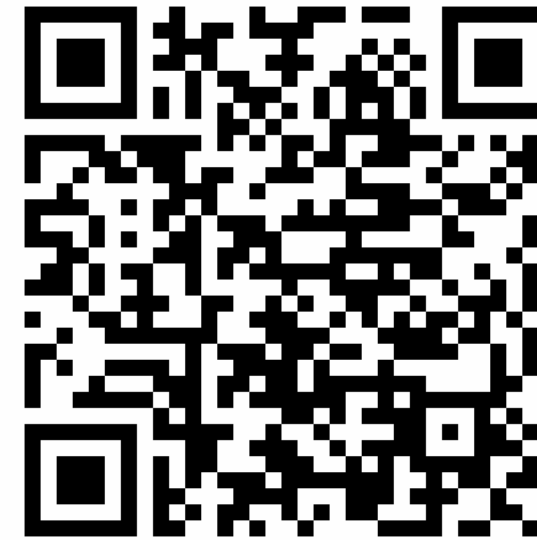


# Attributable Cost of Adult Respiratory Syncytial Virus Illness Beyond the Acute Phase

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## INTRODUCTION

- Respiratory syncytial virus (RSV) causes significant morbidity among adults, especially those who are elderly or who have certain comorbid conditions<sup>1</sup>
- While available evidence suggests RSV burden is high among US adults, especially those at elevated risk of disease, existing literature is limited<sup>1,2,3</sup>

## OBJECTIVE

- The objective of this study was to estimate acute and long-term RSV-attributable healthcare expenditures among adults aged ≥18 years, on an overall basis and well as by age and comorbidity profile

## METHODS

### Study Design and Data Source

- Retrospective observational matched-cohort design
- Merative MarketScan® Commercial Claims and Encounters (CCAE) and Medicare Supplemental and Coordination of Benefits (MDCR) Databases:
  - Data for this study spanned 2016-2019

### Study Population

- Adults aged ≥18 years with evidence of RSV from 2017-2018:
  - RSV was identified based on healthcare encounters with a corresponding diagnosis code, and was stratified by care setting:
    - Hospitalization (“RSV-H”)
    - Emergency department (“RSV-ED”)
    - Physician office/hospital outpatient (“RSV-PO/HO”)
  - Comparison patients were matched to RSV patients (1:1, without replacement) based on calendar month (ie, of RSV encounter), age, sex, health plan type, comorbidity profile, as well as estimated propensity score (ie, based on other baseline characteristics)
- Study population was stratified by age (18-64, ≥65 years) and comorbidity profile:
  - Immunocompetent without chronic medical conditions (CMC-)
  - Immunocompetent with chronic medical conditions (CMC+)
  - Immunocompromised (IC)

### Study Measures

- All-cause healthcare expenditures for RSV patients and matched comparison patients were tallied during acute and long-term phases of illness:
  - Acute phase:
    - RSV-H: hospital admission through 30 days post-discharge
    - RSV-ED, RSV-PO/HO: first evidence of RSV through last evidence of RSV within 30-day period
  - Long-term phase:
    - RSV-H: 365-day period following end of acute phase
    - RSV-ED, RSV-PO/HO: 365-day period following end of acute phase

### Statistical Analyses

- RSV-attributable expenditures were calculated by subtracting mean all-cause expenditures for comparison patients from mean all-cause expenditures for RSV patients
- Expenditures were analyzed on an overall basis and within subgroups defined by age and age and comorbidity profile
- Expenditures during 30-day post-discharge period (RSV-H) and long-term phase (all patients) were adjusted for differential follow-up

## LIMITATIONS

- Identification of RSV cases and comorbidity profiles in claims data requires use of operational algorithms, which may result in misclassification of some patients
- RSV and comparison patients may differ by unobserved characteristics, which could bias study results
- Current analysis was limited to direct healthcare expenditures, and does not reflect total RSV-related expenditures

## CONCLUSIONS

- Cost of RSV requiring hospitalization or ambulatory care among US adults is substantial, especially older adults and those with comorbid conditions**
- Economic impact of RSV illness extends beyond the acute phase of illness**

## REFERENCES

- Weycker et al. Poster presentation at IDWeek 2022
- Mesas-Frias et al., *J Manag Care Spec Pharm*, 2022
- Amand et al., *BMC Health Serv Res*, 2018

## DISCLOSURE

This study was sponsored by Pfizer Inc.

