Education Research Brief

Stephen Lipscomb, Forest Crigler, and Duncan Chaplin

School Instruction in Pennsylvania During the COVID-19 Pandemic

The COVID-19 pandemic put unprecedented pressure on Pennsylvania schools to find new ways of educating students amid a worldwide health crisis. Terms like remote learning and hybrid learning became part of everyday language as local education agencies (LEAs) across the Commonwealth implemented different approaches to safely deliver instruction and support students' needs. This research brief describes how Pennsylvania LEAs (school districts and charter schools for purposes of this research) responded to public health and other challenges during the 2020–2021 school year.

Data for the brief come from an online survey that the Pennsylvania Department of Education (PDE) and Mathematica distributed to a representative sample of 200 LEAs during summer and fall 2021 (Exhibit 1).[1] The survey focused on modes of instruction, digital access and online learning, supports for students with disabilities, mental and physical health, and safety. The findings provide a window into students' school experiences during the pandemic.

The brief is part of a partnership between PDE and Mathematica to understand how the pandemic has shaped education outcomes.[2]

Key findings

/ **In-person learning expanded as the 2020–2021 school year progressed.** About half of Pennsylvania students were enrolled in LEAs that began the school year offering only remote learning (Exhibit 2). By January 2021, some of these LEAs had adopted hybrid learning (a mix of in-person and remote) as their predominant mode of instruction. During the last month of school, nearly all students were in LEAs that offered at least some in-person learning and about half were
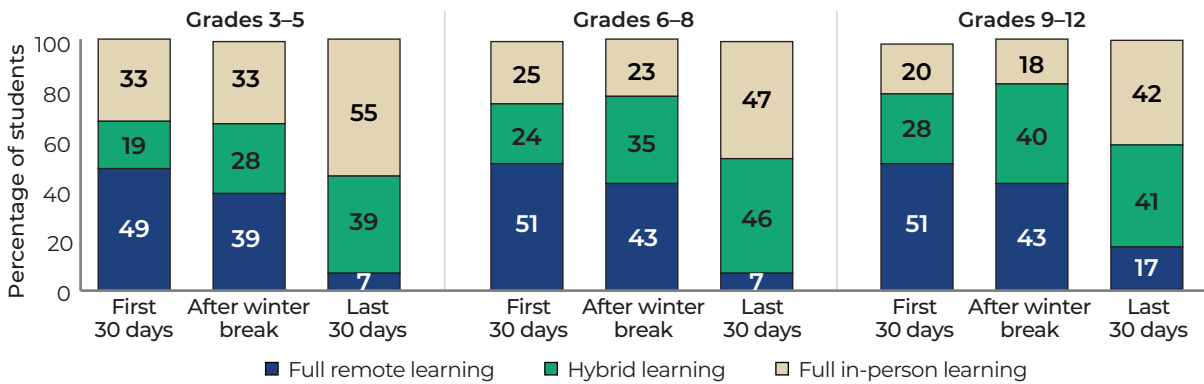
Exhibit 1. Survey overview

- **Sample:** The 50 largest LEAs and a random sample of 150 others (including brick-and-mortar and virtual charter schools)
- **Response rate:** 80 percent weighted to the student population
- **Representation:** Data are weighted to represent all Pennsylvania public school students during the 2020–2021 school year. ◢

in LEAs with full in-person learning for elementary and middle school grades. LEAs that offered only remote learning in at least one grade band at the end of the year included virtual charter schools (in which instruction is conducted remotely) and districts that did not resume in-person learning in high school grades or at all.[3]

