Respiratory Syncytial Virus in Older Adults

Prepared for: Maine Immunization Program

Rajeev Shah, PharmD, AAHIVP, BCIDP
Medical Science Liaison – Vaccines

September 27th, 2023

GSK

This presentation is provided to you in response to your request for information and not for further distribution.

Some information contained in these slides may be outside of the approved Prescribing Information. This information is not intended to offer recommendations for administration of this product in a manner inconsistent with the Prescribing Information.

In order for GSK to monitor safety of our products, we encourage healthcare professionals to report adverse events or suspected overdoses to the company at 888-825-5249. Please consult the Prescribing Information at this link or at GSK Products.

GSK

Epidemiology and Burden of RSV

Annual burden of RSV in the US

- RSV burden in infants, young children and in older adults[1,2]

RSV is a major cause of hospitalization and mortality in older adults[1]

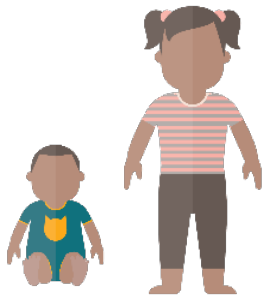
In older adults, ≥ 65 years:

~177,000 hospitalizations[1]

Outpatient and ED visits in adults are underestimated due to lack of surveillance and underreporting[3]

an estimated **14,000** deaths[1]

RSV is a major cause of hospitalization in infants[2,4]



In children aged < 5 years:

~58,000 hospitalizations[2,4]

~1.5 million outpatient visits[4]

~520,000 ED visits[4]

~100-500 deaths[5]

ED = Emergency department.

1. Falsey AR, et al. *N Engl J Med.* 2005;352:1749–1759. https://doi.org/10.1056/nejmoa043951. 2. Rha B, et al. *Pediatrics*. 2020;146(1):e20193611. https://doi.org/10.1542/peds.2019-3611. 3. National Foundation for Infectious Diseases. Call to action: Reducing the burden of RSV across the lifespan. January 2022. RSV Call to Action (nfid.org). 4. Hall CB, et al. *N Engl J Med*. 2009;360(6):588-598. https://doi.org/10.1056/nejmoa0804877. 5. Thompson WW, et al. *JAMA*. 2003;289(2):179-186. https://doi.org/10.1001/jama.289.2.179.

RSV and Influenza

Frequency of Symptoms of RSV and Influenza in Older Adults[1]

Sputum
RSV: 76–100%
Flu: 76–100%

Headache
RSV: 51–75%
Flu: 76–100%

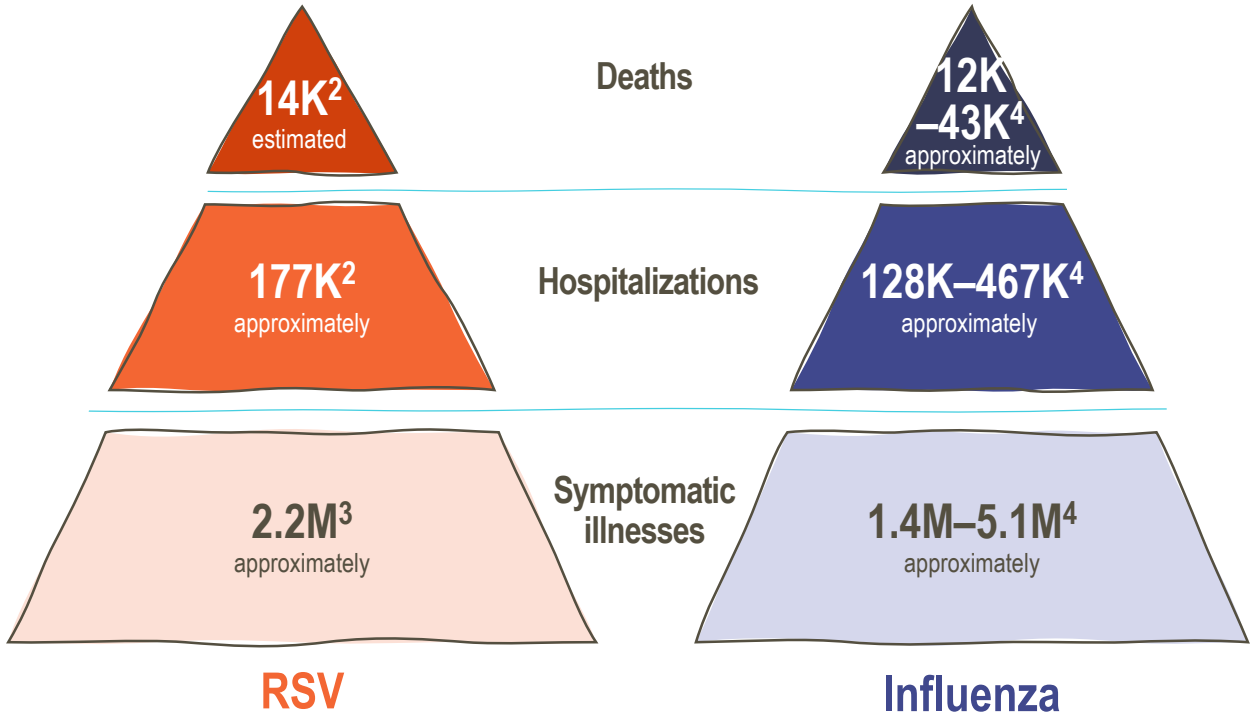
Wheezing
RSV: 51–75%
Flu: 76–100%

Hoarseness
RSV: 51–75%
Flu: 51–75%

Congestion
RSV: 51–75%
Flu 51–75%

Dyspnea
RSV: 51–75%
Flu: 51–75%

Annual Burden of Disease in Adults ≥ 65 Years in the US



Flu = Influenza

1. Kodama F, et al. *Infect Dis Clin North Am.* 2017;31:767–790; 2. Falsey AR et al. *N Engl J Med* 2005;352:1749–1759; 3. June 2022 ACIP presentation on "RSV in adults". Available at https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2022-06-22-23/04-RSV-Havers-508.pdf. Accessed November 23, 2022.4. Centers for Disease Control and Prevention. Past Seasons Estimated Influenza Disease Burden | CDC. Accessed November 23, 2022.

