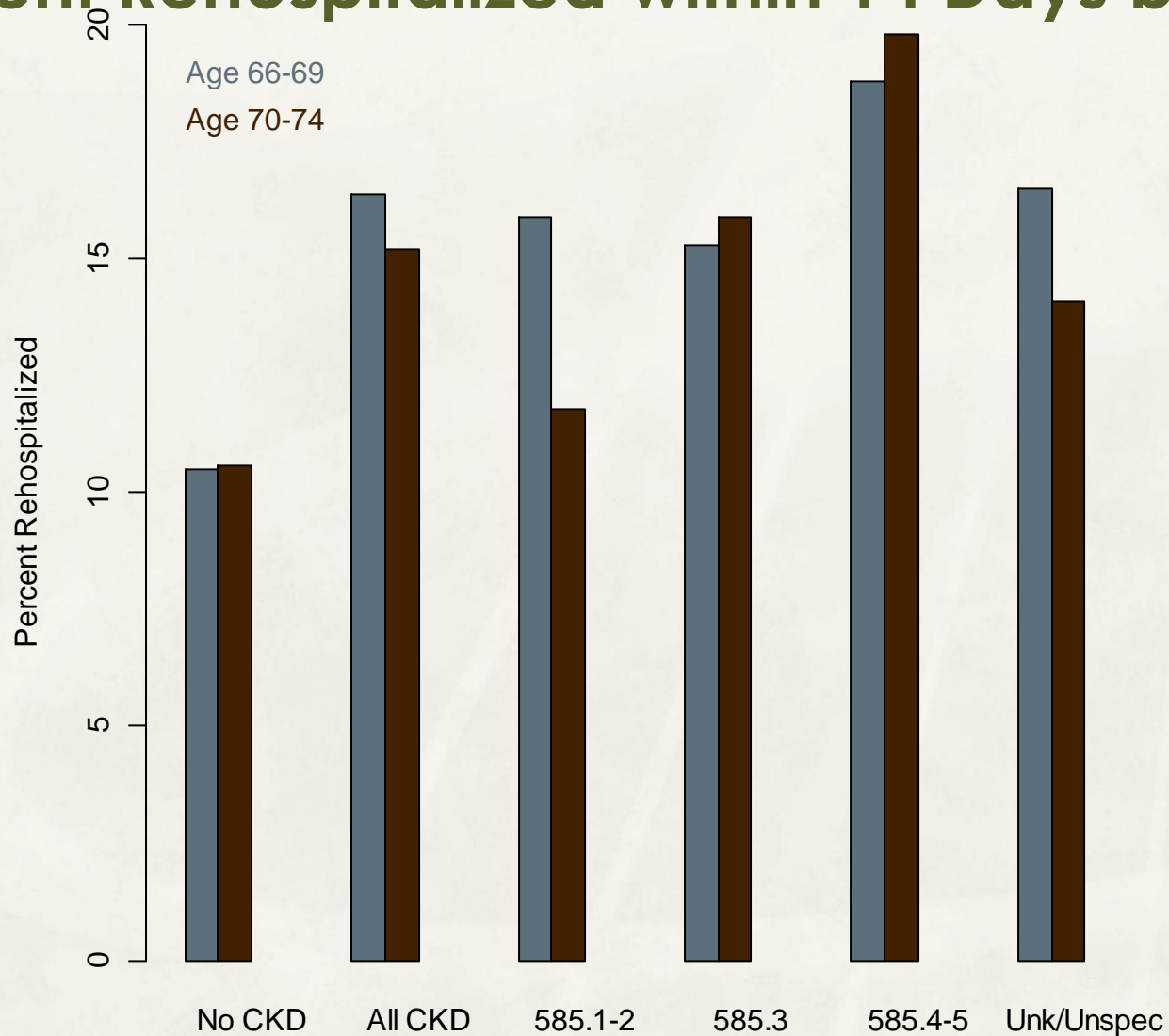
# Percent Rehospitalized within 14 Days



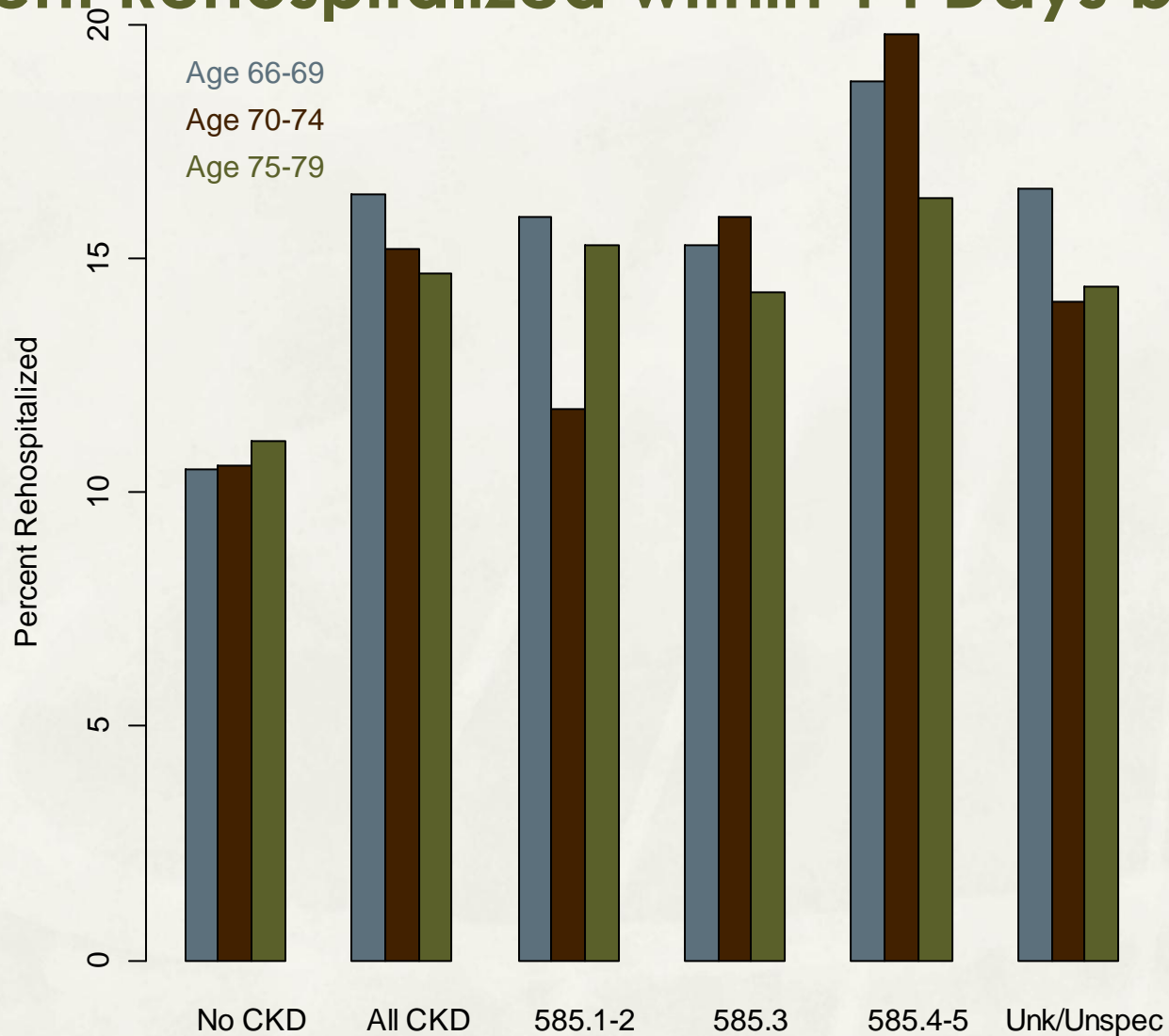
# Percent Rehospitalized within 14 Days by Age



