

Visits for Outpatient Care Prior to Acute Respiratory Infection Hospitalization in the United States, 2012 – 2014

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Background

Acute respiratory infection (ARI) hospitalizations

- Encompass syndromes such as pneumonia and bronchiolitis, and are among the leading causes of hospitalization
- Outpatient care could present an opportunity to prevent subsequent hospitalization

Objectives

- Determine how often patients hospitalized for ARI received healthcare ≤14 days prior to admission
- Identify demographic, clinical, and healthcare utilization indicators associated with healthcare seeking ≤14 days prior to admission
- Determine if prior healthcare had an impact on complications during hospitalization or outcomes

Methods

Study Population

- 2012–14 MarketScan Commercial & Medicare Claims
 - Large employers and health plans
 - Medicare beneficiaries with supplemental insurance paid by employers
- Inpatient ICD9 discharge diagnosis for ARI (460-466), pneumonia (480-486), or influenza (487-488)

Data Analysis

- Identified any healthcare visit ≤14 days prior to admission, excluding the day of admission, defined as health encounters with a reasonable potential for medical care receipt (e.g., medical device delivery)
- Used 6-12 months previous medical records to define Charlson Index, prior hospitalizations, and preventive or ambulatory care sensitive condition (ACSC) visits
- Severe outcomes defined as ICU admission or death
- Multivariable logistic regression stratified by age group to evaluate demographic, clinical, health utilization, and outcome factors associated with healthcare ≤14 days prior to admission.

Results

Healthcare visits ≤14 Days Prior to ARI hospitalization

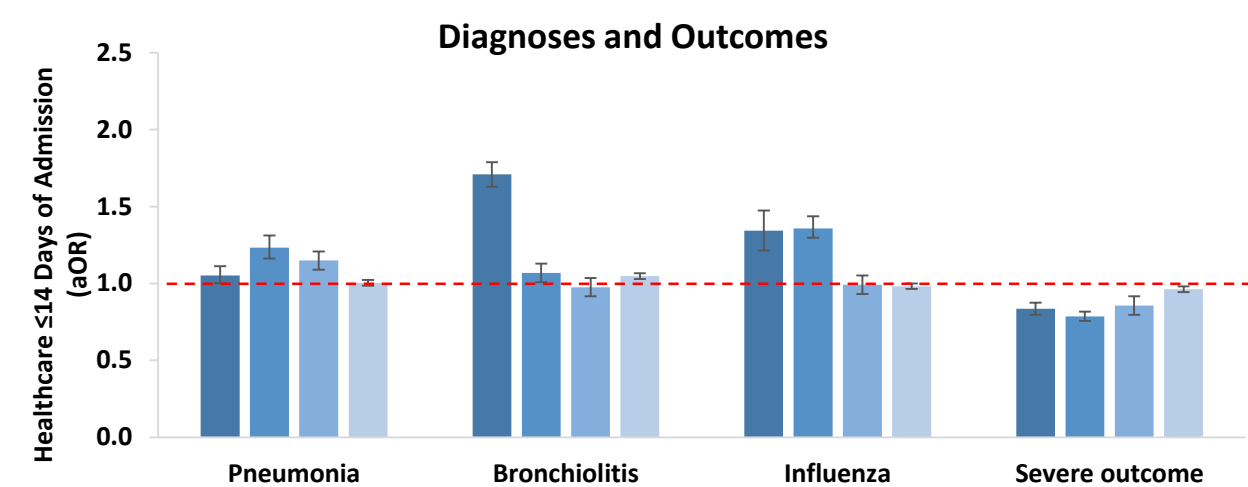
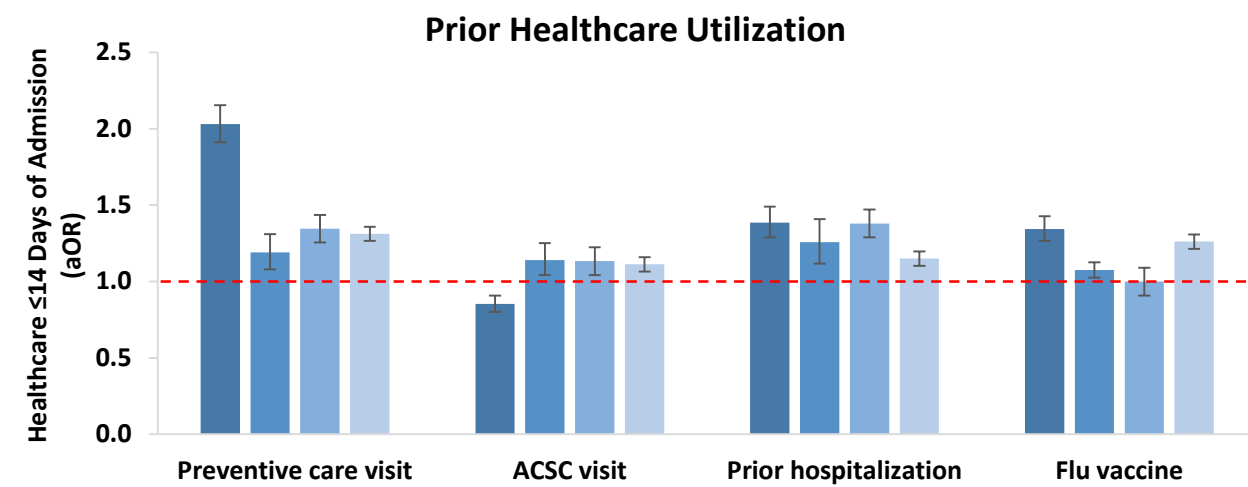
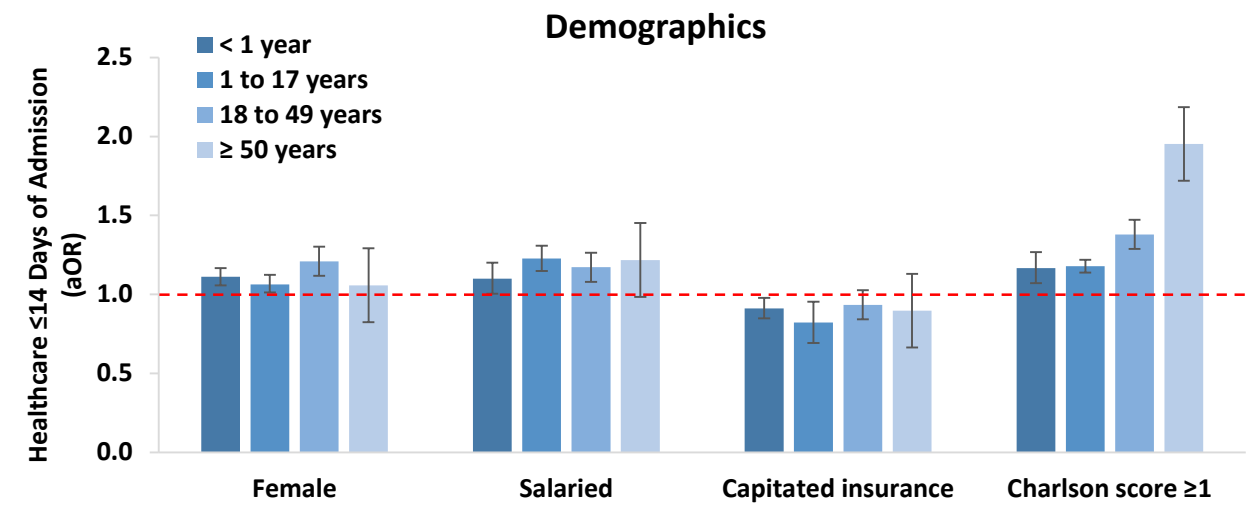
Characteristic	Overall		Care ≤14 Days Prior		
	No.	%	No.	% visit	
ARI hospitalizations 2012 – 2014	407096	100.0	242995	59.7	
Age in years	<1	31536	7.7	21175	67.1
	1 - 17	37871	9.3	21832	57.6
	18 - 49	57759	14.2	34320	59.4
	≥50	279930	68.8	165668	59.2
	Insurance plan type	Capitated	97503	24.0	56421
	Non-capitated	250686	61.6	151798	60.6
Employee classification	Non-salaried	102954	25.3	59425	57.7
	All salaried	49491	12.2	30283	61.2
	Unknown	254651	62.6	153287	60.2
Charlson Index Score	0	145961	35.9	74174	50.8
	≥1	261135	64.1	168821	64.6
Healthcare utilization in prior 6 – 12 months	Preventive care visit	94972	23.3	61550	64.8
	Influenza vaccine visit	55197	13.6	35760	64.8
	ACSC visit	239043	58.7	154728	64.7
	Prior hospitalization	76343	18.8	51759	67.8
Diagnoses	Influenza	22338	5.5	12861	57.6
	Pneumonia	323375	79.4	192289	59.5
	Bronchitis	66964	16.4	42507	63.5
	URI	41378	10.2	24294	58.7
Complications	Mechanical vent	39300	9.7	23752	60.4
	ICU admission	140305	34.5	82624	58.9
Discharge Status	Discharged Home	277204	68.1	163829	59.1
	Transfer to care	115914	28.5	69458	59.9
	Died	13978	3.4	9708	69.5