Age and Underlying Medical Conditions among Adults Hospitalized with RSV

In a large prospective study conducted in two regions in NY across 3 RSV seasons between 2017-2020 (N = 1099 hospitalized RSV cases):

Age

Incidence of RSV Infection in Hospitalized Adults per 100,000 Persons

Age Group	Rate (per 100,000 persons)
18-49 y	7.72 – 11.94
50-64 y	33.46 – 63.03
≥ 65 y	136.92 – 255.56

Certain Underlying Medical Conditions

Hospitalization Rates for RSV Were Higher for Older Adults (≥ 65) with Certain Underlying Conditions

Comorbidity	Incidence Rate Ratio[a]
COPD	3.51 | 13.41
Asthma	2.27 | 2.52[b]
Diabetes	2.35 | 6.44
CAD	3.75 | 6.46
CHF[c]	3.99 - 7.63

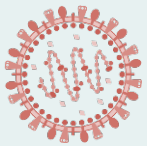
[a] Ratio of rate among people with each comorbidity vs those without it, in the surveillance area population. Incidence Rate Ratios (IRR) were observed in New York City, NY (left) and Rochester, NY (right). [b] Not statistically significant. [c] CHF patient population is ≥ 60 years of age. IRR for CHF represents a range observed across 2 age groups (60-79 y and ≥ 80 y) and both surveillance areas.

CAD = coronary artery disease; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; y = years.

Branche AR et al. *Clin Infect Dis*. 2022 Mar 23;74(6):1004-1011. https://doi.org/10.1093/cid/ciab595.

Treatment of RSV Disease[a]

The mainstay of therapy for acute RSV infection is supportive care[1–3]

 Mild infection	Most RSV infections resolve without clinical complications within 1 or 2 weeks[1,3] Maintaining hydration and managing symptoms with over-the-counter medications[1]
 Severe infection	Supplemental oxygen or mechanical ventilation[1–3] Maintaining hydration, using nasogastric or intravenous fluids when needed[3,4] (Bronchodilators, corticosteroids and antibiotics are not routinely recommended[3,4])
 Life-threatening infection	The antiviral ribavirin aerosol is approved by the US FDA for treatment of RSV in young children[2,5] It is used for treatment of patients at greatest risk of fatal RSV-LRTI such as transplant patients[2,5]

[a] In pediatric and adult patients.

AE = adverse effect; FDA = Food and Drug Administration; LRTI = lower respiratory tract infection.

1. Centers for Disease Control and Prevention. Symptoms and Care of RSV (Respiratory Syncytial Virus) | CDC. Accessed September 2022. 2. Nam HH, et al. *BMJ.* 2019;366:l5021. https://doi.org/10.1136/bmj.l5021. 3. Smith DK, et al. *Am Fam Physician* 2017;95:94–99; 4. Ralston SL, et al. *Pediatrics.* 2014;134:e1474–e1502. https://doi.org/10.1542/peds.2015-2862. 5. FDA. Respiratory syncytial virus infection: Developing antiviral drugs for prophylaxis and treatment. https://www.fda.gov/media/108437/download Accessed September 2022.

Arexvy
(Respiratory Syncytial Virus Vaccine, Adjuvanted)

Immunosenescence

The immature newborn immune system develops throughout adolescence into adulthood[1]

As adults age, immune system function deteriorates, a process known as **immunosenescence**, in which both genetic and environmental factors play a role[2]

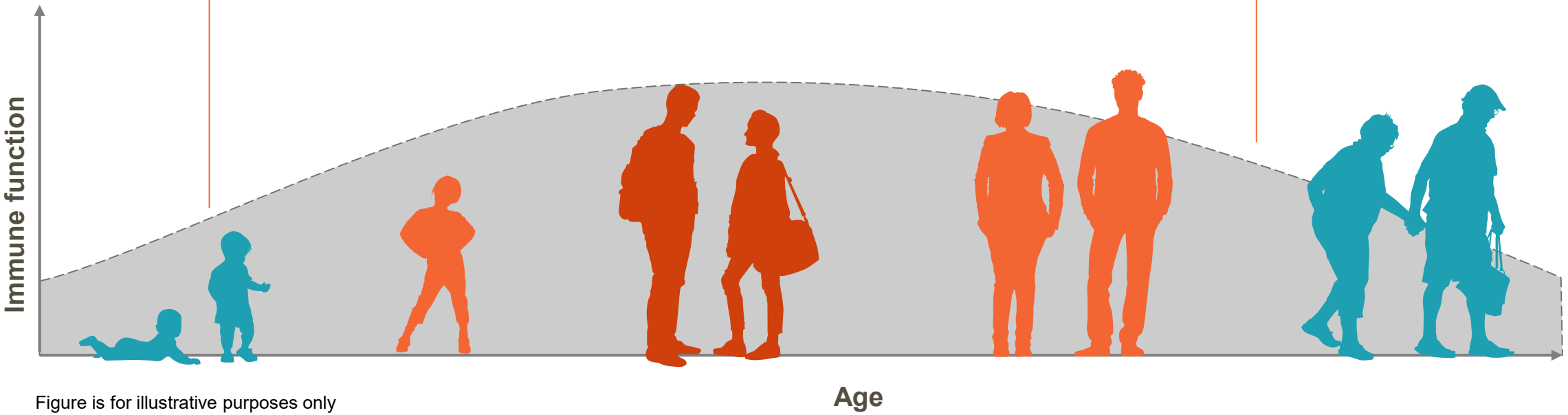


Figure is for illustrative purposes only

1. Simon AK *et al. Proc Biol Sci* 2015;282:2014–3085; 2. Del Giudice G *et al. NPJ Aging Mech Dis* 2017;4:1

Arexvy (Respiratory Syncytial Virus Vaccine, Adjuvanted)

Mechanism of Action: *Arexvy* induces an immune response against RSVpreF3 that protects against LRTD caused by RSV.