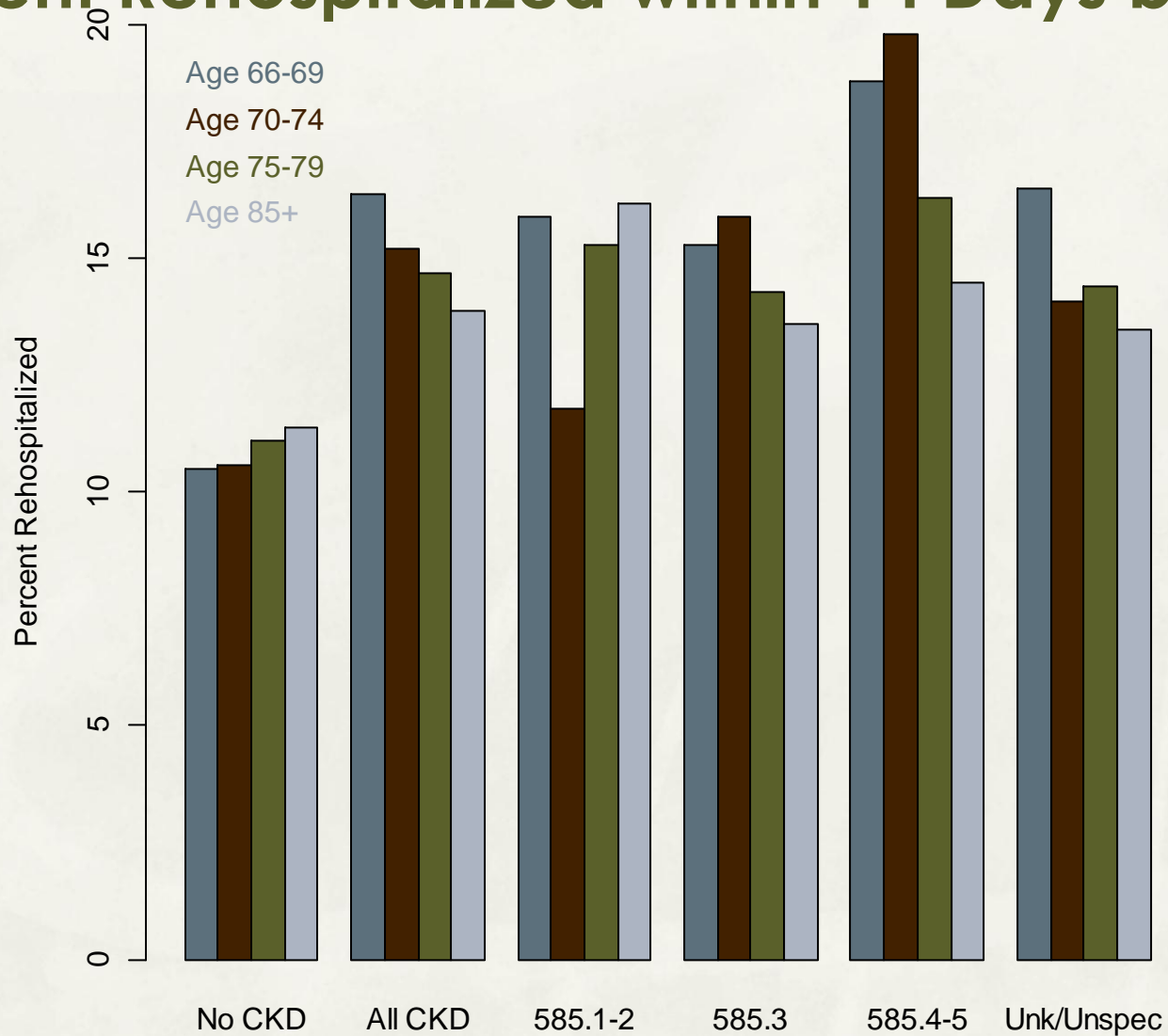
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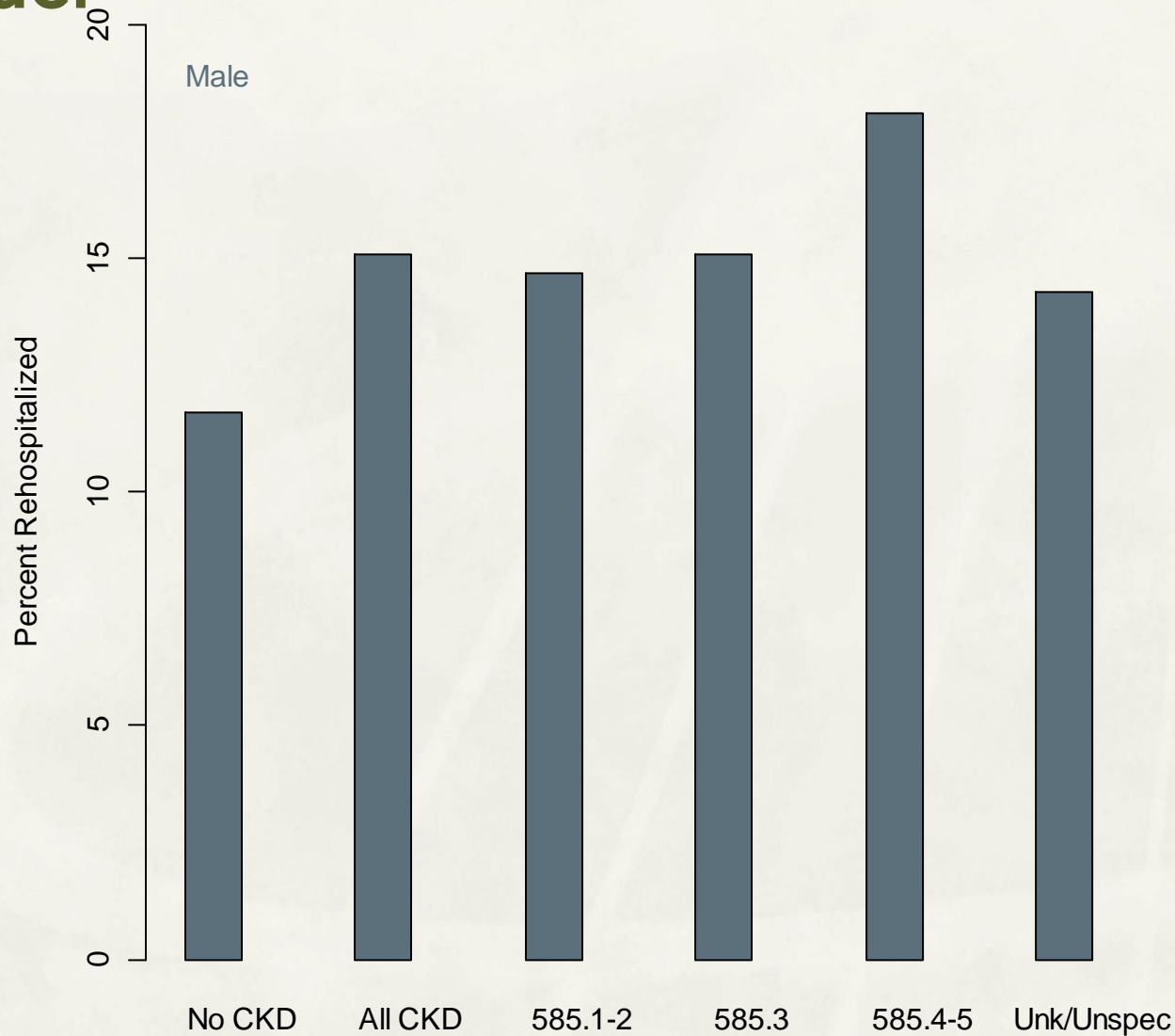
