Creating and Implementing a COVID-19 Prevention and Response Program in the Performing Arts: A Clinician Expertise Commentary

David Tomchuk, DAT, ATC; Kyle Schneider, EdD, ATC; Jacklyn Bascomb-Harrison, MS, ATC
*Southeast Missouri State University, Cape Girardeau, MO

Correspondence
Dr. David Tomchuk, Southeast Missouri State University, Department of Kinesiology, Nutrition, and Recreation, MS 7650, Cape Girardeau, MO, 63701.
E-mail: dtomchuk@semo.edu

Submitted: December 15, 2021 **Accepted**: March 2, 2022

Full Citation
Tomchuk D, Schneider K, Bascomb-Harrison J. Creating and implementing a COVID-19 prevention and response program in the performing arts: A clinician expertise commentary. *Clin Pract Athl Train*. 2022;5(2): 32-39.
https://doi.org/10.31622/2022/0005.02.6.

COMMENTARY

The novel coronavirus disease of 2019 (COVID-19) resulted in a worldwide pandemic that shut down various aspects of business, education, sport, recreation, and entertainment venues worldwide.[1,2] These public health measures particularly disrupted the performing arts sector, resulting in hardships such as performance hall closures, decreased revenue, limited opportunities to transition to online work, and unemployment.[3-5] Additionally, colleges and universities implemented protective protocols to promote student, faculty, and staff safety. Throughout the summer and fall of 2020 and into the spring of 2021, professional, collegiate, high school, recreational, and amateur sports leagues across the globe commenced operations and competitions after developing and implementing COVID-19 safety protocols.[2,6] This clinician expertise commentary presents how athletic trainers at one United States public university developed and implemented a COVID-19 safety protocol for its integrated performing arts academic campus during the 2020 – 2021 academic year.

FACILITY DESCRIPTION

The Southeast Missouri State University performing arts campus is separated geographically from the main university campus by approximately 3 miles and built to promote the constant interaction and creativity of the performing arts majors and faculty. The performing arts campus encompasses several interconnected buildings and complexes, including campus residential housing and living spaces for approximately 180 performing arts students, offices and studios for 30 faculty and staff, a dining hall, areas designed for classroom instruction and rehearsals, and public performance spaces for large and small-scale productions (190 to 950 audience members). The layout and daily operations of the performing arts campus contrasts with the design of the main University campus, where residence halls and living spaces, dining areas, classrooms, and faculty offices are separated across multiple buildings, and individuals rarely spend more than 2 hours in any one location. Compared to the main University campus, these differences present unique COVID-19 challenges. Most of the daily personnel traffic in the performing arts campus results from individuals who live in the buildings or spend 40+ hours of work functions inside a confined collaborative space. Additionally, the performing arts campus contains the Clinic for Health in the Arts (CHART Clinic), a joint venture between the university and a regional hospital system that provides two on-site athletic trainers throughout the day and during university-sponsored performances and shows. These athletic trainers work

 ISSN Online 2577-8188

cooperatively with physicians and the performing arts faculty to provide health care that focuses on the prevention, evaluation, treatment, and rehabilitation of musculoskeletal and general medical conditions specific for undergraduate performing arts majors across various dance disciplines, theater, musical theater, and the university marching band.

LIVED EXPERIENCES AND SKILL DEVELOPMENT

During the summer of 2020, the CHART athletic trainers, collaborating physicians and hospital, and the performing arts faculty met to review University and county public health COVID-19 safety protocols to determine how best to implement these guidelines, specifically the performing arts campus. These meetings resulted in a multi-pronged approach based on county and Universityprotocols to mitigate the transmission of COVID-19 among the students, faculty, staff, and visitors while allowing the performing arts campus to operate and promote on-campus learning, social interactions, and inclusive creative thought. Additionally, these stakeholders agreed that the CHART athletic trainers would be the COVID-19 experts of the performing arts campus by implementing, creating, and adjusting policies and procedures as appropriate.