Exhibit 2. Percentages of students in LEAs offering different predominant modes of instruction, by grade band and month
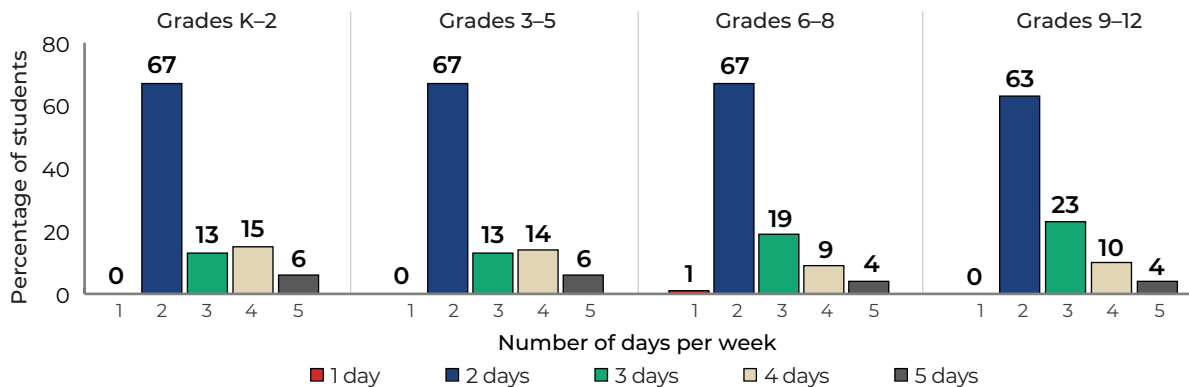

Note: Bars include data from all responding LEAs in the grade band. Findings for grades K–2 were nearly identical to findings for grades 3–5 and are excluded due to space. Percentages may not add up to 100 due to rounding.

/ **Hybrid learning models typically included two days of in-person instruction per week.** About two-thirds of students in LEAs that offered hybrid learning used this type of model (Exhibit 3). In other LEAs, hybrid learning involved more days of in-person learning—up to the entire week in hybrids where in-person and remote learning alternated either between morning and afternoon sessions or from one week to the next. However, these models were rare. Nearly all students in LEAs with hybrid learning were offered some days of in-person learning and some days of remote learning each week. Students nearly always attended in person for the full day during in-person learning days.[4]

Exhibit 3. Percentages of students in LEAs offering different numbers of days per week of in-person instruction during hybrid learning, by grade band
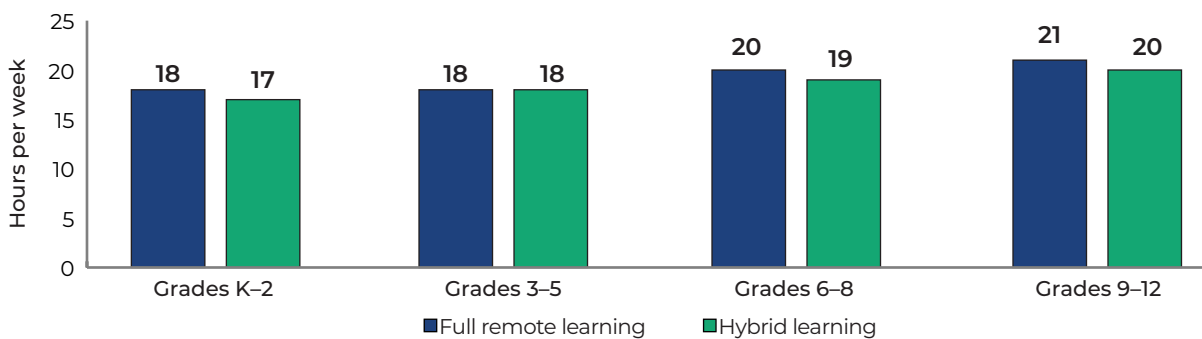

Note: Bars include data from responding LEAs that offered hybrid learning in the grade band during at least one of the timeframes specified in Exhibit 2. Percentages may not add up to 100 due to rounding.

/ **Students received similar amounts of synchronous instruction in full remote learning and in hybrid learning.** Synchronous instruction refers to instruction that teachers delivered live to students, either remotely or in person. Other instruction was asynchronous, where the teacher provided instruction that was not live—for example when the teacher assigned students learning activities to complete on their own without interacting with the teacher. On average, elementary students in both hybrid learning and remote learning received 17-18 hours of synchronous instruction per week (Exhibit 4). Compared to elementary students, middle and high school students received up to three more hours of synchronous instruction per week in hybrid and remote learning, but synchronous hours were again similar regardless of mode. Across grade bands, synchronous instruction accounted for about 70 percent of students' typical weekly instruction in full remote learning and hybrid learning (based on state required total instructional hours across 180 school days).[5]

