

Supplemental Information

SUPPLEMENTAL TABLE 4 Demographic and Clinical Characteristics of Hospitalized Children With COVID-19 Stratified by Presence of Testing for Respiratory Viruses Other Than SARS-CoV-2, COVID-NET, March 2020 to February 2022

Characteristic	Total (<i>N</i> = 4372) ^a		Children With Any Viral Testing (<i>N</i> = 2659)		Children With No Viral Testing (<i>N</i> = 1713)		<i>P</i>
	<i>N</i>	% (95% CI)	<i>N</i>	% (95% CI)	<i>N</i>	% (95% CI)	
Demographics							
Admission period ^b							<.001
Pre-Delta predominant	1950	39.3 (37.8–40.8)	944	30.3 (28.6–32.1)	1006	54.5 (51.9–57.0)	
Delta predominant	1449	30.2 (28.8–31.6)	982	32.7 (30.9–34.5)	467	26.0 (23.9–28.1)	
Omicron predominant	973	30.5 (28.9–32.2)	733	37.0 (34.9–39.2)	240	19.5 (17.3–22.0)	
Sex							.95
Male	2338	53.9 (52.3–55.4)	1423	53.9 (51.8–55.9)	915	53.8 (51.3–56.3)	
Female	2034	46.1 (44.6–47.7)	1236	46.1 (44.1–48.2)	798	46.2 (43.7–48.7)	
Age group							<.001
<6 mo	964	22.4 (21.1–23.8)	662	24.9 (23.2–26.7)	302	18.2 (16.3–20.2)	
6–11 mo	310	7.6 (6.8–8.6)	221	9.2 (7.9–10.5)	89	5.0 (4.0–6.1)	
12–23 mo	412	9.6 (8.7–10.6)	311	11.6 (10.4–13.0)	101	6.2 (5.0–7.5)	
2–4 y	522	12.3 (11.3–13.4)	358	13.8 (12.4–15.3)	164	9.7 (8.3–11.3)	
5–11 y	832	18.9 (17.7–20.2)	477	17.9 (16.4–19.6)	355	20.7 (18.7–22.7)	
12–17 y	1332	29.1 (27.7–30.6)	630	22.6 (20.9–24.3)	702	40.3 (37.9–42.7)	
Race and ethnicity							.01
Black, non-Hispanic	1378	30.5 (29.1–31.9)	807	29.1 (27.3–30.9)	571	32.9 (30.6–35.2)	
White, non-Hispanic	1280	29.6 (28.1–31.0)	828	31.3 (29.5–33.3)	452	26.5 (24.4–28.8)	
Hispanic	1202	28.1 (26.7–29.5)	707	27.5 (25.7–29.4)	495	29.1 (26.8–31.4)	
Asian or Pacific Islander, non-Hispanic	210	4.8 (4.2–5.6)	129	5.0 (4.1–5.9)	81	4.6 (3.7–5.8)	
Multiple races	59	1.3 (1.0–1.7)	30	1.1 (0.7–1.5)	29	1.7 (1.1–2.5)	
American Indian or Alaska Native, non-Hispanic	45	1.1 (0.8–1.6)	30	1.2 (0.8–1.7)	15	1.1 (0.5–1.9)	
Unknown race ^c	198	4.6 (4.0–5.3)	128	4.9 (4.1–5.9)	70	4.1 (3.2–5.2)	
Underlying medical conditions							.73
Any underlying condition ^d	2524	57.0 (55.4–58.6)	1531	56.8 (54.7–58.8)	993	57.3 (54.9–59.8)	
COVID-19 vaccination status ^e							.39
Fully vaccinated	110	3.3 (2.7–4.1)	62	3.2 (2.4–4.2)	48	3.5 (2.5–4.7)	
Partially vaccinated	53	1.3 (0.9–1.7)	32	1.2 (0.8–1.8)	21	1.4 (0.8–2.1)	
Unvaccinated	762	18.3 (17.0–19.6)	441	17.5 (15.9–19.1)	321	19.6 (17.7–21.7)	
Not eligible	3441	77.1 (75.7–78.5)	2119	78.1 (76.2–79.8)	1322	75.5 (73.2–77.6)	
Signs and symptoms (at admission)							
Nasal congestion, sore throat, or URI	2071	48.2 (46.6–49.8)	1461	55.7 (53.6–57.7)	610	35.6 (33.2–38.0)	<.001
Cough	2214	51.5 (49.9–53.0)	1564	59.5 (57.5–61.5)	650	37.8 (35.4–40.2)	<.001
Shortness of breath or respiratory distress	1579	36.4 (34.9–37.9)	1085	41.1 (39.1–43.1)	494	28.3 (26.2–30.6)	<.001
Fatigue or myalgia	1145	25.5 (24.1–26.9)	696	25.2 (23.5–27.0)	449	25.9 (23.8–28.1)	.64
Nausea or vomiting	1698	38.6 (37.1–40.2)	1034	38.8 (36.8–40.8)	664	38.4 (36.0–40.8)	.79
Diarrhea	752	17.3 (16.1–18.5)	471	17.8 (16.2–19.4)	281	16.4 (14.6–18.3)	.27
Rash	258	5.9 (5.2–6.7)	184	6.8 (5.9–7.9)	74	4.4 (3.5–5.6)	.002
Headache (≥2 y only, <i>n</i> = 2686)	612	22.4 (20.8–24.1)	319	21.4 (19.2–23.7)	293	23.7 (21.3–26.3)	.16
Abdominal pain (≥2 y only, <i>n</i> = 2686)	703	26.3 (24.5–28.1)	335	23.4 (21.1–25.9)	368	30.0 (27.4–32.8)	<.001
Dehydration (<2 y only, <i>n</i> = 1686)	229	5.5 (4.7–6.3)	170	6.7 (5.7–7.8)	59	3.4 (2.5–4.3)	<.001
Inability to eat or poor feeding (<2 y only, <i>n</i> = 1686)	612	14.2 (13.1–15.3)	473	17.8 (16.3–19.4)	139	8.1 (6.8–9.6)	<.001
Vital signs (based on first recorded vital signs)							
Tachypnea ^f	1064	24.1 (22.8–25.5)	680	25.4 (23.6–27.2)	384	22.1 (20.1–24.2)	.02
Tachycardia ^g	1858	42.9 (41.3–44.5)	1234	46.7 (44.6–48.7)	624	36.5 (34.1–38.9)	<.001
Fever ^h	594	13.7 (12.7–14.9)	436	16.5 (15.0–18.0)	158	9.1 (7.8–10.6)	<.001
Hypoxia ⁱ	562	13.3 (12.3–14.5)	394	15.0 (13.6–16.5)	168	10.5 (9.0–12.2)	<.001
Discharge diagnosis							
Acute renal failure	129	5.0 (4.1–5.9)	84	6.2 (5.0–7.7)	45	3.5 (2.5–4.6)	.001
ARDS	59	2.3 (1.8–3.1)	46	3.5 (2.5–4.7)	13	1.0 (0.5–1.7)	<.001
Acute respiratory failure	565	20.6 (19.0–22.2)	434	28.6 (26.3–31.0)	131	10.2 (8.6–12.1)	<.001
Asthma exacerbation	192	7.4 (6.4–8.5)	136	9.8 (8.2–11.5)	56	4.5 (3.4–5.9)	<.001

