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Delivering Special Education Services to Students with Significant Neurodevelopmental Disabilities: *A Model Response to the COVID-19 Pandemic*

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Introduction

The COVID-19 pandemic has created unique problems for school systems attempting to provide educational service for all students, but perhaps even more so for those students with unique learning needs and neurodevelopmental challenges. Understandably, these problems could not have been fully anticipated in advance, and few, if any, educational models or practices were available to educators, administrators, and families to draw from in planning their responses to the pandemic. The fallout of the pandemic is likely to be widespread across all areas of education and to have implications for years to come. Efforts to mitigate learning barriers in the context of COVID-19 challenges can markedly improve outcomes and position students for the best possible success both in the immediate context and at future points when more traditional teaching practices are once again accessible.

CCSN: The Center for Children with Special Needs is a multidisciplinary organization with over 25 years of experience serving individuals with Autism Spectrum and related Neurodevelopmental Disorders and their families through clinical service, training, consultation, and research. The school consultation division within CCSN has worked collaboratively with school districts throughout the state of Connecticut and beyond, supporting capacity-building initiatives to provide evidence-based programming for students with complex educational, social, and behavioral needs. Together with our district partners, and in the face of the COVID-19 pandemic, we have jointly confronted many human resource, technological, child-centered, and family systems obstacles that have required both the development and implementation of creative partnerships and solutions while maintaining the rigor of evidence-based interventions in consultative service delivery.

Beginning in March of 2020, school districts across the US were greatly impacted by an outbreak of the COVID-19 virus. At that time, steps were taken by public school districts following school closures to allow continued access to educational opportunities for all students, including students with complex needs. Without a universally recognized gold-standard for instructional delivery, school-based teams worked to develop solutions for delivering instruction in modalities that would allow students who previously required 1:1 or small group support to access educational opportunities during the closure.

The State of Connecticut has published school re-opening guidelines[1], including specific addenda addressing the needs of students with disabilities[2,3,4]. Within these guidelines, the Connecticut State Department of Education reiterates that school districts remain legally required to provide a free and appropriate public education (FAPE) and that "Federal disability law allows for flexibility in determining how to meet the individualized needs of students receiving special education services."

As school districts around the country launched the 2020-21 academic year, they did so under a cloud of uncertainty as it pertained to the trajectory of COVID-19 and by utilization of a multitude of instructional modalities, including all in-person, all-remote, and a variety of hybrid approaches. Each of these instructional approaches carries assets and challenges when considering the educational needs of complex students and will be reviewed in this report.

Background Information

CCSN's Consultative Role Prior to Closure

CCSN has historically provided consultative support to school districts to support program development for children with complex neurodevelopmental and social-emotional needs. CCSN's consultative methodology towards program development takes a systems-level approach that aims to increase capacity for districts in order to maintain students in-district who otherwise would have been considered for outplacement due to extreme behavioral challenges or complex learning needs. This approach provides substantial benefits for the child, school-based team, family, and district. The child benefits in that they are able to continue to access educational opportunities in their community schools, allowing learning to occur alongside peers they would see and interact with in their community. The public school-based team increases their organizational capacity to support students with complex learning needs, allowing the team to be ready to receive a student of any learning profile at any point during the school year and offering services that adhere to best practices to all students within their care. Further the school community benefits immensely from welcoming in a diverse group of students and families who, in many cases, become models themselves for their peers and who demonstrate great capacity to learn successfully, even if in a somewhat different fashion than most others. The district benefits in that they are able to support a more diverse population of students within the district while offering services that are adherent to best practices. Further, accessing consultative support for a small group of students with complex needs is often more cost-effective than seeking outplacements for these students, both when considering direct, immediate outplacement costs, as well as the avoidance of future outplacement costs based on the system-level capacity building and ongoing ability to support

[1] https://portal.ct.gov/-/media/SDE/COVID-19/CTReopeningSchools.pdf
[2] https://portal.ct.gov/SDE/Special-Education/Bureau-of-Special-Education/Coronavirus
[3] https://portal.ct.gov/-/media/SDE/COVID-19/Addendum-3-Fall-Reopening-Resource-Document-for-Students-with-High-Needs.pdf
[4] https://portal.ct.gov/-/media/SDE/COVID-19/Addendum6-Reopen-Guidance-for-Educating-Students-with-Disabilities.pdf

the educational needs of students with complex learning needs in-district (for a comprehensive description of CCSN's consultative model see the Appendix).

Following widespread school closures due to the COVID-19 pandemic, school-based teams worked to reinvent intensive education for individuals with neurodevelopmental disabilities that allowed the location of instruction to be shifted from school to home. School teams utilized distance-teaching platforms, such as Google Classroom, to deliver instruction in synchronous and asynchronous modalities. Through the course of the last several months, during distance instruction and, subsequently, when students returned to school-based instruction during the summer extended school year (ESY), greater understanding of the impact of distance education for students with complex needs has been achieved.

The following is an executive summary of the COVID-19 school closure and the role that The Center for Children with Special Needs (CCSN) fulfilled in collaboration with our partner districts in delivering distance instruction to students with complex needs. This paper includes specific de-identified case examples to illustrate our understanding of the impact of distance teaching on these students. Following the summary, considerations for students with complex learning needs during the return to school-based instruction and for those who are continuing distance instruction are offered, as well as professional training, policy, and budgetary considerations.