Exhibit 4. Hours per week students experienced synchronous instruction during remote learning and hybrid learning, by grade band
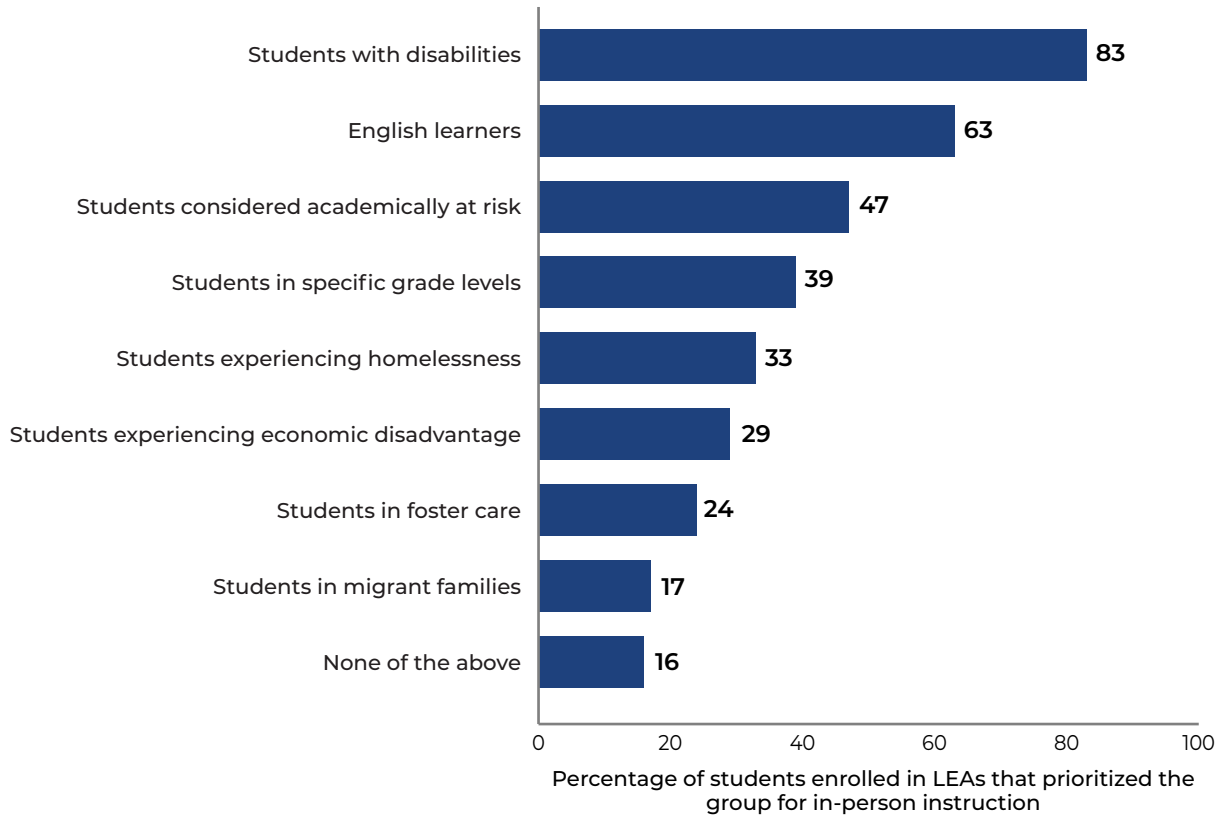

Note: LEAs were asked separate questions about full remote and hybrid learning hours but not about full in-person hours. Bars include data from LEAs that answered both questions for a grade band (75 to 97 LEAs). When reporting on hours of full remote learning at LEAs where the predominant mode of instruction was full in-person learning, LEAs were asked to consider students who opted for full remote learning. Data are weighted to students.

