

State-level characteristics and trends in pre-employment transition service delivery to students with disabilities

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Abstract.

BACKGROUND: The Workforce Innovation and Opportunity Act of 2014 (WIOA) substantially changed the way state vocational rehabilitation (VR) agencies prepare transition-age students with disabilities for competitive integrated employment through the provision of pre-employment transition services (Pre-ETS). However, little is known about how state VR agencies are delivering Pre-ETS to students with disabilities in practice.

OBJECTIVE: The purpose of this study was to examine state-level provision of Pre-ETS across the United States.

METHOD: Descriptive analyses of Rehabilitation Services Administration's Case Service Report (RSA-911) data of Pre-ETS recipients between 2017 and 2020 were conducted across states.

RESULTS: Substantial state-level differences were noted in the type of Pre-ETS provided, how many Pre-ETS were provided to each recipient, the disability characteristics of students, and state use of Pre-ETS provider types (VR staff or vendor).

CONCLUSION: State differences in Pre-ETS implementation require further research to investigate best practices within and across states. More differentiated training and technical assistance models aligned with these state-level differences are needed.

Keywords: Disability, youth, student, transition, policy

1. Introduction

Rates of post-school employment for transition-age youth and young adults with disabilities continue to lag behind the employment outcomes of peers without disabilities (50% vs. 72.1% respectively;

U.S. Bureau of Labor Statistics, 2023). Disproportionate rates of unemployment among young people with disabilities has been a long-standing problem. To address this issue, the Workforce Innovation and Opportunity Act of 2014 (WIOA) substantially changed the way state vocational rehabilitation (VR) agencies prepare transition-age students with disabilities for competitive integrated employment (CIE). In an effort to provide improved vocational training prior to school exit, WIOA (2014) mandated that

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state VR agencies use at least 15% of federal funding on pre-employment transition services (Pre-ETS) for transition-age youth with disabilities between the ages of 14 and 21. Pre-ETS activities fall under five required categories: job exploration counseling (JEC), workplace readiness training (WRT), work-based learning experiences (WBLE), instruction in self-advocacy (ISA), and counseling on opportunities for enrollment in comprehensive transition or post-secondary education programs (CEO; WIOA, 2014).

To maximize the impact of services, WIOA (2014) also expanded the population of transition-age service recipients to include not only those who are eligible, but also those who are potentially eligible for VR services. WIOA (2014) ensured that Pre-ETS would provide additional support beyond existing school and VR practices by specifying that Pre-ETS cannot replace or replicate transition services already provided by schools (Carlson, 2022; Miller et al., 2018). In addition, quarterly reporting of Pre-ETS data into the Rehabilitation Services Administration (RSA)-911 database was mandated by WIOA beginning in the fiscal year 2017 to track service provision (Miller et al., 2018; WIOA, 2014). Nearly a decade has elapsed since the passing of WIOA (2014). Since then, all 50 U.S. states, territories, and the District of Columbia (DC) have developed WIOA implementation plans that include specific information about Pre-ETS delivery (Carlson et al., 2020; Taylor et al., 2022).

However, state Pre-ETS policies vary widely in how they address the requirements of WIOA (Carlson et al., 2020; Taylor et al., 2022). For instance, Carlson et al. (2020) found that while most state plans had a clearly defined Pre-ETS population and a description of each Pre-ETS category, only a moderate number of states outlined the responsibilities for collaborating with partners and specified procedures for obtaining referrals or accommodations, and few states addressed financial responsibilities, order of selection, and the use of authorized activities. Taylor et al. (2022) similarly found notable differences in Pre-ETS implementation plans across a sample of 10 states. While most states identified employment skills as an instructional priority, there were wide differences in the amount of specificity offered about how instruction would be delivered through Pre-ETS. Likewise, most states identified community-based experiences as the primary context for Pre-ETS delivery but differed greatly in the amount of time and intensity to be devoted to such experiences (Taylor et al., 2022). Additionally, Whittenburg et al. (2023)

found that states also varied widely in the degree to which they incorporated research-based transition recommendations in their planning and delivery of Pre-ETS. The findings from Carlson (2020), Taylor et al. (2022), and Whittenburg et al. (2023) show that a student's experience with Pre-ETS is likely to differ simply as a matter of their respective state of residence.