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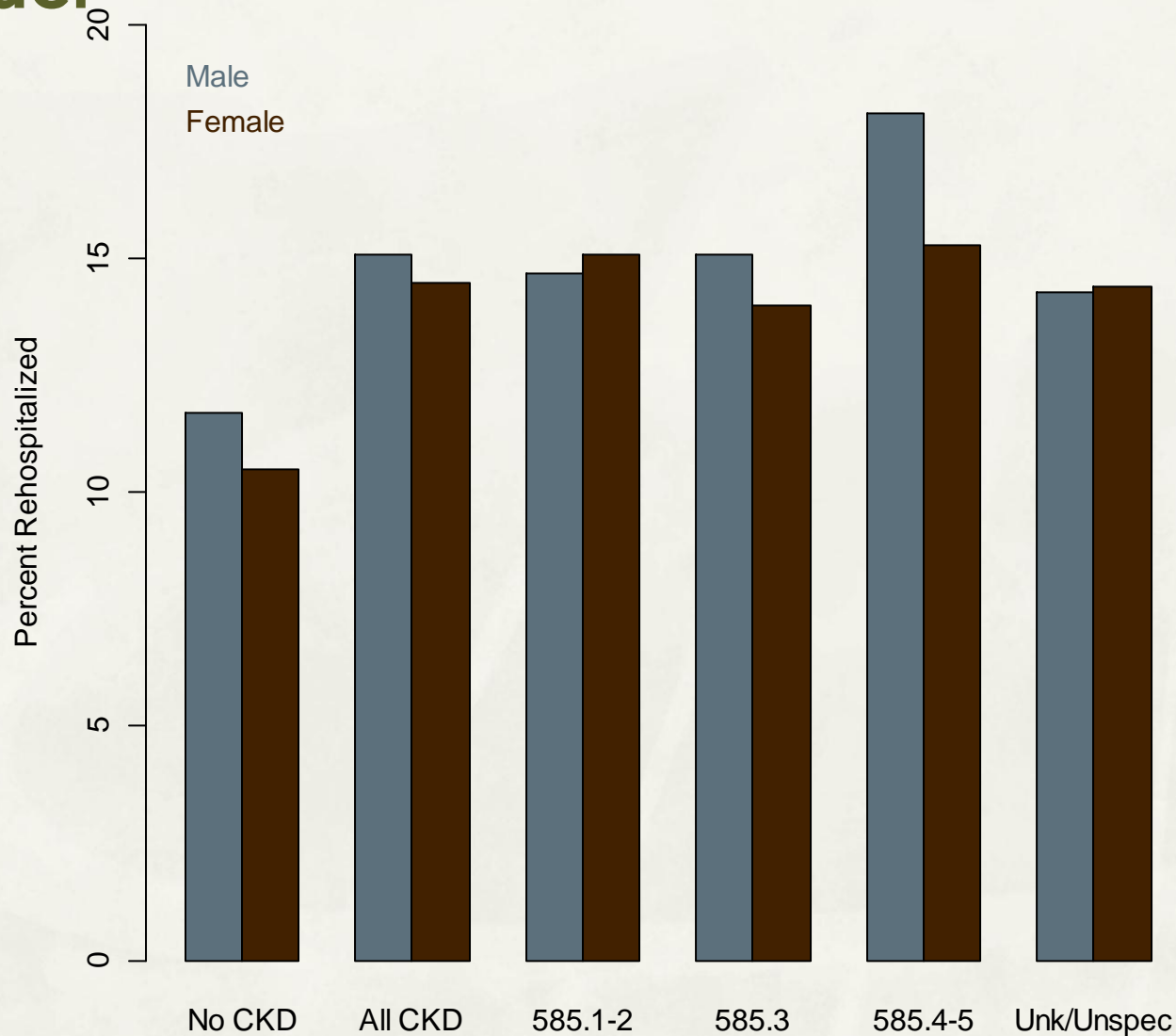


