



January 2022

# K-12 EDUCATION

## Department of Education Should Help States Address Student Testing Issues and Financial Risks Associated with Virtual Schools, Particularly Virtual Charter Schools

# GAO Highlights

Highlights of [GAO-22-104444](#), a report to congressional requesters

## K-12 EDUCATION

### Department of Education Should Help States Address Student Testing Issues and Financial Risks Associated with Virtual Schools, Particularly Virtual Charter Schools

#### Why GAO Did This Study

Enrollment in virtual schools has increased faster than enrollment in other types of public schools in recent years. This trend was accelerated by COVID-19, which prompted an increase in distance learning. Virtual charter schools account for about 70 percent of students enrolled in virtual schools.

GAO was asked to review virtual charter school operations and oversight. This report examines (1) how virtual charter schools provide student instruction, (2) how virtual schools' academic proficiency and participation rates on state tests compare to other school types, and (3) the extent to which virtual charter schools' operations present challenges for state and federal oversight.

GAO interviewed state and charter authorizer officials from four states collectively serving over 50 percent of all virtual charter school students in 2019-2020. GAO analyzed federal data on virtual charter school enrollment and academic outcomes; reviewed a nationally representative sample of virtual charter school websites; reviewed school financial information; and interviewed federal and school officials.

#### What GAO Recommends

GAO is recommending that Education examine lower testing participation rates in virtual public schools, and ensure states report comparable attendance information for public schools in a state as well as accurate information on charter schools' contracts with management organizations. Education agreed with these recommendations.

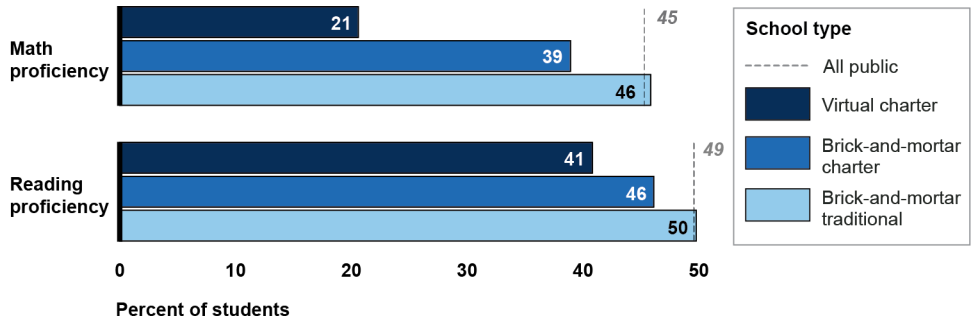
View [GAO-22-104444](#). For more information, contact Jacqueline M. Nowicki at (617) 788-0580 or [nowickij@gao.gov](mailto:nowickij@gao.gov).

#### What GAO Found

Virtual charter schools—public charter schools that operate entirely or mostly online—largely depend on self-paced, asynchronous (accessed at any time) instruction and often rely on parents to act as instructors, according to GAO's review of a nationally representative sample of virtual charter school websites and interviews with school officials. Officials told GAO that families may choose these schools partly for these reasons, but students can struggle with the level of independence and parents can find the time commitment overwhelming.

Virtual charter schools had significantly lower proficiency rates on states tests compared to other school types. For example, the average math proficiency rate for virtual charter schools was 25 percentage points lower than the rate for brick and mortar traditional schools (see figure). In addition, a smaller proportion of virtual school students participated in state tests. However, there is a lack of systematic information about why virtual schools have lower participation rates and what common challenges across states may be contributing to low rates.

**Average Student Proficiency Rates in Math and Reading, by Public School Type, School Year 2018-2019**



Source: GAO analysis of the Department of Education's ED Facts data. | GAO-22-104444

Virtual schools may pose increased financial risks due to challenges measuring attendance and—for charter schools, specifically—contracts with management organizations. State officials in the four states GAO reviewed reported different ways of measuring attendance for virtual compared to brick-and-mortar schools. Attendance calculations can affect the amount of certain state and federal funds a school receives. In addition, an estimated 42 percent of virtual charter schools had contracts with for-profit management organizations based on GAO's review. These contracts can pose heightened financial and programmatic risks to federal funds, according to Department of Education officials. To better understand the scope of the issue, Education officials told us they required states to report information about their contracts with charter school management organizations, including their for-profit status. However, GAO found inaccuracies and undercounting of management organizations in these data. Education's 2020 Data Strategy calls for using appropriate, accurate data. Unless Education takes steps to improve data quality, and to examine and address barriers to measuring and reporting student attendance consistently, inappropriate allocation of federal funds will remain a risk.

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## Abbreviations

CRDC	Civil Rights Data Collection
CCD	Common Core of Data
COVID-19	Coronavirus Disease 2019
CREDO	Center for Research on Education Outcomes
Education	Department of Education
ESEA	Elementary and Secondary Education Act of 1965
ESSA	Every Student Succeeds Act of 2015
NCES	National Center for Education Statistics
OESE	Office of Elementary and Secondary Education
OIG	Office of Inspector General
SEA	state educational agency
VCR	virtual control record

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January 31, 2022

The Honorable Patty Murray  
Chair, Committee on Health, Education, Labor, and Pensions  
United States Senate

The Honorable Sherrod Brown  
United States Senate

Enrollment in virtual schools—schools that operate entirely or mostly online—has increased faster than enrollment in other types of public schools in recent years. The majority of students in virtual schools are enrolled in virtual charter schools (about 70 percent in school year 2019-2020). Virtual charter schools are public charter schools, and enroll a small but growing portion of K-12 students in the U.S. In school year 2019-2020, just over 300,000 of the 49 million public school students attended virtual charter schools. The Coronavirus Disease 2019 (COVID-19) pandemic, which prompted distance learning for many public schools over the past two school years, accelerated this trend.

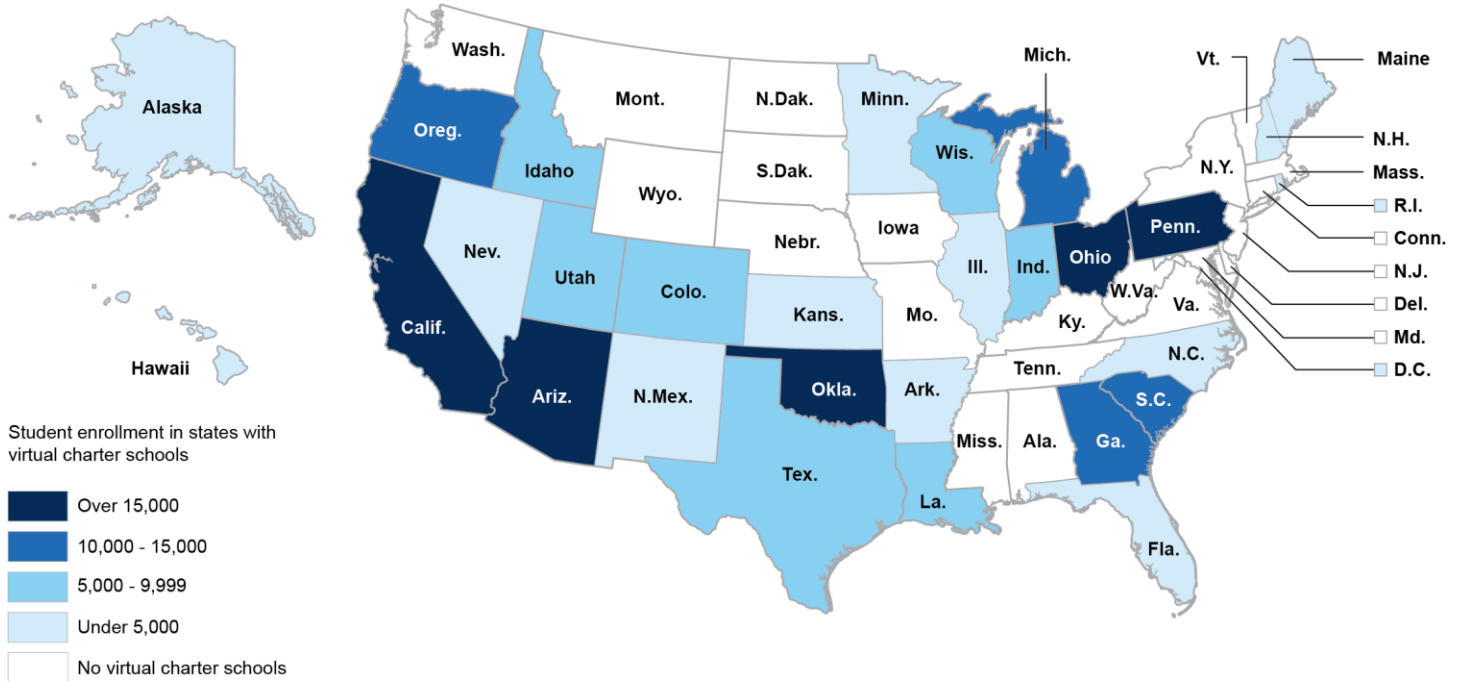
According to Department of Education data for the 2019-2020 school year (the most recent year of data available), 345 virtual charter schools were operating in 30 states (see fig. 1).<sup>1</sup> However, virtual charter school students were mainly concentrated in just a few states and schools. Four states—California, Ohio, Oklahoma, and Pennsylvania—enrolled over 50 percent of all virtual charter school students, and just 10 schools enrolled 25 percent of all virtual charter students. Individual virtual charter schools can generally enroll large numbers of students because they do not have the physical capacity restrictions of brick-and-mortar schools.<sup>2</sup>

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<sup>1</sup>This report focuses on virtual schools that operate entirely or primarily online. We did not include schools that adopted virtual learning due to the COVID-19 pandemic or virtual programs that provide supplemental courses to students who are simultaneously enrolled in brick-and-mortar schools. In addition, this report focuses solely on public schools. Private schools are outside the scope of this report.

<sup>2</sup>Some states limit enrollment in virtual charter schools, either at the school level or statewide.

**Figure 1: States with Virtual Charter Schools, by Student Enrollment, School Year 2019-2020**



Source: GAO analysis of the Department of Education’s Common Core of Data. | GAO-22-104444

Note: In school year 2019-20, Oklahoma had the highest enrollment in virtual charter schools as a percentage of total public school enrollments by state, with 3.1 percent of public school students, followed by Oregon (2.4 percent), Pennsylvania (2.1 percent), Idaho (1.6 percent), and Ohio (1.5 percent).

Virtual schools can be part of a traditional school district, run by a state department of education, or they can operate as charter schools. Like other charter schools, virtual charter schools may operate independently from a school district and can be managed by for-profit or non-profit organizations. In recent years, several states have investigated virtual charter school operators for financial mismanagement and fraud. For example, Indiana conducted a state audit of two virtual charter schools in 2019 and found, among other things, that the schools inappropriately received more than \$68 million in state funds by misrepresenting the number of enrolled and attending students.<sup>3</sup>

You asked us to review virtual charter school operations and oversight. This report examines (1) how virtual charter schools provide student

<sup>3</sup>The state audit did not examine the use of federal funds.

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instruction, (2) how virtual schools' academic proficiency and participation rates on state tests compare to other school types, and (3) the extent to which virtual charter schools' operations present challenges for state and federal oversight.

To address all of our objectives, we analyzed the most recent available federal data from Education's Common Core of Data (CCD), the Civil Rights Data Collection (CRDC), and the Local Education Agency (School District) Finance Survey (F-33) on virtual school enrollment, demographics, school and student characteristics, and school revenues and expenditures.<sup>4</sup> We interviewed state educational agency and charter authorizing officials in California, Ohio, Oklahoma, and Pennsylvania, which we selected because they had the highest enrollment of students in virtual charter schools in 2019-2020. We interviewed school officials in five virtual charter schools in three states (California, Ohio, and Pennsylvania) and two large management organizations that operate schools enrolling virtual charter students nationwide. In addition, we analyzed a nationally representative sample of 80 virtual charter schools for key academic information available on their websites, and information about contracts with management organizations.<sup>5</sup>

To address our second objective, we conducted a multivariate regression analysis using Education's national school-level academic performance data from ED Facts on proficiency rates on state standardized tests from school year 2018-2019, the most recent available. We analyzed virtual school students' performance in reading and math, and used CCD and CRDC data to account for key demographic variables, as well as the state where the school is located to account for differences in state testing standards. We also used ED Facts data to analyze virtual school participation rates on required state standardized tests, compared to other types of public schools. See appendix I for more information on our objectives, scope, and methodology.

We conducted this performance audit from July 2020 to January 2022 in accordance with generally accepted government auditing standards.

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<sup>4</sup>The CCD demographic data are for school year 2019-2020. The F-33 financial data and the CRDC academic data are for school year 2017-2018.

<sup>5</sup>Our sample was designed to ensure the 95 percent confidence interval of percentage estimates have margins of error within +/- 10 percentage points, when the entire sample is analyzed. Since some estimates are based on a subset of the sample, they may have wider confidence intervals, thus we report 95 percent margins of errors/confidence intervals for each generalizable survey estimate.



Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

## Background

### Virtual Instruction

Virtual schools can range from fully virtual schools, in which students take all classes on digital platforms, to hybrid programs that combine virtual and in-person instruction, tutoring, and support. Virtual instruction can be asynchronous (accessed at any time) or synchronous (accessed in real time). (See table 1.)