Pre-ETS experiences also differ based on the size of a community. Recent studies point to the divergent experiences of students receiving Pre-ETS in rural vs urban communities (e.g., Carter et al., 2021; Schutz et al., 2022). In general, parents, educators and service providers report associated benefits with Pre-ETS delivery in rural over more urban locations (Carter et al., 2021; Schutz et al., 2022). Parents of transition-age youth from rural areas who were surveyed about Pre-ETS were significantly less likely than parents from urban areas to perceive a number of factors as barriers to employment, including the quality of employment preparation provided by the school and the quality of parent-school partnerships (Schutz et al., 2022). Educators from rural communities view VR partnerships more positively than those from urban areas, feel more satisfied with the working relationship between the school and VR, report working more closely with VR, and indicate that VR frequently attend Individualized Education Program (IEP)/transition meetings (Carter et al., 2021). Among service providers, those from rural communities show significantly higher agreement about working closely with schools to provide Pre-ETS and feelings that local schools are "interested and willing to collaborate" than those from non-rural communities (Awsumb et al., 2020). These findings highlight the importance of location as a key factor impacting Pre-ETS delivery across the United States (U.S.).

Lastly, Pre-ETS delivery is different for each student and is influenced by personalized needs and the availability of providers. In some cases, a student receives Pre-ETS from VR agency staff while in other instances it is provided via purchase from an outside vendor such as a community rehabilitation provider. In addition, there are a number of different types of activities a student can engage in under the same Pre-ETS category. Frentzel et al. (2021) identified numerous research-based practices that service providers can implement under four of the five Pre-ETS categories (omitting CEO) but cautions that even with this guiding framework many agencies may lack the resources to sufficiently train staff in how to deliver all activities. Therefore, receipt of Pre-ETS

for any one student is somewhat impacted by the limits of the training received by local providers and the resources they have available to provide these services. Overall, educators and service providers agree that students still need better preparation for post-school employment and indicate a desire for further training in Pre-ETS, better instructions on providing Pre-ETS to younger students (ages 14–16), more extensive collaboration with key partners, and a greater emphasis on individual interest-driven experiences during Pre-ETS (Awsumb et al., 2020; Carter et al., 2021; Lambert et al., 2023; Lau & McKelvey, 2023).

To date, we know very little about the specific provision of Pre-ETS across states. While we know that implementation plans differ from state-to-state and that student experiences are influenced by type of community (e.g., rural vs urban locations), we do not know which specific types of Pre-ETS are being given within each state, in what quantity, or by what service providers (i.e., VR agencies or vendors). We also do not know much about the characteristics of students within each state who are receiving Pre-ETS. Therefore, the purpose of this study is to examine state-level provision of Pre-ETS across the U.S. The following research question was developed to guide analyses: What are the state-level characteristics and trends in Pre-ETS service delivery to potentially eligible students with disabilities across state VR agencies?

2. Methods

2.1. Data source

Data for this study were collected through the Rehabilitation Services Administration's Case Service Report (RSA-911) over a 48-month period between the fiscal years 2017 and 2020. RSA-911 data are input by trained state VR agency counselors in all 50 states and territories of the U.S., including DC, for the purposes of performance accountability of state VR programs under Section 116 of Title I of WIOA. RSA-911 data are used to monitor and assess the performance of VR and Supported Employment programs in the federal annual reports as required by Sections 13 and 101(a)(10) of the Rehabilitation Act. The RSA-911 dataset comprises a total of 393 data elements, including eligibility, demographics, disability, Pre-ETS, adult VR services provided under an individualized plan for employment (IPE), reasons for case closure, and employment

status at case closure (RSA, 2019; Alsaman & Lee, 2017). Each case service record is de-identified, and individual-level data document the application and provision of employment services to students and participants with disabilities, including program outcomes (RSA, 2019). In addition to program evaluation, RSA-911 data are used to inform the provision of technical assistance, program planning, budget preparation, and development. Finally, it is widely used by researchers for disability-related analyses and reports (RSA, 2019).

