

# The rise of RSV: Empowering Pharmacists as Primary Immunizers

KEN CHATRIAND, PHARM.D., BCACP  
CERTIFICATE IN TRAVEL HEALTH  
UM HEALTH SERVICE PHARMACY

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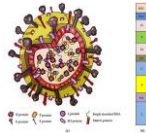
## Learning Objectives

- ▶ At the conclusion of the presentation, the learner should be able to:
  - ▶ Explain common and rare complications of respiratory syncytial virus (RSV).
  - ▶ Select appropriate RSV vaccination recommendations for a specific patient

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## What is Respiratory Syncytial Virus?

- ▶ RSV is an enveloped, nonsegmented, negative-stranded RNA virus of the Paramyxoviridae family
- ▶ Two subtypes, A and B (just like flu)
  - ▶ Subtype A generally causes for severe disease
  - ▶ Frequent genetic shifts



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## What is Respiratory Syncytial Virus?

- ▶ Incubation ranges from 2-8 days with viral shedding (contagious period) lasting from 3-8 days
  - ▶ Shedding may continue for up to 4 weeks in infants
- ▶ Transmitted by direct person-to-person contact from an infected individual
  - ▶ Replication begins in the nasopharynx and spreads to the bronchiolar epithelium lining the small airways inside the lungs
- ▶ In the US, season typically lasts from October – April
  - ▶ Peaks in December and January

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## Key facts regarding RSV

- ▶ RSV is the **MOST** common cause of lower respiratory tract infections
- ▶ RSV can be life-threatening for high-risk adults
- ▶ You can get RSV multiple times, even in the same year.
- ▶ Most people don't develop complete immunity naturally to RSV

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## Symptoms of RSV

- ▶ Mild, cold-like symptoms lasting 1-2 weeks.
  - ▶ Runny nose, cough, sore throat, mild headaches (sound familiar?)
- ▶ Can be fairly innocuous



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## Who is at Risk for Severe Disease

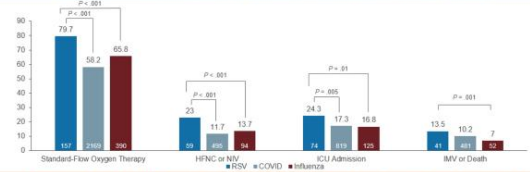
- ▶ Adults with chronic lung disorders
  - ▶ Asthma, COPD
- ▶ Adults with weakened immune systems
- ▶ Older adults 60+
- ▶ Babies under 1 year



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## Disease Severity in Older Adults: RSV and COVID-19 vs Influenza

In-hospital outcomes among adults aged  $\geq 60$  y (N = 5784) for respiratory viruses in the Acutely Ill Network, 25 hospitals, 20 US states, from February 1, 2022-May 31, 2023



Compared with flu, RSV is more likely to lead to ICU stay and death among those hospitalized

Soria D, et al. MMWR Morb Mortal Wkly Rep. 2023;72:1583-1588

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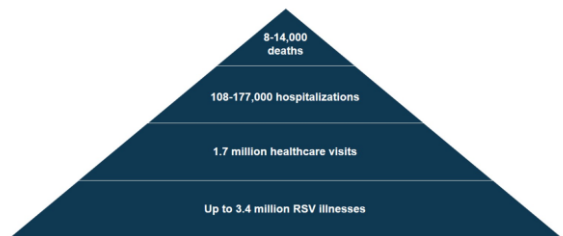
## Severe Disease Symptoms

- ▶ Asthma/COPD exacerbations
  - ▶ Additional strain on lung
- ▶ Pneumonia
- ▶ Bronchiolitis
- ▶ Congestive Heart Failure



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## Annual US Burden of Disease in Older Adults



Falvey AR, et al. Cell. 2023;156:3137-3137.e1; Choi Y, et al. Influenza Other Respir Viruses. 2022;16:151-158; Suck M, et al. Influenza Other Respir Viruses. 2023;17:e15035.

