ABC Data Plan A Update

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ABC Science Collaborative: a national partnership between Duke University, University Of North Carolina, and Community Stakeholders

Definitions and Background

- Community transmission (primary cases)
- Within school transmission (secondary cases)
- Contact tracing
- Distinguishing between community transmission and within school transmission
- Burden of contact tracing
- Sports and other extra curricular vs classroom
- Routine testing (PCR or antigen)
- Genome wide sequencing

North Carolina Experience: Fall 2020

Data from August 2020 to October 2020

- 90,000 students and staff involved with in-person instruction
- Continuous quality improvement, meeting weekly
  - Discuss cases and clusters
  - Solutions by superintendents with faculty input
  - Free consultative support at hundreds of school meetings and 1:1 calls with superintendents
- 773 community-acquired cases and 32 cases due to in school transmission
- Over 3,000 children and adults quarantined for 32 infections
- Transmission rare if adhere to mitigation strategies
  - Masking, distancing, hand hygiene
- Community case rates were 100-200 per 100,000
- Cases unmasked: special needs, lunch, pre-K

Zimmerman KO et al Pediatrics Jan 2021

School Based Transmission-Utah

- 20 public Elementary schools
- Dec 3, 2020-Jan 23, 2021
  - Daily rates- 40-95 per 100,000
- 5 of 728 contacts tested positive (0.78%)
  - 4 students, 1 teacher
- 3 of 101 quarantined contacts positive (3%)
- 3 of 5 households were positive (6 of 8 positive)
- Starting January 4, 2021- only quarantined if case or contact not wearing mask
  - ***111 contacts tested after this in place and no positives***
- Median classroom distance between students was 3 feet

Hershow R. et al MMWR Mar 19, 2021

Transmission Risk: very low with masking

- Low risk if masked
  - North Carolina (<1%)
  - Utah (<1%)
  - Missouri (<1%)
  - Wisconsin (~1%)
  - Georgia
  - Mississippi
- High risk if not masked
  - Florida
  - Tel Aviv
  - Georgia (10%)
  - Wrestling

Winter Surge North Carolina: 10/26/2020-2/28/2021

Unique ID	Students in Person	Community Rate/100,000/7 days	Primary (community) Cases	*Secondary Cases	Elementary School Secondary	Middle School Secondary	High School Secondary	High School Sports **Secondary	Quarantine
1	760	400-500	50	4	1	0	3	1	21
2	1,024	400-500	111	0	0	0	0	0	119
3	2,320	200-300	116	6	3	1	2	2	626
4	3,055	500-600	229	1	0	0	1	1	1,243
5	4,284	400-500	131	37	11	4	22	22	1,652
6	4,338	400-500	315	14	3	2	6	3	2,243
7	5,068	400-500	293	11	5	3	3	0	1,995
8	5,467	400-500	497	12	0	0	12	10	5,000
9	10,249	400-500	405	27	17	4	6	2	2,762
10	16,523	>600	427	53	32	10	11	11	2,182
11	17,000	400-500	306	26	12	2	12	9	2,277
12	19,434	500-600	1147	2	0	0	0	0	5,202
13	48,549	400-500	974	19	9	0	9	5	1,297
Total	89,522		4027	212	93	26	87	66	26,619

*6 secondary cases (also known as within school transmission cases) occurred in school buildings without students, e.g., central district offices

**The High Schools Sports-related cases are a subset of the HS secondary cases. Thus 75% of within school transmission in high schools, occurred in the school-sports setting (66/87); most were related to basketball

April Report for NC School Districts and Charters in Plan A

- 99 school districts (Local Education Agencies, LEAs) and 20 charter schools in Plan A.

1) As anticipated, there were cases of COVID-19 in North Carolina schools (2,214 community acquired cases); however, there was very limited reported within-school transmission (42 cases of within-school transmission across 751 schools)

2) North Carolina LEAs and charter schools are preventing within school transmission of COVID-19. Their performance to date is outstanding

3) If schools follow the NC DHHS StrongSchoolsNC Public Health Toolkit and adhere to the mask mandate, they effectively mitigate within school transmission of COVID-19 in Plan A

4) Based on data from March and April, masking appears to be adequate to prevent transmission on buses regardless of the number of children per seat (1, 2, or 3)

5) Based on the data previously presented to the North Carolina General Assembly (August 2020-February 2021), within-school transmission of COVID-19 in Plan A appears to be similar to within-school transmission in Plan B

Interim Results March-April 2021

Table 1

NC LEAs in Plan A, LEA Size and COVID-19 Transmission*

LEA Size	Number of Districts	Number of Children	COVID-19 Transmission	
			Primary	Secondary
Small	42	107,094	209	4
Medium	29	243,502	625	18
Large	21	788,815	1380	20
Total	92	1,139,411	2,214	42

* Data submitted by April 23; not all districts reported transmission data.