2.2. Participants

Study participants constitute approximately 200,000 youth aged between 14 and 27 in 2020 who received at least one Pre-ETS between 2017 and 2020 ($n = 207,848$). The study analyses aimed to provide a comprehensive overview of Pre-ETS provision across 50 U.S. states and DC. Participants for this study include both individuals who subsequently utilized individualized VR services and students who did not. For students who solely received Pre-ETS and did not apply to receive other VR services, the service record is closed when the student is no longer receiving services or ages out of Pre-ETS. Therefore, data on this group are limited compared to individuals who received Pre-ETS and then went on to receive individualized VR services ($n = 15,295$). Because we were interested in investigating larger trends in Pre-ETS delivery across states, we chose to focus our analyses on the RSA-911 data collected from individuals who only received Pre-ETS and those who went on to receive individualized VR services.

2.3. Demographic and service variables

We examined the age distribution of participants, constraining the age bracket between 14 to 27 years. The lower age limit was set as 14 since it is the prevalent minimum age for Pre-ETS eligibility across different states. The upper age limit of 27 years aligns with established norms in research and policies concerning transition-age youth and young adults (Wilens & Rosenbaum, 2013). This upper limit also accommodates those who might have received services earlier in the reporting timeframe.

The analysis included disability status for students receiving Pre-ETS. The students' disability status categories included: (a) students with disabilities who were receiving transition services under an IEP, (b)

students with disabilities who had a Section 504 plan, (c) students with a documented disability but without an IEP or 504 plan, and (d) students identified as not having a disability. VR agencies are not mandated to gather and report comprehensive disability data, such as the specific type of disability, if students are exclusively receiving Pre-ETS.

We also examined the five required Pre-ETS provided to participants under the Rehabilitation Act, as amended by WIOA (2014). The five Pre-ETS include JEC, WBLE, CEO, WRT, and ISA. Additionally, we explored the average number of Pre-ETS provided per student and whether the Pre-ETS was provided by VR agency staff or purchased from external vendors.

2.4. Data analyses

Descriptive analyses were conducted using the Statistical Package for the Social Sciences (SPSS 29.0) to answer the research questions for this study. In preparation for analysis, states with separate general and blind/low vision VR agencies were combined into a single state-level data element to facilitate comparison between states. Crosstabulations were used to analyze the frequency of different categories of Pre-ETS provided per state, whether the services were delivered by a VR agency staff member or purchased from external vendors, and student disability status across the 50 U.S. states and DC. The percentages of Pre-ETS provided by category (i.e., JEC, WBLE, CEO, WRT, and ISA) were calculated—often adding up to over 100% since many students received more than one Pre-ETS. The average number of Pre-ETS received per student was calculated for each state and DC, as well as the percentages of services provided by VR agency staff and vendors. Finally, percentages for different student disability status were calculated for each state and DC.

3. Results

3.1. Trends in five required pre-ETS

The mean number of Pre-ETS provided to students (overall mean of 2.45) varied across states, ranging from 1.23 (North Carolina) to 4.46 (Hawaii). However, upon deeper examination, we noted a skewed distribution with students in 45 states receiving an average of two or less of the required Pre-ETS. When we examined the breakout across states, students received an average of fewer than two Pre-ETS in

29 states, two Pre-ETS in 16 states, three Pre-ETS in four states, and four Pre-ETS in two states. See Table 1 for a complete listing of the mean number of Pre-ETS received by students per state.

Across the five required Pre-ETS, JEC was the most common service, provided to over 50% of students who received Pre-ETS in 45 states. The percentage of students receiving JEC ranged from a low of 24.3% in Idaho to a high of 94.5% in Oklahoma. The provision of WRT varied even more across states, with eight states providing WRT to fewer than 25% of students receiving Pre-ETS, 22 states providing it to 25–49% of students, and 21 states providing it to 50% or more of students. DC had the lowest percentage of students receiving WRT (7.4%), while Hawaii had the highest percentage (92.3%). Students across states received WBLE, ISA, and CEO at lower rates than the other Pre-ETS categories. WBLE was one of the least provided Pre-ETS, with 39 state agencies providing it to fewer than 50% of students. The percentage of students who participated in WBLE ranged from 9.3% in Tennessee to 91.0% in Hawaii. ISA was also one of the least represented Pre-ETS, with 40 states providing the service to fewer than 50% of Pre-ETS recipients. The percentage of students who received ISA ranged from 0.4% in Rhode Island to 92.0% in Illinois. Similarly, 41 states delivered CEO to fewer than 50% of Pre-ETS recipients. The range for CEO was 0.2% (Rhode Island) to 88.5% (Hawaii). Table 1 provides the percentages of students who received each required Pre-ETS within each state.

