










Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

# Crisis Preparedness in Acute and Intensive Treatment Settings: Lessons Learned From a Year of COVID-19

Jarrod M. Leffler, PhD, ABPP , Cassandra L. Esposito, PhD , Elisabeth A. Frazier, PhD , Michelle A. Patriquin, PhD, ABPP , Meredith K. Reiman, PhD , Alysha D. Thompson, PhD , Carl Waitz, PsyD 

**T**he impact of COVID-19 changed the use and delivery of health care services, requiring an abrupt shift in treatment and staffing models <sup>1,2</sup>.

This is particularly salient in youth acute and intensive treatment services (AITS), including inpatient psychiatric hospitals (IPH), intensive outpatient programs (IOP), and partial hospitalization programs (PHP), because of challenging issues of maintaining high-quality care and a safe therapeutic milieu during increased demand for acute services,<sup>3</sup> all while limiting transmission of COVID-19 on locked units, in close quarters, and for youths traveling back and forth to day-programs. Over the past year, AITS adapted and evolved without the ability to pause services and plan, increase staffing, or allocate additional resources. This article discusses themes of changes made based on more than 20 facilities across the United States through the American Psychological Association Child and Adolescent Psychology Division's Acute, Intensive, and Residential Service Special Interest Group.<sup>4</sup> These facilities include psychiatric inpatient units and day-treatment programs. We discuss lessons learned from these changes, the need for evaluating these changes, and application of these lessons in future crises.

The most significant impact on AITS programming included changes to prevent COVID-19 transmission, a difficult task given the close contact of patients and staff in these milieu-based programs. These levels of mental health care, including milieu groups, require multiple patients and staff members to be present at the same time within close physical spaces,<sup>5</sup> presenting unique challenges for AITS programs, given social distancing guidelines. As a result, AITS made significant shifts in the provision of services and how patients in the emergency department (ED) are referred and admitted to these services. Although some programs deferred patients to other areas of care until there were no concerns regarding COVID-19 (eg, in the ED or

medical floor beds), other programs modified, paused, or closed due to limited strategies for safe in-person care.

## MODIFICATIONS AND IMPACT

Modifications to AITS admissions happened quickly in response to the pandemic. Several facilities decreased their patient census to implement social distancing guidelines, altered or eliminated shared inpatient rooms, modified group treatment areas, and created COVID-19–specific or quarantine rooms/units. At some hospitals, reduced census was accomplished by connecting patients and families to other intensive outpatient services rather than admitting to IPH and a push for quicker, albeit still safe, discharges from the ED. There was also effort to bypass the ED to reduce virus exposure by increasing the number of direct admissions to IPH units. Assessments of risk, at times, were conducted via telehealth instead of in the ED, as inpatient beds were full and attempts were made to keep psychiatric cases out of the ED.

New admission procedures included some level of screening or testing for COVID-19. However, facilities and programs differed on how patients were dispositioned after their screening/testing. Some facilities allowed for admission to their IPH units, but patients were quarantined and staff wore personal protective equipment (PPE) during interactions until the patient tested negative, requiring patients to wait for a negative COVID-19 test result to engage in milieu and program activities. Other facilities boarded patients in the ED or on a medical floor until the patient had a negative COVID-19 test result, and others did not admit patients if they came from a COVID-19 “hotspot” location. As the pandemic wore on and rates of cases rose, some units began embracing the influx of COVID-19–positive patients and created COVID-19–positive units or hallways on their inpatient service.

Some day-treatment programs paused services or closed because of concern about having multiple patients and staff

in close contact and in shared group rooms. Other programs embraced telehealth options, becoming fully virtual or developing hybrid programs to reduce the amount of people on site each day. Others modified the number of patients admitted to the program, initiated daily screening of symptoms prior to entering the facility, or required a negative COVID-19 test result prior to enrolling in the program. In addition, programs restructured the physical setting to allow for successful social distancing, decreased the length of the treatment day, and limited some program activities involving close contact. Some programs pivoted to a fully virtual service that minimized access to the traditional therapeutic milieu.