Spring 2020: State-Mandated School Closure

To provide the reader with a framework outlining the impact of the COVID-19 pandemic on the school calendar, the timeline of school closure in Connecticut, CCSN's home state, will be used as an example. In early March of 2020, school districts across Connecticut began to prepare for the possibility of a closure due to the COVID-19 pandemic. Schools began scheduling delayed openings and early release days to provide teachers with preparation time to support a temporary closure. On March 15, 2020, Executive Order 7C was signed by Governor Ned Lamont that temporarily closed all schools in the state effective March 17, 2020[5]. The order was initially scheduled to expire on March 31, 2020, but was extended twice, first to April 20, 2020[6] and then to May 20, 2020[7]. On May 5, 2020[8], the governor of Connecticut formally announced that school would remain closed for the remainder of the 2019-2020 school year. Across schools in the northeast United States, the individual response to the closure order

[5] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7C.pdf
[6] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7L.pdf
[7] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7X.pdf
[8] https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7II.pdf

was varied across communities. Some districts immediately moved to distance learning while other districts executed a temporary closure while a plan for distance learning was developed.

Once the shift to distance learning occurred, the models for service delivery varied, especially with regards to students with more learning complex needs. These models evolved over time as teams gained greater understanding of student specific needs. For the communities where CCSN provided consultative support, "distance learning" was characterized by synchronous student instruction provided by general education teachers, special educators, related service providers, and paraprofessionals delivered via phone, video, or live chat, asynchronous student instruction developed by the general education teachers, special education teachers, and related service providers, and parent training provided by the student's educational team to collaborate on instructional strategies, troubleshoot barriers, and share student successes and instructional or learning challenges.

1. *Synchronous Learning*: Early in the closure, supervisors from the CCSN consultation team worked jointly with district administration to advocate for video platforms to be used for instructional delivery for individuals with complex learning needs. Concerns related to student privacy and home-school boundaries were discussed with all relevant stakeholders, and early in the closure permission was obtained by all relevant stakeholders (human resource representatives, district administration, and building administration) to deliver instruction through video portals. We believe this was essential to the success of distance education for this population, as visual supports are frequently utilized to support instruction and seeing the student in order to assess engagement and progress is essential to the success of the educational process.
2. *Asynchronous Learning*: In many locations, asynchronous learning was used to extend instruction delivered in synchronous formats and consisted of activities related to IEP goals and objectives to provide repeated practice or videos that students could access. Some students were able to access these independently while others required assistance from parents, paraprofessionals, and other caregivers.
3. *Parent Training*: At the start of the closure, parents of students in the programs supported by CCSN were offered weekly opportunities to meet with their student's special education teacher and related services team. In the course of this meeting, parents were provided training on program implementation. At the start of the closure, parent training focused heavily on establishing an instructional space, establishing instructional control, and use of visual schedules to support instruction. After these items were established, parent training focused more heavily on facilitating synchronous learning when needed, and, in other cases, focused on fading the parent from synchronous instruction to allow the student to participate more independently in this teaching modality.

Consultation Provided During Spring 2020 Closure

Upon Connecticut's statewide school closure. CCSN's relationship with many of our partner districts remained consistent. From March through June 2020, the consultative role shifted from direct, on-the-floor capacity building to increasing staff capacity to deliver instruction using distance learning platforms. Because CCSN provides consultation across the New England region and internationally utilizing a variety of distance platforms (e.g., Zoom, Google, Adobe Connect, Skype for Business, Microsoft Teams), we were well-equipped to support teachers in transitioning to supporting students through these platforms based on years of implementing such consultative models.

Importantly, the core components of the consultation also remained consistent. Through telehealth consultation the following program features occurred with each of our partner communities:

A. Maintenance of Multidisciplinary Teaming. In each partner community, multidisciplinary team meetings and collaborative relationships had been prioritized and established as essential to effective programming prior to closure. Immediately upon the shift to distance learning, steps were taken to ensure that a consistent meeting time was held for each team. Given the challenges posed by moving to remote platforms, CCSN Program Consultants collaborated with the special education case managers and relevant administrators to identify times for the students' multidisciplinary teams (including Speech/Language Pathologists, Occupational Therapists, Physical Therapists, Social Workers, School Psychologists, and General Education teachers) to come together and plan for student-specific needs to ensure continuity of care. Teams generally met once per week, for one hour. Meetings prioritized review of current levels of performance during distance learning, successes and barriers to progress, and next steps for each team member, including dissemination of student-specific information to support staff and families.

B. Support and Structure of Instruction. A prominent feature of consultation provided to our partner communities is collaboration with the special educator to develop systems and structures for instruction. Upon the shift to distance learning, this target became even more critical. As instruction shifted to remote platforms, the nature of consultation shifted to focused collaboration with both the student's educational team and with their families/home team. Further, consultants worked in collaboration with special education teachers to modify data collection systems to allow teachers to assess student progress during distance learning and, when appropriate, to involve families in data collection procedures related to specific student targets.

    a. Support to the educational team emphasized identification of appropriate targets for instruction, development of individualized lesson plans/protocols and information tracking systems, training of paraprofessionals and support staff on implementation of student programs, development of behavior support plans, and use of appropriate supplemental resources. The State of Connecticut provided guidance for educators needing to adjust IEP objectives in light of the pandemic through its Learning Model IEP

Implementation Plan[9] that can serve as a guide when assessing the learning objectives for specific students.

b. Support to families/home teams emphasized training and information sharing regarding the development of daily student schedules, discussions regarding creating a student workspace, the use of proactive behavior support, and the implementation of student specific plans/protocols.

C. Parent Involvement. Within our partner districts, parent meetings are often scheduled on a monthly basis to allow collaboration between the school-based team and parents in support of the student. During school closure, the frequency of these meetings was increased, and they occurred on a weekly basis, as opposed to a monthly basis. In addition to regular updates on student progress, these meetings were used a forum for organizing service delivery to ensure that providers were not overwhelming the family while still delivering the services as described in the IEP. Training on relevant strategies for implementation of programming and to provide collaboration regarding points of difficulty also continued to be addressed in the regular parent meetings.