3.2. Trends in service delivery providers

States varied substantively in who provided Pre-ETS to students (i.e., provided by a VR agency staff member versus provided by an outside vendor). We analyzed the number of students receiving any Pre-ETS from each provider type as a proportion of the total number of students receiving any Pre-ETS. Our findings indicate that in 36 states, a majority of students (50% or greater) received at least one Pre-ETS from a vendor. In six states (i.e., Alaska, Illinois, Indiana, Montana, Ohio, Oregon), vendors provided a Pre-ETS to 99–100% of recipients. In comparison, 50% or more of students in 23 states received at least one Pre-ETS from a VR staff member. Conversely, in three states (i.e., Iowa, New Mexico, South Dakota) VR staff provided Pre-ETS to 99–100% of recipients. We noted an inverse correlation between service providers at the edges of this distribution, where states with the highest proportion of vendor-

Table 1
Percentage of students receiving Pre-ETS categories across states

State	JEC	WBLE	WRT	ISA	CEO	Total recipients	Mean Pre-ETS
Alabama	36.4	10.5	56.1	20.6	28.0	2,120	1.52
Alaska	69.5	34.8	28.8	10.9	9.6	302	1.54
Arizona	68.9	13.2	31.5	34.2	27.7	1,221	1.76
Arkansas	69.7	66.9	61.7	61.4	58.9	3,643	3.19
California	69.3	53.0	53.4	46.7	37.6	16,251	2.60
Colorado	70.6	35.5	40.8	26.6	22.7	564	1.96
Connecticut	65.0	55.5	30.2	22.6	13.4	2,934	1.87
Delaware	62.8	42.2	34.9	35.9	18.6	521	1.94
District of Columbia	83.3	22.2	7.4	9.3	7.4	54	1.30
Florida	55.5	29.3	37.4	25.8	44.3	6,679	1.92
Georgia	25.7	12.3	59.7	19.8	27.4	5,024	1.45
Hawaii	86.5	91.0	92.3	88.1	88.5	1,240	4.46
Idaho	24.3	64.9	52.1	20.1	6.2	259	1.68
Illinois	91.7	60.3	84.4	92.0	86.4	26,616	4.15
Indiana	89.3	28.3	53.5	36.4	25.7	6,116	2.33
Iowa	61.8	18.2	49.1	40.6	58.4	11,939	2.28
Kansas	48.7	27.5	65.2	54.5	32.3	1,055	2.28
Kentucky	85.9	34.9	42.8	35.3	37.3	3,616	2.36
Louisiana	70.0	19.7	50.7	25.4	26.4	4,895	1.92
Maine	50.6	41.4	14.0	4.5	18.7	401	1.29
Maryland	61.3	49.6	26.4	16.4	8.4	1,013	1.62
Massachusetts	81.9	65.3	68.1	58.1	53.6	2,720	3.27
Michigan	35.9	31.9	66.2	25.6	13.2	13,615	1.73
Minnesota	57.3	46.5	31.2	15.6	22.4	1,733	1.73
Mississippi	81.2	34.9	62.2	64.2	42.9	2,675	2.85
Missouri	78.6	47.0	73.2	65.1	53.3	12,322	3.17
Montana	85.6	34.4	38.0	42.0	28.9	1,495	2.29
Nebraska	82.2	19.5	50.7	46.0	32.7	6,946	2.31
Nevada	71.8	52.7	65.8	69.6	52.7	634	3.12
New Hampshire	72.1	17.4	34.0	25.2	21.4	749	1.70
New Jersey	82.5	12.7	22.4	18.0	19.8	793	1.55
New Mexico	74.7	52.4	54.1	32.5	52.0	1,171	2.66
New York	82.5	10.6	12.5	12.8	22.3	2,537	1.41
North Carolina	78.8	12.5	21.4	5.8	4.0	3,713	1.23
North Dakota	57.7	30.9	61.5	61.9	69.5	3,095	2.81
Ohio	83.5	32.2	46.1	14.1	8.2	7,366	1.84
Oklahoma	94.5	54.9	55.3	20.9	3.6	799	2.29
Oregon	89.4	14.4	19.8	21.1	20.8	2,162	1.66
Pennsylvania	58.9	36.2	16.2	15.2	41.1	5,166	1.68
Rhode Island	62.1	37.3	25.2	0.4	0.2	826	1.25
South Carolina	57.1	35.2	46.0	54.6	40.9	15,367	2.34
South Dakota	79.3	40.0	47.2	70.2	54.8	1,794	2.91
Tennessee	73.7	9.3	28.8	21.8	17.4	3,140	1.51
Texas	57.0	30.3	35.4	23.1	27.8	4,327	1.74
Utah	73.4	10.7	35.7	46.7	11.1	1,794	1.78
Vermont	74.1	24.0	39.6	17.1	46.7	1,357	2.02
Virginia	74.3	27.9	39.9	33.4	40.7	9,612	2.16
Washington	49.6	28.9	58.9	26.0	3.1	1,517	1.67
West Virginia	59.2	29.8	23.3	20.6	45.4	630	1.78
Wisconsin	53.3	64.2	25.8	11.3	6.0	702	1.61
Wyoming	54.1	56.8	63.9	33.1	24.5	628	2.32
Total	69.5	36.9	53.1	44.2	41.2	207,848	2.45