**Table 1: Description of Asynchronous and Synchronous Virtual Instruction**

Asynchronous instruction	Synchronous instruction
<ul style="list-style-type: none"> <li>• Accessed at any time</li> <li>• Resources include recorded video instruction, online activities and assignments, and hard copy materials</li> <li>• Can accommodate a household's schedule and multiple students in a home sharing a device at different times</li> <li>• Students work at their own pace, but there can be a time lag between accessing materials and getting answers to any questions</li> <li>• Students may not be able to interact with peers</li> </ul>	<ul style="list-style-type: none"> <li>• Accessed live at a specific time</li> <li>• Resources include live virtual classroom instruction, office hours for questions, and small group meetings</li> <li>• Provides opportunities for engagement with teachers and peers in real-time, and this communication may strengthen relationships and develop a sense of community</li> <li>• Technical problems can be a barrier to real-time engagement</li> </ul>

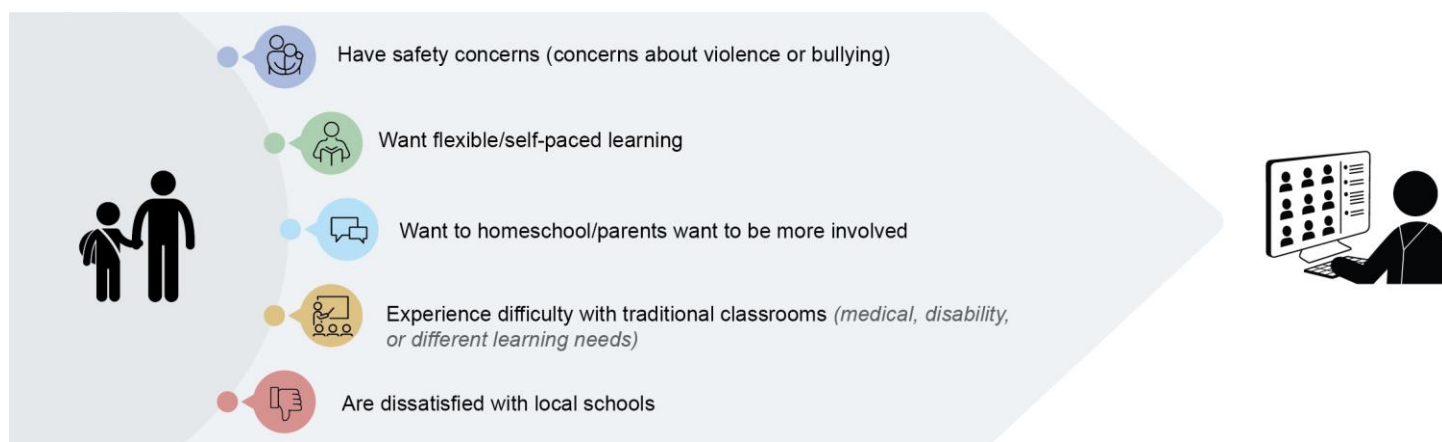
Source: Insight Policy Research, American Institutes for Research, and Department of Education: Promising Practices Brief: Improving Student Engagement and Attendance during COVID-19 School Closures, 2020. | GAO-22-104444

### Reasons Some Families Choose Virtual Schools

Families have cited the flexibility to complete coursework in any location, often at any time, as appealing for many reasons, such as having chronic medical conditions or concerns about bullying or safety. Virtual schooling can also provide supplemental curriculum and instruction to families wishing to home school, the ability to recover academic credits at a flexible pace, or access to more advanced courses than are available at the local school (see fig 2). Research has shown that virtual charter

schools have a high mobility rate, meaning students change schools more frequently than students in other public schools.<sup>6</sup>

**Figure 2: Reasons Families Cite for Choosing Virtual Schools**



Source: GAO analysis of information from virtual charter management organizations, charter authorizer, and researchers. | GAO-22-104444

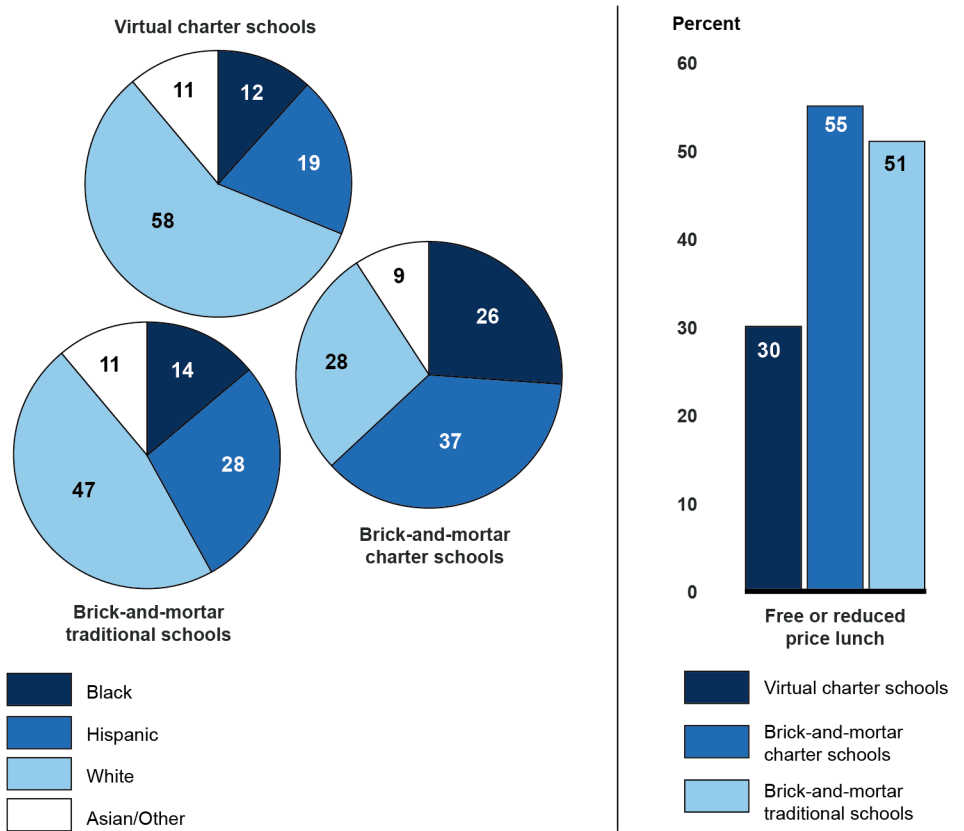
## Virtual Charter School Student Demographics

Students enrolled in virtual charter schools differ demographically from students enrolled in other types of public schools, according to federal student data. Compared to brick-and-mortar charter and traditional schools, virtual charter schools enroll a higher percentage of white students and a lower percentage of students eligible for free or reduced-price lunch, according to school year 2019-2020 data (see fig. 3). Furthermore, about 90 percent of virtual charter schools served high school students (often in addition to other grades), while about 26 percent of brick-and-mortar traditional schools and about 38 percent of brick-and-mortar charter schools served students in grades 9-12. According to school year 2017-2018 data, virtual charter schools enrolled a higher percentage of students with disabilities compared to brick-and-mortar charter and traditional schools; conversely, virtual charter schools

<sup>6</sup>See, for example, James. L. Woodworth, et al., *Online Charter School Study 2015*, Center for Research on Education Outcomes, Stanford University, accessed August 2, 2021, [https://credo.stanford.edu/sites/g/files/sbiybj6481/f/online\\_charter\\_study\\_final.pdf](https://credo.stanford.edu/sites/g/files/sbiybj6481/f/online_charter_study_final.pdf).

enrolled about one-fifth the percentage of English learners compared to brick-and-mortar charter and traditional schools.<sup>7</sup>

**Figure 3: Student Demographics by Public School Type, School Year 2019-2020**



Source: GAO analysis of the Department of Education's Common Core of Data. | GAO-22-104444

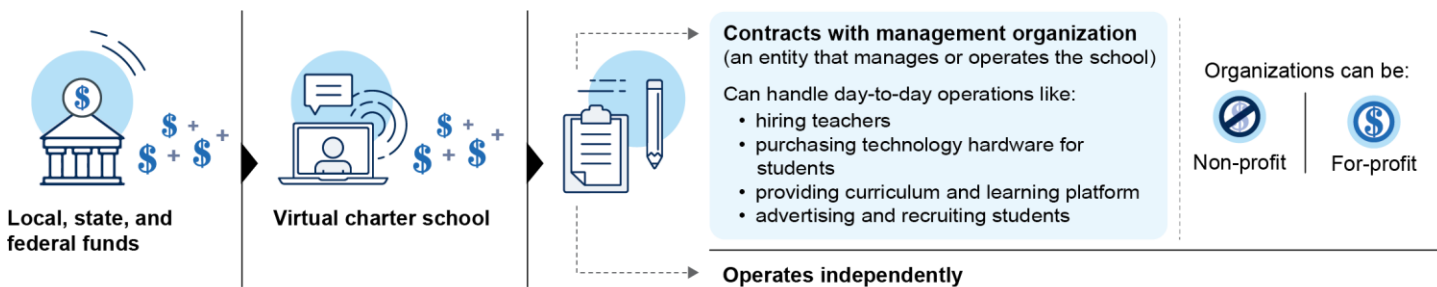
## Charter School Operational Structure and Oversight

Virtual charter schools, like all charter schools, are independently operated public schools. Charter authorizers approve charter schools to open, and hold the schools' charter or operating contracts. In return for more flexibility and autonomy, charter schools must meet specific

<sup>7</sup>According to Education's CRDC data for school year 2017-2018, virtual charter schools enrolled about 14 percent students with disabilities compared to brick-and-mortar charter (about 11 percent) and brick-and-mortar traditional schools (about 13 percent). In that same year, virtual charter schools enrolled about 2 percent English learners compared to brick-and-mortar charter (about 11 percent) and brick-and-mortar traditional schools (about 10 percent).

accountability standards. States determine the structure and oversight role of charter authorizers, which can include school districts, state agencies, or charter school boards. An individual charter school may oversee day-to-day operations itself, or contract with a management organization to run some or most of the day-to-day operations. A management organization can be for-profit or non-profit, and may manage, operate, and provide services to one or more charter schools (see fig. 4). As with all public schools, states monitor academic outcomes and determine per-pupil funding for virtual schools, including virtual charter schools.

**Figure 4: Contracted Management Organizations' Relationships with Virtual Charter Schools**



Source: GAO analysis of information from virtual charter schools, stakeholders and researchers. | GAO-22-104444

Education’s role in administering programs that provide funding to virtual schools is generally similar to its role for all public schools. The Elementary and Secondary Education Act of 1965 as amended, (ESEA), generally requires that states implement a set of high-quality student academic assessments (tests) to be administered to all public school students, including virtual school students.<sup>8</sup> These tests are used in part to help states identify and support under-performing schools. These tests include a range of subjects, such as math and reading or language arts, and are generally administered annually in grades 3 through 8 and at least once in grades 9 through 12.<sup>9</sup> Education officials told us that states are encouraged to assess all enrolled students, and they consider a

<sup>8</sup>The Elementary and Secondary Education Act (ESEA) was comprehensively reauthorized by the Every Student Succeeds Act (ESSA) on December 10, 2015. Pub. L. No. 89-10, 79 Stat. 27 (1965), as amended by Pub. L. No. 114-95, 129 Stat. 1802 (2015). Throughout this report, we refer to ESEA, as amended by ESSA, as ESEA.

<sup>9</sup>We refer to reading or language arts tests as reading tests throughout the report.

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school to have low participation if fewer than 95 percent of students take the annual state test.

School districts, including virtual charter school districts, may receive federal funds through their state educational agency, such as some formula grants under ESEA Title I, Part A (Title I) and the Individuals with Disabilities Education Act.<sup>10</sup> They are also eligible for and received other federal funds, such as COVID-19 relief funds provided through the Elementary and Secondary School Emergency Relief Fund. Attendance information, among other data, is used to allocate certain state and federal funding for public schools, including virtual schools.<sup>11</sup>

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## Most Virtual Charter Schools Use Self-Paced, Asynchronous Instruction and Often Require Sustained Parent Involvement

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### About 70 Percent of Virtual Charter Schools Offer Fully Asynchronous Learning

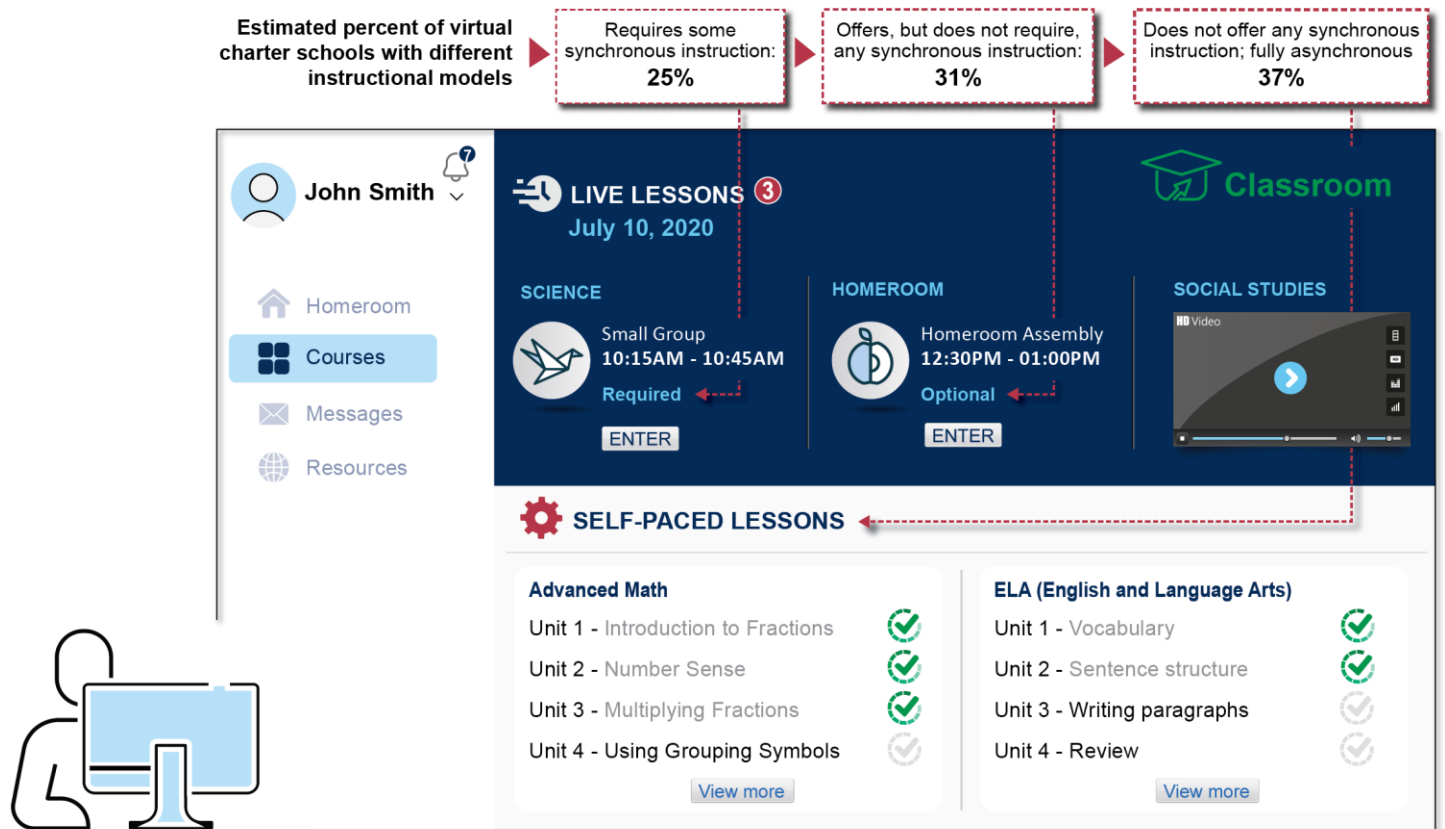
We estimate that just under 70 percent of virtual charter schools either rely completely on self-paced, asynchronous learning or allow students to access all instruction asynchronously, according to our review of a nationally representative sample of virtual charter school websites (see fig. 5).