Prescribing Information for *Arexvy*.
LRTD = lower respiratory tract disease; RSV = respiratory syncytial virus; RSVPreF3 = recombinant respiratory syncytial virus glycoprotein F stabilized in pre-fusion conformation.
Image of F protein reproduced from Graham BS, et al. *Curr Opin Immunol.* 2015;35:30–38, Copyright 2015, with permission from Elsevier.
[a] AS01$_E$ adjuvant system is composed of two immunostimulants (MPL [3-*O*-desacyl-4'-monophosphoryl lipid A] and QS-21 [a saponin purified from plant extract *Quillaja saponaria* Molina]).

Arexvy (Respiratory Syncytial Virus Vaccine, Adjuvanted)

Approved by the FDA on May 3, 2023[1]

Indication[2]

Active immunization for the prevention of lower respiratory tract disease caused by RSV in individuals 60 years of age and older

Dosage[2]

Single 0.5 mL dose injected intramuscularly

How Supplied[2]

2-vial presentation, lyophilized antigen component (powder) and adjuvant suspension component (liquid)

RSV = respiratory syncytial virus.

1. Food and Drug Administration. FDA approves first respiratory syncytial virus (RSV) vaccine. Accessed May 4, 2023. 2. Prescribing Information for *Arexvy*.

ACIP Recommendation

On June 21, 2023, ACIP recommended that:

Respiratory Syncytial Virus (RSV) Vaccines – Adult
Adults ≥ 60 years may receive a single dose of Respiratory Syncytial Virus (RSV) vaccine, using shared clinical decision-making.[1]

*Shared clinical decision-making recommendations are individually based and informed by a decision process between the health care provider and the patient. The decision about whether or not to vaccinate may be informed by the best available evidence of who may benefit from vaccination; the individual's characteristics, values, and preferences; the health care provider's clinical discretion; and the characteristics of the vaccine being considered.[2]

Please refer to the MMWR on the Use of Respiratory Syncytial Virus Vaccines in Older Adults8 for complete information. http://dx.doi.org/10.15585/mmwr.mm7229a4.

1. Melgar M, Britton A, Roper LE, et al. Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023. *MMWR Morb Mortal Wkly Rep.* 2023;72:793–801. http://dx.doi.org/10.15585/mmwr.mm7229a4. Accessed on July 20, 2023. 2. CDC. Advisory Committee on Immunization Practices (ACIP). ACIP Shared Clinical Decision-Making Recommendations. Accessed June 29, 2023.

ACIP Recommendation[1]

Shared clinical decision-making

Epidemiologic evidence indicates that persons aged ≥ 60 years who are at highest risk for severe RSV disease and who might be most likely to benefit from vaccination include those with chronic medical conditions such as:

- Lung diseases including COPD and asthma;
- Cardiovascular diseases such as CHF and CAD;
- Moderate or severe immune compromise (either attributable to a medical condition or receipt of immunosuppressive medications or treatment);
- Diabetes mellitus;
- Neurologic or neuromuscular conditions;
- Kidney disorders, liver disorders, and hematologic disorders;
- People who are frail; persons of advanced age; and persons with other underlying conditions or factors that the provider determines might increase the risk for severe RSV-associated respiratory disease.
- Adults aged ≥ 60 years who are resident of nursing homes and other long-term care facilities are also at risk for severe RSV disease.

Please refer to the MMWR on the Use of Respiratory Syncytial Virus Vaccines in Older Adults8 for complete information. http://dx.doi.org/10.15585/mmwr.mm7229a4.

ACIP = Advisory Committee on Immunization Practices; CAD = coronary artery disease; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; RSV = respiratory syncytial virus.

1. Melgar M, Britton A, Roper LE, et al. Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023. *MMWR Morb Mortal Wkly Rep.* 2023;72:793–801. DOI: http://dx.doi.org/10.15585/mmwr.mm7229a4. Accessed on July 20, 2023.

ACIP Recommendation

Shared clinical decision-making

Who is considered a health care provider with regard to shared clinical decision-making recommendations?

In this context, CDC defines a health care provider as anyone who provides or administers vaccines including:

- Primary care physicians, specialists
- Physician assistants
- Nurse practitioners
- Registered nurses
- Pharmacists

Please refer to the MMWR on the Use of Respiratory Syncytial Virus Vaccines in Older Adults8 for complete information. http://dx.doi.org/10.15585/mmwr.mm7229a4.

ACIP = Advisory Committee on Immunization Practices; CDC = Centers for Disease Control and Prevention

CDC. ACIP Shared Clinical Decision-Making Recommendations. Available at: https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html#who-hcp. Reviewed February 10, 2020. Accessed on July 20, 2023.

ACIP Recommendation

RSV Vaccination Timing

- Optimally, vaccination should occur before the onset of the RSV season; however, typical RSV seasonality was disrupted by the COVID-19 pandemic and has not returned to pre-pandemic patterns.
- For the 2023–24 season, clinicians should offer RSV vaccination to adults aged ≥ 60 years using shared clinical decision-making as early as vaccine supply becomes available and should continue to offer vaccination to eligible adults who remain unvaccinated.
- As with all vaccines, RSV vaccination should be delayed for persons experiencing moderate or severe acute illness with or without fever (precaution).
- Sufficient evidence does not exist at this time to determine the need for revaccination.

Please refer to the MMWR on the Use of Respiratory Syncytial Virus Vaccines in Older Adults8 for complete information. http://dx.doi.org/10.15585/mmwr.mm7229a4.

ACIP = Advisory Committee on Immunization Practices; RSV = respiratory syncytial virus.

Melgar M, Britton A, Roper LE, et al. Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023. *MMWR Morb Mortal Wkly Rep.* 2023;72:793–801. DOI: http://dx.doi.org/10.15585/mmwr.mm7229a4. Accessed on July 20, 2023.

ACIP Recommendation

Vaccine Administration, Including Co-administration with Other Vaccines

- Co-administration of RSV vaccines with other adult vaccines during the same visit is acceptable.
  - When administering more than one vaccine at the same clinical visit, providers should separate injection sites by at least 1 inch if possible and consider administering vaccines that are associated with an enhanced local reaction in separate limbs.
- Available data on immunogenicity of co-administration of RSV vaccines and other vaccines are currently limited.
- Administering RSV vaccine with one or more other vaccines at the same visit might increase local or systemic reactogenicity.
- Data are only available for co-administration of RSV and influenza vaccines, and evidence is mixed regarding increased reactogenicity.