Note. JEC = Job exploration counseling; WBLE = work-based learning experiences; WRT = workplace readiness training; ISA = instruction in self-advocacy; and CEO = counseling on opportunities for enrollment in comprehensive transition or postsecondary education programs. Data in JEC, WBLE, WRT, ISA, and CEO columns represent percentages of students who received that specific Pre-ETS out of the total number of Pre-ETS recipients within the state. Mean Pre-ETS represents the average number of Pre-ETS provided to students within each state.

Table 2
Percentage of students receiving vendor provided and agency staffed Pre-ETS within states

State	Vendor provided	Agency staffed	Total Pre-ETS recipients
Alabama	71.7	35.2	2,120
Alaska	100.0	0.0	302
Arizona	65.3	45.1	1,221
Arkansas	84.7	37.2	3,643
California	66.3	50.6	16,251
Colorado	72.7	39.9	564
Connecticut	84.2	49.6	2,934
Delaware	50.3	56.0	521
District of Columbia	18.5	87.0	54
Florida	56.9	53.1	6,679
Georgia	75.9	35.5	5,024
Hawaii	40.2	96.8	1,240
Idaho	86.1	23.9	259
Illinois	100.0	0.0	26,616
Indiana	99.8	1.2	6116
Iowa	0.3	99.9	11,939
Kansas	6.5	97.7	1,055
Kentucky	91.1	11.6	3,616
Louisiana	98.9	10.2	4,895
Maine	78.1	26.7	401
Maryland	79.2	40.5	1,013
Massachusetts	91.4	16.0	2,720
Michigan	95.5	12.2	13,615
Minnesota	63.1	60.9	1,733
Mississippi	43.2	65.4	2,675
Missouri	95.0	8.7	12,322
Montana	99.7	1.9	1,495
Nebraska	17.9	97.5	6,946
Nevada	53.0	58.0	634
New Hampshire	50.9	58.2	749
New Jersey	75.8	24.2	793
New Mexico	12.0	100.0	1,171
New York	43.6	63.8	2,537
North Carolina	80.7	28.4	3,713
North Dakota	28.9	91.2	3,095
Ohio	99.3	2.8	7,366
Oklahoma	90.5	17.9	799
Oregon	99.0	1.5	2,162
Pennsylvania	37.2	79.4	5,166
Rhode Island	94.9	10.4	826
South Carolina	63.3	49.6	15,367
South Dakota	0.0	100.0	1,794
Tennessee	3.6	97.3	3,140
Texas	60.1	56.9	4,327
Utah	46.1	60.9	1,794
Vermont	31.8	94.5	1,357
Virginia	15.2	97.6	9,612
Washington	98.7	10.2	1,517
West Virginia	52.5	72.4	630
Wisconsin	92.5	26.6	702
Wyoming	89.5	33.1	628
Total	63.8	47.0	207,848

Note. Percentages when summed may equal more than 100%, since students could receive both vendor provided and agency staffed Pre-ETS. Data in Vendor Provided and Agency Staffed columns represent percentages of students who received Pre-ETS (either through an outside vendor or a VR agency staff member) out of total number of students who received any Pre-ETS within the state.

provided services also had the lowest proportion of VR staff services (i.e., Alaska, Illinois, Indiana, Montana, Ohio, Oregon). Table 2 provides information on

the percentage of students who received at least one required Pre-ETS from a vendor and from VR staff across all states and DC.