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## Treatment for RSV Infections

- ▶ No specific treatment, mainly supportive
  - ▶ Fluids and rest
- ▶ Inhalers for those individuals most at risk

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## Preventing RSV Infections

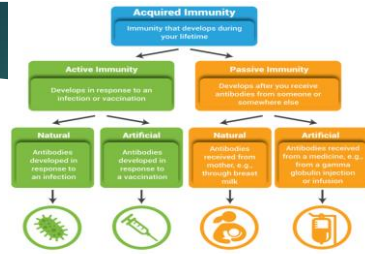
- ▶ Hand hygiene
  - ▶ Wash well and often for at least 20 seconds
- ▶ Avoid contact with eyes, nose, and mouth
- ▶ Proper cough technique
- ▶ Keep common areas/items clean
- ▶ Avoid close contact with people who are sick
- ▶ Stay home if you are sick

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## Preventing RSV Infections

- ▶ Two approved vaccines for adults
  - ▶ FDA approved in May 2023, August 2023
    - ▶ RSVPreF3 (Arexvy® GSK adjuvanted RSV Vaccine)
    - ▶ RSVPreF (Abrysvo® Pfizer RSV Vaccine)
- ▶ Both recombinant vaccines, non-live
- ▶ Refrigeration
- ▶ CDC shows no preferential recommendation

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## Shared Clinical Decision Making?

- ▶ Decision can be based on multiple factors
  - ▶ Patient's health status
  - ▶ Risk of severe RSV
  - ▶ Health care provider's judgement (any person who provides or administers vaccines)
  - ▶ Patient preferences
  - ▶ Safety profile of vaccines

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## Arexvy® (RSVPreF3)

- ▶ Clinical Trials:
  - ▶ shows overall efficacy of 82.6% in preventing lower respiratory tract infections in people aged 60 and over.
  - ▶ Efficacy in older adults with at least one underlying medical condition was 94.6%
  - ▶ Efficacy against severe RSV complications was 94.1%
  - ▶ Adverse side effects included syncope, injection site pain, fatigue, muscle pain, headache, and joint pain.

Belongia EA, King JP, Kleke BA, et al. Clinical features, severity, and incidence of RSV illness during 12 consecutive seasons in a community cohort of adults ≥60 years old. *Open Forum Infect Dis.* 2018;3(12):ofy316. doi:10.1093/ofid/ofy316.

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## Abrysvo® (RSVpreF)

- ▶ Clinical Trials
  - ▶ shows overall efficacy of 66.7% in preventing lower respiratory tract infections in people aged 60 and over.
  - ▶ Phase III trials still ongoing
  - ▶ Maternal Vaccination: Indication at 32-36 weeks of pregnancy.
    - ▶ 81.8% Effective at preventing severe RSV in newborns
    - ▶ Immunity lasts approximately 6 months
  - ▶ Adverse side effects in pregnancy include injection site pain, headache, muscle pain, and nausea.
  - ▶ Adverse side effects for people aged 60 and over include fatigue, headache, injection site pain, and muscle pain.

Wash, E.E.; Marx, G.P.; Zareba, A.M.; Fatley, A.R.; Jang, G.; Patton, M.; Pollock, F.P.; Ulapur, C.; Dorek, P.A.; Bangvoron, K. et al. Efficacy and Safety of a Bivalent RSV Pre fusion F Vaccine in Older Adults. *N. Engl. J. Med.* 2023, 388, 1465-1477.

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## Adult RSV Vaccine Dosing

- ▶ Intramuscular vaccine
  - ▶ Deltoid region of the upper arm
    - ▶ Not to be administered subcutaneously, intradermally, or intravenously
    - ▶ Ideally before RSV peaks in winter months
    - ▶ 2 weeks for full immunity from vaccine
- ▶ Currently approved as a single dose
  - ▶ Sufficient evidence does not exist to determine need for revaccination
    - ▶ Yearly? 2 years? One and done?
- ▶ Can be co-administered with other vaccines
- ▶ Reconstitution necessary before administration