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<sup>10</sup>Generally, federal funds are allocated to school districts through states and then districts allocate those funds to public schools. Some virtual charter schools operate as their own school district.

<sup>11</sup>Education also administers the Charter School Programs, discretionary grant programs that provide, among other things, additional funds to support high-performing charter schools. However, Education officials told us that, typically, this money goes to brick-and-mortar charter schools, and not directly to virtual charter schools. These officials told us that virtual charter schools in a few states, however, may have received these funds indirectly through their state educational agency.

**Figure 5: Estimated Percentages of Virtual Charter Schools with Different Instructional Models Based on GAO Review of Websites and Schools**



Source: GAO analysis of a generalizable sample of virtual charter school websites. | GAO-22-10444

Note: Estimated percentages do not add to 100 because an estimated 6 percent of school websites do not provide any information on the type of student instruction they provide. At the 95 percent confidence interval, estimates have no more than a +/- 10 percent margin of error.

Asynchronous instructional materials and expectations can vary depending on the school. As part of our virtual charter school website review, we saw examples of schools that advise students to log in a certain number of hours each day to make adequate progress, and that describe the assignments students should complete to stay on track. For example, one website read: “Students are assigned all needed subjects by their supervising teacher through . . . an on-line program . . . . These courses combine direct-instruction videos . . . performances tasks, and assessments . . . . Students are expected to work independently at home every school day to complete all assignments.” Similarly, officials at one school in Ohio said students are expected to log in and make progress in

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their classes at least 25 hours a week, on their own schedule, using a fully asynchronous curriculum the school had purchased. As part of our review, we also saw examples of schools that do not provide their own classes, but provide funds to families to purchase a curriculum of their choosing.

Synchronous class options also vary by school. An estimated 63 percent of schools that offer classes with synchronous instruction reported that the choice to take these classes depends on family preference or a student's needs.<sup>12</sup> For example, according to one school website, "students who are successful with grade level work can choose what time of the day they would like to complete lessons . . . . For students needing additional teacher support, there will be scheduled live sessions throughout the week that students must attend." The amount of synchronous instruction can also vary among students at the same school. For example, school officials in California told us each of their students has an individual learning plan that specifies which courses will be taught via live online classes, taught by a parent, or taught through pre-recorded lessons on an asynchronous digital platform. At this school, decisions on the instructional format are made based on student and family preference, as well as a teacher's assessment of the student's needs.

School officials we interviewed at all five charter schools said accessing curriculum at flexible times is important to meet the needs of families who choose virtual education. These officials also said that asynchronous instruction allows students to move at their own pace, either more slowly if needed, or to graduate early in some cases. However, self-paced, independent learning poses challenges for some students. Officials at two large virtual charter management companies said that families who leave virtual charter schools often state that their children are not independent enough to succeed with asynchronous learning. Similarly, an official at a virtual charter school in Ohio that is dedicated to credit recovery and dropout prevention told us that about half of the students who enroll struggle with the lack of structure and return to a brick-and-mortar school.

While virtual charter schools primarily depend on students learning from home, some of these schools have an in-person component, ranging from

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<sup>12</sup>The 95 percent margin of error is +/- 11.3 percentage points.

optional periodic check-ins to a daily requirement to log into classes from a central location (see text box).

### In-Person Learning and Support in Virtual K-12 Charter Schools

Based on our review of a generalizable sample of virtual charter school websites, an estimated 9 percent of virtual charter schools specify that in-person check-ins are required, and an estimated 36 percent noted that check-ins were available for interested students. (An estimated 46 percent of websites do not provide any information about in-person instruction.) For example, one website we reviewed described how the school operates through 22 learning center locations throughout the state. Students are expected to go to a center every day to complete their online lessons as well as engage in in-person gym class and recess. According to a school official we spoke with in Ohio, before the COVID-19 pandemic, the school offered in-person mentoring and tutoring for interested students at multiple sites.

School officials in California said it is common for families to choose in-person lessons. For example, if a student is learning violin, a teacher from the virtual charter school will provide the standards for a music curriculum, and the school will assist in finding an in-person instructor. We also found that an estimated 31 percent of all virtual charter school websites specify that stipends are available to enrolled families, which can be used to pay for extracurricular activities, among other purchases.

Source: GAO analysis of a generalizable sample of virtual charter school websites and interviews with school officials. | GAO-22-104444

### Virtual Charter School Teachers May Have Few Interactions with Students While Parents Often Act as Instructors

The instructional model of virtual charter schools, which is more reliant on educational technology and less on teachers than in other types of public schools, is reflected in federal public school data. The student-teacher ratio across virtual charter schools was about 75 percent higher than for brick-and-mortar traditional public schools, according to 2017-2018 CRDC data (see fig. 6).

Figure 6: Overall Student-Teacher Ratio by Public School Type, School Year 2017-2018



Source: GAO analysis of the Department of Education's Civil Rights Data Collection. | GAO-22-104444

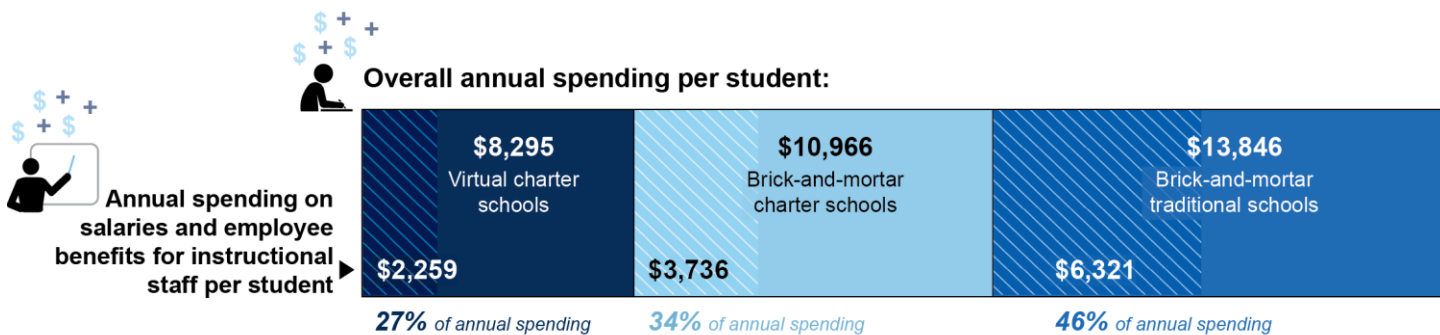
Note: We found substantial variation in the distribution of student-teacher ratios. For example, about 12 percent of virtual charter schools had a student-teacher ratio greater than 40:1, compared to less



than 1 percent of brick-and-mortar traditional schools. The size of a virtual charter school affected the student-teacher ratio as well. Virtual charter schools with fewer than 500 students had a student-teacher ratio closer to brick-and-mortar traditional schools (17:1), whereas virtual charter schools with 3,500 students or more had a higher ratio (30:1).

Available federal public school expenditure data for virtual charter schools that operate as their own school district also reflect the smaller role played by teachers in some virtual charter schools.<sup>13</sup> In school year 2017-2018, the most recent available data at the time of our analysis, these virtual charter schools dedicated about a quarter of their annual spending to salaries and employee benefits for teachers, aides, and other instructional staff (see fig. 7).<sup>14</sup>

**Figure 7: Per Student Expenditures by Public School Type in States with Virtual Charter Schools, School Year 2017-2018**



Source: GAO analysis of the Department of Education’s Local Education Agency Finance Survey. | GAO-22-104444

Note: These data are reported at the district level, so this analysis only includes virtual charter schools that operate as their own school districts, or as part of a district with only other virtual charter schools. We identified 112 virtual charter schools that either were their own school district or were part of a virtual charter school only district in the 2017-2018 survey. Together, these schools comprised approximately 35 percent of virtual charter schools, enrolling approximately 58 percent of students attending virtual charter schools in school year 2017-2018. These findings may not generalize to other virtual charter schools. We compared spending categories for brick-and-mortar

<sup>13</sup>Education’s Local Education Agency Finance Survey is reported at the district level, so this analysis only includes virtual charter schools that operate as their own school districts, or as part of a district with only other virtual charter schools. We identified 112 virtual charter schools that either were their own school district or were part of a virtual charter school only district in the 2017-2018 survey. Together, these schools comprised approximately 35 percent of virtual charter schools, enrolling approximately 58 percent of students attending virtual charter schools in school year 2017-2018. These findings may not generalize to other virtual charter schools. Data for the Local Education Agency Finance Survey 2018-2019 school year became available in December 2021, after we had completed our data analysis.

<sup>14</sup>We compared spending categories for brick-and-mortar schools in states that have virtual charter schools. However, when all states are included in the comparison group, the percent breakdowns and per student spending in the specified categories are similar to those we report above.

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schools in states that have virtual charter schools. When all states are included in the comparison group, the percent breakdowns and per student spending in the specified categories are similar to those we report above.

#### **Virtual Charter Schools and COVID-19 Relief Funds**

According to Education, virtual charter schools were eligible for and received certain COVID-19 relief funds, which were intended to help with changes related to the pandemic, such as the shift to virtual learning. These funds could generally be used for a wide variety of activities to support a school district's response to COVID-19. Officials at virtual charter schools that received these relief funds said they used them for purchasing hot spots for families in need of internet access and hiring additional teachers and mental health staff, among other things. However, officials at one school said they had not yet determined how to best spend the money because they already had everything needed to support their students, who were already learning virtually.

Source: GAO analysis of interviews with the Department of Education and virtual charter schools. | GAO-22-104444

For comparison, brick-and-mortar charter schools dedicated about a third, and brick-and-mortar traditional schools dedicated about half, of their annual spending to these categories. Overall, these virtual charter schools spent about one-third less per student compared to brick-and-mortar schools. These virtual charter schools spent more per student on instructional equipment such as computers, software, and other educational technology compared to brick-and-mortar schools; however, these expenditures comprised 1 percent or less of annual spending regardless of school type (see text box). Virtual charter schools are also eligible for and received federal COVID-19 relief funds, which were intended to help with changes related to the pandemic, such as the shift to virtual learning (see sidebar).

### **Accessing Technology for Instruction**

In school year 2017-2018, virtual charter schools spent about \$86 per student for instructional equipment, compared to about \$49 per student spent by brick-and-mortar charter schools and about \$43 per student spent by brick-and-mortar traditional schools. Instructional equipment represented about 1 percent of virtual charter schools' annual spending, compared to about half of 1 percent of annual spending for brick-and-mortar charter schools and about one-third of 1 percent for brick-and-mortar traditional schools. Based on our review of virtual charter school websites, an estimated 85 percent of school websites specify that the school provides some or all of the technology needed to access classes. In addition, all school officials we interviewed said they provide all needed technology. For example, school officials at one school in Ohio told us they provide laptops to all families, and hotspots or internet reimbursement to families who need it.

Source: GAO analysis of Local Education Agency Finance Survey data and a generalizable sample of virtual charter school websites, and interviews with school officials. | GAO-22-104444

Note: We compared spending categories for brick-and-mortar schools in states that have virtual charter schools.

Access to teachers at virtual charter schools can depend on students or parents reaching out for assistance, according to school websites we reviewed and school officials we interviewed. An estimated 78 percent of all virtual charter school websites provided information about how students can communicate with a teacher outside of a synchronous class.

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For example, one website we reviewed read “assistance [from] the online teacher may be available as needed. Prior arrangements need to be made with the online teacher to schedule such assistance.” Officials at one school in Pennsylvania said teachers may have up to 150 students assigned to a class, but since attendance at live lessons is optional, there are rarely that many students in class. An official at a school in Ohio with only asynchronous instruction described teachers as “graders” because they primarily grade student assignments rather than teach courses.

In contrast, parents or guardians are often expected to participate extensively in instruction and learning during the school day, according to our nationally representative website review and interviews with virtual charter school officials. An estimated 42 percent of all virtual charter school websites specify that an adult must be present to assist with student learning, and the most common time commitment specified for adults was a maximum of 4 to 6 hours daily. In addition, an estimated one-half of the websites list specific tasks the adults are expected to perform. For example, one school’s website stated that school should be a parent’s full-time job, noting “even part-time work can be stressful when you are teaching, grading, and schooling each day.” While school officials said that a parent’s time commitment generally decreases for middle and high school students, one school in Pennsylvania requires families to affirm that an adult will be home during the day to ensure students—even those in 12th grade—complete assigned coursework.

Officials we interviewed at two schools told us that many of the parents in their school community want to be more involved in their students’ educations, which is easier to do in a virtual school. However, officials also said the time commitment virtual charter schools require of parents may challenge some families. According to school and management organization officials we interviewed, the time commitment for parents is another common reason families leave virtual charter schools. Officials at one management organization said families may leave because parents underestimated the time commitment needed or may have changing circumstances such as needing to return to work. Officials we interviewed at both management organizations said they encourage families new to the virtual charter school to speak with experienced families to help them acclimate, and one of the organizations requires parents to watch videos about their role in virtual learning.

While school websites are a major source of information about the features and operations of virtual charter schools, officials also said families learn about their schools through online and in-person

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orientations, word of mouth, and advertising campaigns (see text box). In addition, officials we interviewed at all five schools said they require either an in-person or online orientation for families. Officials in Ohio said that despite required orientations, parents still tend to underestimate the amount of time they will need to spend on the student's education.

#### **Advertising and Recruitment at Virtual Charter Schools**

In addition to their websites, virtual charter schools use a variety of media platforms to advertise their programs and recruit new students. School officials told us that some virtual charter schools use national and regional television and radio commercials to promote their programs, and researchers told us that some virtual charter schools advertise via commercials on children's television networks.

Officials in one state said the bulk of virtual charter school advertising tends to be seasonal. Schools launch multi-million dollar campaigns throughout the summer, including on television and billboards throughout the state, to encourage enrollment for the fall. Officials from one virtual charter school in Pennsylvania said they broadcast television ads on specific networks that appeal to parents, and air the commercials in the mornings when parents might be struggling to get their children ready to go to school and in the evenings, after children are in bed.

Some virtual charter schools also advertise through social media, including Facebook and Twitter. School officials also said virtual charter schools advertise through community events and organizations, such as sponsoring a day at a children's museum. Schools may also host events such as pizza parties, build play structures in shopping malls, and give away branded materials such as stuffed animals and t-shirts.

Stakeholders said that virtual charter schools increased their outreach during the COVID-19 pandemic. During our review, we saw virtual charter school advertisements that described the safety of virtual schooling.

