

# RSV-associated hospitalizations in adults aged ≥18 years and the impact of the COVID-19 pandemic in the United States, October 2018 – August 2022

Fiona Havers, MD, MHS<sup>1,2</sup>; Michael Whitaker, MPH<sup>1</sup>; Huong Pham, MPH<sup>1</sup>; Onika Anglin, MPH<sup>1,3</sup>; Jennifer Milucky, MSPH<sup>1</sup>; Kadam Patel, MBBS, MPH<sup>1,3</sup>; Pam Daily Kirley, MPH<sup>4</sup>; Elizabeth Austin, MPH<sup>5</sup>; James Meek, MPH<sup>6</sup>; Evan J. Anderson, MD<sup>7,8,9</sup>; Maya L. Monroe, MPH<sup>10</sup>; Chloe Brown, MPH<sup>11</sup>; Erica Bye, MPH<sup>12</sup>; Francesco G. Pacheco, MPH<sup>13</sup>; Grant Barney, MPH<sup>14</sup>; Virginia Cafferky, BS<sup>15</sup>; Melissa Sutton, MD, MPH<sup>16</sup>; H. Keipp Talbot, MD, MPH<sup>17</sup>; Ryan Chatelain, MPH<sup>18</sup>; Susan Gerber, MD<sup>1</sup>; Gayle Langley, MD, MPH<sup>1</sup>; Lindsay Kim, MD, MPH<sup>1,2</sup>; Christopher A. Taylor, PhD<sup>1</sup>.

## BACKGROUND

### RSV is an important cause of hospitalizations in adults

- In the U.S., RSV typically circulates in late fall and winter months
- The COVID-19 pandemic and non-pharmaceutical interventions, such as mask wearing and social distancing, affected RSV circulation

## METHODS

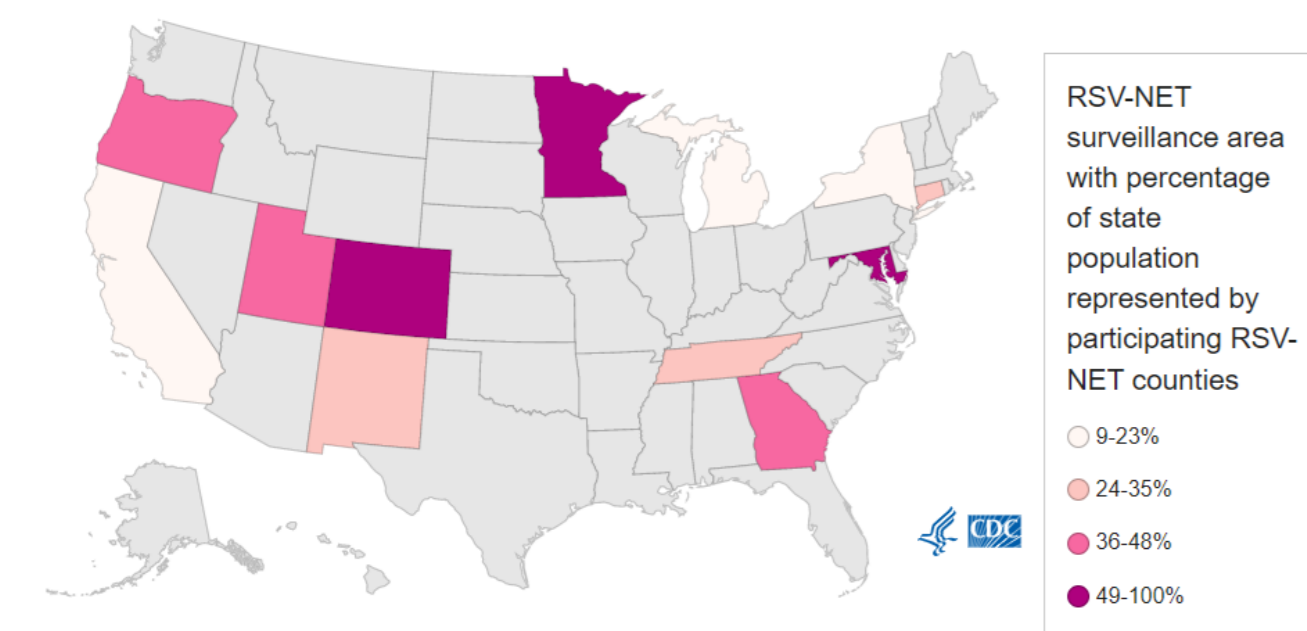
### RSV Hospitalization Surveillance Network (RSV-NET)

