Early Childhood Personnel Center

Data Report

A Comparative Analysis from 2017 and 2022 Self-Assessments: State Comprehensive Systems of Personnel Development for Part C and Part B (619) Programs of the Individuals with Disabilities Education Act (IDEA)

IDEAs that Work

This is a product of the Early Childhood Personnel Center (ECPC) awarded to the University of Connecticut Center for Excellence in Developmental Disabilities and was made possible by Cooperative Agreement #H325B170008 which is funded by the U.S. Department of Education, Office of Special Education Programs. However, the content does not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government.

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Introduction

The Early Childhood Personnel Center (ECPC) was funded by the U.S. Department of Education's Office of Special Education Programs to provide training and technical assistance to state-level early childhood systems concerning personnel development. The ECPC staff conducts self-assessment surveys for Part C (Birth to Three) and Part B/619 (Preschool) systems to determine which elements of a Comprehensive System of Personnel Development (CSPD) are present. Details regarding the original survey methodology and results can be found in the *National Landscape of Early Childhood Personnel Standards for Professionals Serving Infants and Young Children with Disabilities and Their Families under 619 and Part C of the Individuals with Disabilities Act (IDEA)* report (available: https://ecpcta.org/wpcontent/uploads/sites/2810/2016/11/Data_Report2.pdf).

The CSPD-SA is conducted to describe the national landscape of early childhood comprehensive systems of personnel development (EC-CSPD) across Part C and Part B/619. This report details and compares the outcomes of self-assessments reported by both Part C and Part B/619 Coordinators from 2017 and the more recent assessment from 2022. The following research questions guided this report:

- What is the relationship between EC-CSPD Subcomponents for all responses across 2017 and 2022?
- How many Part C (Birth to Three) state leaders reported having all components of an EC-CSPD in place in 2017 compared to 2022?
- What EC-CSPD subcomponents are most commonly reported as being present by Part C state leaders in 2017 and are those still reported to be present in 2022?
- What EC-CSPD subcomponents are least commonly reported as being present by Part C state leaders in 2017? Did the states with the least amount of subcomponents present by Part C show improvements in 2022?
- What is the relationship of EC-CSPD subcomponents for Part C systems in 2017 and 2022?

- How many Part B/619 (Preschool) state leaders reported having all components of an EC-CSPD in place in 2017 compared to 2022?
- What EC-CSPD subcomponents are most commonly reported as being present by Part B/619 state leaders in 2017 and are those still reported to be present in 2022?
- What EC-CSPD subcomponents are least commonly reported as being present by Part B/619 state leaders in 2017? Did the states with the least amount of subcomponents present by Part B/619 show improvements in 2022?
- What is the relationship of EC-CSPD subcomponents for Part B/619 systems in 2017 and 2022?
- What is the relationship between EC-CSPD subcomponents across Part C and Part B/619 systems in 2017 and 2022?

Methods

In order to answer the research questions, self-assessments were completed with state coordinators and leaders of Part C and Part B/619 systems. The 2017 respondents included systems across all 50 states and the District of Columbia, while the 2022 programs included the aforementioned states and US capital, along with four US territories, including American Samoa, Guam, Puerto Rico, and the Virgin Islands. For the purposes of this report, any further references to '*states'* will include the District of Columbia and the four U.S. territories. The ECPC staff made efforts to recruit state leaders from all U.S. states and territories at both data collection time periods, however since this report is a comparison between the two time points, only data from select states and Washington, DC could be used.

Instrument

Data was collected using the Comprehensive System of Personnel Development Self-Assessment (CSPD-SA; available: https://ecpcta.org/wp-content/uploads/sites/2810/2021/01/ECPC-Personnel-Self-

Assessment.pdf) form. The ECPC collaborated with the Early Childhood Technical Assistance Center (ECTA) to create an Early Childhood Systems Framework for Part C and Part B section 619 coordinators to evaluate their current systems, identify areas for improvement, and develop more effective and efficient systems that support the implementation of evidence-based practices in each of the six main areas. For a state's participation in intensive Technical Assistance (TA) with the ECPC, and for the intended outcome of implementing a CSPD, it is recommended that assessments be submitted on a periodic basis by one or two individuals representing Part C and Part B/Section 619 sectors.

The Personnel Component of the ECTA delineates six subcomponents of a CSPD. Each of these Subcomponents is composed of Quality Indicator's (referred to as QIs), and each QI consists of several elements of quality (i.e. the items of the CSPD-SA) that describe the key features of its QI. The CSPD QIs have been revised and updated since 2017, so the 2022 self-assessments differ in wording and elements of quality.

For ease of comparing the two CSPD-SA reports (2017 and 2022), three members of the ECPC research team conducted a crosswalk of the original subcomponents and their QIs (from 2017) with the revised/updated version. Using Microsoft word, a side-by-side alignment of revised and original CSPD components was utilized by each team member to highlight the original QIs that aligned the closest with the updated version. The ECPC researchers then compared what they chose from the original CSPD components, reviewed discrepancies, and discussed disagreements before finalizing which QIs (therefore which datasets) will be used to align the 2017 and 2022 reports for comparison.

As shown in the table below, each QI consists of several elements of quality. The CSPD-SA uses a three-point Likert scale in which the elements of quality are rated on a scale of (1) the state has none of the element in place, (2) the state has some in place, or (3) the state has all of this element in place.

Table 1.

CSPD-SA Subcomponents & QIs

Subcomponent	Quality Indicators
Leadership, Coordination, & Sustainability	Cross-sector Leadership Team
	Written Multi-year Plan
	A state vision, mission, and plan
Recruitment & Retention	Data-based Recruitment/Retention
	Comprehensive Recruitment/Retention
	Across Disciplines
State Personnel Standards	State Standards Aligned to National
	Certification Aligned to State/National
	State Certification Reviewed Annually
Pre-service Training	IHE Aligned to National Standards
	IHE Aligned Across Disciplines
	IHE Address EC Dev
	IHE faculty Meet Yearly
In-service Personnel Development	Statewide In-service PD-TA System
	In-service Aligned with IHE
	In-service Aligned Across Disciplines
	Evidenced-based practices
Evaluation Plan	CSPD Evaluation Plan
	Ongoing Evaluation

Data Analysis

Participants

The number of systems participating in the study differed within the five year period, having 74 systems reporting in 2017 followed by an increased number of 95 systems completing the self-assessment in 2022. The 2022 data also resulted in greater U.S. representation compared to what was captured for 2017, as 2022 reflected all 50 states, the District of Columbia, as well as the four U.S. territories of American Samoa, Guam, Puerto Rico, and the Virgin Islands. In contrast, the 2017 data comprised of 45 states and no other U.S. areas. In addition, 40 Part C systems participated in the 2017 study compared to 50 in 2022, and 34 Part B coordinators took part in 2017 with an increase of 45

participants in the 2022 assessment (Table 2 & Figure 1). Analyzing a breakdown of Part C and Part B/619 systems further can be by state; 40 states (72.73%) were represented by both part C and part B in 2022, while the reports from 2017 indicate only 29 (64.44%). Meanwhile, a difference exists between the number of states represented by one system; in 2017 there were 16 states that had reports from one system while 2022 reports portray a slight decrease with 15 states being represented by one system (Table 3).

Since there is a difference in the number and the type of U.S. areas surveyed in 2017 compared to 2022, for the system comparison section of this report, the research team considered only those states that participated in both years of the self-assessment. This decision was made to provide an accurate and balanced contrast between the information gathered each year. As a result of comparing only the states responding in both 2017 and 2022, the responses of 30 states will be analyzed for Part B/619 systems, and data from 37 states will be contrasted for Part C systems. This sample analysis is further examined in the 'Comparison by State' portions of this report.

Table 2.

Total Responses by System Type

	2017		2022	
	Responses	Frequency	Responses	Frequency
Part C Coordinator	40	54%	50	53%
Part B/619 Coordinator	34	46%	45	47%
Total	74	100%	95	100%

Figure 1.

Total Responses by System Type

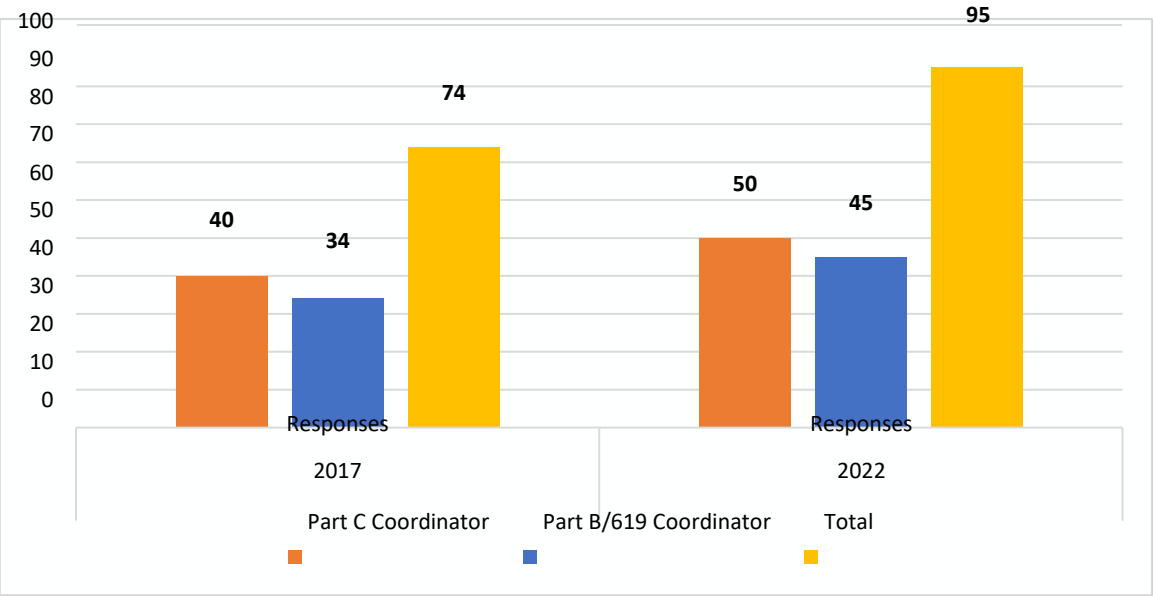


Table 3.

Total States Represented by One or Two System Coordinators

	2017		2022	
	States Represented	Frequency	States Represented	Frequency
Both State System's	29	64.44%	40	72.73%
One State System	16	35.56%	15	27.27%
Total	45	100%	55	100%

Results

All Responses Both Systems

Before exploring answers to the primary research questions, it is important to first provide the groundwork for what the self-assessments looked like individually in 2017 and 2022. Having clarity on

the data as a whole will be a foundation for the reader to understand specific subgroup analysis further in the report. In order to provide further context to the data, in the tables below (Table 4 & Table 5) for 2022, there is less consistency across the values for the systems compared to the 2017 data, which recorded remarkable consistency between systems based on average mean scores. This may be a result of reducing the number of questions presented to each state coordinator in 2022 from 2017, or this may be the result from the increased 21 responses in the 2022 self-assessments.

Table 4.

2017 Mean Scores and Cronbach's Alphas by CSPD-SA Subcomponent and System Type

	Part C		Part B/619		Cronbach's
Subcomponent	Mean	SD	Mean	SD	Alpha
Leadership, Coordination, and Sustainability	1.66	0.027	1.65	0.44	0.8
Recruitment and Retention	1.45	0.34	1.3	0.36	0.775
Personnel Standards	2.36	0.46	1.96	0.43	0.552
Pre-service Training	1.86	0.32	1.78	0.38	0.895
In-service Personnel Development	1.96	0.38	1.65	0.37	0.858
Evaluation Plan	1.59	0.41	1.28	0.34	0.791

Table 5.

