Healthcare Resource Utilization and Costs for Payers and Patients for Atrial Fibrillation in Rural and Urban Settings

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INTRODUCTION

- Atrial fibrillation (AF) is an expanding disease in the US. In 2010, there were 5.2 million with AF in the US and this number is expected to increase to 12.1 million by 2030.
- AF ranked at 33rd in healthcare spending with $28.4 billion in 2016.
- Health disparities exist in AF extensively.

OBJECTIVE

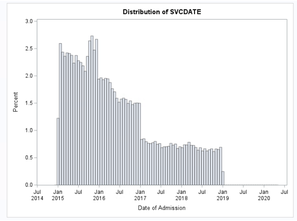
- We aim to estimate HCRU and costs associated with AF and examine whether a geographic disparity exists.

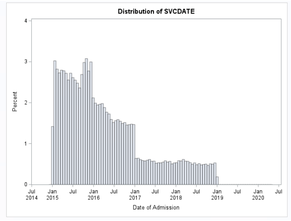
METHODS

- MarketScan Commercial Claims and Encounters Databases, and Medicare Supplemental and Coordination of Benefits Databases. 2014-2019
- Retrospective cohort study

- **Incident AF patients**
  - ➢ At least 2 AF diagnosis code in outpatient claims, or at least 1 AF diagnosis code in inpatient claims.
  - ➢ Exclude individuals with an AF diagnosis code 12 months prior to the index date.

- **Non-AF patients**
  - ➢ Matched index date.





- **Outcomes**
  - ➢ Costs and HCRU during 12 months following index dates
- **Analysis methods**
  - ➢ Two-part models
    - ➢ Part 1: Logistic regression
    - ➢ Part 2: Generalized linear regression with Gamma distribution for costs, and Poisson distribution for HCRU.
  - ➢ Bootstrapping

RESULTS

- Sample:
  - ➢ N=156, 719 AF patients; N=3,398,497 patients
- AF patients were older and sicker, compared to non-AF patients.

- **HCRU outcomes**

	Mean	Lower	Upper
Outpatient services	10.18	10.10	10.27
ER visits, in total	0.89	0.88	0.90
Inpatient admission	0.36	0.35	0.36
Inpatient services	1.99	1.97	2.02
Inpatient length of stay (LOS)	1.59	1.56	1.62
All medications	3.99	3.95	4.02
Total 30-day supply	12.94	12.81	13.08

MAIN RESULTS

- **Costs to payers**

	Mean	Lower	Upper
Outpatient services	6382.83	6291.52	6476.94
Inpatient services	8262.2	8077.37	8455.99
All medications	967.72	936.92	1000.04
ER visits, in total	1274.42	1251.96	1298.66
Total costs for payers	**14207.94**	**13,887.30**	**14,290.32**

- **Costs to patients**

	Mean	Lower	Upper
Outpatient services	565.63	558.68	572.64
Inpatient services	357.29	351.29	363.67
All medications	140.69	138.66	142.78
ER visits, in total	163.98	160.63	167.53
Total costs for patients	**1043.58**	**1034.08**	**1052.89**

- **Total costs**

	Mean	Lower	Upper
Outpatient services	7,040.77	6,947.24	7,129.8
Inpatient services	8,656.18	8,474.05	8,848.12
All medications	1,150.47	1,119.9	1,182.38
ER visits, in total	1,443.8	1,419.36	1,467.92
Total costs for payers and patients	**15,191.09**	**14,985.67**	**15,381.82**

- **Rural disparities in HCRU**

	Mean	Lower	Upper
Outpatient services	-1.66	-1.94	-1.40
ER visits, in total	0.07	0.04	0.09
Inpatient admission	0.01	0.00	0.03
Inpatient services	-0.21	-0.32	-0.10
Inpatient length of stay (LOS)	-0.03	-0.12	0.08
All medications	1.17	1.04	1.30
Total 30-day supply	3.78	3.23	4.31

- **Rural disparities in total costs**

	Mean	Lower	Upper
Outpatient services	109.83	-139.12	361.17
Inpatient services	-732.30	-1,212.11	-228.79
All medications	37.07	-79.42	137.92
ER visits, in total	83.02	33.26	131.37
Total costs for payers and patients	**-417.16**	**-899.19**	**120.72**

KEY FINDINGS

- AF brought sizable resource and economic burden to healthcare system, payers, and patients.
- Rural AF patients had fewer outpatient and inpatient utilization and yet increased ER visits, suggesting suboptimal disease management, compared to urban AF patients.
- Rural AF patients did not have different total costs from that of urban AF patients. Yet, this is due to offset of different changes of HCRU.

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