



June 30, 2021

To: Joint Legislative Education Oversight Committee
Senate Education/Higher Education Committee
House Education K-12 Committee
Department of Public Instruction
State Board of Education
Department of Health and Human Services
Office of the Governor

Re: "The Reopen Our Schools Act of 2021" (S.L. 2021-4)
ABC Science Collaborative, Final Report, June 2021

Dear Members,

Enclosed, please find the final report and analysis of data from North Carolina schools operating in Plan A from March 2021 through June 2021.

As directed by the legislation, the NC Department of Public Instruction engaged the ABC Science Collaborative (through the Duke Clinical Research Institute) to collate, analyze, and interpret COVID-19 data from middle and high schools in Plan A. We refer to this initiative as the ABCs of North Carolina's Plan A, and we have posted this final report, an accompanying lay summary and short video, and other materials at this [link](#) for your reference.

Final Report for NC School Districts and Charters in Plan A

As of June 29, the NC DHHS had notified the ABC Science Collaborative that 100 school districts and 14 charter schools operated in Plan A from March 2021 through June 2021. All 100 school districts signed data use agreements with us and complied with the legislation.

Those 100 reporting school districts and 14 charter schools represented 2,396 elementary, middle, and high schools and administrative buildings and more than 864,515 students who attended in-school instruction and 160,549 staff who worked in school and administrative buildings. Including students who received online instruction, the districts represented a total of 1,281,202 students.

The charts below show data about COVID-19 primary cases and in-school transmission (secondary) cases through June 25. We also provide district and school policy on physical distancing, the number of students per bus seat, and the number of students and staff who quarantined during the reporting period.

Interpretation

Our analysis of the data shows:

- North Carolina schools did an outstanding job preventing within-school transmission of COVID-19.
 - There is very limited within-school transmission of COVID-19 in schools participating in Plan A.
 - 6,484 primary cases among students and 1106 primary cases among staff
 - 308 secondary cases among students and 55 secondary cases among staff.
 - The estimated secondary attack rate (of all people quarantined who acquired COVID) is <1%
 - Wearing masks is an effective strategy to prevent in-school COVID-19 transmission.
 - Schools that follow the strategies in the NCDHHS [StrongSchoolsNC Public Health Toolkit \(K-12\)](#) and adhere to the mask mandate effectively mitigate within-school transmission of COVID-19 in Plan A.
- Distance does not predict the spread of COVID-19 when students/staff/teachers are masked.
 - Within-school transmission of COVID-19 in Plan A (full in-person instruction with minimal physical distancing) is similar to the within-school transmission in Plan B (hybrid instruction to enable six feet of physical distancing).
 - Masking is adequate to prevent within-school COVID-19 transmission, with no difference between schools requiring greater than 3 feet of distance between students compared to those requiring less than 3 feet. Distance did not predict infection.
 - Data show no difference in secondary transmission between school districts that offered 1, 2, or 3 students to a bus seat.
- Athletics, although safe in NC schools this past year, likely has a higher secondary attack rate than the within-classroom environment.

What This Means for NC Schools

Our scientific analysis of data provided directly from 100 school districts and 14 charter schools in North Carolina from March through June 2021, representing more than 864,515 students and 160,549 staff, indicates that:

- Proper masking is the most effective mitigation strategy to prevent secondary transmission in schools when COVID-19 is circulating and when vaccination is unavailable, or there is insufficient uptake.
 - Plan A – full in-person instruction – is appropriate for all grades, all schools, when masking is in place. There is not a medical reason to provide Plan B or fully remote instruction if masking is provided
 - Full-capacity bus transportation appropriate, with up to three masked students per bus seat
- Current quarantine guidelines have resulted in more than 40,000 students and staff being quarantined. Thus, over 100 people were quarantined for every within-school infection. Due to the low transmission rate (an estimated secondary attack rate of 1%), and in order to promote in-person education, the State should consider eliminating quarantine for those appropriately masked or vaccinated.