D. Professional Development and Staff Training. Professional development opportunities continued during the closure, particularly for non-certified staff, whose responsibilities had shifted from direct time with students daylong to increased material development and related tasks. Within many partner communities, CCSN Program Consultants were able to provide both synchronous and asynchronous training on topics related to evidence-based practices, principles of behavior analysis, and application of these to teaching and positive behavior support procedures. For example, a professional development training series that had been in progress prior to the closure continued via scheduled access to asynchronous modules (participants viewed pre-recorded modules at their own convenience but within a fixed time frame) paired with synchronous virtual meetings which involved opportunities for participants to ask questions, get clarification on topics, and participate in interactive activities related to the content. These participants were therefore able to continue their professional development and move toward advanced roles as educators, even as in-person training was not an option. Overall, these professional development sequences were effective in increasing knowledge of the instructional content, as evidenced by increased scores on post-assessments when compared to pre-assessments.

E. Administrative Involvement. Regular meetings with administrative partners within districts continued during the time of school closure. During these meetings, administrators were provided with updates on student progress and level of success with participation in distance-based learning platforms. The meetings also served as a framework for Directors of Special Education to gain information and perspective on decisions made by surrounding districts to

[9] https://portal.ct.gov/-/media/SDE/COVID-19/Learning_Model_IEP_Implementation_Plans.docx

allow for calibration across locations in making decisions related to supporting students with complex needs.

Challenges Experienced During Distance Instruction and Solutions

The rapid transition to distance learning in March of 2020 presented a number of challenges that educational teams had to confront in real-time. Through CCSN's consultation with partner districts, we were able to support educational teams in developing a series of solutions to address the newfound challenges. Some of the challenges and associated solutions included:

- Students failing to log in for sessions at the scheduled time
    - *Solutions included:*
        - A paraprofessional logged in at the start of the day and stayed in the portal until the student signed in, prepping materials and reviewing lesson plans as they waited for the student. During this period the paraprofessional would review content and make sure all learning materials were prepared. The certified staff would send an electronic reminder (e.g., email, text) reminding the student of the session. When the student logged in, the certified staff was made aware, and, if available, would rejoin the session. If the certified staff was unavailable, the paraprofessional would run synchronous extension activities with the student.
        - Students were taught to use in-home technology (e.g., Alexa, cell phone, microwave timer) to set reminders to log in for sessions.
        - When necessary, and when other attempts to resolve the issues were unsuccessful such as requesting increased parent communication and meetings, certified letters were sent to families detailing concerns related to students not participating in instruction.

- Language barriers for families who have a primary language other than English
    - *Solutions included:*
        - Having a district translator/foreign language teacher join the session to provide concurrent translation for the family as instruction was delivered.
        - Having a district translator/foreign language teacher translate all instructional materials that were sent home.
        - The multidisciplinary teams were joined by English language instructors to collaborate around instructional strategies and provide the student with access to supplemental supports.

- Confidentiality during small group instruction
    - *Solutions included:*
        - Districts consulted with board attorneys to develop an "opt-out" agreement. Through this agreement, families were asked to return a form if they were uncomfortable with students participating in small group instruction in distance platforms.
- Parents unavailable to support student directly during teaching due to family variables such as caregiver availability, language barriers, competing sibling instructional schedules, or work schedules
    - *Solutions included:*
        - Paraprofessionals were made available to support students during instructional times by joining synchronous learning sessions via video or chat features.
        - On-going parent meetings were scheduled to identify barriers and problem-solve solutions through multidisciplinary teaming
        - Asynchronous learning activities were developed to supplement instruction for students who were unable to participate during synchronous sessions.
            - Paraprofessionals were also made available to students during synchronous learning opportunities.

- Parent lack of understanding teaching programs
    - *Solutions included:*
        - Individualized parent training was provided across various instructional modalities, including in-vivo coaching and feedback with teachers and related service providers, development of video models which were reviewed with families during weekly team meetings, problem-solving and collaboration within the multi-disciplinary team, and development of student-specific "tip sheets."

- Family/caregiver difficulty establishing themselves as instructors within the home due to the student's learning history with parents
    - *Solutions included:*
        - Coaching was provided to parents and caregivers regarding how to set up effective learning environments (setting up dedicated workspaces, embedding visual cues that signal work times, and developing consistent/predictable daily routines) and how to establish ready learner behavior (establishing reinforcement contingencies and prompting hierarchies).

- Student's interfering behavior and/or demand avoidant behavior
    - *Solutions included:*
        - Individualized behavior strategies documents which highlighted proactive behavioral supports were developed and implemented in the home. These were developed by special education teachers and Board Certified Behavior Analyst (BCBA) program consultants based upon direct observations conducted during synchronous learning sessions and indirect assessment (parent interviews). Parents were trained to implement recommended strategies via coaching and feedback delivered by the teacher and/or BCBA program consultants via the district's distance learning platform.

Overall, in collaboration with the district, we endeavored to maintain all programmatic elements during the time of remote learning. Largely, the team were successful in translating systemic elements from onsite learning to remote learning. Multidisciplinary teams were maintained and met via online platforms, instruction was delivered virtually on a set schedule with teachers working with all students via online platforms, special education teacher and BCBA program consultant collaboration meetings continued. Student-specific items presented the greatest challenges and were overcome by innovative solutions and strong collaboration between families and the school-based teams. Increased teaming with families was essential to this success and provided important opportunities for teachers to understand family specific needs and for families to experience teachers working directly with their student.