- Population-based surveillance of RSV-associated hospitalizations
- Laboratory-confirmed RSV in a hospitalized resident of RSV-NET catchment area county
- >200 hospitals
- 12 U.S. states
- 75 counties
- 8.6% of the U.S. population
- Surveillance periods
  - 2018-19 and 2019-20 (pre-pandemic): October – April
  - 2020-2021: Year round
  - 2021-2022: October – August (ongoing)

### Case definition

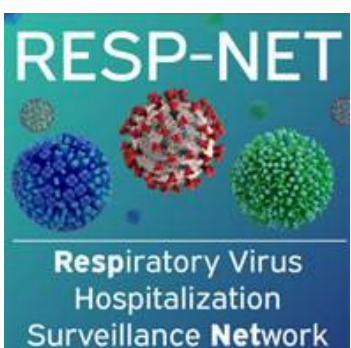
- Resident of a defined catchment area
- Tested positive for RSV through a test ordered by a healthcare professional within 14 days prior to or during hospitalization

Figure 1. RSV-NET catchment area



### Adjusted population-based rates

- Rates adjusted for undertesting:
  - Sample of all persons hospitalized with an acute respiratory illness
  - Percent tested and percent positive for RSV
- Rates adjusted for test sensitivity



### Limitations

- Wide confidence intervals for estimates
- Based on clinician-driven testing
  - Adjustments for undertesting and test sensitivity may be inaccurate
- RSV-NET may not be representative of U.S. population

- The COVID-19 pandemic changed seasonal circulation of RSV and decreased RSV hospitalization rates
- Adults of all ages hospitalized with RSV experience severe clinical outcomes
- The burden of RSV-associated hospitalizations remains high in older adults

