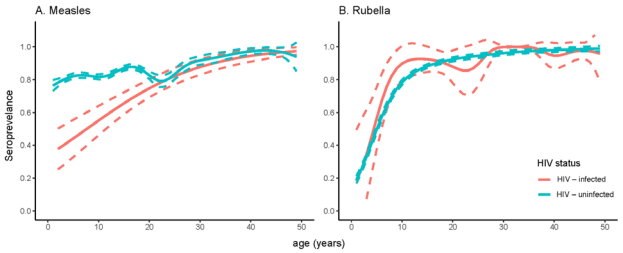
rubella seroprevalence between HIV-infected and uninfected children and adults in sub-Saharan Africa are needed to guide vaccination policy and control strategies.

Methods. This cross-sectional study was performed by analysing a selected and weighted subsample from the Zambia Population HIV Impact Assessment survey (ZAMPHIA). ZAMPHIA was conducted in 2016 to estimate national HIV incidence and prevalence in Zambia. Dried blood spots and plasma samples were tested for IgG antibodies to measles and rubella viruses using a commercial enzyme immunoassay. We estimated national age-specific measles and rubella seroprevalence by HIV infection status using hierarchical generalized additive models.

Results. Specimens from 9521 HIV-uninfected (3840 children age under 10 years, 3981 youth age 10-19 years, and 1700 adults age 20-49 years) and 331 HIV-infected (53, 107, and 171 respectively) individuals were included in the study. Measles seroprevalence was lower among HIV-infected children (46.4%) compared to HIV-uninfected children (76.4%, $p < 0.001$). In both HIV-uninfected and HIV-infected individuals, measles seroprevalence increased steadily with age but more rapidly in the HIV-infected until about the age of 20 years when the seroprevalence was similar between the two groups. Above 20 years, measles seroprevalence was similar between HIV-infected and uninfected adults. There was no significant difference in rubella seroprevalence between HIV-infected and HIV-uninfected individuals.

Figure 1. Measles and Rubella Age-specific Seroprevalence



The lines represent generalized additive model fits for the mean (solid) and 95% confidence intervals (dashed). Data are grouped by age in years and year 0 includes only specimens from children 9-11 months. Rubella-containing vaccine was not available in the public sector prior to the serosurvey.

Conclusion. Measles seroprevalence was lower among HIV-infected than uninfected children and youth. HIV-infected children would likely benefit from revaccination. Many children were susceptible to rubella before the introduction of the combined measles and rubella vaccine in Zambia.

Disclosures. **Kyla Hayford, PhD, MA**, **Pfizer, Inc.** (Other Financial or Material Support, KH conducted the study and analyses while working at the Johns Hopkins School of Public Health but is an employee at Pfizer, Inc. as of 26 October 2020.)

1172. SARS-CoV-2 Vaccine Hesitancy in Caregivers of Hospitalized Children

Marisa Orbea, MD[1]; Rachel Cunningham, MPH[2]; C. Mary Healy, MD[3]; Julie A. Boom, MD[3]; Claire Bocchini, MD[3]; [1]Baylor College of Medicine, Texas Children's Hospital, Houston, Texas; [2]Texas Children's Hospital, Houston, Texas; [3]Baylor College of Medicine, Houston, TX

Session: P-69. Pediatric Vaccines

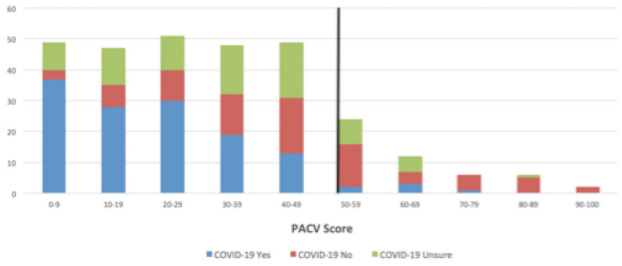
Background. SARS-CoV-2 vaccine hesitancy (VH) is hindering nationwide vaccination efforts; little is known about caregiver SARS-CoV-2 vaccine acceptance for children. We aimed to identify associations with SARS-CoV-2 VH in caregivers of hospitalized children.

