

SUPPLEMENTAL MATERIAL

Supplemental Table 1. Mode of Learning by School Characteristics and Date

Middle School by Mode of Learning on September 15, 2020

Characteristic¹	Full in-person (<i>n</i> = 201)		Hybrid (<i>n</i> = 108)		Virtual (<i>n</i> = 65)	
Student/school						
Enrollment, mean (SD)	1503.51	(1464.01)	3103.47	(3959.19)	4849.69	(9374.39)
Percent White, mean (SD)	82.8	(15.3)	69.68	(19.16)	42.29	(25.91)
Percent Hispanic/Latino, mean (SD)	6.86	(7.78)	10.34	(10.33)	14.96	(15.05)
Percent Black, non-Hispanic, mean (SD)	4.5	(17.14)	10.8	(22.24)	33.98	(35.81)
Percent free lunch, mean (SD)	44.75	(19.64)	47.74	(24.2)	64.82	(26.85)
School county SARS-CoV-2 data						
Cases on 9/15/20, mean (SD)	167.81	(167.81)	148.56	(146.02)	170.22	(114.26)
Percent positivity on 9/15/20, mean (SD)	5.65	(4.14)	5.65	(3.08)	5.04	(1.88)
School county by urban class						
Large metropolitan	35	(0.3)	43	(0.37)	39	(0.33)
Medium metropolitan	31	(0.47)	21	(0.32)	14	(0.21)
Small metropolitan	32	(0.68)	10	(0.21)	5	(0.11)
Nonmetropolitan	103	(0.72)	34	(0.24)	7	(0.05)
School location						
Michigan	74	(0.56)	30	(0.23)	29	(0.22)
Missouri	28	(0.58)	8	(0.17)	12	(0.25)
North Carolina	0	(0)	12	(0.52)	11	(0.48)
Ohio	70	(0.57)	43	(0.35)	9	(0.07)
Wisconsin	29	(0.6)	15	(0.31)	4	(0.08)

¹All values are *n* (%) unless otherwise specified.

High School by Mode of Learning on September 15, 2020

Characteristic¹	Full in-person (<i>n</i> = 225)		Hybrid (<i>n</i> = 99)		Virtual (<i>n</i> = 61)	
Student/school						
Enrollment, mean (SD)	1394.03	(1447.59)	3029.91	(3713.4)	5633.12	(9727.6)
Percent White, mean (SD)	83.4	(13.98)	71.58	(18.37)	43.94	(25.45)
Percent Hispanic/Latino, mean (SD)	6.86	(7.47)	10.17	(7.29)	14.72	(14.2)
Percent Black, non-Hispanic, mean (SD)	4.04	(8.35)	9.1	(16.16)	32.66	(33.98)
Percent free lunch, mean (SD)	45.07	(18.77)	47.86	(22.7)	62.86	(26.68)
School county SARS-CoV-2 data						
Cases on 9/15/20, mean (SD)	193.49	(177.07)	154.41	(156.35)	169.68	(118.3)
Percent positivity on 9/15/20, mean (SD)	5.87	(4.73)	5.91	(3.24)	4.93	(1.97)
School county by urban class						
Large metropolitan	33	(0.33)	32	(0.32)	34	(0.34)
Medium metropolitan	29	(0.44)	22	(0.33)	15	(0.23)
Small metropolitan	30	(0.68)	9	(0.2)	5	(0.11)
Nonmetropolitan	133	(0.76)	36	(0.2)	7	(0.04)
School location						
Michigan	60	(0.57)	21	(0.2)	24	(0.23)
Missouri	69	(0.78)	8	(0.09)	12	(0.13)
North Carolina	0	(0)	11	(0.48)	12	(0.52)
Ohio	69	(0.57)	43	(0.36)	9	(0.07)
Wisconsin	27	(0.57)	16	(0.34)	4	(0.09)

¹All values are *n* (%) unless otherwise specified.

Elementary School by Mode of Learning on November 15, 2020

Characteristic¹	Full in-person (n = 256)		Hybrid (n=104)		Virtual (n=81)	
Student/school						
Enrollment, mean (SD)	2045.24	(5194.07)	2947.08	(3446.62)	1739.17	(2279.67)
Percent White, mean (SD)	67.12	(26.19)	66.39	(23.45)	53.18	(32.39)
Percent Hispanic/Latino, mean (SD)	9.82	(7.82)	10.68	(9.53)	13.88	(15.48)
Percent Black, non-Hispanic, mean (SD)	15.62	(19.79)	14.14	(24.4)	25.43	(36.4)
Percent free lunch, mean (SD)	49.96	(21.07)	53.36	(23.73)	63.81	(24.86)
School county SARS-CoV-2 data						
Cases on 11/15/20, mean (SD)	1054.93	(531.46)	896.14	(429.76)	1014.49	(517.41)
Percent positivity on 11/15/20, mean (SD)	15.58	(7.41)	12.41	(4.68)	14.8	(7.03)
School county by urban class						
Large metropolitan	60	(0.47)	36	(0.28)	33	(0.26)
Medium metropolitan	38	(0.58)	21	(0.32)	7	(0.11)
Small metropolitan	28	(0.55)	12	(0.24)	11	(0.22)
Nonmetropolitan	130	(0.67)	35	(0.18)	30	(0.15)
School location						
Michigan	91	(0.66)	25	(0.18)	21	(0.15)
Missouri	78	(0.7)	9	(0.08)	25	(0.22)
North Carolina	6	(0.26)	12	(0.52)	5	(0.22)
Ohio	53	(0.44)	44	(0.36)	24	(0.2)
Wisconsin	28	(0.58)	14	(0.29)	6	(0.13)

¹All values are N(%) unless otherwise specified.