Before COVID-19, athletic trainers could not foresee that their job descriptions would include group and facility-level infection prevention protocols of a novel airborne virus. The CHART athletic trainers were previously trained and understood how to prevent the spread of skin infections,[7] influenza, and other communicable diseases. However, these policies and protocols were insufficient for managing COVID-19. Like all healthcare providers, the CHART athletic trainers rapidly adapted to develop COVID-19 specific prevention and mitigation protocols and implementation measures on a unique university academic campus and patient population that required guest access. This clinician expertise commentary describes the framework of creating, adjusting, and implementing a COVID-19 mitigation protocol for a university performing arts campus, the unique challenges that arose, and their solutions.

EDUCATION, PREVENTATIVE SANITATION, AND MINIMIZED GROUP GATHERINGS

The CHART athletic trainers instituted COVID-19 transmission prevention protocols recommended by the county health department and the University by mandating the wearing of face coverings, social distancing, and placing capacity limits on classrooms and facilities.[8] Wall signage, floor stickers, modeling, and electronic communication educated and promoted COVID-19 personal responsibility prevention methods. The only daily situations where removing a face-covering was allowed were when students were physically inside their primary residence and when faculty and staff were alone inside their offices. The University employed part-time workers to stock hand sanitizer, surface disinfectants, and facemasks throughout the rooms and traverse the public areas throughout the day to disinfect high-touch areas such as doorknobs, elevator buttons, and communal furniture. During weekly campus meetings and gatherings, the CHART athletic trainers educated the faculty, staff, and students about the importance of mask-wearing and disinfecting chairs, tables, desks, and shared equipment after classroom and academic sessions.

Faculty and staff meetings, media events, and community gatherings transitioned to online video platforms (e.g., Zoom) or otherwise restricted to prevent unnecessary congregation inside the performing arts campus. To promote safety within the 300 square foot CHART Clinic, all patients and providers minimally wore double-layer cloth facemask over their mouth and nose, enforced handwashing and hand sanitizer usage, and disinfected touched surfaces and equipment after each patient encounter. Only two patients were allowed physical entry into the CHART Clinic simultaneously, and the CHART athletic trainers screened each

patient for COVID-19 symptoms before allowing access (**Table 1**). These same screening and entry protocols occurred for all rehearsal and production situations where physical distancing could not be ensured. The CHART athletic trainers implemented an electronic appointment system for all non-emergency injury evaluations and treatment sessions to facilitate clinic safety and maximize capacity. Additionally, the CHART athletic trainers created a telehealth process to check in with patients and perform virtual COVID-19 symptom screening without requiring physical attendance in the CHART Clinic.

Table 1. Pre-Screen (before entering CHART Clinic)*

Current Symptoms	• Fever/Chills • Cough • Shortness of Breath/Difficulty Breathing • Fatigue • Muscle/Body Aches • Headache • Loss of Taste/Smell • Sore Throat • Congestion/Runny Nose • Nausea/Vomiting • Diarrhea
Exposures/Diagnosis in past 14 Days	• Been in contact with a confirmed COVID-19 patient • Visited an area with a high COVID-19 community transmission rate • Received a positive COVID-19 test/diagnosis
Body Core Temperature	• Obtained each patients' body core temperature. Any reading above 100.4°F (38°C) was considered a "yes."

*All patients were required to answer these questions utilizing the EMR system before entering the CHART Clinic for athletic training services. All questions required the patient to designate a yes/no response. Any "yes" response prompted further investigation and/or contact tracing by the CHART athletic trainers.

SYMPTOM MONITORING, REPORTING, AND CONTACT TRACING

Under the supervision of the CHART athletic trainers, the performing arts campus implemented the University's general COVID-19 symptom monitoring and reporting guidelines, which mandated that faculty, staff, and students self-report any symptoms of illness (e.g., fever, sore throat, or excessive tiredness) and interactions with a known or potential COVID-19 positive individual. All potential exposures and COVID-19 symptoms were reported to a centralized system and were investigated by the University's designed contract tracing personnel. Because of the performing arts campus's unique nature and off-campus location, the CHART athletic trainers advocated for and received approval from university administrators to become the lead individuals to identify and perform contact tracing activities for the performing arts students and report those findings to University personnel. The CHART athletic trainers sought this capability at the beginning of the fall 2020 semester because the university contact tracers were overwhelmed, requiring up to a week for some investigations. This extended timeline potentially jeopardized required student productions by enabling potential positive patients to spread COVID-19 or delayed the decision to adjust casting. With the CHART athletic trainers performing contact tracing for the 180 performing arts students, investigations and contact tracing required only 24-48 hours. Based on the contact tracing findings, rehearsal and production schedules could remain or be quickly altered. This independence further allowed the CHART athletic trainers to create