Return to Live Instruction

On May 20, 2020[10], the governor of Connecticut issued a set of guidelines outlining the procedures for reopening schools to provide Extended School Year (ESY) services. In July 2020, a related document titled *Adapt, Advance, Achieve: Connecticut's Plan to Learn and Grow Together*[11] was issued by the State of Connecticut outlining guidelines for reopening schools in the fall. This document included a supplemental resource[12] which specifically highlighted considerations for reopening for students with complex needs (including information regarding operations, health protocols, and academics/special education). Across our various partner districts, CCSN Program Consultants worked collaboratively with administration to determine service delivery models that best supported student needs while maintaining health and safety guidelines. Focus was directed toward determining a service delivery model that allowed for the maintenance of the high-quality program features described above, increasing access to instruction. Alongside collaboration regarding universally modified systems of

[10] https://portal.ct.gov/-/media/SDE/Special-Education/Covid/BSE-Guidance-for-Extended-School-Year-ESY-Services-during-the-COVID19-Pandemic-52020.pdf
[11] https://portal.ct.gov/-/media/SDE/COVID-19/CTReopeningSchools.pdf
[12] https://portal.ct.gov/-/media/SDE/COVID-19/Addendum-3-Fall-Reopening-Resource-Document-for-Students-with-High-Needs.pdf

instruction, consultation also addressed program or case-specific needs which often presented unique challenges. Regarding child-specific needs, strategies were developed to measure acquisition of new skills, maintenance of existing skills, and regression of skills when students resumed in-person instruction. Further, teaching protocols and materials were developed to support students understanding and tolerating procedures related to mask wearing, social distancing, and temperature checks. From a systems-level perspective, consultants worked with classroom staff to restructure classroom layouts, create systems for material management and guide revisions to instructional strategies (such as prompting hierarchies and paperless data collection systems) to support the health and safety of staff and students.

Models for Extended School Year Services (ESY)

As observed during the spring, variation was noted across communities regarding the model selected. Across our partner communities, the following models were most frequently selected.

A. Remote Only. Some communities selected to continue instruction via a distance-only model as implemented during the spring of 2020.

B. Live Related Services/Remote Academic Instruction. Some communities selected a hybrid approach, during which live sessions involving in-person related services (Speech/Language Therapy, Occupational Therapy, Physical Therapy, Behavioral Consultation) and academic instruction delivered onsite as well as through distance platforms. In this model, academic learning continued with the special education case manager via distance learning platforms and was supplemented by in-person implementation of specific IEP objectives by the BCBA program consultant.

    a. During in-person program implementation, the case manager was often available virtually, to observe the sessions and collaborate with the BCBA program consultant on instructional changes and progress monitoring.

    b. Additionally, families were offered an opportunity for weekly in-person training time to allow the on-site BCBA program consultant to model working with the student and provide guidance and support to the family regarding implementation of instruction as well as behavioral support (including modeling of instructional strategies, practice regarding data collections, in-vivo feedback of reinforcement procedures).

C. Live Instruction/Supplemental Remote Learning. Other communities shifted to a hybrid model which included 3-hour live instructional delivery on-site paired with supplemental remote learning opportunities. In accordance with state guidelines, schools within these communities reopened and provided students with live access to IEP-specific instruction delivered by special education teachers, related service providers, and paraprofessionals. This live instruction was supplemented with remote learning opportunities, consistent with those utilized during Spring

2020, to provide students and their families with increased access to instruction, training, and collaboration.

It is important to note that families within communities opting for a hybrid model were provided the opportunity to opt-out of live services and continue with a distance-only model.

Models for 2020-2021 School Year Services (Fall Opening)

Variation continued across communities regarding the model selected for fall re-opening. The following models were most frequently selected across our partner communities.

1. Full-Time On-Site/Cohorted Access to General Education. Many of our communities reopened in the fall with a hybrid model in which students were divided into two groups. A schedule was then developed to identify which group was to attend in person and which was to attend remotely across the week/month. For students with complex needs, the communities provided them with access to in-person instruction across the week regardless of their assigned cohort; however, access to general education was limited such that inclusion occurred only on days in which peers within their cohort were present. Importantly, full time reflected access to in-person instruction for all days/times that schools were open, as some communities had shortened days or one day off per week to allow for adequate time to complete necessary cleaning protocols.
2. Full-Time On-Site/Full Access to General Education. Some communities reopened in the fall with a hybrid model for general education students and a full-time schedule for students with complex needs. In this model, students in identified programs were attended school in-person for all days/times that schools were open and were permitted to access general education settings daily.
3. Full-Time On-Site/Remote Access to General Education. Some communities reopened in the fall with a hybrid model for general education students and a full-time schedule for students with complex needs. In this model, students in identified programs were attended school in-person for all days/times that schools were open and were permitted to access general education settings in person with their assigned cohort or via remote instructed accessed from the special education classroom.

It is important to note that families within all communities were provided the opportunity to opt-out of live services and continue with a distance-only model.

General Findings Upon Return to Live Instruction

When students returned to on-site programs, either during ESY or in the Fall, we generally found that requirements related to COVID-19 safety precautions were well-tolerated. Students broadly did not

have challenges with sustained mask wearing, and were compliant with requirements to wash hands, use hand sanitizer, maintain social distancing, or undergo precautionary temperature checks. Most students, even those with significant impairments, kept their masks on when required during instruction, and staff were able to problem-solve with families or adopt desensitization procedures if there were challenges with tolerating masks or temperature checks. Across each of the communities, staff reported comfort with the live-models and precautions implemented. All safety protocols were noted to be consistently implemented across the duration of programming, with communication regarding any exposures relayed to all relevant parties in a timely and transparent manner.

In many cases, students who returned to live instruction demonstrated maintenance of skills taught prior to school closure and acquisition of new skills taught via remote platforms. During remote learning, staff and families within CCSN's partner communities expressed concern regarding the potential regression in skills during the closure; however, baseline/probe data collected during in-person sessions generally showed minimal regression and supported the generalization and maintenance of student learning. Students who struggled with prerequisite skills for accessing content delivered remotely (e.g., response to name, ability to sustain attention in the absence of an adult prompting this, vocal or other verbal communication responses) were most affected by regression of skills previously acquired prior to the pandemic and school closures.