What's Next

These findings, coupled with the current scientific literature for COVID-19 transmission and mitigation strategies for K-12 schools, should encourage the NC DPI and DHHS to consider updating the StrongSchools NC Public Health Toolkit (K-12) for the 2021-2022 school year.

To help school leaders and policymakers in North Carolina, across the nation, and worldwide make data-driven decisions, the ABC Science Collaborative has prepared “COVID-19 and Schools: The Year in Review and a Path Forward” provides a set of key takeaways to help plan a path forward for safely resuming in-person instruction during the 2021-2022 school year.

Thank you for the opportunity to serve and assist the State of North Carolina. We look forward to discussing this with you in the coming weeks.

Regards,

The co-chairs of the ABC Science Collaborative:

Daniel K. Benjamin, MD, MPH, PhD
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Table 1: NC LEAs and Charter Schools in Plan A, LEA Size and COVID-19 Transmission

LEA Size	Number of Districts	Number of Children	COVID-19 Transmission	
			Primary	Secondary
Small	42	84,040	525	24
Medium	35	235,451	1780	99
Large	23	539,485	4142	185
Charters	-	5,539	37	0
Total	100	864,515	6,484	308

Table 2: NC LEAs and Charter Schools in Plan A, Region, and COVID-19 Transmission

Region	Number of Districts	Number of Children	COVID-19 Transmission	
			Primary	Secondary
North Central Region	12	169,295	1623	30
Northeast Region	14	42,292	262	5
Northwest Region	13	57,249	406	34
Piedmont Triad Region	13	141,763	794	54
Sandhills Region	13	75,345	515	50
Southeast Region	12	108,140	832	37
Southwest Region	11	207,098	1624	73
Western Region	12	57,794	391	25
Charters	-	5,539	37	0
	100	864,515	6,484	308

Table 3: NC LEAs in Plan A, Bus Practice and COVID-19 Transmission

Bus Practice	Number of Districts	Number of Children in LEAs Reporting Bus Practice	COVID-19 Transmission	
			Primary	Secondary
1	11	26,008	175	4
2	68	586,633	3955	183
3	16	199,139	1836	87
Other	5	39,252	481	34
Total	100	858,976	6447	308

** Charter Schools are not included in the above table

Table 4: NC LEAs in Plan A, Distancing and COVID-19 Transmission

Physical Distance	Number of Districts	Number of Children in LEAs Reporting	COVID-19 Transmission	
			Primary	Secondary
<3	21	203,919	1879	77
3	69	568,526	3807	185
≥6	6	26,817	152	0
None	4	59,714	609	46
Total	100	858,976	6447	308

Table 5: NC LEAs and Charters in Plan A, LEA Size, Quarantine*

LEA Size	Number of Districts	Number Quarantined
Small	41	9,070
Medium	37	14,357
Large	20	18,394
Charter	-	157
Total	98**	41,978

* Data submitted by June 28. Missing Davidson County Schools and Elizabeth City-Pasquotank Public Schools

Table 6: NC LEAs and Charters in Plan A, LEA Region Quarantine*

Region	Number of Districts	Number Quarantined
North Central Region	12	8595
Northeast Region	13	3321
Northwest Region	13	4038
Piedmont Triad Region	13	3885
Sandhills Region	13	4350
Southeast Region	12	4234
Southwest Region	10	9254
Western Region	12	4144
Charter	-	157
Total	98**	41,978

* Data submitted by June 28. Missing Davidson County Schools and Elizabeth City-Pasquotank Public Schools

Table Definition:

District Size: Defined by baseline numbers of individuals attending in-person school, Small (<5,000), Medium (5,000-15,000), Large (>15,000)

Bus Practice: Districts reported the number of students permitted to share a seat: this could be <2, 2, or 3. Several districts reported different practices or changes during the period of instruction.

Infections: Primary defined as the initial person (student or staff) identified with confirmed or presumptive infections. Secondary defined as persons (student or staff) with confirmed or presumptive infection after close contact with exposure to a case. If the contact occurred in a school setting or school-sponsored event, these secondary cases are typically described as secondary transmissions with the school setting.