Please refer to the MMWR on the Use of Respiratory Syncytial Virus Vaccines in Older Adults8 for complete information. http://dx.doi.org/10.15585/mmwr.mm7229a4.

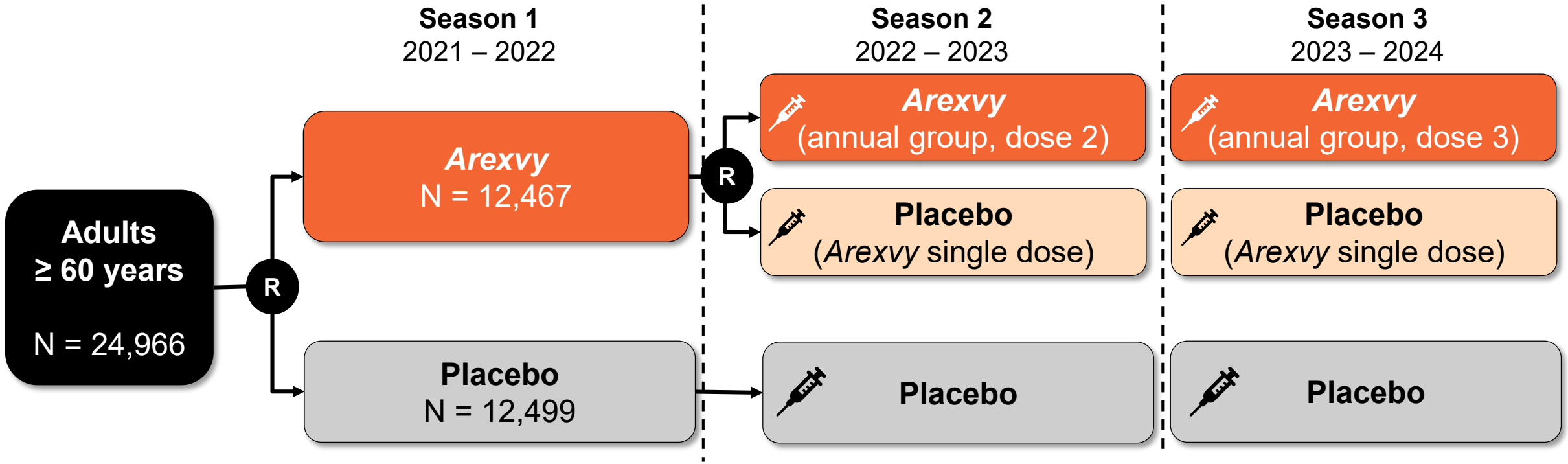
ACIP = Advisory Committee on Immunization Practices; RSV = respiratory syncytial virus.

Melgar M, Britton A, Roper LE, et al. Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023. *MMWR Morb Mortal Wkly Rep.* 2023;72:793–801. DOI: http://dx.doi.org/10.15585/mmwr.mm7229a4. Accessed on July 20, 2023.

AReSVi-006: Results Through 2 Full RSV Seasons

Ongoing Phase 3 Trial Design

Randomized, placebo-controlled, observer-blind, multi-country study



Confirmatory secondary endpoint: Evaluate efficacy of *Arexvy* in prevention of RSV[a]-LRTD[b] in adults ≥ 60 YOA over 2 seasons, following a single dose of *Arexvy* and following annual revaccination dose

- All RSV-LRTD cases adjudicated by independent external adjudication committee
- Success criterion: lower limit of 2-sided 97.5% CI for vaccine efficacy > 20%

[a] RT-PCR confirmed; [b] LRTD defined as ≥ 2 lower respiratory symptoms/signs for ≥ 24 hours including ≥1 lower respiratory sign OR ≥ 3 lower respiratory symptoms for ≥ 24 hours;
RT-PCR: reverse transcriptase polymerase chain reaction
RSV = respiratory syncytial virus; LRTD = lower respiratory tract disease; S1 = season 1; S2 = season 2
CDC. Advisory Committee on Immunization Practices (ACIP). https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2023-06-21-23/03-RSV-Adults-Friedland-508.pdf. Accessed June 29, 2023

Demographic characteristics of exposed set

Characteristic	*Arexvy* (N = 12,467)	Placebo (N = 12,499)
Mean age, years	69.5	69.6
Age category, n (%)		
≥ 60 years	12,467 (100)	12,499 (100)
60–69 years	6963 (55.9)	6980 (55.8)
70–79 years	4487 (36)	4491 (35.9)
≥ 80 years	1017 (8.2)	1028 (8.2)
Female, n (%)	6488 (52)	6427 (51.4)
Male, n (%)	5979 (48)	6072 (48.6)
Race, n (%)		
White	9887 (79.3)	9932 (79.5)
Black or African American	1064 (8.5)	1101 (8.8)
Asian	953 (7.6)	956 (7.6)
Other[a]	563 (4.5)	510 (4.1)
Frailty status, n (%)[b]		
Frail	189 (1.5)	177 (1.4)
Pre-frail	4793 (38.4)	4781 (38.3)
Fit	7464 (59.9)	7521 (60.2)
Unknown	21 (0.2)	20 (0.2)
Comorbidity of interest, n (%)[c]		
≥ 1 pre-existing comorbidity of interest	4937 (39.6)	4864 (38.9)

[a] Includes Native American, Alaska Native, Native Hawaiian and other Pacific islanders; [b] Assessed by a gait speed test; [c] COPD, asthma, any chronic respiratory/pulmonary disease, diabetes type 1 or type 2, chronic heart failure, advanced liver or renal disease. COPD = chronic obstructive pulmonary disease; SD = standard deviation.