Table 2

NC LEA 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
<2	9	28,652	170	12
2	52	573,751	1443	17
3	13	208,812	601	13
Total	74	842,322	2,214	42

* Data submitted by April 23; not all districts reported bus practice and transmission data.

Table Definitions

District size
Baseline number of individuals attending in-person school:

- Small – < 5000
- Medium – 5000-15000
- Large – > 15000

Bus Practice
Districts will report the number of students permitted to share a seat:

- <2
- 2
- 3

Primary
Initial person (student or staff) identified with or reporting a confirmed or presumptive infection.

Secondary
Persons (student or staff) reporting confirmed or presumptive infections AFTER close contact exposure with a case. If the close contact exposure occurred in a school setting (e.g. classroom) or during school sponsored event (e.g. athletics), these secondary cases are typically described as secondary transmission within the school setting(s).

Interim data summary and conclusions

- In the mask-on-mask setting, transmission is extremely low, secondary attack rate is 1% or less
- North Carolina has a mask mandate and school districts are clearly enforcing it
- Breakthroughs almost always related to lack of masking
  - Pre-K (summer)
  - Lunch (fall)
  - Special needs (fall)
  - Indoor sports (winter)
  - Recess, and outdoor sports lower risk than basketball & wrestling but higher risk than the classroom; related to mask breaks (Georgia)
- ***There is no medical-safety reason to support Plan B compared to Plan A***

APPENDIX

Variants and Children

	Wave 1 (March 1, to May 31, 2020)	Wave 2 (Nov 1, 2020, to Jan 19, 2021)
Number of patients	20	60
Age, years	1 (0·1–11)	6 (0·7–13)
Sex		
Male	9 (45%)	40 (67%)
Female	11 (55%)	20 (33%)
Comorbidities	7 (35%)	25 (42%)
BAME ethnicity	6 (46%; n=13)	20 (42%; n=48)
IMD score	28·3 (11·6–36·1)	20·5 (14·7–32·2)
Clinical severity (modified WHO definition)*		
Critical disease	4 (20%)	2 (3%)
Severe disease	1 (5%)	3 (5%)
Moderate disease	5 (25%)	8 (13%)
Mild disease	8 (40%)	27 (45%)
Asymptomatic or incidental findings	2 (10%)	20 (33%)
Management		
Oxygen	7 (35%)	5 (8%)
Non-invasive ventilation	3 (15%)	2 (3%)
Invasive ventilation	4 (20%)	1 (2%)
Remdesivir	1 (5%)	4 (7%)
Steroids (low dose)	0	5 (8%)
Monoclonal antibodies (casirivimab and imdevimab)	0	1 (2%)