SUPPLEMENTAL TABLE 4 Continued

Characteristic	Total (N = 4372) ^a		Children With Any Viral Testing (N = 2659)		Children With No Viral Testing (N = 1713)		P
	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	
Bronchiolitis	112	4.0 (3.3–4.8)	100	6.6 (5.4–8.0)	12	0.9 (0.5–1.6)	<.001
Bronchitis	157	7.1 (6.0–8.4)	147	11.9 (10.1–14.0)	10	1.0 (0.5–1.8)	<.001
Pneumonia	724	25.2 (23.6–26.8)	483	31.0 (28.6–33.4)	241	17.8 (15.8–20.0)	<.001
Treatments							
Remdesivir	717	16.3 (15.1–17.5)	487	18.2 (16.6–19.8)	230	13.1 (11.5–14.8)	<.001
Systemic steroids	1498	34.8 (33.3–36.3)	1026	39.2 (37.2–41.3)	472	27.2 (25.1–29.5)	<.001
IVIg	36	3.7 (2.6–5.1)	21	5.4 (3.3–8.1)	15	2.6 (1.4–4.3)	.02
Oxygen support ^l	886	20.2 (18.9–21.4)	646	23.8 (22.1–25.6)	240	14.0 (12.3–15.8)	<.001
HFNC	407	9.4 (8.5–10.3)	317	11.7 (10.5–13.1)	90	5.4 (4.3–6.6)	<.001
CPAP or BiPAP	260	5.8 (5.1–6.5)	183	6.6 (5.7–7.6)	77	4.4 (3.4–5.4)	.002
Mechanical ventilation	219	5.0 (4.3–5.8)	146	5.5 (4.6–6.5)	73	4.2 (3.3–5.4)	.09
Outcomes							
Length of stay, median (IQR)	4367	1.9 (0.9–3.9)	2658	1.9 (0.9–3.8)	1709	1.9 (0.9–3.9)	.81
ICU	1176	26.6 (25.2–28.0)	796	29.2 (27.3–31.0)	380	22.1 (20.1–24.3)	<.001
Death	24	0.5 (0.3–0.8)	17	0.6 (0.4–1.1)	7	0.4 (0.1–0.8)	0.22

N in each cell represents unweighted frequency or numerator and N on top row represents denominator. % is prevalence weighted for sampling and nonresponse. URI, upper respiratory infection. ARDS, acute respiratory distress syndrome.

^aIncludes all children hospitalized with SARS-CoV-2 infection and primarily admitted for febrile and respiratory illness or presumed COVID-19 excluding those with a discharge diagnosis of multisystem inflammatory syndrome in children (or MIS-C).

^bAdmission periods are characterized by national predominance of certain variants (if a variant accounted for >50% of sequenced isolates) and include pre-Delta-predominant (March 1, 2020–June 26, 2021), Delta-predominant (June 27, 2021–December 18, 2021), and Omicron-predominant (December 19, 2021–February 28, 2022) periods.

^cIf unknown ethnicity, non-Hispanic ethnicity was assumed.

^dAny underlying condition includes a condition from 1 of the following categories: chronic lung disease, chronic metabolic disease, blood disorders or hemoglobinopathies, cardiovascular disease (excluding hypertension), neurologic disorder; history of Guillian-Barre syndrome, immunocompromised condition, renal disease, any obesity, postpartum, gastrointestinal or liver disease; rheumatologic, autoimmune, or inflammatory conditions; pediatric conditions (abnormalities of airway, chronic lung disease of prematurity/bronchopulmonary dysplasia, history of febrile seizures long term aspirin therapy; prematurity [<2 y old only]), hypertension, feeding tube dependence, tracheostomy or ventilator dependence, and wheelchair dependence.

^eFully vaccinated defined as those who had received the final dose in their primary series ≥ 14 d before receiving a positive SARS-CoV-2 test result associated with their hospitalization. Children who had received only 1 vaccine dose ≥ 14 d before the SARS-CoV-2 test date or had received a single dose of vaccine <14 d before the positive SARS-CoV-2 test results were considered partially vaccinated. Not eligible defined as those who were not eligible ≥ 14 d before the SARS-CoV-2 test date. Date of eligibility for those 5–11 y old, 12–15 y old, and ≥ 16 y old was October 29, 2021, May 10, 2021, and December 11, 2020, respectively, corresponding to the dates when the Federal Drug Administration authorized the Pfizer-BioNTech COVID-19 vaccine for emergency use in those age groups.

^fTachypnea was defined as having a respiratory rate >99 th percentile for age.³⁶

^gTachycardia was defined as having a heart rate >99 th percentile for age.³⁶

^hFever was defined as temperature $>38^{\circ}\text{C}$ among children ≤ 3 mo old and temperature $>39^{\circ}\text{C}$ among those ≥ 3 mo old.

