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Implementing New RSV Immunizations: Inova Health's Innovative Approach

Implementing New RSV Immunizations: Inova Health's Innovative Approach

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"It's not just the physician or other health provider who writes the order or who gives the immunization. It's really the entire system that's required for a successful program."

— **Scott Sullivan, MD**
Inova Health

Dr. Michael Greenberg MD, MPH, head of Medical, North America, Sanofi, started the session with an overview of respiratory syncytial virus (RSV) fundamentals, from its epidemiology to the disease burden. "Two out of three infants will be infected with RSV by the age of one," he said. "By the time they reach their second birthday, upwards of 90% of kids will have been infected."[1]

RSV can have a range of manifestations, he explained, "from what looks like an average cold to a severe lower respiratory tract infection in infants, which can have complications, including respiratory failure, apnea, and even death."[2-4]

The typical RSV season ranges from November to April, with some variations based on region and some disruptions due to the COVID-19 pandemic.

During a standard RSV season, the virus causes up to 80% of bronchiolitis hospitalizations and up to 60% of pediatric pneumonia hospitalizations annually. "RSV today is the leading cause of hospitalization in infants, even more than neonatal jaundice," Greenberg said.[2-3]

One in seven babies will require medical attention for an RSV infection during their first year of life. About one in 50 will be hospitalized in their first year, and RSV hospitalizations are about 16 times higher than age-specific hospitalizations for influenza.[5-8*, †, ‡, ¶, **]

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* From a US study designed to estimate the impact of immunization strategies on RSV-associated medically attended LRTI in various healthcare settings among infants younger than 12 months, based on the average proportion of lab-confirmed RSV visits in New Vaccine Surveillance Network from 2002 to 2009.[5]

† Numbers estimated based on annual birth rate from 2016 birth certificates.[6]

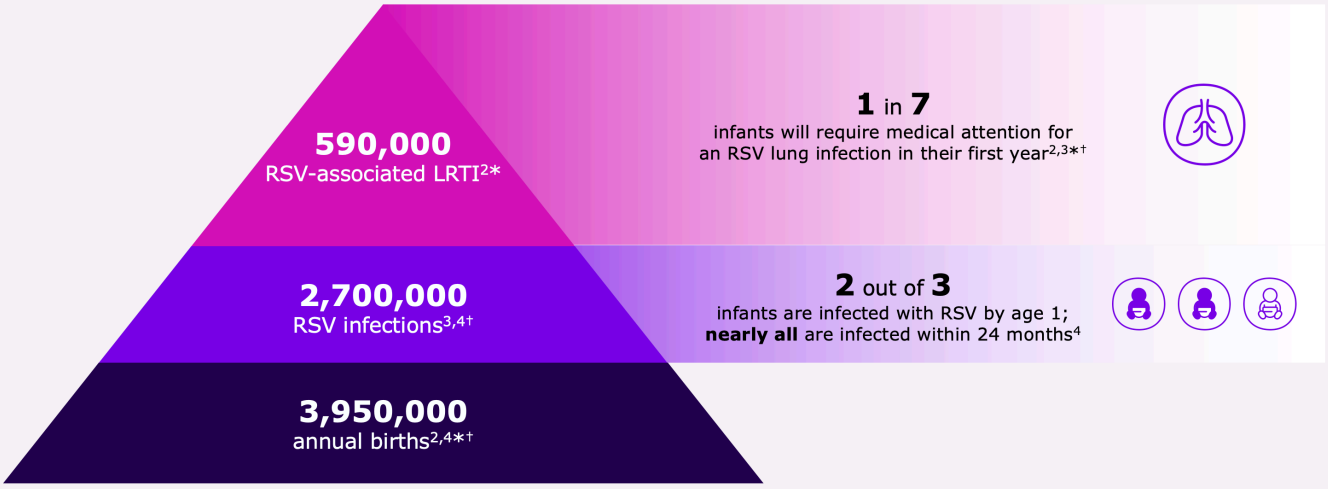
‡ Based on data between 1993 and 2008 (routine recommendation for influenza vaccines in infants 6 months and older began in 2004.[7]

¶ From a US study designed to estimate the impact of immunization strategies on RSV-associated medically attended lower respiratory tract infection in various healthcare settings among infants younger than 12 months, based on the average proportion of lab-confirmed RSV visits in New Vaccine Surveillance Network from 2002 to 2009.[5]

** Numbers estimated based on annual birth rate of 3,945,875 from 2016 birth certificates.[6]

Determining which infants will become seriously ill with RSV is unpredictable[1]

RSV is the leading cause of hospitalization in infants[1]



*From a US study designed to estimate the impact of immunization strategies on RSV-associated medically attended LRTI in various healthcare settings among infants younger than 12 months, based on the average proportion of lab-confirmed RSV visits in New Vaccine Surveillance Network from 2002 to 2009.2
†Numbers estimated based on annual birth rate from 2016 birth certificates.3
LRTI, lower respiratory tract infection; RSV, respiratory syncytial virus.