3.3. Characteristics of students receiving pre-ETS

Finally, we examined RSA-911 data to learn more about participants' disability classifications. For students receiving Pre-ETS, RSA requires VR counselors to report if the student had an IEP, a 504 plan, an otherwise documented disability, or did not have a disability. Our findings indicate that across states, students with IEPs constituted the majority of Pre-ETS recipients. The percentage of Pre-ETS recipients classified as a student with an IEP ranged from 1.0% of the total sample (Oregon) to 93.4% (Washington). In 36 states, more than 50% of students receiving Pre-ETS were students with IEPs, and in 19 states, 75% or more of Pre-ETS recipients had IEPs. Pre-ETS recipients classified as students with 504 plans were engaged at substantially lower rates, ranging from 0.1% of the total sample in Missouri and Oregon to 58.4% in Kansas. In 49 states, Pre-ETS recipients with 504 plans constituted 10% or less of the total number of students in those states who received Pre-ETS. The rates of students classified as having an otherwise documented disability (outside of an IEP or 504 plan) ranged widely, from 0% of the sample in the District of Columbia to 81.8% in Oregon. In 39 states, fewer than 20% of students who received Pre-ETS were classified as having an otherwise documented disability; however, in five states (i.e., Colorado, Michigan, New Jersey, Oregon, Utah), 50% or more of students who received Pre-ETS were reported as having an otherwise documented disability.

We calculated a surprisingly wide range of variability in the percentage of students who received Pre-ETS across states that were classified as a student without a disability. All states and DC reported providing Pre-ETS to students without disabilities, and the percentage of students without disabilities served ranged from 1.7% in Massachusetts to 53.6% in Maine. In 20 states, the percentage of students who received Pre-ETS and who were classified as a student without a disability was less than 10%, and it was higher than 30% in 11 states. Table 3 shows student disability classifications for Pre-ETS across the 50 states and DC.

4. Discussion

In this study, we conducted descriptive statistical analyses using data from RSA-911 to investigate

state-level characteristics and trends in the delivery of Pre-ETS to students with disabilities. While we noted significant variability in the types of required Pre-ETS students received across states, several key trends and salient findings emerged. JEC and WRT were the most common service type, provided to over 50% of Pre-ETS recipients in 45 and 21 states respectively. WBLE, ISA, and CEO were the least common services, provided to a majority of Pre-ETS recipients in only 12, 11, and 10 states respectively. These findings align with existing research into state WIOA policy plans for Pre-ETS implementation, which highlight differences across states in the Pre-ETS they prioritize and plan to deliver (Taylor et al., 2022; Whittenburg et al., 2023). These previous studies highlighted how best practices in transition (e.g., WBLE, support for postsecondary education, and building self-determination skills) were less represented in the state plans for Pre-ETS implementation (Taylor et al., 2022; Whittenburg et al., 2023). Findings from this study provide additional evidence that those differences in Pre-ETS delivery are, in fact, occurring not only in the planning but also in the delivery of services at the state level - clearly indicating the need to expand provision of WBLE, ISA, and CEO across states. Increasing student access to WBLE, ISA, and CEO is particularly important given the strong research base documenting the positive effects of work experiences, self-determination skill development, and PSE participation on successful employment outcomes for youth with disabilities (Mazzotti et al., 2021; Wehman et al., 2015).

