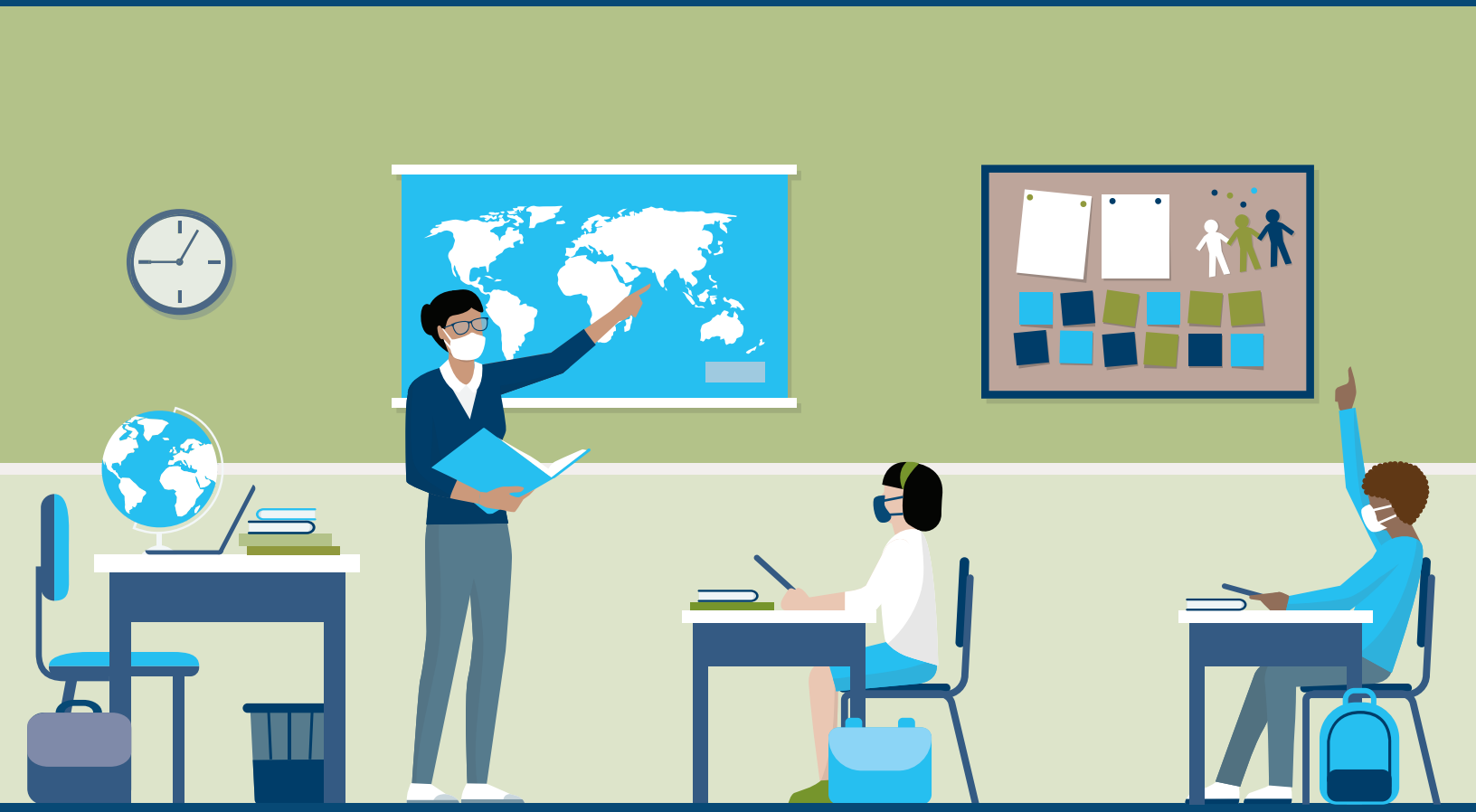
SAFER SCHOOL REOPENINGS

A guide to returning to in-person learning during COVID-19



HEALTHY DAVIS TOGETHER

Davis California

UCDAVIS UNIVERSITY OF CALIFORNIA

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EXECUTIVE SUMMARY

This guide is designed to help K-12 educators, leaders, and partners develop and implement safe school reopening plans. The information provided is based on Healthy Davis Together's experiences supporting school reopening in Davis, California. Healthy Davis Together (HDT) is a joint project between the City of Davis and the University of California, Davis, that aims to control and prevent the spread of SARS-CoV-2 (the virus that causes COVID-19) and facilitate a coordinated and gradual return to regular city activities. Since September 2020, HDT has been partnering with the Davis public school district, Davis Joint Unified School District (DJUSD) to support the safe reopening of their pre-kindergarten through twelfth grade (PK-12) schools.