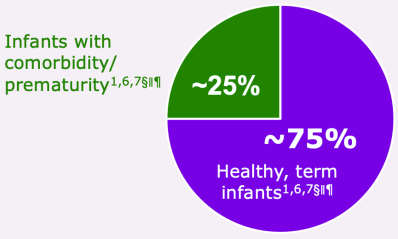
References: 1. Suh M, et al. *J Infect Dis.* 2022;226:S154-S163. **2.** Rainisch G, et al. *Vaccine.* 2020;38:251-257. **3.** Martin JA, et al. Births: final data for 2016. *National Vital Statistics Reports.* 2018;67(1). **4.** Glezen WP, et al. *Am J Dis Child.* 1986;140:543-546

RSV is the number one cause of hospitalization in infants, having outcomes that are unpredictable[1]

Infants younger than 1 year are on average **16×** more likely to be hospitalized due to RSV than to influenza[2]*

1 in **50** infants will be hospitalized for RSV in their first year[3-5†‡]

Children hospitalized due to RSV



1 in 4 hospitalized healthy term infants are admitted to the ICU[1¶]

Help protect infants against RSV[1¶]

ICU, intensive care unit; RSV, respiratory syncytial virus.
*Based on data between 1993 and 2008 (routine recommendation for influenza vaccines in infants 6 months and older began in 2004).[2]
†From a US study designed to estimate the impact of immunization strategies on RSV-associated medically attended lower respiratory tract infection in various healthcare settings among infants younger than 12 months, based on the average proportion of lab-confirmed RSV visits in New Vaccine Surveillance Network from 2002 to 2009.[3]
‡Numbers estimated based on annual birth rate of 3,945,875 from 2016 birth certificates.[4]
§Premature infants refers to <37 weeks' gestational age at birth.[6,7]
‖Data based on infants born April 2016 to February 2020 in the MarketScan Commercial (644,116), MarketScan Medicaid (1,025,286), and Optum Clinformatics (460,426) data sets; data October 2014 to April 2015 among 1,554 RSV-hospitalized infants aged younger than 24 months; data from respiratory seasons of 2000-2001 through 2004-2005 using census data.[7]
¶Data based on a total of 1,554 laboratory-confirmed RSV cases in children aged <2 years from four Influenza Hospitalization Surveillance Network sites between October 2014 and April 2015.[1]

References: 1. Arriola CS, et al. *J Pediatric Infect Dis Soc.* 2020;9:587-595. **2.** Zhou H, et al. *Clin Infect Dis.* 2012;54:1427-1436. **3.** Rainisch G, et al. *Vaccine.* 2020;38:251-257. **4.** Martin, JA, et al. *NVSR.* 2018;67. **5.** McLaughlin JM, et al. *J Infect Dis.* 2022;225:1100-1111. **6.** Hall CB, et al. *Pediatrics.* 2013;132:e341-e348. **7.** Gantenberg JR, et al. *J Infect Dis.* 2022:226:S164-S174.

"We don't know which infants will progress from mild to more severe RSV infections," Greenberg said. "When we look at all babies who are hospitalized, about 75% of them are otherwise healthy and born at term, including infants who are ultimately admitted to the ICU."[9-11, §, ||, §§]

Tackling a Longer, Tougher Season amid a Triple Epidemic

Scott Sullivan, MD, is director of maternal and fetal medicine at Inova Health, which has one of the largest maternity and pediatric service line systems in the country.

"The rates here basically doubled," he said. "And, as what was reported in other areas, it was not only worse, but it was earlier in the season than in previous years."

In addition to RSV, organizations have had viruses such as COVID and flu to deal with as well. "It was tough for a number of viruses, and we found that we had very high co-infection rates," Sullivan said. At Inova, he said, some ICU patients had multiple instances of viral positivity in addition to RSV.

"Having potentially three different respiratory epidemics coming at the same time can really put a strain on the system," Greenberg noted.

"First and foremost, RSV is hard on patients and their families," Sullivan said. "But it also it makes it very difficult to function when your staff is exhausted, when you have stresses on your supply chain, because there's just so many sick people at once."

"We knew we had to address this challenge head on," he said. "And now we thankfully have new immunization tools that we didn't have last year and in previous years. So, it's two sides of the coin: there's fear of what we've been through before, but then there's also hope and optimism."

Putting New RSV Tools to Work at Inova

"There are a lot of things you have to do to implement a new tool or new immunization," Sullivan said.

One step is introducing it across the organization: specialists, leadership, pharmacy and therapeutics, neonatology and pediatric infectious disease, OB/GYN, and other areas, he explained. Then the team addresses the logistical side of things, "how you get it, how you stock it, how you transport and store it, and how you document. And then you do a lot of educating."

Early adopters will use evidence-based tools and treatments right away, Sullivan said. "You want to harness the enthusiasm of the early adopters. They'll be your champions, especially in the outpatient setting."