1. Papi A, Ison M, Langley J, et al. Respiratory Syncytial Virus Prefusion F Protein Vaccine in Older Adults. *New England Journal of Medicine.* 2023;388(7):595-608. doi:http://dx.doi.org/10.1056/NEJMoa2209604

Around 39% of participants in each group had ≥ 1 pre-existing comorbidity of interest associated with an increased risk of severe RSV disease[c]

Study 006: Case definitions[1,2]

ARI
≥ 2 respiratory symptoms or signs

OR

≥ 1 respiratory and 1 systemic symptom or sign

Systemic symptoms or signs

- Fever/feverishness
- Fatigue
- Body aches
- Headache
- Decreased appetite

Respiratory symptoms or signs

Upper repspiratory symptoms or signs
- Nasal congestion
- Sore throat

Lower respiratory symptoms
- Sputum
- Cough
- Dyspnea

Lower respiratory signs
- Wheezing
- Crackles/ronchi
- Tachypnea[b]
- Hypoxemia[c]
- O_2 Supplement

LRTD
≥ 2 lower respiratory symptoms or signs (≥ 1 sign)

OR

≥ 3 lower respiratory symptoms

Lower respiratory symptoms
- Sputum
- Cough
- Dyspnea

Lower respiratory signs
- Wheezing
- Crackles/ronchi
- Tachypnea
- Hypoxemia
- O_2 Supplement

SEVERE LRTD
Definition 1: ≥ 2 lower respiratory signs or assessed 'severe[d] by PI

OR

Definition 2: Need of additional supportive therapy *

Lower respiratory signs
- Wheezing
- Crackles/ronchi
- Tachypnea
- Hypoxemia
- O_2 Supplement

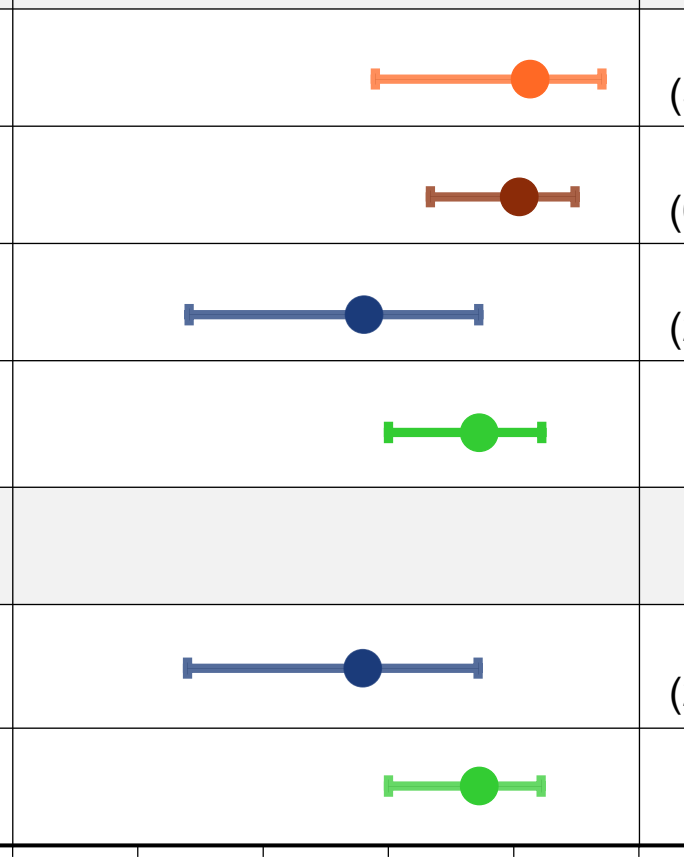
*O_2 supplementation, positive airway pressure therapy or other types of mechanical ventilation

All suspected cases of RSV were confirmed by RT-PCR. Case definitions based on presence of symptoms/signs for at least 24 hours.
[a] Fever defined as temperature ≥38.0°C/100.4°F by any route. Feverishness is defined as the feeling of having fever without objective measurement. [b] Tachypnea defined as respiratory rate ≥20 respirations/min; [c] Hypoxemia defined as low or decreased oxygen saturation (= oxygen saturation <95% or ≤90% if pre-season baseline is <95%); [d] Severe ARI/LRTD defined as and ARI/LRTD which prevents normal, everyday activities
ARI = acute respiratory infection; LRTD = lower respiratory tract disease; O_2 = oxygen; RT-PCR = reverse-transcriptase polymerase chain reaction.

1. Papi A, et al.Supplement. *N Engl J Med* 12023;388:595-608. DOI: 10.1056/NEJMoa2209604 2. Vaccines and related Biological Products Advisory Committee February 28-March 1, 2023 Meeting Presentation. RSVPreF3 Vaccine for Respiratory Syncytial Virus (RSV) in older adults. Available at https://www.fda.gov/media/165649/download Accessed on May, 8, 2023.

Vaccine Efficacy of *Arexvy* Against RSV-LRTD Over 2 Full Seasons

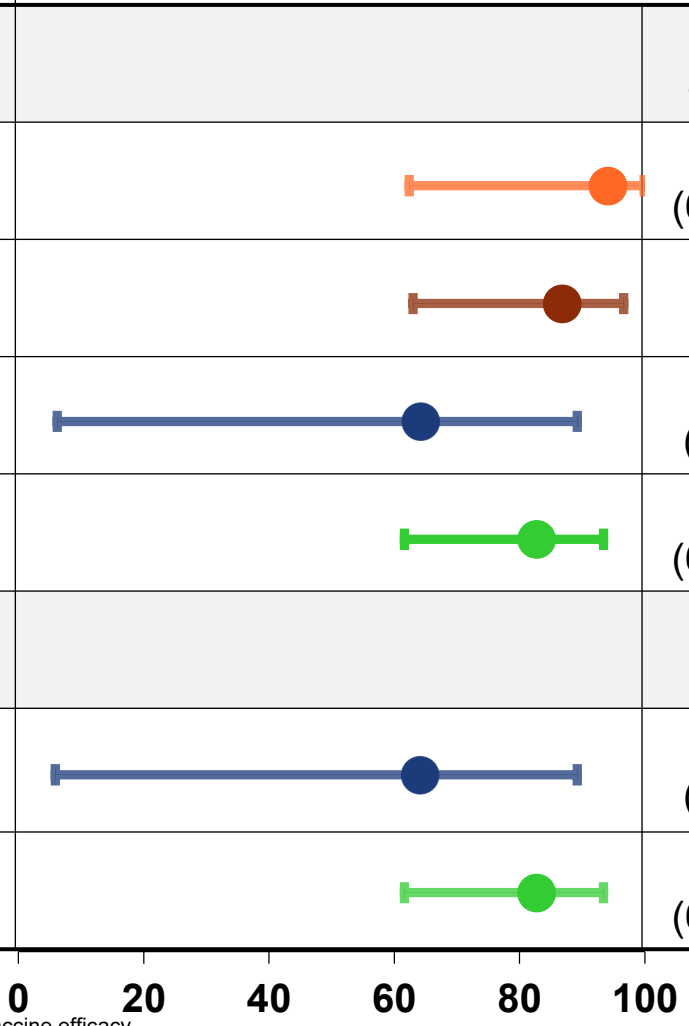
	Median Follow-Up (months)	*Arexvy*	Placebo		VE (95% CI)	VE (95% CI)
		Number of events				
Single Dose					*W/o season as covariate*	*W/ season as covariate*
Season 1[a] VE 1	**6.7**	**7** / 12,466	**40** / 12,494		**82.6%** (57.9, 94.1)	**82.6%** (57.9, 94.1)
Mid Season 2 Post dose 1	**14**	**15** / 12,469	**85** / 12,498		**80.9%** (66.7, 89.8)	**77.3%** (60.2, 87.9)
Season 2 Only Post dose 2	**6.4**	**20** / 4991	**91** / 10,031		**56.1%** (28.2, 74.4)	**56.1%** (28.2, 74.4)
Season 1 + 2[b]	**18**	**30** / 12,469	**139** / 12,498		**74.5%** (60, 84.5)	**67.2%** (48.2, 80)
Annual (2 doses, ~12 months apart)						
Season 2 Only Post dose 2	**6.4**	**20** / 4966	**91** / 10,031		**55.9%** (27.9, 74.3)	**55.9%** (27.9, 74.3)
Seasons 1 + 2[b]	**18**	**30** / 12,469	**139** / 12,498		**74.5%** (60, 84.4)	**67.1%** (48.1, 80)