Figure 1. Case count of RSV hospitalizations by season in adults ≥18 years

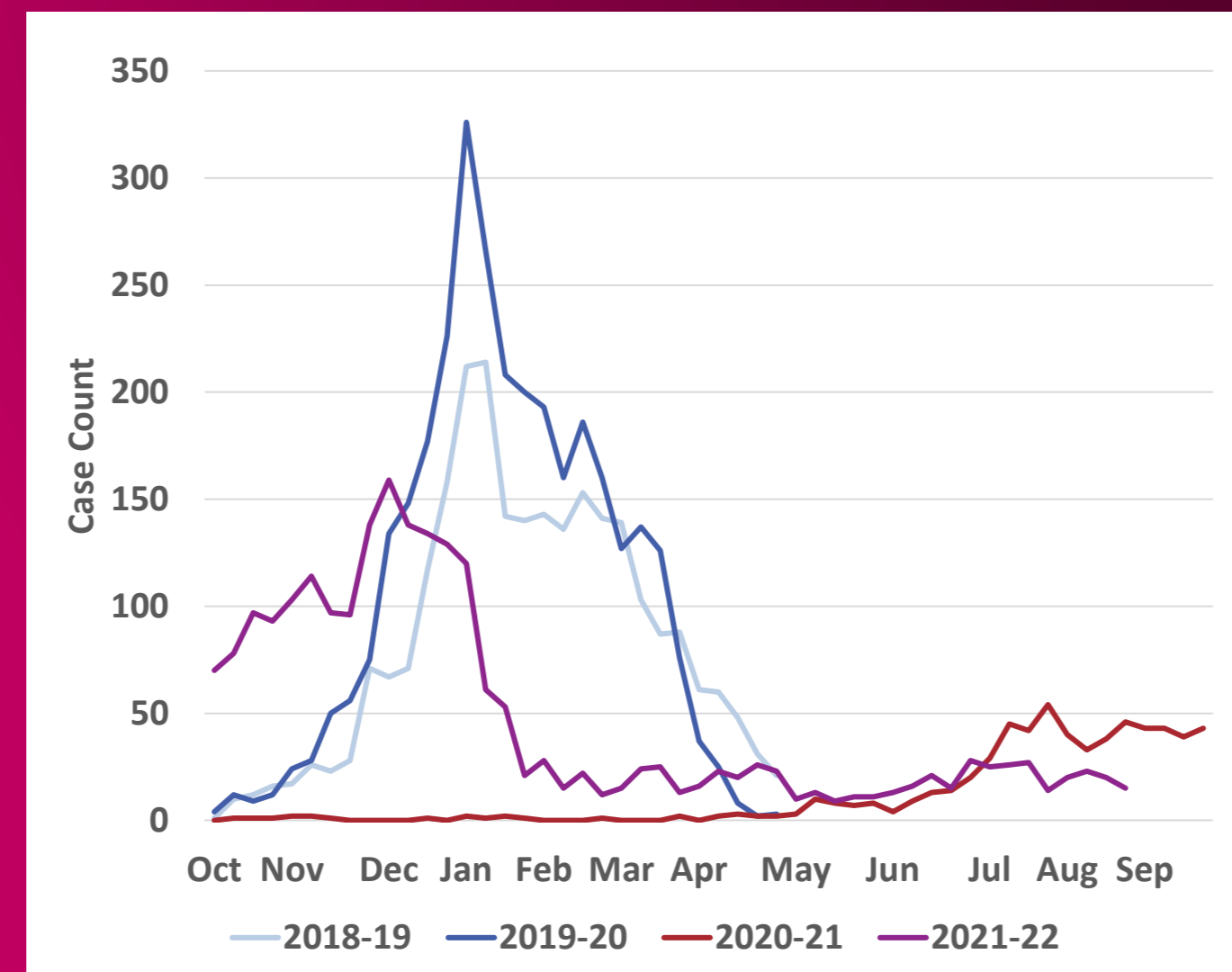
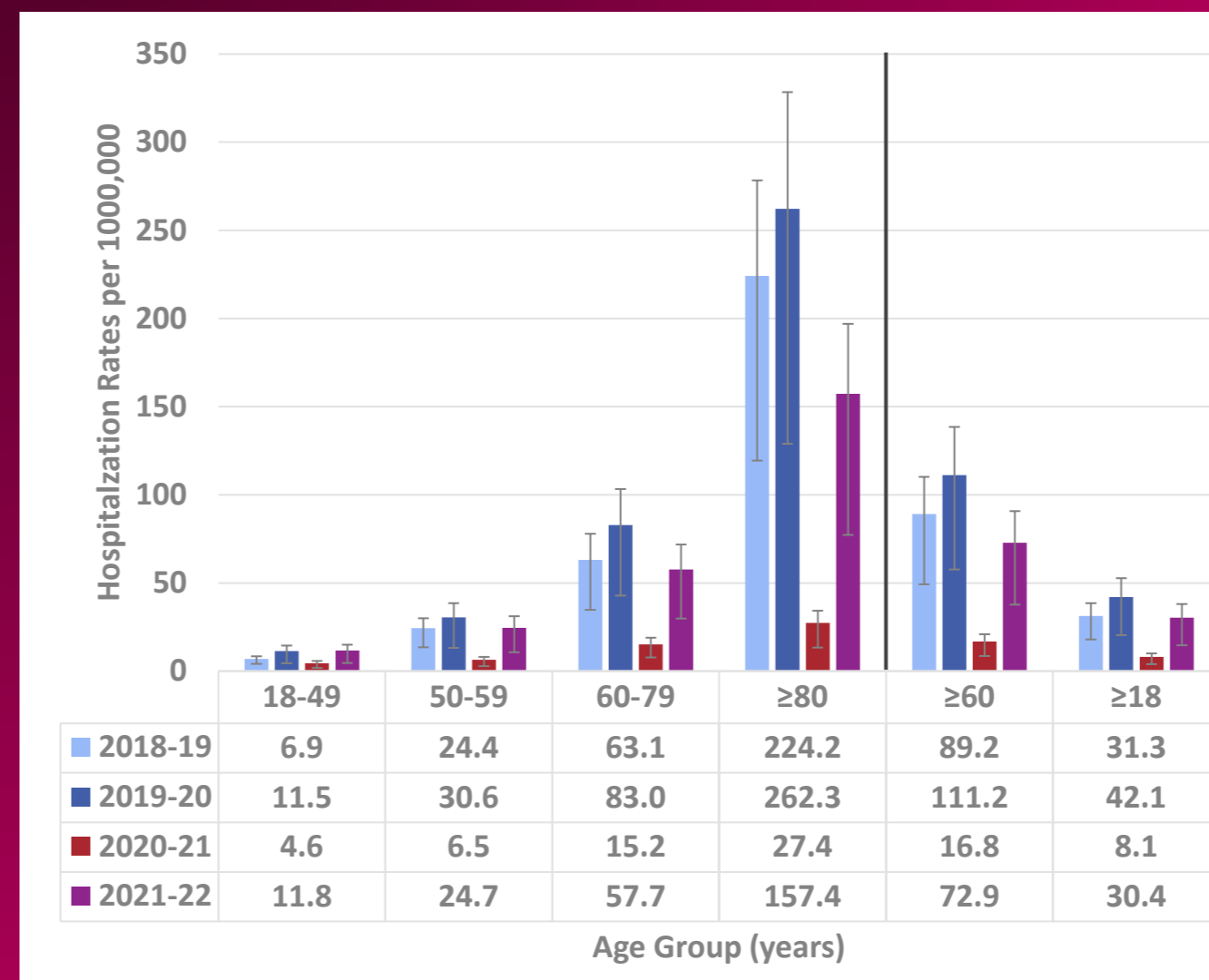