Our study also documented substantive differences across states in Pre-ETS delivery methods, specifically around who provided services (i.e., VR staff or vendors). A total of 36 states purchased over half of all Pre-ETS from vendors while 23 states provided the majority of Pre-ETS through VR staff. We also noted that several states were at either extreme in service provider selection in terms of relying fully on VR staff or outsourcing all Pre-ETS to vendors. The use of different Pre-ETS providers within and across states highlights the very real differences in how state Pre-ETS systems are structured, thus accentuating the need for training and technical assistance aligned with these individual systems and competencies of the providers they rely on for service delivery. Building on previous survey research highlighting the need for training and professional development for Pre-ETS providers (Awsumb et al., 2020; Carter et al., 2021; Lambert et al., 2023; Lau & McKelvey, 2023), our findings suggest that such training may

Table 3
Percentage of students receiving Pre-ETS with different disability classifications across states

State	Students with IEP	Students with 504 plan	Students with documented disability	Students without disability	Total recipients
Alabama	92.5	2.4	2.3	2.9	2,120
Alaska	53.6	7.0	29.8	9.6	302
Arizona	68.5	4.3	3.1	24.2	1,221
Arkansas	82.1	6.8	8.8	2.3	3,643
California	24.3	1.0	49.9	24.9	16,251
Colorado	25.7	1.1	62.8	10.5	564
Connecticut	84.9	3.5	0.7	10.9	2,934
Delaware	27.6	0.6	32.1	39.7	521
District of Columbia	92.6	1.9	0.0	5.6	54
Florida	53.8	7.6	10.2	28.4	6,679
Georgia	58.8	1.2	5.2	34.8	5,024
Hawaii	55.7	2.0	23.5	18.8	1,240
Idaho	54.8	5.8	30.5	8.9	259
Illinois	89.4	2.4	0.3	7.9	26,616
Indiana	90.8	1.4	1.2	6.6	6,116
Iowa	82.2	4.7	2.5	10.6	11,939
Kansas	25.5	58.4	1.5	14.6	1,055
Kentucky	85.5	3.2	4.0	7.3	3,616
Louisiana	28.7	5.9	12.1	53.3	4,895
Maine	33.2	1.0	12.2	53.6	401
Maryland	70.2	2.3	2.0	25.6	1,013
Massachusetts	89.4	6.3	2.6	1.7	2,720
Michigan	32.7	0.3	53.1	3.9	13,615
Minnesota	76.5	1.0	13.2	9.3	1,733
Mississippi	62.8	0.4	14.8	22.0	2,675
Missouri	27.1	0.1	38.4	34.5	12,322
Montana	79.1	4.7	2.7	13.4	1,495
Nebraska	79.3	1.9	14.0	4.9	6,946
Nevada	55.7	9.0	7.6	27.8	634
New Hampshire	68.4	5.1	8.4	18.2	749
New Jersey	23.8	3.3	52.0	20.9	793
New Mexico	44.4	4.5	12.4	38.7	1,171
New York	80.7	10.0	1.5	7.8	2,537
North Carolina	87.5	2.9	3.0	6.5	3,713
North Dakota	63.7	3.0	11.9	21.4	3,095
Ohio	55.9	0.8	6.9	36.5	7,366
Oklahoma	42.6	0.5	8.1	48.8	799
Oregon	1.0	0.1	81.8	17.1	2,162
Pennsylvania	89.1	2.4	4.8	3.7	5,166
Rhode Island	85.2	2.7	0.8	11.0	826
South Carolina	60.3	20.5	13.9	5.3	15,367
South Dakota	88.1	3.2	4.7	4.0	1,794
Tennessee	82.5	0.8	13.5	3.2	3,140
Texas	69.0	8.7	5.3	17.0	4,327
Utah	18.3	0.3	57.4	23.9	1,794
Vermont	39.9	5.7	3.9	40.5	1,357
Virginia	61.4	2.6	1.1	34.9	9,612
Washington	93.4	3.2	0.7	2.7	1,517
West Virginia	36.0	9.0	38.6	16.3	630
Wisconsin	60.0	1.6	5.6	32.9	702
Wyoming	72.8	3.7	15.4	8.1	628
Total	62.1	4.3	16.2	17.3	207,848

Note. Data in these columns represent percentages of students with that disability classification who received Pre-ETS out of total number of Pre-ETS recipients within the state.

need to be differentiated to better meet the existing needs, knowledge, and skills of specific groups.