## RESULTS

**Table 1. Selected baseline characteristics of RSV patients and matched comparison patients (n = 4,526 matched pairs)\***

	RSV n = 4,526	Comparison n = 4,526	Standardized Difference
Age (years), mean (SD)	55.6 (18.0)	55.6 (18.0)	0.0000
Age group (years), %			
18 to 64	73.4%	73.4%	0.0000
≥65	26.6%	26.6%	0.0000
Female, %	60.8%	60.8%	0.0000
Comorbidity profile, %			0.0000
Immunocompetent without CMC	46.9%	46.9%	0.0000
Immunocompetent with CMC	43.1%	43.1%	0.0000
Immunocompromised	10.0%	10.0%	0.0000
Healthcare expenditures	\$39,774 (111,822)	\$34,428 (76,191)	0.0559

CMC: chronic medical conditions; RSV: respiratory syncytial virus

\*Baseline characteristics ascertained during 12-month history period; characteristics employed in estimating propensity score included age, sex, health plan type, comorbidity profile, healthcare utilization, healthcare expenditures, and year of index

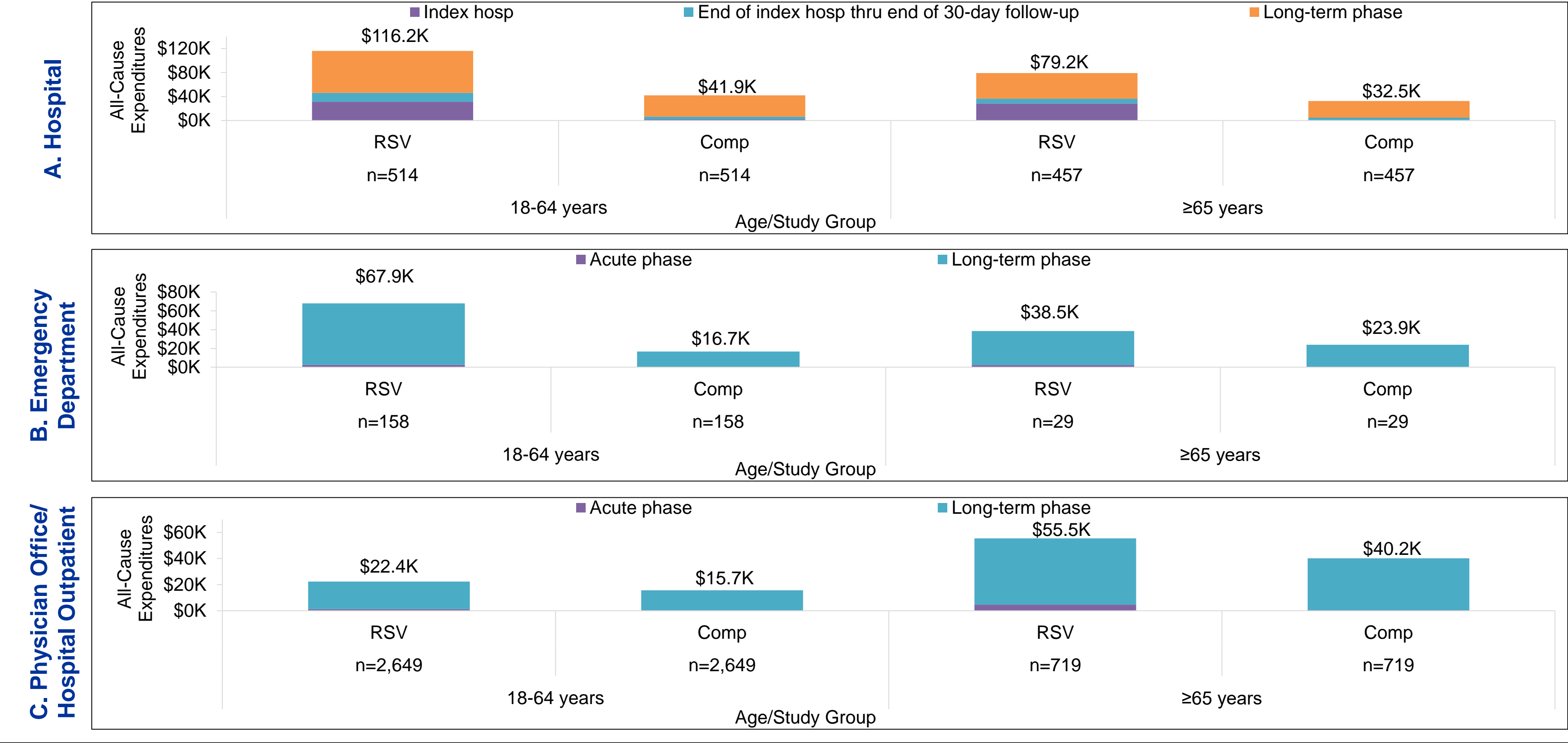
- Mean RSV-attributable expenditures spanning both the acute and long-term phases were \$61,298 for RSV-H, \$45,564 for RSV-ED, and \$8,520 for RSV-PO/HO**
- RSV-attributable costs for RSV-H and RSV-ED were highest among adults aged 18-64 years, and RSV-PO/HO costs were higher for adults aged ≥65**
  - Age 18-64: RSV-H, \$74,251; RSV-ED, \$51,255; RSV-PO/HO, \$6,693**
  - Age ≥65: RSV-H, \$46,730; RSV-ED, \$14,558; RSV-PO/HO, \$15,251**