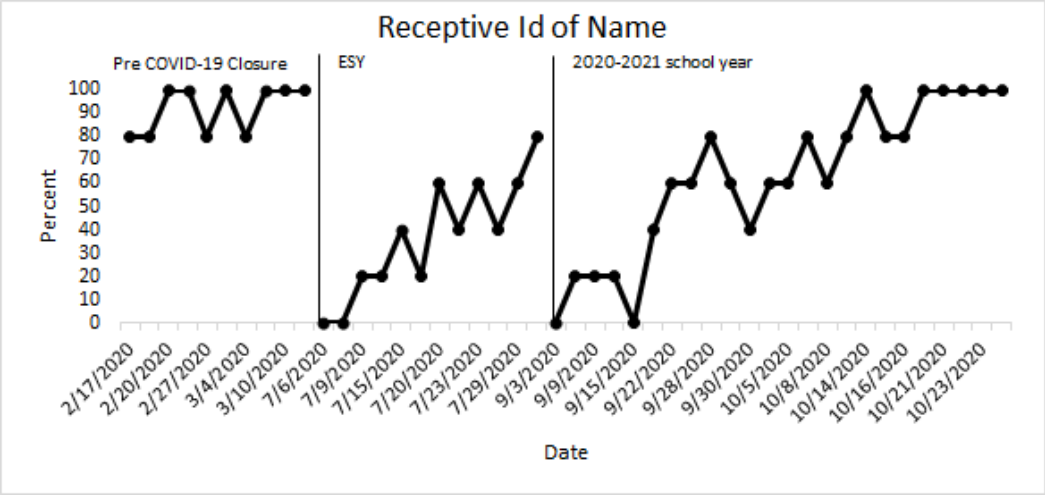
Student Performance Data

Below are samples of de-identified data highlighting student performance from school closure through the re-introduction of live instruction during ESY and/or at the start of the 2020-2021 school year. CCSN supports students across the lifespan and from age three to 22 within our partner school districts. A representative sample of skill acquisition data which tracked instructional targets from pre-closure through reopening was selected to provide the reader with examples of both successes and challenges observed. All students were receiving consultation from CCSN and special education services delivered within specially designed programming for students with complex needs within one of our partner communities prior to closure and continued to have access to the program elements described above during distance learning. Across all programs, instructional targets are selected to increase the student's independence across domains including, but not limited to, social, communication, academic, daily living, and executive functioning skills. It is important to note that each of the graphs below contains information regarding an instructional target which represents a single element of comprehensive instructional plan developed in alignment with the student's individualized educational plan. For example, on the second graph below the word "bed" represents one exemplar of multiple words targeted for instruction concurrently.

The visual representations of student data below represent the percent of instructional opportunities that the student responded to independently and accurately. Teaching opportunities (or trials) without both correct and independent responding were prompted by the teacher and were not counted as independent trials.

Case Study

The data below represent one instructional program designed to target an IEP objective, receptive identification of first name in print, for an elementary aged student with a diagnosis of autism spectrum disorder and intellectual impairment. Mastery criteria for this target was five consecutive days at 100% independent responding on instructional trials conducted in the natural environment. The data along the horizontal axis represent learning sessions from February 2020 through ESY services and into the start of the 2020-2021 school year. The vertical axis represents the percent of trials where the student responded correctly and independently by selecting her name in print from a field of four names. During the closure, she was unable to participate consistently in remote learning due to a lack of prerequisite independence and attending skills. Parent training and coaching during this time focused around building instructional control and embedding instruction into naturally occurring routines, such as targeting receptive color identification while coloring. During ESY, the student participated in person, four days per week, for three hours per day. In the fall of 2020, the student participated in five full days onsite, with limited participation in general education due to medical needs that required limiting her access to others due to COVID-19 concerns. Data collected on program targets, reflect regression following closure (in the spring of 2020 and following the end of ESY) and slow recovery of skills following consistent in-person instruction. It is important to note that after 12 instructional sessions during ESY the student had not recovered the skill to levels observed pre-closure and 22 session were required in the fall of 2020 to recoup the skill to previous observed levels.

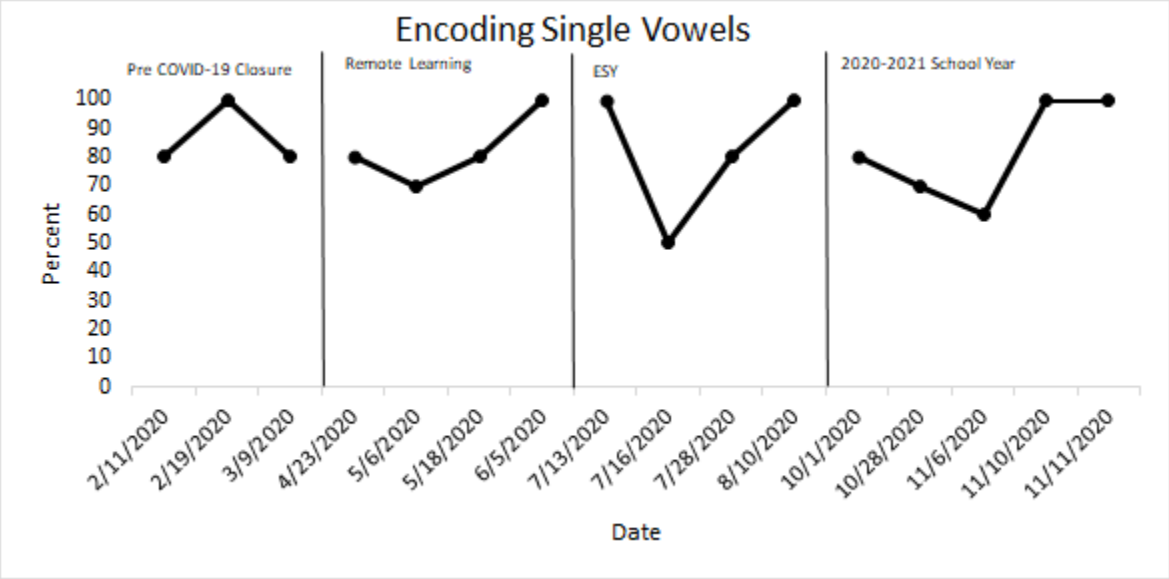


Based on this student's regression of skills from March 2020 through ESY and the start of the 2020-2021 school year, we would anticipate that another school closure would have a significant negative impact on her learning and progress with goals and objectives. Given the barriers reported with regards to accessing remote instruction, the school team contrived daily practice opportunities for engaging in simulated virtual learning opportunities for the student to teach prerequisite learner readiness skills while the student is available for in-person instruction. Moving forward, the team should be prepared to provide a robust, in-vivo parent training via a coaching and feedback model that focuses on building

instructional control, structuring instruction, prompting strategies, and reinforcement procedures. These sessions should be scheduled weekly to provide the opportunities to strengthen the family's ability to support her access to remote learning such that in the event of another closure instruction can focus on skill acquisition and skill maintenance.