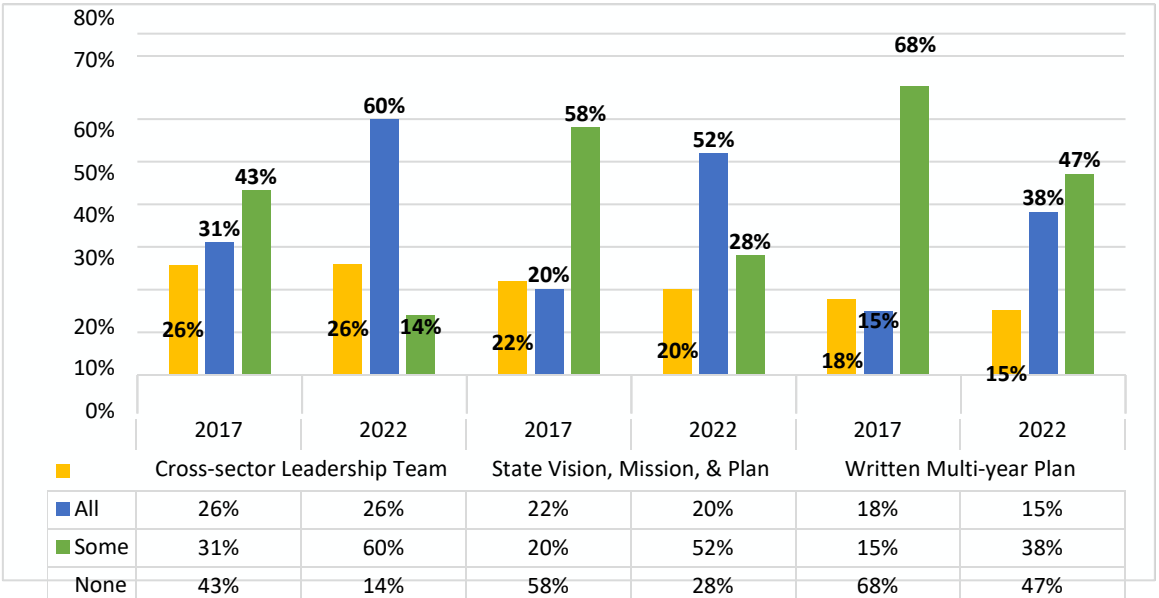
2022 Mean Scores and Cronbach's Alphas by CSPD-SA Subcomponent and System Type

	Part C		Part B/619		Cronbach's
Subcomponent	Mean	SD	Mean	SD	Alpha
Leadership, Coordination, and Sustainability	2.05	0.31	1.73	0.3	0.793
Recruitment and Retention	1.69	0.31	1.66	0.29	0.757
Personnel Standards	2.31	0.35	2.16	0.33	0.745
Pre-service Training	2.05	0.33	2.26	0.32	0.816
In-service Personnel Developmen	2.17	0.36	2.01	0.31	0.824
Evaluation Plan	1.85	0.27	1.68	0.11	0.938

To compare all the responses received across both systems for each year, it is best to begin by analyzing the responses for each year across the subcomponents. Beginning with Leadership, Coordination, and Sustainability (LCS), across both system responses, indicate that states did not experience an increase in systems having all the elements in place from 2017 to 2022, with values in this category either staying the same or decreasing slightly (Figure 2 data table). However, the 2022 responses for all systems indicate a significant increase in systems having some elements in place compared to 2017 data, as all three QIs for this subcomponent demonstrated a substantial increase in the percentage of having some elements in place. This is also coupled with percentages decreasing in 2022 compared to 2017 for systems with no elements in place. These two trends within this subcomponent indicate growth as systems are indicating to have more elements in place than in the past.

Figure 2.

All Responses for Leadership, Coordination, and Sustainability



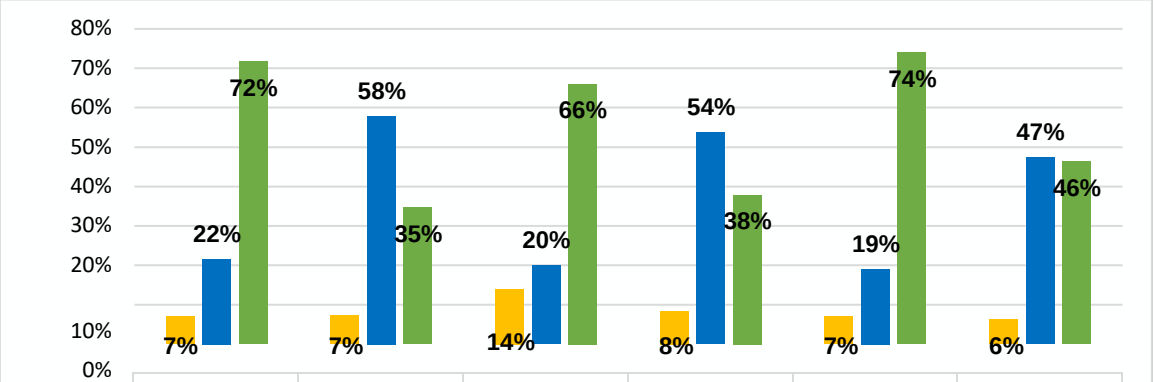
	Cross-sector Leadership Team		State Vision, Mission, & Plan		Written Multi-year Plan	
	2017	2022	2017	2022	2017	2022
All	26%	26%	22%	20%	18%	15%
Some	31%	60%	20%	52%	15%	38%
None	43%	14%	58%	28%	68%	47%

The following subcomponent, Recruitment and Retention (RR) displays a similar pattern to those of LCS in the change in all responses from 2017 to 2022. As evidenced in Figure 3, responses from 2022 demonstrate across all QIs for RR that percentages more than doubled for having some elements of

quality in place, with Data-based Recruitment and Retention nearly tripling in percentage since 2017. Marked differences in percentages between years is also seen in systems having no elements of quality in place, as all QI responses from 2022 display significantly lower percentages in this category compared to 2017, which points to an overall improvement in systems between the five years. However, as with LCS, the 2022 RR responses do not record any increases in having all of the elements in place, with percentages for this category remaining unchanged or slightly lower compared to 2017 responses.

Figure 3.

All Responses for Recruitment and Retention



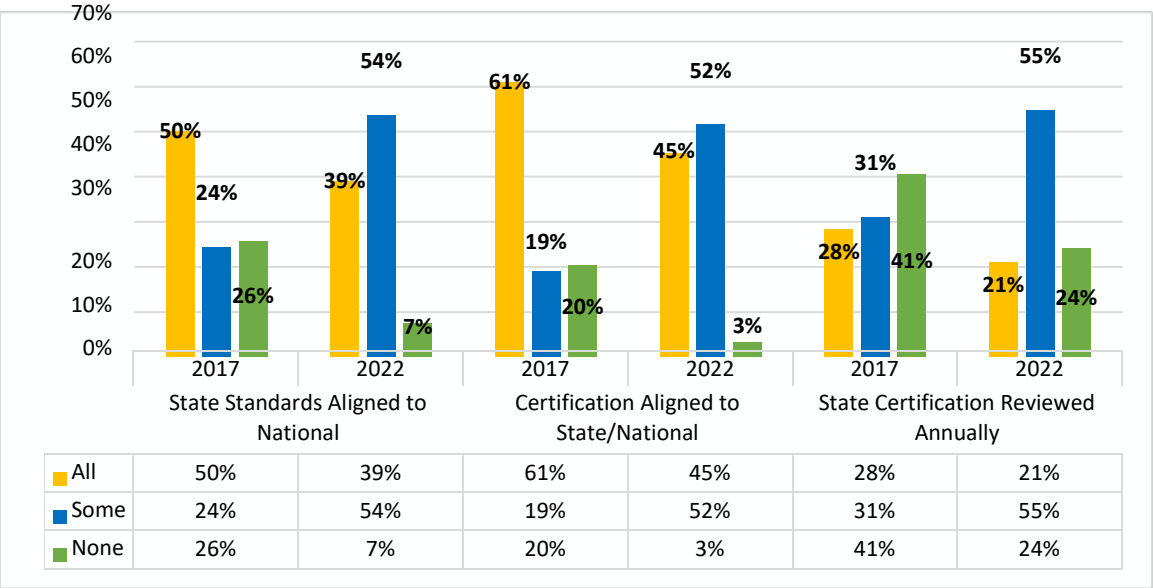
	Data-based Recruitment/Retention		Comprehensive Recruitment/Retention		Across Disciplines	
	2017	2022	2017	2022	2017	2022
All	7%	7%	14%	8%	7%	6%
Some	22%	58%	20%	54%	19%	47%
None	72%	35%	66%	38%	74%	46%

The next subcomponent the states provided responses for is Personnel Standards (PS), which is composed of three QIs. Like the pattern seen with the previous two subcomponents, percentages increased impressively from 2017 to 2022 for all systems concerning some elements of quality in place. In addition, the percentage values decreased from 2017 relating to no elements of quality in place, with the QI "Certification Aligned to State/National Standard" shrinking to just 3%, as evidenced in Figure 4. In terms of having All elements in place, systems reported a reduction in percentage across all QIs from

2017 to 2022. However, despite the reduction in percentages related to the "All Elements in Place" category, these percentages still remain higher compared to other subcomponents for this category.

Figure 4.

All Responses for Personnel Standards

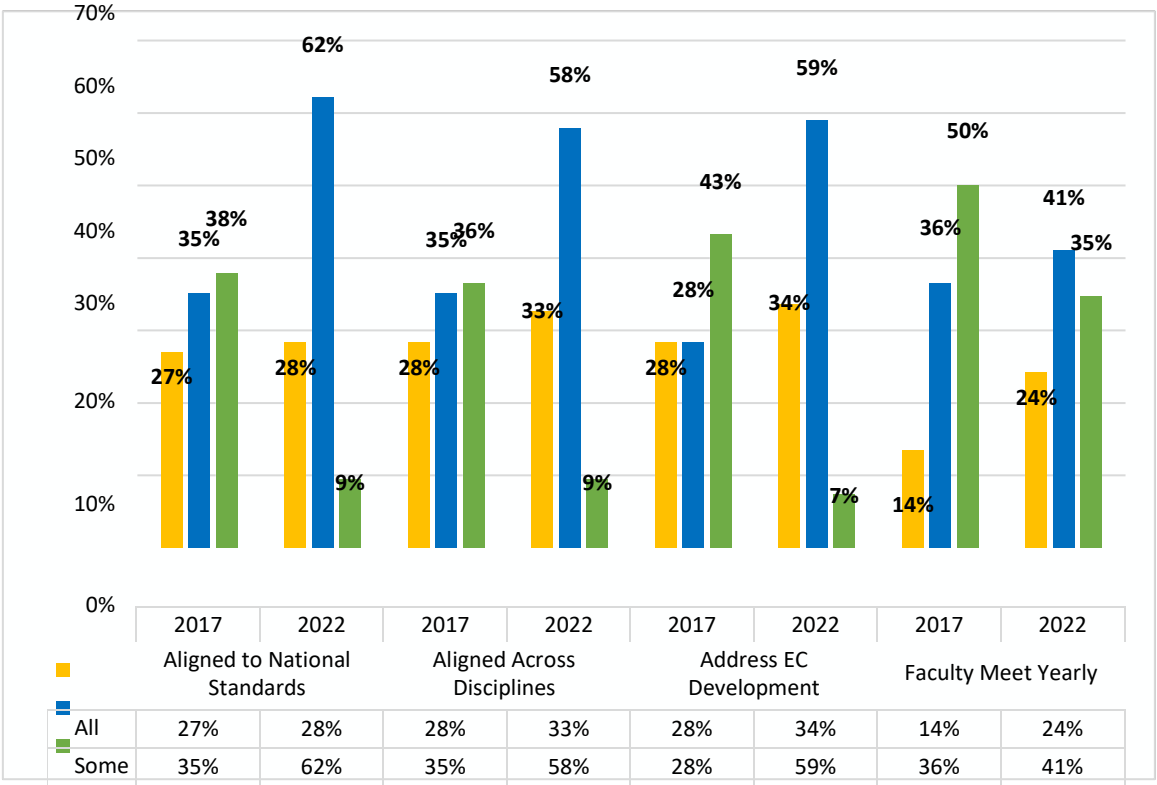


	State Standards Aligned to National		Certification Aligned to State/National		State Certification Reviewed Annually	
	2017	2022	2017	2022	2017	2022
All	50%	39%	61%	45%	28%	21%
Some	24%	54%	19%	52%	31%	55%
None	26%	7%	20%	3%	41%	24%

The subsequent questions posed to the states on the self-assessment concerned Pre-service training , specifically the elements in place for Institutions of Higher Education (IHE) to align to national standards, to align across disciplines, to address Early Childhood development, and for faculty to meet on a yearly basis. In contrast to the responses for the previous subcomponents, states reported percentage increases related to "All elements in place" for each QI, as evidenced in Figure 5 below. In addition, states responded with much higher percentages for "Some elements in place" for each QI in 2022 compared to 2017, while also reporting reduced values over the 5 year period related to having no elements in place. These changes in responses from 2017 to 2022 suggest an encouraging improvement across all systems for Pre-Service training.

Figure 5.