Through the process of collaborating on Davis school reopening, HDT and DJUSD have identified important actions or "competencies" that contribute to a safe return to school, with the goal of helping schools safely return to full-time, in-person learning in fall 2021. In this guide, we detail our learnings—including steps, key considerations, and timing where appropriate—for the following competencies:

1. Collaborating with advisors
2. Establishing communications to inform and educate
3. Planning for and conducting regular in-school COVID-19 testing
4. Modifying physical spaces and classroom operating protocols
5. Conducting timely contact tracing
6. Screening for symptoms
7. Monitoring wastewater and indoor air

Schools may already have the foundation to develop some of these competencies but not others. This guide is intended to be used by all schools, regardless of what resources exist today. If you're interested in learning more about HDT, our partnership with DJUSD, or our learnings throughout school reopening, please contact Mira Susa at msusa@ucdavis.edu.

INFORMATION FOR SCHOOLS IN YOLO COUNTY, CALIFORNIA

This guide can be used by schools or partner organizations in Yolo County, CA or across the nation. Schools within Yolo County will have access to a variety of COVID-19 management resources as part of the HDT program. A comprehensive list of services provided by HDT can be found in Appendix A. For more information on obtaining these resources, please contact Mira Susa at msusa@ucdavis.edu.

If your school is not in Yolo County, CA, we recommend reaching out to organizations in your area to identify partnership opportunities. Local partners (e.g., retail pharmacies, labs, health care providers, county/state agencies) may be able to provide you testing, PPE, or other related services.

COMPETENCY 1: COLLABORATING WITH ADVISORS TO SUPPORT REOPENING DESIGN AND IMPLEMENTATION

A dedicated team of advisors representing educators, parents of students, the school board, the city, teachers' and staff unions, etc., can help inform a reopening plan that takes into consideration the needs and concerns of all parties involved. HDT meets with a small group of advisors on a weekly basis to discuss implementation and with a larger group on an ad-hoc basis to discuss higher-level reopening questions.

Consider meeting with members of the advisory committee on a weekly or bi-weekly basis, noting that not all members need to meet every week. Below is a list of stakeholder groups and roles to consider.

Role	Responsibility
School Administrators	• Coordinate stakeholders around reopening measures • Make final decisions on reopening and safety protocols • Communicate decisions to students, staff, and families
School Board Member	• Serve as a liaison between the community and school administrators
Teachers' Union Member	• Advise on instructional methods • Identify and inform workplace safety and health best practices
Staff Union Member	• Identify and inform workplace safety and health best practices
Public Health Experts (local officials or private entities)	• Advise on safety guidelines, coordinating school and local health testing and contact tracing, using PPE, conducting behavioral research, providing incentives, etc.
Other School District Administration	• Share knowledge, learnings, and recommendations on reopening plans • Coordinate bulk procurement, if applicable
Technical Experts	• Advise on technological requirements and assist in procurement of hardware and systems to accommodate virtual learning, on-campus testing, contact tracing, symptom screening, and/or environmental monitoring.

Work with these advisors to inform various stakeholders of the evidence base surrounding various issues, set high-level return-to-school goals that are measurable, time-bound, and within the guidelines of federal, state, and local regulations—as well as how to measure and report on these goals. Goals may include:

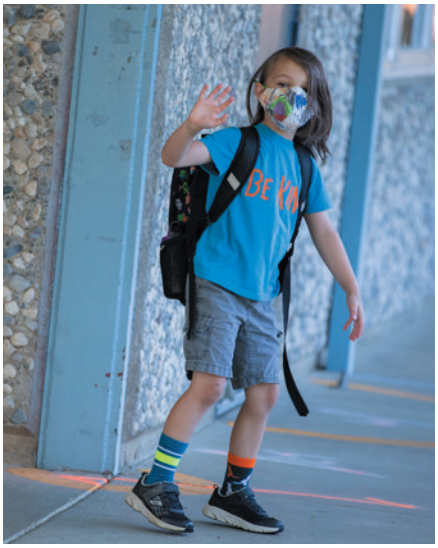
a. Transmission Rates: Number of students and staff testing positive for COVID-19 remains at or below baseline

b. Testing rates: Percentage of students and staff tested each week

c. Instructional Satisfaction: Percentage of students and staff satisfied with the in-person and virtual learning experiences

d. Attendance Rates: Percentage of students attending in-person learning vs. virtual learning

e. Social Service Needs Met: Percentage of parents who feel that their students' needs are met



COMPETENCY 2: ESTABLISHING COMMUNICATIONS TO INFORM AND EDUCATE STUDENTS, STAFF, AND THE COMMUNITY

A safe and successful school reopening requires clear and frequent communications with the school community. Students, educators, and families all play key roles in—and will have questions about—the reopening process; communicating reopening guidelines and processes is critical in setting the right expectations with the school community.

