Better health,
better futures

UK decision on RSV vaccination in adults in the national immunisation programme

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RSV infection in elderly and high-risk adults[1]

- Prospective cohort study in Rochester, NY, during 4 consecutive winters[1]

	Healthy elderly patients	High-risk patients	Hospitalized patients
Patients in cohort, n	608	540	1388
Cases of illness, n	519	524	1471
RSV-positive cases, n (%)	46 (8.9)	56 (10.6)	142 (9.7)
Influenza-positive cases, n (%)	31 (6.0)	32 (6.1)	170 (11.6)

- RSV mortality in hospitalized patients in 1999-2003 was **8%**[1]
- If extrapolated to the USA, **14,000 deaths** annually[1] (vs. 10,000 by Thompson et al. JAMA 2003[1,2])
- Annual hospitalization costs in adults aged ≥50 years were over US$1 billion[1]

RSV, respiratory syncytial virus

1. Falsey AR et al. N Engl J Med 2005;352:1749-1759; 2. Thompson WW et al. JAMA 2003;289:179-186

RSV illness in community-dwelling older adults

- Multi-country RESCEU study: Netherlands, UK, and Belgium

	Season 1	Season 2
Participants in cohort, n	527	513
Cases of ARTI, n	312	304
RSV-positive (PCR), n (%)	11 (2.1)	25 (4.9)
RSV-positive (serology), n (%)	15 (2.8)	24 (4.7)
RSV-positive (PCR / serology), n (%)	22 (4.2)	37 (7.2)
Medical attendance for RSV, n (%)	4 (0.8)	7 (1.4)
RSV-positive hospitalizations, n (%)	0	0

ARTI, acute respiratory tract infection; PCR, polymerase chain reaction; RESCEU, REspiratory Syncytial virus Consortium in EUrope; RSV, respiratory syncytial virus
Korsten K et al. Eur Respir J 2021;57:2002688

RSV hospitalization rates in US adults

- Prospective surveillance in 3 hospitals – 2 in Rochester, NY, and 1 in New York City
- Recruited patients hospitalized with ARI symptoms, and tested using RT-PCR

Age, years	Oct 2017 to Apr 2018 Rate (95% CI)		Oct 2018 to Apr 2019 Rate (95% CI)		Oct 2019 to Apr 2020 Rate (95% CI)	
	Rochester, NY	New York City	Rochester, NY	New York City	Rochester, NY	New York City
18–49	10 (7, 15)	8 (5, 15)	9 (6, 14)	12 (7, 19)	8 (5, 12)	8 (4, 14)
50–64	58 (44, 76)	47 (32, 70)	63 (49, 82)	57 (40, 82)	41 (30, 56)	33 (21, 54)
65–74	112 (85, 148)	99 (62, 157)	83 (60, 115)	115 (75, 177)	103 (78, 138)	126 (84, 190)
75–84	155 (111, 216)	253 (174, 369)	159 (115, 221)	281 (197, 402)	155 (111, 216)	272 (189, 391)
≥85	207 (138, 312)	504 (348, 729)	306 (219, 428)	666 (483, 918)	255 (174, 365)	396 (261, 601)

ARI, acute respiratory infection; CI, confidence interval; RSV, respiratory syncytial virus; RT-PCR, reverse-transcription polymerase chain reaction