AIMS care model changes focused on maintaining social distancing guidelines and donning PPE for staff, patients, and families. Milieus were adapted by reducing the number of patients in groups, removing furniture as necessary, posting and verbalizing reminders to socially distance, increasing cleaning, and reducing shared materials. Some programs divided units into separate “pods,” partitioned common areas, split group therapy into multiple rooms, and assigned seats to patients within common areas. Groups with leaders that came from outside the treatment setting (eg, pet therapy) were discontinued while auxiliary groups (ie, recreational therapy, etc) were temporarily reduced to accommodate staffing changes. Most units experienced some difficulty maintaining these COVID-19 precautions because of the extended length of the pandemic, leading to reduced fidelity to these modifications.

All programs required staff and visitors to wear masks, and many mandated eye protection for staff. Patients were provided and encouraged to wear masks, with variable compliance. Visitation guidelines were commonly changed to reduce the number of visitors or to suspend visitation completely (eg, 1 or 2 caregivers per patient, COVID-19 symptom screening prior to entering the facility, etc). Virtual family meetings, therapy sessions, and team meetings using technology that staff had not previously used as part of AIMS were encouraged over in-person interactions. There was also variability in PHP and IOP treatment programming, ranging from shifting to full telehealth, a hybrid model (eg, 3 days per week in person and 2 days virtually), or no changes in programming other than the addition of staff and patient PPE.

Many programs altered staffing models. At some sites, direct care staff were furloughed or deployed to other positions. Staff reductions resulted in increased coverage demands. In addition, staff were staggered (eg, psychiatrists and social workers alternated in-person and virtual workdays to decrease the number of in-person providers at any

given time), and many staff meetings became virtual. Although virtual meetings allow greater flexibility and promote social distancing, reduced on-site attendance adversely affected staff availability and immediate support for acute needs.

The full impact of the pandemic on staff remains to be seen, although we know that over the past year, symptom screening requirements resulted in an increase in sick calls, and employees were required to stay home until their symptoms resolved and/or until they had a negative COVID-19 test result. Therefore, staff who may have normally reported to work with a mild cold were unable to come to work, resulting in increases in sick time and coverage needs, and higher burn out due to limited staff pools.<sup>6</sup> The combination of absences due to mandatory furloughs and sick time resulted in an increased strain on both the system and individual staff members. As programs moved toward telehealth, boundaries between work and home life were blurred. Furthermore, staff members are currently living through and are actively experiencing the same trauma of the pandemic experienced by patients and their families, adding to the strain and stress of providing mental health treatment.

## LESSONS LEARNED AND NEXT STEPS

In the current pandemic, we have had to alter treatment and staffing models in AIMS (Table 1) with the dual goals of maintaining the standard of care for youths with the most acute and severe mental illness while minimizing COVID-19 exposures. Program modifications resulted in numerous lessons learned. These lessons involve an awareness and an ability to make quick modifications related to program access; expansion of external resources; census, space, and staff modifications; implementation of health and wellness strategies; and maximizing telehealth. Notably, these rapid changes to AIMS care were made concurrent to providing mental health care to youths. AIMS care could not stop, as the impact of COVID-19 has reinforced the fact that mental health care is essential.

With the onset of COVID-19, telehealth services emerged quickly. Programs were able to use technology to host virtual family therapy sessions and treatment team meetings. COVID-19—positive patients who were quarantined to their treatment rooms were able to participate in therapy groups and individual therapy via telehealth. Treatment programs reported that this approach allowed families to access care where transportation would historically have been a barrier.