# Percent Rehospitalized within 14 Days by Gender

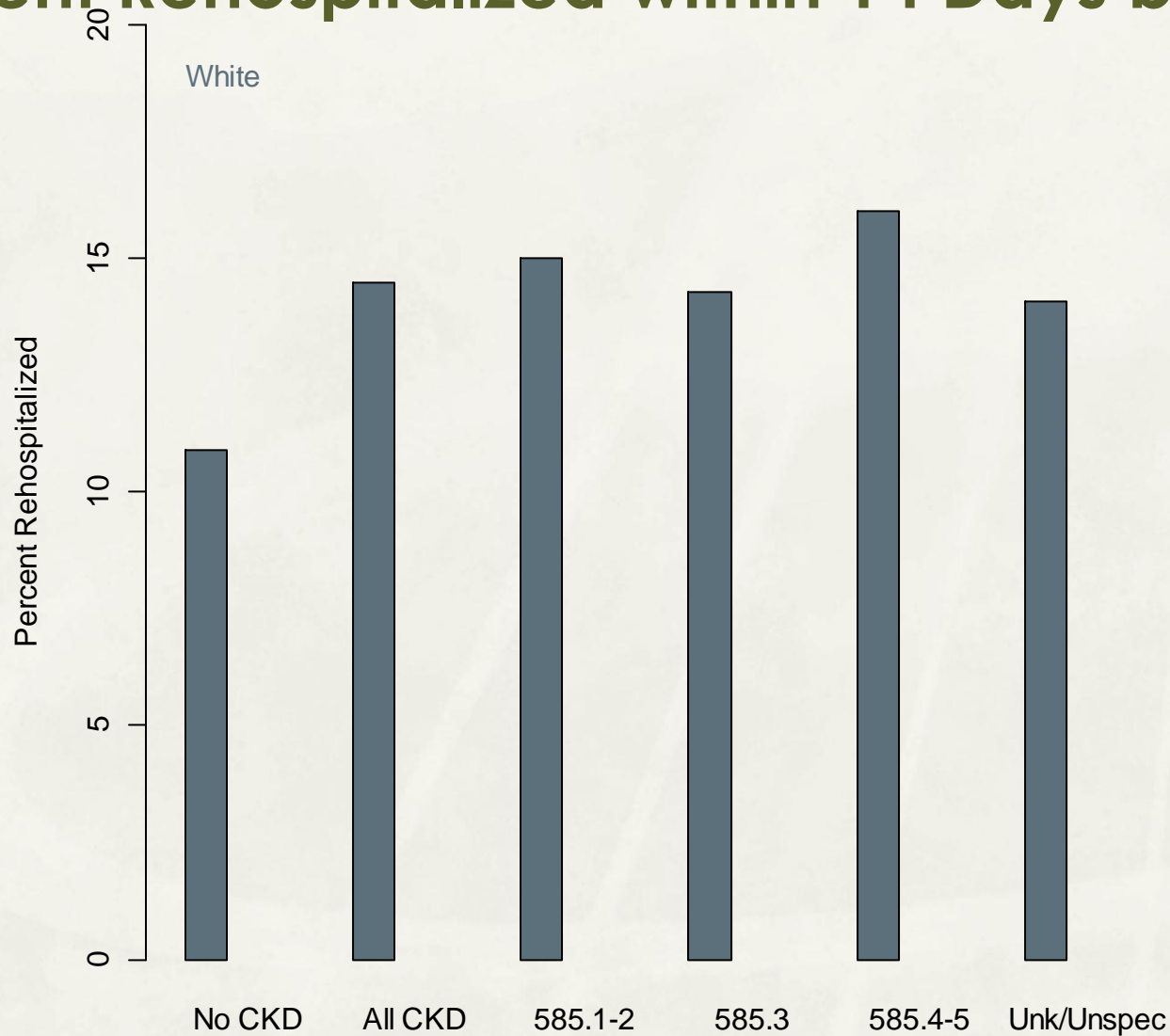




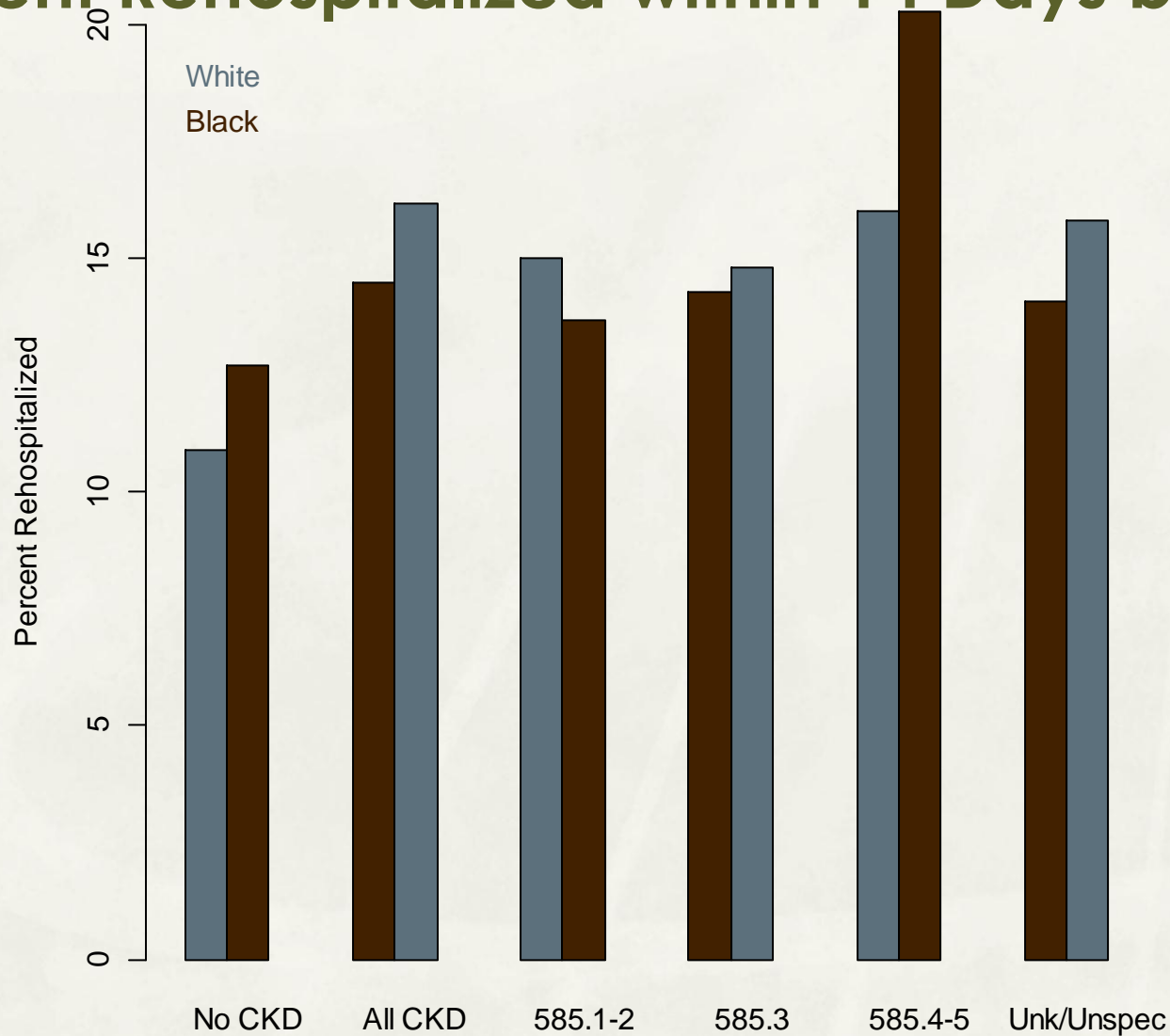
# Percent Rehospitalized within 14 Days by Gender