While you may already have plans in place to communicate about school reopening with your community, this section is intended to complement existing communications plans.

Step 1: Identify your key audiences and objectives for communicating with each

Key audiences for reopening communications could include students, families, educators, community members, and other important stakeholders. For each key audience, determine why you must communicate with them and what you want your communications to achieve; these are your communication objectives.

Sample communications objectives include:

- Equipping students and educators with key information they need to participate in reopening activities and actions (e.g., testing)
- Addressing and assuaging families' potential concerns about reopening
- Elevating the school system's work to safely reopen among the broader community

Step 2: Outline the information to be shared with your key audiences prior to and during the return to school

Once you have established your audiences and communications objectives, compile a list of the information that each audience needs to know and when they need to know it in order to advance your communications objectives. Think about milestone events for each of these audiences and what information they need at those milestones.

Consider creating a guide like the following:

Audience (Who)	Information Needed (What)	Timing (When)
Educators/staff	Safety protocols in place on campuses and their role in them, including testing, symptom screening, and more	Once school board approves plan
	What in-person learning will look like and expectations for them	
Families	Safety protocols in place on campuses and expectations of families	When making a decision about in-person vs. distance learning
	What in-person learning will look like for students	
Students (especially HS/JHS)	Safety protocols in place on campuses and their role in them including testing, symptom screening, and more	When making a decision about in-person vs. distance learning
	What in-person learning will look like and expectations for them	
Broader community	Safety protocols in place on campuses	Date of school reopening

Step 3: Determine the vehicles, channels, and spokespersons you will use to communicate

For each piece of information listed in the previous step, decide how and where it is best communicated. Consider where each audience goes for information—such as the school system website, social media, mailings, videos, and newsletters—and keep in mind that important information should be communicated through multiple channels. Spokespersons could include the superintendent, principals, other key system-level leaders. You may also want to engage validators—such as public health experts or other trusted messengers for each key population—to provide a third-party perspective on the school reopening plan.

Step 4: Develop materials and tactics to communicate safety protocols and enable health education

Schools should develop a core set of messages about reopening that various school spokespersons can reference to ensure consistent messaging. These messages should map back to the school system's vision for supporting students. See sample messages from DJUSD in Appendix B.

Once you have messages and topics for education in place, use them to build out communications resources such as talking points for spokespersons, online lessons, and frequently asked questions (FAQs). Also consider tough questions that could arise and have a plan to address them.

Next, develop communications materials tailored to the needs of the audience (e.g., available in multiple languages) and make them easily accessible. Examples include:

- A checklist of to-dos for families as they prepare to return to school (e.g., fill out return survey, walk through testing process with younger students, register for symptom monitoring solution)
- A video to explain the safety procedures added to school campuses (e.g., air filters, physical distancing, mask wearing, staying home when sick)
- A dedicated portion of the school system website detailing all COVID-19 procedures and linking to health information. See example from DJUSD here.
- Webinars to walk families and educators through health and safety procedures (e.g., symptom screening, masking, handwashing). See example from DJUSD here.
- Graphics/posters that illustrate safety protocols. See example shared by DJUSD (produced by the CDC) here.
- An op-ed in the local newspaper about the school system's work to ensure a safe reopening
- A public health education curriculum (including video modules and discussion questions) to be integrated into science, health, and homeroom classes. See examples provided to DJUSD educators here.

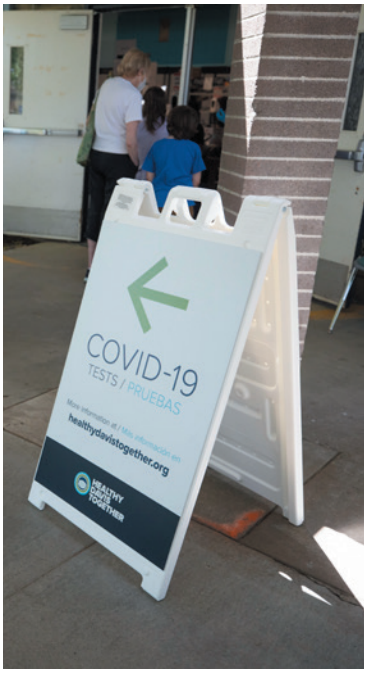
Map each piece of communication to the channels or vehicles that can deliver it, with an eye to the key audiences you want to reach. Look for opportunities before, during, and after schools reopen for your audiences to share feedback and questions. This could be in the form of a survey, town hall discussion, or dedicated feedback email address/hotline. Make clear in your communications how you are monitoring and addressing feedback.