Note: Modified exposed set
[a] 96.95% CI for VE 1; [b] 97.5% CI for Season 1 + 2
CI = confidence interval; RSV = respiratory syncytial virus; LRTD = lower respiratory tract disease; VE = vaccine efficacy
CDC. Advisory Committee on Immunization Practices (ACIP). https://www.cdc.gov/vaccines/acip/meetings/slides-2023-06-21-23.html . Accessed June 29, 2023

Vaccine Efficacy of *Arexvy* Against Severe RSV-LRTD Over 2 Full Seasons

	Median Follow-Up (months)	*Arexvy* Number of events	Placebo Number of events		VE (95% CI) *W/o season as covariate*	VE (95% CI) *W/ season as covariate*
Single Dose						
Season 1 VE 1	**6.7**	**1** / 12,466	**17** / 12,494		**94.1%** (62.4, 99.9)	**94.1%** (62.4, 99.9)
Mid Season 2 Post dose 1	**14**	**4** / 12,469	**33** / 12,498		**86.8%** (63, 96.6)	**84.6%** (56.4, 96.1)
Season 2 Only Post dose 2	**6.4**	**5** / 4991	**28** / 10,031		**64.2%** (6.2, 89.2)	**64.2%** (6.2, 89.2)
Season 1 + 2	**18**	**7** / 12,469	**48** / 12,498		**82.7%** (61.6, 93.4)	**78.8%** (52.6, 92)
Annual (2 doses, ~12 months apart)						
Season 2 Only Post dose 2	**6.4**	**5** / 4966	**28** / 10,031		**64.1%** (5.9, 89.2)	**64.1%** (5.9, 89.2)
Seasons 1 + 2	**18**	**7** /12,469	**48** / 12,498		**82.7%** (61.6, 93.4)	**78.8%** (52.5, 92)



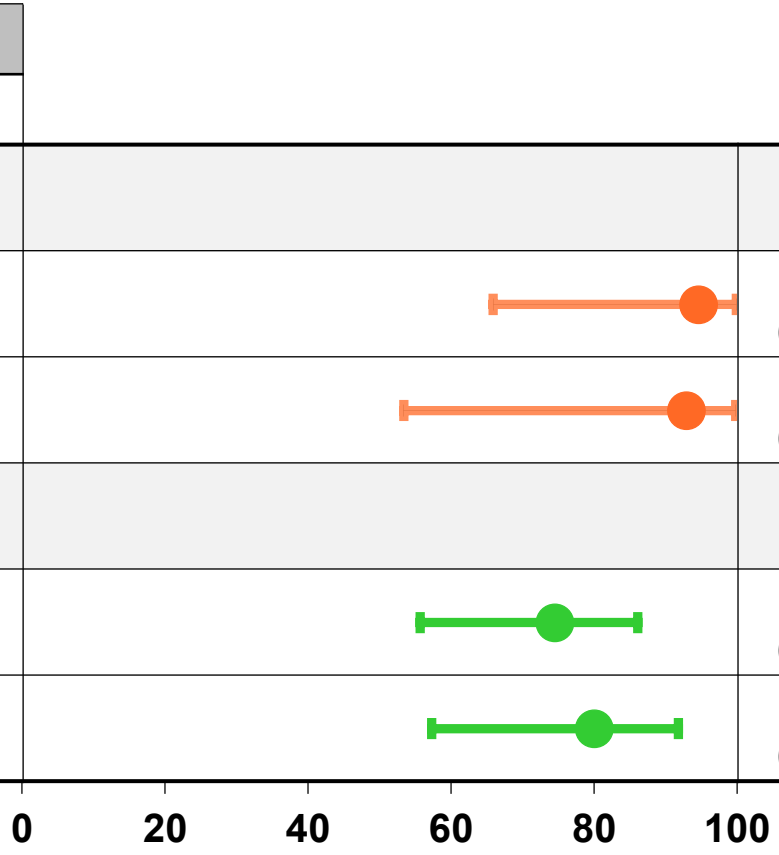
Note: Modified exposed set

CI = confidence interval; RSV = respiratory syncytial virus; LRTD = lower respiratory tract disease; VE = vaccine efficacy

CDC. Advisory Committee on Immunization Practices (ACIP).). https://www.cdc.gov/vaccines/acip/meetings/slides-2023-06-21-23.html. Accessed June 29, 2023

Vaccine Efficacy of *Arexvy* Against RSV-LRTD in Participants with Comorbidities of Interest and Pre-frail Participants Over 2 Full Seasons