Appendices

Appendix A - LEAs in Plan A – Bus Seat Occupancy and Physical Distancing

LEA Districts	Plan A Start Date	Number of Schools	2020-21 School Year ADM (Month 2)	Bus Seat Occupancy	Physical Distancing (ft)
Alleghany County Schools	3/29/2021	4	1293	2	3'
Ashe County Schools	3/29/2021	6	2813	2	3'
Asheboro City Schools	4/6/2021	8	4418	1	3'
Avery County Schools	3/12/2021	9	1821	1	3'
Beaufort County Schools	3/22/2021	14	5887	2	3'
Bladen County Schools	4/12/2021	13	3868	2	<3'
Brunswick County Schools	4/12/2021	19	12060	3	3'
Buncombe County Schools	3/21/2021	44	22031	2	3'
Burke County Schools	4/12/2021	26	11392	2	<3'
Cabarrus County Schools	4/13/2021	39	32668	3	None
Caldwell County Schools	4/12/2021	26	10591	2	3'
Camden County Schools	3/29/2021	5	1758	2	3'
Carteret County Public Schools	3/29/2021	18	7743	3	≥6'
Catawba County Schools	4/12/2021	28	15335	2	3'
Charlotte-Mecklenburg Schools	4/12/2021	175	138884	2	3'
Chatham County Schools	4/12/2021	18	8614	2	3'
Clay County Schools	3/22/2021	3	1172	2	<3'
Cleveland County Schools	4/12/2021	29	13791	3	<3'
Clinton City Schools	4/13/2021	5	2891	2	<3'
Columbus County Schools	4/12/2021	17	5162	2	3'
Craven County Schools	4/15/2021	25	12460	2	3'
Cumberland County Schools	4/12/2021	87	48185	2	3'
Currituck County Schools	3/22/2021	10	4078	2	3'
Dare County Schools	4/13/2021	11	5031	1	3'
Davidson County Schools	4/12/2021	36	17751	2	3'
Duplin County Schools	3/22/2021	13	9394	2	3'
Edenton-Chowan Schools	4/12/2021	4	1818	2	3'
Edgecombe County Public Schools	4/14/2021	14	5294	2	3'
Elizabeth City-Pasquotank Public Schools	4/12/2021	13	4749	3	3'
Elkin City Schools	4/12/2021	3	1216	2	3'
Franklin County Schools	4/12/2021	16	7724	3	<3'
Gaston County Schools	4/12/2021	55	29318	2	<3'
Gates County Schools	4/20/2021	5	1456	1	≥6'
Graham County Schools	3/22/2021	3	1062	Other	3'
Granville County Schools	4/19/2021	18	6816	2	<3'