Future research on the impact of these modifications on patient- and service-level outcomes will be important in

**TABLE 1** Lessons Learned From Pre–COVID-19 and Post–COVID-19 Pandemic Practices in Acute and Intensive Treatment Settings

	<b>Pre-pandemic practice</b>	<b>Practices changes in response to pandemic</b>	<b>Lessons learned</b>
<b>Programming</b> IPH	<ul style="list-style-type: none"> <li>• Milieu groups comprise majority of inpatient, PHP, and IOP programming; no need for keeping groups small or contained</li> <li>• Multiple staff allowed on unit and able to provide intervention</li> <li>• Individual and family sessions provided</li> <li>• Auxiliary healing arts groups (art therapy, music therapy, occupational therapy, etc) are a regular part of programming</li> </ul>	<ul style="list-style-type: none"> <li>• Limited group programming to smaller groups, decreased amount of interaction with other groups/staff members to created smaller “pods”</li> <li>• Some inpatient programs provide patients with tablets to engage in group programming from their room</li> <li>• Pause on auxiliary groups to reduce number of people in contact with each other</li> </ul>	<ul style="list-style-type: none"> <li>• Telehealth for family therapy/ visits, individual, and group therapy</li> <li>• Quarantine COVID+ patients in single room and use telehealth for programming until COVID–</li> <li>• Reduce number of patients in group therapy, keeping consistent smaller groupings of patients, resulting in running more groups</li> <li>• Enforce social distancing guidelines for staff, patients, and visitors</li> <li>• Single rooms only</li> <li>• Daily COVID screening</li> <li>• COVID+ hallways or units</li> <li>• Limit and space out furniture</li> <li>• Limit/stop close-contact activities and shared materials</li> <li>• Increase frequency and intensity of cleaning protocols</li> </ul>
PHP and IOP	<ul style="list-style-type: none"> <li>• In person, primarily group based, with some individual and family sessions</li> </ul>	<ul style="list-style-type: none"> <li>• Initially paused services; shifted care model to telehealth, developed hybrid in-person/telehealth options, decreased number of staff involved with program</li> </ul>	<ul style="list-style-type: none"> <li>• Be able to pause and relaunch programs successfully</li> <li>• Pivot to fully virtual or hybrid programs</li> <li>• Adjust staffing models in real time</li> </ul>
<b>Patient census</b> IPH	<ul style="list-style-type: none"> <li>• Typically operated at full census</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced census to limit room sharing and to increase social distancing</li> <li>• Adjusted over course of pandemic as information about COVID transmission in discovered</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce census and consider impact of staffing model on milieu management</li> <li>• Plan for single-occupant rooms or expectations for shared rooms with PPE</li> </ul>
PHP and IOP	<ul style="list-style-type: none"> <li>• Typically operated at full census</li> </ul>	<ul style="list-style-type: none"> <li>• Modified number of patients admitted</li> <li>• Adjusted admission criteria to assess appropriateness for virtual and hybrid formats</li> </ul>	<ul style="list-style-type: none"> <li>• Temporarily reduce census to make necessary modifications</li> <li>• Consider clinically appropriate number of patients for virtual or hybrid models</li> </ul>
<b>Other areas</b> ED evaluation	<ul style="list-style-type: none"> <li>• In person in the ED</li> </ul>	<ul style="list-style-type: none"> <li>• Hybrid between in person and virtual assessment, goal to reduce amount of time that people are in the emergency room so as to limit exposure</li> </ul>	<ul style="list-style-type: none"> <li>• Bypass ED for direct IPH admissions</li> <li>• Consistent COVID screening prior to admission</li> <li>• Use telehealth for risk assessment prior to coming to ED</li> </ul>