Additional Data Samples Representing Other Student Cases

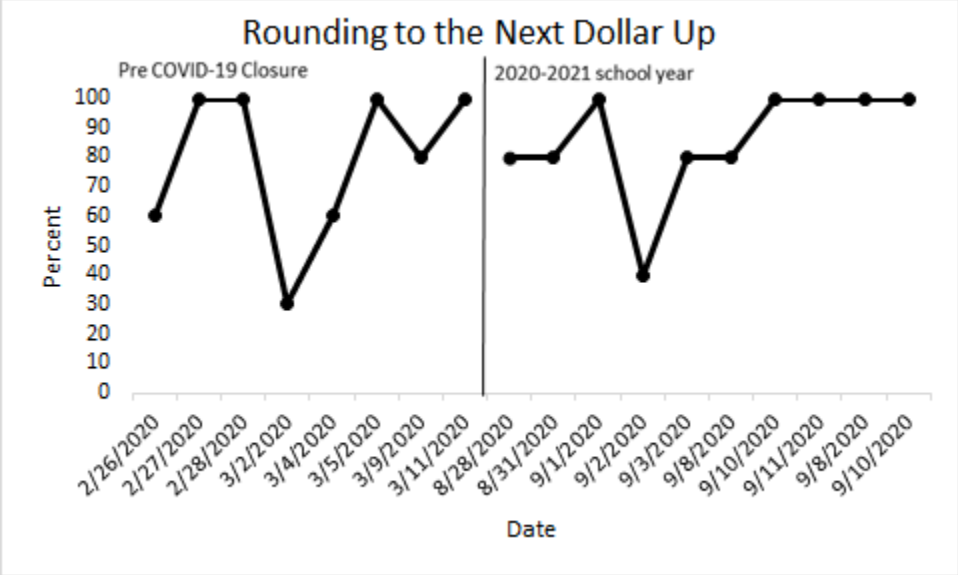
The following data samples each represent a different student and instructional target. These are presented in order to highlight skill acquisition challenges and their trajectory over time for recovery.



The data above represent one instructional program designed to target an IEP objective, encoding single vowel to spell the word "bed." The data along the horizontal axis represent learning sessions from February 2020 through ESY services and fall 2020. The vertical axis represents the percentage of trials where the student responded correctly and independently by spelling the target word. Data collected on program targets, reflect maintenance of skills during remote only instruction and regression with quick recovery during a hybrid ESY model. Upon return to school in the fall of 2020 regression was again noted; however, recovery was not observed. It is important to note the final two data points (11/10/2020; 11/11/2020) represents data collection in-person on an instructional session that mirrored a remote learning session (e.g., the student and the paraprofessional sat together in a separate room while logged into a remote lesson conducted by teacher from the classroom.

Based upon staff observations and student report, it can be hypothesized that the regression observed following the return to school can be somewhat attributed to the student's ability to access instruction when barriers caused by personal protective equipment are present. Per statewide COVID-19 safety protocols, all staff must wear masks and plexiglass dividers must be set up between staff and students when possible during instruction. This has created an environment in which vocal instruction is often

muffled and can be difficult to hear. The student has reported that this is a challenge for him and when his ability to participate in instruction in a setting in which the teacher could remove her mask (11/10/2020) responding at the level observed pre-closure was observed. It will be important that staff develop protocols to increase the student's ability to attend to instruction presented by staff wearing a mask and increase the student's ability to advocate for directions to be restated. As the student is acquiring these skills, staff should adjust the protective equipment worn as possible (I.e., using a face shield in place of a mask, using a different type of mask) to increase the clarity of vocalization or continue to present instruction without masks via remote learning conducted within the school to maintain the student's ability to fully access instruction and acquire new skills.



The data on the graph above represent the percentage of trials where the student responded correctly and independently to round an amount of money, less than 10 dollars, up to the next dollar amount (e.g., $8.62 to $9.00) from February 2020 to closure and from the start of the 2020-2021 school year. Data collected on program targets reflect maintenance of skills across closure. Variability in performance was noted across both data collection periods, with less variability and progressive recovery observed upon returning to school for the 2020-2021 school year. It is important to note that variable responding reflected in the data set is common for this student and is addressed within his behavior support plan as it relates to contriving and maintaining motivation, along with differentially reinforcing attention to stimuli.

Based on this student's successful maintenance of skills from March 2020 to August 2020 (represented in this data set and others not represented here), we would anticipate that the student could be successful with remote learning, should it be required. Given the barriers reported with regards to accessing remote instruction, the school team should be prepared provide on-going opportunities for in-

vivo parent training via a coaching and feedback model as programming moves forward. These sessions should be scheduled weekly to provide the opportunities to strengthen the family's ability to support his access to remote learning such that in the event of another closure instruction can focus on skill acquisition rather than skill maintenance.