Step 5: Develop a communications protocol and materials to employ in the event of a health issue

As needed in advance of reopening, review and update your school system's plan for how you will communicate with your key audiences about a positive COVID-19 test result, a possible exposure, or a positive environmental monitoring signal so that your school can respond swiftly. A communications protocol should include:

- Clear criteria for circumstances that require notification/communication
- Stakeholders who should be notified (e.g., classmates of a student who tests positive, everyone in the school)
- Individuals responsible for initiating communication (e.g., principal, school nurse)
- Actions that will be taken and information that should be communicated to stakeholders (e.g., instructions on whether quarantining is necessary)

Verify that everyone who plays a role in this plan is aware of their responsibility. See an example of how DJUSD communicates its protocol here.



COMPETENCY 3: PLANNING FOR AND CONDUCTING REGULAR COVID-19 TESTING FOR STUDENTS AND STAFF

How, when, and where schools set up their testing programs depends on the class schedule, space available, and staffing structure at school. In Davis, California, we developed a testing structure that allows students and staff to be tested at school at least once a week, which is equivalent to our minimum recommended testing rate. Testing consists of asymptomatic screening using HDT's standard saliva-based PCR test and targeted, point of care testing of symptomatic or exposed individuals using Abbott's BinaxNOW antigen test. While the set-up varies from school to school, testing usually takes place in a multipurpose room or under tent shelters outside of the school. At DJUSD schools, testing sites are open for 30 minutes prior to classes beginning, during classes, and for one hour after the school day ends. HDT has developed a separate comprehensive guide, COVID-19 Testing in K-12 Schools: A step-by-step guide based on Healthy Davis Together's experience in Davis, California, which outlines our recommendation for launching testing sites at K-12 schools.

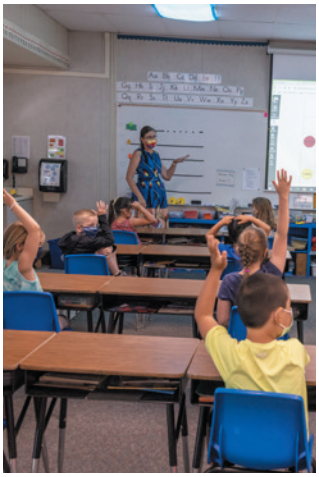
COMPETENCY 4: MODIFYING PHYSICAL SPACES AND CLASSROOM OPERATING PROTOCOLS TO COMPLY WITH PUBLIC HEALTH GUIDELINES

Schools across the nation rapidly implemented virtual learning; now, as students and staff return to school, administrators should modify the schools' physical environments and related protocols to promote safe in-person learning. Updating air filters, increasing ventilation, creating safe distances between desks, and disinfecting commonly-used surfaces are all tactics that can help control viral spread.

Step 1: Re-configure HVAC settings and install filters for optimal filtered airflow

Increasing air flow can help reduce airborne COVID-19 spread. ASHRAE recommends approximately six air changes per hour (6 ACH) in classrooms. To achieve this goal, schools can consider installing portable air filters or opening windows and doors (i.e., air purging) for 1-2 hours pre-occupancy and post-occupancy and/or for 15 minutes between class periods (in addition to during classes). ASHRAE also recommends that schools install high-efficiency HVAC filters (e.g., MERV-13), which can be acquired at most hardware stores, to filter recirculated air. If your school is located in a high pollutant area, we recommend your district officials monitor air quality index and consider temporary virtual learning if safe airflow cannot be achieved indoors. We recommend utilizing janitorial staff to implement airflow updates at least four weeks ahead of reopening when possible.

DJUSD worked toward optimal filtered airflow by replacing all existing air filters with MERV-13 air filters, purchasing and placing two portable HEPA air purifiers that are appropriately sized for the classroom size and airflow characteristics in each classroom; and opening classroom windows and doors (to the hallways or to outdoors) during instruction as much as possible.



Step 2: Rearrange school spaces to maximize social distancing

Schools should rearrange their classrooms to allow for safe distance between students and educators. If a school is putting in place other safety protocols (e.g., masking, mandatory testing), the safe distance between desks may be less than if no other protocols are in place. Additionally, schools should look to local, state, and federal recommendations on safe distancing. As of March 19, 2021, the Centers for Disease Control and Prevention (CDC) recommends three feet of distancing between students in elementary school classrooms when masks are used universally; middle schools and high schools have slightly more stringent guidance based on community transmission rates. In areas with less ventilation (e.g., bathrooms) or in any circumstances in which masks are not worn (e.g., while eating or drinking), schools should enforce six feet of distancing.

Generally, all students and staff should be physically distanced to the furthest extent allowed by spatial constraints. To do so, multipurpose rooms and other large common spaces can be repurposed as classrooms, and the use of outdoor instruction space is encouraged when possible.

In accordance with the CDC and California Department of Public Health's (CDPH) most recent guidance, DJUSD is enforcing three feet of distance between student desks and will continue spacing adults (e.g., teachers, office staff) at least six feet apart. Additionally, the school district has used multipurpose rooms as classrooms to further space students and staff when necessary.

