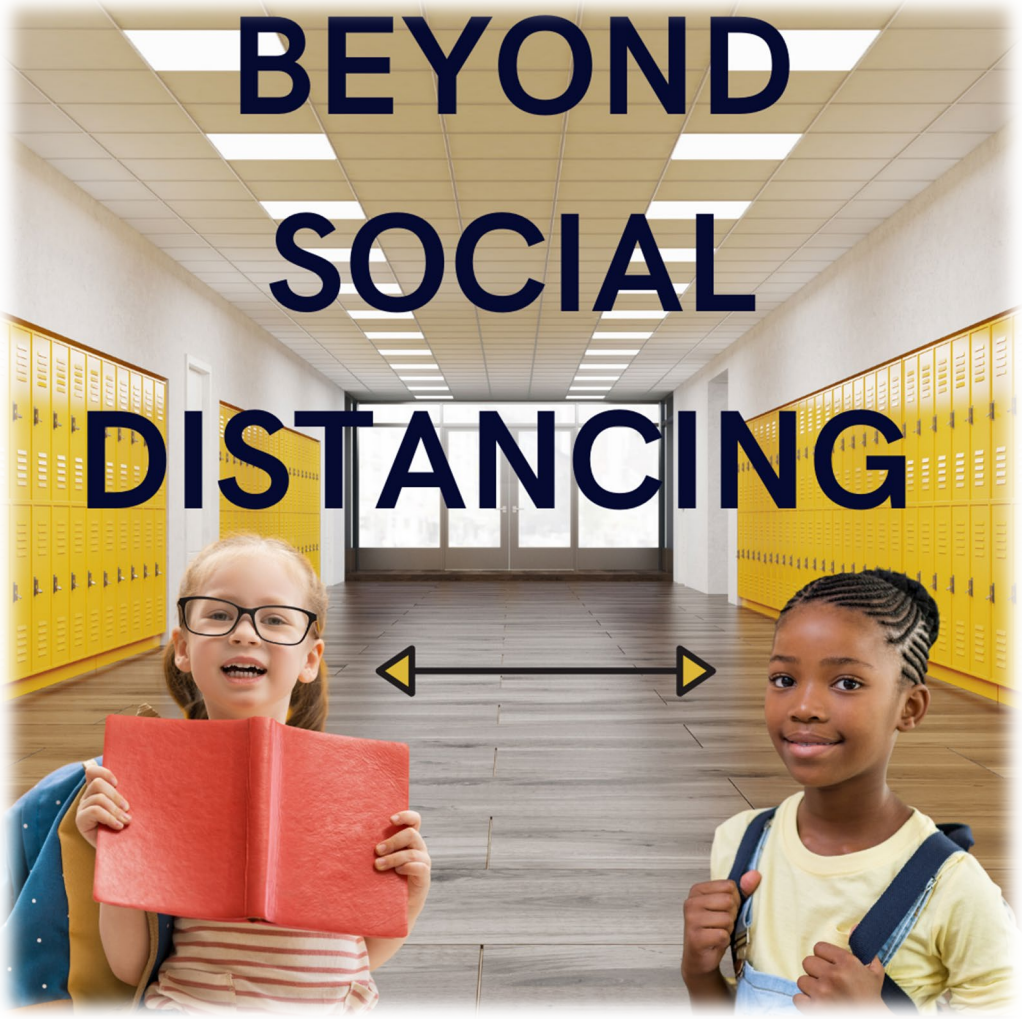
BUBBLELIZED
Technologies



A White Paper By:

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Introduction

BubbleLized Technologies believes that it is not enough to tell our kids that social distancing in school is sufficient. The CDC provided guidelines recommending that everyone should maintain safe social distancing of 6 ft apart. However once schools started to reopen, these guidelines were quickly modified as officials realized that 3ft was a more realistic number for children to stay apart in classrooms and in the hallways. BubbleLized Technologies believes that the decision to have kids return to school without proper protection is risky. In-person class sessions should be carefully considered for parents, teachers, and students as schools implement recommended health and safety protocols. The health and safety protocols are not standard across the board. Some School Systems have decided to implement weekly COVID 19 tests to students and staff on a weekly basis while others have decided not to test at all. The Federal Government has provided millions of dollars to each State for grades K-12 schools to ensure buildings can safely reopen and students can recover their academic momentum.