Figure 2. Hospitalization rates per 100,000 population by age group and season



## Results

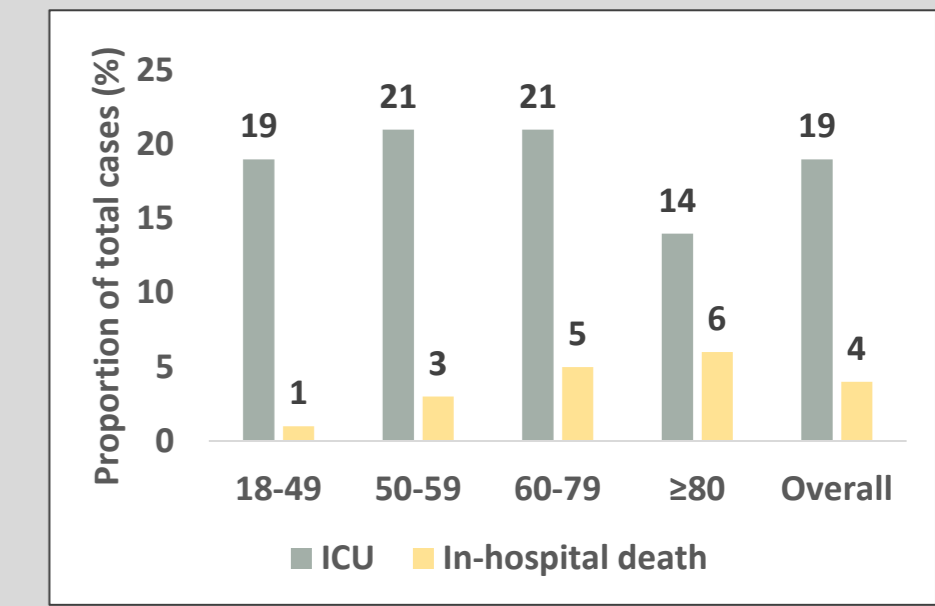
Table 1. RSV-NET cases and peak month by surveillance season

Season	Surveillance months	Cases (N)	Peak Month
2018–2019	October–April	2,536	January
2019–2020	October–April	3,195	January
2020–2021	October–Sept	618	July
2021–2022	October–August (ongoing)	2,294	December

Table 2. Age distribution of hospitalized cases

Age group (years)	%
18–49	16
50–59	23
60–79	33
≥80	27

Figure 4. Proportion of cases admitted to the intensive care unit (ICU) or with in-hospital death, by age group



## Conclusions

- The COVID-19 pandemic severely disrupted normal seasonal RSV circulation
- The burden of RSV hospitalization remains high in older adults
  - 60% of all hospitalized cases were in adults ≥60 years across all seasons
- The proportion of patients admitted to the ICU was high in all age groups

Affiliations/Partners: <sup>1</sup>Centers for Disease Control and Prevention, Atlanta, Georgia; <sup>2</sup>United States Public Health Service, Rockville, Affiliations: Maryland; <sup>3</sup>General Dynamics Information Technology, Atlanta, Georgia; <sup>4</sup>California Emerging Infections Program, Oakland, California; <sup>5</sup>Colorado Department of Public Health and Environment, Denver, Colorado; <sup>6</sup>Connecticut Emerging Infections Program, Yale School of Public Health, New Haven, Connecticut; <sup>7</sup>Emory University School of Medicine, Atlanta, Georgia; <sup>8</sup>Georgia Emerging Infections Program, Georgia Department of Public Health, Atlanta, Georgia; <sup>9</sup>Atlanta Veterans Affairs Medical Center, Atlanta, Georgia; <sup>10</sup>Maryland Department of Health, Baltimore, Maryland; <sup>11</sup>Michigan Department of Health and Human Services, Lansing, Michigan; <sup>12</sup>Minnesota Department of Health, St. Paul, Minnesota; <sup>13</sup>New Mexico Emerging Infections Program, Albuquerque, New Mexico; <sup>14</sup>New York State Department of Health, Albany, New York; <sup>15</sup>University of Rochester School of Medicine and Dentistry, Rochester, New York; <sup>16</sup>Public Health Division, Oregon Health Authority, Portland, Oregon; <sup>17</sup>Vanderbilt University Medical Center, Nashville, Tennessee; <sup>18</sup>Salt Lake County Health Department, Salt Lake City, Utah



### CONTACT INFO

Fiona Havers, MD, MHS, FIDSA  
fhavers@cdc.gov