All Responses for Pre-service Training

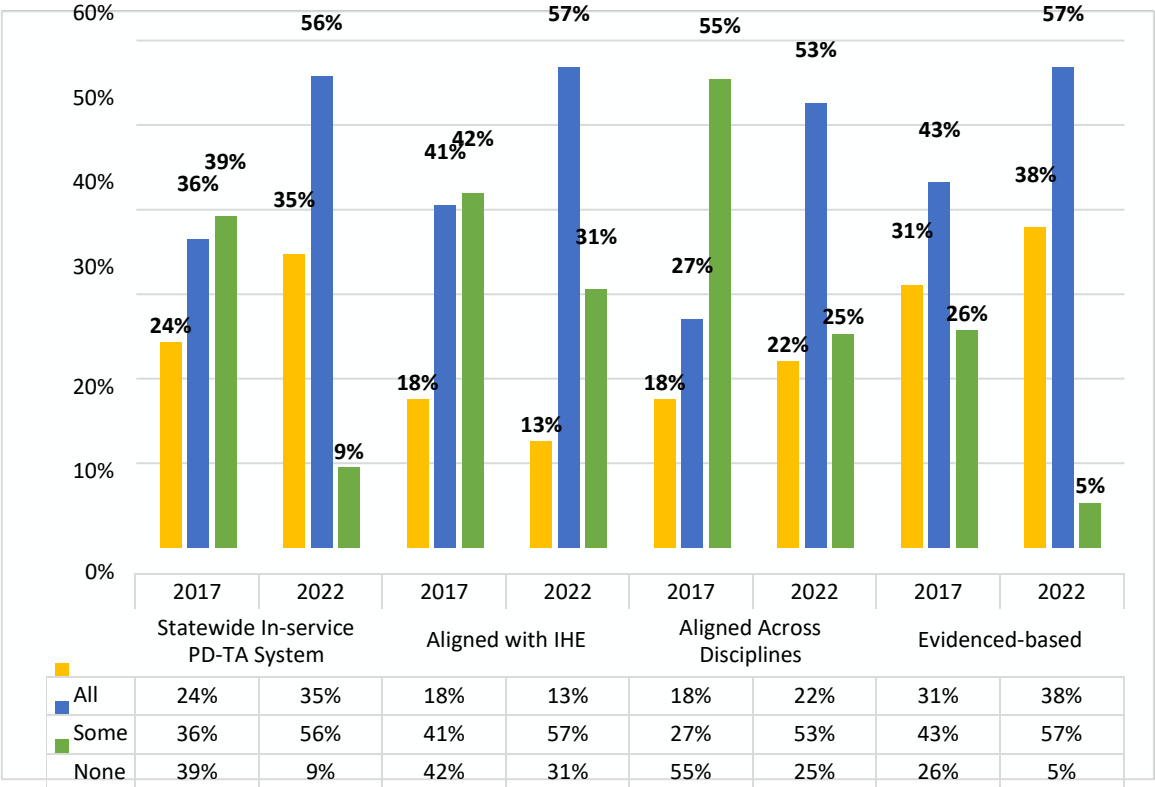


	Aligned to National Standards		Aligned Across Disciplines		Address EC Development		Faculty Meet Yearly	
	2017	2022	2017	2022	2017	2022	2017	2022
All	27%	28%	28%	33%	28%	34%	14%	24%
Some	35%	62%	35%	58%	28%	59%	36%	41%
None	38%	9%	36%	9%	43%	7%	50%	35%

Following the inquiries related to Pre-service training, states were asked to provide responses concerning In-service personnel development related to all systems. As indicated in Figure 6, each of the QIs demonstrated vast improvement from 2017 to 2022 related to all systems having no elements in place, particularly with respect to a statewide system in place for in-service professional development and technical assistance. In a similar fashion to the other subcomponents, each of the QIs reported strong increases in having “Some elements in place” for the 2022 responses, as each QI passed 50% for this category. Also, with the exception of one QI, states reported all systems having higher percentages in 2022 of containing “All elements in place” compared to 2017.

Figure 6.

All Responses for In-service Personnel Development



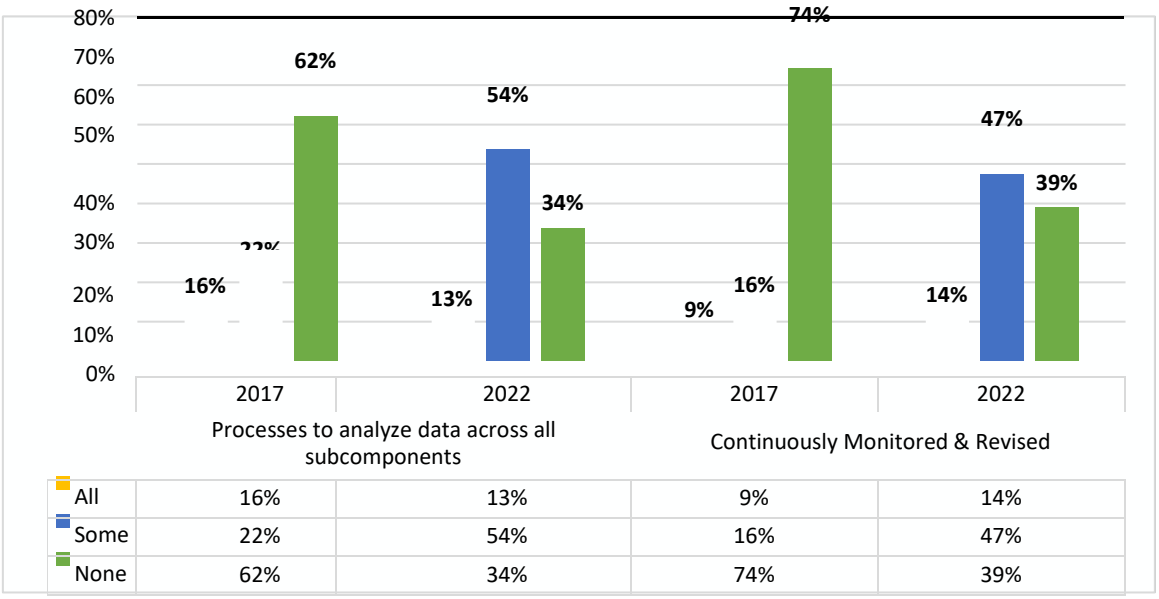
All	24%	35%	18%	13%	18%	22%	31%	38%
Some	36%	56%	41%	57%	27%	53%	43%	57%
None	39%	9%	42%	31%	55%	25%	26%	5%

The last subcomponent of the self-assessment states provided responses on was Evaluation, specifically, the evaluation plan for the EI/ECSE CSPD in relation to processes and mechanisms to collect, store, and analyze data across all subcomponents, as well as the elements in place that the evaluation place is continuously monitored and revised as necessary based on multiple data sources. The first QI related to Evaluation displayed great improvement in percentage changes in 2022 compared to 2017 concerning both Some and No elements in place. These changes are evidenced in Figure 7 as states recorded all systems more than doubled having “Some elements in place” for this QI from 2017 and 2022, while responses also indicate a vast percentage reduction in systems having “None of the elements in place” for an evaluation plan to analyze data across all subcomponents. However, in line with the data for other subcomponents discussed above, the percentage reduced slightly from 2017 to 2022 for “All elements in place” related to this first Evaluation QI. The other QI for Evaluation displayed

improvement in all categories from 2017 to 2022, as the percentage increased for responses having “All elements in place” across the time period, and the percentages of “Some elements in place” for this QI nearly tripled from 16% to 47% within the 5 years. Lastly, responses provided for all systems from 2022 indicate a tremendous improvement from 2017 in regards to having “None of the elements in place” concerning a continuously monitored and revised evaluation. Figure 7 illustrates the percentage for this category reduced by nearly half its original value of 74% to 39% indicating more elements in place across all systems for states in 2022 compared to 2017.

Figure 7.

All Responses for Evaluation



	2017	2022	2017	2022
All	16%	13%	9%	14%
Some	22%	54%	16%	47%
None	62%	34%	74%	39%

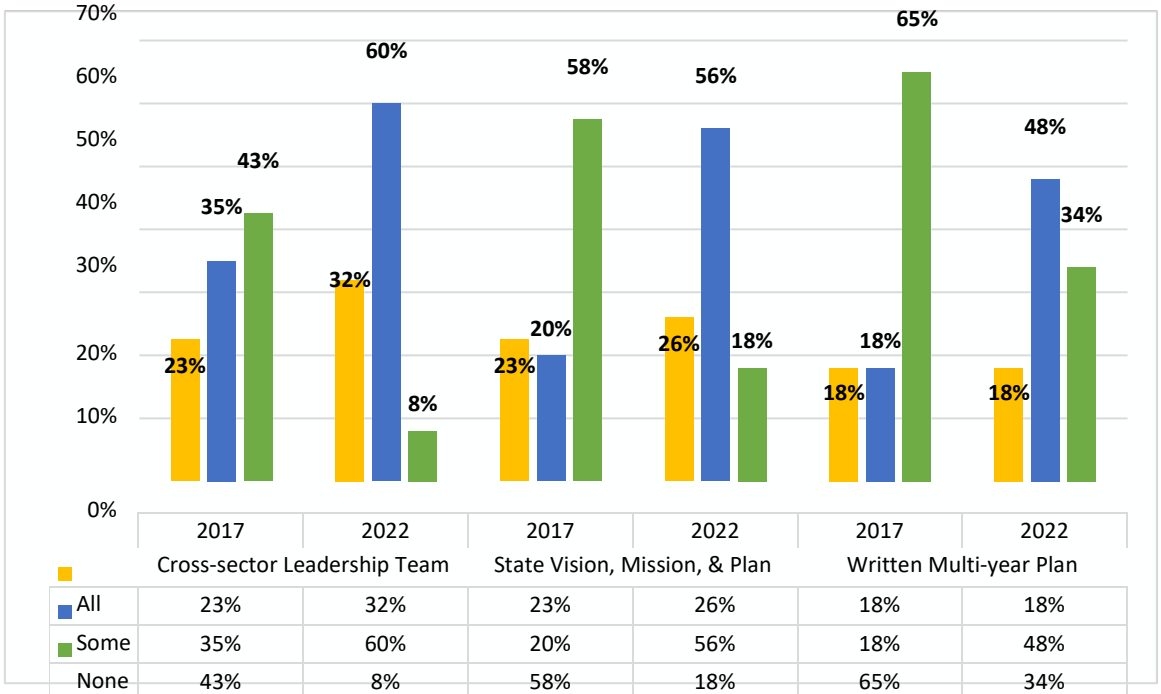
Part C Systems Comparison

All Responses

There were 40 Self assessments completed by part C systems in 2017, and there were ten more completed in 2022 (n=50). The small difference in total counts for both years' assessments allow for greater accuracy when comparing the percent frequencies. After evaluating assessments for the first subcomponent, Leadership, Coordination, and Sustainability, the outcome from 2022 is positive. Figure 8 below shows an increase in 'all' responses referring to having a QI in place. The first QI, for this subcomponent, requires that the state have a cross sector leadership team in place that can set priorities and make policy, governance, and financial decisions related to the personnel system. There was a 9% increase, in 2022 reports, for having this QI in place, following a 3% increase for the second QI. Two states, Idaho and Indiana, showed drastic improvements for the first QI, having a cross-sector leadership team in place. In 2017, both states report having 'none' of said QI in place, while 2022 coordinators reported having 'all' in place. Idaho demonstrated the same improvements for the second QI, having a state vision, mission, and plan, the state went from having none in place in 2017 to having all in place in 2022. The third QI for this subcomponent had the least amount of improvement since reports show the status has stayed the same.

Figure 8.

Comparing Part C – Leadership, Coordination, and Sustainability



	Cross-sector Leadership Team		State Vision, Mission, & Plan		Written Multi-year Plan	
	2017	2022	2017	2022	2017	2022
All	23%	32%	23%	26%	18%	18%
Some	35%	60%	20%	56%	18%	48%
None	43%	8%	58%	18%	65%	34%

Self-assessments for the recruitment and retention subcomponent did not display the improvements that the first subcomponent had in regard to having all of a QI in place. The first QI for the R&R subcomponent advises state CSPD's to have recruitment and retention strategies that are based on multiple data sources and current research. Self-assessments for this QI demonstrate strong improvements on the "some" and "none" rating scales. Figure 9 displays an increase of 35% in 2022, of reports having 'some' of the first QI in place, and a 33% decrease in reports having 'none'. The second QI displays similar results in that there's a 31% increase in reports saying they have "some" in place while reports for having "none" in place decreased by 22%. Lastly, the third QI for this subcomponent advises that states implement retention strategies across disciplines. Although reports for having all of this QI in place decreased slightly (n=2%), there were improvements observed in the ratings for having "some" and "none" in place. Ratings for having some of a QI in place are considered improved when there are more reports in 2022 than in 2017. For example, figure 9 display's a 33% difference between 2017's

reports of “some” (n=13%) and 2022 (n=46%). The reverse is true when judging the progress of having “none” in place; improvements are deemed to be positive when there are less reports in 2022 than for 2017. For example, figure 9 demonstrates that 2022 (n=48%) reports are almost half of what 2017 (n=80%) part C systems reported.

Reviewing the states represented by part C coordinators, in both years, who reported having none of this subcomponent in place, provides insight into the status of the CSPD components that are underdeveloped within a state. Figure 10 demonstrates the geographical regions that reported having none of the recruitment and retention subcomponent in place in 2017 (n=22), then in 2022 (n=5).