We have reviewed the safety protocols that have taken place in multiple states and offer a brief snapshot into where we are as a community and what we can do to improve the safety for all.

Background

In March of 2020, many school systems in the United States switched to virtual learning due to the deadly pandemic. School systems throughout the United States scrambled to incorporate virtual learning by spending millions on laptops for students. They provided novel ways to deliver internet access for families who couldn't afford it and millions on disinfecting solutions. A year later, by March 2021, many states around the country reported a significant decline in the number of students enrolled in public school because of the coronavirus pandemic, leaving experts and educators concerned about the trend and its potential long-term consequences.[1] Reintroducing families, students, teachers, and all staff back into a safe work environment has become the top concern and priority.

[1] https://abcnews.go.com/US/thousands-students-reported-missing-school-systems-nationwide-amid/story?id=76063922

Chapter 1

Current Environment

The current environment in the United States is that students must wear face masks throughout the day. For the most part, students provide their acts, but schools tend to have covers on hand. Students and staff expect to socially distance themselves to their school policies, which typically means no significant group activities or large gatherings.[2] As of April 2021, the country requires vaccination efforts for the elderly, frontline workers exposed to potentially infectious people, and now to middle-aged and, in some places, early twenty-year-old vaccine candidates. School systems around the country are tirelessly planning reopening plans. NoBE (March 24, 2021) Newark Public Schools have designed an April 12 return. The plan is to

[2] https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/operation-strategy.html

provide continued surveillance by implementing weekly testing for students, teachers, and staff. "The Newark Board of Education has already approved a Boston-based biotechnology company to authorize pooled testing implementation in their schools for the duration of the 2020-2021 school year." [3] Bowie (Feb, 2021) reports that the Baltimore City Public School System was one of the country's first school systems to announce it would do mass testing of students and staff. Students and staff will use PCR tests (which are considered the gold standard for COVID-19 testing). "Elementary and middle school students will use a short swab in the inside edge of their noses. All the tests will be pooled according to their classrooms and processed by a company. The results for the pool will be given to city schools. If the pool test is positive, all the students and staff will be notified and will have to quarantine. Families will be invited to come back for an individual test."[4]

"High school students and staff will give themselves a saliva-based test. Test tubes with the samples will be sent to a mobile lab funded by American University and located at and operated by Gallaudet University in Washington, D.C. The test is completed in minutes at the schools and results come within eight hours through a phone app that will allow parents and staff to get the results. Details about the screening will be available on a website that launches Wednesday. The city school board approved a $5.7 million contract with Ginkgo Bioworks Inc. for the pool tests for elementary and middle schools and a $9.5 million contract with ShieldT3 to process the saliva tests."[5]

In California, many school boards have not been willing to return students to classrooms. They have struggled with the costs associated with public health standards and negotiations with teachers' unions. There will be the new normal for a couple of years until we get through the pandemic. Myers (March 6, 2021) "Teachers from some of the biggest districts have come out against a $6.6 billion plan signed by Gov. Gavin Newsom aimed at returning students to classrooms. They say schools can't reopen until infection rates drop and enough educators have been vaccinated. Among them is the powerful United Teachers of Los Angeles, whose members voted Friday to reject what they called an unsafe return for the second-largest district in the nation." This week, the union slammed the reopening plan as "a recipe for propagating structural racism" by benefiting wealthier, whiter areas with lower infection rates.