Branche AR et al. Clin Infect Dis 2022;74:1004-1011

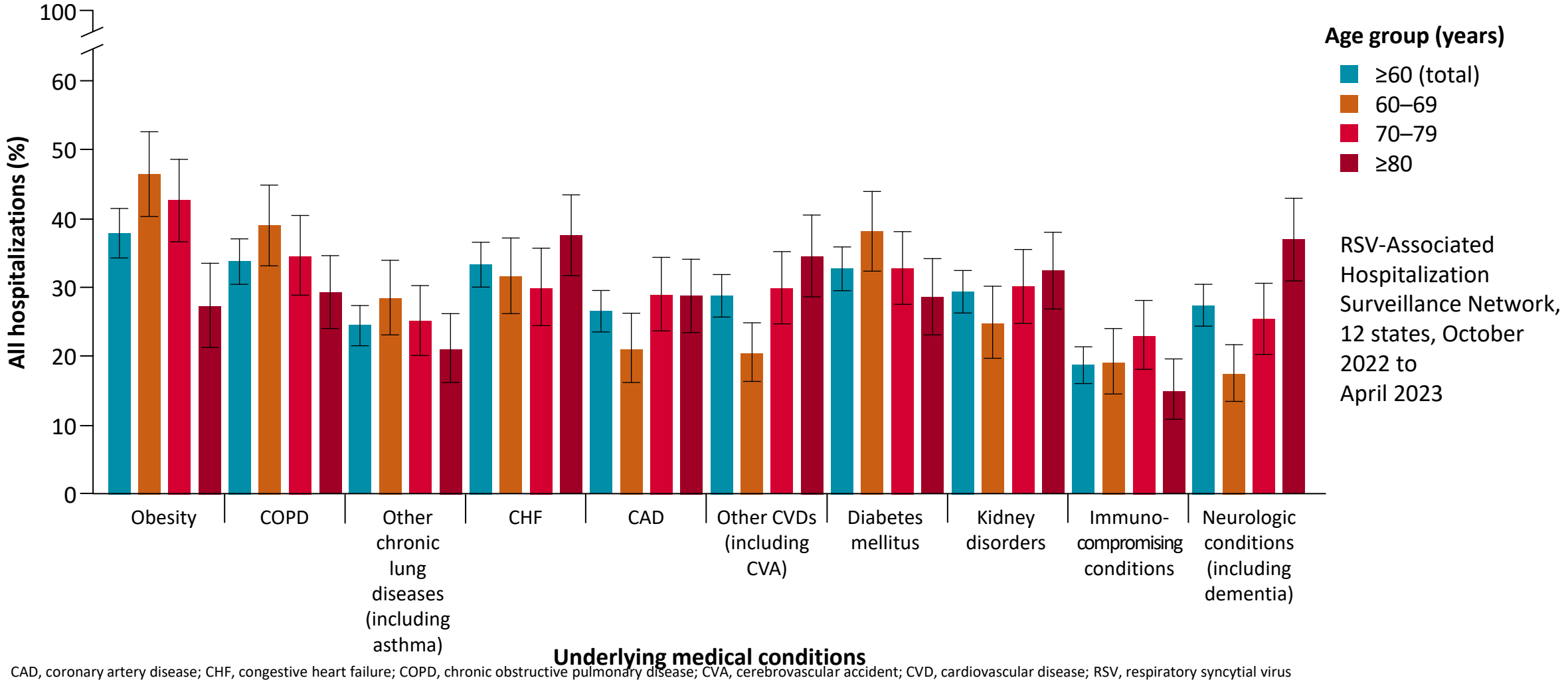
French claims database analysis: age as a risk factor for RSV (2016–2020)

Age, years	Number of RSV cases	Proportional burden (among all people testing positive for RSV)
18–49	1080	8.3%
50–59	1097	8.4%
60–74	3426	26.4%
75–84	3235	24.9%
≥85	4149	31.9%

RSV, respiratory syncytial virus

Loubet P et al. J Clin Virol 2023;171:105635

Comorbidities among patients hospitalized with RSV: US surveillance data

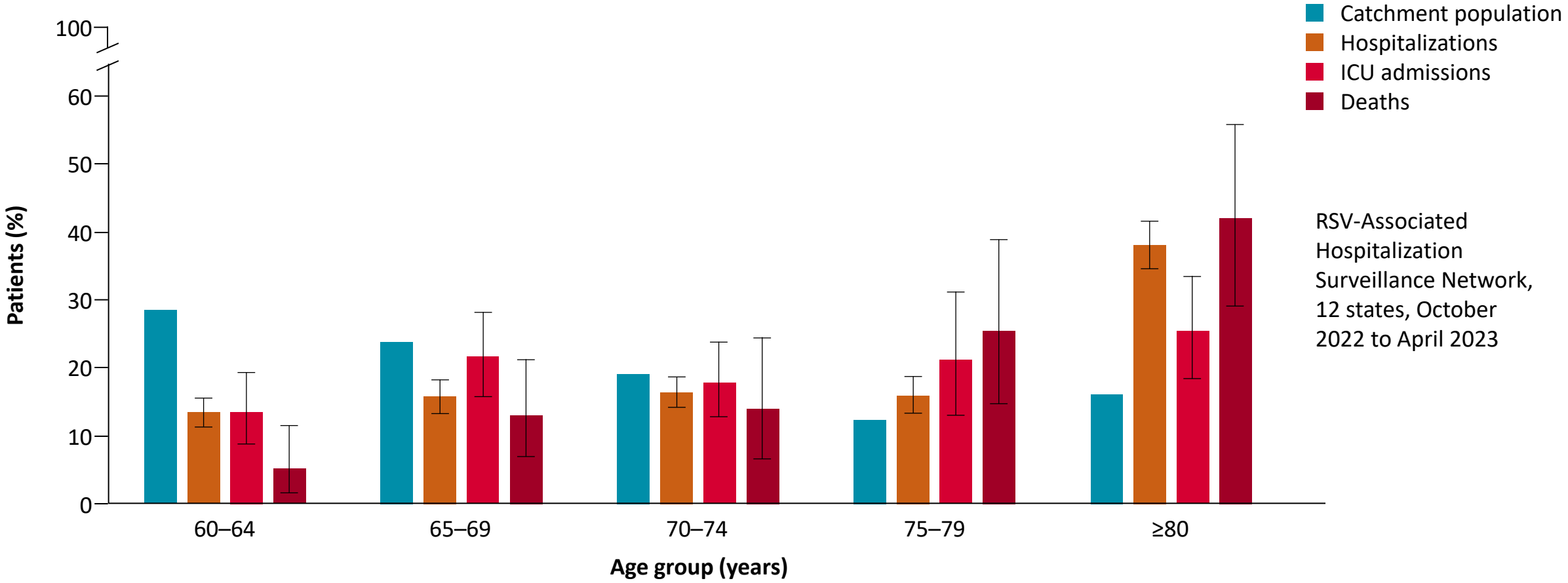


RSV-Associated Hospitalization Surveillance Network, 12 states, October 2022 to April 2023