Figure 9.

Comparing Part C – Recruitment & Retention

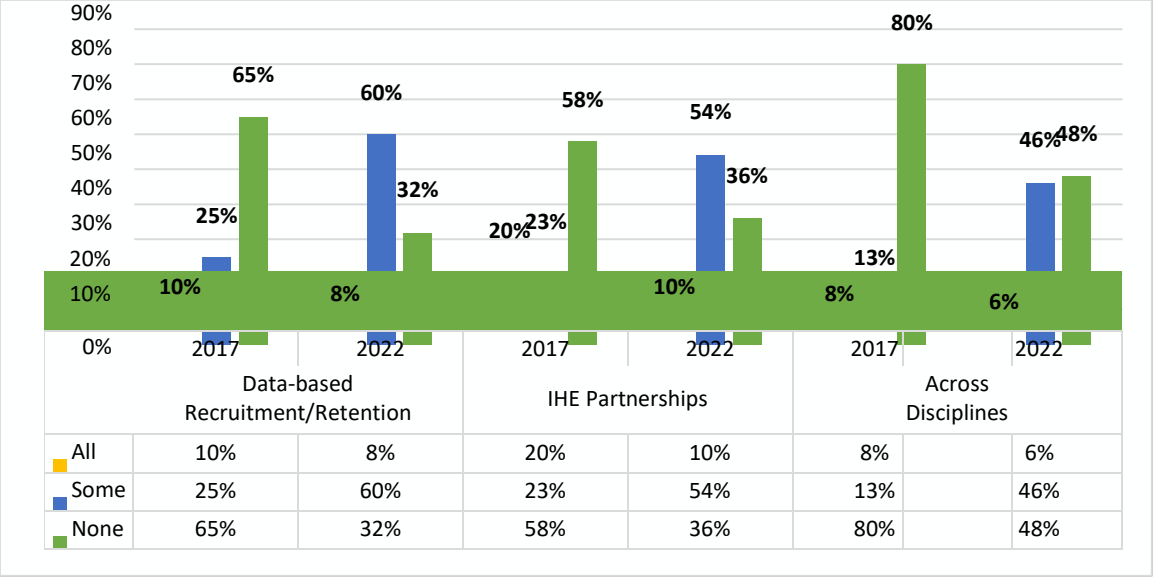
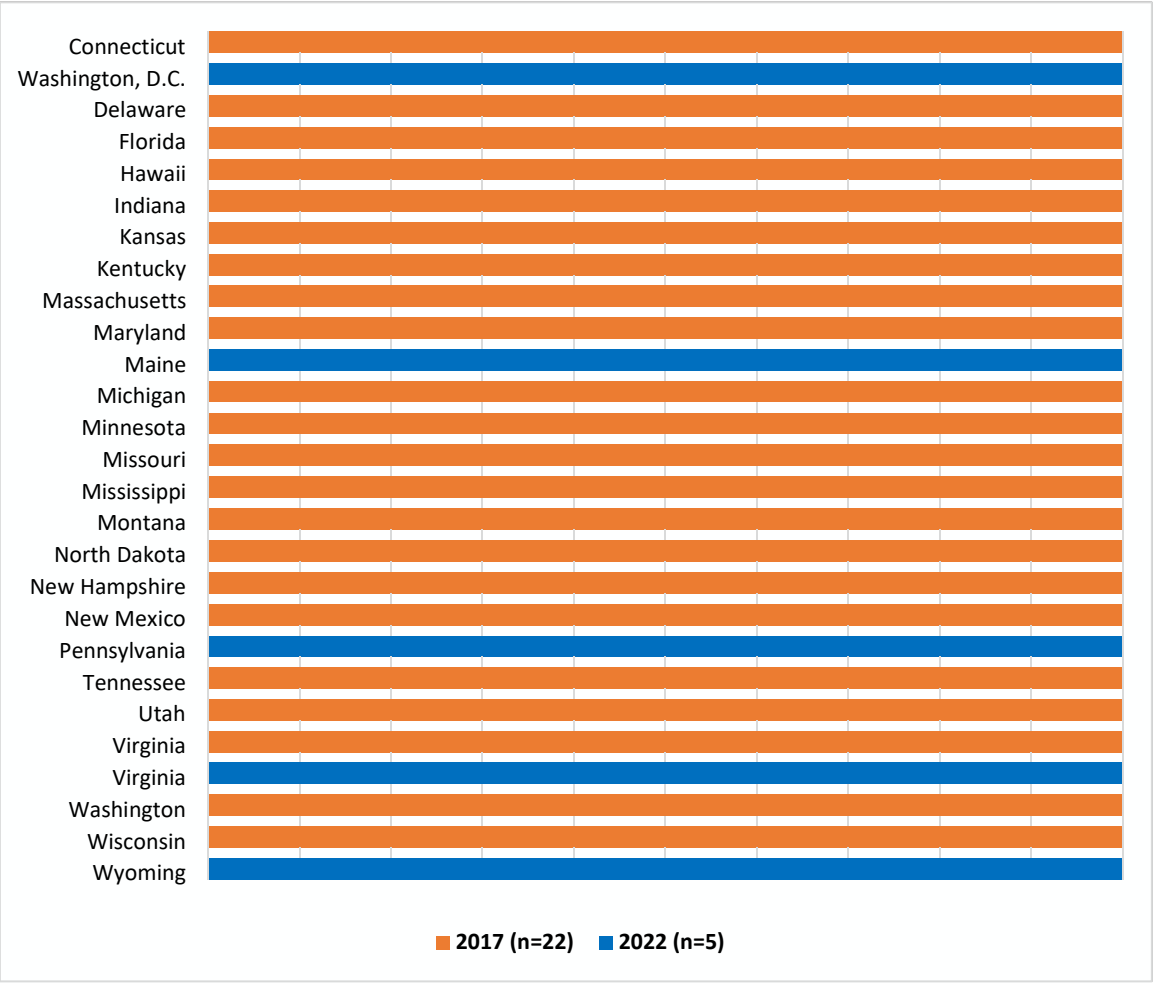


Figure 10.

Part C States Report None for Recruitment & Retention

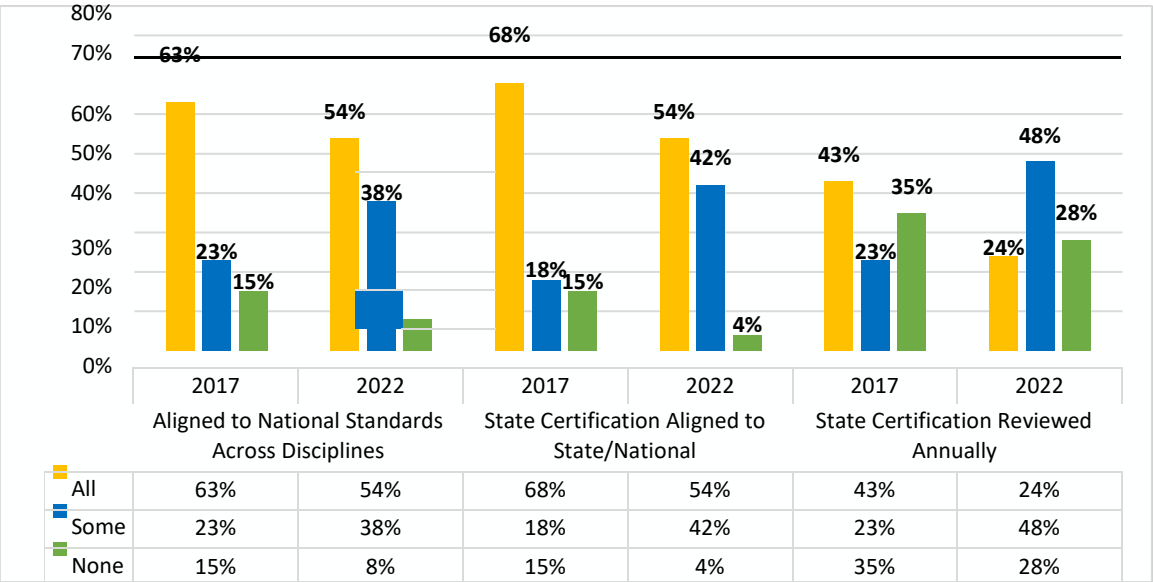


The proceeding subcomponent to be assessed by part C is regarding a state CSPD's personnel standards. The first QI for this subcomponent recommends that a state CSPD's personnel standards across disciplines are aligned to national professional organizational standards. This QI displays minimal changes and slight improvements only in regards to the "some" and "none" scales. Figure 11 compares 2017 and 2022 part C reports and it shows improvements for the second and third QI's respectively. The second QI for the personnel standards subcomponent purposes that CSPD's align their certification criteria to state and national personnel standards. Like the first QI, the following element for this

subcomponent reveals a slight decrease for having “all” in place, a 24% increase for those who reported “some”, and an 8% decrease in reports for having “none” in place. Lastly, the third QI involves having a state CSPD annually reviewing and updating state certification, licensure, credentials, and endorsements. This QI demonstrates the most significant change over time with a 25% increase in 2022 for having some of this QI in place, and a 7% decrease for having none.

Figure 11.

Comparing Part C – Personnel Standards



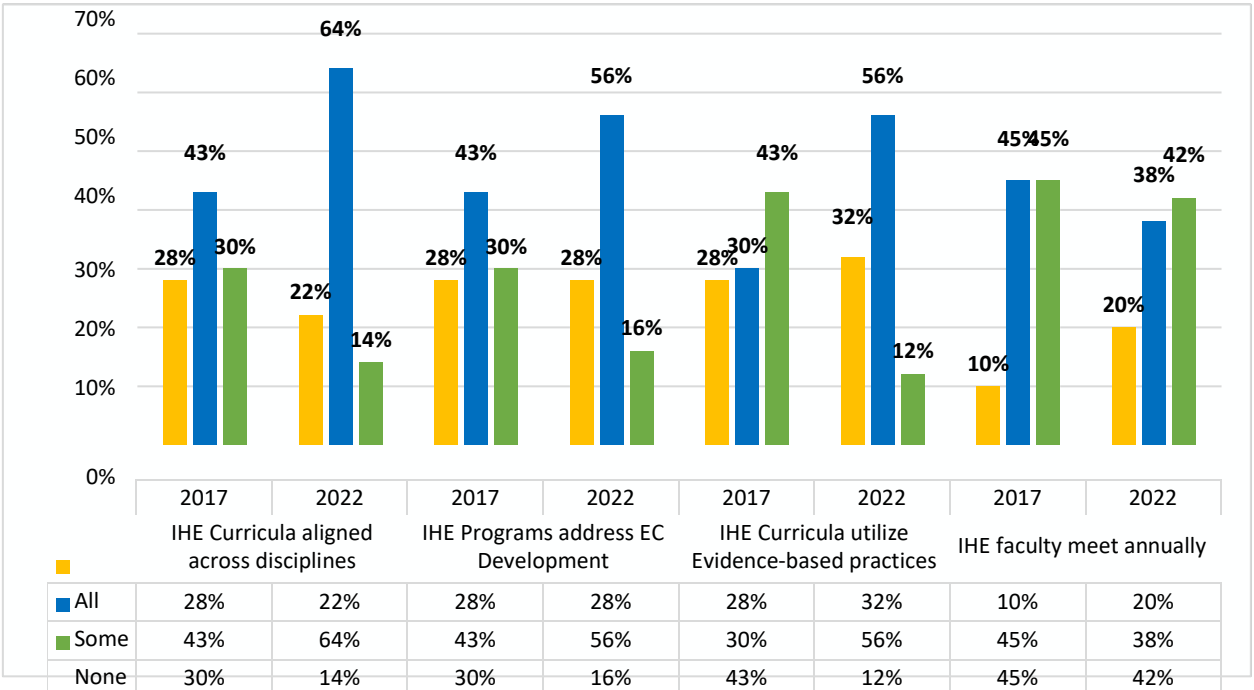
	Aligned to National Standards Across Disciplines		State Certification Aligned to State/National		State Certification Reviewed Annually	
	2017	2022	2017	2022	2017	2022
All	63%	54%	68%	54%	43%	24%
Some	23%	38%	18%	42%	23%	48%
None	15%	8%	15%	4%	35%	28%

Proceeding the personnel standards subcomponent is pre-service training. Figure 12 presents the data that was reported regarding having the four elements of this subcomponent in place. Significant changes are seen across all QI’s, starting with the first for having IHE curriculums across disciplines aligned with both national and state professional standards, there is a 21% increase for reports having some of this QI in place, and a 16% decrease in reports having none. The following QI has to do with the IHE’s program of study addressing early childhood development and discipline specific pedagogy. No changes were seen over time for reports having all of this QI in place. As revealed in figure

13, there were four states in 2017 and six in 2022 that represented these totals, and Nebraska is the only region proven to stay consistent over time. The next QI specific to the preservice subcomponent indicates the need for consistent use of evidence-based practices within a IHE programs curricula. Significant improvements are seen in 2022 self assessments compared to 2017, for example there's a 4% increase in reports for having all, a 26% increase in some, and a 31% decrease for reportedly having none of this QI in place. The last element of this subcomponent recommends that IHE faculty meet annually to plan, coordinate, and collaborate on preservice content. Self-assessments reveal similar results to the previous QI, where reports that represent having all of this in place has doubled since 2017, from 10% to 20% in 2022.