LEA Districts	Plan A Start Date	Number of Schools	2020-21 School Year ADM (Month 2)	Bus Seat Occupancy	Physical Distancing (ft)
Greene County Schools	4/13/2021	3	2700	2	3'
Guilford County Schools	4/19/2021	124	68264	2	3'
Halifax County Schools	4/19/2021	11	2052	2	≥6'
Harnett County Schools	4/12/2021	28	19256	2	3'
Haywood County Schools	3/23/2021	15	6707	2	<3'
Henderson County Schools	3/23/2021	23	12927	2	3'
Hertford County Schools	4/15/2021	7	2571	2	3'
Hickory City Schools	4/12/2021	9	3882	2	3'
Hoke County Schools	4/12/2021	14	8342	2	≥6'
Hyde County Schools	3/15/2021	3	514	1	3'
Iredell-Statesville Schools	4/7/2021	37	20001	2	3'
Jackson County Public Schools	4/5/2021	9	3517	2	<3'
Johnston County Public Schools	4/12/2021	45	35906	3	<3'
Jones County Schools	4/12/2021	5	950	2	3'
Kannapolis City Schools	4/12/2021	8	5311	2	3'
Lee County Schools	4/12/2021	17	9174	2	3'
Lenoir County Public Schools	4/12/2021	17	8207	Other	≥6'
Lexington City Schools	4/12/2021	7	2962	1	3'
Lincoln County Schools	3/22/2021	23	11019	3	3'
Macon County Schools	4/5/2021	11	4300	2	3'
Madison County Schools	4/12/2021	7	2139	2	3'
Martin County Schools	4/12/2021	8	2636	2	3'
McDowell County Schools	3/22/2021	14	5677	3	3'
Mitchell County Schools	4/12/2021	7	1738	2	3'
Montgomery County Schools	4/1/2021	12	3495	2	3'
Moore County Schools	3/29/2021	24	12363	3	<3'
Mooresville Graded School District	4/7/2021	8	5931	2	<3'
Mount Airy City Schools	3/22/2021	4	1643	1	3'
Nash County Public Schools	4/12/2021	29	13896	3	3'
New Hanover County Schools	4/12/2021	42	25952	3	<3'
Newton Conover City Schools	4/14/2021	7	24368	2	3'
Onslow County Schools	4/6/2021	36	26864	Other	None
Pamlico County Schools	4/12/2021	4	1160	2	3'
Pender County Schools	4/6/2021	18	9344	3	3'
Perquimans County Schools	3/22/2021	4	1566	2	3'
Person County Schools	4/12/2021	11	4258	1	<3'
Pitt County Schools	4/13/2021	38	22838	2	3'
Polk County Schools	3/22/2021	7	2068	1	3'

LEA Districts	Plan A Start Date	Number of Schools	2020-21 School Year ADM (Month 2)	Bus Seat Occupancy	Physical Distancing (ft)
Public Schools of Robeson County	4/12/2021	40	20478	2	≥6'
Randolph County School System	4/6/2021	31	15049	2	<3'
Richmond County Schools	4/12/2021	15	6549	1	3'
Roanoke Rapids City Schools	3/29/2021	5	2573	1	None
Rockingham County Schools	3/30/2021	22	10825	2	3'
Rowan-Salisbury Schools	4/8/2021	34	18005	3	<3'
Rutherford County Schools	4/12/2021	18	7308	2	3'
Sampson County Schools	4/12/2021	18	7555	2	3'
Scotland County Schools	4/13/2021	12	5273	2	3'
Stanly County Schools	5/17/2021	23	8206	2	3'
Stokes County Schools	3/22/2021	19	5455	2	<3'
Surry County Schools	4/12/2021	19	7113	2	3'
Swain County Schools	4/12/2021	5	1845	2	3'
Thomasville City Schools	4/19/2021	4	2070	2	3'
Transylvania County Schools	4/12/2021	9	3181	Other	3'
Tyrrell County Schools	3/22/2021	3	541	2	3'
Union County Public Schools	4/12/2021	52	39727	3	<3'
Vance County Schools	4/12/2021	15	4954	Other	3'
Wake County Schools	4/5/2021	187	157673	2	3'
Watauga County Schools	4/12/2021	10	4468	2	3'
Wayne County Public Schools	3/29/2021	18	17223	3	<3'
Whiteville City Schools	3/29/2021	5	2050	2	3'
Wilkes County Schools	3/24/2021	22	8469	2	3'
Wilson County Schools	3/29/2021	26	10315	2	None
Winston Salem / Forsyth County Schools	4/19/2021	79	50407	2	3'
Yadkin County Schools	4/6/2021	14	4959	2	3'
Yancey County Schools	3/22/2021	9	1889	2	<3'
TOTAL		2,229	1,281,202		