*(continued)*

TABLE 1 Continued

	<b>Pre-pandemic practice</b>	<b>Practices changes in response to pandemic</b>	<b>Lessons learned</b>
Discharge planning from ED	<ul style="list-style-type: none"> <li>Mix of inpatient psychiatric admission and sending families home with safety planning and outpatient services</li> </ul>	<ul style="list-style-type: none"> <li>Creation of new programs to prevent inpatient psychiatric admission to limit exposure and in response to rising number of visits to EDs for mental health emergencies with less capacity on inpatient units to admit patients</li> </ul>	<ul style="list-style-type: none"> <li>Educate ED staff on appropriate referrals based on mental and physical health needs</li> <li>Consider use of COVID+ modified units instead of the IPH unit</li> <li>Educate ED staff on census limits for both IPH and PHP/IOP</li> </ul>
IPH admission procedures	<ul style="list-style-type: none"> <li>No physical symptom screening necessary prior to admission to inpatient unit</li> </ul>	<ul style="list-style-type: none"> <li>COVID testing is standard for patients prior to admission</li> <li>Creation of COVID+ units for patients with COVID, treatment of these patients on medical floors via C/L mental health service rather than IPH units</li> </ul>	<ul style="list-style-type: none"> <li>Board in medical bed prior to IPH admission until COVID–</li> <li>Decrease census to accommodate social distancing guidelines</li> <li>Bypass IPH and admit directly to day treatment/other AITS services</li> </ul>
PPE	<ul style="list-style-type: none"> <li>PPE worn only when patient had contact precautions</li> </ul>	<ul style="list-style-type: none"> <li>PPE worn by staff and patients at all times</li> <li>Staff PPE includes N95/surgical mask and face shield or eye protection</li> <li>If COVID+ patient, staff wear gown and gloves.</li> <li>Patient PPE = face mask</li> <li>Variable compliance by patients</li> </ul>	<ul style="list-style-type: none"> <li>Enforce PPE guidelines for staff, patients, and visitors</li> <li>Enforce and monitor appropriate hand hygiene</li> </ul>
Visitation on inpatient unit	<ul style="list-style-type: none"> <li>Parents/caregivers allowed to visit on the unit, other visitors allowed, consistent with individual institution policies</li> </ul>	<ul style="list-style-type: none"> <li>Visitors limited to smaller number (1 or 2 per patient) with COVID screening required before entering the facility</li> <li>Sometimes this limited visitors to the same sole visitor throughout duration of hospitalization</li> </ul>	<ul style="list-style-type: none"> <li>Limit visitors to 1 or 2 per patient</li> <li>Same visitors</li> <li>Screen visitors before entering building</li> <li>No siblings or children</li> <li>Require all visitors to wear PPE</li> </ul>
Family meetings	<ul style="list-style-type: none"> <li>Primarily in person, with some instances of parents/caregivers joining by telephone</li> </ul>	<ul style="list-style-type: none"> <li>Primarily via telehealth such as zoom or phone</li> </ul>	<ul style="list-style-type: none"> <li>Be equipped to pivot to provide virtual meetings</li> <li>Have necessary equipment available should need for in-person meeting arise</li> </ul>
Staffing	<ul style="list-style-type: none"> <li>Staffing is impacted by sick and vacation time taken by staff members; facilities expect and plan for this</li> </ul>	<ul style="list-style-type: none"> <li>Staff furloughed due to revenue reductions and other fiscal disruptions</li> <li>Increase in sick time due to need to call in sick with any COVID-like symptoms</li> <li>Staggered staff to limit number of people in person<sup>a</sup> at a time</li> <li>Strain on staff related to these changes</li> </ul>	<ul style="list-style-type: none"> <li>Stagger staff to reduce number of people on site</li> <li>Train staff in multiple roles to increase flexibility of coverage to manage increase in call-ins /sick days</li> <li>Virtual treatment team meetings and consultations</li> <li>Work with leadership to maintain staffing models to meet the (potentially increased) clinical demands of programs in AITS</li> </ul>

**Note:** AITS = acute intensive treatment services; C/L = consultation/liaison; ED = emergency department; IOP = intensive outpatient program; IPH = inpatient psychiatric hospital; PHP = partial hospitalization program; PPE = personal protective equipment.

<sup>a</sup>Staff were staggered to limit the number of staff who presented in person. This was a technique used to prevent the spread of the virus for affecting too many staff.

the coming months, especially regarding the effectiveness of using telehealth for providing mental health services in AITS. In addition, AITS providers are not excluded from impacts that the pandemic may have on mental health, and it will be important to study the factors associated with provider functioning and well-being.

AITS provide essential interventions for our most psychiatrically vulnerable patients and cannot shut down, especially during a disaster. The adaptations reviewed in this article allowed continued service provision for the most severely ill, highest-risk youths in a milieu environment despite an ongoing pandemic.