"This vote signals that in these most trying times, our members will not accept a rushed return that would endanger the safety of educators, students, and families," union President Cecily Myart-Cruz said.[6]

[3] https://www.cdc.gov/coronavirus/2019-ncov/community/disinfecting-building-facility.html#anchor_1617548426741

[4] https://www.baltimoresun.com/education/bs-md-testing-city-schools-20210224-kt7owrkzxrebznkt7kdhqyxwdu-story.html

[5] https://www.baltimoresun.com/education/bs-md-testing-city-schools-20210224-kt7owrkzxrebznkt7kdhqyxwdu-story.html

[6] https://ktla.com/news/nationworld/l-a-teachers-union-votes-to-reject-return-to-in-person-learning-until-conditions-are-met/

Chapter 2

Current Protocols

Schools must implement health and safety protocols to allow for staff and students to increase participation in in-person learning while measures are being taken to control the pandemic. While mask wearing, social distancing and hand washing are three key strategies for preventing a COVID-19 infection, there are additional measures that can be taken to create safe learning environments. This information is in compliance with the CDC guidelines as of April 2021. The following set of recommendations apply to individual schools and school systems and should be considered based on community conditions and resource availability:

Vaccination: One of the most important tools for controlling the COVID-19 pandemic is vaccination.[7] Eligible individuals should be vaccinated to protect themselves from serious illness that may result from contracting COVID-19 and its variants.[8] As of April 2021, there are three vaccines authorized and recommended in the United States: Pfizer-BiNTech, Moderna, Johnson & Johnson / Janssen. The Pfizer-BiNTech and Moderna vaccines require two doses to obtain the maximum level of effectiveness, while the Johnson & Johnson / Janssen vaccine only requires one. Individuals are considered fully vaccinated two weeks after receiving the final dose.[9]

While vaccines boost the immune system's response to the virus, they do not prevent contracting the virus. Because the viral loads tend to be very low in a vaccinated person who contracts COVID-19, there is a low risk of transmission from vaccinated individuals. The duration of vaccine protection has not been determined at this time. The Pfizer-BiNTech vaccine has been demonstrated to provide protection for at least six months and provides full protection from the more transmissible variant that was first detected in South Africa.[10] More studies will be needed to determine if booster vaccinations will be recommended in the future as variants may continue to develop after the pandemic.

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[7] https://www.cdc.gov/coronavirus/2019-ncov/vaccines/effectiveness/work.html

[8] https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html

[9] https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated.html

[10] https://www.usatoday.com/story/news/health/2021/04/01/pfizer-covid-vaccine-over-90-effective-least-6-months-study/4830501001/

Symptom Screenings: Because children and adolescents might experience different symptoms and varying severity of symptoms than adults, the CDC does not recommend daily screenings.[11] They do encourage parents and caregivers to monitor at home and to keep students home who exhibit a variety of symptoms, knowing that the symptoms of COVID-19 infection can be similar to those of a variety of other respiratory and other illnesses. Some schools and school systems also conduct temperature checks at bus stops and at school buildings. Out of an abundance of caution and to help staff and families feel more comfortable, some schools use symptom and vaccine screening apps to record this information and provide it to school staff. Evidence to date suggests people shed the virus most during the first three days from the onset of symptoms. This suggests people are most contagious during the early part of the disease, when symptoms have just started[12]. If students experience symptoms, they should not attend school in person and should follow up with a medical provider.

Asymptomatic/Pre-symptomatic Health Screening: One of the most effective ways to minimize transmission is early detection. When an infected person does not have symptoms, they are considered asymptomatic. However, pre-symptomatic is when the infected person hasn't developed symptoms yet, but eventually does. This is an important distinction because COVID-19 symptoms tend to appear two to 14 days after exposure. In this pre-symptomatic stage, some people are still contagious, so onwards transmission of the virus is still possible, despite no outward display of illness. This is one of the reasons why governments are asking whole households to isolate when one member gets sick[13].

Testing: Individuals who experience Coronavirus symptoms[14], may use a viral or antibody (or serology) test to determine if they have contracted COVID-19. Symptoms tend to appear between 2 and 14 days after exposure. Viral tests are used as a diagnostic to indicate a current infection and antibody (or serology) tests are used to indicate a prior infection. There are two types of viral tests: nucleic acid amplification tests (NAATs) and antigen tests.