Figure 12.

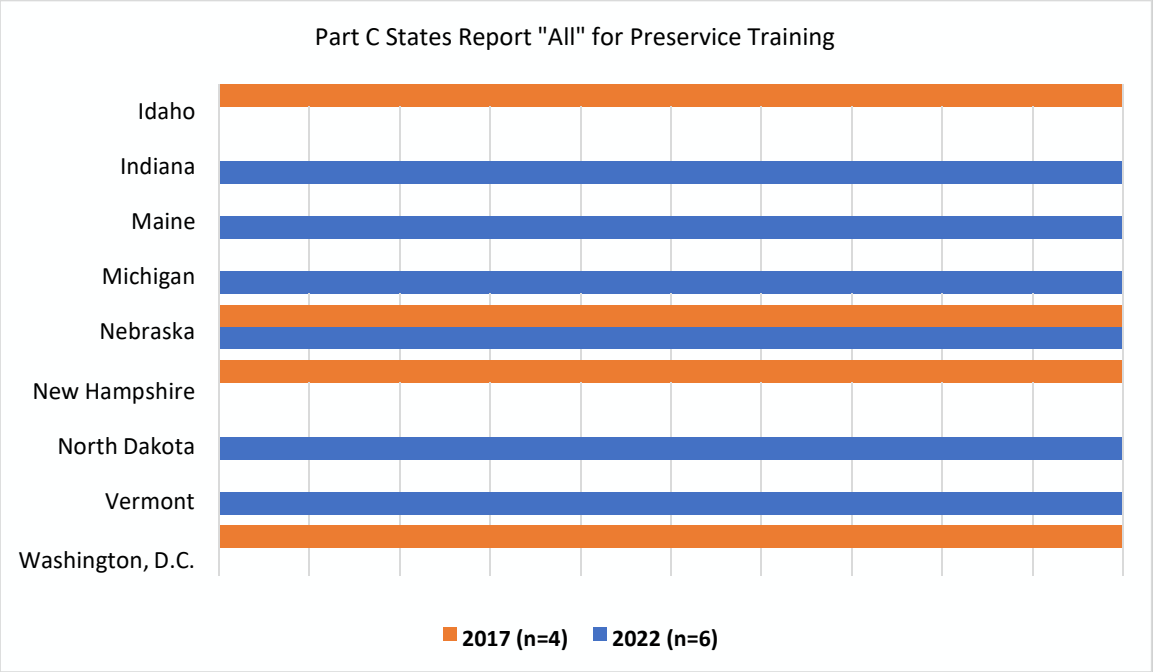
Comparing Part C – Pre-service Training



	2017	2022	2017	2022	2017	2022	2017	2022
	IHE Curricula aligned across disciplines		IHE Programs address EC Development		IHE Curricula utilize Evidence-based practices		IHE faculty meet annually	
All	28%	22%	28%	28%	28%	32%	10%	20%
Some	43%	64%	43%	56%	30%	56%	45%	38%
None	30%	14%	30%	16%	43%	12%	45%	42%

Figure 13.

Part C States Reporting All Pre-service Training

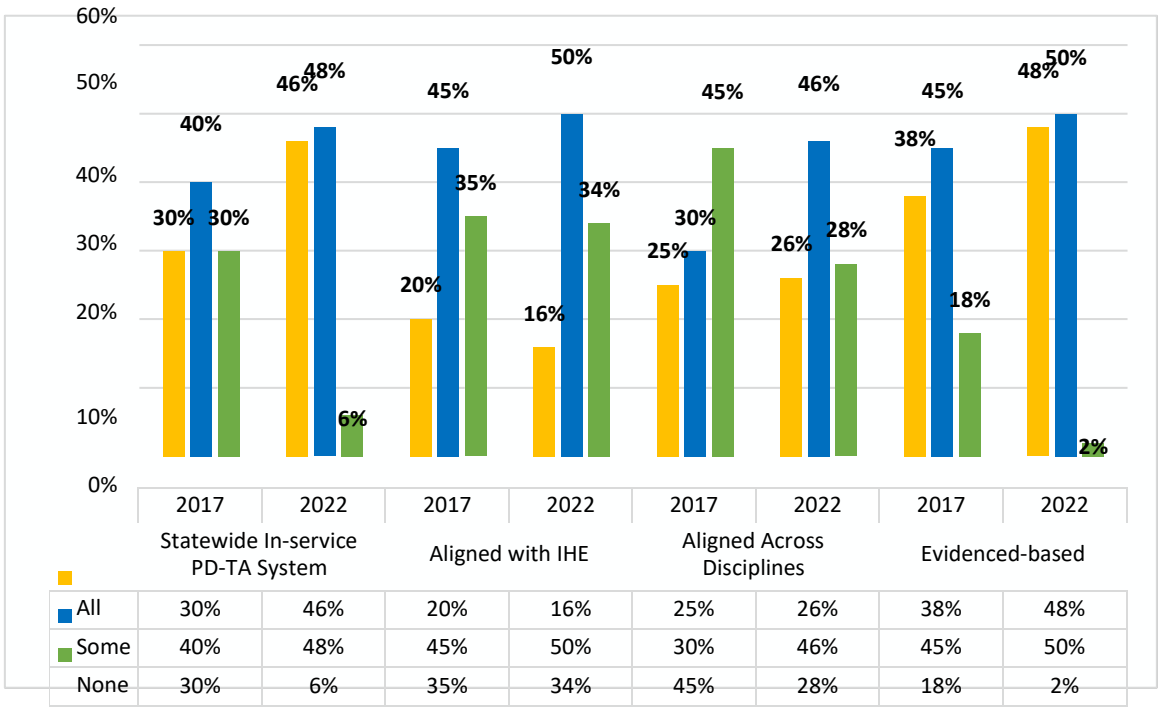


Next, the in-service personnel development subcomponent is a workgroup that ensures on-going training to maintain/extend the skills and knowledge. Significant improvements were seen over time concerning the reports for having all of the first QI in place for having a statewide in-service personnel development system in place. Figure 14 demonstrates the resulting 30% reported from 2017 self-assessments, then with a 16% increase of 46% in 2022. Following with an 8% increase in reports for having some in place, and a significant decline of 24% in 2022 reports having none of this QI in place. This decline in states reporting 'none' is positively significant in regards to evaluating the current condition of part C systems; having less reports for none in place can lead one to hypothesize that part C systems have identified areas for improvement after 2017, and developed more effective and efficient systems to support the implementation of in-service practices. The following QI concerns whether a statewide in-service personnel development (PD) system is aligned and coordinated with higher

education programs' curriculums. Only slight changes were seen over time with the second QI; reports having all in place declined by 4%, some reports increased by 5%, and reports having none in place had the least amount of change with 1%. To be an effective CSPD system, this subcomponent workgroup must ensure that high quality in-service training is accessible to practitioners across disciplines.

Figure 14.

Comparing Part C – In-service Personnel Development



	Statewide In-service PD-TA System		Aligned with IHE		Aligned Across Disciplines		Evidenced-based	
	2017	2022	2017	2022	2017	2022	2017	2022
All	30%	46%	20%	16%	25%	26%	38%	48%
Some	40%	48%	45%	50%	30%	46%	45%	50%
None	30%	6%	35%	34%	45%	28%	18%	2%

Part C Systems T-test Analysis By State

As previously mentioned, for accuracy purposes, only the data from 37 states will be contrasted for Part C systems. A paired t-test was conducted in which each respondent is paired with themselves to determine if there was a difference in average responses from 2017 to 2022, using the following null and alternative hypothesis:

H0: $\mu 1 = \mu 2$ (average between the two populations is equal)

H1: $\mu 1 \neq \mu 2$ (average between the two populations is not equal).

Part C; Leadership, Coordination, and Sustainability

Results for the first two QIs of the subcomponent for Leadership, Coordination, and Sustainability show the mean is statistically significantly different between the two groups (t = -3.216 w/ df = 36, *p* = .003) at a significance level of 0.05 (Table 6 & 7). The results for the first and second QIs (LCS1) "cross-sector leadership team", and (LCS2) "state vision, mission and plan", provide support for the research hypothesis that the two self assessments will not have equal averages. Alternatively, the third QI (LCS3), "a written multi-year plan in place" has a p value of *p* = .083, which is not statistically significant, meaning we have to retain the null hypothesis and expect that there was no change in results of the two assessments for LCS3.

Table 6.

Paired Samples Statistics Part C for Leadership, Coordination, and Sustainability

		Mean	N	Std. Deviation
Pair 1	LCS1_17	1.84	37	0.764
	LCS1_22	2.3	37	0.52
Pair 2	LCS2_17	1.65	37	0.857
	LCS2_22	2.08	37	0.682
Pair 3	LCS3_17	1.57	37	0.835
	LCS3_22	1.89	37	0.737

Table 7.

Paired Samples Test Part C for Leadership, Coordination, and Sustainability

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(36)	One-Sided p	Two-Sided p
LCS1_17 - LCS1_22	-0.459	0.869	0.143	-0.749	-0.17	-3.216	0.001	0.003
LCS2_17 - LCS2_22	-0.432	0.959	0.158	-0.752	-0.113	-2.744	0.005	0.009
LCS3_17 - LCS3_22	-0.324	1.107	0.182	-0.693	0.045	-1.782	0.042	0.083

Part C; Recruitment & Retention

Results for the subcomponent "Recruitment and Retention" paired samples t-tests show only the first QI (RR1, "strategies based on multiple data sources") having a statistically significant change in means, providing support for the research hypothesis. The third QI, (RR3) "use of a variety of successful retention strategies" came close to showing significance, however $p = .054$ indicates no significant change, similar to the second QI, (RR2) "Partnerships with IHE's to collect and analyze data" ($p = .464$).

Table 8.

Paired Samples Statistics Part C for Recruitment and Retention

		Mean	N	Std. Deviation
Pair 1	RR1_17	1.43	37	0.689
	RR1_22	1.76	37	0.597
Pair 2	RR2_17	1.68	37	0.818
	RR2_22	1.81	37	0.66
Pair 3	RR3_17	1.32	37	0.626

	RR3_22	1.62	37	0.594

Table 9.

Paired Samples Test Part C for Recruitment and Retention

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(36)	One-Sided p	Two-Sided p
RR1_17 - RR1_22	-0.324	0.884	0.145	-0.619	-0.03	-2.233	0.016	0.032
RR2_17 - RR2_22	-0.135	1.11	0.182	-0.505	0.235	-0.741	0.232	0.464
RR3_17 - RR3_22	-0.297	0.909	0.149	-0.6	0.006	-1.99	0.027	0.054

Part C; Personnel Standards

As seen in tables 2 and 3 for part C systems, all the mean values for each subcomponent from the 2017 data to 2022, with the exception of Personnel Standards, increased for the 2022 data. The same outcome is revealed in the paired samples t-test for the personnel standards subcomponent in the tables below (see tables 10 & 11). All QIs for the third subcomponent show no statistical significance, so we don't reject the null hypothesis and assume the 2022 self assessment for part C systems, regarding personnel standards, has not changed from 2017.

Table 10.

Paired Samples Statistics Part C for Personnel Standards

		Mean	N	Std. Deviation
Pair 1	PS1_17	2.57	37	0.728
	PS1_22	2.51	37	0.607
Pair 2	PS2_17	2.57	37	0.728
	PS2_22	2.57	37	0.555
Pair 3	PS3_17	2.16	37	0.866
	PS3_22	1.95	37	0.743

Table 11.

Paired Samples Test Part C for Personnel Standards

	Paired Differences						Significance	
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(36)	One-Sided p	Two-Sided p
PS1_17 - PS1_22	0.054	0.97	0.16	-0.269	0.378	0.339	0.368	0.737
PS2_17 - PS2_22	.000	0.85	0.14	-0.283	0.283	.000	0.5	1.00
PS3_17 - PS3_22	0.216	1.004	0.165	-0.118	0.551	1.31	0.099	0.198

Part C; Pre-Service Training

The pre-service training subcomponent also showed no statistical significance in any of the QIs. The p-values from highest to lowest are as follows: p = .881 for QI 2 of personnel standards (PSP2), “IHE program's of study and curricula in EI/ECSE address early childhood development and discipline-specific pedagogy”, p = .875 for the first QI (PSP1),”IHE curricula are aligned across disciplines”, p = .868 for PSP4

("IHE Faculty meet yearly"). The third QI for pre-service preparation (PSP3), "IHE curricula utilize evidenced-based adult learning practices", resulted in the lowest nonsignificant p-value of $p = .362$ (see tables 12 & 13).