Methods. We conducted a prospective cross-sectional survey in English and Spanish of caregiver COVID-19 knowledge, attitudes, behaviors, and associated VH among hospitalized children 6 months - 18 years at a large pediatric medical institution. Parents were approached daily, averaging 4-5 days/week, from 12/8/2020--4/5/2021. VH was assessed using the Parent Attitudes about Childhood Vaccines (PACV) survey; PACV score ≥50 denoted VH. Descriptive statistics and multivariable logistic regression were used. Responses were categorized.

Results. 295/307 (96%) of approached caregivers enrolled; 79% were ≥ 30 years, 68% were married/ living with a partner, and 57% had at least some college. 36% identified as white, 19% Black, and 46% Hispanic/ Latino. 53% of caregiver children had public insurance. 91% of caregivers self-reported their children were up to date with routine vaccines. 17% of caregivers were vaccine-hesitant overall. 50% of caregivers were willing to receive COVID-19 vaccine themselves. Figure 1 shows intention to vaccinate their child by PACV score.

65% knew someone who was hospitalized for COVID-19. 67% were scared of their child getting COVID-19. However, 49% were scared of their child getting the vaccine, 28% did not want to vaccinate their child and 27% were neutral in the intention to vaccinate their child. Caregivers who did not intend to vaccinate their child were more likely to be Black (27% vs. 16%, p=0.04) and less likely to be Hispanic/ Latino (33% vs. 49%, p=0.02). Table 1 shows attitudes, beliefs, and behaviors surrounding the COVID-19 pandemic and vaccine in caregivers who did or did not intend to vaccinate their child.