ⁱHypoxemia was defined as having an oxygen saturation $<92\%$

^jOxygen support variable represents need for either HFNC, CPAP/BiPAP, or IMV. Each subcategory represents highest level of support needed

SUPPLEMENTAL TABLE 5 Demographic and Clinical Characteristics of Hospitalized Children With COVID-19 Stratified by Presence of Additional Complete and Additional Partial Testing for Respiratory Viruses Other Than SARS-CoV-2, COVID-NET, March 2020 to February 2022

Characteristic	Total (N = 2659) ^a		Children With Complete Additional Testing (N = 1670)		Children With Partial Additional Testing (N = 989)		P
	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	
Demographics							
Admission period ^b							<.001
Pre-Delta predominant	944	30.3 (28.6–32.1)	619	32.0 (29.8–34.3)	325	27.5 (24.8–30.4)	
Delta predominant	982	32.7 (30.9–34.5)	641	34.0 (31.7–36.4)	341	30.4 (27.5–33.3)	
Omicron predominant	733	37.0 (34.9–39.2)	410	34.0 (31.3–36.7)	323	42.1 (38.6–45.6)	
Sex							.36
Male	1423	53.9 (51.8–55.9)	900	54.6 (52.0–57.2)	523	52.7 (49.3–56.0)	
Female	1236	46.1 (44.1–48.2)	770	45.4 (42.8–48.0)	466	47.3 (44.0–50.7)	
Age group							.67
<6 mo	662	24.9 (23.2–26.7)	403	24.5 (22.3–26.8)	259	25.6 (22.8–28.6)	
6–11 mo	221	9.2 (7.9–10.5)	135	8.8 (7.3–10.4)	86	9.9 (7.8–12.3)	
12–23 mo	311	11.6 (10.4–13.0)	194	11.4 (9.8–13.1)	117	12.0 (9.9–14.3)	
2–4 y	358	13.8 (12.4–15.3)	234	14.3 (12.5–16.2)	124	13.1 (10.9–15.5)	
5–11 y	477	17.9 (16.4–19.6)	314	18.8 (16.8–20.8)	163	16.6 (14.1–19.3)	
12–17 y	630	22.6 (20.9–24.3)	390	22.3 (20.3–24.5)	240	22.9 (20.3–25.8)	
Race and ethnicity							.001
Black, non-Hispanic	807	29.1 (27.3–30.9)	551	32.2 (29.9–34.7)	256	23.8 (21.1–26.6)	
White, non-Hispanic	828	31.3 (29.5–33.3)	504	30.1 (27.7–32.5)	324	33.4 (30.3–36.7)	
Hispanic	707	27.5 (25.7–29.4)	430	26.4 (24.1–28.8)	277	29.3 (26.2–32.5)	
Asian or Pacific Islander, non-Hispanic	129	5.0 (4.1–5.9)	75	4.6 (3.6–5.8)	54	5.6 (4.1–7.3)	
Multiple races	30	1.1 (0.7–1.5)	18	1.0 (0.6–1.7)	12	1.1 (0.5–2.0)	
American Indian or Alaska Native, non-Hispanic	30	1.2 (0.8–1.7)	15	0.8 (0.5–1.4)	15	1.7 (0.9–3.0)	
Unknown race ^c	128	4.9 (4.1–5.9)	77	4.8 (3.7–6.0)	51	5.1 (3.7–6.7)	
Underlying medical conditions							.02