Source: GAO interviews with virtual charter school stakeholders and researchers, and school and state officials. | GAO-22-104444

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## Virtual Charter Schools Have Significantly Lower Rates of Academic Proficiency, and Virtual Schools Have Lower Participation Rates on Federally-Required State Testing

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### Virtual Charter Schools Have Lower Proficiency Rates on State Tests than Other Public Schools

Virtual charter school students have proficiency rates significantly lower than those of their public school peers on state math and reading tests administered in response to federal requirements, according to our analysis of Education's ED Facts data. Because of their lower proficiency rates, fewer virtual charter school students are meeting their state's grade-level achievement standards than are students in brick-and-mortar traditional schools and brick-and-mortar charter schools.

For school year 2018-2019, the most recent available data at the time of our analysis, the national average math proficiency rate for virtual charter schools was 25 percentage points lower than the rate for brick-and-mortar traditional schools and 18 percentage points lower than brick-and-mortar charters (see fig. 8). Similarly, the average reading proficiency rate for virtual charter schools was 9 percentage points lower than brick-and-mortar traditional schools and 5 percentage points lower than brick-and-mortar charter schools. These proficiency rate gaps are statistically significant for both math and reading, even after controlling for several

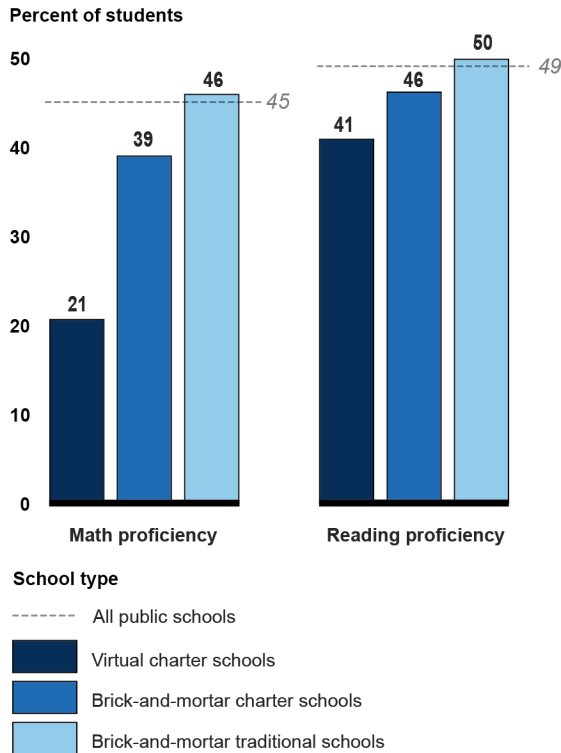
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factors known to affect proficiency rates.<sup>15</sup> Regarding other public virtual schools our analysis showed that the math proficiency rate was 16 percentage points lower than brick-and-mortar traditional schools and 9 percentage points lower than brick-and-mortar charter schools. The average proficiency rate in reading for these schools was 2 percentage points lower than brick-and-mortar traditional schools and 2 percent higher than brick-and-mortar charter schools.

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<sup>15</sup>To identify whether these proficiency gaps remained after controlling for school demographic characteristics, we conducted a multivariate regression analysis that controlled for differences in student demographics that have been shown to influence academic achievement: students' race and ethnicity, percent of students participating in the free or reduced-price lunch program, percent of English learners, and percent of students with disabilities. Further, because each state is responsible for developing and administering its testing system, we also controlled for differences in state testing policies, standards, and proficiency rates across states. Because proficiency rates are school-wide, we also control for grade levels served. Our regression results are associational, not causal. See appendix II for more details on the regression analysis.

**Figure 8: Average Student Proficiency Rates in Math and Reading, by Public School Type, for School Year 2018-2019**



Source: GAO analysis of the Department of Education’s ED $Facts$  data. | GAO-22-104444

Note: Averages are school-wide proficiency rates of those students taking the assessments.

Because we used school-level data, our analysis did not account for certain student-level characteristics that can affect proficiency, such as a student’s academic performance before attending a virtual charter school or student mobility. For example, some virtual charter schools serve students who are academically behind grade level, which in turn may contribute to their lower performance on state assessments.<sup>16</sup> Officials we interviewed from all five schools confirmed that some students come to virtual charter schools academically behind.

To supplement our analysis, we reviewed published research on academic outcomes for virtual charter school students that used student-level data, and our findings are consistent with these studies. Specifically,

<sup>16</sup>Based on our review of virtual charter school websites, an estimated 26 percent of school websites explicitly note that they serve students seeking credit recovery.

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the studies we reviewed show that after controlling for student-level factors such as past performance and student mobility, virtual charter school students still perform below their brick-and-mortar counterparts on state tests. (See appendix III for a full description of the studies we reviewed.)

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### Virtual Schools Have Lower Participation Rates on Required State Tests, and Education Has Not Helped Address Challenges to Increasing Participation

The participation rate for virtual school students on state tests is substantially lower than for students in brick-and-mortar traditional schools and brick-and-mortar charter schools according to our analysis of ED Facts data.<sup>17</sup> For the 2018-2019 school year, the average participation rate in annual math tests was 82 percent for virtual charter school students, compared with 98 percent for brick-and-mortar traditional school students and 97 percent for brick-and-mortar charter school students. For reading tests, the average participation rates were 83 percent for virtual charter school students, 98 percent for brick-and-mortar traditional school students, and 97 percent for brick-and-mortar charter school students. Our analysis also showed that other public virtual schools, regardless of charter status, have low participation rates compared to brick-and-mortar schools. Students' average participation rates at virtual non-charter schools is 84 percent on math tests, and 84 percent on reading tests—rates that are similar to virtual charter schools.

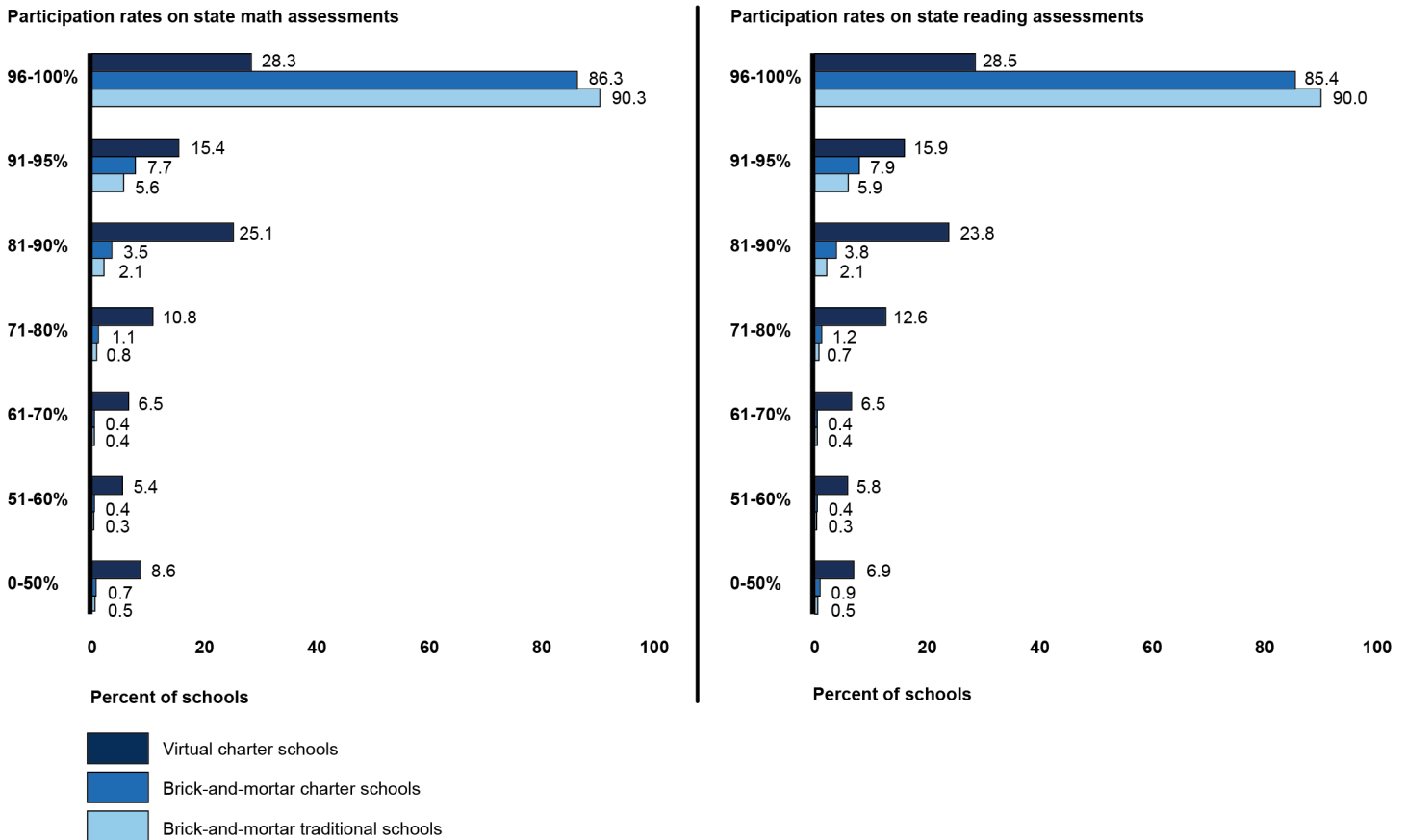
Virtual charter schools also have significantly more variation in student participation rates in state tests than other types of public schools (see fig. 9). For example, about 29 percent of virtual charter schools had student participation rates of 96 percent of students or higher for state reading tests, compared to about 90 percent of brick-and-mortar traditional schools, and 85 percent of brick-and-mortar charter schools. Over 8 percent of virtual charter schools had student participation rates at or below 50 percent for state math tests compared to less than 1 percent of brick-and-mortar traditional schools and brick-and-mortar charter schools.

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<sup>17</sup>Out of an abundance of caution, our analysis was limited to schools with 30 or more students eligible to take the tests, to ensure student privacy.



**Figure 9: Distribution of Student Participation Rates on School Year 2018-2019 State Math and Reading Tests, by Public School Type**



Source: GAO analysis of the Department of Education's EDData data. | GAO-22-104444

Virtual schools' operational model can make administering required state tests and increasing student participation more difficult for schools, according to state and school officials we interviewed. Annual state tests are administered in person in all four selected states. Because virtual schools often do not have a physical building, school administrators typically have to find and rent appropriate spaces for in-person testing. According to school officials from Ohio and Pennsylvania, finding testing spaces that are reasonably close to a school's families is a logistical challenge, especially for schools enrolling students from across a state. For example, officials from an Ohio school that enrolls students state-

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wide told us they had to arrange for 60 testing locations due to an Ohio law requiring a testing center to be within 50 miles of a student's home.

In-person testing may also present difficulties for virtual school families. Families may have to change work schedules, or arrange child care for other children to take a student to a testing location, according to an Ohio virtual charter school official. Students accustomed to studying at home and on their own schedule may find it difficult to take in-person tests in an unfamiliar location, according to Ohio and Pennsylvania school officials. One official added that the large number of parents opting out of testing contributes to its low participation rates.

Under the ESEA, states generally have discretion to determine their testing approach. According to Education officials, states generally contract with test vendors to develop and help administer their tests, and together they have sufficient expertise to address any challenges with administering tests to students attending virtual schools. However, based on our analysis of participation rates across the U.S., lower participation rates in public virtual schools is a widespread challenge. Moreover, school officials in four of the five schools we interviewed told us they are challenged by low participation rates.

At the federal level, Education is responsible for monitoring and overseeing states' implementation of ESEA's programs. Lack of systematic information about why virtual schools have such low participation rates risks hindering states' ability to hold these schools accountable for providing all students with significant opportunity to receive a high-quality education—a key goal of Title I of ESEA. As the agency responsible for administering Title I Education is uniquely positioned to mitigate this risk. For example, determining any patterns in low rates of participation within and among states, identifying common challenges across states that may be contributing to low rates, and sharing strategies to overcome these challenges with states and school districts could help states improve participation rates and help ensure that students availing themselves of this growing sector of public education have a significant opportunity to receive a high-quality education.

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## Challenges Measuring Attendance in Virtual Schools and Relationships with Charter School Management Organizations Pose Increased Financial Risks

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### Challenges Measuring Attendance in a Virtual Environment Increase the Risk of Misallocating Federal Funds

Measuring attendance is critical for assessing learning and determining certain funding, and according to Education and virtual school officials we interviewed, it can be more challenging in a virtual environment than in brick-and-mortar schools. Traditional definitions of school attendance, which have focused on the concept of “seat time”—the presence of the student in a classroom or school activity—are generally not applicable in the virtual environment. According to a July 2020 research brief, there is no established definition of attendance in a virtual environment, and attendance may be measured differently in virtual schools than in schools with physical classrooms.<sup>18</sup> Virtual charter schools measure and report attendance in a variety of ways, including student logins to online platforms, teacher assessments of completed work, and parent attestation (see text box).

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<sup>18</sup>American Institutes for Research, Insight Policy Research, and Department of Education, *Promising Practices Brief: Improving Student Engagement and Attendance during COVID-19 School Closures*, a report prepared at the request of the Department of Education, July 2020.

## Attendance-Taking at Virtual Charter Schools

Our review of virtual charter school websites found that attendance-taking practices vary across schools. We found that an estimated 31 percent of schools report recording attendance daily, an estimated 22 percent record it weekly, and an estimated 3 percent record it monthly. About one-third of virtual charter school websites (an estimated 34 percent) do not provide any information about how attendance is measured at their school.

Examples of statements from virtual charter school websites include:

- *“Attendance...is done through...demonstrated work products and not by time in a classroom as in [a] brick-and-mortar school...”*  
-Virtual Charter School in California
- *“The first Wednesday in October and the second Wednesday in February are Count Days, which is a day that all students must attend (log in to) school and be counted. The school receives funding for each student counted on Count Day.”*  
-Virtual Charter School in Michigan
- *“Each week, parents and guardians are REQUIRED to submit their child’s weekly attendance.”*  
-Virtual Charter School in Arizona
- *“Attendance is taken weekly by certified teachers based on the combination of live lesson attendance and work completion.”*  
-Virtual Charter School in Idaho

Officials we interviewed at five virtual charter schools in three states had slightly different ways of taking attendance. For example, officials from one school in Ohio said they track engagement through a system that monitors keystrokes, which is how the state requires virtual schools to measure attendance. According to Ohio state officials, if a student is actively engaged for the required number of hours, the school will receive the full per-pupil funding from the state; otherwise, it is prorated based on the number of hours of engagement. In contrast, officials at a school in Pennsylvania said they take attendance by monitoring whether a student logs in for live classes or responds to prompts from the teacher to show they are present.

Source: GAO analysis of virtual charter school websites and interview information. | GAO-22-104444

State officials in our four selected states reported measuring attendance at virtual charter schools in different ways, sometimes within a single state. Some officials also described difficulties with attendance reporting in a virtual environment.

