

occurring in the first months of life. We assessed the efficacy of maternal immunization with an RSV F protein vaccine against RSV LRTI over the first 180 days of life.

**Methods:** We enrolled 4,636 women with low-risk third trimester singleton pregnancies in 11 countries to receive RSV F vaccine or placebo in a randomized, observer-blind trial. Women were followed for 6 months post-delivery, and infants for ~1 year. Surveillance for RSV LRTI in infants, identified by RT-PCR detection of RSV, physical examination, and pulse oximetry, was carried out for 180 days from delivery.

**Results:** The RSV F vaccine induced modest reactogenicity and no excess fever. Live births resulted from 98.7% of pregnancies, with no difference between treatment groups in prematurity (< 37 weeks) or mean interval from treatment to delivery. There were no apparent negative impacts on pregnancy, delivery, or infant well-being. Vaccine immunogenicity resembled that in non-pregnant women. Transplacental transfer of vaccine-induced antibodies was markedly more efficient when the interval from immunization to delivery was  $\geq 30$  days. 85 to 95% of primary and secondary endpoint RSV LRTI events in the placebo group occurred in the first 90 days of life (see Figure 1). Overall, through 180 days of infant life, RSV was associated with 11.3% of all acute respiratory illnesses and 16.7% of all LRTI, but 49.1% of LRTI with SpO<sub>2</sub> < 95% or tachypnea, and 60.3% of all LRTI with SpO<sub>2</sub> < 92% in the placebo group. Vaccine efficacy was greatest in the first 75 days of life but clearly persisted to the primary, per-protocol analysis at 90 days, and was supported by the ITT analysis, per Table 1. Efficacy against all-cause LRTI with severe hypoxemia (46.0%) or hospitalization (27.8%) was observed in the per-protocol population, as well as an apparent impact on the clinical diagnosis of pneumonia through both 180 and 364 days.

**Conclusion:** RSV F vaccine in the third trimester was safe and had clinically-meaningful impacts on RSV and all-cause LRTI over the first 6 months of life.

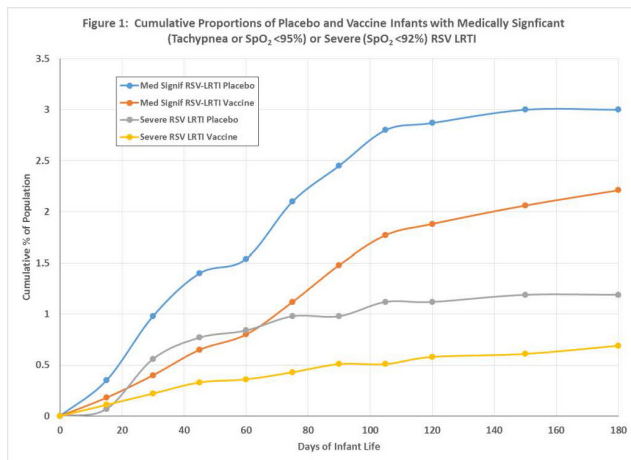


Table 1:

Endpoint	Per-protocol population		Intent-to-Treat population	
	Point estimate	95% CI	97.52% CI	95% CI
Medically significant RSV LRTI (SpO <sub>2</sub> <95% or tachypnea)	39.4%	5.3, 61.2%	-1.0, 63.7%	32.2, -4.2, 55.9%
RSV LRTI with severe hypoxemia (SpO <sub>2</sub> <92%)	48.2%	-8.3, 75.3%	ND	44.4%, -14.9, 73.1%
RSV LRTI with hospitalization	44.4%	19.6, 61.5%	ND	48.1%, 26.1, 63.5%

**Disclosures.** All authors: No reported disclosures.

**2638. Respiratory Syncytial Virus Hospitalizations (RSVH) and All-Cause Bronchiolitis Hospitalizations (BH) Among 29–34 Weeks Gestational Age (wGA) Preterm Infants Before and After the 2014 American Academy of Pediatrics (AAP) Immunoprophylaxis Policy Change Using the Children's Hospital Association's Pediatric Health Information System (PHIS)**

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**Background:** In 2014, the AAP stopped recommending RSV immunoprophylaxis for otherwise healthy 29–34 wGA preterm infants. This study examined the risk of RSVH and BH among 29–34 wGA infants before the AAP policy change (November 1, 2010–March 31, 2014) and after (November 1, 2014–March 31, 2017) using PHIS hospital-level encounter data from 51 US children's hospitals.