/ **Most students were in LEAs that prioritized students with disabilities for in-person instruction and reported greater difficulty providing special education services because of the pandemic.** More than 8 of every 10 students were enrolled in LEAs that prioritized students with disabilities for in-person instruction even when buildings were closed to most students (Exhibit 5). As a result, students with disabilities were less likely than students overall to have full remote learning be their predominant mode of instruction, particularly in fall 2020.[6] Despite prioritizing students with disabilities for in-perso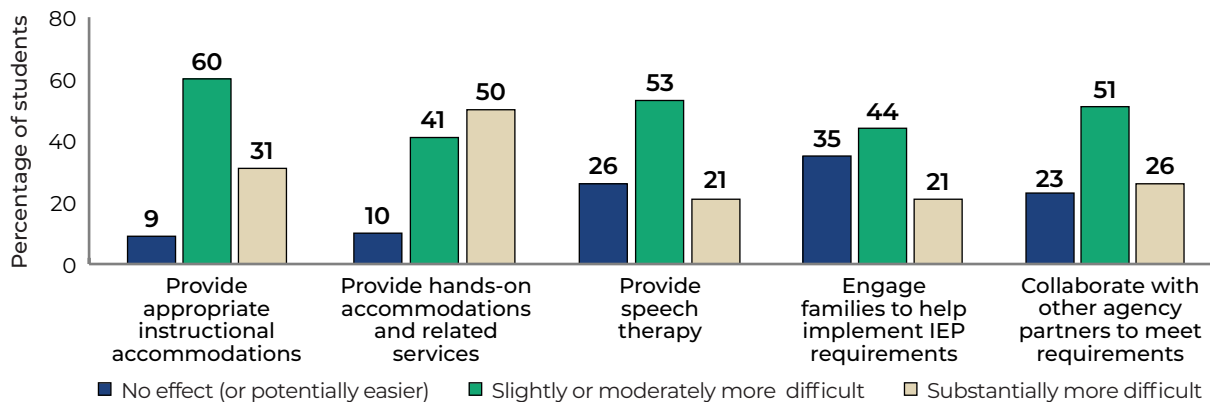n instruction, many LEAs reported that the pandemic made it more difficult—at times substantially more difficult—to provide accommodations and related services, engage students' families, and collaborate with partner agencies (Exhibit 6). For example, LEAs enrolling 50 percent of students said that hands-on supports such as one-on-one aides and physical and occupational therapy were substantially more difficult to provide to students with disabilities than before the pandemic. Nearly all students were in LEAs where the pandemic presented at least some added difficulty with providing appropriate accommodations to students with disabilities.

Exhibit 5. Percentages of students in LEAs prioritizing groups of vulnerable learners for in-person instruction, by group

Group	Percentage
Students with disabilities	83
English learners	63
Students considered academically at risk	47
Students in specific grade levels	39
Students experiencing homelessness	33
Students experiencing economic disadvantage	29
Students in foster care	24
Students in migrant families	17
None of the above	16

Percentage of students enrolled in LEAs that prioritized the group for in-person instruction

Note: Bars include data from all responding LEAs. Virtual charter schools were not asked this question but were included with all responses set to 0 because they generally do not offer in-person instruction.

Exhibit 6. Percentages of students in LEAs experiencing different challenges serving students with disabilities due to COVID-19, by level and type of challenge

Percentage of students

Challenge	No effect (or potentially easier)	Slightly or moderately more difficult	Substantially more difficult
Provide appropriate instructional accommodations	9	60	31
Provide hands-on accommodations and related services	10	41	50
Provide speech therapy	26	53	21
Engage families to help implement IEP requirements	35	44	21
Collaborate with other agency partners to meet requirements	23	51	26

■ No effect (or potentially easier) ■ Slightly or moderately more difficult ■ Substantially more difficult
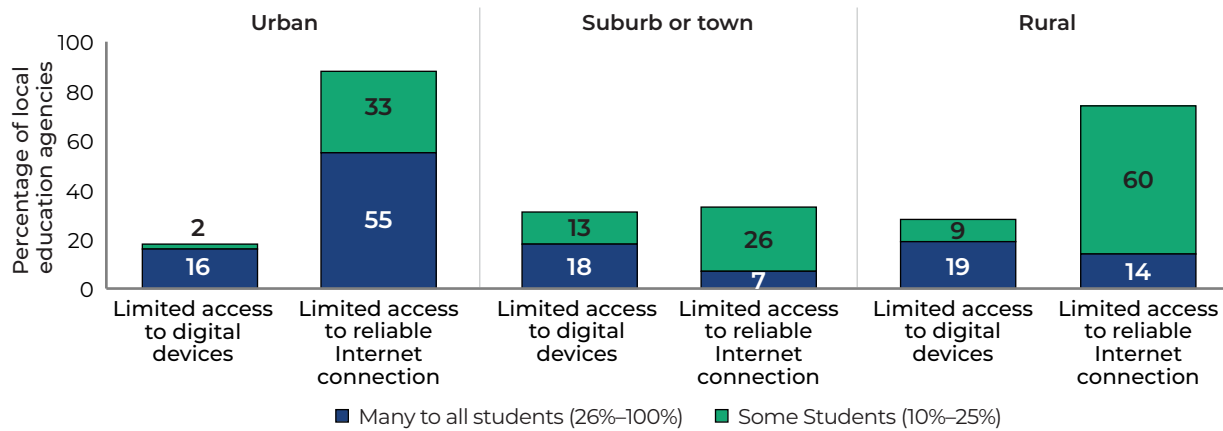
Note: Sets of bars include data from all responding LEAs. Examples of hands-on accommodations and related services included one-on-one aides, physical therapy, and occupational therapy. Examples of other agency partners included social services, behavioral health, and vocational rehabilitation.