Any underlying condition ^d	1531	56.8 (54.7–58.8)	993	58.6 (56.0–61.1)	538	53.8 (50.4–57.1)	
COVID-19 vaccination status ^e							.50
Unvaccinated	441	17.5 (15.9–19.1)	272	17.3 (15.4–19.4)	169	17.7 (15.1–20.5)	
Fully vaccinated	62	3.2 (2.4–4.2)	33	2.8 (1.8–4.1)	29	4.0 (2.6–5.8)	
Partially vaccinated	32	1.2 (0.8–1.8)	18	1.2 (0.7–1.9)	14	1.4 (0.7–2.4)	
Not eligible	2119	78.1 (76.2–79.8)	1342	78.7 (76.4–80.9)	777	77.0 (73.9–79.8)	
Signs and symptoms (at admission)							
Nasal congestion, sore throat, URI	1461	55.7 (53.6–57.7)	911	54.7 (52.1–57.3)	550	57.2 (53.9–60.5)	.24
Cough	1564	59.5 (57.5–61.5)	983	59.2 (56.6–61.7)	581	60.0 (56.7–63.3)	.70
Shortness of breath or respiratory distress	1085	41.1 (39.1–43.1)	669	40.1 (37.6–42.7)	416	42.8 (39.4–46.1)	.20
Fatigue or myalgia	696	25.2 (23.5–27.0)	422	24.1 (22.0–26.3)	274	27.1 (24.2–30.2)	.10
Nausea or vomiting	1034	38.8 (36.8–40.8)	624	37.2 (34.7–39.7)	410	41.4 (38.1–44.8)	.04
Diarrhea	471	17.8 (16.2–19.4)	291	17.4 (15.5–19.4)	180	18.3 (15.8–21.1)	.58
Rash	184	6.8 (5.9–7.9)	126	7.3 (6.1–8.8)	58	6.0 (4.5–7.8)	.22
Headache (≥2 y only, n = 1465)	319	21.4 (19.2–23.7)	195	20.8 (18.1–23.7)	124	22.4 (18.7–26.3)	.51
Abdominal pain (≥2 y only, n = 1465)	335	23.4 (21.1–25.9)	188	20.7 (17.9–23.6)	147	28.2 (24.2–32.6)	.002
Dehydration (<2 y only, n = 1194)	170	6.7 (5.7–7.8)	96	6.1 (4.9–7.6)	74	7.6 (5.9–9.7)	.19
Inability to eat or poor feeding (<2 y only, n = 1194)	473	17.8 (16.3–19.4)	276	16.6 (14.7–18.6)	197	19.8 (17.2–22.6)	.05
Vital signs (based on first recorded vital signs)							
Tachypnea ^f	680	25.4 (23.6–27.2)	458	27.5 (25.2–29.9)	222	21.8 (19.1–24.6)	.001
Tachycardia ^g	1234	46.7 (44.6–48.7)	776	46.8 (44.2–49.4)	458	46.5 (43.1–49.9)	.89
Fever ^h	436	16.5 (15.0–18.0)	282	17.4 (15.4–19.4)	154	15.0 (12.7–17.4)	.13
Hypoxia ⁱ	394	15.0 (13.6–16.5)	244	14.3 (12.6–16.2)	150	16.1 (13.6–18.8)	.26
Discharge diagnosis							
Acute renal failure	84	6.2 (5.0–7.7)	52	5.8 (4.3–7.6)	32	7.2 (4.9–10.1)	.34
ARDS	46	3.5 (2.5–4.7)	37	4.1 (2.8–5.8)	9	2.1 (1.0–4.0)	.07
Acute respiratory failure	434	28.6 (26.3–31.0)	315	30.4 (27.5–33.4)	119	24.9 (21.0–29.1)	.032
Asthma exacerbation	136	9.8 (8.2–11.5)	76	8.0 (6.3–10.0)	60	13.3 (10.2–16.9)	.003
Bronchiolitis	100	6.6 (5.4–8.0)	74	7.2 (5.7–9.0)	26	5.4 (3.6–7.8)	.19

