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Declining Utilization of IVC Filters: State Level Commercial Claims Perspectives from 2009-2015

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Background: IVC Filter Utilization

- In August 2010, the FDA issued a statement urging clinicians to remove retrievable IVC filters as soon as patients no longer required protection from pulmonary embolism
- This was amidst a series of high-profile lawsuits aimed at manufacturers and physicians
- These events contributed to an increased level of scrutiny on the appropriate use of IVC filters



Background: Previous Research

- Aggregate national Medicare claims data have typically been used in radiology literature to track changing utilization
- But, but these provide information of limited generalizability because they:
 - Do not consider geographic variation
 - Provide no information about the many Americans covered by non- Medicare insurance



Objectives

- To study recent changes in IVC filter utilization at the state level using commercial claims
- To compare these trends those of the national Medicare population



Methods

- A large national sample (~25 million 2015 beneficiaries) of commercial payer claims (the Truven Health MarketScan® Research Databases) was used
- IVC filter placement procedures billed between 2009 through 2015 were identified for the 40 states (plus DC) allowed in our data use agreement
- State level utilization rates were calculated using enrollment data
- Medicare Physician and Other Supplier Procedure Summary Master Files and Medicare enrollment data (~34 million 2015 beneficiaries) were used to calculate national Medicare fee-for-service utilization rates and compound adjusted growth rates (CAGR)

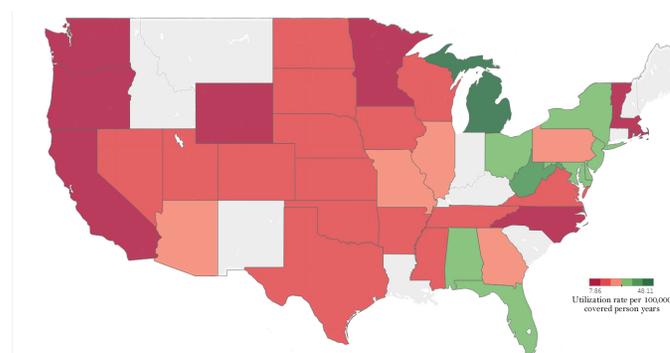


Results: IVC filter placement procedures

- In the commercial insurance population, IVC filter placement utilization ranges were:
 - In 2009, a low of 8.3 per 100,000 covered person-years (ND) to a high of 73.0 (MI)
 - In 2015, a low of 0 (HI) to 48.1 (MI)
- In contrast, Medicare utilization rates nationwide were 198.6 in 2009 and 128.9 in 2015 (per 100,000 beneficiaries)

Region	2009	2010	2011	2012	2013	2014	2015	CAGR
National Medicare	198.6	197.5	187.1	166.8	149.8	141.7	128.9	-6.9%
Commercial by state								
AK	17.0	4.8	10.5	4.9	22.6	14.9	8.0	-11.9%
AL	38.4	52.1	43.3	47.1	32.3	35.9	34.4	-1.8%
AR	23.6	31.6	29.6	27.4	33.1	26.2	16.7	-5.6%
AZ	45.7	41.4	42.6	31.4	27.4	24.8	25.0	-9.6%
CA	18.2	19.5	21.2	19.1	19.5	18.8	14.5	-3.7%
CO	25.9	25.6	22.0	22.9	19.5	17.7	20.7	-3.7%
DC	34.3	34.4	50.9	39.8	29.6	35.0	37.6	1.5%
DE	28.1	41.4	40.2	37.9	34.3	35.1	30.1	1.2%
FL	44.9	48.1	44.9	41.2	36.0	32.1	33.7	-4.6%
GA	37.1	29.1	33.8	31.9	28.1	26.4	26.5	-5.5%
HI	16.5	17.4	45.2	53.1	21.3	21.3	0.0	-100.0%
IA	16.5	18.4	15.1	10.7	20.7	10.8	16.4	0.0%
IL	26.3	29.9	24.5	26.2	30.1	31.1	27.2	0.5%
KS	22.5	30.1	30.6	15.6	18.9	19.4	15.6	-6.0%
MA	27.8	27.3	24.6	16.1	19.7	22.2	7.9	-19.0%
MD	35.9	50.1	44.4	33.5	34.9	26.7	31.1	-2.3%
MI	73.0	69.1	67.3	58.0	52.5	45.0	48.1	-6.7%
MN	13.8	13.7	11.8	13.8	11.3	8.3	7.9	-8.8%
MO	48.0	41.5	39.3	40.9	38.8	34.0	26.1	-9.6%
MS	29.3	32.6	29.5	26.6	23.7	20.1	18.0	-7.8%
NC	23.5	35.9	31.5	28.3	20.8	16.3	14.3	-7.9%
ND	8.3	10.4	22.0	19.5	12.0	21.4	18.7	14.5%
NE	29.3	23.3	22.3	29.1	23.0	21.9	20.4	-5.8%
NJ	47.3	49.2	46.6	42.7	34.3	29.6	29.7	-7.5%
NV	34.6	31.9	36.2	35.4	31.3	24.1	18.5	-9.9%
NY	37.0	45.6	46.5	44.5	38.4	34.3	30.5	-3.2%
OH	68.2	63.6	53.9	39.3	38.4	34.9	32.6	-11.6%
OK	38.9	30.1	33.4	32.8	21.8	23.6	16.8	-13.0%
OR	13.6	11.2	17.5	6.6	9.0	9.7	8.5	-7.5%
PA	34.4	33.9	32.7	31.5	34.5	21.2	25.1	-5.2%
RI	28.3	27.4	22.8	16.9	25.9	18.5	8.8	-17.7%
SD	25.6	23.9	35.9	18.4	36.5	18.9	19.1	-4.8%
TN	27.7	30.1	29.4	29.9	21.1	24.1	19.9	-5.4%
TX	30.3	26.6	24.6	22.3	20.4	19.8	19.8	-6.9%
UT	20.9	18.3	22.1	17.9	15.7	12.8	17.6	-2.8%
VA	26.7	29.9	32.8	31.6	25.6	25.6	20.4	-4.4%
VT	13.3	23.5	16.1	8.1	11.4	25.2	12.4	-1.2%
WA	19.5	18.2	10.9	17.3	14.8	13.1	10.1	-10.4%
WI	23.1	25.1	22.6	21.5	21.2	17.5	20.6	-1.9%
WV	38.5	35.9	36.5	31.6	38.3	20.6	38.0	-0.2%
WY	20.3	17.8	24.1	10.2	16.8	13.3	13.3	-6.8%

Commercial Payer Utilization Rates
By State for IVC Filters, 2015



Utilization of IVC filter placement procedures, by location, per 100,000 insured



Results: Utilization Rates CAGR

- Between 2009 and 2015, state level utilization rates declined in 37 states and increased in 4, with **CAGR lowest in HI (-100.0%) and highest in ND (+14.5%), with a national mean -7.7%**
- For Medicare, the overall **national CAGR declined 6.9%**



Conclusions

- Utilization of IVC filters in the commercially insured population varies considerably across the US, **but overall is substantially lower than in the Medicare population.**
- As the appropriate use of IVC filters gains increased attention, further research must consider non-Medicare payer data and geographic variation.