Table 12.

Paired Samples Statistics Part C for Pre-service Training

		Mean	N	Std. Deviation
Pair 1	PSP1_17	2.05	37	0.78
	PSP1_22	2.03	37	0.687
Pair 2	PSP2_17	2.03	37	0.763
	PSP2_22	2.05	37	0.664
Pair 3	PSP3_17	1.95	37	0.848
	PSP3_22	2.11	37	0.658
Pair 4	PSP4_17	1.7	37	0.661
	PSP4_22	1.73	37	0.838

Table 13.

Paired Samples Test Part C for Pre-service Training

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(36)	One-Sided p	Two-Sided p
PSP1_17 - PSP1_22	0.027	1.04	0.171	-0.32	0.374	0.158	0.438	0.875
PSP2_17 - PSP2_22	-0.027	1.093	0.18	-0.391	0.337	-0.15	0.441	0.881
PSP3_17 - PSP3_22	-0.162	1.068	0.176	-0.518	0.194	-0.924	0.181	0.362

PSP4_17 - PSP4_22	-0.027	0.986	0.162	-0.356	0.302	-0.167	0.434	0.868
PSP1_17 - PSP1_22	0.027	1.04	0.171	-0.32	0.374	0.158	0.438	0.875

Part C; In-Service Personnel Development

Paired samples t-test statistics for the fifth subcomponent, in-service personnel development, reveal similar nonsignificant results like the fourth subcomponent for pre-service training, with the exception of the first QI (IST1), "Statewide system is in place for personnel across disciplines" (table 14 and 15). There was a significant change in average scores for IST1 in 2017 (M = 2.03, SD = .799) compared to 2022 (M = 2.43, SD = .603), $t(36) = -2.751$, $p < .009$. Across all 37 part C respondents, results for having IST1 in place improved after five years. The average increase of M = 0.41 (table xx) for 2022 part C respondents having IST1 in place, is not due to chance variation and can be attributed to the strategic planning and action of the state CSPD. The following QI's (IST2, IST3, and IST4) on the other hand, reveal significant p-values that are greater than p = 0.05, indicating that the five year workplan did not significantly increase the chances of having those components in place.

Table 14.

Paired Samples Statistics Part C for In-service Personnel Development

		Mean	N	Std. Deviation
Pair 1	IST1_17	2.03	37	0.799
	IST1_22	2.43	37	0.603
Pair 2	IST2_17	1.92	37	0.722
	IST2_22	1.86	37	0.713
Pair 3	IST3_17	1.86	37	0.822

	IST3_22	2.03	37	0.799
Pair 4	IST4_17	2.27	37	0.732
	IST4_22	2.49	37	0.507

Table 15.

Paired Samples Test Part C for In-service Personnel Development

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(36)	One-Sided p	Two-Sided p
IST1_17 - IST1_22	-0.405	0.896	0.147	-0.704	-0.107	-2.751	0.005	0.009
IST2_17 - IST2_22	0.054	0.998	0.164	-0.279	0.387	0.329	0.372	0.744
IST3_17 - IST3_22	-0.162	1.041	0.171	-0.509	0.185	-0.947	0.175	0.35
IST4_17 - IST4_22	-0.216	0.854	0.14	-0.501	0.069	-1.54	0.066	0.132

Part C; Evaluation

Paired samples t-test statistics for the sixth subcomponent, evaluation, reveal nonsignificant results for the first QI (pair 1), 'processes to analyze data across all subcomponents'. The results from 2017 (M = 1.73, SD = .838) and 2022 (M = 2.0, SD = .667) self assessments regarding E1 (see table 16), indicate no improvement on having this QI in place $t(36) = -1.57$, $p = .124$ (see table 17). On the other hand, the second QI for this subcomponent, in regards to having the evaluation plan continuously monitored and revised has made significant progress over the five year gap. Table 17 indicates a statistically significant change, $t(36) = -2.74$, $p < .009$, this positive significance can be seen in figure 7 as well, where part C systems' responses for having 'none' of this QI in place reduced in half, and responses indicating 'all' in place increased by 5% overall.

Table 16.

Paired Samples Statistics Part C for Evaluation

		Mean	N	Std. Deviation
Pair 1	E1_17	1.73	37	0.838
	E1_22	2	37	0.667
Pair 2	E2_17	1.49	37	0.731
	E2_22	1.92	37	0.722

Table 17.

Paired Samples Test Part C for Evaluation

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(36)	One-Sided p	Two-Sided p
E1_17 - E1_22	-0.27	1.045	0.172	-0.619	0.078	-1.574	0.062	0.124
E2_17 - E2_22	-0.432	0.959	0.158	-0.752	-0.113	-2.744	0.005	0.009

Part B/619 Systems Comparison

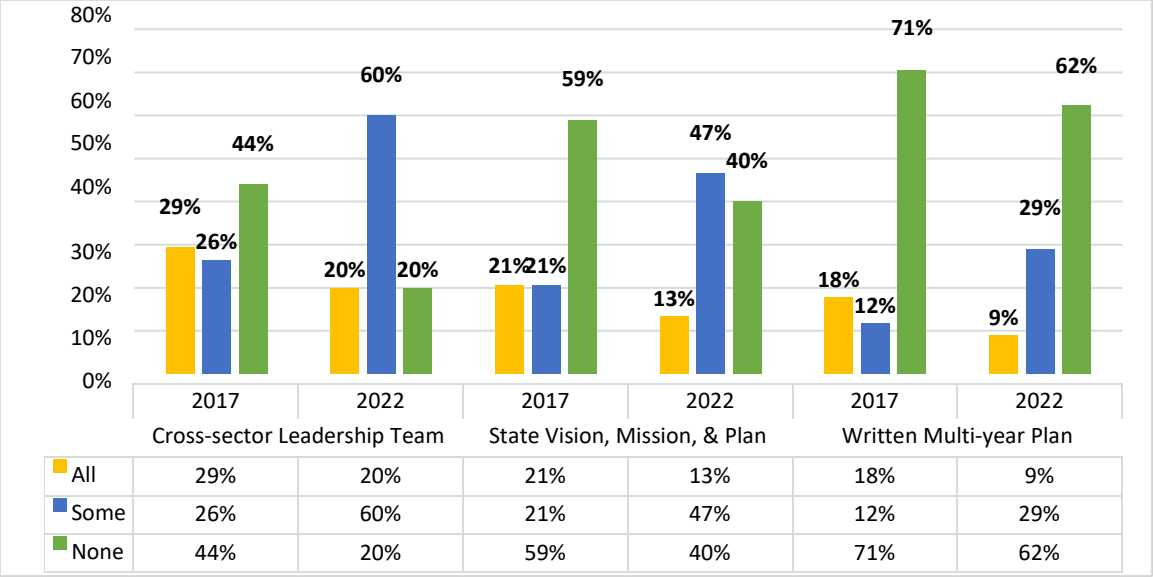
All Responses

The difference in total number of responses from Part B/619 state systems in 2017 and 2022 is only 11, (34 and 45 respectively), which allows for greater accuracy when comparing the percentage frequencies in both years. When comparing assessment responses for the first subcomponent,

Leadership, Coordination, and Sustainability, the data indicate two encouraging trends when looking across all QIs between the five year period. First, the percentages of "None" of the elements in place for all QIs reduced, with the percentage related to cross-sector Leadership Team reducing by more than half, from 44% to 20%. Second, all of the QIs for 2022 identified an increase in "Some" of the elements in place compared to 2017, with each QI more than doubling their percentages across the five year period as indicated in Figure (15). For the "All" elements in place category, there is an inauspicious change between 2017 and 2022, as percentages decreased across each QI in this area, with the percentage for Written Multi-year Plan reducing by half its percentage. This reduction may be attributed to the change in the nature of the self assessment tool between the five year period. as well as the difference in number of responses between the years, amongst other factors.

Figure 15.

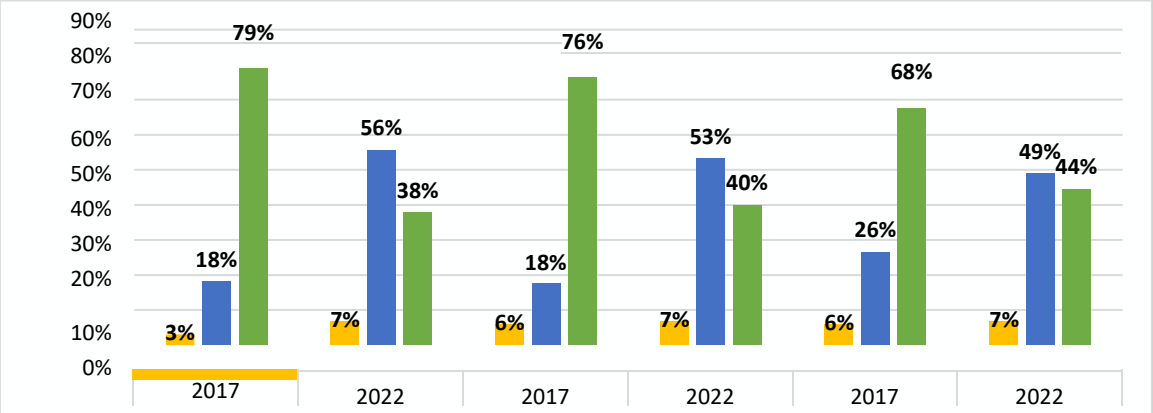
Comparing Part B/619 - Leadership, Coordination, and Sustainability



The states next provided responses for all Part B/619 systems related to the subcomponent, Recruitment and Retention. As evidenced in figure 16 below, the percentages for this subcomponent all changed favorably for each QI from 2017 to 2022. All three QIs displayed a significant decrease in percentage for the "None" of the elements in place category, with each QI seeing a reduction by at least 22%, and in the case of the Data-Based Recruitment/Retention QI, the percentage reduced by more than half from the 2017 value. In addition, each QI measured vast increases in percentages in 2022 for the "Some" elements in place category, with two QIs more than doubling in percentage and rising above 50% in this area. Lastly for this subcomponent, the responses from 2022 indicate a slight increase related to "All" the elements in place category compared to 2017, however the percentages in this category still remain quite small compared to the two other measures.

Figure 16.

Comparing Part B/619 – Recruitment and Retention



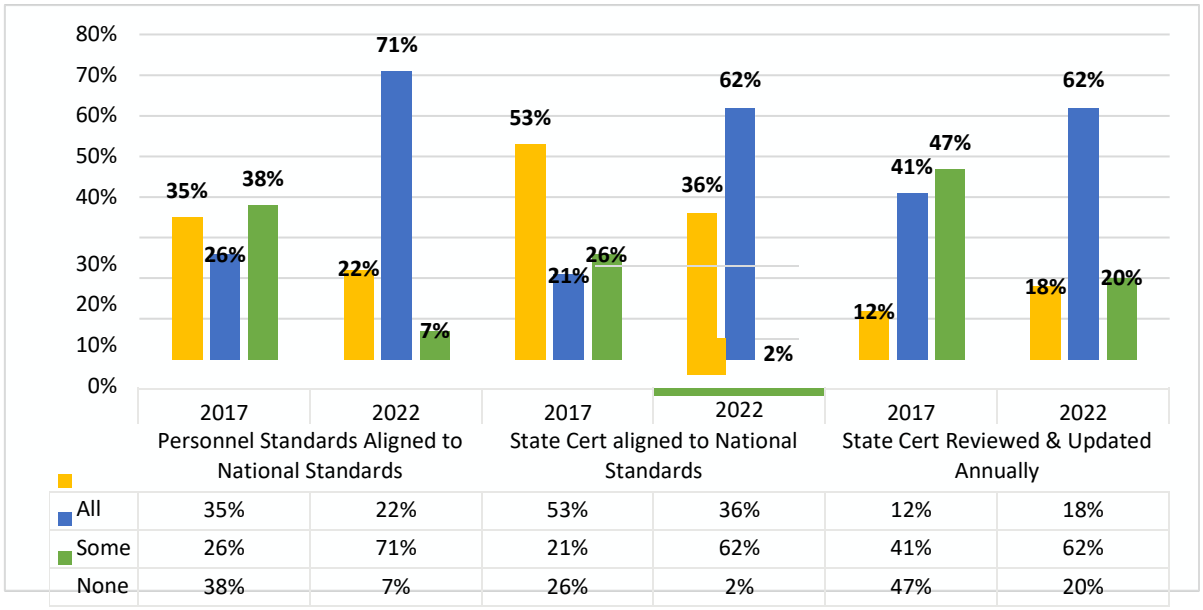
	2017	2022	2017	2022	2017	2022
All	3%	7%	6%	7%	6%	7%
Some	18%	56%	18%	53%	26%	49%
None	79%	38%	76%	40%	68%	44%

Following Recruitment and Retention, states provided responses on the self-assessment regarding the subcomponent, Personnel Standards, in relation to Part B/619 systems. For the "All" elements in place category, states recorded a reduction in percentage from 2017 to 2022 for two of the three QIs, while one QI recorded an increase of 6%. All QIs recorded considerable increases in

percentages for 2022 in relation to “Some” elements in place in the system, as each QI more than doubled for this category, and nearly tripled in the case of the QI “criteria for state certification, licensure, credentialing, and endorsements in EI/ECSE are aligned to state personnel standards and national professional organization personnel standards across disciplines”. In addition, favorable results were found for the “None” of the elements are in place category, as each QI displayed a significant percentage reduction from 2017 to 2022. In particular, the QI measuring state certification aligned to national standards, dropped to just 2% for None of the elements in place for 2022.