Recommendations

1. Participation in Full-Time Instruction, Even During Hybrid Models

As students return to school for the fall, CCSN BCBA program consultants are providing recommendations consistent with the Connecticut State Department of Education guidelines[13] that would maximize the amount of time students with complex learning needs are able to be onsite for in-person instruction. While not all students were as deeply affected by skill regression as was feared at the start of the school closure, in-person teaching is still a preferred modality of instruction for students with significant learning needs as it maximizes staff ability to directly interact with students and modify instruction based on student need. As such, CCSN is working with individual school districts to design ways to allow students to access full-time teaching, even when schools are operating hybrid models of education. To achieve this, students can be placed in cohorts with other students with similar needs and participate in instruction in general education settings when their cohort is onsite. For example, if they are cohorted with group A who attends school on Monday and Tuesday, students will be onsite and participating in general education opportunities as they normally would on these days. For the remainder of the week, students are supported in the resource room classroom, and individual schedules comprised of 1:1 instruction or small group instruction can be developed for each student based on need. Related services can also be delivered during this time so as to avoid disruption of opportunities to participate in general education settings when they are available.

2. Development of Essential Skills While Onsite

In addition to targeting IEP goals and objectives, CCSN team members have worked in collaboration with district partners to identify pivotal skills that are needed for students to be successful with online learning. In anticipation of another school closure, these skills are targeted with students while they are onsite so that these skills are fluent and available to the students when they need them during remote learning experiences. These skills are described below:

A. Sustained attention to instruction (both virtual and live) in the absence of physical redirection or with proctoring.
    a. For many parents, being available day-long to support student instruction is deeply impactful to their ability to continue working when students are engaged in home-based instruction. As such, increasing a student's ability to engage in instruction in a more independent way becomes of paramount importance for home-based instruction.

[13] https://portal.ct.gov/-/media/SDE/COVID-19/CTReopeningSchools.pdf

Further, increasing student independence with participating in teaching situations is also important onsite to ensure that dependency on a paraprofessional is not being developed.

B. Responding to embedded and visual prompts as opposed to physical prompting or adult prompting.
    a. In concert with the goal described in item number one, it is important to teach the student to shift prompting modalities from physical or verbal prompts to embedded visual prompts in order to help the student increase independent participation in educational opportunities.
C. Developing skills sets related to using technology.
    a. This includes teaching students to either tap correct responses on a touchscreen or click correct responses using a mouse.
    b. It also includes teaching students to independently sign into portals such as google classroom and other online teaching opportunities.
    c. When appropriate, it may also include teaching students to set an alarm to remind them to participate in instruction.
D. Understanding spoken and written directions given through technology rather than being delivered in person by a teacher or paraprofessional.

3. Increasing Parent Training

In addition to targeting these repertoires for students, it is also essential to increase and make more robust our trainer-of-trainers models for families and caregivers. If families are to be involved in instructional opportunities in the home, providing families with a deep understanding of student programming and how to help support implementation is of paramount importance during the time that consultants and school personnel provide onsite, in-person training. Targets for families and caregivers would include:

A. Familiarity with implementation of teaching programs, instructional strategies and elements, reinforcement and prompting procedures, and correction strategies.
B. Competence with data collection procedures so that families can work in collaboration with certified and noncertified school team members to assess student progress.
C. Training via didactic training and in-vivo coaching and feedback regarding the implementation of positive behavior supports in increase student engagement during and participation in remote learning

4. Documenting Strategies that Were Effective During the Initial Closure

Given the heavy focus on establishing a dedicated location within the home specifically for learning-based experiences and instructional control at the start of the closure, formalized documentation of the procedures that were effective for a student during the closure from March through June 2020 is necessary. In the event of another closure, having these procedures written will facilitate re-

implementation of previously successful strategies and may reduce the amount of time required to re-establish the learning environment and instructional control, which will allow for more rapid transition into instruction.

5. Social Distancing Considerations

Teachers and paraprofessional staff maintaining six feet of distance from students during instruction of students with complex learning needs will be difficult for many. It is likely that staff will need to be close to the student while arranging materials prior to the instructional trial and provide physical prompting and redirection at times during instruction. It is essential that teachers have access to PPE that will protect them if they need to be in close proximity to students while supporting them. Additionally, supporting students in becoming more independent with learning (e.g., arranging their own materials and/or reducing necessary prompts) will likely also be impactful in allowing greater distance between teachers, paraprofessionals and students during teaching. Recommendations for appropriate PPE have been provided by the Connecticut State Department of Education[14].

6. Desensitization to the Use of PPE

Many students successfully used PPE during summer ESY programming. However, for those students who struggled to wear masks, desensitization programs were developed to increase their ability to wear a mask for increasing lengths of time. Desensitization plans should be developed in close collaboration with school teams and families and involve gradually supporting the student to tolerate wearing protective equipment for longer periods of time. For example, a desensitization plan might involve teaching the student to first observe someone wearing a mask, then touch the mask, then wear the mask for several seconds, then several minutes, and so on. Mastering this skill both for in school participation and participation in the community will be essential.

7. Careful Consideration of Teachers Supporting Students Onsite and Virtually

Families have been given the opportunity to decide whether students will be supported onsite or through distance learning platforms. As such, many teachers are now required to offer some services to students that are onsite and some services to students that are participating virtually. In instances where both live-instruction and virtual-instruction are required of the teacher, it is essential that careful consideration be given to whether the teacher can feasibly offer services to students in both of these learning platforms, particularly during small group instruction. In 1:1 instruction, the teacher likely can deliver instruction in the modality that is selected by the family. However, in small group instruction, the teacher will be required to toggle between in-person instruction and distance instruction, appreciating that maintaining the attention and engagement of students in a way that is effective for all students is likely to be challenging. To avoid this, teachers may wish to consider grouping students to run a live group and a virtual group separately. If this is not possible, district administration may wish to consider

[14] https://portal.ct.gov/-/media/SDE/COVID-19/Addendum-3-Fall-Reopening-Resource-Document-for-Students-with-High-Needs.pdf

making an alternative certified or noncertified staff available to support students in collaboration with the primary certified staff running the group.