We also analyzed RSA-911 data components related to student disability classification. The major-

ity of students who received Pre-ETS across states were students with IEPs. In contrast, students with 504 plans comprised 10% or less of students who received Pre-ETS in 49 states. Large-scale research

on the identification of students served by 504 plans is lacking (Zirkel & Weathers, 2015), thus it is unclear at present if students with 504 plans are being underserved through Pre-ETS and/or if there are specific barriers and supports to the participation of students with 504 plans in Pre-ETS. Finally, we noted surprising differences across states in the percentage of students classified as being students without disabilities who received Pre-ETS. We do not know why or how students without disabilities would be receiving Pre-ETS, but it is a phenomenon that is occurring with some regularity across states, and at higher rates within some states versus others. Further investigation is needed to determine potential reasons for this finding, such as how/when disability status is confirmed and documented by VR counselors and how to accurately record specific programs/services that may target students with and without disabilities.

4.1. Limitations

A limitation of the present study is that it solely offers descriptive analyses of Pre-ETS implementation at the state level. This analysis is an important first step in describing key factors related to Pre-ETS implementation and generating subsequent research questions, but it does not tell us about possible relationships between Pre-ETS and state characteristics (e.g., state investment in VR, type of Pre-ETS delivery system, state demographics, student demographics) or the effectiveness of specific Pre-ETS programs and service delivery models at the state level. Also, we used RSA-911 administrative data in our analysis. VR counselors receive comprehensive training on entering data into the RSA-911 system, but Pre-ETS data elements were still relatively new during this timeframe, which could have resulted in errors or inconsistencies across states in how to interpret data elements and code data within the system. This possibility is particularly relevant considering some of the more surprising results we found, particularly related to disability classifications of students receiving Pre-ETS across states. More research is needed that examines the characteristics of students receiving Pre-ETS, including students classified as not having a disability.

4.2. Implications for research and policy

This study highlights substantive differences in how state agencies are implementing Pre-ETS and structuring their service delivery programs. To

better support states in their Pre-ETS implementation, research is needed that analyzes relationships between state characteristics (e.g., state demographics, state budgets, state disability employment policies, student characteristics, Pre-ETS delivery components) and student outcomes to determine components of Pre-ETS design and delivery that are more likely to support successful CIE. Given the differences in Pre-ETS provider profiles noted in this study, future research should also focus on developing targeted Pre-ETS professional development and training programs that meet the specific learning needs of VR staff or vendor providers. Measuring the effects of that training on the range of Pre-ETS offered to students is also critical, with a specific focus on expanding WBLE, ISA, and CEO. Finally, findings from this study point to the need for future research that analyzes the effectiveness of different Pre-ETS experiences on outcomes for students who go on to receive individualized VR services, such as student skill attainment, PSE/training enrollment, and CIE outcomes.

5. Conclusion

Our study indicates that state VR systems and structures differ widely regarding Pre-ETS implementation. To better meet the unique needs of states and to support the provision of high-quality services, federal policy makers may need to provide a wider range of training and guidance documents that acknowledge and address the needs of different types of state Pre-ETS systems. States would also benefit from targeted federal efforts to expand access to underutilized Pre-ETS, particularly WBLE, ISA, and CEO. Expanded access could be encouraged through targeted technical assistance and training, as well as the development of model demonstration programs focused on delivering these specific Pre-ETS, while also considering that these services may frequently be provided by vendors or others who are not employed by the state VR agency.

Therefore, ensuring that these providers have access to high-quality training and support is critical to the long-term success of Pre-ETS. Finally, we found that students with 504 plans constitute a low proportion of those receiving Pre-ETS. Schools and VR agencies will likely need support and training across multiple domains to increase the Pre-ETS participation of this population, including effective approaches to providing Pre-ETS outreach to

students, families, and 504 plan case managers within schools; strategies on how to deliver Pre-ETS to students with 504 plans during the school day; and best practices within Pre-ETS to meet the career goals of this population. Given the limited research and information we have on supporting students with 504 plans, it may be helpful to identify states who are already providing Pre-ETS to larger percentages of students with 504 plans (e.g., Oregon, Colorado) and provide opportunities for them to share their experiences and approaches with the larger pool of VR state agencies. As states move forward with Pre-ETS implementation, a range of resources and supports, curated to fit their specific contextual needs, structures, and strengths, will be needed to ensure high-quality service provision to a wide range of students with disabilities.

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Conflict of interest

The authors do not have any conflicts of interest to report.

Ethics statement

Not applicable.

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Informed consent

Not applicable.

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