A *Nucleic Acid Amplification Test*, or NAAT for SARS-CoV-2[15] specifically identifies the RNA (ribonucleic acid) sequences that comprise the genetic material of the virus. For initial diagnostic testing for current SARS-

[11] https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/symptom-screening.html

[12] https://www.weforum.org/agenda/2020/07/temperature-cough-breathing-isolation-covid-19/

[13] https://www.health.com/condition/infectious-diseases/coronavirus/asymptomatic-vs-presymptomatic

[14] https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

[15] https://www.cdc.gov/coronavirus/2019-ncov/lab/naats.html

CoV-2 infection, CDC recommends collecting and testing an upper respiratory specimen, such as nasopharyngeal, nasal mid-turbinate, or anterior nasal.

One of the more frequently used NAAT tests is the COVID-19 PCR test, which is considered the "gold standard" for its accuracy and reliability[16]. The NAAT procedure works by first amplifying – or making many copies of – the virus's genetic material that is present in a person's specimen. Amplifying or increasing the copies of nucleic acids enables NAATs to detect very small amounts of SARS-CoV-2 RNA in a specimen, making these tests highly sensitive for diagnosing COVID-19. NAATs can reliably detect small amounts of SARS-CoV-2 and are unlikely to return a false-negative result of SARS-CoV-2.[17]

Antigen tests are immunoassays that detect the presence of a specific viral antigen, which implies current viral infection. Antigen tests are currently authorized to be performed on nasopharyngeal or nasal swab specimens placed directly into the assay's extraction buffer or reagent. Most of the currently authorized tests return results in approximately 15 minutes.[18]

Individual vs. Group/Pool Testing[19]: One way to mitigate transmission is to test cohesive groups to identify positive cases among asymptomatic and/or pre-symptomatic people. For example, some school systems use group/pool testing for elementary students who are attending school in person since they are assigned to pods so that students have limited interaction with other students. Each student contributes a sample and the group of samples is then tested to determine if the pod has any positive cases. If there is a positive result, the students quarantine until they are testing individually. By having all students in a pod have an individual test, the students who test negative can return to in-person schooling while the positive student(s) can quarantine and participate in virtual learning. While the frequency of such testing may vary, weekly testing is a reasonable approach for phasing in the return to in-person learning after months of virtual learning.

Contact Tracing: Individuals who are considered close contacts (individual within 6 feet of an infected person for 15 minutes or more) of probable or confirmed COVID-19 individuals are recommended for testing whether they are symptomatic or asymptomatic[20].

Ventilation: The CDC recommends improvements to building ventilation as one of multiple mitigation strategies to reduce the exposure to the virus that causes COVID-19. The concentration of viral particles is often higher indoors than outdoors due to air flow. With indoor ventilation mitigation strategies, the viral particle concentration decreases which makes it less likely that viral particles can be inhaled into the lungs (potentially lowering the inhaled dose); contact eyes, nose, and mouth; or fall out of the air to accumulate on surfaces.[21]

Disinfection: On April 5, 2021, the CDC updated its

16 https://my.clevelandclinic.org/health/diagnostics/21462-covid-19-and-pcr-testing

17 https://www.cdc.gov/coronavirus/2019-ncov/lab/naats.html

18 https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/antigen-tests-guidelines.html

19 https://www.baltimorecityschools.org/covid-screens

20 https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/contact-tracing.html

21 https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html

guidance for surface cleaning and disinfection to only recommend disinfection in indoor settings, schools and homes where there has been a suspected or confirmed COVID-19 case within the last 24 hours[22]. When no people with confirmed or suspected COVID-19 are known to have been in a space, cleaning once a day is usually enough to sufficiently remove virus that may be on surfaces. Disinfecting kills any remaining germs on surfaces, which further reduces any risk of spreading infection.

It's important to note that more frequent cleaning or disinfection (in addition to cleaning) may be beneficial if certain conditions apply that can increase the risk of infection from touching surfaces[23]:

- High transmission of COVID-19 in your community,
- Low number of people wearing masks,
- Infrequent hand hygiene, or
- The space is occupied by certain populations, such as people at increased risk for severe illness from COVID-19

Disinfection methods include products (which require registration with the Environmental Protection Agency, unless they meet certain exemption criteria) and devices (which do not require registration, but are regulated to ensure that effectiveness and safety claims are backed by scientific data)[24]. Regulated devices have an EPA establishment number instead of registration. The types of UV (ultraviolet) light kits that kill, inactivate or suppress growth of fungi, bacteria or viruses are considered regulated devices.