targeted policies for the unique needs of the performing arts campus and population. The CHART athletic trainers administered contract tracing for the performing arts campus students and transmitted the names to the Dean of Student's office, who maintained the list of quarantined and isolated students campus-wide and communicated findings to non-performing arts faculty. The performing arts campus was the only academic entity to have health care providers implement University policies, contract trace, or perform and track a daily symptom monitoring system.

ISOLATION AND QUARANTINE

The CHART athletic trainers operated and enforced the University isolation and quarantine protocols for the performing arts campus. Any dormitory-resident student who tested positive for COVID-19 or was identified through contact tracing as a potential positive was quarantined and isolated in their room with any roommate(s) per University, county, and CDC requirements for between 10 and 14 days.[8] The CHART athletic trainers informed the performing arts campus dining services, which coordinated meal deliveries for the duration of the isolation or quarantine. Off-campus residents had identical requirements, except no meal delivery service. All isolated and quarantined students attended their courses via video streaming and completed assignments through the online learning management platform. Quarantined and isolated students were required to maintain and track their symptoms and upload the results to the CHART Clinic online database daily. The CHART athletic trainers would visit the isolated and quarantined students via video chat to confirm symptoms and timelines for return.

TRANSITION OF EVIDENCE INTO PRACTICE AND UNIQUE CHALLENGES

The University canceled all fall 2020 athletic competitions. However, the performing arts campus could not discontinue student productions because participation was a required component of the academic degree programs for graduation and course credit. The prior sections described how the CHART athletic trainers were charged with implementing the general University COVID-19 protocols, received the authority to adjust University protocols, contact trace, and created a targeting symptom monitoring program. The subsequent sections contain specific instances where the CHART athletic trainers created and implemented enhanced COVID-19 mitigation policies during the 2020 – 2021 academic year that only affected the performing arts campus, students, and faculty because the general University COVID-19 protocols primarily discussed masking during social and academic gatherings, room capacity limitations, and surface disinfection.

VOCAL PERFORMANCE ALTERATIONS

The CHART athletic trainers and performing arts faculty worried that the forceful movement of air during the act of singing rehearsals and performances could potentially transmit COVID-19.[9,10] To decrease droplet and aerosol transmission risk during solo rehearsal, detailed voice coaching sessions transitioned to online video platforms (e.g., Zoom). Background vocal and group rehearsals occurred in smaller gatherings when video platforms were impractical. In the days immediately preceding the show performance, the production recorded passages of background vocal sessions in the recording studio to be played during the live performance. Prerecording of singing (lip-syncing) was limited to situations where multiple cast members must gather on-stage during the performance's aesthetics and narrative to eliminate the need for close group live singing and further reduce the risk of air droplet virus transmission. On-stage live solo vocals from the lead cast members or duets were allowed, with the singing individual(s) projecting their voice away from any other stage members (**Figure 1**). Finally, shared and non-personalized microphones during rehearsals

and performances were eliminated. Each performer had their assigned microphone and was responsible for its cleaning and maintenance. Microphones were stored in separate plastic bags when not actively used within the venues.

MASKS, COSTUMES, AND STAGE DESIGN ALTERATIONS

Figure 1. Example of a stage mask worn during performances and on-stage social distancing. Photo by: Kenneth L. Stilson

During the 2020 – 2021 academic year, the CHART athletic trainers used their position as the performing arts campus COVID-19 coordinators to work with the faculty and students to develop and alter on-stage personas and characters based on the wearing of transparent face masks during performances. The CHART athletic trainers educated and assisted the wardrobe and make-up designers who integrated masks into on-stage costumes that contributed to the character and story (**Figure 1**). Additionally, the CHART athletic trainers collaborated with the costume and stage design shops, performers, and faculty to create fewer costumes for each character and reduce on-stage physical background props and sets. The faculty, performers, and designers learned how to incorporate masks and fewer costumes and props that supported character portrayal while maintaining audience appreciation of the performance.