Step 3: Develop and implement protocols for using and cleaning shared spaces/materials

Establishing, consistently communicating, and enforcing protocols for supplies, common areas, etc. is important to support the safe return of students, educators, and staff. Protocols might include:

- Maintaining social distancing, especially in highly trafficked areas (utilizing visual cues or staggered arrival/departure times where applicable)
- Eating outdoors whenever possible; if outdoor dining is not feasible, students should eat in their classrooms (rather than in a cafeteria) at a maximum distance and facing away from each other (by being situated in rows rather than tables) while unmasked
- Sanitizing high-touch surfaces (e.g., doorknobs, faucets, handrails) at least daily; using EPA approved disinfectants for surfaces and providing cleaning staff (janitorial staff or educators) with appropriate PPE
- Reducing the use of indoor breakroom and shared offices
- Limiting the use of lockers to reduce hallway crowding
- Eliminating the use of water fountains and providing bottled water or installing water bottle fill stations
- Limiting the use of shared supplies (e.g., markers, scissors) when possible; sharing within a cohort can occur if needed, but supplies should be sanitized every day or before being used by another cohort
- Using portable handwashing stations for classrooms that do not have their own sinks

COMPETENCY 5: CONDUCTING TIMELY CONTACT TRACING TO CONTROL SCHOOL-BASED VIRUS SPREAD

Timely and confidential contact tracing is vital to identifying and containing the spread of COVID-19 within a school community. School districts should select a contact tracing lead to work with infected students/staff to identify who they have come into close contact with, notify these individuals, and support them through the appropriate action plan for the next 10-14 days. At DJUSD, the Associate Superintendent of Student Support Services is leading contact tracing efforts.

Step 1: Connect with the local public health department and develop action protocols for any exposures

Many local public health departments or health care providers are already operating robust contact tracing programs. School districts should partner directly with local entities to augment and complement existing contact tracing efforts, as school districts have readily available, detailed knowledge of which students are coming into contact with one another on a daily basis and can ensure that all in-school contacts are accounted for. The school district and local partner should align on roles and responsibilities as well as quarantine and isolation protocols as related to positive and exposed cases within the school community.

In Davis, HDT partnered directly with Yolo County to record and respond to positive testing results. To do so, HDT and the county share an informatics system and assign owners to each positive result to determine which entity should follow up with case investigation and contact tracing. All information is reported back into the shared system.

If a student or staff member tests positive at a school testing site, HDT will contact that person directly to report their results and conduct a case investigation. Immediately thereafter, HDT alerts the DJUSD contact tracing lead of the positive case. DJUSD then engages with that person directly to discuss school-related outcomes like mandatory quarantine and remote learning. DJUSD also alerts school-based close contacts (like classmates and educators) of their exposure risk and next steps (e.g., quarantine and isolation, recommended testing). See a diagram of DJUSD's contact tracing procedures in Appendix C.

In developing these action protocols, it is important to determine to whom results can be reported and recognize that certain individuals, like Superintendents and Associate Superintendents, may need to be granted access to test results and other information that usually falls under FERPA or HIPAA regulations. Note that there are some exceptions to these regulations due to the pandemic.

Step 2: Hire a team to conduct contact tracing

School districts (or possibly individual schools, depending on school size) will likely need to hire contact tracers to supplement the county's contact tracing efforts. Contact tracers can be recruited and trained; they do not have to have a clinical degree. The CDC offers a sample job description that includes qualifications such as experience conducting interviews over the phone and fluency in a language other than English when applicable.

We recommend contracting and hiring individuals as temporary full- or part-time paid staff, as opposed to relying on volunteers who may be less reliable. However, given that staff-for-hire may be limited, consider recruiting contact tracers from the public health graduate program at a local university or reassigning office and health services staff within the school system, as HDT has done.

Step 3: Create an easy-to-use reporting process for students, educators, and families to alert the school of any possible exposures

School districts should develop both an email address and a phone number staffed by school contact tracing teams in order to intake information from students, educators, and family members about confirmed positive COVID-19 cases or potential exposures. School community members using the reporting channels should be asked to provide their full name, school site or department, and a phone number. Information about exposure and/or a positive test result should be logged in a central spreadsheet and be accessible by your district's administrative lead for contact tracing. This information should also be shared securely with local contact tracing partners in a timely manner.