SUPPLEMENTAL TABLE 5 Continued

Characteristic	Total (N = 2659) ^a		Children With Complete Additional Testing (N = 1670)		Children With Partial Additional Testing (N = 989)		P
	N	% (95% CI)	N	% (95% CI)	N	% (95% CI)	
Bronchitis	147	11.9 (10.1–14.0)	71	8.5 (6.5–10.7)	76	18.3 (14.6–22.5)	<.001
Pneumonia	483	31.0 (28.7–33.4)	323	30.8 (28.0–33.8)	160	31.4 (27.3–35.6)	.84
Treatments							
Remdesivir	487	18.2 (16.6–19.8)	354	21.0 (18.9–23.2)	133	13.5 (11.3–15.9)	<.001
Systemic steroids	1026	39.2 (37.2–41.3)	661	39.7 (37.2–42.3)	365	38.4 (35.1–41.8)	.54
IVIg	21	5.4 (3.3–8.1)	16	5.6 (3.2–9.0)	5	4.7 (1.5–10.7)	.72
Oxygen support ^l	646	23.8 (22.1–25.6)	472	27.5 (25.3–29.9)	174	17.6 (15.1–20.3)	<.001
HFNC	317	11.7 (10.5–13.1)	215	12.4 (10.8–14.2)	102	10.6 (8.6–12.8)	.18
CPAP or BiPAP	183	6.6 (5.7–7.6)	142	8.2 (6.9–9.6)	41	4.0 (2.8–5.4)	<.001
Mechanical ventilation	146	5.5 (4.6–6.5)	115	6.9 (5.7–8.4)	31	3.0 (2.1–4.3)	<.001
Outcomes							
Length of stay, d, median (IQR)	2658		1669	2.0 (1.0–4.2)	989	1.6 (0.8–3.2)	<.001
ICU	796	29.2 (27.3–31.0)	579	33.7 (31.3–36.1)	217	21.7 (19.1–24.5)	<.001
Death	17	0.6 (0.4–1.1)	12	0.8 (0.4–1.4)*	5	0.5 (0.1–1.1)	.37