Middle School by Mode of Learning on November 15, 2020

Characteristic¹	Full in-person (n = 182)		Hybrid (n=118)		Virtual (n=75)	
Student/school						
Enrollment, mean (SD)	2279.65	(3344.02)	2553.5	(2393.96)	4115.02	(10010.33)
Percent White, mean (SD)	72.27	(19.72)	78.88	(17.67)	32.9	(22.28)
Percent Hispanic/Latino, mean (SD)	10.57	(8.48)	4.76	(4.45)	16.29	(18.84)
Percent Black, non-Hispanic, mean (SD)	9.79	(20.97)	6.61	(13.86)	41.94	(37.18)
Percent free lunch, mean (SD)	47.91	(21.39)	44.54	(22.79)	71.35	(24.76)
School county SARS-CoV-2 data						
Cases on 11/15/20, mean (SD)	1017.01	(532.97)	813.71	(265.85)	923.78	(495.86)
Percent positivity on 11/15/20, mean (SD)	14.5	(6.24)	14.67	(4.17)	12.73	(5.23)
School county by urban class						
Large metropolitan	41	(0.35)	42	(0.36)	35	(0.3)
Medium metropolitan	32	(0.48)	23	(0.35)	11	(0.17)
Small metropolitan	21	(0.45)	15	(0.32)	11	(0.23)
Nonmetropolitan	88	(0.61)	38	(0.26)	18	(0.13)
School location						
Michigan	80	(0.59)	28	(0.21)	27	(0.2)
Missouri	25	(0.52)	12	(0.25)	11	(0.23)
North Carolina	0	(0)	17	(0.74)	6	(0.26)
Ohio	53	(0.44)	44	(0.36)	24	(0.2)
Wisconsin	24	(0.5)	17	(0.35)	7	(0.15)

¹All values are N(%) unless otherwise specified.

High School by Mode of Learning on November 15, 2020

Characteristic¹	Full in-person (n = 188)		Hybrid (n=115)		Virtual (n=83)	
Student/School						
Enrollment, mean (SD)	1400.54	(1344.52)	3764.77	(4567.83)	3092.41	(7978.39)
Percent White, mean (SD)	87.05	(17.29)	69.57	(17.99)	41.64	(28.76)
Percent Hispanic/Latino, mean (SD)	7.07	(7.97)	10.59	(7.05)	14.77	(12.96)
Percent Black, non-Hispanic, mean (SD)	5.42	(11.66)	10.86	(16.37)	35.34	(33.1)
Percent free lunch, mean (SD)	44.67	(19.06)	47.77	(20.65)	68.9	(24.8)
School county SARS-CoV-2 data						
Cases on 11/15/20, mean (SD)	1074.92	(525.88)	915.43	(469.16)	989.99	(470.75)
Percent positivity on 11/15/20, mean (SD)	17.26	(7.28)	13.31	(5.07)	13.28	(6.93)
School county by urban class						
Large metropolitan	34	(0.34)	35	(0.35)	30	(0.3)
Medium metropolitan	30	(0.45)	24	(0.36)	12	(0.18)
Small metropolitan	17	(0.38)	17	(0.38)	11	(0.24)
Nonmetropolitan	107	(0.61)	39	(0.22)	30	(0.17)
School location						
Michigan	62	(0.58)	25	(0.24)	19	(0.18)
Missouri	52	(0.58)	12	(0.13)	25	(0.28)
North Carolina	0	(0)	16	(0.7)	7	(0.3)
Ohio	53	(0.44)	44	(0.36)	24	(0.2)
Wisconsin	21	(0.45)	18	(0.38)	8	(0.17)

¹All values are N(%) unless otherwise specified.