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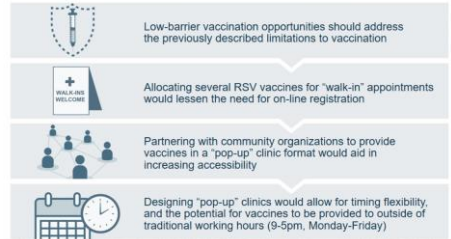
## Co-Administering Vaccines

- ▶ Remember live vaccines must be either given same day or separated by 4 weeks
  - ▶ TB skin test
- ▶ Can absolutely give more than one vaccine
  - ▶ Try to separate injection site and give about 1 inch in-between
  - ▶ Usually try to give no more than 2mL in one deltoid unless necessary
    - ▶ Travel vaccines
    - ▶ Disability



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## Implement Low-Barrier Vaccination Opportunities



Hess K et al. J Pharm Pract 2022;36:463-476; Grubisovich JD. J Am Pharm Assoc 2020; 2022:62:1929-1945 e1; Pantani T et al. J Am Pharm Assoc 2020; 2022: 62:649-657; Lu LM, et al. J Am Pharm Assoc 2020; 2022:62:1899-1913 e16; Deschamps LA, et al. J Am Pharm Assoc 2019; 2022:62:1818-1822 e2; Vallent BV, et al. J Manag Care Spec Pharm 2022; 26:19:1853; Imp 2022; 26:1:80; Whitson A, et al. The Am J Hosp Disp 2021; 16:1734-1742; 199903; Shau AJ, et al. Hum Vaccin Immunother 2020; 16:1170-1180; Shau SC. Can Fam Physician 2019;66:170-181; Lensen NJ, et al. N Engl J Med 2022; 387:86-89; Abdul-Malakibb JC, et al. Lancet Glob Health 2021; 9:e149-e159.

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## Case Study Question

MJ, a 58 year male old patient, was sent to your pharmacy by an oncologist to inquire about the new RSV vaccine. Upon inspection of his profile, you see MJ is on multiple heart and diabetes medications. MJ states he is starting chemotherapy and radiation in 2 weeks and needs to get as many vaccines as possible before starting.

Is MJ a candidate for the RSV vaccine?

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## Case Study Question

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Is MJ a candidate for the RSV vaccine?

No, at this point in time, MJ is not a candidate for the RSV vaccine  
But expect an expansion later this year

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## Case Study Question

MM, a 32 year old female patient, comes in to fill her prenatal vitamins. MM has no other current medications she is taking and is up to date on all other routine vaccines.

Is MM a candidate for the RSV vaccine?

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## Case Study Question

MM, a 32 year old female patient, comes in to fill her prenatal vitamins. MM has no other current medications she is taking and is up to date on all other routine vaccines.

Is MM a candidate for the RSV vaccine?

Maybe.  
Is she pregnant? If so, what trimester?  
Which vaccine presentation is labeled for this use?

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## Thoughts

- ▶ Montana
  - ▶ Need a CPA in order to administer this vaccine
- ▶ Costs
  - ▶ Atexvy® (RSVPref3) comes in a package of 10 vaccines at a cost of ~\$250/dose
  - ▶ Abrysvo® (RSVPref) comes both a single package as well as a package of 5 vaccines at a cost of ~\$280/dose
- ▶ Combo Vaccines?

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## References

- ▶ Abrysvo, Package Insert; Pfizer Inc.; New York, NY, USA, 2023. [Google Scholar]
- ▶ Atexvy, Package Insert; GlaxoSmithKline; Durham, NC, USA, 2023. [Google Scholar]
- ▶ Griffiths, C.; Drews, S.J.; Marchant, D.J. Respiratory Syncytial Virus: Infection, Detection, and New Options for Prevention and Treatment. *Clin. Microbiol. Rev.* **2017**, *30*, 277–319.
- ▶ 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.
- ▶ Hamid S, Winn A, Parikh R, et al. Seasonality of Respiratory Syncytial Virus—United States, 2017–2023. *MMWR Morb Mortal Wkly Rep.* 2023 Apr 7;72(14):355-361.

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