- California: State officials said the state uses a teacher’s evaluation of a student’s completed schoolwork as a proxy for seat time in virtual schools. Other charter school officials had concerns about this

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measure for attendance because determining the time-value of schoolwork can be subjective.

- Ohio: Officials said the state now requires virtual charter schools to use student engagement and participation to measure attendance for funding purposes. After they made this change, a large virtual charter school was shut down for inflating its enrollment.
- Oklahoma: Officials said that state law allows virtual charter schools three different options for measuring attendance. Most schools determine attendance based on the number of instructional activities completed within a certain time period, according to state officials. However, state officials expressed uncertainty about whether virtual schools in their state should be funded the same way as brick-and-mortar schools.
- Pennsylvania: Officials said that virtual charter schools are funded based on the average number of days of attendance reported by the school, but there is no statewide monitoring. State officials said the only time they would become involved in attendance and enrollment issues is if a school district questioned a virtual charter school's enrollment numbers.

How states and schools calculate attendance can directly affect the amount of state and federal funds they receive.<sup>19</sup> Attendance information, among other data, is used to allocate certain state and federal funding for public schools, including virtual schools.<sup>20</sup> Education requires states to measure and annually report average per-pupil expenditures, which are based, in part, on average daily attendance data, for all public schools

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<sup>19</sup>Education could not provide the total federal funding distributed to virtual charter schools using attendance-based funding formulas. The School District Finance Survey (F-33) collects revenue data from a subset of virtual charter schools that operate as their own school districts (112 virtual charter schools were identifiable in the 2017-2018 data). According to that data, those virtual charter schools received about \$400 per student in federal revenue.

<sup>20</sup>According to Education, examples of the programs that receive funding using these data, directly or indirectly, include Title I, Part A; Impact Aid; the Education for Homeless Children and Youth program; and the Student Support and Academic Enrichment Grants. Generally states allocate funds to school districts and then districts allocate funds to public schools. Some virtual charter schools operate as their own school district, meaning they may receive funds directly from their state.

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and districts. To do so, states may use either their definition of average daily attendance or the federal definition.<sup>21</sup>

Education officials said the virtual environment makes it more difficult to monitor student attendance and the extent to which instructional services are being provided to students. As a result, there is increased risk that attendance numbers for virtual schools are inaccurate, which translates to an increased risk that virtual schools may receive more or less funding than they should. The difficulty with monitoring student attendance has led to some state audit report findings. For example, one state's audits, conducted in 2015-2016 and 2016-2017, found that a virtual charter school inflated the amount of time it claimed its students were engaged in learning by failing to deduct the time students were inactive online. As a result, the school received nearly \$80 million more from the state than it should have. The school eventually closed.

Substantial differences in measuring attendance in public brick-and-mortar and virtual schools, as well as among virtual schools, can present challenges for federal data collection. In 2021, the National Forum on Education Statistics, an Education advisory group, reported that allowing districts flexibility in how to define and collect attendance data for virtual education or hybrid models—though helpful for the districts—can lead to concerns about how best to capture and align disparate information at the federal level.<sup>22</sup> According to the National Forum on Education Statistics, states and school districts must merge virtual and in-person data on

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<sup>21</sup>The general federal definition of average daily attendance is (i) the aggregate number of days of attendance of all students during a school year; divided by (ii) the number of days school is in session during that year. 20 U.S.C. §7801(1). In school year 2019-2020, Education provided states flexibility for reporting average daily attendance data due to the COVID-19 pandemic.

<sup>22</sup>The National Forum on Education Statistics is dedicated to improving the quality, comparability, and usefulness of elementary and secondary education data while remaining sensitive to data burden concerns. Its membership includes representatives from federal offices involved with education data, including the Department of Education; representatives from state and local education agencies in each of the 50 states, the District of Columbia, and Puerto Rico; representatives from education agencies in the extra-state jurisdictions; and national organizations with an interest in elementary and secondary education data. The group's reports include: *Forum Guide to Attendance, Participation, and Engagement Data in Virtual and Hybrid Learning Models (June 2021)*; *Forum Guide to Virtual Education Data: A Resource for Education Agencies (June 2021)*; and *Forum Guide to Collecting and Using Attendance Data (January 2018)*.

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attendance for federal reporting purposes, and these data may not be comparable. This may lead to disproportionate inaccuracies.

To help states improve student engagement and attendance during remote learning due to COVID-19, Education noted in a January 2021 letter to chief state school officers that tracking regular and consistent student attendance is a high priority, including in a full-time remote environment. In this letter, Education also provided a research brief with some examples of how to track attendance during remote learning.<sup>23</sup> However, Education does not consider this publication to be official agency guidance or policy.

Further, according to written responses from Education to GAO, Education has not provided policy documents on tracking attendance in a virtual environment other than guidance related to the COVID-19 national emergency, despite the fact that many districts across the country established new long-term virtual and hybrid schooling options in the 2021-2022 school year.<sup>24</sup> One of the agency's core functions is to distribute and manage public funds in the form of grants to support the nation's students. Education's 2020 Data Strategy states that strategic use of data depends on the ability to leverage insights from data to drive better operational decision-making, and that the agency must be able to connect fragmented data from disparate sources.<sup>25</sup> It further states that to protect the quality and integrity of data, the agency must ensure that data are appropriate and accurate. Given the implications for federal funding and accountability, absent consistent, reliable attendance information,

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<sup>23</sup>American Institutes for Research, Insight Policy Research, and Department of Education, *Promising Practices Brief: Improving Student Engagement and Attendance during COVID-19 School Closures*, a report prepared at the request of the Department of Education, July 2020. Education said it amended its instructions for taking average daily attendance in January 2021. Education also said it convened an expert panel of State Fiscal Coordinators and local educational agency (LEA)-level personnel in February and June 2021, and they reviewed potential changes in how average daily attendance data are being reported by LEAs and states, and made recommendations to clarify average daily attendance reporting instructions.

<sup>24</sup>According to Education officials, NCES provides assistance to states on reporting accurate and comparable finance data, including quarterly technical workshops with state fiscal coordinators. In addition, in 2021, NCES convened panels of state and district officials to review and develop best practices on reporting funding data.

<sup>25</sup>Department of Education, Data Strategy, *Department of Education Data Strategy* (December 2020).

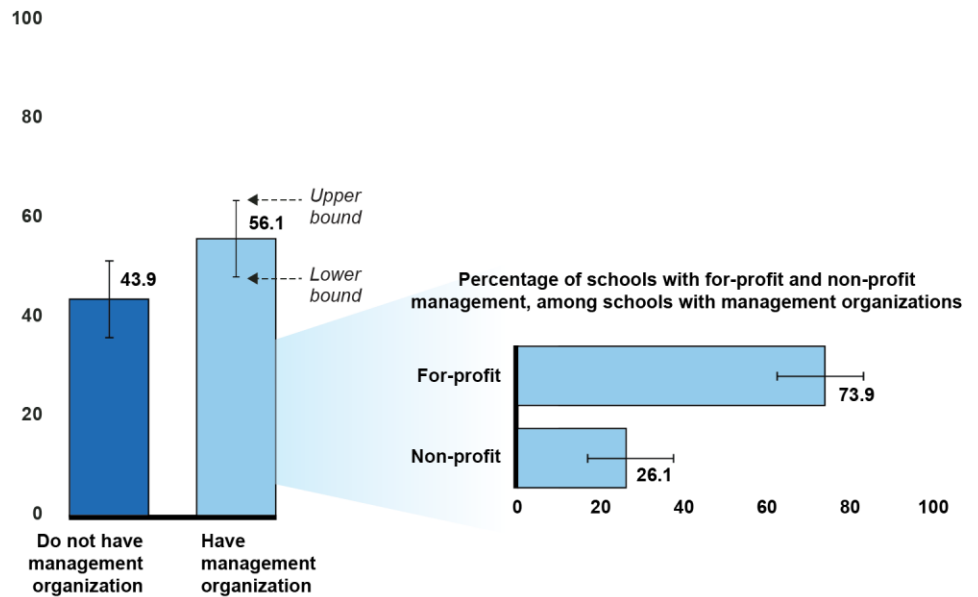
Education will continue to miss opportunities to better manage the risk of misallocated funds associated with virtual schools.

## Education Lacks Reliable Data to Manage Elevated Risks Associated with Charter School Management Organizations

Many virtual charter schools contract with management organizations, and many of these organizations are for-profit (see fig.10). We estimate that nearly 42 percent of all virtual charter schools had contracts with for-profit management organizations as of our review period from April to August 2021.<sup>26</sup> Virtual charter school management organizations provide a variety of services on behalf of their schools. For example, officials from one management organization described how they hired more than a thousand teachers for their schools throughout the country to meet the increased demand for virtual learning due to the COVID-19 pandemic.

**Figure 10: Estimated Percentages of Virtual Charter Schools Contracting with Management Organizations**

Percentage of virtual charter schools with management organizations



Source: GAO analysis of a generalizable sample of virtual charter school websites, virtual charter school financial documents, and information from virtual charter school management organizations and charter school authorizers. | GAO-22-104444

Note: The margin of error on the percent of virtual charter schools that have a management organization (56.1 percent) is +/- 7.9 percentage points. The margin of error on the percent of virtual

<sup>26</sup>According to our analysis, an estimated 56.1 percent of virtual charter schools have a management organization, of which an estimated 73.9 percent are for-profit. This is an estimated 41.5 percent of all virtual charter schools.



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charter schools with management organizations that are for-profit (73.9 percent) is +/- 11.5 percentage points.

These relationships can pose financial and programmatic risks to federal funds, according to Education officials and Education's Office of Inspector General (OIG). Schools that enter into contracts with management organizations may face major programmatic risks if they relinquish too much control over the administration of federal grants, according to Education officials. In addition, Education's OIG issued an audit report in 2016 that found charter schools contracting with management organizations may present elevated risks, including programmatic risks and a lack of accountability for federal funds, and program performance.<sup>27</sup>

According to Education officials, these risks are amplified when the management organizations are for-profit because their interest in profits may outweigh the school's interest in complying with federal program requirements and providing high-quality educational services to students. California authorizing officials told us that the state enacted legislation in 2019 to restrict charter schools' relationships with for-profit management organizations, due in part to a dispute between the state's attorney general and a group of virtual charter schools run by a for-profit management organization.

Education officials said that, in response to the risks associated with management organizations, they began requiring states to provide information about charter school authorizers and management organizations as part of their EDFacts data submissions.<sup>28</sup> However, we

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<sup>27</sup>The report did not comment on or assess whether there may be differences in risks posed by for-profit management organizations compared to non-profit management organizations. Department of Education, Office of Inspector General, *Nationwide Assessment of Charter and Education Management Organizations Final Audit Report*, ED-OIG/A02M0012 (Washington, D.C.: September 2016).

<sup>28</sup>Education officials also said the agency modified its fiscal review protocols to improve states' ability to oversee charter schools with management organizations. In particular, these protocols ask states to complete a self-assessment on their internal controls and added the question: "How does [the state] identify whether charter schools...are operated by Charter Management Organizations (CMOs) [non-profit] or Education Management Organizations (EMOs) [for-profit]?" According to a Frequently Asked Questions document from Education, the EDFacts definition of "management organization" is more expansive than the definition used in some states. For example, a state may consider a management organization to be an entity that contracts with a charter school but not an entity that operates a network of charter schools. According to Education, for federal purposes, states are required to use the broader definition when monitoring or reporting on management organizations.

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found statistically significant differences between our analysis of virtual charter schools' contracts with management organizations and Education's data, as well as inaccuracies in Education's data. Specifically, according to the ED Facts data from school year 2019-2020, 33 percent of virtual charter schools had contracts with management organizations, which is about 23 percentage points lower than the findings from our analysis. Education's data also showed 34 percent of those management organizations were for-profit companies, which is less than half of what our analysis found.<sup>29</sup> In addition, we compared the submissions from states to what we learned from our generalizable analysis and other research, and we identified seven schools with management organizations that states erroneously reported as non-profit.

Education officials told us that they do not know how states determine whether charter schools have contracts with management organizations with respect to their ED Facts data reporting.<sup>30</sup> However, we also found that information on virtual charter schools' contracts with management organizations is often not readily available, which may contribute to states having difficulty collecting this information. For our analysis, we often had to consult multiple sources of information, including IRS forms, charter school authorizer websites, and school financial statement audits, to determine if virtual charter schools were contracting with management organizations. Two researchers we interviewed confirmed that due to a lack of transparency, it can be challenging to identify which organizations and companies a school has contracts with, and whether those are for-profit or non-profit organizations.

Given the elevated risks management organizations can pose, it is critical that Education has reliable information about charter schools' contracts with management organizations, especially with the growth in the virtual

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<sup>29</sup>The 95 percent margin of error for our estimate of the percentage of virtual charter schools with for-profit management, among virtual charter schools with management organizations, is +/- 11.5 percentage points.

<sup>30</sup>Education officials also told us that sometimes, through annual performance reports or compliance monitoring, the agency does receive anecdotal information from states about how they determine charter school contracts with management organizations. Education officials said they have less information about for-profit management organizations because they are not recipients of direct grant funding through the Charter School Programs and so Education does not conduct full monitoring or oversight of these organizations. As previously mentioned, the Charter School Programs are discretionary grant programs that provide, among other things, additional funds to support high-performing charter schools.

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charter school sector. However, Education depends on states to accurately report this information. Education's 2020 Data Strategy states that to protect the quality and integrity of data, the agency must ensure that data are appropriate and accurate.<sup>31</sup> Education officials said they have begun initial examinations of the data on management organizations and are aware of some inaccuracies. To help rectify these data quality issues, Education officials acknowledged that it may be necessary to modify the instructions for data submissions, including clarifying the definition of a management organization. Such efforts could benefit from knowing the factors causing states to misreport these relationships.

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## Conclusions

Virtual charter schools—the largest sector of virtual schools—are the fastest growing type of public school in the U.S., and the COVID-19 pandemic has amplified interest and enrollment in virtual education, including in virtual charter schools. However, virtual schools face challenges that can affect students' academic achievement and that could result in the misallocation of federal funding. While these challenges are primarily the responsibility of state and local officials, our analyses highlight the need for Education to help states and virtual schools address these challenges. For example, virtual schools generally have significantly lower rates of academic proficiency, and also have lower student participation on federally-required state testing—a key component used to measure school achievement. By better understanding the barriers that hinder student participation in these tests, and by sharing strategies for overcoming those barriers with states, Education has an opportunity to help ensure that students in public virtual schools have significant opportunity to receive a high-quality education, a key purpose of Title I of ESEA.