Elementary School by Mode of Learning on January 15, 2021

Characteristic¹	Full in-person (n = 255)		Hybrid (n=88)		Virtual (n=102)	
Student/school						
Enrollment, mean (SD)	1956.22	(5059.2)	3318.61	(4190.57)	1863.19	(2159.37)
Percent White, mean (SD)	70.89	(22.15)	62.38	(26.27)	53.09	(33.1)
Percent Hispanic/Latino, mean (SD)	9.91	(7.53)	12.14	(10.35)	10.38	(14.26)
Percent Black, non-Hispanic, mean (SD)	11.45	(12.97)	17.2	(20.36)	28.77	(38.74)
Percent free lunch, mean (SD)	47.57	(19.51)	54	(23.82)	65.03	(26.07)
School county SARS-CoV-2 data						
Cases on 1/15/21, mean (SD)	598.97	(254)	760.7	(267.5)	597.26	(280.89)
Percent positivity on 1/15/21, mean (SD)	13.33	(6.57)	12.46	(5.28)	11.32	(5.36)
School county by urban class						
Large metropolitan	50	(0.39)	31	(0.24)	48	(0.37)
Medium metropolitan	31	(0.45)	16	(0.23)	22	(0.32)
Small metropolitan	34	(0.65)	9	(0.17)	9	(0.17)
Nonmetropolitan	140	(0.72)	32	(0.16)	23	(0.12)
School location						
Michigan	72	(0.51)	16	(0.11)	52	(0.37)
Missouri	96	(0.86)	10	(0.09)	6	(0.05)
North Carolina	5	(0.22)	11	(0.48)	7	(0.3)
Ohio	51	(0.42)	37	(0.3)	34	(0.28)
Wisconsin	31	(0.65)	14	(0.29)	3	(0.06)

¹All values are N(%) unless otherwise specified.

Middle School by Mode of Learning on January 15, 2021

Characteristic¹	Full in-person (n = 172)		Hybrid (n=99)		Virtual (n=108)	
Student/school						
Enrollment, mean (SD)	1601.11	(1506.93)	3982.01	(4932.71)	2671.34	(6977.19)
Percent White, mean (SD)	81.66	(15.24)	63.26	(23.37)	59.69	(29.85)
Percent Hispanic/Latino, mean (SD)	7.25	(8.04)	12.77	(8.87)	11.43	(13.89)
Percent Black, non-Hispanic, mean (SD)	5.17	(12.48)	15.26	(17.24)	28.91	(37.45)
Percent free lunch, mean (SD)	45.82	(19.61)	51.16	(22.17)	61.09	(26.49)
School county SARS-CoV-2 data						
Cases on 1/15/21, mean (SD)	620.22	(251.66)	752.79	(287.58)	591.19	(277.86)
Percent positivity on 1/15/21, mean (SD)	13.05	(6.47)	13.02	(5.27)	11.54	(5.16)
School county by urban class						
Large metropolitan	33	(0.28)	34	(0.29)	51	(0.43)
Medium metropolitan	25	(0.36)	18	(0.26)	26	(0.38)
Small metropolitan	26	(0.54)	13	(0.27)	9	(0.19)
Nonmetropolitan	88	(0.61)	34	(0.24)	22	(0.15)
School location						
Michigan	63	(0.46)	18	(0.13)	57	(0.41)
Missouri	31	(0.65)	12	(0.25)	5	(0.1)
North Carolina	0	(0)	15	(0.65)	8	(0.35)
Ohio	51	(0.42)	37	(0.3)	34	(0.28)
Wisconsin	27	(0.56)	17	(0.35)	4	(0.08)

¹All values are N(%) unless otherwise specified.

High School by Mode of Learning on January 15, 2021

Characteristic¹	Full in-person (n = 191)		Hybrid (n=103)		Virtual (n=96)	
Student/school						
Enrollment, mean (SD)	1401.75	(1370.57)	3935.59	(4903.52)	3029.07	(7348.52)
Percent White, mean (SD)	82.25	(15.32)	63.77	(23.07)	52.67	(29.71)
Percent Hispanic/Latino, mean (SD)	7.07	(7.83)	12.8	(8.82)	11.17	(11.28)
Percent Black, non-Hispanic, mean (SD)	4.96	(9.67)	14.73	(14.85)	27.54	(33.41)
Percent free lunch, mean (SD)	45.84	(19.6)	51.19	(21.14)	60.4	(25.89)
School county SARS-CoV-2 data						
Cases on 1/15/21, mean (SD)	620.85	(257.5)	739.51	(288.5)	634.21	(270.35)
Percent positivity on 1/15/21, mean (SD)	13.64	(6.67)	12.9	(5.34)	11.59	(5.39)
School county by urban class						
Large metropolitan	31	(0.31)	32	(0.32)	37	(0.37)
Medium metropolitan	23	(0.33)	19	(0.28)	27	(0.39)
Small metropolitan	24	(0.52)	15	(0.33)	7	(0.15)
Nonmetropolitan	113	(0.65)	37	(0.21)	25	(0.14)
School location						
Michigan	46	(0.42)	20	(0.18)	43	(0.39)
Missouri	70	(0.79)	12	(0.13)	7	(0.08)
North Carolina	0	(0)	15	(0.65)	8	(0.35)
Ohio	51	(0.42)	37	(0.3)	34	(0.28)
Wisconsin	24	(0.51)	19	(0.4)	4	(0.09)

¹All values are N(%) unless otherwise specified.

SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; SD, standard deviation

Supplemental Figure 1. Percent of Middle and High Schools In-person
Percent of middle and high schools in-person by urban classification and median SARS-CoV-2 community incidence.
SARS-CoV-2, severe acute respiratory syndrome coronavirus 2