Figure 17.

Comparing Part B/619 – Personnel Standards



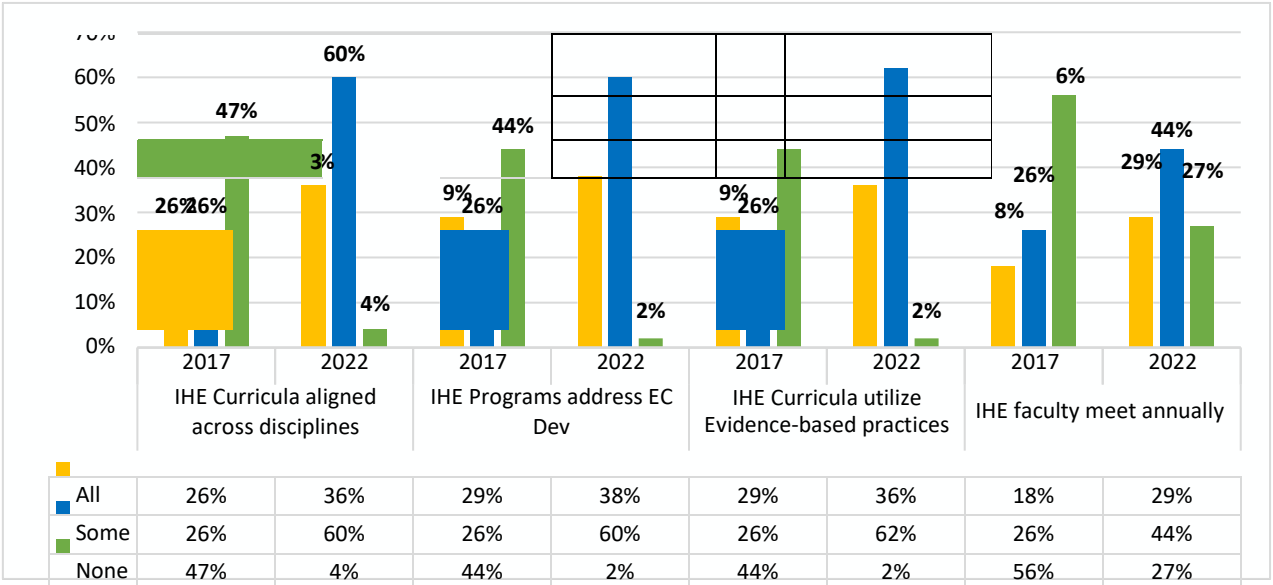
	2017 Personnel Standards Aligned to National Standards	2022 Personnel Standards Aligned to National Standards	2017 State Cert aligned to National Standards	2022 State Cert aligned to National Standards	2017 State Cert Reviewed & Updated Annually	2022 State Cert Reviewed & Updated Annually
All	35%	22%	53%	36%	12%	18%
Some	26%	71%	21%	62%	41%	62%
None	38%	7%	26%	2%	47%	20%

The next subcomponent to appear on the self-assessment related to Part B/619 systems was Pre-service training, which was measured across four QIs. As seen with the previously discussed subcomponents, each QI for Pre-Service training recorded a significantly increased percentage in 2022 compared to 2017 for having “Some” elements are in place, with three of the four QIs more than doubling in percentage, and reaching or surpassing 60% in this category. Each QI for this subcomponent also increased in percentage from 2017 to 2022 for having “All” elements in place as evidenced in Figure

(18) below. Lastly, the 2022 responses from states for Pre-service training indicate substantial decreases in percentages for the “None” of the elements in place category, as three of the four QIs dropped from mid to upper 40 percentage values in 2017 to low single digit percentages in 2022, as two QIs recorded just 2% for this category. In addition, the fourth QI reduced in percentage by more than half in 2022 from 2017 in this category. Each percentage change for this subcomponent suggests favorable growth for the systems in 2022 from 2017.

Figure 18.

Comparing Part B/619 - Pre-service Training



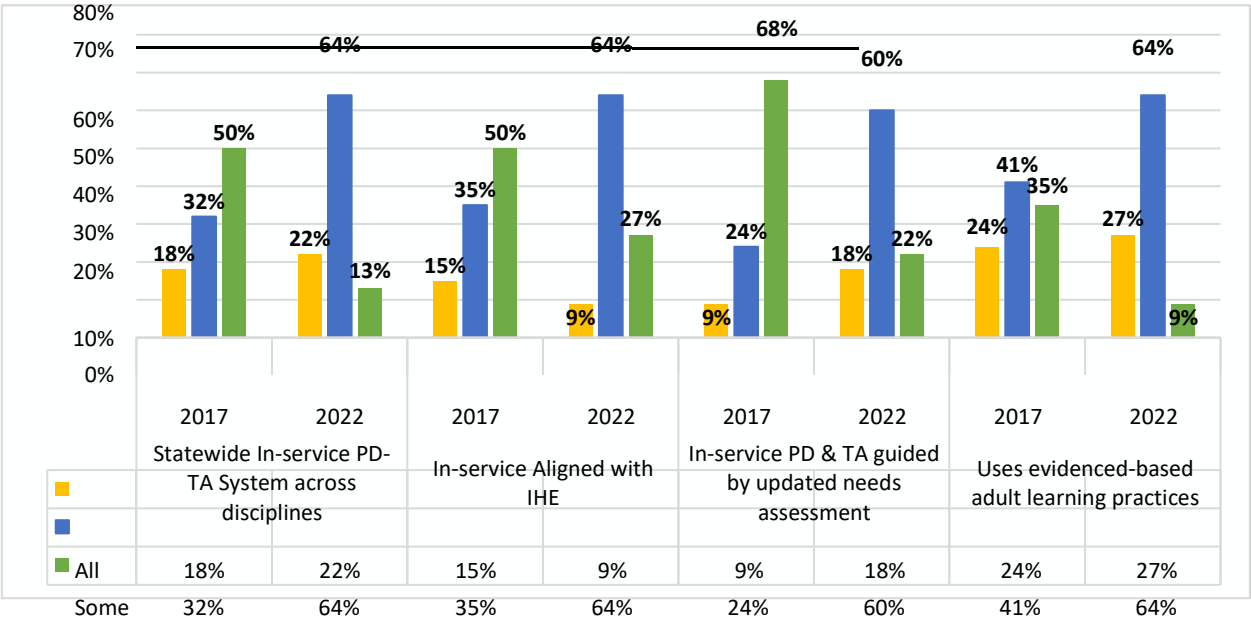
All	26%	36%	29%	38%	29%	36%	18%	29%
Some	26%	60%	26%	60%	26%	62%	26%	44%
None	47%	4%	44%	2%	44%	2%	56%	27%

After Pre-service training, the states were queried on the elements in place for the subcomponent, In-service Personnel Development, in relation to Part B/619 systems. The data evidenced in Figure 19 indicates the encouraging trend displayed across each subcomponent for Part B/619 systems, that states dramatically increased percentages in the “Some” elements in place category over the five year period. In addition, each of the four QIs for this subcomponent drastically reduced in percentage for the “None” of the elements are in place category, as percentages dropped by at least 23 percentage points, with one QI dropping by 46 percentage points. For the “All” elements in place

category, three out of four of the QIs for In-service preparation increased slightly from 2017 to 2022, with the fourth QI reducing by 6% in 2022 compared to 2017.

Figure 19.

Comparing Part B/619 – In-service Personnel Development



	2017	2022	2017	2022	2017	2022	2017	2022
All	18%	22%	15%	9%	9%	18%	24%	27%
Some	32%	64%	35%	64%	24%	60%	41%	64%
None	50%	13%	50%	27%	68%	22%	35%	9%

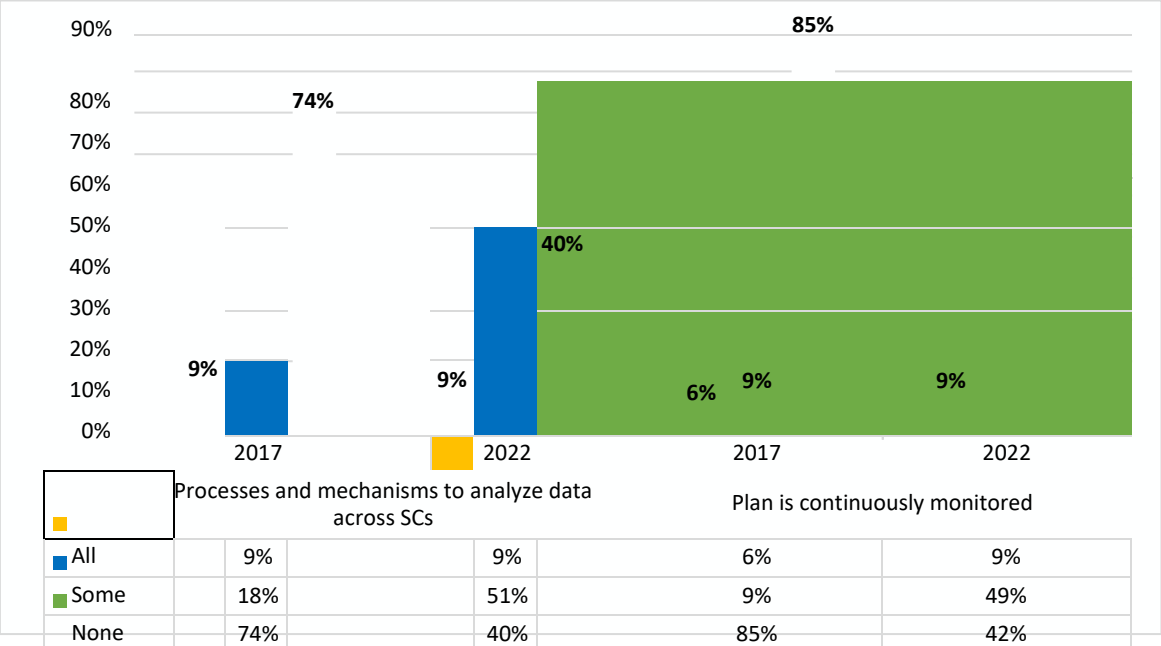
The last subcomponent states provided responses on elements in place in regard to Part B/619 systems was Evaluation. As previously mentioned, the data in the figure below confirms that the percentage for "Some" elements in place for each QI for each subcomponent increased considerably from 2017 to 2022. For the two QIs under Evaluation, the percentages in the "Some" elements category increased by 33% and 40% respectively, with each QI above or very close to 50% for the 2022 responses. With the data for this subcomponent, another encouraging pattern emerged for the Part B/619 responses, as the percentages for "None" of the elements are in place decreased significantly for 2022 compared to 2017, as the percentages reduced from 74% to 40% for the first QI, and 85% to 42% for the second QI. Lastly, for the "All" elements in place category, the QI that the evaluation plan of the EI/ECSE CSPD is continuously monitored and revised as necessary based on multiple data sources, increased slightly by 3% in 2022. In contrast, the other QI related to the evaluation plan that the EI/ECSE CSPD

includes processes and mechanisms to collect, store, and analyze data across all subcomponents remained the same percentage across both years.

To conclude for all the responses received from states for the Part B/619 systems, the data from 2022 compared to 2017 indicates favorable increases in percentages related to the "Some" elements are in place category, while also suggesting growth in these systems as the percentage values decreased considerably relative to the "None" of the elements are in place category.

Figure 20.

Comparing Part B/619 – Evaluation



All	9%	9%	6%	9%	
Some	18%	51%	9%	49%	
None	74%	40%	85%	42%	

Part B/619 Systems T-test Analysis By State

As stated previously, for accuracy purposes, only the data from 30 states were compared for Part B/619 systems. A paired t-test was conducted in which each respondent is paired with themselves to determine if there was a difference in average responses from 2017 to 2022, using the following null hypothesis:

H0: μ1 = μ2 (average between the two populations is equal)

H1: $\mu 1 \neq \mu 2$ (average between the two populations is not equal).