N in each cell represents unweighted frequency or numerator and N on top row represents denominator. Percent (%) is prevalence weighted for sampling and nonresponse. ARDS, acute respiratory distress syndrome.

^aIncludes all children hospitalized with SARS-CoV-2 infection and primarily admitted for febrile and respiratory illness or presumed COVID-19 excluding those with a discharge diagnosis of multisystem inflammatory syndrome in children (or MIS-C).

^bAdmission periods are characterized by national predominance of certain variants (if a variant accounted for >50% of sequenced isolates) and include pre-Delta-predominant (March 1, 2020–June 26, 2021), Delta-predominant (June 27, 2021–December 18, 2021), and Omicron-predominant (December 19, 2021–February 28, 2022) periods.

^cIf unknown ethnicity, non-Hispanic ethnicity was assumed.

^dAny chronic condition includes a condition from 1 of the following categories: chronic lung disease, chronic metabolic disease, blood disorders or hemoglobinopathies, cardiovascular disease (excluding hypertension), neurologic disorder, history of Guillain-Barre syndrome, immunocompromised condition, renal disease, any obesity, postpartum, gastrointestinal or liver disease; rheumatologic, autoimmune, or inflammatory conditions; pediatric conditions (abnormalities of airway, chronic lung disease of prematurity or bronchopulmonary dysplasia, history of febrile seizures long term aspirin therapy; prematurity [<2 y old only]), hypertension, feeding tube dependence, tracheostomy or ventilator dependence, and wheelchair dependence.

^eFully vaccinated defined as those who had received the final dose in their primary series ≥ 14 d before receiving a positive SARS-CoV-2 test result associated with their hospitalization. Children who had received only 1 vaccine dose ≥ 14 d before the SARS-CoV-2 test date or had received a single dose of vaccine <14 d before the positive SARS-CoV-2 test results were considered partially vaccinated. Not eligible defined as those who were not eligible ≥ 14 d before the SARS-CoV-2 test date. Date of eligibility for those 5–11 y old, 12–15 y old, and ≥ 16 y old was October 29, 2021, May 10, 2021, and December 11, 2020, respectively, corresponding to the dates when the Federal Drug Administration authorized the Pfizer-BioNTech COVID-19 vaccine for emergency use in those age groups.

^fTachypnea was defined as having a respiratory rate >99 th percentile for age.³⁶

^gTachycardia was defined as having a heart rate >99 th percentile for age.³⁶

^hFever was defined as temperature $>38^\circ\text{C}$ among children ≤ 3 mo old and temperature $>39^\circ\text{C}$ among those ≥ 3 mo old.

ⁱHypoxemia was defined as having an oxygen saturation $<92\%$.

^jOxygen support variable represents need for either HFNC, CPAP/BiPAP, or IMV. Each subcategory represents highest level of support needed.

