

Respiratory Syncytial Virus (RSV) Surveillance in the U.S. Department of Veterans Affairs (VA): 2010-2018

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INTRODUCTION

Respiratory Syncytial Virus (RSV) is an increasingly recognized cause of acute respiratory illness in older adults, leading to an estimated 177,000 hospitalizations and 14,000 deaths each year in the United States.^{1,2} In adult populations, diagnostic testing for RSV has historically been underutilized although testing has increased in recent years. Herein we examine national trends in RSV testing and infection across the Veterans Health Administration (VHA) system.

METHODS

Electronic RSV laboratory testing results, RSV ICD-coded hospitalizations and outpatient encounters were obtained from VHA's Praedico Surveillance System (1/1/2010-12/31/2018). Patients were reviewed for positive results, repeat testing, and demographics. Antibody tests were excluded.

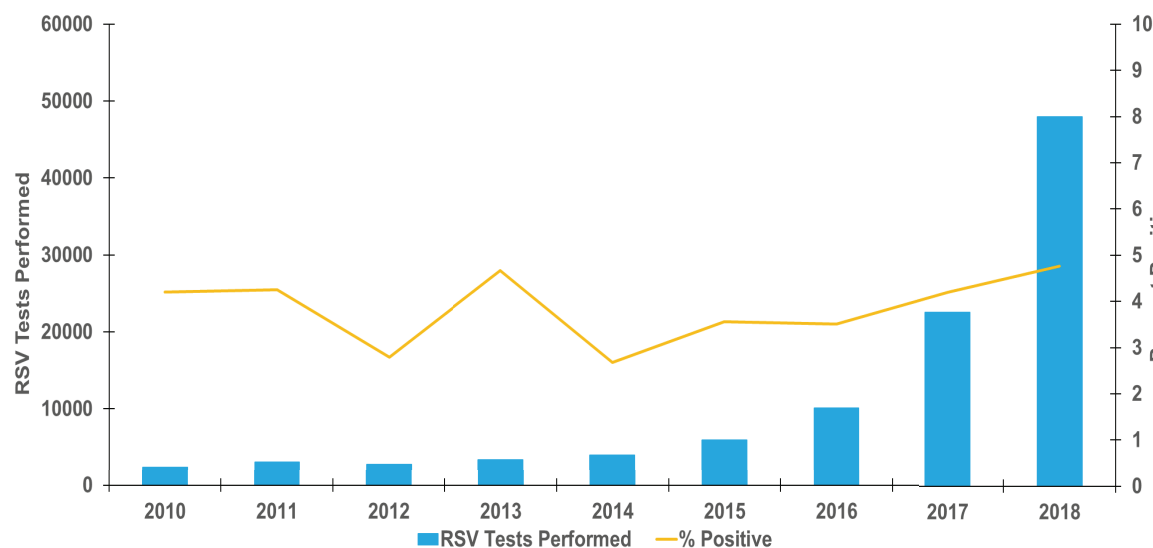
RESULTS

- A total of 102,251 RSV laboratory results were identified from 102 VHA Medical Centers in 49 states.
- 4,372 (4.3%) specimens from 4,263 unique individuals were positive (Table)
 - Demographics: Median age 67 years, 90% were male
 - RSV-coded Hospitalizations: 1,511 (35.4%) positive individuals were hospitalized
- RSV type was specified for only 7.5% of all positives (Table)
- From 2010-2018, there were 2,522 RSV-coded hospitalizations among 2,444 unique patients
 - 78% of RSV-coded hospitalizations (excluding non-VHA hospitalizations) had a documented positive test result
 - Outcomes: ICU stays: 413 (16.4%), In-hospital mortality: 98 (3.9%), Median length of stay: 4 days
 - Among patients with multiple RSV admissions, 57 were readmissions (≤ 30 days of initial RSV hospitalization discharge) and 22 were either >30 days apart or during different surveillance years.
- A greater than 15-fold increase in RSV tests performed, hospitalizations and outpatient encounters was observed from 2010-2018, although the percent testing positive was relatively stable (Figure, Table).

Table. Select RSV Surveillance Metrics, Veterans Health Administration, 2010-2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
RSV-coded Hospitalizations	59	62	48	100	139	221	333	581	979	2,522
RSV-coded Outpatient Visits	36	58	81	126	77	185	300	562	1,554	2,979
RSV Lab Tests Performed	2,428	3,058	2,791	3,386	4,010	5,936	10,129	22,563	47,950	102,251
RSV Positive (%)	101 (4.2)	130 (4.3)	78 (2.8)	158 (4.7)	107 (2.7)	211 (3.6)	356 (3.5)	948 (4.2)	2,285 (4.8)	4,372 (4.3)
RSV A (%)	5 (5)	8 (6.1)	9 (11.5)	35 (22.2)	6 (5.6)	22 (10.4)	32 (9)	20 (2.1)	10 (0.4)	147 (3.4)
RSV B (%)	3 (3)	17 (13)	2 (2.6)	7 (4.4)	11 (10.3)	43 (20.4)	30 (8.4)	35 (3.7)	32 (1.4)	180 (4.1)
RSV Type Not Specified (%)	93 (92.1)	105 (80.8)	67 (86)	116 (73.4)	90 (84.1)	146 (69.2)	294 (82.6)	893 (94.2)	2,241 (98.2)	4,405 (92.5)

Figure. Testing for Respiratory Syncytial Virus (RSV), Veterans Health Administration, 2010-2018



CONCLUSIONS

- RSV testing and identification of patients with RSV infection increased dramatically during the time period analyzed, likely due to increased availability of PCR-based multi-pathogen panels and duplex assays.
- While the percentage of tests positive for RSV remained relatively stable, the rise in coded hospitalizations may be due to increased testing for RSV among hospitalized Veterans with severe respiratory infections.
- Percent positivity for RSV was fairly stable over the seasons analyzed which is in line with other studies which note a more consistent attack rate and severity for RSV compared to influenza.²
- Outcomes among patients with an RSV-coded hospitalization included: ICU admission in 16.4%, in-hospital mortality of 3.9%, and re-admission for 2.3% which was similar to reported influenza outcomes in VHA.³
- These surveillance data may allow for further characterization of RSV disease burden estimates which can help inform clinical management and development of interventions for adults, such as vaccines and antiviral therapies.

LIMITATIONS

- ICD-10-CM codes were used to identify hospitalizations and outpatient visits and do not necessarily represent laboratory confirmed cases.
- Laboratory testing data from non-VHA hospitalizations was not available.

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