	Arexvy	Placebo	VE (95% CI)	VE (95% CI)
	Number of events			
Season 1[a] (Median follow-up = 6.7 months)				
≥ 1 pre-existing comorbidity of interest	**1** / 4937	**18** / 4861	**94.6%** (65.9, 99.9)	**94.6%** (65.9, 99.9)
Pre-frail	**1** / 4792	**14** / 4778	**92.9%** (53.4, 99.8)	**92.9%** (53.4, 99.8)
Single dose over 2 seasons[b] (Median follow-up = 18 months)			*W/o season as covariate*	*W/ season as covariate*
≥ 1 pre-existing comorbidity of interest	**16** / 4983	**72** / 4919	**74.5%** (55.7, 86.1)	**66.7%** (41.8, 82)
Pre-frail	**8** / 4794	**47** / 4779	**80%** (57.3, 91.8)	**73.3%** (42.4, 89.2)



VE in frail participants cannot be concluded due to low number of cases accrued

Note: Comorbidities of interest include chronic obstructive pulmonary disease, asthma, any chronic respiratory or pulmonary disease, chronic heart failure (cardiorespiratory condition), diabetes mellitus type 1 or type 2 and advanced liver or renal disease

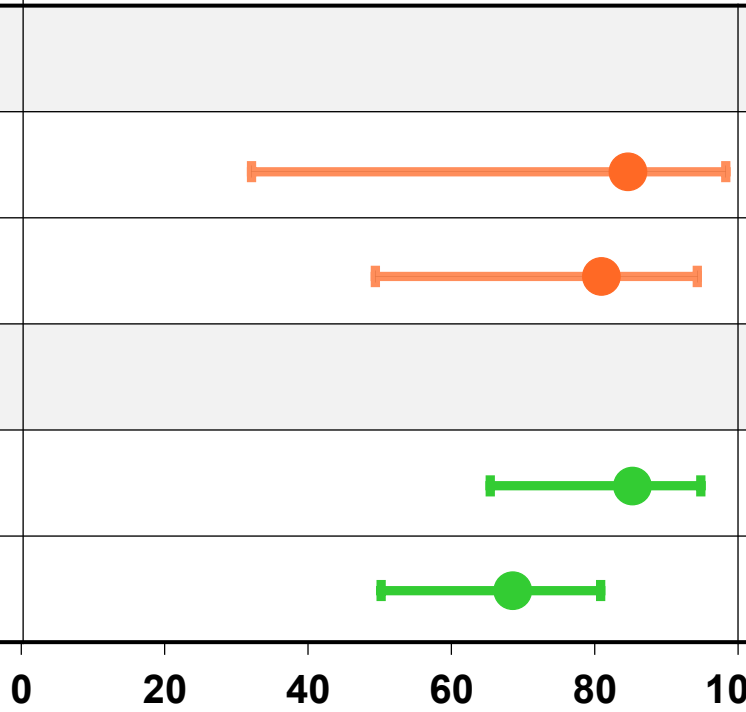
[a] April 2022 analysis; [b] From 15 days post Dose 1 up to end of Season 2 in Northern Hemisphere

CI = confidence interval; RSV = respiratory syncytial virus; LRTD = lower respiratory tract disease; VE = vaccine efficacy

CDC. Advisory Committee on Immunization Practices (ACIP). https://www.cdc.gov/vaccines/acip/meetings/slides-2023-06-21-23.html. Accessed June 29, 2023

Vaccine Efficacy of *Arexvy* Against RSV-A LRTD and RSV-B LRTD Over 2 Full Seasons

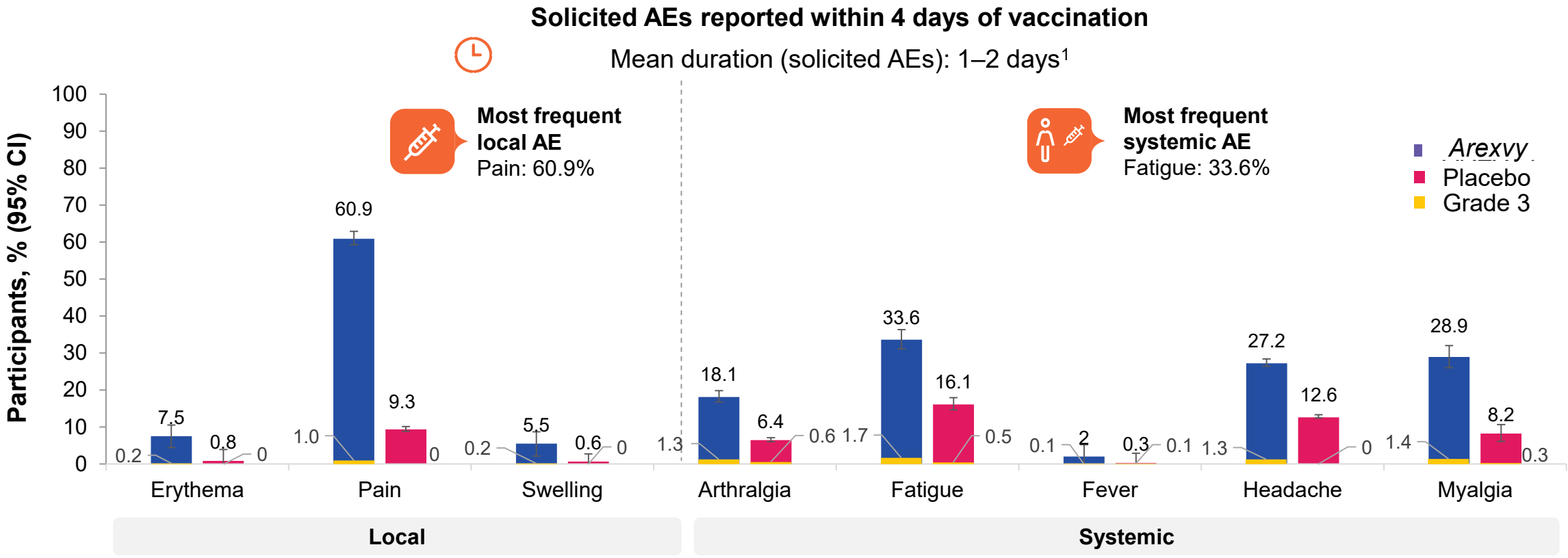
	Arexvy	Placebo		VE (95% CI)	VE (95% CI)
	Number of events				
Season 1[a] (Median follow-up = 6.7 months)					
RSV-A	**2** / 12,466	**13** / 12,494		**84.6%** (32.1, 98.3)	**84.6%** (32.1, 98.3)
RSV-B	**5** / 12,466	**26** / 12,494		**80.9%** (49.4, 94.3)	**80.9%** (49.4, 94.3)
Single dose over 2 seasons[b] (Median follow-up = 18 months)				*W/o season as covariate*	*W/ season as covariate*
RSV-A	**6** / 12,469	**48** / 12,498		**85.2%** (65.4, 94.8)	**80.5%** (54, 93.2)
RSV-B	**24** / 12,469	**90** / 12,498		**68.5%** (50.2, 80.8)	**59.7%** (35.8, 75.5)