SUPPLEMENTAL TABLE 6 Viral Codetection and Viral Testing Frequency by Virus and Age Group Among Children Primarily Hospitalized With COVID-19, COVID-NET, March 2020–February 2022

Pathogen ^a	≤6 mo (N = 964)		6–23 mo (N = 722)		2–4 y (N = 522)		5–11 y (N = 832)		12–17 y (N = 1352)		Total (N = 4372) ^b	
	Tested for pathogen, N (%)	Positive result, N (%)	Tested for pathogen, N (%)	Positive result, N (%)	Tested for pathogen, N (%)	Positive result, N (%)	Tested for pathogen, N (%)	Positive result, N (%)	Tested for pathogen, N (%)	Positive result, N (%)	Tested for pathogen, N (%)	Positive result, N (%)
RSV	634 (67)	66 (11)	514 (74)	61 (11)	330 (66)	31 (9)	434 (54)	11 (3)	548 (43)	3 (1)	2460 (59)	172 (7)
Influenza ^c	653 (69)	5 (1)	526 (75)	3 (1)	354 (70)	2 (1)	477 (60)	3 (1)	629 (49)	7 (1)	2639 (63)	20 (1)
Rhinovirus or enterovirus	416 (44)	40 (10)	346 (49)	92 (24)	243 (47)	67 (28)	323 (40)	42 (12)	405 (31)	20 (5)	1733 (41)	261 (15)
Adenovirus	42 (45)	5 (1)	348 (49)	32 (9)	244 (47)	15 (8)	323 (40)	7 (3)	411 (32)	1 (<1)	1746 (41)	60 (4)
Coronaviruses ^d	408 (43)	9 (2)	335 (47)	13 (5)	238 (46)	5 (2)	319 (40)	7 (3)	396 (31)	9 (2)	1696 (40)	43 (3)
Parainfluenza ^e	419 (44)	4 (1)	347 (49)	13 (5)	243 (47)	14 (5)	325 (40)	8 (2)	410 (32)	6 (1)	1744 (41)	45 (2)
HMPV	419 (44)	4 (1)	348 (49)	15 (4)	241 (47)	8 (3)	323 (40)	3 (1)	409 (32)	4 (1)	1740 (41)	34 (2)

N (%) tested: unweighted frequency and weighted prevalence of children with tests done for the virus among all children in the age group. N (%) with positive result: unweighted frequency and weighted prevalence of children with positive result among those tested for the virus (or percent positivity). MPV, human metapneumovirus.

^a Viral codetection is defined as having both a positive viral SARS-CoV-2 test, (PCR or antigen testing, excluding at-home tests) during hospitalization or during the 14 d before admission, and a positive PCR test for at least 1 other respiratory virus in the 14 d before, or first 7 d of hospital admission.

^b Includes all children hospitalized with SARS-CoV-2 infection and primarily admitted for febrile and respiratory illness or presumed COVID-19 excluding those with a discharge diagnosis of multisystem inflammatory syndrome in children (or MIS-C).

^c Includes influenza A, B, and unspecified type.

^d Includes 229E, HKU1, NL63, OC43, or no subtype specified.

^e Include parainfluenza 1, 2, 3, and 4.

SUPPLEMENTAL TABLE 7 Multivariable Associations Between Viral Codetection Status and Having Severe Respiratory Illness Among Hospitalized Children Who had Complete Additional Viral Testing Using Alternative Underlying Condition Covariates