We hope that these lessons are useful for persisting through the current pandemic, and to enhance preparedness for AITS facilities to pivot efficiently and effectively in response to future catastrophes to maintain high-quality acute care, especially given the escalation of mental health needs during crises.

## REFERENCES

1. Loades ME, Chatburn E, Higson-Sweeney N, *et al.* Rapid systematic review: the impact of social isolation and loneliness on the mental health of children and adolescents in the context of COVID-19. *J Am Acad Child Adolesc Psychiatry.* 2020;59:1218-1239. <https://doi.org/10.1016/j.jaac.2020.05.009>.
2. Bojdani E, Rajagopalan A, Chen A, *et al.* COVID-19 pandemic: impact on psychiatric care in the United States. *Psychiatry Res.* 2020;289:113069. <https://doi.org/10.1016/j.psychres.2020.113069>.
3. Leeb RT, Bitsko RH, Radhakrishnan L, Martinez P, Njai R, Holland KM. Mental health-related emergency department visits among children aged <18 years during the COVID-19 pandemic—United States, January 1–October 17, 2020. Accessed February 17, 2021; <https://www.cdc.gov/mmwr/volumes/69/wr/mm6945a3.htm>.
4. Acute, Intensive, and Residential Service Special Interest Group. American Psychological Association Child and Adolescent Psychology Division; <https://sccap53.org/special-interest-groups/current-special-interest-groups/acute-intensive-and-residential-service-special-interest-group/>. Accessed July 11, 2021.
5. American Academy of Child and Adolescent Psychiatry. Principles of care for treatment of children and adolescents with mental illnesses in residential treatment centers. Accessed November 22, 2020. [https://www.aacap.org/App\\_Themes/AACAP/docs/clinical\\_practice\\_center/principles\\_of\\_care\\_for\\_children\\_in\\_residential\\_treatment\\_centers.pdf](https://www.aacap.org/App_Themes/AACAP/docs/clinical_practice_center/principles_of_care_for_children_in_residential_treatment_centers.pdf) (2010). [https://www.aacap.org/AACAP/Member\\_Resources/Practice\\_Information/Inpatient\\_and\\_Residential\\_Health\\_Care.aspx](https://www.aacap.org/AACAP/Member_Resources/Practice_Information/Inpatient_and_Residential_Health_Care.aspx)
6. Garcia GM, Calvo JCA. The threat of COVID-19 and its influence on nursing staff burnout. *J Adv Nurs.* 2020;77:832-844; <https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/jan.14642>. Accessed July 11, 2021.

Accepted June 25, 2021.

Dr. Leffler is with Mayo Clinic, Rochester, Minnesota. Drs. Esposito and Reiman are with Cincinnati Children's Hospital Medical Center, Ohio. Dr. Frazier is with Warren Alpert Medical School, Brown University, Providence, Rhode Island. Dr. Patriquin is with The Menninger Clinic and Baylor College of Medicine, Houston, Texas. Dr. Thompson is with Seattle Children's Hospital, University of Washington. Dr. Waitz is with Boston Children's Hospital, Harvard Medical School, Massachusetts.

The authors have reported no funding for this work.

### Author Contributions

*Conceptualization:* Leffler

*Writing – original draft:* Leffler, Esposito, Frazier, Patriquin, Reiman, Thompson, Waitz

*Writing – review and editing:* Leffler, Esposito, Frazier, Patriquin, Reiman, Thompson, Waitz

*Disclosure:* Drs. Leffler, Esposito, Frazier, Patriquin, Reiman, Thompson, and Waitz have reported no biomedical financial interests or potential conflicts of interest.

Correspondence to Jarrod M. Leffler, PhD, ABPP, Mayo Clinic, 200 First Street SW, Rochester, MN 55905; e-mail: [leffler.jarrod@mayo.edu](mailto:leffler.jarrod@mayo.edu)

0890-8567/\$36.00/©2021 American Academy of Child and Adolescent Psychiatry

<https://doi.org/10.1016/j.jaac.2021.06.016>