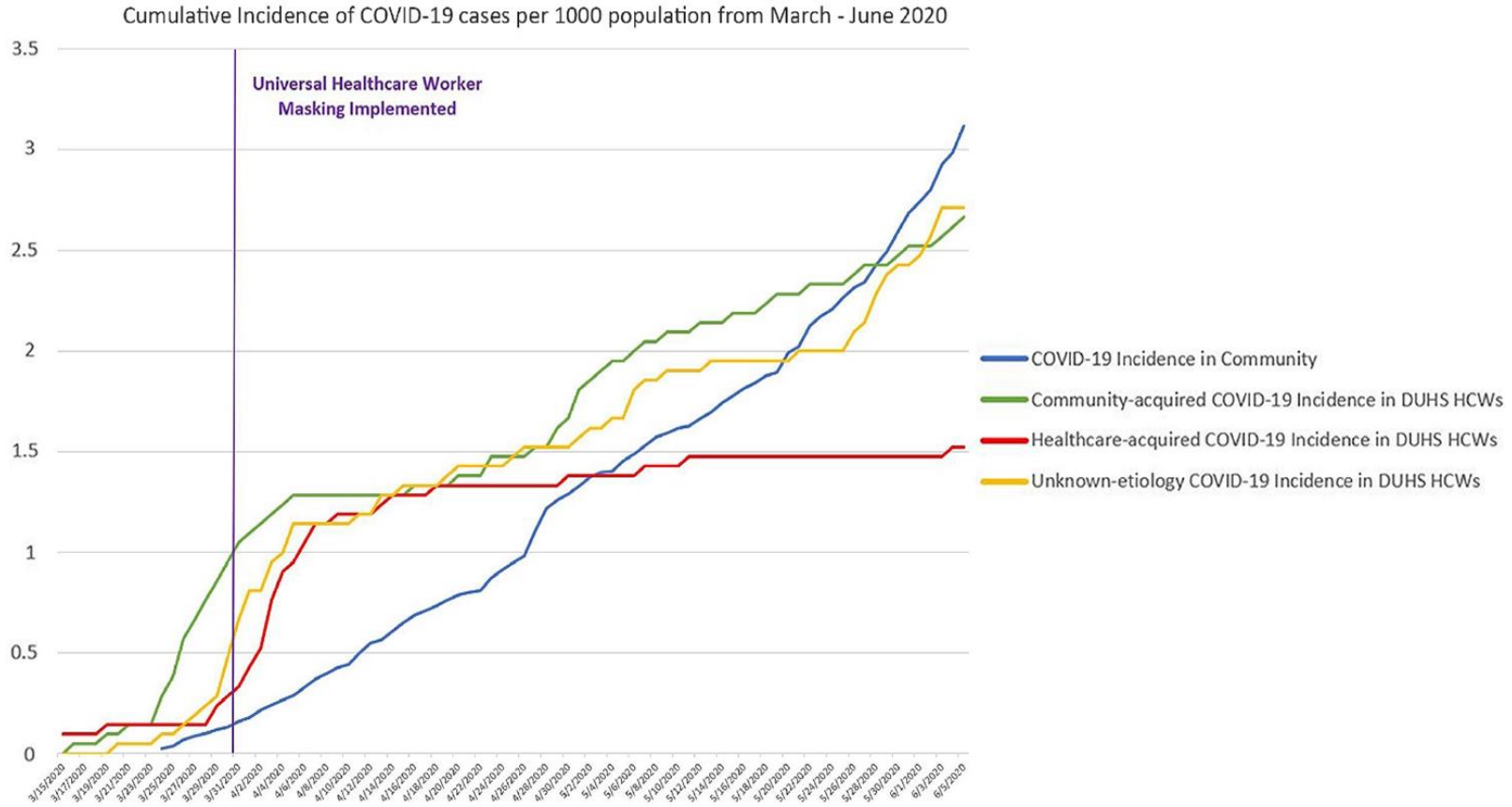
- No difference in severity of illness for children
- UK variant is now the dominant variant based on data presented last week
- Transmission will be higher if masking not enforced
- Transmission and severe disease going down with vaccination
- School children and vaccine
  - 16-18 years old authorized
    - Vaccinate this spring & summer
  - 12-15 likely authorized week of May 10th
    - Vaccinate this spring & summer
  - <12 authorization hoped for in fall, 2021
    - Ideally vaccinate fall & winter 2021-2022

Bookman S et al Lancet Child & Adolescent Health Feb 2021

How we got started

Experience From Healthcare

- Prior to universal masking compliance (mid-April), the **red line** (HCW work-related infections) quickly rises throughout March and early April. Compare the slope of the **red line to the blue line** (community) prior to policy and widespread adoption. After we had the masking policy and widespread adoption, the new infections in HCW **related to being at work virtually stopped**.



- While work-acquired COVID-19 dropped to near-nil, HCW still acquired plenty of COVID-19. But April-December we got COVID-19 in the community, just not at work*
- So when school boards called in summer 2020, we talked to them about infection control rather than community metrics
- Key question for all of us: can we have a safe environment in schools
- Of note: these data have been replicated in hundreds of hospitals across physicians, nurses, technicians, cafeteria workers, transportation, custodial services, phlebotomists. This work has also been replicated in outpatient clinics, free clinics, health department clinics where the ventilation is poor
- *Now that we have been vaccinated, risk is extremely low