Risk Factor ^{a,b}	<2 y Old (N = 732) ^c		2–4 y Old (N = 234) ^c		5–17 y Old (N = 704) ^c	
	aOR	95% CI	aOR	95% CI	aOR	95% CI
Model 1 ^d						
Any viral codetection	2.1*	(1.5–3.1)	2.2*	(1.1–4.3)	1.1	(0.68–1.6)
Covariates						
Female	0.87	(0.62–1.2)	0.73	(0.49–1.1)	0.65*	(0.49–0.88)
Age						
<6 mo old	0.61	(0.41–0.90)	NA	NA	NA	NA
5–11 y	NA	NA	NA	NA	0.71	(0.53–0.94)
Race or ethnicity (ref: non-Hispanic white)						
Asian or Pacific Islander, non-Hispanic	0.82	(0.44–1.5)	5.7*	(1.5–21.8)	0.82	(0.37–1.8)
Hispanic	0.97	(0.61–1.5)	1.2	(0.60–2.4)	0.93	(0.61–1.4)
Black, non-Hispanic	1.6*	(1.0–2.5)	1.2	(0.57–2.7)	1.1	(0.74–1.6)
Another race or unknown	1.6	(0.63–3.9)	1.3	(0.43–4.0)	1.0	(0.50–1.9)
Having an underlying medical condition shown to be associated with severe COVID-19 illness ^e	1.4	(0.98–2.0)	2.7*	(1.2–6.0)	2.1*	(1.9–4.2)
Time period (ref: pre-Delta) ^f						
Delta predominant	1.2	(0.82–1.6)	1.1	(0.48–2.4)	0.81	(0.57–1.2)
Omicron predominant	1.1	(0.68–1.8)	0.47	(0.29–0.77)	0.52	(0.30–0.90)
COVID-19 vaccination status (ref: fully vaccinated) ^g						
Partially vaccinated	NA	NA	NA	NA	0.60	(0.10–3.4)
Unvaccinated or ineligible	NA	NA	NA	NA	1.1	(0.32–3.4)
Model 2 ^d						
RSV codetection ^h	1.9*	(1.3–2.8)	1.2	(0.51–2.9)	0.44	(0.07–2.9)
Rhinovirus or enterovirus codetection	2.4*	(1.6–3.8)	2.7*	(1.1–6.6)	1.5	(0.77–2.8)
Other viral codetections	1.0	(0.69–1.5)	1.3	(0.49–3.2)	0.61	(0.31–1.2)
Covariates (same as model 1)	—	—	—	—	—	—

—, same as model 1; NA, not applicable.

^a Viral codetection is defined as having both a positive viral SARS-CoV-2 test, (PCR or antigen testing, excluding at-home tests) during hospitalization or during the 14 d before admission, and a positive PCR test for at least 1 other respiratory virus in the 14 d before, or first 7 d of hospital admission.

^b Severe respiratory illness defined as being admitted to ICU and requiring either continuous or bilevel positive airway pressure (CPAP or BiPAP) or invasive mechanical ventilation.

^c Includes all children admitted for febrile and respiratory illness who had SARS-CoV-2 infection and complete respiratory viral testing defined as having testing for all of the following pathogens: RSV, rhinovirus or enterovirus, influenza A and B, adenovirus, human metapneumovirus, parainfluenza (at least 1 of the 4 subtypes), and endemic human coronavirus (at least 1 of the following - 229E, HKU1, NL63, OC43, or no subtype specified), excluding those with a discharge diagnosis of multisystem inflammatory syndrome in children (or MIS-C).

^d Two models were produced for each age group. Model 1 included having any viral codetection and the applicable covariates for the corresponding age group and model 2 included having RSV codetection, rhino or enterovirus codetection, or other viral codetection and the same covariates as model 1. Results for covariates in model 2 are not reported.

^e Identification of underlying conditions shown to be associated with severe COVID-19 illness for those <2 and ≥2 y was done using Woodruff et al.¹⁷ Among those <2 y old, prematurity, chronic lung disease, neurologic disorders, cardiovascular disease, and airway abnormalities were significantly associated with severe illness. Among those ≥2 y old, obesity, diabetes mellitus, and feeding tube dependence were significantly associated with severe illness.

^f Admission periods are characterized by predominance of certain variants (if a variant accounted for >50% of sequenced isolates) and include pre-Delta-predominant (March 1, 2020–June 26, 2021), Delta-predominant (June 27, 2021–December 18, 2021), and Omicron-predominant (December 19, 2021–February 28, 2022) periods.

^g Fully vaccinated defined as those who had received the final dose in their primary series ≥14 d before receiving a positive SARS-CoV-2 test result associated with their hospitalization. Children who had received only 1 vaccine dose ≥14 d before the SARS-CoV-2 test date or had received a single dose of vaccine <14 d before the positive SARS-CoV-2 test results were considered partially vaccinated. Not eligible defined as those who were not eligible ≥14 d before the SARS-CoV-2 test date. Date of eligibility for those 5–11 y old, 12–15 y old, and ≥16 y old was October 29, 2021, May 10, 2021, and December 11, 2020, respectively, corresponding to the dates when the Federal Drug Administration authorized the Pfizer-BioNTech COVID-19 vaccine for emergency use in those age groups.

*P value < .05.