But the group that follows is "a lot more skeptical about things. You have to bring them on. And then you have people who are really resistant and won't use something because of a myriad of reasons."

For some, he said, it's a matter of knowledge. They might not have been reading the journal articles or other materials leading up to the launch of a new tool or vaccine. For others, "It may challenge their thinking. It may be a concern about unintended consequences."

Sullivan is designing an educational program that targets these three groups. In addition, he said, "We have meetings almost every day, with different groups and different champions to push an immunization into the system to meet this need in a timely fashion."

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§ Premature infants refers to <37 weeks' gestational age at birth.[10,11]

|| Data based on infants born April 2016 to February 2020 in the MarketScan Commercial (644,116), MarketScan Medicaid (1,025,286), and Optum Clinformatics (460,426) data sets; data October 2014 to April 2015 among 1,554 RSV-hospitalized infants aged younger than 24 months; data from respiratory seasons of 2000-2001 through 2004-2005 using census data.[11]

§§ Data based on a total of 1,554 laboratory-confirmed RSV cases in children aged <2 years from four Influenza Hospitalization Surveillance Network sites between October 2014 and April 2015.[9]

Building Vaccine Awareness and Acceptance with Patients

Levels of hesitancy and adoption vary among the people taking an immunization, as well.

"I sometimes have very surprising reasons why they may or may not opt for treatment and immunization," Sullivan said. "There's certainly an understandable fear or cautiousness that families have for their children. They want the facts, and they want to know what the risks and benefits are. That's good, and we're ready for that. But sometimes there's this information that shows up on social media from who knows where."

Across these reasons and rationales, communication—especially listening—has been a powerful tool.

"Whatever the hesitation or pushback is, if you listen and you're not dismissive and you try to really get to the root of the fear and hesitancy, oftentimes you can bring people around," he said. Then, he continued, "Guide people to good sources and safe sources."

And this is why education of the care team is so important. "You have to know all the types of providers because they all play an important role. For instance, groups like nursing, who have the highest level of trust across the whole system," he advised. "Bring them in and make them part of the team and advocates for your immunization and your treatment, because patients and families are looking for sources they trust."

"It's not just the physician or other health provider who writes the order or who gives the immunization. It's really the entire system that's required for a successful program," Sullivan said. "That's the reason everybody needs to get behind it."

Leveraging Technology to Teach, Track, and Improve

Even though technology presents some new challenges in an area like immunization administration, "I would also say it presents some great opportunities, as patients are more connected to our system than they were in the past," Sullivan said.

"During pregnancy and the first few years of life, that's a time of frequent contact with our system, with our doctors, our nurses, and our computer system." Inova's been embedding messaging throughout, supplementing materials like flyers and handouts with electronic outreach, messages in MyChart, and RSV-related information on its website. A video from the Centers for Disease Control and Prevention (CDC) of a child with pertussis resonated especially strongly, Sullivan said.

"Education needs to be not only charts and graphs and science, but it also has to tell a story. It has to tie back to people's lives," he said.

Inova's also using technology to track and share the progress of immunization efforts.

"If you don't measure it, then you it's a message to your team that you don't value it. So, I think it's important to publish your numbers, follow your numbers, and disseminate your numbers to your team," he said, "couching it as a chance for a win."

Externally, collecting and sharing data about immunization efforts is a win as well. "You can show it to insurers, to CMS," he said, "showing how your system is taking responsibility and being a leader in the field."

Q&A

Q: ***What have been the biggest challenges to implementing new products during the RSV season?***

A: Logistics—especially figuring out details on the fly—is number one, Sullivan said. "Just very basic things like where will it be kept, how will we get it to patients, what the flow is, and who has the most responsibility."

Number two is educating providers and patients about an immunization very, very quickly amid an organization-wide time crunch. "I see 30 patients a day on top of this system. So, I'm writing letters or doing meetings at night or at 6:30 am, and it's not just me. It's the whole team who are working double time to try to get this done."

Q: ***How is Inova reaching out to patients about an RSV immunization?***

A: Sullivan described an omnichannel approach across offices, direct messaging, the organization's website, MyChart, educational classes, and more. There's competition for eyeballs and a risk of burnout, he said, but "we don't want anybody to not be eligible for this."

Q: ***How are you managing coverage issues, like the potential insurance gap between birth and the 30-day enrollment period?***

A: Varying degrees of information and coverage across providers "puts the patients in kind of a difficult spot," Sullivan said. "We have been trying to help patients with it." As one example, Inova's pharmacy team has been trying to work with insurers directly to give patients a clear answer of what to expect in areas like coverage and co-pays.

Q: ***What are you most excited about for families as it relates to RSV prevention?***

A: "For years and years, we knew this was coming, and now we finally have this realistic option to bend this curve that has just been going up and up, to not have a family suffer like this, to not have kids in the ICU," Sullivan said. "And that's what makes it so easy to have that meeting at 6:30 am or write something."

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