Step 4: Communicate the importance of contact tracing—and how the process works—to the school community

To help ensure that students, families, and staff participate in the contact tracing process and are proactive in reporting possible cases, it is important to explain how contact tracing works, along with its role in preventing the spread of COVID-19, and reinforce that the infected person's identity will not be shared with contacts. Also, it is critical to inform the school community of the steps that will be taken in response to various scenarios—such as if a student or staff member begin showing symptoms while at school—and to define terms like close contact, quarantine, and isolation. The school district may have an opportunity to play an active role in encouraging the school community to sign up for contact tracing programs run by local health authorities (e.g., CA Notify in California) and can share information about local health programs as part of the district's contact tracing communications. See an example of how DJUSD communicates about its contact tracing protocols here.

COMPETENCY 6: SCREENING REGULARLY FOR SYMPTOMS TO KEEP POTENTIAL ILLNESS OUT OF THE CLASSROOM

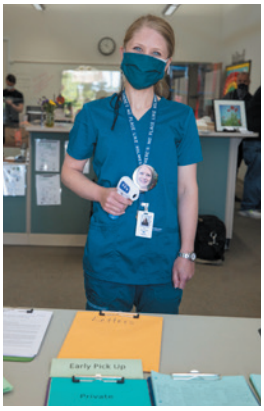
Implementing a regular, school-wide symptom screening process can help encourage families to keep their children home in response to any potential illnesses. Symptom monitoring can occur in many ways—at home or upon arrival at school, and either manually or via a mobile application. Symptoms, or lack thereof, might be reported directly to the school or monitored on an honor system, and may be used as guidance for families about when to keep children home from school.

Step 1: Develop protocols for daily symptom screening

Schools should provide a screening checklist that students, educators, and staff can use to assess their wellness daily. For example, a checklist can identify if an individual has been in close contact—i.e., having been within six feet for 15 minutes or more (with or without a mask) with someone who tested positive for COVID-19 in the past 14 days—and if an individual has COVID-19 symptoms 24-72 hours before coming to campus.

District and school officials should include protocols for evaluating students that have a chronic condition. At DJUSD, students and staff that have chronic conditions whose symptoms may mimic COVID-19 symptoms (e.g., asthma) are encouraged to provide the school with medical clearance from a health care provider for these symptoms.

Districts should clearly outline reporting requirements—i.e., whether students and staff will be required to report their symptoms each day before school and/or whether students will be visibly screened for symptoms prior to entering the building. DJUSD encourages all students and staff to conduct a daily self-screening (using DJUSD's online checklist in English and Spanish) for symptoms prior to arriving to school.



Step 2: Train educators to screen for symptoms in school

Schools may encounter a situation in which an individual develops symptoms while on campus. We recommend training school educators and staff to conduct visual screening as a way to help potentially identify cases. See an example flow chart from DJUSD here. Schools can train educators to visually check students for signs of illness prior to letting them into the classroom. If an educator identifies a potentially symptomatic student, we recommend they follow school protocol and take or direct the student to the school nurse for further evaluation. If possible, nurses should maintain a designated outdoor isolation area. The school nurse will then follow treatment guidelines and accommodations according to the student's healthcare plan (if applicable). See an example policy for when students/ staff become ill at school from DJUSD here.

Step 3: *Optional: Partner with a symptom monitoring solution vendor (e.g., app, website)

If your school would like to require all students and staff to report their symptoms daily, we recommend using a symptom monitoring technology like Ruvna, MyMedBot, Cleared4School, or Kinsa. There are several symptom monitoring applications and websites available that allow families to submit their symptom reports prior to arriving at school; also, many of these technologies provide aggregated and/or individual symptom reports to administrators. Considerations for choosing a symptom monitoring solution should include:

- Technological Accessibility: Does your entire community have access to smartphones, internet, emails, texts, etc.? If not, how can those families be accommodated (e.g., paper forms)?
- Linguistic Accessibility: What languages does the form or solution need to be provided in to make it maximally accessible to students, staff and families?
- Customization: Is your school interested in providing your own questionnaire? Or assigning specific weights to various symptoms when determining a recommendation on whether or not to come to school?
- School Building Access Points: If you are requiring students and staff to prove they have completed their symptom monitoring before entering school, do you have enough staff to monitor each entry point into the building? If you need to lock entry points, do you need to stagger arrival schedules to avoid crowding?
- Privacy Protection: Which staff need access to symptom monitoring reports? How can student and staff privacy and health data be maximally protected?
- System Integration: Would it be beneficial to have the app linked into your school attendance program, parent portal, or other online system? Which vendors can provide this capability?

Step 4: Communicate symptom screening protocols

Communicating symptom screening protocols should be embedded into the school's larger reopening communications plan. Messaging should outline why symptom screening is important; the expectations of students, educators, staff, and families before arriving to school; any necessary reporting mechanisms, and the procedures that will be taken in response to a student or staff member becoming symptomatic while in school. See sample messages from DJUSD in Appendix B and see an example DJUSD YouTube video on self-screening for illness in both English and Spanish.