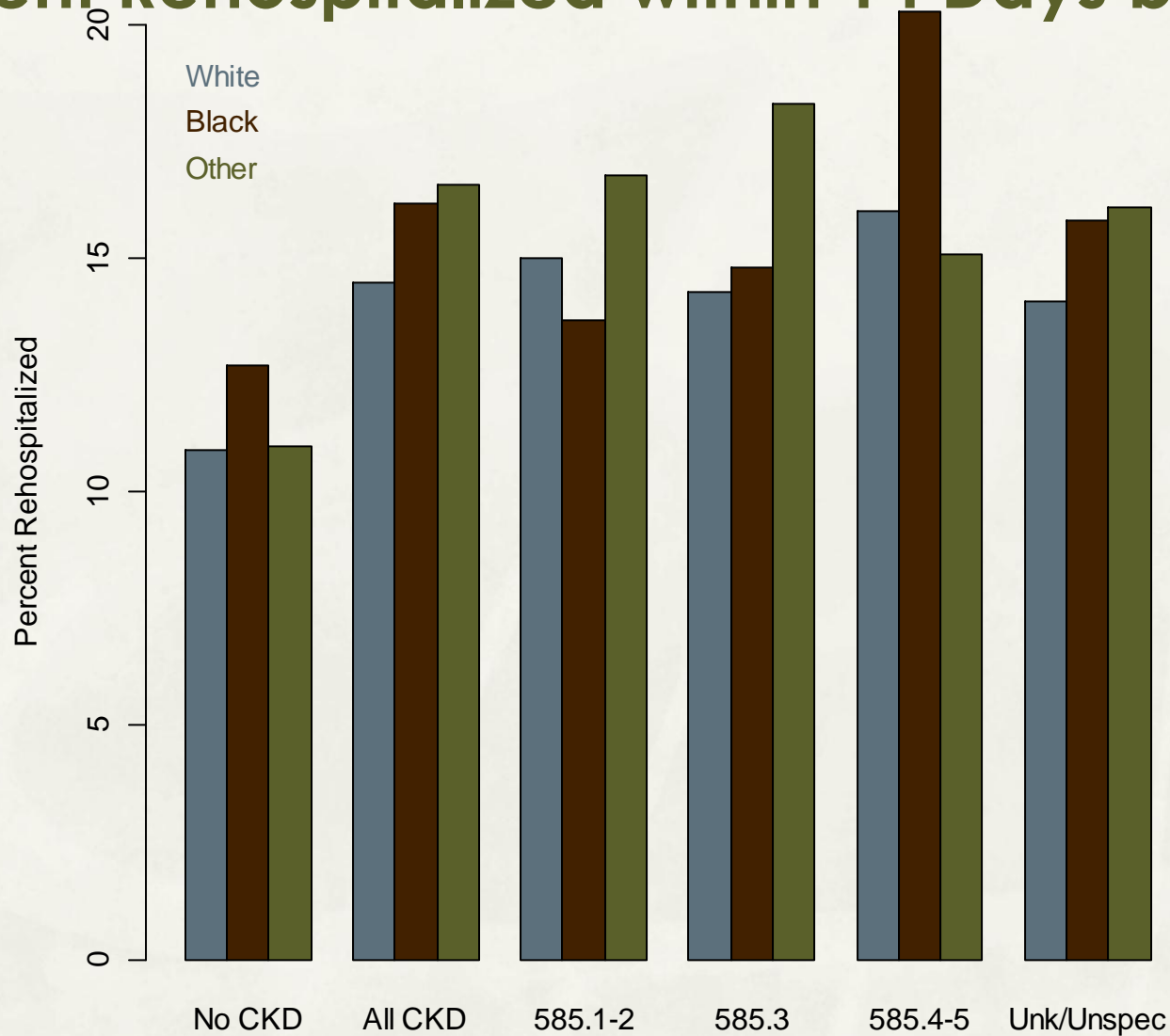
# Percent Rehospitalized within 14 Days by Race