/ **Access to reliable Internet connection was a larger barrier to remote and hybrid learning than access to digital devices, especially in urban areas.** LEAs in urban areas reported fewer challenges ensuring students had access to digital devices but more than half of urban LEAs indicated that many of their students (more than one-quarter) had limited access to reliable Internet connection (Exhibit 7). Most LEAs in rural areas also reported connectivity challenges for students but to a lesser extent than in urban areas. LEAs in suburbs and towns were least likely to report connectivity challenges.

Exhibit 7. Percentages of LEAs reporting challenges with students having access to digital devices or reliable Internet, by urbanicity

Note: Bars include data from LEAs that reported assessing which students lacked access to digital devices or the Internet. Ninety percent of LEAs did these assessments. Data were weighted to represent LEAs.

/ **Nearly all students were in LEAs providing supports for using technology and participating in online instruction, substantially more than before the pandemic.** During 2020–2021, more than 90 percent of students were enrolled in LEAs that provided devices to use at home for their grade level. Similar percentages of students were in LEAs that provided help getting Internet access, teacher training to deliver instruction online, interpreters or family liaisons, online portals with single sign-on, and learning management systems

(Exhibit 8). Prior to the pandemic, only one-quarter of students were in LEAs that provided devices to elementary students for home use. Large increases were also seen for the percentages of students in LEAs that provided devices for middle and high school students to use at home, helped families get Internet access, and trained teachers to deliver instruction online. The percentages of students in LEAs offering the remaining types of supports increased less dramatically as they were already high before the pandemic.

Exhibit 8. Percentages of students in LEAs offering technology supports before and during the pandemic
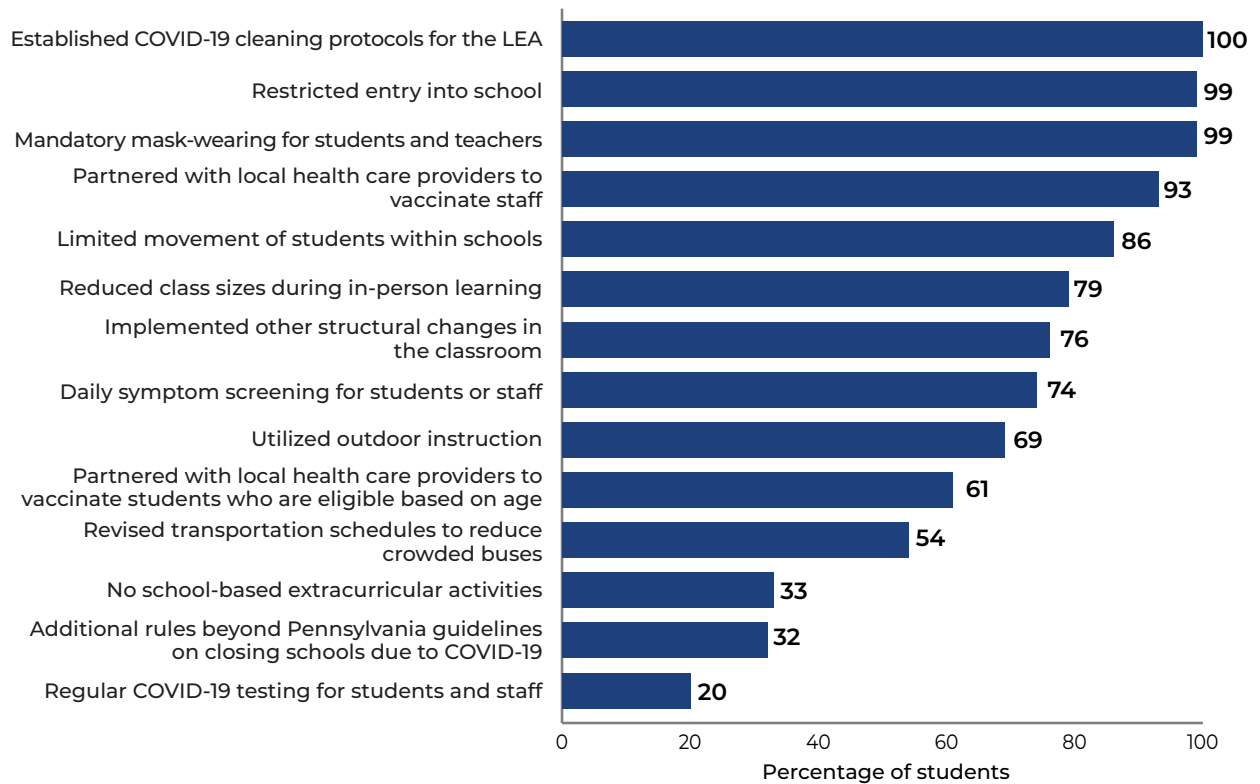