Part B/619; Leadership, Coordination, and Sustainability

The results noted in the tables below for each of the three QIs under the subcomponent, Leadership, Coordination, and Sustainability, reveal there were no statistically significant differences in any of the means from 2017 to 2022. As evidenced in Table 17, the two-sided p values indicate no significant results at a significance level of 0.05, with values ranging from 0.312 to 1. Based on these results, we cannot reject the null hypothesis for any of the QIs and assume there are no more elements in place in the systems from 2017 to 2022.

Table 16.

Paired Samples Statistics Part B/619 for Leadership, Coordination, and Sustainability

		Mean	N	Std. Deviation
Pair 1	LCS1_17	1.87	30	0.9
	LCS1_22	2.03	30	0.669
Pair 2	LCS2_17	1.57	30	0.817
	LCS2_22	1.77	30	0.774
Pair 3	LCS3_17	1.47	30	0.819
	LCS3_22	1.47	30	0.73

Table 17.

Paired Samples Test Part B/619 for Leadership, Coordination, and Sustainability

	Paired Differences						Significance	
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(29)	One-Sided p	Two-Sided p
LCS1_17 & LCS1_22	-0.167	1.085	0.198	-0.572	0.239	-0.841	0.204	0.407

LCS2_17 & LCS2_22	-0.2	1.064	0.194	-0.597	0.197	-1.03	0.156	0.312
LCS3_17 & LCS3_22	0	0.983	0.179	-0.367	0.367	0	0.5	1

Part B/619; Recruitment & Retention

Based on the paired samples test results of the subcomponent, Recruitment and Retention, we find contrasting results to those seen for the previous subcomponent, as each of the QIs display statistically significant changes in mean values from 2017 to 2022. As displayed in the tables below, each of the p values for the QIs is less than the significance level $\alpha = 0.05$, for instance for the first QI, the difference between the mean **RR1** scores was significant, $t(29) = -4.349$, $p < .001$, $d = -0.79$. As a result, we can reject the null hypothesis for each QI under Recruitment and Retention and conclude that we have sufficient evidence to say the elements in place for this subcomponent increased in 2022 from 2017.

Table 18.

Paired Samples Statistics Part B/619 for Recruitment & Retention

		Mean	N	Std. Deviation
Pair 1	RR1_17	1.17	30	0.379
	RR1_22	1.67	30	0.606
Pair 2	RR2_17	1.27	30	0.583
	RR2_22	1.63	30	0.556
Pair 3	RR3_17	1.33	30	0.547
	RR3_22	1.6	30	0.621

Table 19.

Paired Samples Test Part B/619 for Recruitment & Retention

	Paired Differences						Significance	
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(29)	One-Sided p	Two-Sided p
RR1_17 - RR1_22	-0.5	0.63	0.115	-0.735	-0.265	-4.349	<.001	<.001
RR2_17 - RR2_22	-0.367	0.718	0.131	-0.635	-0.098	-2.796	0.005	0.009
RR3_17 - RR3_22	-0.267	0.583	0.106	-0.484	-0.049	-2.504	0.009	0.018

Part B/619; Personnel Standards

For the third subcomponent, Personnel Standards, assessed for Part B/619 systems across the five year period, the difference between all of the mean Personnel Standards scores was not significant, with values for each QI being $p = .738$, $p = .839$, and $p = .677$ based on the paired samples T-test. These results provide strong evidence for the null hypothesis and we cannot conclude any changes in self-assessment for Personnel Standards from 2017 to 2022.

Table 20.

Paired Samples Statistics Part B/619 for Personnel Standards

		Mean	N	Std. Deviation
Pair 1	PS1_17	2.03	30	0.89
	PS1_22	2.1	30	0.548
Pair 2	PS2_17	2.3	30	0.837
	PS2_22	2.27	30	0.521
Pair 3	PS3_17	1.73	30	0.691

PS3_22	1.8	30	0.551

Table 21.

Paired Samples Test Part B/619 for Personnel Standards

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(29)	One-Sided p	Two-Sided p
PS1_17 - PS1_22	-0.067	1.081	0.197	-0.47	0.337	-0.338	0.369	0.738
PS2_17 - PS2_22	0.033	0.89	0.162	-0.299	0.366	0.205	0.419	0.839
PS3_17 - PS3_22	-0.067	0.868	0.159	-0.391	0.258	-0.421	0.339	0.677

Part B/619; Pre-Service Training

For the subcomponent, Pre-Service Training, the results indicate statistical significance in each of the four QIs, as the p value for each QI is less than .05. Based on these findings, for the first QI related to the IHE curricula aligned to National and State standards, we can conclude there were more components in place for this QI in 2022 compared to those in place in 2017, $t(29) = -2.282$, $p = .03$. The second QI displays a highly significant result as the 2022 self-assessments ($M = 2.33$, $SD = .547$) show greater components in place for IHE aligned across disciplines than the 2017 self-assessment responses, $t(29) = -2.921$, $p = .007$. The third QI under Pre-Service training concerning IHE utilizing evidenced-based adult learning practices and instructional methods noted a difference in average responses from 2017 to 2022, as the p value of .031 is statistically significant. The last QI under this subcomponent related to IHE faculty in EI/ECSE meeting at least yearly to share information and plan collaborations displayed significant results, as more elements of this QI were in place for 2022 responses compared to those from 2017, $t(29) = -2.35$, $p = .026$.

Table 22.

Paired Samples Statistics Part B/619 for Pre-Service Training

		Mean	N	Std. Deviation
Pair 1	PSP1_17	1.83	30	0.874
	PSP1_22	2.27	30	0.583
Pair 2	PSP2_17	1.83	30	0.874
	PSP2_22	2.33	30	0.547
Pair 3	PSP3_17	1.87	30	0.9
	PSP3_22	2.27	30	0.521
Pair 4	PSP4_17	1.57	30	0.774
	PSP4_22	1.97	30	0.718

Table 23.

Paired Samples Test Part B/619 for Pre-Service Training

	Paired Differences						Significance	
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(29)	One-Sided p	Two-Sided p
PSP1_17 - PSP1_22	-0.433	1.04	0.19	-0.822	-0.045	-2.282	0.015	0.03
PSP2_17 - PSP2_22	-0.5	0.938	0.171	-0.85	-0.15	-2.921	0.003	0.007
PSP3_17 - PSP3_22	-0.4	0.968	0.177	-0.762	-0.038	-2.262	0.016	0.031
PSP4_17 - PSP4_22	-0.4	0.932	0.17	-0.748	-0.052	-2.35	0.013	0.026

Part B/619; In-Service Personnel Development

The results for the fifth subcomponent of Part B/619 systems, In-Service Personnel Development, varied depending on the QI, as two of the four QIs displayed statistical significance while the other two did not suggest any difference in responses from 2017 to 2022. The first QI that did yield significant results was IST1 concerning a statewide system for in-service professional development (PD) and technical assistance (TA) that is guided by state personnel requirements and evidence-based practice, which recorded a *p* value of .031. While the second QI showing a highly significant *p* value of .002 is related to IST 3, a statewide system for in-service PD and TA in EI/ECSE is guided by updated needs assessments of the knowledge and skills included in state and/or national personnel standards. Conversely, the two QIs where the null hypothesis cannot be rejected relate to a statewide system aligned and coordinated with higher education programs of study curricula across disciplines, and a statewide system that uses evidenced-based adult learning practices respectively.

Table 24.

Paired Samples Test Part B/619 for In-Service Personnel Development

		Mean	N	Std. Deviation
Pair 1	IST1_17	1.67	30	0.802
	IST1_22	2.07	30	0.64
Pair 2	IST2_17	1.67	30	0.758
	IST2_22	1.77	30	0.568
Pair 3	IST3_17	1.4	30	0.675
	IST3_22	1.97	30	0.669
Pair 4	IST4_17	1.87	30	0.819
	IST4_22	2.17	30	0.592

Table 25.

Paired Samples Test Part B/619 for In-Service Personnel Development

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(29)	One-Sided p	Two-Sided p
IST1_17 - IST1_22	-0.4	0.968	0.177	-0.762	-0.038	-2.262	0.016	0.031
IST2_17 - IST2_22	-0.1	0.923	0.168	-0.445	0.245	-0.593	0.279	0.557
IST3_17 - IST3_22	-0.567	0.898	0.164	-0.902	-0.231	-3.458	<.001	0.002
IST4_17 - IST4_22	-0.3	0.952	0.174	-0.656	0.056	-1.725	0.048	0.095
IST1_17 - IST1_22	-0.4	0.968	0.177	-0.762	-0.038	-2.262	0.016	0.031

Part B; Evaluation

The final subcomponent related to Part B/619 systems that states provided responses for in 2017 and 2022 was Evaluation, which consisted of two QIs. The t-test results indicate significant statistical changes for both QIs across the five-year period, with the first QI concerning processes and mechanisms to collect, store, and analyze data across all subcomponents yielding a *p* value of .043 to indicate more elements in place for 2022 compared to 2017. The second QI under Evaluation relates to ensures the evaluation plan of the EI/ECSE CSPD is continuously monitored and revised as necessary based on multiple data sources. The results of the responses received regarding this QI were highly statistically significant, with more components in place for continuous monitoring and revising to the evaluation in 2022 compared to 2017, $t(29) = -2.567$, $p = .016$.

Table 26.

Paired Samples Statistics Part B/619 for Evaluation

	Mean	N	Std. Deviation

Pair 1	E1_17	1.33	30	0.661
	E1_22	1.6	30	0.563
Pair 2	E2_17	1.23	30	0.568
	E2_22	1.57	30	0.568

Table 27.

Paired Samples Test Part B/619 for Evaluation

	Paired Differences							
				95% Confidence Interval of the Difference			Significance	
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t(29)	One-Sided p	Two-Sided p
E1_17 - E1_22	-0.267	0.691	0.126	-0.525	-0.008	-2.112	0.022	0.043
E2_17 - E2_22	-0.333	0.711	0.13	-0.599	-0.068	-2.567	0.008	0.016

Conclusion

This report presents the results and comparisons of the self-assessment surveys completed by Part C and Part B/619 coordinators in the United States in 2017 and 2022. The surveys were provided to state coordinators to rate the six Subcomponents, composed of QIs, in place for their system's CSPD. The assessment tool, CSPD-SA, was utilized for coordinators to evaluate their systems for each year while also allowing coordinators to identify areas for improvement and to further develop their Part C and Part B/619 systems. Researchers initially provided a background to the data by reviewing the findings related to all the responses received for 2017 and 2022. Notably, the 2017 data displayed remarkable consistency with average mean scores between systems, while the 2022 data was less consistent in this area. However, the 2022 data did reveal substantial increases in percentages for the

"Some elements in place" category compared to the 2017 data and also found decreases in percentages for the "None of the elements in place" category in comparison to the data for 2017. Both of these trends suggest growth from 2017 to 2022 within the systems.

After noting the contrast in the number and the type of U.S. areas that provided self assessments in 2017 to those of 2022, the research team determined that only the data from the states that responded for both years would be used for comparing the two time points. As a result, the responses from 37 states related to Part C systems for both years were analyzed using a paired samples T-test, where each responder was matched with themselves to verify if a difference occurred in average responses from 2017 to 2022. The findings varied depending on the QI for each Subcomponent, with some QIs showing statistically significant results from 2017 to 2022, while for Subcomponents "Personnel Standards" and "Pre-Service Training" the T-test found no significant changes for any of the QIs under each subcomponent. In addition, no Subcomponent displayed statistically significant results with all of the QIs it is composed of, so we can only make conclusions based on individual QIs and not an entire Subcomponent. The paired sample T-test was also used to identify changes in the Part B/619 data for 30 states who responded to the survey in 2017 and 2022. For the Part B/619 systems, the results of the T-test found no changes for any of the QIs related to the Subcomponents, "Leadership, Coordination, and Sustainability" and "Personnel Standards". However, several Subcomponents did demonstrate statistically significant results based using the T-test, with "Recruitment and Retention", "Pre-Service Training", and "Evaluation" each displaying changes in all of their QIs from 2017 to 2022 for the Part B/619 systems. As a result, we can point to three Subcomponents displaying significant changes across the five year period for Part B/619.

It should be noted that comparing the data from the 2017 and 2022 responses had its challenges as changes were made to the instrument used between the time points which necessitated survey questions from 2017 to be adapted to those for 2022. In addition, the number and nature of the

states and U.S. territories responding for each year differed which reduced the amount of data that could be use to surmise statistically significant results. Also, it is worth mentioning that the COVID-19 pandemic may have negatively affected the ability of systems to grow during the five year gap of collecting responses. Based on these issues, it will be beneficial to collect assessments of Part C and Part B/619 systems in 2027 from the same States and other U.S. areas surveyed in 2022, and by utilizing the same assessment tool to compare the data sets most accurately for changes and growth between the systems.