Figure 1



COVID-19 vaccine uptake by PACV score

Table 1

Item	Parent response	n (%)	Caregivers of children who will receive the COVID-19 vaccine n = 134	Caregivers of children who will not receive COVID-19 vaccine n = 81	p-value
The COVID-19 pandemic has influenced my decision to give my child regular childhood vaccines	Strongly agree	35 (11.9)	27 (20.1)	3 (3.7)	< 0.001
	Agree	47 (15.9)	28 (20.9)	6 (7.4)	
	I do not agree nor disagree	69 (23.4)	26 (19.4)	18 (22.2)	
	Disagree	106 (35.9)	39 (29.1)	33 (40.7)	
	Strongly disagree	38 (12.9)	14 (10.4)	21 (25.9)	
After the COVID-19 pandemic, I am more likely to give my child regular childhood vaccines	Strongly agree	47 (15.9)	36 (26.9)	5 (6.2)	< 0.001
	Agree	76 (25.8)	50 (37.3)	10 (12.3)	
	I do not agree nor disagree	81 (27.5)	21 (15.7)	22 (16.4)	
	Disagree	63 (21.4)	17 (12.7)	27 (20.1)	
	Strongly disagree	28 (9.5)	10 (7.5)	17 (12.7)	
A COVID-19 vaccine will play an important role in bringing the pandemic under control	Strongly agree	67 (22.7)	58 (43.3)	4 (4.9)	< 0.001
	Agree	104 (35.3)	62 (46.3)	8 (9.9)	
	I do not agree nor disagree	86 (29.2)	14 (10.4)	33 (40.7)	
	Disagree	23 (7.8)	0 (0)	21 (25.9)	
	Strongly disagree	15 (5.1)	0 (0)	15 (18.5)	
After the COVID-19 pandemic, I am more likely than before to vaccinate my child against the flu	Strongly agree	44 (14.9)	37 (27.6)	2 (2.5)	< 0.001
	Agree	81 (27.5)	59 (44.0)	7 (8.6)	
	I do not agree nor disagree	81 (27.5)	19 (14.2)	18 (22.2)	
	Disagree	62 (21.0)	10 (7.5)	37 (45.7)	
	Strongly disagree	27 (9.2)	9 (6.7)	17 (21.0)	
The COVID-19 pandemic has made me more supportive of vaccines in general	Strongly agree	42 (14.2)	37 (27.6)	1 (1.2)	< 0.001
	Agree	74 (25.1)	57 (42.5)	3 (3.7)	
	I do not agree nor disagree	99 (33.6)	26 (19.4)	26 (32.1)	
	Disagree	59 (20.0)	8 (6.0)	37 (45.7)	
	Strongly disagree	21 (7.1)	6 (4.5)	14 (17.3)	
When a vaccine against COVID-19 is recommended for use in adults, I will receive the COVID-19 vaccine	Strongly agree	61 (20.7)	58 (43.3)	1 (1.2)	< 0.001
	Agree	85 (28.8)	70 (52.2)	2 (2.5)	
	I do not agree nor disagree	70 (23.7)	5 (3.7)	6 (7.4)	
	Disagree	41 (13.9)	1 (0.7)	36 (44.4)	
	Strongly disagree	38 (12.9)	0 (0)	36 (44.4)	
I am scared of my child getting COVID-19	Strongly agree	93 (31.5)	54 (40.3)	18 (22.2)	< 0.001
	Agree	105 (35.6)	54 (40.3)	20 (24.7)	
	I do not agree nor disagree	46 (15.6)	8 (6.0)	19 (23.5)	
	Disagree	36 (12.2)	10 (7.5)	17 (21.0)	
	Strongly disagree	15 (5.1)	8 (6.0)	7 (8.6)	
I am scared of my child getting the COVID-19 vaccine	Strongly agree	60 (20.3)	10 (7.5)	38 (46.9)	< 0.001
	Agree	84 (28.5)	29 (21.6)	24 (29.6)	
	I do not agree nor disagree	71 (24.1)	30 (22.4)	12 (14.8)	
	Disagree	59 (20.0)	45 (33.6)	6 (7.4)	
	Strongly disagree	21 (7.1)	20 (14.9)	1 (1.2)	
During the COVID-19 pandemic, it is especially important to get the flu shot	Strongly agree	54 (18.3)	45 (33.6)	4 (4.9)	< 0.001
	Agree	106 (35.9)	66 (49.3)	9 (11.1)	
	I do not agree nor disagree	82 (27.8)	18 (13.4)	25 (30.9)	
	Disagree	39 (13.2)	4 (3.0)	30 (37.0)	
	Strongly disagree	14 (4.7)	1 (0.7)	13 (16.0)	
I am scared to take my child out of the house to get the flu shot because of the COVID-19 pandemic	Strongly agree	13 (4.4)	6 (4.5)	3 (3.7)	0.012
	Agree	39 (13.2)	23 (17.2)	4 (4.9)	
	I do not agree nor disagree	57 (19.3)	23 (17.2)	8 (9.9)	
	Disagree	121 (41.0)	56 (41.8)	39 (48.1)	
	Strongly disagree	65 (22.0)	26 (19.4)	27 (33.3)	

Caregiver attitudes, beliefs, and behaviors surrounding the COVID-19 pandemic and the COVID-19 vaccine

Conclusion. The majority of caregivers believe that SARS-CoV-2 vaccine will help control the pandemic, but less than half plan to vaccinate their children. A quarter of caregivers expressed uncertainty regarding the vaccine and therefore may be amenable to education and discussion. COVID-19 VH is different from VH towards routine vaccinations. More research is needed to address COVID-19 specific VH.