PERFORMANCE ALTERATIONS

Outside spectators were not allowed into the performance halls during the fall 2020 and the first half of the spring 2021 semester, and the performing arts campus implemented live-stream performances. The CHART athletic trainers worked with the performing arts faculty to identify alternative productions that would require fewer participants on stage and backstage to promote social distancing and reduce potential COVID-19 transmission. The CHART athletic trainers ensured the backstage area was limited to only essential cast members or production personnel on the official casting roster. The reduction of physical on-stage backgrounds reduced the need for some backstage personnel to change stage design between acts, and on-stage performers utilized fewer props. Electronically created and projected backgrounds and lighting effects replaced select physical stage backgrounds and props for the audience's appreciation of the storyline while serving as a modern way to create background and staging effects for the undergraduate students. The fewer number of costumes reduced quick costume changes during productions, the unnecessary congregation of multiple performers in enclosed backstage locations and made costume sanitation more effective between productions. The CHART athletic trainers implemented a daily symptom self-report screening process (**Table 2**) for any student assigned to a production throughout the 2020 – 2021 academic year to identify possible COVID-19 infections that could potentially alter or cease a production run. During the final months of the spring 2021 semester, the main performance hall was allowed to sell 10% of its available 950 seats for in-person viewing. Traditionally, the cast and faculty would have a meet-and-greet style interaction with the campus patrons and supporters after each production run.

Table 2. Daily Symptom Checklist for Production Participants*

Daily Symptom Checklist Questions	• Have you had any signs or symptoms of a fever in the past 24 hours (chills, sweats, felt feverish)? • Have you had a temperature above 100.4°F (38°C)? • Have you had any of the following signs and symptoms: cough, shortness of breath, sore throat, nasal congestions, body aches, loss of smell/taste, diarrhea, or vomiting? • In the last 48-hours, have you been in direct contact with anyone positive or presenting COVID-19 symptoms for longer than 15 minutes with no mask and within 6-feet? • If you have any "yes" responses, please explain how long the signs and symptoms have been present.
Body Core Temperature	• Obtained each patients' body core temperature before a rehearsal or performance. Any reading above 100.4°F (38°C) was considered a "yes."

*All participants in productions (cast and crew) were required to complete this online symptoms checklist at the beginning of each day during all rehearsals and production days. The results were reviewed by the CHART athletic trainers daily, and any positive symptoms required consultation with the CHART Clinic staff before arriving on site.

However, the CHART athletic trainers requested alterations to enforce and promote social distancing requirements to prevent COVID-19 infection between the community and the performing arts campus participants. **Table 3** describes other performance and rehearsal alterations. All 13 scheduled productions throughout the 2020 – 2021 academic year occurred without any incidence of COVID-19 traced to a production.

Table 3. Alterations to performances and rehearsals during the 2020-2021 academic year

Pre-recording music to be played during productions
Pre-recording group background vocals (lip-synching during performances)
Decreased dressing room admittance for non-essential personnel
Decreased backstage presence to only essential personnel
Limiting ensemble numbers (performers and stagehands) to the minimum needed
Decreased number of set-changes during performances/designing sets for entire performance
Less on-stage group performances
Cast members and stagehands learning more roles
Livestreaming events and productions online
Choosing and developing productions that would promote physical distancing
Integrating masks and physical distance into productions
Elimination of live orchestra during performances
Symptom screening before each performance and rehearsal

MARCHING BAND SPIT VALVES

One unexpected issue that arose during the fall 2020 semester was the ability of the marching band members to discharge the spit valves of their brass instruments (e.g., trumpets) safely during rehearsal. The

CHART athletic trainers worked with the marching band faculty to create a policy where the brass instrument performers had a designed area of the marching band rehearsal field to discharge their spit valve over indoor puppy pads to absorb the salvia and discard the potentially infected material into a receptacle safely. Additionally, the marching band developed alternative formations and patterns to promote proper social distancing during rehearsals and performances.