Place of Healthcare Service

Location description	Care ≤14 Days Prior		Day of admission (Day 0)			
	N	Col %	N	%	N	%
Total	242,995		242,995		164,101	
Emergency Department	56,927	23.4	38,206	15.7	26,750	16.3
Observation	12,929	5.3	3,940	1.6	2,039	1.2
Ambulance	23,481	9.7	57,103	23.5	39,138	23.8
Outpatient locations	229,125	94.3	126,023	51.9	80,147	48.8
Inpatient hospital	52,160	21.5	2,389	1.0	746	0.5
Non medical locations	33,367	13.7	43,499	17.9	29,237	17.8
Long term care	3,449	1.4	621	0.3	303	0.2
Mental facility	497	0.2	25	0.0	16	0.0
Pharmacy	495	0.2	104	0.0	51	0.0

*All comparisons of service location on the day of admission between patients who received care prior to admission and those who did not were not statistically significant.

Associated Indicators of Healthcare Visits ≤14 Days Prior to ARI hospitalization



Conclusions

- In a population of insured individuals, only 60% received outpatient care in the two weeks prior to ARI hospital admission
- Patients with severe outcomes were significantly less likely to have a preceding visit
- While significant differences in the likelihood of healthcare visits by demographic and utilization characteristics, the magnitude of the difference was relatively small.

Limitations

- Marketscan data represent administrative records, and coding practices could affect our results
- Care seeking without an associated billing record would not be detected in Marketscan
- We included children aged <1 year without enrollment restrictions and included others with only 6 months enrollment, which may limit the ability to determine comorbid conditions
- Billing records cannot indicate if a patient sought care, but was unable to receive

Recommendations

- A greater understanding of healthcare seeking behaviors for potentially preventable hospitalizations is needed
- Support for healthcare providers in identifying high risk patients for targeted communications should be considered

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