Virtual schools also carry elevated financial risks, due in part to challenges with accurately measuring student attendance in a virtual environment, which is often a component of funding formulas for certain state and federal programs. Inconsistent measuring of student attendance in virtual schools can lead to a misallocation of funds across public schools. It is critical that Education examine and address barriers to measuring and reporting student attendance counts, particularly as many states and districts are establishing long-term virtual and hybrid schooling options.

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<sup>31</sup>Department of Education, Data Strategy, *Department of Education Data Strategy* (December 2020).

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In addition, a large proportion of virtual charter schools contract with management organizations, and these relationships can present additional financial and programmatic risks. Education officials have acknowledged these risks and have stated these risks are heightened with for-profit management organizations. In an effort to assist states and appropriately oversee this growing sector of public education, Education has started requiring states to report data on virtual charter school contracts with management organizations, including collecting data on the for-profit status of these organizations. However, given the significant differences between the results of our analysis and Education's data, as well as the inaccuracies we found in the data reported by states, Education cannot measure and properly mitigate elevated financial and programmatic risks unless it takes steps to improve the data quality.

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## Recommendations for Executive Action

We are making the following three recommendations to Education:

The Secretary of Education should examine the significantly lower participation rates of students attending public virtual schools on required state standardized tests to identify challenges contributing to the lower participation, and share strategies to help states increase the participation of these students. (Recommendation 1)

The Secretary of Education should take steps to help states ensure that they report comparable attendance data across their virtual and brick-and-mortar schools for federal reporting purposes. (Recommendation 2)

The Secretary of Education should identify the factors that cause underreporting and misreporting of information on management organizations that contract with charter schools, including virtual charter schools, and take steps to help states report accurate data on these contracts. (Recommendation 3)

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## Agency Comments and Our Evaluation

We provided a draft of this report to Education for review and comment. In its formal comments, which are reproduced in appendix IV, Education agreed with all three recommendations. Education also provided technical comments, which we incorporated, as appropriate.

In its formal comments, Education noted that while issues related to attendance data with regard to virtual charter schools are primarily the responsibility of state and local officials, it has given this issue special attention as many other public schools have offered remote learning as a result of the pandemic. However, as we note in the report, Education does not consider this information to be official agency guidance or policy.

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Officials also said the Institute of Education Sciences has made significant outreach efforts over the last two years to gather input from state and local officials, and to disseminate information useful to all schools including virtual charter schools. In addition, Education noted that it has funded a technical assistance center to support states and districts in tracking attendance and addressing chronic absenteeism, and that states can use information developed through this center for virtual schools as needed. We appreciate the positive steps that Education has taken in this area.

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As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the appropriate congressional committees, the Secretary of Education, and other interested parties. In addition, the report will be available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (617) 788-0580 or [nowickij@gao.gov](mailto:nowickij@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.

A handwritten signature in black ink that reads "Jacqueline M. Nowicki". The signature is fluid and cursive, with the first name being the most prominent.

Jacqueline M. Nowicki, Director  
Education, Workforce, and Income Security Issues

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# Appendix I: Objectives, Scope, and Methodology

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This report examined (1) how virtual charter schools provide student instruction, (2) how virtual schools' academic proficiency and participation rates on state tests compare to other school types, and (3) the extent to which virtual charter schools' operations present challenges for state and federal oversight.

To address these objectives, we used the following methodologies, which we describe in detail below:

- Reviewed federal documentation on academic and financial accountability for virtual charter schools and interviewed federal officials.
- Analyzed the most recently available federal data from Department of Education's (Education) Common Core of Data (CCD) and the Civil Rights Data Collection (CRDC)
- Used Education's EDFacts data to analyze school participation rates in required state standardized tests.
- Conducted a multivariate regression analysis using EDFacts data on proficiency rates on state tests from states with virtual charter schools.
- Conducted a literature review on student academic outcomes in virtual charter schools.
- Analyzed a representative sample of virtual charter schools for (1) key academic information available on their websites and (2) information about contracts with management organizations.
- Interviewed state and charter school authorizing officials from California, Ohio, Oklahoma, and Pennsylvania and school officials from California, Ohio, and Pennsylvania.

We also took several steps to inform each of our methodologies and provide background for our objectives. To better understand the previous research on virtual charter schools, we interviewed researchers at Mathematica, the National Education Policy Center, and the National Center for Research on Education Access and Choice. To better understand policies and trends on virtual charter schools, we interviewed officials at the Aurora Institute, the California Charter Schools Association, the Center for American Progress, the Education Commission of the States, the Digital Learning Collaborative, the National Alliance of Public Charter Schools, and the National Association of Charter School Authorizers.

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## Federal Oversight of Virtual Charter Schools

To better understand the federal role in virtual charter schools, we interviewed officials from Education's National Center for Education Statistics (NCES), as well as Education's Office of Elementary and Secondary Education (OESE) and Office of the Inspector General (OIG). We also asked officials about their role in the agency's collection of data on virtual charter schools, including attendance data; guidance or policies related to virtual charter schools, including school contracting and attendance taking; and monitoring and oversight of virtual charter schools, among other topics. We also asked about guidance related to virtual or remote learning as a result of COVID-19.

We reviewed reports on federal attendance documentation, including NCES's National Forum on Education Statistics' 2021 report, Forum Guide to Attendance, Participation, and Engagement Data in Virtual and Hybrid Learning Models; its 2018 report, Forum Guide to Collecting and Using Attendance Data; and its 2009 report, Every School Day Counts: The Forum Guide to Collecting and Using Attendance Data. We also reviewed a number of OIG audit reports on charter schools, including its 2016 report, Nationwide Assessment of Charter and Education Management Organizations, and its 2010 report, Charter School Vulnerabilities.

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## Federal Data Analyses

### Common Core of Data

To determine the number of virtual charter schools and the states these schools operate in, we used Education's national data on K-12 public schools in the CCD for school year 2019-2020, the most recent available at the time of our analysis. NCES administers the CCD survey annually to collect a range of data from state educational agencies (SEAs) on all public schools and school districts in the nation. These data include information on a number of school characteristics such as school type (e.g., traditional public school, charter school, etc.), student demographics, and enrollment trends. We used CCD data to examine and compare enrollment trends and demographics of virtual charter school students and students in other types of public schools.<sup>1</sup>

We used Education's Common Education Data Standards to determine the scope of virtual charter schools included in our review. The CCD defines three types of virtual schools: Full Virtual, Face Virtual, and

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<sup>1</sup>We compared virtual charter schools to traditional schools (non-charter, brick-and-mortar schools), and brick-and-mortar charter schools.

Supplemental Virtual. A Full Virtual school is defined as a school having no physical building where students meet with each other or with teachers and all instruction is virtual. A Face Virtual school is defined as a school focusing on a systematic program of virtual instruction but includes some physical meetings among students or with teachers. A Supplemental Virtual school is defined as a school offering virtual courses but virtual instruction is not the primary means of instruction. Based on these definitions, as well as discussions with NCES officials, we determined that charter schools that identified as either Full Virtual or Face Virtual were within our scope. We determined that schools identified as Supplemental Virtual were outside of our scope because our review focused on schools whose primary instructional model is virtual.

The CCD identified 349 schools as being either Full Virtual or Face Virtual. To confirm that the schools identified by CCD were correctly coded as virtual schools, the team reviewed 171 school websites, including all Face Virtual and certain Full Virtual schools, to ensure that schools were correctly coded as virtual charter schools.<sup>2</sup> Based on our review of their websites and other documentation, we found three schools we determined to be brick-and-mortar schools, and one school that we determined to be Supplemental Virtual. As a result, 345 virtual charter schools operating in 30 states were deemed to be within the scope of our review.

We used CCD's Local Education Agency (School District) Finance Survey (F-33) for school year 2017-2018, the most recent available at the time of our analysis, to collect information on schools' revenues and expenditures.<sup>3</sup> The annual survey provides finance data for all school districts that provide free public elementary and secondary (prekindergarten (pre-K) through grade 12) education in the U.S. Because these data are at the district level, we were only able to analyze data for virtual charter schools functioning as their own independent school districts, or as part of a district with only other virtual charter schools. We identified 112 virtual charter schools that either were their own school

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<sup>2</sup>We reviewed a Full Virtual identified school if: the school's state reported data on three or fewer virtual charter schools, the state did not report data on virtual charter schools in the prior year, or the school was classified as a different school type in the prior year.

<sup>3</sup>State educational agencies annually provide these data on behalf of their school districts to NCES and the Census Bureau's Economic Reimbursable Surveys Division. The Census Bureau releases the survey as the F-33 Survey, F-33 being the number of the form used by states to complete the survey.



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district or were part of a virtual charter school-only district in the fiscal year 2018 survey.

Civil Rights Data Collection

To determine what is known about enrollment of students with disabilities and English learners, as well as ratios of students to teachers and support staff in virtual charter schools, we analyzed CRDC data for school year 2017-2018, the most recent available at the time of our analysis. The CRDC is a biennial survey that Education requires nearly every public school and district in the U.S. to complete. The survey collects data on public schools (pre-K through grade 12), including disciplinary actions, enrollment, school and student characteristics, and types of school staff.

EDFacts

To examine virtual charter school students' participation in required state testing, as well as proficiency rates on these tests, we analyzed Education's EDFacts data for school year 2018-2019, the most recent available at the time of our analysis.<sup>4</sup> EDFacts is an Education initiative to centralize data provided by SEAs, including performance data on public schools (pre-K through grade 12), and financial grant information.<sup>5</sup>

Participation analysis. We used EDFacts participation data to report on the percentage of students participating in required state tests by school type. Due to the sensitive nature of the data, we excluded schools with fewer than 30 valid enrollments from the analysis. This resulted in eliminating 0.28 percent of all eligible students from the analysis, including no more than 0.50 percent of virtual charter school students.

Multivariate regression analysis. We used EDFacts proficiency data to report on the school-wide percentage of students scoring proficient on required state tests by school type. We also conducted a multivariate regression analysis to estimate the association between virtual instruction and proficiency on annual math and reading or language arts tests. Due to the sensitive nature of the data, we excluded schools with fewer than 30 valid test scores resulting in 0.30 percent of the scores of all students eligible to take required state tests being eliminated from the analysis, including no more than 0.66 percent of the scores of virtual charter school students. In our regression model, we controlled for grade levels served

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<sup>4</sup>The data were provided by Education and contained information not publicly available at the time of our analysis.

<sup>5</sup>The number of schools and students reported in EDFacts differ from the CCD because students enrolled in schools and grades that are not tested are not reported in EDFacts. The EDFacts enrollments also cover enrollments for the time period for the state assessments that may differ from how schools report attendance for the CCD.

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since proficiency rates may differ systematically across grade levels. We also controlled for the state the school is located in, to account for the fact that test standards are determined at the state level.

In addition, we used 2018-2019 CCD data to control for student racial demographics, participation in the free or reduced-price lunch program, and grades served. We used CRDC data to control for the number of students with disabilities and English learners. Although the CRDC data were one year older than the CCD and ED Facts data, we used them because these variables are not present in ED Facts or the CCD at the school level. See appendix II for additional details on the regression analysis.

We determined these federal data were sufficiently reliable for the purposes of our reporting objectives by reviewing relevant documentation, interviewing knowledgeable Education officials, and testing for missing data, outliers, and other potential errors.

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## Literature Review

To inform our regression analysis and to report on what recent studies say about the performance of students in virtual charter schools relative to students in brick-and-mortar schools, we conducted a literature review. We limited the review's scope to studies (1) published in 2015 or later, and (2) containing original research using student-level data to study the effect of full-time virtual charter school instruction on student proficiency on standardized tests in math and/or reading or language arts. We excluded research on blended programs or individual online courses.

Our search identified 13 studies that met these criteria. Two GAO economists reviewed the studies in detail, including their data sources, methods, limitations, and key findings. Of the 13 identified studies we excluded four studies because they did not use student-level data or they lacked rigorous methods. The nine studies selected for inclusion used student-level data to estimate the effect of virtual school attendance on student proficiency in math and reading or language arts. In addition, all of the studies selected controlled for prior student achievement, and one study controlled for student mobility—a term that refers to a student changing schools during the school year. To facilitate comparison across different grades and states, the papers generally reported results in terms of standard deviations on the proficiency tests rather than as raw scores. For more details on the literature review as well as a list of the included studies, see appendix III.

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## Generalizable Website Review

To address our research questions, we reviewed a stratified random sample of virtual charter school websites. The findings reported are generalizable to all virtual charter school websites nationally. We used a data collection instrument to collect information about:

- The types of students the school particularly serves or targets
- How student attendance is recorded and documented
- Technology requirements
- Expectations for family involvement
- The amount or proportion of asynchronous (e.g., independent work, videos, self-paced) and synchronous learning (e.g., class meetings, live lessons)
- How students work with and communicate with teachers.

We systematically reviewed school websites for this information. Beginning on the website's home page, we checked links, menu options, or drop-down navigation tools to find information. We also reviewed relevant attachments, such as student or parent handbooks. In some cases, we also skimmed promotional videos meant for students and families.

To develop our sampling frame, we used the Local Education Agency Universe database from Education's CCD for the 2019-2020 school year. The population for the sample frame was the same population of schools described in CCD above. We excluded from our sampling frame any virtual charter schools that were open in the 2019-2020 data but were listed as closed in Education's CCD preliminary school directory file for the 2020-2021 school year. This resulted in dropping eight schools, with a final population size of 337 in-scope virtual charter schools.

To ensure variation in school operation type, we stratified the population using three design variables: (1) Whether the virtual charter school is managed by one of two large, national virtual charter school management organizations; (2) Whether the school's enrollment size is small/medium or large/extra-large; and (3) Whether the virtual charter school offers any grade from pre-K to 5.<sup>6</sup> A generalizable stratified random sample of 80

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<sup>6</sup>Each management organization uses similar website formats for all of its managed schools. We used the presence of these organizations as a strata to avoid oversampling websites from these two companies.

virtual charter schools was chosen from this population, proportionally allocated across the strata as outlined in table 2.

**Table 2: Population and Sample Counts of In-Scope Virtual Charter Schools across Strata**

Strata	Management organization	Size	Offers Pre-K to 5	Population size	Sample size
1	No	Small/Medium	Yes	123	28
2	No	Small/Medium	No	104	24
3	No	Large/ Extra Large	Yes	20	5
4	No	Large/Extra Large	No	5	2
5	Yes	Small/Medium	Yes	33	8
6	Yes	Small/Medium	No	25	6
7	Yes	Large/Extra Large	Yes	27	7
				337	80

Source: GAO analysis of a generalizable sample of virtual charter school websites. | GAO-22-104444

We reviewed websites from April to July 2021. During the review, we identified two schools that had closed, so these were removed from the sample and replaced with the next randomly selected school pulled from the same strata as the original school. We took steps to minimize non-sampling errors, including pretesting and revising the data collection instrument and having two analysts independently review each website and reconcile any differences in data collected.