Disclosures. **C. Mary Healy, MD**, **Dexcom** (Shareholder)**Intuitive** (Shareholder)**Quidel Corporation** (Shareholder)**Up to Date** (Other Financial or Material Support, Honorarium)**Vapotherm** (Shareholder)

1173. Changes in Invasive Pneumococcal Disease Incidence Following Introduction of PCV10 and PCV13 Among Children < 5 Years: The PSERENADE Project

Julia C. Bennett, MSPH[1]; Maria Deloria Knoll, PhD[1]; [1]Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

The PSERENADE Team

Session: P-69. Pediatric Vaccines

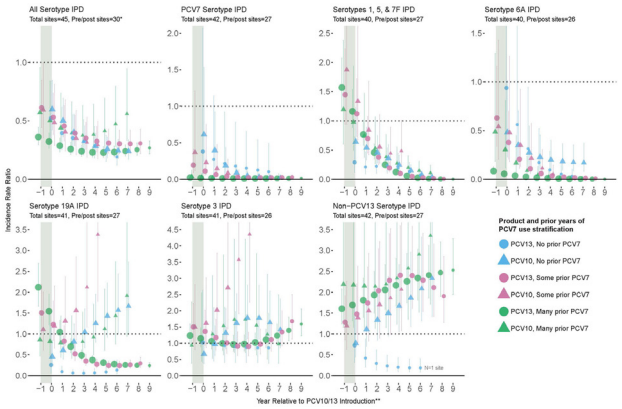
Background. Higher valency pneumococcal conjugate vaccines (PCV10 and PCV13) replaced PCV7, and an updated global analysis of PCV impact on invasive pneumococcal disease (IPD) incidence is needed. We aimed to estimate the change in

vaccine-type (VT), non-VT type and all-serotype (ST) IPD incidence following introduction of PCV10/13 among children < 5 years of age.

Methods. IPD ST-specific incidence or cases and population denominators were obtained directly from surveillance sites. IPD incidence rate ratios (IRRs) for each site were estimated comparing the pre-any PCV incidence to each post-PCV10/13 year using Bayesian multi-level, mixed effects Poisson regressions. All-site weighted average IRRs were estimated using linear mixed-effects regressions. Results were stratified by product (PCV10 vs. PCV13) and years of prior PCV7 use (none, some [1-3 years or 4-5 years if < 70% PCV uptake], or many [≥ 4 years with ≥ 70% uptake]).

Results. Analyses included 45 surveillance sites from 31 countries, primarily high-income (80%). Thirty surveillance sites had pre- and post-PCV data (PCV10: no prior PCV7=5 sites, some=2, many=2; PCV13: no prior PCV7=3, some=5, many=13). Five years after PCV10/13 introduction, the all-site IRRs in children < 5 years were generally similar across products and prior PCV7 use strata for all-serotype IPD (range 0.23-0.41), PCV7 STs (0.01-0.13), PCV10non7 STs (1, 5, and 7F; 0.05-0.20), and ST6A (0.01-0.18). IRRs for ST19A were lower for PCV13 sites (range by PCV7 use: 0.09-0.31) than for PCV10 sites (1.1-1.4). ST3 IRRs were dynamic, differing by product at year 5 (range for PCV13 sites=0.86-1.02; PCV10 sites=1.55-1.78), but converging by year 7. NonPCV13 STs increased across all strata (range 1.9-2.6), except one strata with a single African site that declined.

Figure 1. All-Site Weighted Average Incidence Rate Ratios, Children <5>



* Total sites indicates number of sites with incidence rate data included and pre/post sites indicates number of sites with both pre- and post-PCV data to estimate IRRs for each outcome. ** Year 0 indicates the year of PCV10/13 introduction and year -1 indicates the last year of PCV7 use prior to PCV10/13 introduction.

Conclusion. All-serotype IPD in children < 5 years declined following both PCV10 and PCV13 use, driven by substantial declines in VT serotypes and offset by increases in nonPCV13 STs. ST19A decreased among PCV13-sites, mitigating replacement disease occurring after PCV7 use, but increased, on average, among PCV10-sites. Changes in ST3 were heterogeneous, increasing in some sites and no change from baseline in others. Data from low-income and high-burden settings were limited.