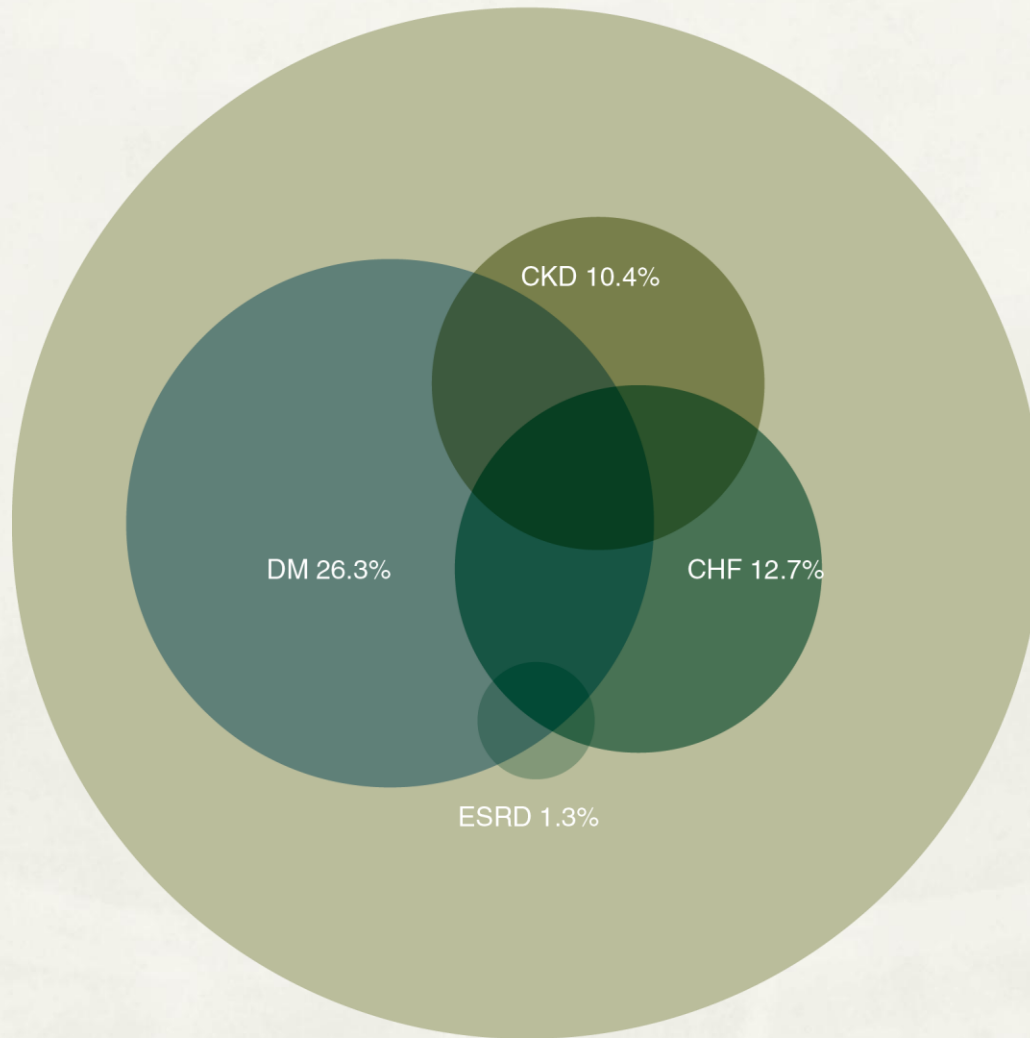
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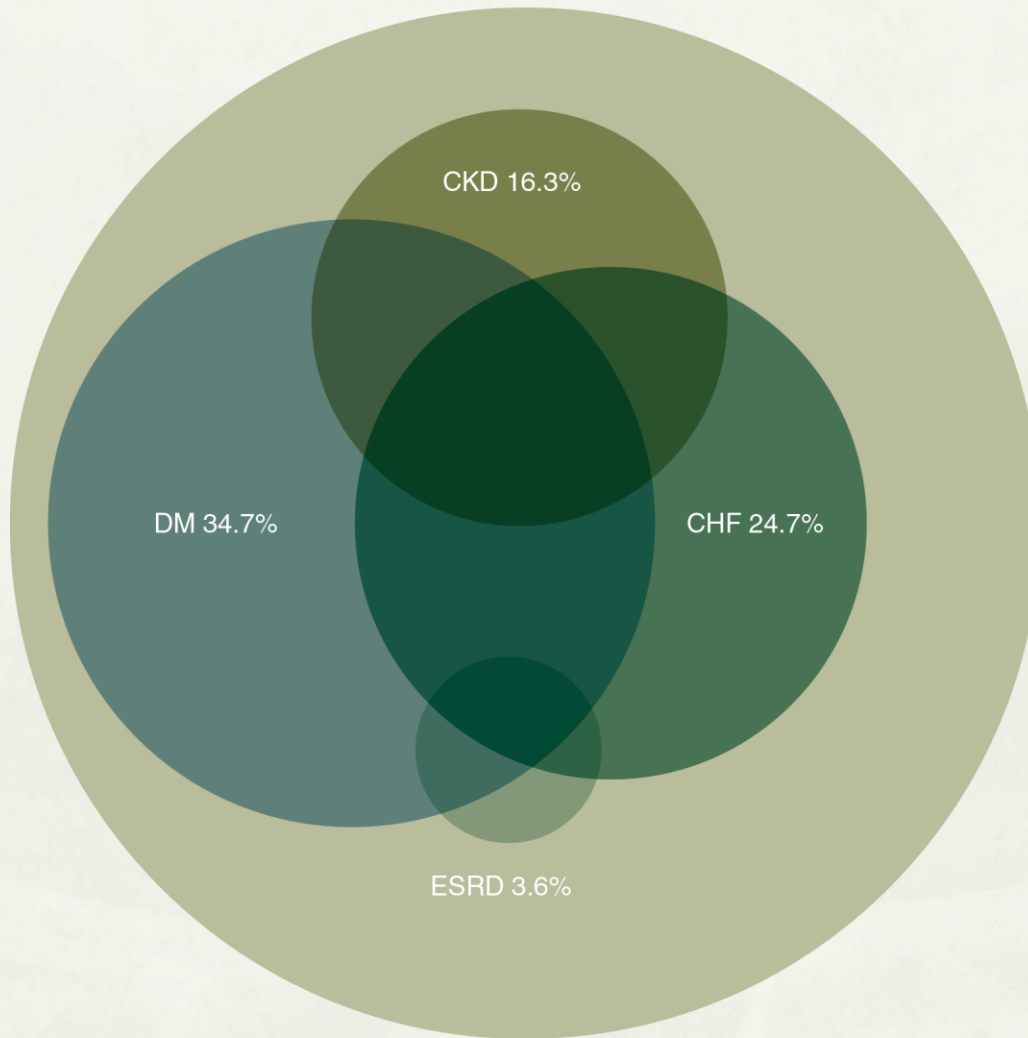
