



August 31, 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: ABC Science Collaborative, Summer Report, August 2021

Dear Members,

Enclosed, please find the summer report and analysis of data from North Carolina schools operating in-person from June 2021 through July 2021.

As you know, our original contract was completed in June 2021. However, we agreed with DPI to continue on a No Cost Extension. We are providing this report as a service to the state to inform the discussion related to the Delta variant. Nearly 20 school districts voluntarily submitted their data to us for summer instruction, and we would like their efforts to help all LEAs in North Carolina.

The ABC Science Collaborative (through the Duke Clinical Research Institute) collate, analyze, and interpret COVID-19 data from elementary, middle and high schools. We refer to this initiative as the ABCs of COVID-19 Within Schools.

Final Report for NC School Districts Operating In-Person

As of July 31st, 20 school districts have notified the ABC Science Collaborative that they provide in-person instruction for their summer program from June 2021 through July 2021. All 20 school districts signed data use agreements with us.

Those 20 reporting school districts represented:

- 435 Elementary Schools
- 16 Elementary & Middle Schools
- 16 Elementary/Middle/High Schools
- 149 High Schools
- 152 Middle Schools
- 23 Middle & High Schools
- 20 Administrative Buildings

A total of 59,561 students attended in-person instruction, and 11,854 staff worked in school and at administrative buildings.

The charts below show data through summer school about COVID-19 cases. These include two types of cases:

- 1) those that are acquired outside of school (sometimes called “primary cases”) and
- 2) cases acquired at school (sometimes called in-school transmission, or secondary cases).

Interpretation

Our analysis of the data shows:

- **Performance:** North Carolina schools did an outstanding job preventing within-school transmission of COVID-19 during the summer despite facing the Delta variant
 - There is very limited within-school transmission of COVID-19 in schools participating in our Summer Data Collection.
 - 627 primary cases among students and 190 primary cases among staff
 - 60 secondary cases among students and 5 secondary cases among staff.
 - The estimated secondary attack rate (of all people quarantined who acquired COVID) was <3%
- **Quarantine of healthy children and adults at low-risk of infection:** Over 2,000 children were quarantined this summer during the initial Delta variant surge with only 65 within school transmission infections.
 - This quarantining occurred despite the previous research done by us and others showing that the Secondary Attack Rate is ~1% if universal masking is enforced.
 - i. Zimmerman and Benjamin et al *Pediatrics* January 2021;
 - ii. Zimmerman and Benjamin et al *Pediatrics* July 2021;
 - iii. Benjamin and Zimmerman, Report to NC Plan A data June 2021;
 - iv. Falk et al MMWR January 2021;
 - v. Hershow et al MMWR March 2021;
 - vi. Rowland et al J Pediatric Infectious Disease August 2021;
 - vii. Dawson et al MMWR March, 2021)
 - The Secondary Attack Rate was <3% this summer with Delta variant. This means that in the mask-on-mask exposure setting (infected child or adult with a mask is a close contact of an uninfected child or adult) the uninfected person is at very low risk of developing an infection. This is consistent with the experience in outpatient healthcare with Delta where universal masking is enforced.
- **Wearing masks** is an effective strategy to prevent in-school COVID-19 transmission.
 - Schools that followed the NCDHHS StrongSchoolsNC Public Health Toolkit (K-12) strategies and adhere to the universal masking (without an “opt-out” option) effectively mitigated within-school transmission of COVID-19 during in-person instruction.

What This Means for NC Schools

Our scientific analysis of data was provided directly from 20 school districts in North Carolina from June through July 2021, representing 59,561 students and 11,854 staff. The data, combined with recent experiences in school districts without masks (https://www.cdc.gov/mmwr/volumes/70/wr/mm7035e2.htm?s_cid=mm7035e2_w; see also experience in North Carolina in August) indicate 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 vaccine uptake.