**Table 2. All-cause healthcare expenditures (mean [95% CI]) for RSV patients and comparison patients during 1-year period from beginning of qualifying RSV episode**

	RSV	Comparison	Difference
<b>Hospital (n = 971 pairs)</b>			
Acute phase			
Index hospitalization	\$29,916 (27,272 - 32,622)	\$1,215 (625 - 2,191)	\$28,702 (26,888 - 30,665)
End of index hosp. thru day 30 post-discharge	\$11,575 (9,391 - 13,985)	\$4,455 (3,373 - 5,724)	\$7,120 (5,406 - 8,948)
Long-term phase	\$57,281 (48,694 - 65,645)	\$31,805 (27,929 - 36,181)	\$25,476 (19,220 - 32,726)
Total	\$98,772 (88,172 - 108,959)	\$37,474 (32,915 - 42,432)	\$61,298 (54,055 - 69,837)
<b>Emergency Department (n = 187 pairs)</b>			
Acute phase	\$2,559 (2,209 - 2,955)	\$258 (42 - 631)	\$2,301 (1,924 - 2,641)
Long-term phase	\$60,807 (16,028 - 174,505)	\$17,543 (12,111 - 24,693)	\$43,264 (1,203 - 105,625)
Total	\$63,366 (18,624 - 177,267)	\$17,801 (12,275 - 25,134)	\$45,564 (3,421 - 107,999)
<b>PO/HO (n = 3,368 pairs)</b>			
Acute phase	\$1,926 (1,515 - 2,600)	\$249 (178 - 330)	\$1,677 (1,323 - 2,173)
Long-term phase	\$27,546 (24,608 - 30,996)	\$20,703 (18,323 - 23,262)	\$6,843 (3,961 - 9,633)
Total	\$29,472 (26,474 - 32,981)	\$20,952 (18,572 - 23,542)	\$8,520 (5,480 - 11,449)

CI: confidence interval; PO/HO: physician office/hospital outpatient; RSV: respiratory syncytial virus

**Figure 1. All-cause healthcare expenditures for RSV patients and comparison patients during 1-year period from beginning of qualifying RSV episode, by age**



**Figure 2. All-cause healthcare expenditures for RSV patients and comparison patients during 1-year period from beginning of qualifying RSV episode, by comorbidity profile**