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[22] https://www.cnn.com/world/live-news/coronavirus-pandemic-vaccine-updates-04-05-21/index.html

[23] https://www.cdc.gov/coronavirus/2019-ncov/community/disinfecting-building-facility.html#anchor_1617548426741

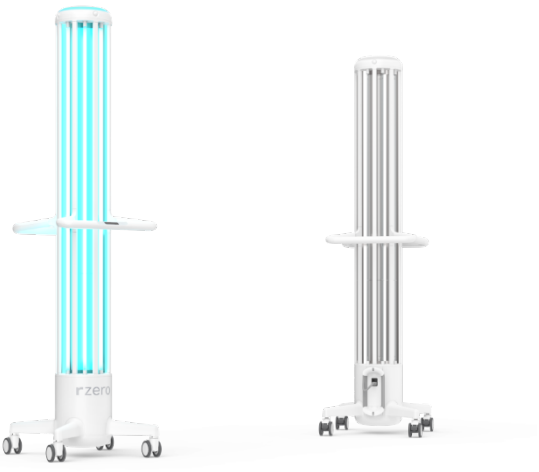
[24] https://www.epa.gov/safepestcontrol/pesticide-devices-guide-consumers

Proposed Solutions

BubbleLized Technologies focuses on providing practical and powerful solutions to one of the most unprecedented challenges of our time. From the beginning, our team's primary focus has been to provide a complete BubbleLized solution to Organizations for relief from the devastating impact of the COVID 19 Pandemic. We are delivering cost effective state of the art solutions on a National scale, addressing school systems needs by designing and implementing applications for sustainability.

As we continue to battle this pandemic, there are three vital areas of concern for any environment that is operating at partial or full capacity. Any organization should consider utilizing safety measures that include Detect, Disinfect and Prevention Protocols. One of the critical protocols of detecting and keeping students and staff safe is to have reoccurring COVID Testing, of at least once a week. This past NBA Basketball Season, each player was tested 6 days a week and the NFL also had similar protocols. BubbleLized Technologies works with local school districts to provide either PCR or Rapid Antigen test kits to school systems for less than the cost of a movie ticket per child. Second, is utilizing hospital grade disinfection protocols such as Portable UV Light and Air Purification Systems. BubbleLized Technologies has several options for school systems to choose from. We offer financing and leasing options for many of our technologies. In conjunction with testing, disinfecting technologies and PPE a complete BubbleLized Solution will help prevent the spread of COVID19 and other bacterial and viral infections in your school systems.

Many School Systems are utilizing the funds received from The American Rescue Plan Act of 2021 Elementary and Secondary School Emergency Relief Fund (ARP ESSER) which provides a total of nearly $122 billion to States and school districts to help safely reopen and sustain the safe operation of schools and address the impact of the coronavirus pandemic on the nation's students.



Conclusion

As States continue to lift the Restrictive Mandates across the country and millions receive the COVID19 Vaccines; there are still many that will be at risk. As we know, the vaccines will not be taken by all adults and children; there are simple protocols that school systems can implement to ensure that they are doing everything in their power to prevent the spread by implementing Detecting, Disinfecting and Preventing protocols. Let's BubbleLize to Normalize.

The data in this paper is accurate as of April 2021. However, as the situation surrounding COVID-19 continues to evolve, it's possible that some data may have changed since the release of this white paper. While BubbleLized Technologies is trying to keep our information as accurate and up-to-date as possible, we also encourage readers to stay informed on news and recommendations for their own communities by using the CDC, WHO, and their designated states public health department as resources.

This white paper was presented by Dr. Lawrence Jones, Ph.D., MS, MPP, Senior Advisor for BubbleLized Technologies Inc. and founder and CEO of Biotechnology Health Management and Care, LLC. Biotechnology Health Management and Care is a consulting firm geared to assist the early-stage biotech firms in strategic partnerships, customer discoveries, organizational design and developments, and entrepreneurial leadership advising.