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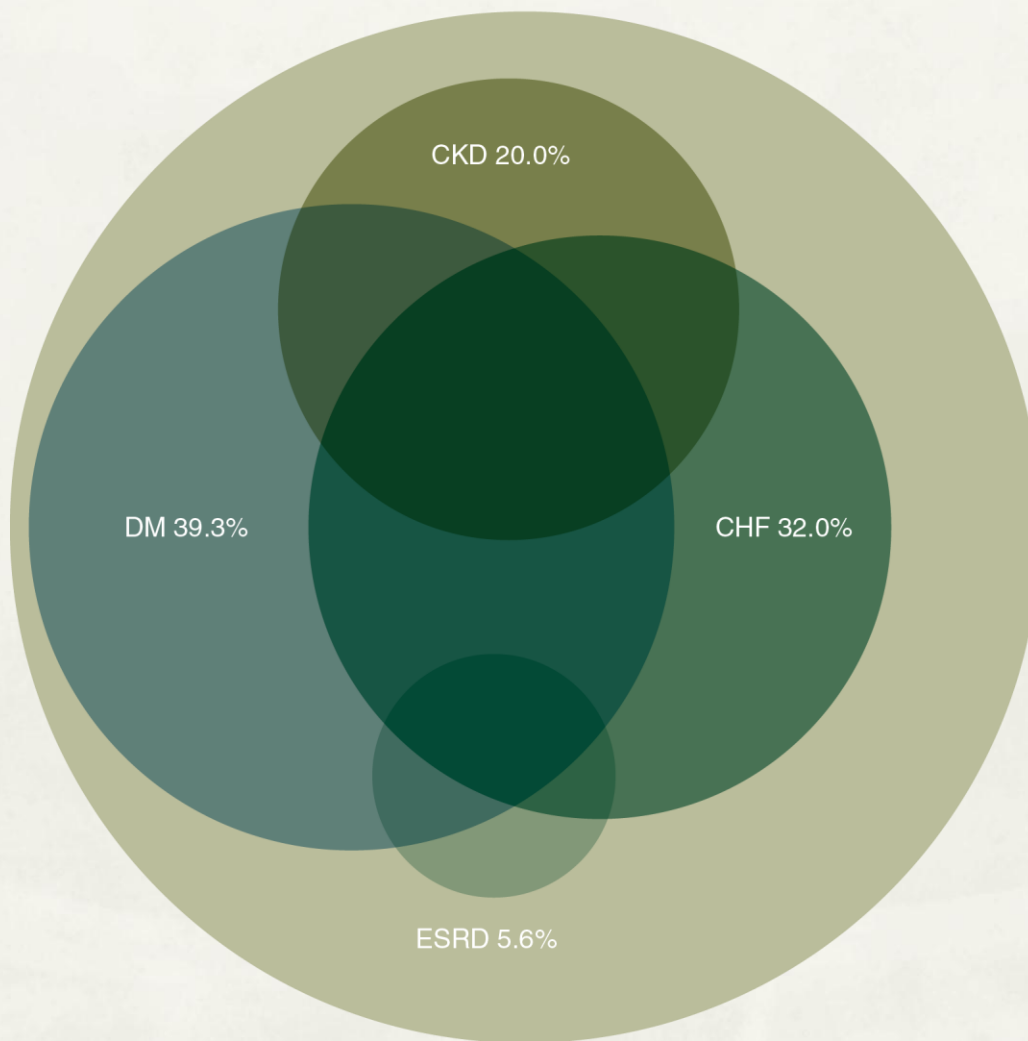
## Population