Appendix B

Charter Schools in Plan A

School Name	Plan A Start Date	Number of Schools	2020-21 School Year ADM (Month 2)	Bus Seat Occupancy	Physical Distancing (ft)
Ascend Leadership Academy: Lee County	4/19/2021	1	163	2	<3'
Catamount School	4/5/2021	1	56	2	3'
Central Park School For Children	4/14/2021	1	634	<1	3'
Clover Garden	4/6/2021	1	655	<1	3'
Endeavor Charter	4/13/2021	1	512	<1	3'
Healthy Start Academy	4/6/2021	1	412	3	3'
Lake Lure Classical Academy	4/12/2021	1	510	1	3'
Langtree Charter Academy	4/12/2021	1	1647	Other	3'
Research Triangle High School	4/12/2021	1	557	Other	≥6'
The Franklin School of Innovation	4/12/2020	1	520	2	3'
Uwharrie Charter Academy	4/12/2021	1	1700	2	<3'
Voyager Academy	4/12/2021	1	1353	Other	3'
Water's Edge Village School	4/1/2021	1	38	Other	3'
Willow Oak Montessori	4/12/2021	1	216	Other	3'
TOTAL		14	11,973		

Appendix C

Community Transmission within - NC Counties with LEAs in Plan A*

LEA	Community Transmission Cases per 100,000 Population (Last 7 Days)
Alleghany County Schools	63
Ashe County Schools	26
Asheboro City Schools	15
Avery County Schools	6
Beaufort County Schools	23
Bladen County Schools	183
Brunswick County Schools	7
Buncombe County Schools	8
Burke County Schools	45
Cabarrus County Schools	30
Caldwell County Schools	15
Camden County Schools	64
Carteret County Public Schools	42
Catawba County Schools	19
Charlotte-Mecklenburg Schools	27
Chatham County Schools	1
Clay County Schools	187
Cleveland County Schools	6
Clinton City Schools	36
Columbus County Schools	27
Craven County Schools	2
Cumberland County Schools	38
Currituck County Schools	7
Dare County Schools	5
Davidson County Schools	10
Duplin County Schools	29
Edenton-Chowan Schools	7

LEA	Community Transmission Cases per 100,000 Population (Last 7 Days)
Edgecombe County Public Schools	12
Elizabeth City-Pasquotank Public Schools	10
Elkin City Schools	15
Franklin County Schools	6
Gaston County Schools	13
Gates County Schools	17
Graham County Schools	95
Granville County Schools	2
Greene County Schools	0
Guilford County Schools	31
Halifax County Schools	12
Harnett County Schools	24
Haywood County Schools	3
Henderson County Schools	0
Hertford County Schools	0
Hickory City Schools	19
Hoke County Schools	18
Hyde County Schools	20
Iredell-Statesville Schools	15
Jackson County Public Schools	0
Johnston County Public Schools	32
Jones County Schools	0
Kannapolis City Schools	30
Lee County Schools	23
Lenoir County Public Schools	13
Lexington City Schools	10
Lincoln County Schools	22
Macon County Schools	8
Madison County Schools	0
Martin County Schools	36
McDowell County Schools	22

LEA	Community Transmission Cases per 100,000 Population (Last 7 Days)
Mitchell County Schools	0
Montgomery County Schools	0
Moore County Schools	7
Mooresville Graded School District	15
Mount Airy City Schools	15
Nash County Public Schools	50
New Hanover County Schools	11
Newton Conover City Schools	19
Onslow County Schools	42
Pamlico County Schools	0
Pender County Schools	16
Perquimans County Schools	7
Person County Schools	53
Pitt County Schools	23
Polk County Schools	0
Public Schools of Robeson County	41
Randolph County School System	15
Richmond County Schools	22
Roanoke Rapids City Schools	12
Rockingham County Schools	11
Rowan-Salisbury Schools	30
Rutherford County Schools	28
Sampson County Schools	36
Scotland County Schools	46
Stanly County Schools	0
Stokes County Schools	22
Surry County Schools	15
Swain County Schools	21
Thomasville City Schools	10
Transylvania County Schools	0
Tyrrell County Schools	0

LEA	Community Transmission Cases per 100,000 Population (Last 7 Days)
Union County Public Schools	27
Vance County Schools	0
Wake County Schools	11
Watauga County Schools	109
Wayne County Public Schools	28
Whiteville City Schools	27
Wilkes County Schools	13
Wilson County Schools	62
Winston Salem / Forsyth County Schools	41
Yadkin County Schools	8
Yancey County Schools	11

* Data per N.C. Department of Health and Human Services 6/28/2021