Note: Bars include data from all responding LEAs. Examples of helping families get Internet access included providing mobile hotspots or coordinating home Internet installation with providers. Learning management systems could be Google Classroom, Schoology, Canvas, or something similar.

/ **Most students were in LEAs that adopted a wide range of health and safety measures to reduce the spread of COVID-19, though few were in LEAs with regular COVID-19 testing.** LEAs enrolling nearly all students offered a core set of health and safety measures. For example, all students were in LEAs that established COVID-19 cleaning protocols and almost all were in LEAs that restricted entry into schools (Exhibit 9). The percentages were similar for requiring mask-wearing for students and staff, and for helping to get staff vaccinated. More than two-thirds of students also attended LEAs that took steps to adapt in-person instruction to reflect disease mitigation protocols. For example, 86 percent of students were in LEAs that limited movement of students within schools. The percentages were also above 66 percent for students attending LEAs that 1) reduced class sizes, 2) made structural changes in the classroom (e.g., adding separators to improve safety), 3) implemented daily symptom screening, and 4) utilized outdoor spaces. LEAs enrolling about half of students worked with health care providers to vaccinate students who were eligible based on their age and a similar percentage were in LEAs that adjusted transportation schedules to make buses less crowded. Relatively few students (20 percent) attended LEAs that implemented regular COVID-19 testing for students or staff.

Exhibit 9. Percentages of students in LEAs that adopted different health and safety measures
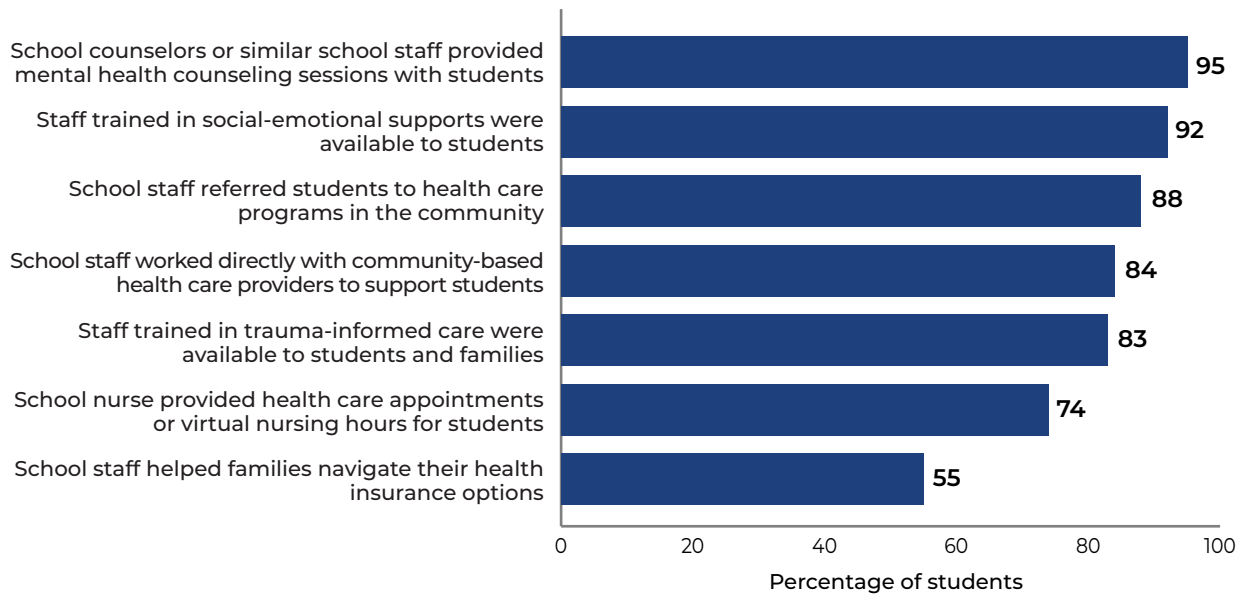