Disclosures. **Julia C. Bennett, MSPH**, **Pfizer** (Research Grant or Support) **Maria Deloria Knoll, PhD**, **Merck** (Research Grant or Support)**Pfizer** (Research Grant or Support)

1174. Phase 3 Study to Evaluate the Safety, Tolerability, and Immunogenicity of Catch-up Vaccination Regimens of V114 in Healthy Infants, Children, and Adolescents (PNEU–PLAN)

Natalie Banniettis, MD[1]; Jacek Wysocki, MD, PhD[2]; Leszek Szenborn, MD[3]; Wanatpreeya Phongsamart, MD[4]; Punnee Pitisuttithum, MBBS, DTM&H, FRCP(T)[4]; Mika Rämet, MD, PhD[5]; Ron Dagan, MD[6]; Lori Good, B.S.[7]; Melanie Papa, BA[7]; Yaru Shi, PhD[7]; Luwy Musey, MD[1]; Kara Bickham, MD[1]; Gretchen Tamms, B.S.[1]; Richard McFetridge, B.S.[1]; Robert Lupinacci, M.S[1]; [1]Merck & Co., Inc., Kenilworth, New Jersey; [2]Poznań University of Medical Sciences, Poznán, Wielkopolskie, Poland; [3]Wroclaw Medical University, Wroclaw, Dolnoslaskie, Poland; [4]Mahidol University, Bangkok, Krung Thep, Thailand; [5]Tampere University, Tampere, Pirkanmaa, Finland; [6]Ben-Gurion University of the Negev, Beer Sheva, HaDarom, Israel; [7]Merck & Co., Inc, North Wales, Pennsylvania

Session: P-69. Pediatric Vaccines

Background. Despite widespread use of pneumococcal conjugate vaccines (PCVs) in children, morbidity and mortality caused by pneumococcal disease (PD) remain high, in part due to the emergence of disease caused by non-vaccine serotypes (STs). In addition, many children do not receive the recommended number of PCVs on schedule and, therefore, are at risk for PD. V114 is an investigational 15-valent PCV that contains two epidemiologically important STs, 22F and 33F, in addition to the 13 STs present in the licensed 13-valent PCV (PCV13; Prevnar 13™). This Phase 3 descriptive study evaluated the safety and immunogenicity of V114 and PCV13 when given as catch-up vaccination in children who are pneumococcal vaccine-naïve or previously immunized with lower valency PCVs.

Methods. Solicited adverse events (AEs) were collected for 14 days after each vaccination. Serious adverse events (SAEs) were collected throughout study participation. Immunogenicity was evaluated by anti-pneumococcal polysaccharide ST-specific immunoglobulin G (IgG) geometric mean concentrations (GMCs) at 30 days post-last vaccination.

Results. 606 healthy children, aged 7 months through 17 years, were randomized (double-blind) to receive V114 (n=303) or PCV13 (n=303) via age-appropriate catch-up vaccination schedules (Table 1). V114 had an acceptable safety profile and was well tolerated. Similar proportions of children aged 7–11 months and 2–17 years reported AEs in the V114 and PCV13 groups. A larger proportion of children aged 12–23 months reported AEs in the V114 group (79%) than the PCV13 group (59%). The proportion of children who reported SAEs was comparable among vaccination groups (V114 and PCV13, respectively, 7–11 months: 10.9%, 7.8%; 12–23 months: 6.5%, 6.3%; 2–17 years: 2.3%, 2.3%). No SAEs were reported to be vaccine-related, and no deaths occurred. At 30 days after the last PCV dose, ST-specific IgG GMCs were comparable for the 13 shared STs and were higher in the V114 group for 22F and 33F.

Table 1. Catch-up vaccination schedules in V114-024

Age at randomization	PCV status	V114/PCV13 dose schedule
7–11 months (n=128)	Naïve	**Dose 1**: At randomization **Dose 2**: 4–8 weeks after Dose 1 **Dose 3**: 8–12 weeks after Dose 2†
12–23 months (n=126)	Naïve	**Dose 1:** At randomization **Dose 2:** 8–12 weeks after Dose 1
2–17 years (n=352)	Naïve Partial regimen of PCV7 (Prevnar™), PCV10 (Synflorix™), or PCV13 Complete regimen of PCV7 or PCV10	**Dose 1:** At randomization‡

†Dose given to children ≥12 months of age.