Because we followed a probability procedure based on random selections, our sample is only one of a large number of samples that we might have drawn. Since each sample could have provided different estimates, we express our confidence in the precision of our particular sample's results as a 95 percent confidence interval (e.g., the margin of error is plus or minus 7 percentage points). This is the interval that would contain the actual population value for 95 percent of the samples we could have drawn. Our sample was designed to assure that the 95 percent confidence interval of percentage estimates have margins of error within +/- 10 percentage points, when the entire sample is analyzed. Since some estimates are based on a subset of the sample, they may have wider confidence intervals, thus we report the margins of error for the 95 percent confidence interval for each generalizable survey estimate.

**Management Organization Review**

To determine the extent to which virtual charter schools contract with outside entities for management services, we reviewed a nationally representative sample of virtual charter schools to estimate the

percentage that are managed by for-profit or non-profit organizations. For the review, we used the same generalizable random sample of 80 schools used for the website review, described above. We used a data collection instrument to systematically review the schools for information about any contracts with management organizations, and reviewed schools from April to August 2021.

We had identified 21 schools as contracting with a for-profit management organization when we developed the generalizable sample. For the remaining 59 schools, we took the following steps as needed to identify any management contracts and determine whether these organizations were for-profit or non-profit:

- We reviewed SEA websites for the states where schools reside.
- We reviewed the virtual charter school authorizer website for the school and searched for information indicating if the school does or does not have a contract with a management organization.
- We analyzed the latest available Form 990 for the school. Form 990s are publicly-available Internal Revenue Service forms filed annually by tax-exempt organizations.<sup>7</sup> These forms include more detailed information about virtual charter schools' activities and governance, revenue, and expenses than information available from NCES, because organizations report itemized revenue and expenses on their Form 990s.
- For any remaining schools for which we were not able to identify contractor information using the sources described above, we reviewed the school websites and any other available documents for any pertinent information.

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## Interviews with State, Authorizer, and School Officials

To address our research questions, we interviewed state and authorizer officials from four states: California, Ohio, Oklahoma, and Pennsylvania. We selected these states because they had the highest enrollment of students in virtual charter schools in 2019-2020, according to CCD data. Together, these states enrolled more than half of all virtual charter school students.

For each state, we spoke to SEA officials responsible for virtual charter schools. Because the virtual charter school authorizing structure can vary

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<sup>7</sup>Charter schools, including virtual charter schools, are generally tax-exempt and required to file Form 990s. Other types of public schools do not typically fill out Form 990s.

by state, we spoke to different authorizing entities based on the state. For Pennsylvania and Oklahoma, we spoke to officials at the state agency responsible for authorizing virtual charter schools. For Ohio, we spoke to officials at the authorizing agency responsible for the largest number of virtual charter schools in the state. For California, we spoke to an organization representing hundreds of school districts or county offices of education that act as virtual charter school authorizers. In these interviews, we discussed the state's enrollment trends, academic assessments, and funding for virtual charter schools, as well as any strategies or challenges in holding virtual charter schools accountable as compared to other public schools.

For California, Ohio, and Pennsylvania we interviewed officials at five virtual charter schools, which we selected to vary based on grade levels served, student enrollment size, and whether they operated independently or contracted with an outside management organization. In some cases, we asked state officials to recommend and assist with contacting school officials. In these interviews, we discussed the academic characteristics of virtual charter schools, including coursework and models of instruction, student attendance and engagement, the role of teachers and management organizations, any challenges related to required state testing, and strategies for meeting the needs of this population of students.

We also interviewed representatives from two of the largest providers of online instruction in the country. In these interviews, we discussed virtual charter school enrollment trends; state policies related to virtual charter schools, including attendance and required state testing; and the role of teachers and management companies in virtual charter schools.

Information we gathered from these interviews, while not generalizable, provided insight into the conditions present in the states and schools at the time of our interviews, and may be illustrative of efforts in other states and schools.

We conducted this performance audit from July 2020 to January 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

# Appendix II: Analysis of Test Proficiency Data

In this appendix, we provide additional descriptive information on selected school-level characteristics by school type, as well as the regression methodology we used to estimate the proficiency gaps between virtual charter schools and other school types, and additional regression results.

For our proficiency analysis, we used school-level student proficiency data from ED Facts for school year 2018-2019, which reports the percent of students scoring “proficient” out of all students who took the state assessments, separately for math and for reading tests.<sup>1</sup> To protect student privacy, we excluded the scores for schools with fewer than 30 scores; in total, these comprised less than half of 1 percent of all test scores in math and reading.<sup>2</sup> (See table 3.)

**Table 3: Number and Percent of Schools and Scores Excluded from the Proficiency Analysis**

Subject	All schools		Virtual charter schools	
	Schools suppressed	Valid scores in suppressed schools	Schools suppressed	Valid scores in suppressed schools
Math	5820 (6.5%)	78020 (0.30%)	67 (20.3%)	891 (0.64%)
Reading	5694 (6.4%)	76579 (0.29%)	66 (20.1%)	904 (0.66%)

Source: GAO analysis of the Department of Education’s ED Facts data. | GAO-22-104444

Note: Excluded schools had fewer than 30 valid scores, consistent with the Department of Education privacy protections.

We conducted a two-part analysis examining four mutually exclusive types of schools:

First, we conducted a descriptive analysis to examine student demographics and proficiency rates for virtual charter schools compared to the other three school types. To do this, we supplemented the ED Facts data with data on schools’ racial/ethnic demographics (percent of students as Black, Hispanic, White, Asian, or Other race) as reported in the 2018-2019 Common Core of Data (CCD). For socioeconomic status, we used the share of students eligible for free or reduced-price lunch. We also used the percentage of students with disabilities and the percentage

<sup>1</sup>We refer to reading or language arts tests as reading tests throughout the report.

<sup>2</sup>In the EdFacts public use file, schools with fewer than 30 valid scores are either suppressed or presented in a wide range to protect student privacy.

of students with limited English proficiency from the 2017-2018 Civil Rights Data Collection (CRDC).

Second, we conducted multivariate regression analysis to examine whether observed differences in proficiency rates across the four school types were statistically significant when we controlled for these demographics.

**Descriptive Analysis**

We report descriptive statistics by school type for the schools in ED Facts that have 30 or more valid scores in either math or reading in table 4.<sup>3</sup> These statistics are reported at the school level, so the reported figures are the mean school-wide percentages; for example, on average, percent enrolled of Black students among the virtual charter schools in our analysis was 9.0 percent.

**Table 4: Descriptive Statistics for Variables Used in GAO’s Analysis**

	Virtual charter schools	Brick-and-mortar charter schools	Brick-and-mortar traditional schools	Virtual non-charter schools
<b>EDFacts 2018-2019</b>				
Percent proficient math	20.6	38.9	45.8	29.7
Percent proficient reading	40.8	46.1	49.8	47.9
<b>Common Core of Data (CCD) 2018-2019</b>				
Percent Black	9.0	26.8	14.1	8.7
Percent Hispanic	19.4	33.8	23.8	18.7
Percent White	60.8	30.5	52.0	59.6
Percent Asian	2.6	4.0	4.5	2.1
Percent Other	8.3	4.9	5.5	10.9
Percent free reduced-price lunch	41.9	59.9	52.9	39.4
Has kindergarten	64.8	62.5	55.9	49.3
Has grade 1	65.5	63.2	56.8	49.8
Has grade 2	65.5	63.4	57.4	49.8
Has grade 3	66.3	63.8	59.4	52.0
Has grade 4	67.4	64.0	59.1	52.8
Has grade 5	68.2	65.2	57.2	54.2

<sup>3</sup>For math, the sample size is 83,417 schools (5,896 brick-and-mortar charter, 77,031 brick-and-mortar traditional schools, 263 virtual charter schools, and 227 virtual non-charter schools). For reading, the sample size is 82,878 schools (5,917 brick-and-mortar charter schools, 76,469 brick-and-mortar traditional schools, 263 virtual charter schools, and 229 virtual non-charter schools).



Appendix II: Analysis of Test Proficiency Data

	Virtual charter schools	Brick-and-mortar charter schools	Brick-and-mortar traditional schools	Virtual non-charter schools
Has grade 6	78.0	66.4	37.0	71.6
Has grade 7	83.7	63.0	30.0	76.0
Has grade 8	84.1	61.2	30.1	76.0
Has grade 9	91.3	37.5	22.5	84.7
Has grade 10	91.3	36.5	22.2	85.2
Has grade 11	90.9	35.6	22.1	84.7
Has grade 12	90.2	34.6	22.1	83.8
<b>Civil Rights Data Collection (CRDC) 2017-2018</b>				
Percent limited English proficiency	1.7	10.5	10.0	4.1
Percent students with disabilities	13.5	11.7	13.8	8.3

Source: GAO analysis of the Department of Education’s CCD, CRDC, and EDFacts data. | GAO-22-104444

We also calculate the mean proficiency in math and reading for all schools: (See table 5.)

**Table 5: Mean Proficiency Averages for All Public Schools, 2018-2019**

Subject	Mean school-wide proficiency rate (all public schools)	Number of schools included
Math	45.3	83417
Reading	49.5	82878

Source: GAO analysis of the Department of Education’s CCD, CRDC, and EDFacts data. | GAO-22-104444

## Regression Analysis

To investigate whether observed differences in proficiency rates might be the result of students’ demographic characteristics rather than school type, we controlled for additional variables using multivariate regression. Specifically, we estimated the percentage point difference in proficiency rates (proficiency gaps) separately for math and reading, for virtual charter schools compared to other school types. To perform this analysis, we developed one main model, as well as four alternative models to better understand the degree to which different models or combinations of key variables may impact our results.

We estimated the following linear regression model, separately for math and reading:

$$\text{Proficiency} = \alpha + \beta \cdot \text{school type} + \delta \cdot x + \varepsilon$$

Where  $x$  is a vector of covariates for a particular school,  $\delta$  is a vector of parameters, and  $\epsilon$  is a normally distributed random error term with mean zero. “School type” is a series of binary variables each taking value one if the school is a brick-and-mortar charter school, brick-and-mortar traditional school, or virtual non-charter school respectively, and zero otherwise. Thus virtual charter schools are the omitted school type category and the estimated  $\beta$  coefficient gives the estimated proficiency gap between virtual charter schools and each other school type after controlling for the other school characteristics.

We re-analyzed the data using alternate models or sets of explanatory variables to explore the effects of including or excluding certain variables to address the possibility that the overall findings from our main model could be changed by an alternate specification. We ran five different regression models for each outcome variable, with different sets of controls or specifications. The different models are as follows.

- Model 1 estimates the differences with only controls for the state of the school, modeled as a series of binary variables, one for each state. This controls for systematic differences between states, for example, differences in state testing requirements, but not student demographic characteristics.
- Model 2 estimates the differences with controls for the state and the 2018-2019 CCD school characteristics (racial demographics, percent free or reduced-price lunch, and grade levels served).
- Model 3 includes the controls from model 2 plus demographic variables from the 2017-2018 CRDC (percent of English learners, and percent students with disabilities).
- Model 4 is the same as model 3 but weights schools by their number of students. This gives schools that enroll more students more influence when estimating the parameters.
- Model 5 is the same as model 3 but restricts the sample to schools in states with at least one virtual charter school.<sup>4</sup> This excludes schools in states that have no virtual charter schools in case there are

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<sup>4</sup>States with at least one virtual charter school in the 2018-2019 EdFacts data include Alaska, Arizona, Arkansas, California, Colorado, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Louisiana, Maine, Michigan, Minnesota, Nevada, New Hampshire, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, and Wisconsin.

systematic differences between states with and without virtual charter schools beyond what is already captured in the geographic controls.

Table 6 below shows the parameter estimates of the effect of virtual charter schools compared to other school types with different levels of controls or dependent variables. In the table, the columns represent the different models. The rows represent different school types compared to virtual charter schools, separately for math and reading. The coefficients can be interpreted as the percentage point difference between school-wide proficiency rates in each non-virtual charter type (brick-and-mortar charter, brick-and-mortar traditional, and virtual non-charter) compared to virtual charters. For example, on average, brick-and-mortar charter schools have 13.86 and 21.14 percent higher proficiency levels in reading and math than virtual charter schools, respectively, according to the findings in model 3.

There is a statistically significant difference between proficiency in virtual charter schools and brick-and-mortar schools (both charter and traditional) across all five model specifications.

**Table 6: Estimated Differences in Average Student Proficiency Rates between Virtual Charter Schools and Other School Types, School Year 2018-2019**

	Model 1	Model 2	Model 3 (Main model)	Model 4	Model 5
<b>Reading</b>					
Brick-and-mortar charter schools	5.39*** (1.138)	12.24*** (0.850)	13.43*** (1.027)	16.47*** (0.675)	11.51*** (0.960)
Brick-and-mortar traditional schools	8.10*** (1.116)	9.35*** (0.841)	12.01*** (1.016)	13.86*** (0.663)	11.10*** (0.951)
Virtual, non-charter schools	7.94*** (1.633)	6.32*** (1.190)	6.81*** (1.324)	7.13** (1.162)	6.34*** (1.283)
n	82878	82133	80351	80351	56113
<b>Math</b>					
Brick-and-mortar charter schools	15.57*** (1.219)	19.08*** (0.926)	21.14*** (1.131)	25.47*** (0.765)	18.84*** (1.075)
Brick-and-mortar traditional schools	21.35*** (1.195)	17.48*** (0.917)	20.81*** (1.120)	23.33*** (0.751)	19.95*** (0.751)
Virtual, non-charter schools	8.55*** (1.754)	5.91*** (1.301)	7.66*** (1.462)	8.22*** (1.317)	8.24*** (1.441)
n	83417	82673	80892	80892	56056

**Appendix II: Analysis of Test Proficiency Data**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3 (Main model)</b>	<b>Model 4</b>	<b>Model 5</b>
School population	All public schools	All public schools	All public schools	All public schools	Public schools in states with virtual charter schools
School characteristics	None	Racial demographics, percent free or reduced-price lunch, grade levels served	Racial demographics, percent free or reduced-price lunch, percent students with disabilities, percent of English learners, grade levels served	Racial demographics, percent free or reduced-price lunch, percent students with disabilities, percent of English learners, grade levels served	Racial demographics, percent free or reduced-price lunch, percent students with disabilities, percent of English learners, grade levels served
Weights applied	None	None	None	Student enrollments	None
Geographic controls	State	State	State	State	State

Legend: \* p < 0.05. \*\* p < 0.01. \*\*\* p < 0.001.