## Hospitalizations

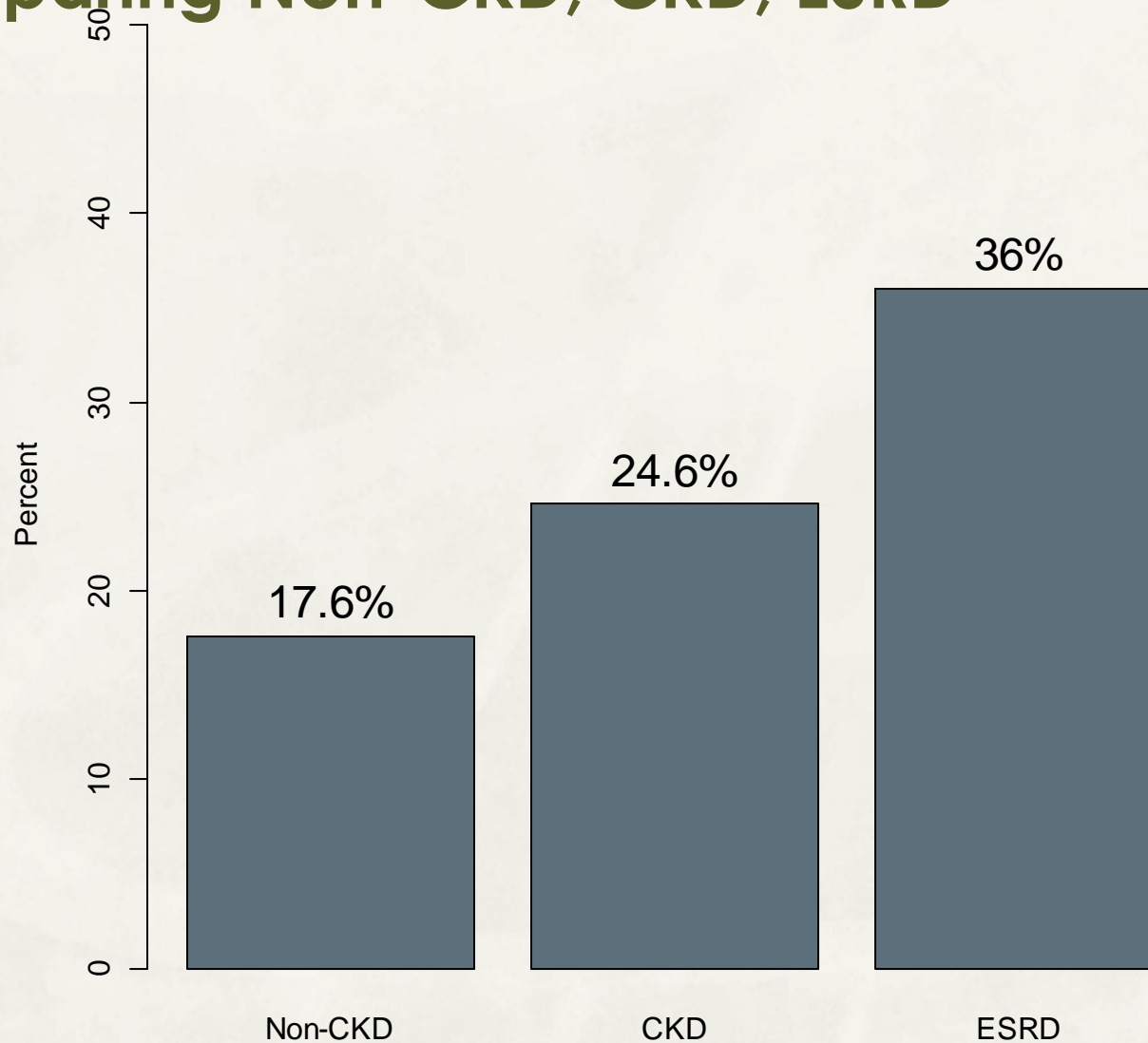


## 30-Day Re-hospitalizations





# Comparing Non-CKD, CKD, ESRD



## Preventable?

- **Physician follow-up post-discharge?** Some research suggests lower rehospitalization if a physician is seen within 2 weeks post-discharge
  - Dialysis patients are seen in the dialysis facility, but not necessarily by a physician shortly after discharge?
- **Dartmouth report Sep 28, 2011**
  - Found areas with high hospitalization rates had high rehospitalization rates
    - More likely to rely on the hospital as a primary site of care
  - **Causes of rehospitalization**
    - Inadequate discharge planning
    - Inadequate coordination of care between hospitals and community clinicians

# Conclusions

- Next steps:
  - Pre-Post-bundle – changing reimbursement have any impact on rehospitalization rates?
  - Regional variation
  - Part D data, change in medications
  - Physician visits post-discharge
  - Analyze ER visits post-discharge
  - Predictors of rehospitalization – different from predictors of hospitalization?
- Within the fee-for-service Medicare system, rehospitalization rates were significantly higher in the CKD and HD populations compared to patients without these conditions
- Adjusted rehospitalization rates have not changed in the last decade.