COMPETENCY 7: MONITORING WASTEWATER AND INDOOR AIR TO SUPPLEMENT TESTING DATA TO IDENTIFY THE PRESENCE OF THE VIRUS

Environmental monitoring (testing samples of wastewater and air filters) is another strategy to help identify and limit COVID-19 transmission within schools. The virus that causes COVID-19 (SARS-CoV-2) can be found on surfaces, in air filters, and in the excrement (feces and urine) of infected individuals, including those who do not show symptoms. As such, environmental monitoring can be a useful tool for early detection of potential outbreaks, especially in schools that are not requiring students and staff to test regularly.

In Davis, California, we are running a few studies on the impact and outcomes of environmental monitoring over time. DJUSD, specifically, is piloting air filter sampling at two elementary schools. HDT is developing a detailed guide on wastewater monitoring, which will be released in the coming weeks on HDT's Insights page and may be of interest to school districts.

Step 1: Select an approach to environmental monitoring

To achieve the most comprehensive results, we recommend that schools consider using a multifaceted approach to environmental monitoring—i.e., air filter swabbing and wastewater monitoring.

- **Air filter swabbing:** Swabbing high-efficiency filters on a regular basis
  - DJUSD is swabbing the portable HEPA air-purifiers that are located in every classroom, as opposed to the building HVAC systems, for ease of collection
  - HDT recommends conducting air filter sampling on a weekly basis and on days during which students are not being tested at school (if a school testing program is in place)
- **Wastewater monitoring:** Schools can purchase wastewater autosamplers and work with the local Department of Public Works (DPW) to place these samplers in a location connected to the school building. Staff from the DPW will likely conduct the sample collection, but we recommend working with the DPW to determine how frequently samples will be collected.
  - HDT recommends sampling wastewater once or twice each week in order to identify the virus in a timely manner
  - HDT'S autosamplers acquire flow-proportional samples every 15 minutes to make a 24-hour composite sample from one sewer node

Note that air sampling may be less effective in classrooms that hold multiple cohorts of students throughout the day as it allows for less targeted action, so we recommend determining the combination of environmental monitoring tactics most appropriate for your district's instructional methods.

Step 2: Identify a lab to process environmental samples

As you determine the best approach to environmental monitoring, you will need to identify a lab that is equipped to process these samples. Contact commercial or academic labs in your area to determine if they have the capability to run samples on the necessary basis. Criteria for selecting an appropriate lab include turnaround time for sample processing (speed should be prioritized to ensure that potential cases can be identified and action taken to prevent widespread transmission), expertise in SARS-CoV-2 diagnostics, and cost per analysis. Align with the lab on how the samples will be delivered to the lab (e.g., if the school staff will deliver them to the lab or if lab staff will pick up the samples and take them to the lab).

HDT is using an environmental engineering lab within UC Davis to process environmental monitoring samples. If your school is located in Yolo County, you may have access to the UC Davis lab for sampling processing.

Step 3: Purchase necessary supplies

For air filter sampling, we recommend purchasing nylon flocked swabs, which have been shown to be better at picking up RNA than cotton swabs. Wooden-handled swabs may also inhibit downstream lab steps and should be avoided if possible. After collecting a sample, HDT stores swabs in a buffer called DNA/RNA Shield, which kills SARS-CoV-2 but preserves DNA/RNA for analysis. Depending on the volume of samples collected, schools may consider using barcoded tubes for sample tracking.

Your city or county may have an existing relationship with an autosampler brand for regulatory wastewater sampling which can be leveraged for COVID-19 wastewater sampling. Otherwise, popular autosampler brands include Hach and ISCO.

Step 4: Train staff to conduct sampling

Schools can train teachers and other staff to easily and safely swab air filters. If teachers and staff are not available to conduct sampling, on-site testing staff or external contractors can be used depending on their availability. All parties who will be conducting swabbing should attend an in-person or virtual training (see here for a video training on how to conduct air filter sampling).

Wastewater sampling should be conducted by the Department of Public Works.

Step 5: Develop a threshold and protocol for positive environmental samples

Administrators should work with local public health officials to determine when (and what) actions should be taken in response to a positive environmental sample. For example, it is important to determine how students and families will be notified of a positive air filter sample and if the identified classroom will need to be quarantined for 10 days. Additionally, after detecting a positive sample, air filters should be replaced (as the virus can be detected on surfaces for many days).

DJUSD is treating a positive environmental sample differently than a positive test result, which would result in a classroom and close contacts quarantining. The Yolo County Public Health Department has recommended that schools alert students, educators, and families of the positive environmental sample and encourage them to get tested; additionally, the school has been encouraged to conduct more frequent environmental sampling (e.g., air filter sampling twice per week in the identified classroom). Because wastewater samples cannot be isolated to individual classrooms, it is recommended that in response to a positive wastewater sample, a district increases air filter sampling to twice per week in the identified school and encourage students and educators from the school to get tested.