COVID-19 VACCINE EDUCATION AND TRACKING

Since the university administration designated the CHART athletic trainers as the COVID-19 experts for the performing arts campus, they were charged with vaccine education and tracking efforts. The CHART athletic trainers provided scientific material about the COVID-19 vaccine throughout the facility, distributed information about vaccine opportunities throughout the region, and discussed becoming vaccinated during weekly performing arts campus meetings and gatherings.[8] The CHART athletic trainers inserted documentation of all provided COVID-19 vaccination cards into the student's electronic medical record and adjusted the quarantine and isolation policy for fully vaccinated students according to evolving local and federal recommendations. Finally, when the University developed a campus-wide vaccination incentive for the students and staff, the CHART Clinic was 1 of 10 locations where students, faculty, and staff could provide their vaccination cards for entrance into incentive drawings and similar university vaccine drive efforts.

CONCLUSION

Athletic trainers can quickly become infectious disease experts, solve unique problems, and positively promote on-site athletic trainers' value to create and implement policies and procedures specific to the patients and populations in their care. This clinician expertise commentary demonstrated how a group of athletic trainers became COVID-19 experts and advocated for their autonomy to develop and implement policies and procedures specific to the performing arts patient population within an academic structure.

REFERENCES

1. Hughes D, Saw R, Perera NKP, et al. The australian institute of sport framework for rebooting sport in a covid-19 environment. *J Sci Med Sport*. 2020;23(7):639-663. https://doi.org/10.1016/j.jsams.2020.05.004.
2. Mulcahey MK, Gianakos AL, Mercurio A, Rodeo S, Sutton KM. Sports medicine considerations during the covid-19 pandemic. *Am J Sports Med*. Feb 2021;49(2):512-521. https://doi.org/10.1177/0363546520975186.
3. Guibert G, Hyde I. Analysis: COVID-19's Impact on Arts and Culture. 2021. *COVID-19 RSFLG Data and Assessment Working Group*. https://www.arts.gov/sites/default/files/COVID-Outlook-Week-of-1.4.2021-revised.pdf.
4. Radermecker A-SV. Art and culture in the COVID-19 era: for a consumer-oriented approach. *SN Business & Economics*. 2020;1(1):4. https://doi.org/10.1007/s43546-020-00003-y.
5. Spiro N, Perkins R, Kaye S, et al. The effects of covid-19 lockdown 1.0 on working patterns, income, and wellbeing among performing arts professionals in the United Kingdom (april-june 2020). *Front Psychol*. 2021;11:594086-594086. https://doi.org/10.3389/fpsyg.2020.594086.
6. DiFiori JP, Green G, Meeuwisse W, Putukian M, Solomon GS, Sills A. Return to sport for north american professional sport leagues in the context of covid-19. *Br J Sports Med*. 2021;55(8):417. https://doi.org/10.1136/bjsports-2020-103227.

7. Zinder S, M. , Basler R, S. W. , Foley J, Scarlata C, Vasily D, B. National athletic trainers' association position statement: Skin diseases. *J Athl Train*. 2010;45(4):411-428. https://doi.org/10.4085%2F1062-6050-45.4.411.
8. How to Protect Yourself & Others. Centers for Disease Control. Updated August 13, 2021. Accessed November 18, 2021. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html.
9. Westphalen C, Kniesburges S, Veltrup R, et al. Sources of aerosol dispersion during singing and potential safety procedures for singers. *J Voice*. 2021. https://doi.org/10.1016/j.jvoice.2021.03.013.
10. Mariam, Magar A, Joshi M, et al. Cfd simulation of the airborne transmission of covid-19 vectors emitted during respiratory mechanisms: Revisiting the concept of safe distance. *ACS Omega*. 2021;6(26):16876-16889. https://doi.org/10.1021/acsomega.1c01489.