CAD, coronary artery disease; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease; CVA, cerebrovascular accident; CVD, cardiovascular disease; RSV, respiratory syncytial virus

Havers FP et al. Am J Transplant 2023;23:2000-2007

Age as a risk factor for poor outcomes: US data



RSV-Associated Hospitalization Surveillance Network, 12 states, October 2022 to April 2023

Error bars indicate 95% confidence intervals
ICU, intensive care unit; RSV, respiratory syncytial virus
Havers FP et al. Am J Transplant 2023;23:2000-2007

Estimation of the Number of Respiratory Syncytial Virus–Associated Hospitalizations in Adults in the European Union

Richard Osei-Yeboah,[1] Peter Spreeuwenberg,[2] Marco Del Riccio,[2,3] Thea K. Fischer,[4,5] Amanda Marie Egeskov-Cavling,[4,5] Håkon Bøås,[6] Michiel van Boven,[7,8] Xin Wang,[9] Toni Lehtonen,[10] Mathieu Bangert,[11] Harry Campbell,[1] and John Paget,[2] for the Respiratory Syncytial Virus Consortium in Europe (RESCEU) Investigators[a]

ESTIMATES USED BY JOINT COMMITTEE ON VACCINATION AND IMMUNISATION (JCVI) IN UK AND OTHER EU DECISION MAKERS

	Hospitalisation in adults ≥ 65 years	% Hospitalisation in adults 75-84 years	% Hospitalisation in adults ≥ 85 years
EU 28 (including UK)	145,000 (130-160k)	47%	24%
UK	19,500 (14-25k)	39%	27%

Cost-Effectiveness of Prefusion F Protein-Based Vaccines Against Respiratory Syncytial Virus Disease for Older Adults in the United States

Moghadas et al., 2023 | *Clinical Infectious Diseases*

IDSA Infectious Diseases Society of America

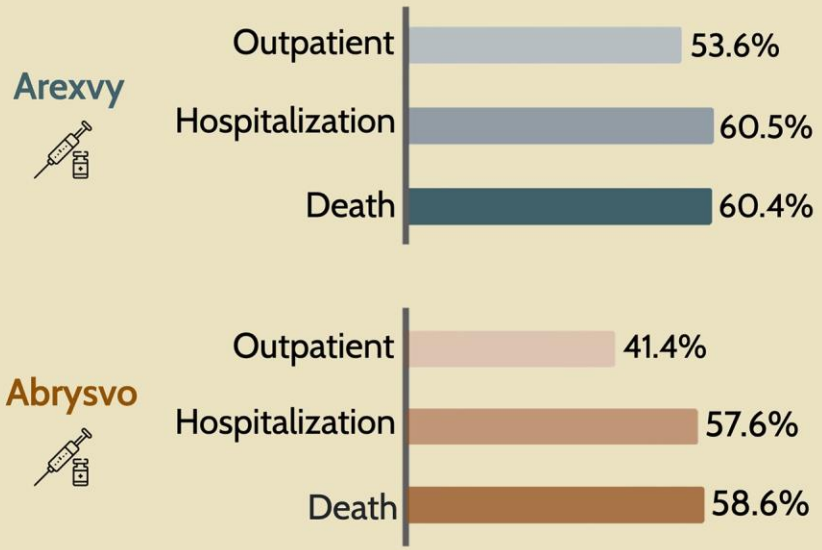
STUDY POPULATION

Vaccination of adults 60 years of age or older

METHODS

Discrete-event simulation model to evaluate cost-effectiveness of vaccination against RSV disease over a two-year time horizon

Reduction of outcomes during the first RSV season after vaccination with 66% vaccine coverage



Cost-effectiveness results with willingness-to-pay of $95,000 per quality-adjusted life-year gained

Vaccine is effective for one RSV season

- Arexvy is cost-effective for up to $127 per dose
- Abrysvo is cost-effective for up to $118 per dose

Vaccine is effective for two RSV seasons

- Arexvy is cost-effective for up to $235 per dose
- Abrysvo is cost-effective for up to $245 per dose

Budget Impact (Billion $)

Vaccination of older adults would provide substantial health benefits by reducing RSV-related illness, hospitalization, and loss of productivity

Clinical Infectious Diseases https://doi.org/10.1093/cid/ciad658

JCVI recommendations

7 June 2023

- Newborns & Infants

"The committee agreed at present there was a preference for a year-round programme of either vaccine or monoclonal antibody but that a seasonal programme was also an option. This allows the potential for a competitive tender between the products for both a year-round and a seasonal programme basis."

- Older adults

"JCVI advises a programme for older adults aged 75 years old and above. JCVI currently favours a one-off campaign as the strategy for this programme with the initial offer covering several age cohorts and then a routine programme for those turning 75 years old"

Acknowledgements