CONCLUSION

Though this playbook is not exhaustive, the outlined steps can help school districts and individual schools transition safely back to in-person learning and continue monitoring virus presence after students return to campus. Schools should consider their community's specific circumstances (e.g., local guidance, COVID-19 positivity rates) when determining how and when to implement these recommendations.

As schools continue to open this spring and into the fall, we anticipate new learnings to emerge and will continue to share what we learn in ways that can help others. If you are interested in learning more about Healthy Davis Together, please reach out to us at msusa@ucdavis.edu.

APPENDIX

Appendix A | HDT Services Provided to Yolo County Schools

CATEGORY	SERVICE/OFFERING	HDT SUPPORT TYPE
Testing	Testing site equipment and supplies, including point-of-care tests	Funding and procurement
	Support staff to collect saliva samples	Wages and training
	Clinical staff to administer point-of-care tests (e.g. BinaxNOW)	Training only
	IT helpline support for registration	HDT-run routine service
	Courier to transport saliva samples	HDT-run routine service
	PCR test sample analysis	HDT-run routine service
	Communication of results to individuals who have tested	HDT-run routine service
	Testing analytics and insights	Data reporting
Supplemental Case Investigation[1]	Positive case reporting to school administration	HDT-run routine service
	County, state, and school contact tracing coordination	HDT-run routine service
Environmental Monitoring[2]	New and replacement MERV-13 air filters	Funding and procurement
	Staff to collect and store air filter samples	Training only
	Air filter swabs and storage bins	Funding and procurement
	Courier to transport air filter samples	HDT-run routine service
	Wastewater sample collection and analysis	HDT-run routine service
Communications	Standard health and safety messaging for social media	Information/toolkits
	Testing site signage and informational materials	Funding and procurement
	Testing encouragement campaign	Information/toolkits
	Vaccine encouragement campaign	Information/toolkits
	Environmental monitoring notifications	Information/toolkits
Health Education	Health education videos and materials	Information/toolkits
	Public health education lessons/facilitation	HDT-run ad-hoc service
Incentives	Incentives program set-up	Funding and information/toolkits
PMO Support	Knowledge sharing playbooks and guides	Information/toolkits
	Advisory support for school health and safety	HDT-run ad-hoc service

Note: 1. Assumes school districts have identified internal contact tracers, **2.** Is not available for the spring beyond DJUSD
Legend: Spring and Fall; Fall Only

Appendix B | Sample Messaging

ENABLING ENVIRONMENT

- In addition to environmental monitoring, we're taking proactive steps to make our classrooms and school spaces safer.
- We've improved ventilation and purification of classroom air by installing air filters and purifiers while cleaning and disinfecting commonly used surfaces daily.
- We've adjusted our physical spaces to meet public health recommendations for physical distancing.
- All classrooms will be configured to allow for at least three feet of space between students, and will have a health center with masks, gloves, handwashing, and informative health posters.
- All of our educators have received storage bags to keep student belongings separate.

COVID-19 TESTING

- Until enough people are vaccinated, weekly testing with quick results, in addition to wearing masks and physical distancing, will help prevent the spread of COVID-19 in the community.
- Even after you are vaccinated, it is important to continue regular COVID-19 testing. All authorized COVID-19 vaccines are extremely effective, but no vaccine provides 100% protection.
- As part of our conditions for a safe return to campus, DJUSD is offering free asymptomatic testing on or adjacent to our campuses to all students and educators.
- To ensure your student can be tested when they return to school, please make sure that they are registered for testing through Healthy Davis Together, affiliated with the DJUSD agency, and there is a DJUSD waiver on file.
- Free COVID-19 testing for anyone who lives or works in Davis is available at four locations throughout the city through Healthy Davis Together.

CONTACT TRACING

- A thorough case investigation and contact tracing program is in place to ensure our staff, students and families are informed of any potential exposure so we can stop outbreaks before they happen.
- Our contact tracing protocols are consistent with requirements from the Yolo County Health Department.
- If you or your student tests positive for COVID-19, please notify your school leader. The infected person's identity will be kept anonymous. This is an important step to help limit the spread of the virus and keep others in the school community healthy.
- Please visit our website for detailed explanation of our protocols.

SYMPTOM MONITORING

- Daily symptom monitoring is an easy but effective that way everyone can contribute to keeping the school community safe and healthy.
- All students and staff, and anyone else coming to school campuses, should check themselves for symptoms on a daily basis before leaving for school and should stay home if they are feeling ill.
- Visit our website for a checklist you can use to help identify symptoms you should look out for.
- It's important for students and staff to monitor how they're feeling throughout the day and go home if they start feeling ill.

Appendix C | Sample Contact Tracing Procedures