‡At least 8 weeks after previous dose of PCV.

n=number of children randomized to individual age cohort.

PCV, pneumococcal conjugate vaccine; PCV7, 7-valent pneumococcal conjugate vaccine; PCV10, 10-valent pneumococcal conjugate vaccine; PCV13, 13-valent pneumococcal conjugate vaccine.

Conclusion. Catch-up vaccination with V114 in healthy children aged 7 months through 17 years had an acceptable safety profile, was well tolerated, and provided comparable immune responses to the 13 serotypes shared with PCV13, and higher immune responses to serotypes 22F and 33F.

Disclosures. **Natalie Banniettis, MD**, **Merck Sharp and Dohme** (Employee, Shareholder) **Jacek Wysocki, MD, PhD**, **GlaxoSmithKline** (Scientific Research Study Investigator, Advisor or Review Panel member, Research Grant or Support)**MSD** (Grant/Research Support, Scientific Research Study Investigator, Advisor or Review Panel member)**Pfizer** (Scientific Research Study Investigator, Advisor or Review Panel member, Research Grant or Support) **Mika Rämet, MD, PhD**, **MSD** (Scientific Research Study Investigator) **Ron Dagan, MD**, **Medimmune/AstraZeneca** (Grant/Research Support, Scientific Research Study Investigator, Research Grant or Support)**MSD** (Consultant, Grant/Research Support, Scientific Research Study Investigator, Advisor or Review Panel member, Research Grant or Support, Speaker's Bureau)**Pfizer** (Consultant, Grant/Research Support, Scientific Research Study Investigator, Advisor or Review Panel member, Research Grant or Support, Speaker's Bureau) **Lori Good, B.S.**, **Merck & Co., Inc** (Employee) **Melanie Papa, BA**, **Merck Sharp and Dohme** (Employee, Shareholder) **Yaru Shi, PhD**, **Merck & Co., Inc** (Employee) **Luwy Musey, MD**, **Merck & Co., Inc.** (Employee) **Kara Bickham, MD**, **Merck Sharp and Dohme** (Employee, Shareholder) **Gretchen Tamms, B.S.**, **Merck Sharp and Dohme** (Employee, Shareholder) **Richard McFetridge, B.S.**, **Merck & Co., Inc** (Employee) **Robert Lupinacci, M.S**, **Merck & Co., Inc** (Employee, Shareholder)

1175. Influenza Vaccine Hesitancy in Hospitalized Children, Before and During the COVID-19 Pandemic

Marisa Orbea, MD[1]; Jose Dominguez, MD, MPH[2]; Rachel Cunningham, MPH[3]; C. Mary Healy, MD[4]; Julie A. Boom, MD[4]; Claire Bocchini, MD[4]; [1]Baylor College of Medicine, Texas Children's Hospital, Houston, Texas; [2]Cambridge Health Alliance, Harvard Medical School, Cambridge, Massachusetts; [3]Texas Children's Hospital, Houston, Texas; [4]Baylor College of Medicine, Houston, TX

Session: P-69. Pediatric Vaccines

Background. Influenza vaccine is recommended for all children ≥6 months, yet uptake is suboptimal. We aimed to quantify child influenza vaccine coverage and identify factors associated with influenza vaccine hesitancy (VH) before and during the COVID-19 pandemic.

Methods. We conducted a prospective, repeated cross-sectional assessment in English and Spanish of caregiver influenza knowledge, attitudes, behaviors, and associated VH among hospitalized children 6 months through 18 years at a large pediatric medical institution. Caregivers were enrolled 4-5 days per week, between 12/11/2019--1/31/2020 and 12/8/2020--4/5/2021. VH was assessed using the Parent Attitudes about Childhood Vaccines (PACV) survey; PACV score ≥50 denoted VH. Descriptive statistics and multivariable logistic regression were used.

Results. During 2019-2020 and 2020-2021 influenza seasons, 269/282 (95%) and 295/307 (96%) of approached caregivers enrolled, respectively. By caregiver report,