[a] April 2022 analysis; [b] From 15 days post Dose 1 up to end of Season 2 in Northern Hemisphere
CI = confidence interval; RSV-A = respiratory syncytial virus subtype-A; RSV-B = respiratory syncytial virus subtype-B; LRTD = lower respiratory tract disease; VE = vaccine efficacy
CDC. Advisory Committee on Immunization Practices (ACIP). https://www.cdc.gov/vaccines/acip/meetings/slides-2023-06-21-23.html. Accessed June 29, 2023

Safety and reactogenicity results[1,2]

Solicited AEs (Any & Grade 3) reported within 4 days of vaccination (Solicited Safety Set)[1,2]



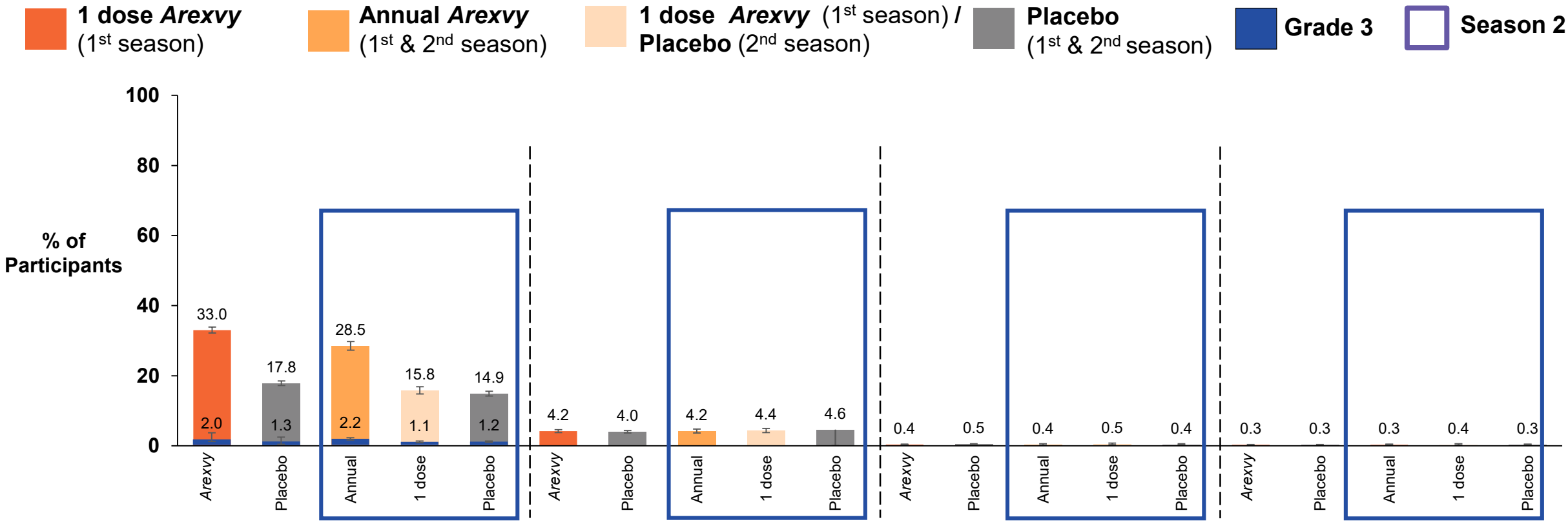
Error bars show 95% CIs for total AEs. Solicited Safety Set (N = 1757). Grade 3 Erythema and swelling is diameter > 100 mm; Grade 3 pain defined as significant pain at rest, preventing normal everyday activities; Grade 3 fever defined as temperature > 39°C/102.2°F; Grade 3 headache, fatigue, myalgia, arthralgia are defined as events preventing normal activity.

AE = adverse event; CI = confidence interval.

1. Ison MG, et al. A respiratory syncytial virus (RSV) prefusion F protein candidate vaccine (RSVPreF3 OA) is efficacious in adults ≥ 60 years of age (YOA). Presented at ID Week, October 19−23, 2022, Washington, DC. Available at https://presentations.gsk.com/wp-content/uploads/2022/10/IDW_QR19_Ison.pdf. Accessed November 22, 2022. 2. Papi A, Ison M, Langley J, et al. Respiratory Syncytial Virus Prefusion F Protein Vaccine in Older Adults. *N Engl J Med.* 2023;388(7): 595-608. doi:http://dx.doi.org/10.1056/NEJMoa2209604

Safety Profile of 2nd Dose of *Arexvy*

Unsolicited AEs, SAEs, Fatal SAEs and pIMDs



Season 1: *Arexvy* (n = 12,467); Placebo (n = 12,499); Season 2: *Arexvy* 2 doses [(n = 4966) *Arexvy* in Season 1 and Season 2], *Arexvy* 1 dose [(n = 4991) (*Arexvy* in Season 1 and Placebo in Season 2], Placebo: [(n = 10,033) Placebo in Season 1 and Season 2]

AE = adverse events; DLP = data lock point; pIMD = potential immune-mediated disease; SAE = serious adverse events

1. CDC. Advisory Committee on Immunization Practices (ACIP). https://www.cdc.gov/vaccines/acip/meetings/slides-2023-06-21-23.html. Accessed June 29, 2023