8. Movement of Program Books to Electronic Platforms

Following school closure, many teachers struggled because paper-based student program books were in schools and inaccessible to the teachers during building closure. Similarly, many teachers who gained access to their paper-based program books did not teach ESY, and therefore the books were again inaccessible to the ESY teachers. To avoid this, it is recommended that program books be maintained in online platforms. This could occur through a technology-based program designed for online progress monitoring, either through commercially available platforms (e.g., Rethink, Catalyst) or by utilizing existing technology. In either modality, program books can then be accessed by all relevant members of a student's team whether instruction takes place at school or at home. Importantly, if utilized, the tech-based modality should be used comprehensively to avoid some data being tracked in low-tech paper-based program books and other data being tracked in electronic program books. It will be important that any tech solution is deployed with the approval of necessary district administrative staff to ensure that the proposed application meets the district's student privacy and data-security protocols.

Conclusion

The COVID-19 pandemic has led to unprecedented disruptions worldwide. The impact to education has been substantial and has required teachers, administrators, and related service providers to innovate with their instructional processes and strategies. Education, which so heavily relies on the direct interaction between a teacher and a student, has moved to distance learning in a short period of time. Critically, school districts and educators still bear a moral and legal responsibility to ensure that all students continue to receive a free and appropriate education. While COVID-19 has created a myriad of challenges for supporting students with complex learning needs, it has also created opportunity for change and innovation to ensure that all students are able to receive instruction that meets their educational goals and objectives.

Since the outset of the pandemic, CCSN has worked closely with students, parents, educators, administrators, and policy makers to assist in identifying, documenting, and executing educational protocols that ensure all students are able to receive appropriate educational supports. While there remains much work to be done and ongoing uncertainty with what the fall and winter will hold, it can be helpful to document and share best practices developed in the context of barriers encountered and solutions developed when providing services. Continued refinement and versatility of instructional modalities will be essential throughout the global pandemic to ensure that our most vulnerable population continues to receive needed educational, social, and emotional support.

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Appendix

Overview of CCSN's Consultation Model

CCSN provides consultation to a number of districts within the state of Connecticut, as well as in school districts in the New England region and internationally utilizing a combination of in-person consultative support as well as distance-based support delivered through telehealth platforms. At the time of the school closures due to the COVID-19 pandemic, the consultative structures described below were in place in multiple districts across the state. CCSN played an integral role with these partner districts in shifting instruction from school to home immediately following the school closures.

CCSN's consultative approach includes a number of key elements. Among these, we apply a multidisciplinary approach working directly with a consistent team of teachers and related service specialists who are supporting a group of students. These students may require extensive direct special education services as well as advanced supports for effectively achieving learning in inclusion settings. The team works directly with the CCSN Program Consultant to develop the overall instructional model and implement this consistently and with evidence-based frameworks attached to all elements to support decision making. On-the-floor coaching as well as team meetings for skills training and case reviews are other hallmarks of this model's effective approach.

Programs supporting students with neurodevelopmental needs such as autism as well as social-emotional needs, are characterized by the following elements:

1. *A Program Book for Each Students.* Program books fare developed to capture information regarding evidence-based instructional procedures and student progress regarding goals and objectives captured within the student's Individualized Education Plan (IEP). Written lesson plans with articulated/modified materials required for service delivery, explicit instructions on how to present the learning trial/instructional sequence to the student, any prescribed prompting procedures, and data collection processes to track student progress. The data that are collected are used to assess student progress and make adjustments to instruction delivery as students master programs or if a student is struggling to acquire a specific skill. The program book allows for consistent implementation of programming across all providers working with the student and utilizes a data-driven approach to student programming. F
2. *Collaboration with General Education Teachers*: An individualized program is developed for each student that allows the student to access instruction in general education settings whenever appropriate. Often, the instruction delivered in the resource room through the program book is designed to teach prerequisite skills that allow students greater participation in general education. Each lesson plan in the program bookends with a step related to generalization,

which often involves application of the acquired skill in the general education classroom. As such, close collaboration between the special education teacher, general education teacher, and Program Consultant is necessary to ensure teaching in the resource room aligns with content and delivery occurring in the general education space.

3. *Multidisciplinary Teaming*. On a weekly basis, the special education teacher, general education teacher, Program Consultant, and all related service team members (speech therapist, occupational therapist, physical therapist, mental health provider, etc.) meet to review students within the program. This meeting allows for problem solving of challenges students experience from an interdisciplinary perspective. It also allows for all members of the team supporting the students to be well-informed related to any programmatic and learning needs the students are experiencing.
4. *Parent Meetings*: Within programs supported by CCSN, parents are offered parent meetings on a regular basis. Most commonly, these meetings occur on a monthly basis and are used to review student progress and discuss points of growth and concern related to the student's progress within their educational program.
5. *Teacher/Program Consultant Meeting*. Each week, the teacher and Program Consultant meet to review student specific needs and programmatic needs. This allows the teacher and Program Consultant to work in concert with each other to support programmatic development and problem solve student specific items related to learning needs.
6. *Administrative Consultation*: On a regular basis (often monthly or twice monthly), a supervisor from the Consultation Division of CCSN is onsite to provide consultation to building and district administration. This allows relevant stakeholders to be fully informed related to program development and student specific items and also allows all relevant stakeholders to be fully involved in shaping the program development process to meet the climate and culture of the building and district.

In order to ensure educators have access to the information needed to inform direct work with students, consultation typically also provides for didactic professional development delivered to paraprofessional staff and certified staff. CCSN has developed a training series for paraprofessionals that encompasses many relevant topics for individuals working within programs incorporating behavior analytic teaching principles. These topics include reinforcement, prompting and prompt fading, and managing challenging behavior, among others. For certified staff, professional development presentations are often developed based on the needs of that team, and historically have included in depth information related to autism and neurodevelopmental disabilities, conceptualization of challenging behavior in social-emotional populations, common co-morbid mental health challenges in both populations, among many others.