Source: GAO analysis of the Department of Education's EDFacts data. | GAO-22-104444

Note: Standard errors in parentheses

**Limitations of Our Analysis**

Our regression analysis could not identify the causal effect of virtual charter schools on student proficiency. When evaluating differences in proficiency rates across school types, we adjusted for a number of demographic variables that were available in the data. However, because our unit of observation is the school, rather than the student, we are unable to control for student-level factors that may impact proficiency but also selection into a virtual charter school, such as prior performance on standardized tests or individual student or family circumstances. This is especially important because enrollment in a virtual charter school is not random, and the decision of students and families to enroll could be a function of these same student-level factors.

We exclude about one quarter of schools for which an insufficient number of standardized test scores are available in the EDFacts data. Our results may not generalize to these smaller schools. The excluded schools account for less than 0.5 percent of students whose proficiency is captured by EDFacts.

Schools that do not participate in standardized testing, for example schools that do not serve testing grades such as pre-schools/kindergartens, or certain alternative schools whose students' scores are reported in their home school, are not included in the analysis.

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We can only analyze the proficiency rates of students who took the standardized assessment. However even when we restrict the sample to only schools with high participation rates (95 percent or higher) we still see statistically significant differences between virtual charter schools and brick-and-mortar schools.

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# Appendix III: Overview of Studies of Student Performance on State Assessments at Virtual Charter Schools

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This appendix provides details on the data sources, methodologies, key findings, and limitations described in nine studies that estimate the performance of virtual charter school students relative to students in brick-and-mortar schools.

To inform our regression analysis and report on what recent studies say about the performance of students in virtual charter schools relative to students in brick-and-mortar schools, we conducted a literature review. The team identified recent studies through (1) a search of the academic literature using search terms such as “virtual charter,” “cyber charter,” and “online charter”; (2) recommendations from our interviews with researchers and stakeholder organizations; and (3) using references or citations to a study to identify additional studies.

We limited our scope to studies (1) published in January 2015 or later and (2) containing original research using student-level data to study the effect of full-time virtual charter schools on student proficiency on standardized tests in math and reading or language arts.<sup>1</sup> We excluded research on blended programs or individual online courses.

Our search identified 13 studies. Two GAO economists reviewed the studies in detail, including their data sources, methods, limitations, and key findings. Of the 13 identified studies, nine were selected for inclusion in the review. The four studies we excluded did not use student-level data or lacked rigorous methods. The studies selected for inclusion used student-level data to estimate the effect of virtual school attendance on student proficiency in math and reading. To facilitate comparison across different grades and states, the studies generally report results in terms of standard deviations on the proficiency tests rather than as raw scores.<sup>2</sup>

Although the studies on individual states are not generalizable, together these nine studies consistently find virtual charter students have lower scores on state standardized assessments compared to brick-and-mortar students. All of the studies found a statistically significant effect in math proficiency and most found a statistically significant effect in reading. All of the studies selected controlled for prior student achievement and one study controlled for student mobility. One study examined virtual charter

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<sup>1</sup>We refer to reading or language arts tests as reading tests throughout the appendix.

<sup>2</sup>For the median student, a drop in 0.20 standard deviations would correspond to an approximately 8 percentile drop, i.e. a decrease from the 50th percentile to the 42nd percentile.

schools across 17 states and the District of Columbia. Seven studies examined virtual charter schools in a single state, including three studies that examined virtual charter students in Ohio. One study used an anonymous state.

The data sources from the studies consist of student records often obtained through partnerships with state educational agencies, including performance in state assessments and demographic characteristics. Six of the studies used a matching method (propensity score, nearest neighbor, or virtual control) to estimate the effect of attending a virtual charter school compared to similar peers enrolled in brick-and-mortar schools. The remaining three studies used a value added/individual fixed effect methodology to estimate the effect of attending a virtual school relative to the same student's prior performance. See below for details on each of the nine studies.

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Findings, Methodology, and Limitations of Studies of Student Performance in Virtual Charter Schools Compared to Brick-and-mortar Schools<sup>3</sup>

Study: June Ahn. Enrollment and Achievement in Ohio's Virtual Charter Schools. (Washington, D.C.: Thomas Fordham Institute, 2016.)

Data: Administrative data for all K-12 students in the state of Ohio for 2009-2010 to 2012-2013 school years.

Methodology: Panel data econometrics to compare student achievement across e-schools and brick-and-mortar schools, controlling for student characteristics including prior achievement.

Results: Students in grades 4 through 8 in e-schools have lower achievement in math (0.37 standard deviation) and reading (0.19 standard deviation) than their brick-and-mortar district school peers. Similar patterns exist for tenth-grade achievement.

Limitations: Limited generalizability given the study only covers one state. Study does not control for unobservable student characteristics (including mobility).

Study: June Ahn and Andrew McEachen. "Student Enrollment Patterns and Achievement in Ohio's Online Charter Schools." Educational Researcher, vol. 46, no. 1 (2017): p. 44-57.

Data: Student-level data for all K-12 Ohio students in traditional public school, charter school, and e-school for the 2009-2010 through 2012-2013 school years.

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<sup>3</sup>Results reported below are statistically significant unless otherwise noted.

**Methodology:** Standard value-added model to evaluate the difference in achievement among the three types of schools.

**Results:** Elementary and middle school students in e-schools score 0.37 and 0.19 standard deviations worse in math and reading, respectively, than students in traditional public schools.

**Limitations:** Methodology cannot control for unobservable differences among students in e-schools, charter and traditional public schools.

**Study:** Carycruz Bueno. Bricks and Mortar vs. Computers and Modems: The Impacts of Enrollment in K-12 Virtual Schools. (EdWorkingPaper: 20-250). (Providence, RI: Annenberg Institute at Brown University, 2020.) Accessed July 29, 2021, <https://doi.org/10.26300/kahb-5v62>.

**Data:** Individual-level information on students and teachers in full-time virtual charter schools and brick-and mortar public schools throughout Georgia from the Georgia Academic and Workforce Analysis and Research Data System (GA AWARDS) from 2007 to 2016.

**Methodology:** Individual fixed-effects approach relying on students who switch between virtual and brick-and-mortar schools. Semi-parametric cell analysis to compare outcomes for students in the same 4th grade school, cohort, gender and race/ethnicity but had different amounts of full-time virtual school enrollment after 4th grade.

**Results:** Attending a full-time virtual school in Georgia leads to negative impact on student test scores of 0.1 to 0.4 standard deviations across four subjects (Reading, Mathematics, Science, and Social Studies).

**Limitations:** The study results may not generalize outside of Georgia. The fixed effects approach may not generalize to students who have never been selected into a virtual charter. As a working paper, results may be preliminary.

**Study:** Center for Research on Education Outcomes (CREDO). Charter School Performance in Idaho 2019. (Stanford, CA: Stanford University, 2019).

**Data:** Student-level administrative records for school years 2014-2015 to 2016-2017 covering all Idaho public school students, including students in virtual schools.

**Methodology:** Virtual Control Record (VCR) method developed by CREDO. A virtual control record (VCR), or a “virtual twin,” is a synthesis of the actual academic experiences of up to seven students who are identical to the charter school student, except for the fact that



the VCR students attend a traditional public school that each charter school's students would have attended if not enrolled in the charter school. This synthesized record is then used as the counterfactual condition to the charter school student's performance.

Results: Online charter school students have similar growth in reading but weaker growth (0.10 standard deviation) in math.

Limitations: Results may not generalize outside of Idaho. Methodology cannot control for unobserved differences between virtual school students and their virtual control records.

Study: Center for Research on Education Outcomes (CREDO). Charter School Performance in Ohio 2019. (Stanford, CA: Stanford University, 2019).

Data: Historical sets of student-level administrative records from the Ohio Department of Education for the period 2013-2014 to 2016-2017.

Methodology: VCR method developed by CREDO involving virtual controls that closely mirror the matched charter school students on observable characteristics.

Results: Online charter school students have weaker growth in both reading (0.08 standard deviations) and math (0.23 standard deviations).

Limitations: Results may not generalize outside of Ohio; Methodology cannot control for unobserved differences between virtual school students and their virtual control records.

Study: Center for Research on Education Outcomes (CREDO). Charter School Performance in Pennsylvania 2019. (Stanford, CA: Stanford University, 2019).

Data: Student-level administrative data from Pennsylvania Department of Education for the periods 2013-2014 to 2016-2017.

Methodology: VCR method developed by CREDO involving virtual controls that closely mirror the matched charter school students on observable characteristics.

Results: Online charter school students have weaker growth in both reading (0.18 standard deviations) and math (0.20 standard deviations).

Limitations: Results may not generalize outside of Pennsylvania. Methodology cannot control for unobserved differences between virtual school students and their virtual control records.

Study: Brian R. Fitzpatrick, et al. "Virtual Illusion: Comparing Student Achievement and Teacher and Classroom Characteristics in Online and Brick-and-Mortar Charter Schools." *Educational Researcher*, vol. 49, no. 3 (2020): p. 161-175.

Data: Student-level data for all grades 3 through 8 Indiana students in traditional public school, charter school, and private schools for school year 2010-2011 through 2016-2017.

Methodology: Nonexperimental matching approach matching students who switch from public to charter schools on a finite set of student-level criteria with their public school pairs from the same baseline cohort.

Results: In math, students who switched to virtual charter saw an average drop in their test scores of 0.41 standard deviation in math and 0.29 in reading during the first year, and the effects remained negative through years 2 and 3.

Limitations: Methodology cannot control for additional unobserved differences between virtual charter school students and their matched pairs.

Study: James D. Paul and Patrick J. Wolf. *Moving on Up? A Virtual School, Student Mobility, and Achievement*. (EdWorkingPaper: 20-309). (Providence, RI: Annenberg Institute at Brown University, 2020.) Accessed July 29, 2021, <https://doi.org/10.26300/1h20-nk64>.

Data: Data on slightly more than 3,500 students in grades 3 through 8 from a single anonymous virtual charter school as well as data on other public school students covering the school years 2014-2015 through 2017-2018.

Methodology: Hybrid of exact and nearest-neighbor propensity score matching.

Results: Virtual students performed 0.04 standard deviations lower in reading and 0.21 standard deviations lower in math. After controlling for outcome-year mobility, virtual charter students performed 0.18 standard deviations worse in math and the effect on reading was statistically insignificant.

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**Appendix III: Overview of Studies of Student Performance on State Assessments at Virtual Charter Schools**

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Limitations: One school, may not generalize to other schools or states. Matching method cannot control for additional unobserved differences between virtual charter students and their matched pairs.

Study: James L. Woodworth, et al. Online Charter School Study 2015. Center for Research on Education Outcomes (CREDO). (Stanford, CA: Stanford University, 2015).

Data: Student-level data from 17 states and District of Columbia with virtual charter schools.

Methodology: VCR method developed by CREDO involving virtual controls that closely mirror the matched charter school students on observable characteristics.

Results: Typical academic gains for students enrolled in virtual charter schools are 0.25 standard deviations lower in math and 0.10 lower for reading compared to students enrolled in traditional public schools.

Limitations: Methodology cannot control for additional unobserved differences between virtual charter school students and their matched pairs.

# Appendix IV: Comments from the Department of Education



UNITED STATES DEPARTMENT OF EDUCATION  
OFFICE OF ELEMENTARY AND SECONDARY EDUCATION

January 10, 2022

Jacqueline M. Nowicki, Director  
Education, Workforce, and Income Security Issues  
Government Accountability Office  
441 G Street, NW  
Washington, DC 20548  
[nowickij@gao.gov](mailto:nowickij@gao.gov)

Dear Director Nowicki,

Thank you for the opportunity for U.S. Department of Education's (Department's) Office of Elementary and Secondary Education (OESE) to provide comments on the Government Accountability Office's (GAO) draft report, *Department of Education Should Help States Address Student Testing Issues and Financial Risks Associated With Virtual Charter Schools* (GAO-22-104444), and its recommendations. Our enclosed technical comments reflect the suggestions of the Department, developed in conjunction with the Office of the General Counsel and other Department offices that reviewed the report.

The draft report raises issues related to attendance data with regard to virtual charter schools and while primarily the responsibility of state and local officials, it is a subject area that the Department has given special attention to especially as many other public schools have had to temporarily offer more remote learning as a result of the COVID-19 situation. Our Institute of Education Sciences has made significant outreach efforts over the last couple of years to invite input from state and local officials and to disseminate information useful to all schools including virtual charter schools.

Recognizing the importance of the topics of attendance and engagement, the Department has funded a technical assistance center to support states and districts in tracking attendance and addressing chronic absenteeism. The Student Engagement and Attendance Center (SEAC) seeks to identify and disseminate evidence-based promising practices and research, and to establish peer learning communities, guided by subject matter experts, that allow for stakeholders to learn effective strategies from one another. The SEAC also develops tools, products, and resources on chronic absence interventions and improving student engagement in learning. Finally, the SEAC offers supports to states and districts in developing their learning responses to the national COVID-19 pandemic, identifying strategies to reengage with students and families to facilitate learning recovery. States can use the learnings from the SEAC to support virtual charter schools in improving attendance, as needed.

With that foregoing context in mind, we generally concur with the findings and recommendations made by the GAO.

We agree with Recommendation 1 and believe that the Secretary can continue to examine data on lower participation rates of students attending public virtual charter schools, to better

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**Appendix IV: Comments from the Department  
of Education**

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understand the related challenges and offer strategies to help states that support and manage these schools directly, through their oversight roles and governing authorities.

We also agree with Recommendation 2 and believe the Secretary should continue to take steps to support and work with the states as they ensure that they report comparable attendance data across their virtual and traditional charter schools they manage, for federal reporting purposes.

Finally, we agree with Recommendation 3 and the importance of the Secretary continuing to work with states to identify factors that cause underreporting and misreporting of information on management organizations that contract with charter schools and working with those states to also ensure the accurate reporting of data on these contracts, for appropriate oversight and accountability.

Thank you for your consideration of the Department's feedback.

Respectfully,

**Mark  
Washington**

Digitally signed by Mark  
Washington  
Date: 2022.01.10  
14:42:28 -05'00'

Mark Washington  
Deputy Assistant Secretary  
Office of Elementary and Secondary Education

**ENCLOSURE: Technical Comments**

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# Appendix V: GAO Contact and Staff Acknowledgments

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Jacqueline M. Nowicki, Director, (617) 788-0580 or [nowickij@gao.gov](mailto:nowickij@gao.gov).

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## Staff Acknowledgments

In addition to the contact named above, Nagla'a El-Hodiri (Assistant Director), Alexandra Squitieri and Alison Grantham (Analysts-in-Charge), Latoya Hogg, Cheryl Jones, Abigail Loxton, and Sara Rizik made key contributions to this report. Susan Aschoff, Elizabeth Calderon, Kirsten Lauber, Sophia Liu, John Mingus, Curtia Taylor, Kate van Gelder, and Sonya Vartivarian provided additional support.

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