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, DHHS, and the legislature to consider having LEAs continue to report their COVID-19 data to the ABC Science Collaborative 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” [report](#). This report 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:

Danny Benjamin, MD MPH Ph.D., and Kanecia Zimmerman, MD MPH

Table 1a: NC LEAs In-Person, LEA Size and COVID-19 Transmission (Students)

LEA Size	Number of Districts	Number of Children	COVID-19 Transmission	
			Primary	Secondary
Small	6	4,071	26	1
Medium	7	9,915	47	14
Large	7	45,575	546	45
Charter				
Total	20	59,561	627	60

Table 1b: NC LEAs In-Person, LEA Size and COVID-19 Transmission (Staff)

LEA Size	Number of Districts	Number of Staff	COVID-19 Transmission	
			Primary	Secondary
Small	6	484	9	0
Medium	7	1599	21	1
Large	7	9771	159	3
Charter				
Total	20	11,854	190	5

Table 2a: NC LEAs In-Person, LEA Size, Quarantine (Students)

LEA Size	Number of Districts	Number Quarantined
Small	6	84
Medium	7	248
Large	7	1700
Charter		
Total	20	2,032

Table 2b: NC LEAs In-Person, LEA Size, Quarantine (Staff)

LEA Size	Number of Districts	Number Quarantined
Small	6	7
Medium	7	31
Large	7	361
Charter		
Total	20	399

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)

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.

*Note that data are missing from the Charter school (intentionally) to protect privacy/anonymity of any infected children or staff

Appendices

Appendix A – LEAs In-Person

LEA Districts	Summer School Start Date	Summer School End Date	Number of Schools	Total Students	Total Staff
Alexander County Schools	06/14/2021	07/29/2021	11	696	150
Ashe County Schools	06/07/2021	07/22/2021	6	686	93
Brunswick County Schools	06/21/2021	07/30/2021	19	1263	178
Cumberland County Schools	06/07/2021	07/29/2021	87	5273	1092
Davie County Schools			12	718	182
Gaston County Public Schools	06/07/2021	07/30/2021	55	1969	482
Guilford County Schools	06/14/2021	07/29/2021	124	14210	1615
Hickory City Schools	06/14/2021	07/29/2021	9	483	117
Iredell-Statesville Schools			37	851	348
Jones County Schools	06/02/2021	07/15/2021	5	156	24
Moore County Schools	06/07/2021	07/29/2021	24	2199	334
Mt. Airy City Schools	06/07/2021	07/29/2021	4	1400	40
Pitt County Schools	06/10/2021	07/29/2021	38	4547	825
Rockingham County Schools	06/07/2021 06/14/2021	06/24/2021 07/28/2021	22	2681	254
Scotland County Schools	06/07/2021	07/30/2021	12	1047	250
Stokes County Schools	06/02/2021	06/30/2021	19	591	65
Surry County Schools	06/02/2021	06/30/2021	19	1416	336
Wake County Public Schools System	06/21/2021	07/29/2021	187	10801	4042
Winston-Salem Forsyth Schools	06/21/2021	07/29/2021	79	7924	1367
Yadkin County Schools	06/14/2021	07/30/2021	14	650	60
TOTAL			783	59,561	11,854

Appendix B –Community Transmission within NC Counties with LEAs In-Person

LEA	Community Transmission Cases per 100,000 Population (Last 7 Days as of August 2021)
Alexander County Schools	456
Ashe County Schools	364
Brunswick County Schools	476
Cumberland County Schools	363
Davie County Schools	425
Gaston County Public Schools	438
Guilford County Schools	273
Hickory City Schools	421 (Catawba County)
Iredell-Statesville Schools	415
Jones County Schools	244
Moore County Schools	468
Mt. Airy City Schools	393 (Surry)
Pitt County Schools	377
Rockingham County Schools	321
Scotland County Schools	431
Stokes County Schools	296
Surry County Schools	393
Wake County Public Schools System	380
Winston-Salem Forsyth Schools	321
Yadkin County Schools	382

* Data per N.C. Department of Health and Human Services August 24, 2021.