Note: The bars for items about partnering with health care providers to vaccinate staff and age-eligible students and about regular COVID-19 testing for students or staff includes data from all responding LEAs. The bars for the other items exclude virtual charter schools since they were not asked those questions. The survey questions asked whether the LEA implemented the measures at any point during the school year.

/ **LEAs enrolling most students provided resources to support the mental, emotional, and physical well-being of students.** For example, 95 percent of students were in LEAs where school counselors or similar staff provided mental health counseling sessions for them, and 92 percent of students attended LEAs where staff trained in social-emotional supports were available (Exhibit 10). Additionally, 83 percent of students were in LEAs where they and their families could access staff trained in trauma-informed care. Most students were also in LEAs that facilitated health care access in a variety of settings. For example, LEAs enrolling 88 percent of students reported referring students to health care programs in the community and LEAs enrolling 84 percent of students worked directly with community-based health care providers to support students. Majorities of students were also in LEAs where school nurses provided health care appointments or virtual nursing hours (74 percent) or where school staff helped families navigate their health insurance options (55 percent).

Exhibit 10. Percentages of students in LEAs that provided resources to support the well-being of students

Note: Bars include data from all responding LEAs. Survey questions asked whether the LEA provided the resource at any point during the school year.

Endnotes

[1] LEAs were asked to complete a 26-item online survey. Virtual charter schools completed a shortened survey that excluded items pertaining to in-person instruction. PDE and Mathematica adapted some items from surveys developed by other research organizations. Survey items linked to Exhibits 2 and 5 were adapted from the 2021 School Survey for the National Assessment of Educational Progress. Survey items linked to Exhibits 4, 6 to 8, and 10 were adapted from the National Survey of Public Education's Response to COVID-19, developed by the American Institutes for Research. Response options for Exhibit 9 were adapted from the COVID-19 Trends and Impact Survey, developed by the Delphi group at Carnegie Mellon University.

[2] Future analyses will combine the survey data and administrative records to describe student outcomes in Pennsylvania during the COVID-19 pandemic and the role of policies and related factors that may have shaped educational inequities during this time.

[3] About 4 percent of Pennsylvania public school students were enrolled in virtual charter schools during the 2020–2021 school year. High school students in the School District of Philadelphia remained in full remote learning throughout the 2020–2021 school year. This district enrolled about 7 percent of all Pennsylvania students.

[4] The survey data indicated that hybrid learning models for 95 percent of students in LEAs that offered hybrid learning involved students attending the school building for the full school day during in-person learning days.

[5] Pennsylvania LEAs must provide 180 days of school and at least 900 hours of instruction in elementary grades (about 25 weekly hours) and 990 hours of instruction in secondary grades (about 27.5 weekly hours). PDE held LEAs to this requirement in 2020–2021 as in a normal year but allowed remote learning to count toward required instructional hours.

[6] Additional survey results indicated that the percentages of students in LEAs that used full remote learning as the predominant mode of instruction for students with disabilities were smaller than those reported in Exhibit 2 for all students at the same points in time. The differential was about 10 percentage points (on average across grades K–12) in the fall. It dropped to about 4 percentage points in January and 2 percentage points by the end of the school year.