**Methods:** The study population included the first November to March RSVH (ICD9 = 79.6, 480.1, 466.1.1, ICD10 = B97.4, J12.1, J21.0) or BH (RSVH or unspecified bronchiolitis [ICD9 = 466.19, ICD10 = J21.1, J21.8, J21.9]) among infants 6 months of age or younger admitted to a PHIS hospital between November 1, 2010 and March 31, 2017. The proportion of RSVH and BH by wGA categories (22–28 wGA, 29–34 wGA,

35–36 wGA, and term infants [37+ wGA]) were compared in the time period before and after 2014. Frequencies and proportions were calculated overall for all infants and by demographic and clinical factors for 29–34 wGA infants for RSVH and BH, separately. Statistically significant differences before and after the AAP policy were compared using  $\chi^2$  test or Wilcoxon rank-sum test, as appropriate.

**Results:** 96,281 infants with BH, including 67,570 with RSVH, were studied. Among infants with known gestational age, the proportions of hospitalizations for RSVH and BH increased after the AAP policy change for all wGA categories, except for term infants (table). Infants 29–34 wGA represented 8.7% of all RSVH before the policy change and 14.2% of all RSVH after the policy change ( $P < 0.0001$ ). No significant differences were found by gender or co-morbidity for infants 29–34 wGA. Among infants 29–34 wGA, the intensive care unit admission rate increased significantly for RSVH (from 54.5% to 64.2%,  $P < 0.0001$ ) and BH (from 46.7% to 54.5%,  $P < 0.0001$ ) after the policy change. The median RSVH length of stay (from 6 to 7 days,  $P = 0.047$ ) and median adjusted estimated cost (from \$14,077 to \$16,058,  $P = 0.038$ ) increased significantly after the policy change.

**Conclusion:** RSV and all-cause bronchiolitis hospitalizations and their severity increased among preterm infants 29–34 wGA in the 3-year period following the 2014 AAP policy change on RSV immunoprophylaxis.

Table. Proportion of RSVH and BH by wGA

	RSV hospitalizations				P-value	All-cause bronchiolitis hospitalizations				
	11/1/2010-3/31/2014		11/1/2014-3/31/2017			11/1/2010-3/31/2014		11/1/2014-3/31/2017		p-value
	N	%	N	%		N	%	N	%	
22-28 wGA	233	1.9	243	2.3	0.052	505	3.0	591	3.6	0.001
29-34 wGA	1061	8.7	1524	14.2	<0.0001	1661	9.8	2270	13.9	<0.0001
35-36 wGA	1692	13.8	1503	14.0	0.624	2283	13.4	2201	13.5	0.785
37+ wGA	9253	75.6	7428	69.4	<0.0001	12563	73.8	11215	68.9	<0.0001
All	12239	100.0	10698	100.0		17012	100.0	16277	100.0	

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**2639. Respiratory Virus Detections in Asthma-Related Pediatric Hospitalizations: New Vaccine Surveillance Network, United States**

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**Background:** Respiratory viruses are associated with most asthma exacerbations (AEx) in children; however, the role of different viruses in AEx is unclear. We describe respiratory virus detections among pediatric inpatients with AEx (AEx-inpatients).

**Methods:** Through active, prospective surveillance at 7 US medical centers, we enrolled inpatients (<18 years) with acute respiratory illness (ARI) during November 1, 2015–June 30, 2016. We defined an AEx-inpatient as an inpatient with a principal admission or discharge diagnosis of asthma (ICD-10-CM, J45.xx). Mid-turbinate nasal and/or throat swabs were tested by molecular assays for influenza A or B, respiratory syncytial virus (RSV), parainfluenza virus 1–3, rhinovirus or enterovirus (RV/EV), human metapneumovirus and adenovirus. We assessed virus detections among AEx-inpatients throughout the surveillance period or by season (winter: