THE MILBANK QUARTERLY
A MULTIDISCIPLINARY JOURNAL OF POPULATION HEALTH AND HEALTH POLICY

Original Scholarship

Unrealized Cross-System Opportunities to Improve Employment and Employment-Related Services Among Autistic Individuals

ANNE M. ROUX,[*] KAITLIN K. MILLER,[*] SHA TAO,[*] JESSICA E. RAST,[*] JONAS VENTIMIGLIA,[*] PAUL T. SHATTUCK,[†] and LINDSAY L. SHEA[*]

[*]*A.J. Drexel Autism InstituteDrexel University;* [†]*Mathematica Policy Research, Inc.*

Policy Points:

- Employment is a key social determinant of health and well-being for the estimated 5.4 million autistic adults in the United States—just as it is for citizens without disabilities. Evaluation and monitoring of publicly funded employment services is paramount given the dramatic increases in adults with autism who need job supports.
- Vocational Rehabilitation agencies appeared to be absorbing short-term employment needs of autistic people, but Medicaid was severely lacking—and losing ground—in serving those who need longer-term employment services.
- Across both Vocational Rehabilitation and Medicaid, we estimated that only 1.1% of working-age autistic adults who potentially need employment services are actually receiving them—leaving an estimated 1.98 million autistic individuals without the employment services that are associated with achievement of well-being.

Context: Employment is a key social determinant of health. As such, high rates of unemployment, underemployment, and poverty across the rapidly growing autistic population are concerning. A web of publicly funded services exists to support the employment, and associated health and well-being, of United States citizens with autism and other intellectual and developmental disabilities, namely through Vocational Rehabilitation (VR) and Medicaid home- and community-based services (HCBS) waivers. Given an absence of overarching surveillance of employment services, this study aimed to characterize the distribution of autistic service users across Medicaid versus VR, understand the types of employment services utilized within these programs and expenditures, and assess overall capacity to provide employment services as needs continue to increase.

Methods: This study examined the distribution of employment services among autistic people compared with those with intellectual disability using 2008–2016 data from the Centers for Medicare & Medicaid Services and the Rehabilitation Services Administration. Estimated

The Milbank Quarterly, Vol. 101, No. 4, 2023 (pp. 1223-1279)

need for employment services among autistic individuals was compared with capacity derived from VR service counts and a review of HCBS waivers.

Findings: The number of autistic people served through VR tripled during the study years, whereas those served through Medicaid only increased slightly. VR spending increased by 384% over the study years, whereas Medicaid costs decreased by 29%. Across VR and Medicaid, we estimated that only 1.1% of working-age autistic adults who needed employment services received them.

Conclusions: Although VR appeared to be absorbing short-term employment needs of autistic individuals, Medicaid was severely lacking—and losing ground—in serving those who needed longer-term employment services. VR far outpaced Medicaid in both the number of autistic people served and total expenditures across the study years. However, an estimated 1.98 million autistic adults did not receive employment services that could be critical to improving their health and well-being.

Keywords: autism spectrum disorder, employment, social determinants of health.

Employment is a key social determinant of health and a national indicator of well-being in the United States.[1,2] Employment combats the adverse effects of unemployment on living standards, health behaviors, stress, and financial burden[3] and reduces the occurrence and cost of mental health conditions.[4] This is no less true for the estimated 5.4 million autistic adults in the United States,[5] the fastest growing segment of people with intellectual and developmental disabilities (I/DD).[6] Although accurate population-level estimates of unemployment among autistic adults do not exist, nationally representative surveys indicate that only 53% of autistic transition-age youth will ever hold a job for pay in the first 8 years after leaving high school,[7] and approximately one-fourth of these disconnected youth will not have access to the services that could help them become employed.[8] Even among autistic individuals who receive employment services, low wages and restrictions on financial assets required to maintain service and benefits eligibility trap many autistic adults in poverty.[9,10]

As the observed prevalence of autism spectrum disorder in children has increased significantly across the 2000s, so has the number of autistic adults who use public services and benefits to address their needs for employment and economic security—far outpacing the growth in use of services and benefits among people with other I/DD.[11] Medicaid home- and community-based services (HCBS) waivers that serve autistic individuals, and sometimes support employment goals, grew by fivefold between 2004 and 2015.[12] The total number of autistic individuals found eligible for Vocational Rehabilitation (VR) services doubled between 2009 and 2013.[9] Additionally, the number of autistic transition-age youth, specifically those who exited VR between 2007 and 2011, increased by 265% compared with the prior 5 years, six times the increase in youth with other types of disabilities.[13] These indicators all reflect a growing need for public employment supports within the autistic population.

A web of publicly funded services exists to support the employment, and associated health and well-being, of individuals with I/DD, including autism, across their transition-age and working years, namely through VR and Medicaid HCBS waivers.[14] In general, autistic people who meet criteria for public benefits tend to be lifelong service users[15]; thus, the nation's long-term ability to fund and provide evidence-based services to meet the employment support needs of autistic people across their working lives is contingent on public services infrastructure.[16] However, there is little information about the overall availability of employment services for autistic individuals across public programs, and measures of unmet needs consist of broad tallies of the number of people on HCBS wait lists, which are collected through surveys of states versus direct counts through Medicaid data.[17] Given this, it is difficult to understand the unfunded need for employment services versus program capacity, which hinders program planning and prediction of funding allocation needs.

As funding has shifted away from institutional care for people with I/DD, including autism, a lack of increased public investment in community-based disability services has contributed to high rates of unemployment, underemployment, and poverty among people with I/DD.[10,18] Only 13% of autistic service users with I/DD, primarily funded through HCBS waivers, have paid, community-based employment compared with 16% of those without autism.[19] Autistic individuals who receive VR services have a higher rate of competitive employment (37%) when they exit VR programming,[20] but this is still strikingly low. This predicament raises important questions about how well autistic individuals, as a key segment of the I/DD population, are being supported through public service systems to attain and maintain employment.

Publicly funded employment services for people with I/DD have been in existence since the 1940s, when VR extended supported employment services beyond veterans to include people with I/DD through the federal Barden-LaFollette Act. Fifty years later, the Balanced Budget Act Amendments of 1997 opened access to supported employment services for all individuals with I/DD enrolled in HCBS waivers. However, these investments have fallen short of producing significant improvements in employment rates over time.[21]

Effective interventions aimed at improving employment outcomes do exist. For example, the receipt of supported employment services is associated with increased employment rates among autistic individuals and those with other disabilities.[22,23] Yet, the success of publicly funded employment services may be thwarted by a lack of capacity to meet the needs of potential service users. The number of individuals who can receive employment services through VR is limited by state "order-of-selection" (OOS) policies, which prioritize who should receive VR services when funding is inadequate to serve all who may be eligible.[24] No research has evaluated how these policies specifically affect autistic individuals, but 38 of 78 VR agencies have some

type of OOS in place (as of April 2023).[25] Similarly, Medicaid HCBS waiver slots are typically capped at a set numbers of enrollees and spending for services based on available funding. A recent analysis of autistic people on a state waiting list for Medicaid HCBS waivers found that over 40% of autistic adults had an unmet need for employment services.[26] Overall, limited research exists that explores the capacity for delivering public employment services.

Another challenge is a lack of information needed to monitor progress. Although the Rehabilitation Services Administration (RSA) requires states to report standardized, administrative data (demographics, service utilization, and outcomes) on all those found eligible for the VR program, states vary in reporting of HCBS data to the Centers for Medicare & Medicaid Services (CMS). There have been efforts to streamline reporting of HCBS to the CMS through the HCBS Taxonomy[27]; however, the breadth of services and variation among states' HCBS offerings poses challenges to a uniform reporting system. Therefore, published national-level research on employment services for individuals with disabilities primarily utilizes VR data in combination with surveys of state I/DD agencies and data from the Social Security Administration and the US Census Bureau,[28] often excluding data from the CMS. A lack of standardization of reporting contributes to an unbalanced research base regarding the types and sources of employment services that individuals receive and an ongoing lack of understanding of overall distribution of funding for these services. As a result, systems-level efforts to improve employment services for autistic individuals are hampered by the absence of data on service needs, access, and receipt that is integrated across the VR and Medicaid programs.

Structures and Roles of Service Systems that Provide Employment Supports

In general, state VR agencies administer short-term vocational services using a ratio of 79% federal funding granted by the RSA to 21% state matching funds.[29] VR services do not have income eligibility thresholds but do require evidence of functional limitations that restrict ability to work. In contrast, Medicaid HCBS 1915(c) waivers fund long-term supported employment services and related supports using proportions of state dollars and federal matching funds,[30] which generally vary between 50% and 75%.[31] Eligibility for HCBS waivers is based on both disability and income criteria set by states, which range from 83% to 300% of the federal poverty level.[32] Both VR and Medicaid guidance prioritize employment in community-based settings integrated with workers without disabilities.[33,34] Legal and administrative infrastructure that support these priorities include a revision to Medicaid HCBS federal regulations known as the "HCBS Settings Rule," the Workforce Innovation and Opportunity Act (WIOA) of 2014 (formerly the Rehabilitation

Services Act) governing VR, Department of Justice actions to enforce integration in least restrictive settings, and state definitions of integrated employment.

However, a complicated relationship exists between VR- and Medicaid-funded employment services. Federal policies, including the WIOA, require that Medicaid and VR avoid duplication of services while simultaneously facilitating coordination across these service systems.[33] For example, Medicaid HCBS policy requires that individuals exhaust VR employment supports before Medicaid waiver funds can be utilized.[30] Meanwhile, the WIOA emphasizes that state VR agencies formally collaborate with the state Medicaid agency and state I/DD agencies in delivery of vocational services.[34] Publicly available information illuminating how collaboration is executed in terms of service delivery and payment across systems, however, is limited.[35]

The degree of complexity within and between VR- and Medicaid-funded employment services is reflected in the administrative burden that autistic people and their families encounter when attempting to access and navigate services through these programs. Administrative burden includes effort required to understand the services these programs fund, psychological costs of being found ineligible for services and having to reapply, and compliance costs in dealing with requirements such as documentation.[36] Service seekers weigh these costs against the assumed benefits of accessing services, and this self-assessment is influenced by other stressors in the person's life and perceptions of how respectfully they are treated within administrative processes.[37] Perhaps as a result of administrative burden, in addition to a scarcity of needed employment services, parents of autistic youth and those with other developmental disabilities describe encountering a "services cliff" as youth exit the special education services they were entitled to during high school and enter the fragmented world of adult disability-related services, each with its own administrative burden.[8,38]

Publicly Funded Employment Services

Employment-focused services for people with disabilities, including autism, target a wide range of needs—from the identification of vocational interests and preparation for work during adolescence to career development and job maintenance across the working years. Generally, both VR and Medicaid fund employment services in accordance with individual employment goals and career plans. However, the programs vary in the types of employment services they provide and the association of services with positive employment outcomes. State VR agencies offer approximately 28 different services,[39] which are selected based on individual needs, not disability type. Among autistic people and those with I/DD, receipt of specific types of VR services is associated with higher likelihood of achieving employment, notably job-related services such as job search, job placement, and on-the-job supports.[40–46] Medicaid-funded employment services vary across states but can be categorized into

two main types: 1) habilitation services (including prevocational services) that assess and teach general skills to prepare for future work and 2) supported employment services needed to perform a paid job in an integrated setting.[47] Although receipt of long-term supported employment in the community generally leads to better employment outcomes,[41] critics argue that an overreliance on prevocational training contributes to stagnant and poor employment rates among people with I/DD, as this service is associated with segregated work at low wages that often does not lead to competitive, integrated employment.[48]

Key differences across these programs are as follows: 1) VR only funds employment services in community-based settings, integrated with nondisabled workers, preferably at competitive rates of pay. In contrast, Medicaid can provide services to support facility-based work and community-based nonwork at subminimum wages; 2) VR may include college and university supports as a type of preparation for employment, whereas Medicaid HCBS vocational services focus directly on preparation for employment through prevocational skill acquisition; 3) VR may provide monetary support for employment-related needs, whereas Medicaid provides no cash assistance; and 4) Medicaid categorizes transportation and personal assistance services under the HCBS category of vocational services, whereas VR tracks these services independently. Understanding the types of employment services that autistic individuals receive through VR- versus Medicaid-funded programs is a critical foundation to interpreting differences in the outcomes of these services, but little to no research focus exists on this topic.

Spending on Employment Services

Within the Medicaid program, as the types of HCBS services expanded to support people in their communities, the costs of serving individuals with I/DD exceeded that of other populations.[17] However, only 1% of the $77 billion dollar price tag across all I/DD services in federal fiscal year (FFY) 2019 funded supported employment, a rate that has remained essentially the same since the late 1990s.[49] No independent accounting of Medicaid-funded employment services for autistic individuals, as a segment of the I/DD population, exists.

In the VR system, where all expenditures support employment, analysis of cost has focused more on variation by disability type. For example, VR services for autistic individuals averaged $4,379 per individual in FFY 2013 compared with $2,812 for individuals with other disabilities.[42] Costs of specific VR services (on-the-job supports for supported employment, job readiness training, and short-term on-the-job supports) were also significantly higher among autistic VR services users than individuals with other types of disabilities.[9] Cost data points like these are critical. Yet, we lack holistic understanding of how costs are distributed across VR

versus Medicaid. Additionally, we lack quantification of the gap in unmet needs for employment services versus available funding.

Purpose of This Study

There is a critical need for data to inform systems change efforts aimed at improving employment outcomes across the growing autistic population. The current federal Strategic Plan for Autism Research outlines a need for research to create measures regarding autism services in state and national programs and to determine the efficacy of these services.[16] In response to this call, and given an absence of overarching surveillance of publicly funded employment services, this study examines receipt of VR- and Medicaid-funded employment supports among individuals on the autism spectrum during 2008–2016. We compare findings for the autistic group with individuals with intellectual disability (ID) for contextualization. We aim to better understand the types of employment services autistic individuals are receiving and their associated costs, compared with those with ID, and to anticipate future employment service needs within the autism population. Specifically, we seek to accomplish the following:

1) characterize the distribution and demographics of autistic individuals who received VR- versus Medicaid-funded employment services during these data years, compared with individuals with ID;
2) quantify the landscape of employment services funded by Medicaid versus VR for autistic individuals, compared with those with ID, focusing on distribution of types of services received and expenditures for services;
3) illuminate the nation's capacity to provide employment services for the autistic population as compared with the estimated need for employment services within this population.

Methods

Measures

HCBS Taxonomy. We used the HCBS taxonomy to overview the array of services funded by Medicaid waivers.[27] The taxonomy provides a crosswalk of over 60 specific services (with procedure codes) collapsed into 18 main categories. The CMS periodically issues technical guidance bulletins that define HCBS waiver services. We reviewed these bulletins for definitions of employment and vocational services. Primary guidance came from the CMS 2011 bulletin.[33] As it was in place for most of our data years, it included a focus on employment services and a definition of "career services"

to assist us in understanding career services delivered through Medicaid waivers versus VR funding. Updated technical guidance from the CMS was not released again until 2019 and retained the same employment service definitions of interest to us.[50] We note that although states may create their own definitions for HCBS-waivered services, or modify the CMS definitions, most states use the CMS definitions.[33]

We selected the six specific services in the HCBS taxonomy that aligned with the suite of employment-related services described in the CMS 2011 bulletin. Four services fell within the overarching category of supported employment: job development, ongoing supported employment (individual), ongoing supported employment (group), and career planning. Two services fell within the category of day services: prevocational services and day habilitation. We further chose to combine individual or small group supported employment services into one category to align better with VR service categories. The five remaining HCBS employment services of interest corresponded to 116 procedure codes for how these services could be implemented. The research team reviewed all procedure codes and eliminated residential habilitation therapy (day) from analysis because it was deemed to fall outside of employment or employment-related services as described in the 2011 CMS bulletin. We did retain the procedure codes for receipt of adult day habilitation delivered in combination with vocational habilitation. On consultation with an employment expert from a national disability employment organization, we supplemented the taxonomy with additional Medicaid waiver codes for employment services by using a procedure code search engine to identify any codes that may have been overlooked in the HCBS taxonomy. This process resulted in a finalized scheme of 138 procedure codes within five service categories: supported employment job development, supported employment individual or small group, career planning, prevocational services, and day habilitation. See Appendix 1.

RSA Case Service Report. States are required to report information on all individuals who apply for VR services and, thus, have a case opened. VR data elements are outlined in the RSA Case Service Report and include information on demographics, disability characteristics, which VR services an individual received, and employment status at case closure, among other data. RSA issues periodic guidance regarding data definitions. The data that states report are aggregated and released annually in RSA-911 data files. These files capture individuals who had a case closed within each FFY. We used files for FFYs 2007–2017 but limited to individuals who received services in calendar years 2008–2016 to better align with calendar year Medicaid data. This was estimated using the case closure date and subtracting 90 days, the amount of time required to hold a job before successful case closure or after service end for an unsuccessful case closure.

To better understand how the scope and types of Medicaid and VR services compare, we aligned VR services with the final categories of Medicaid services to the extent possible, using the published administrative definitions and descriptions of

services. See Appendix 2. Sources included the service categories from the 2016 VR RSA-911 Case Service Report and the aforementioned CMS definitions.[33]

Medicaid Data Files. Medicaid HCBS data came from the national CMS Medicaid Analytic eXtract (MAX) and Transformed Medicaid Statistical Information System Analytic Files (TAF) for calendar years 2008–2016. States converted from MAX to TAF from 2013 to 2015, and the sources have parallel structures: a personal summary file containing demographic information and Medicaid eligibility classification and service files for various types of claims with information on diagnoses, treatments, providing clinicians, and amounts reimbursed for services.

Analysis of Medicaid Data

We included people ages 14–64 years old with fee for service (FFS) or primary care case management claims who 1) were enrolled in Medicaid for at least 9 months out of a given year to account for administrative churning, 2) had at least one inpatient or two outpatient autism-related claims (International Classification of Diseases [ICD], Ninth Revision, Clinical Modification [CM; ICD-9-CM] codes 299.xx or ICD-10 F84.x) within the data years, in alignment with validated algorithms from the Chronic Condition Warehouse, and 3) received an HCBS employment service. We included individuals in the autism group whether they had an associated diagnosis of ID (ICD-9 317.xx-319.xx or ICD-10 F70-F79) or not. For contextualization, we also examined Medicaid enrollees who met the same criteria but had claims with an associated diagnosis of ID but not autism.

Age for cumulative Medicaid data was calculated using age at the first employment-related claim over all data years, whereas ages for yearly data used the age at the first employment-related claim for the year. Therefore, ages in annual Medicaid data are slightly higher, as enrollees may be represented across several years of data. Medicaid spending included costs for delivered services. Medicaid costs include program administration salary costs, as they are typically included in service cost rates and managed care rates, whereas VR costs only reflect services delivered by community rehabilitation providers, not by salaried staff who work in VR agency offices.

Analysis of VR Data

When a person applies for VR services, the VR counselor records the primary and secondary (if applicable) conditions that they deem to be the underlying reason that employment is difficult for an individual (e.g., autism, ID, traumatic brain injury, depression, epilepsy). Because there is no method for designating primary versus secondary conditions, most researchers identify autistic individuals as those with "autism" as either a primary or secondary cause of employment difficulty. A

comparison group of individuals with ID was identified as any persons with an ID as a primary or secondary cause of employment difficulty, with no primary or secondary cause of autism identified. Analysis included individuals ages 14–64 years old at the time of VR application. We included individuals from all 50 states and Washington, District of Columbia (DC), and excluded those from the territories of American Samoa, Guam, Northern Marianas, Puerto Rico, and the Virgin Islands to better align with Medicaid data. Analysis was limited to individuals who received VR services.

Demographic characteristics were compared for autistic individuals and individuals with ID. We then calculated the percentage of individuals in each group who received each service type. Finally, we calculated spending information, limited to cases that closed in our data years. First, we added all service expenditures per group to get a total amount spent by year and across the whole study period. Next, we calculated the average amount spent per individual in each year and over the whole study period. For this calculation, we limited to those with a nonzero service expenditures, as $0 service expenditures represent people who only received services provided by VR staff.

Significance Testing

We used Chi-square tests to examine statistical significance of univariate group differences in demographic variables for the autistic versus ID group within Medicaid and VR and for Medicaid versus VR demographic statistics within the autistic group and within the ID group. See Table 1.

Estimating Capacity

We estimated the need for employment services among autistic working-age individuals, and capacity to provide employment services, through several sources. First, we used the census to determine the proportion of the US population ages 15–64 years old in 2016 (corresponding to our most recent data year).[51] We then used autism prevalence estimates from 2016 surveillance to create an estimate of the number of autistic working-age individuals.[52] We estimated that 50%-75% of working-age autistic people in the United States might need some degree of employment services. We derived this range based on national-level statistics documenting the following: 1) roughly 50% of young adults on the autism spectrum never held a job between high school and their early twenties[7,53] and 2) approximately 75% of autistic teens meet qualifying criteria for special education services.[54] Given that not all students who qualify for special education services will require employment supports, we chose the conservative estimate that at least half of autistic people are in need of supports to find, secure, and maintain employment.

Table 1. Counts and Demographic Characteristics of Medicaid HCBS Enrollees Who Received Employment Services Versus VR Service Users by Disability Type, 2008–2016

	Medicaid		VR	
	Autism (n = 11,333) n (%)	ID (n = 104,499) n (%)	Autism (n = 91,460) n (%)	ID (n = 286,673) n (%)
Male sex	9,070 (80.0)	59,349 (56.8)	76,218 (83.3)	163,084 (56.9)[a]
Age at entry (years)[b]				
14-20	3,298 (20.1)	4,860 (4.7)	56,260 (61.5)	119,472 (41.7)
21-25	4,072 (35.9)	17,559 (16.8)	20,151 (22.0)	52,001 (18.1)
26-30	1,565 (13.8)	15,263 (14.6)	6,891 (7.5)	29,117 (10.2)
31-40	1,366 (12.1)	24,498 (23.4)	4,628 (5.1)	37,687 (13.1)
41-50	765 (6.8)	25,768 (24.7)	2,295 (2.5)	30,902 (10.8)
51-64	267 (2.4)	16,551 (15.8)	1,235 (1.4)	17,494 (6.1)

Continued

Table 1. (Continued)

	Medicaid		VR	
	Autism (n = 11,333) n (%)	ID (n = 104,499) n (%)	Autism (n = 91,460) n (%)	ID (n = 286,673) n (%)
Race				
Black	2,184 (19.3)	21,722 (20.8)	3,761 (9.9)	59,632 (33.5)
White	7,937 (70.0)	72,642 (69.5)[a]	32,505 (85.5)	111,560 (62.7)
Asian/Pacific Islander	211 (1.9)	1,307 (1.25)	952 (2.5)	2,957 (1.7)
Other	552 (4.9)	3,682 (3.5)	821 (2.2)	3,851 (2.2)
Hispanic/Latinx	449 (4.0)	5,096 (4.9)	5,423 (5.9)	23,860 (8.3)

Abbreviations: HCBS, home- and community-based services; ID, intellectual disability; VR, Vocational Rehabilitation.
Except where denoted, all statistics presented in this table were significantly different at $p < 0.05$ per Chi-square tests for autism compared with ID within Medicaid enrollees and VR service users and for Medicaid compared with VR within the autistic group and within the ID group. There were no statistically significant differences between the autism versus ID groups comparing White enrollees with enrollees of other races in Medicaid, or between Medicaid and VR by sex within the ID group.
[a]The statistics were not significantly different at $p < 0.05$.
[b]Given is the age at first observed enrollment for Medicaid HCBS or age at application for VR services.

To understand capacity within the I/DD service system, we constructed a database of all 1915(c) HCBS waivers for all 50 states and Washington, DC, that serve individuals with I/DD, including autism, with information including ages served and waiver capacity. We cataloged all waivers that were in place during 2016 via the waiver applications submitted by the state to the CMS, accessible via the CMS website. To determine how many working-age people may be served by these 1915(c) waivers, we totaled the waiver capacity for each waiver that was available during 2016 that included eligibility for people between 16 and 64 years of age.

Results

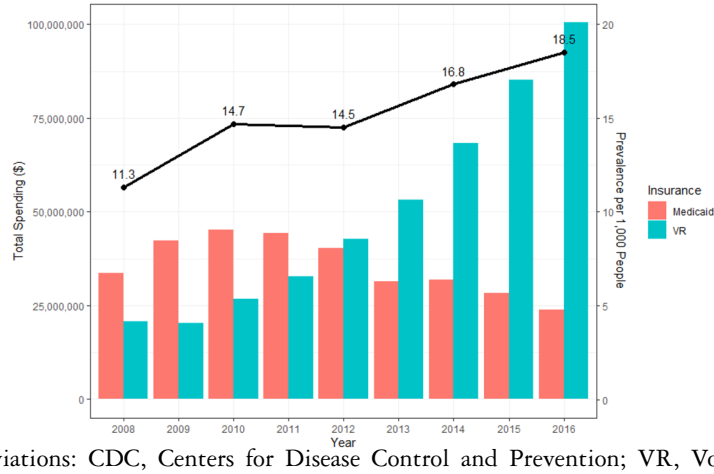
Demographics of Autistic Employment Service Users

Over eight times as many autistic people received employment services through VR ($n = 91{,}460$) compared with Medicaid ($n = 11{,}333$) over the study years. The magnitude of this discrepancy was far greater than among people with ID funded through VR ($n = 286{,}673$) versus Medicaid ($n = 104{,}499$). The rate of autistic people who received VR services grew by 310% over the study years—or nearly 14,000 people—whereas the number of autistic people who received employment services through Medicaid grew by 11%—or approximately 600 people. VR service users with ID decreased by 9%, whereas the number of people with ID served through Medicaid declined by 42%.

Autistic people who received employment services through Medicaid HCBS waivers were older but more diverse by race and ethnicity profiles versus autistic VR service users (Table 1). Across data years, the mean age of autistic HCBS enrollees was 25.7 years (standard deviation [SD] = 9.0) versus 21.7 years (SD = 7.1) for VR service users. Although over 60% of autistic individuals applied for services at 14–20 years of age, age at enrollment into HCBS tended toward 21–25 years or older. In comparison, employment service users with ID were significantly older among both HCBS enrollees (mean = 37.0, SD = 11.7) and VR service users (mean = 27.3, SD = 11.6). Additionally, older age at HCBS enrollment was observed for the ID group as well but to a lesser degree. Approximately 20% of HCBS enrollees were Black and 4%-5% were Hispanic across the autism and ID groups. Significantly fewer autistic VR service users were Black (10%) or Hispanic (6%) compared with those with ID (34% Black; 8% Hispanic).

Additional demographic data available for VR service recipients revealed that co-occurring mental health diagnoses were more common among those with autism (52%) versus ID (31%). However, co-occurring physical health conditions were more common among those with ID (15.2%) versus autism (6.1%). More VR service recipients with ID had Medicaid insurance (54%) than those with autism (34.8%).

Figure 1. Total Annual Spending on Employment Services for Working-Age Autistic Adults Funded by Medicaid Versus VR, Compared With Growth in Autism Prevalence in Children per CDC Surveillance, 2008–2016



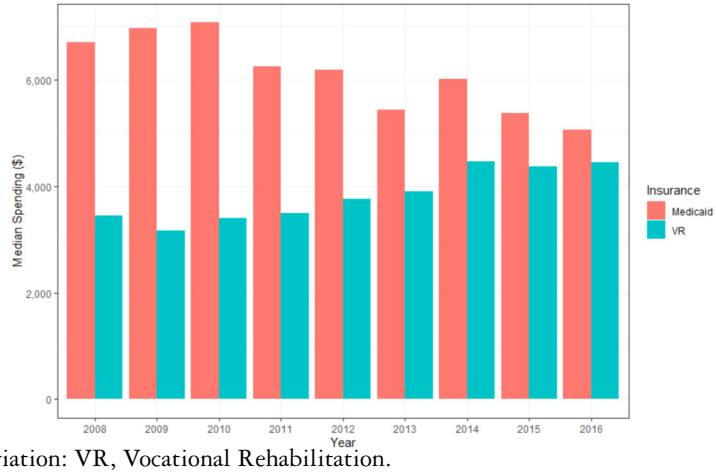
Abbreviations: CDC, Centers for Disease Control and Prevention; VR, Vocational Rehabilitation.

Distribution of Employment Services by Program Expenditures and Service Types

Although the proportion of employment service users funded by Medicaid HCBS was far lower than persons funded by VR, total spending across 2008–2016 on employment services for autistic individuals was 2.2 times higher for Medicaid ($321,106,000) versus cases that closed in VR ($143,074,000). Total costs of employment services for Medicaid HCBS enrollees with ID ($4,430,774,000) were 6.7 times higher than total VR expenditures (autism [$611,647,000]). Between 2008 and 2016, total spending by year for autistic Medicaid enrollees decreased by 29%, from $33,687,931 to $23,865,030, whereas total spending by year for autistic VR service users increased by 384%, from $20,741,923 to $100,440,116. In comparison, Medicaid expenditures for the ID group fell by 44%, from $559,218,439 to $315,589,828, whereas VR spending for those with ID fell by 7%, from $141,707,965 to $140,697,896. See Figure 1.

Trends in median spending per individual, by program, indicated that costs were greater for serving individuals with ID in Medicaid-funded employment services but higher for those with autism in VR services. Specific to autistic employment service recipients, median per person spending for employment services in Medicaid

Figure 2. Median per Person Spending Among Working-Age Autistic Adults Who Received Employment Services Funded by Medicaid Versus VR, 2008–2016



Abbreviation: VR, Vocational Rehabilitation.

decreased by 25% over time, whereas costs increased by 11% for autistic VR service users. See Figure 2. Median costs of employment services for people with ID followed a similar, but attenuated, pattern, with Medicaid expenses decreasing by 18% over time and costs of VR services increasing by 23%.

Of Medicaid-funded employment services, autistic enrollees most often received supported employment (individual or small group) services (65%) or prevocational employment services (40%). See Table 2. Autistic individuals were significantly more likely to receive supported employment, compared with those with ID, but were significantly less likely to receive prevocational services (40%). Autistic VR service users most often received career planning services (87%), supported employment (job development) (57%), supported employment (individual or small group) (44%), and prevocational services (44%). Patterns of VR service receipt were similar between autistic individuals and those with ID; however, compared with those with ID, autistic people were significantly more likely to receive prevocational services and less likely to receive supported employment (individual or small group)—an opposite pattern than seen with HCBS employment services.

Capacity to Serve the Autistic Population

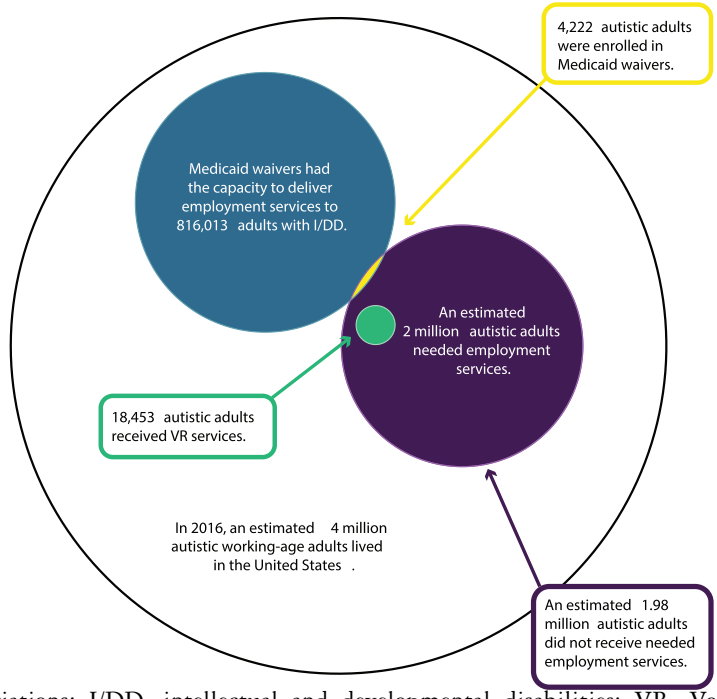
Figure 3 depicts the percentage of the autistic population that we estimated needed employment services in 2016 versus the capacity to serve them. Based on the portion

Table 2. Cumulative Frequency for Broad Service Distribution Categories Among Medicaid Enrollees Versus VR Service Users by Disability Type, 2008–2016

	Medicaid		VR	
	Autism *n* (%)	ID *n* (%)	Autism *n* (%)	ID *n* (%)
Career planning	[a]	0 (0)	79,330 (86.7)	249,845 (87.2)
Prevocational	4,492 (39.6)	50,855 (48.7)	40,402 (44.2)	109,993 (38.4)
Supported employment: individual or small group	7,367 (65.0)	61,312 (58.7)	40,081 (43.8)	134,137 (46.8)
Supported employment: job development	61 (.54)	194 (.19)	52,038 (56.9)	162,001 (56.5)
Day habilitation and vocational habilitation	1,062 (9.4)	15,461 (14.8)	N/A	N/A
Other	N/A	N/A	37,623 (40.7)	132,285 (46.1)

Abbreviations: N/A, not applicable; VR, Vocational Rehabilitation.
Other services include personal assistance services, transportation, maintenance, rehabilitation technical, technical assistance services, and other.
[a] The cell value is suppressed in compliance with cell suppression policy requirements.

Figure 3. Estimated Need for Employment Services Among Autistic Working-Age Adults Versus Receipt of Services Funded by Medicaid Versus VR, 2016



Abbreviations: I/DD, intellectual and developmental disabilities; VR, Vocational Rehabilitation.

of the US population in 2016 between ages 15 and 64 years old ($N = 210{,}357{,}000$) and the earliest and most recent US autism prevalence statistics (1.9% in 2016), we estimated that 4.0 million autistic people ages 15–64 years old were living in the United States in 2016. We then estimated that 2.0 million autistic people likely could have benefited from employment services in 2016.

In total, Medicaid provided employment services to 4,222 autistic individuals in 2016, whereas VR provided employment services for 18,453 individuals. Therefore, 22,675 autistic working-age individuals—or conservatively, only 1.1% of the population that potentially needed employment services—received them. This left an estimated 1.98 million autistic individuals without the employment services that are associated with achievement of well-being. Regarding capacity to serve, Medicaid HCBS waivers that served working-age individuals with I/DD nationwide,

including autistic individuals, had a capacity to serve 816,013 people nationwide, whereas VR did not have a set cap on the number of individuals that could be served.

Discussion

Given the importance of employment as a social determinant of health and the need to better understand the landscape of public investments in employment services, this study sought to characterize the distribution and demographics of autistic employment service users across Medicaid as compared with VR, understand types of employment services utilized within these programs and associated expenditures, and assess overall capacity to provide publicly funded employment services as needs continue to increase within the growing autistic population. We identified VR as the primary funder of employment services for autistic working-age individuals. The number of autistic people served through VR tripled during the study years, whereas the number of autistic individuals served through Medicaid only increased slightly. Increases in the use of VR services paralleled the increases in autistic adults accessing benefits like Social Security Income (SSI), which grew 327% between 2005 and 2019.[55] In regard to noted decreases in individuals with ID served through Medicaid, this trend is also consistent with a 34% decrease in new SSI awards for adults with ID between 2005 and 2015.[55] It is also possible that changes in Medicaid that were unaccounted for in this study, such as contraction of or shifts in the number of HCBS waivers or waiver service delivery over time, could have influenced the decreased number of adults with ID who receive Medicaid-funded employment services.

Demographic profiles indicated that autistic VR service users were generally younger but less diverse by race and ethnicity compared with Medicaid enrollees. This concentration of younger service users mirrored the profile of the autistic population, as concerted efforts have increased awareness and diagnosis of autism in the United States, and the surge of diagnosed youth has now entered the adult service system. Later age at enrollment into Medicaid reflects the policy that VR services should be exhausted prior to accessing Medicaid-funded employment services, but this may also reflect lack of capacity across HCBS waivers and/or administrative burden of accessing waivers. The long-standing nature of these issues may reflect a lack of political will to address administrative burdens, as easing of the process could potentially increase uptake of publicly funded employment services.[36] Although further investigation is needed into the drivers of uneven capacity for service provision and the nature of the administrative burden, inefficiencies in policies and procedures may be hindering access for people who need more intensive, longer-term employment services.

Growth in autism prevalence served as a proxy predictor of the socially recognized need for employment services, as surveilled autism prevalence increased from 1:150

in 2000 to 1:54 in 2016—an increase of 188% over 16 years. We note that this "observed" prevalence, obtained via extraction of data from medical charts and school records, reflects those who can access health care and navigate special education eligibility. Yet, the data also reflect growth in the racial and ethnic diversity of children identified with autism.[56] Although data from autism surveillance sites through 2010 reflected a higher prevalence among higher socioeconomic status (SES) White children, more recent data reflect increasing prevalence among children from middle SES and Black/Asian families—reversing previous trends.[57–59] These trends highlight the vital need for understanding, monitoring, and addressing equity within service delivery systems, particularly given the noted lack of diversity in demographics among autistic VR service users.

In line with the growth in numbers of autistic working-age individuals served through VR, VR program expenditures also nearly quadrupled during the study years. Growth in VR costs paralleled increases in expenditures on autistic individuals within public benefit programs like SSI.[55] Increases in VR median per person costs kept pace with inflation over the study years at a rate of 11%. Meanwhile, total Medicaid spending decreased by around 30%, even though autistic enrollees continued to slightly increase over the study years. Declines in Medicaid median per person costs reflected an inability to keep pace with increasing costs of services.

Types of services delivered through an employment program may be reflective of the types of persons served. By definition, VR provides shorter-term employment services, whereas Medicaid delivers longer-term employment services, presumably to those who need more intensive levels of support. Our results indicated that VR tended to fund more job-related services, which are associated with higher rates of employment at case closure, than the Medicaid funded. Overall, though, the most common service category in VR was career services, which does not have strong associations with employment outcomes. Medicaid, on the other hand, tended to provide prevocational services, which theoretically builds skills needed for employment but may be delivered within segregated, noncommunity-based settings. This aligns with the general trend in Medicaid to primarily fund facility-based, nonwork as opposed to integrated employment in the community.[28] Across both VR and Medicaid programs, there appears to be a common need to better align funding with services that are associated with improved employment outcomes, including community-based jobs in integrated settings.

Broadly, our estimated receipt of employment services among autistic working-age individuals was extremely low. Using our estimated population of 4.0 million autistic working-age individuals in the United States in 2016, even our conservative estimated need for employment services at approximately 2.0 million, compared with those who received VR- or Medicaid-funded employment services in 2016 (n = 22,675), yields an alarmingly low rate of employment service receipt at around 1.1%. We estimate that 1.98 million autistic adults do not have access to employment

services that are associated with the achievement of health and well-being; although, we acknowledge that this rough estimate was necessarily derived from our own informal calculations. Although we did not factor HCBS waiver income eligibility into our calculations, as criteria varies widely by state, the need to meet income thresholds to qualify for Medicaid services constricts availability of employment services even further. We are aware of several attempts within the last decade to devise a population-based epidemiological study to determine the prevalence of autism in adults in the United States, and although useful, we identify an even greater need to understand life circumstances and unmet service needs. At present, there are no large, nationally representative data sets or administrative data in the United States that can adequately measure critical indicators across autistic adults' working years, such as unemployment, underemployment, and the need for employment supports and services.

Lack of access to employment services is problematic as a missed opportunity to address employment as a social determinate of health and well-being, especially given high rates of co-occurring physical and mental health conditions within the autistic population.[60,61] Trend analyses of employment outcomes for working-age autistic people and those with ID have repeatedly shown stagnant-to-declining employment outcomes among those who receive state employment services either through Medicaid (state developmental disability services) or VR services.[13,28] Although our study did not directly examine coordination of employment services funded by Medicaid or VR during the study period, there is little evidence that the uptake of VR services identified in this study, in the context of stagnant (for autistic individuals) or declining (for those with ID) Medicaid-funded employment services resulted in the improvement of VR employment rates in years following this study. Although the rate of VR service receipt continued to increase across 2010–2019, rates of employment following VR services fell to 27% for those with ID and 35% for those with other disabilities (including autism).[28]

These disappointing trends in employment outcomes point to the impacts of inadequate funding and provision of public employment services—or what happens when services do not keep pace with needs. Lack of capacity for service provision may contribute to the stubbornly persistent gap in employment rates between people with and without disabilities in the United States, roughly 31%-78% in 2017 at the end of our study years.[62] In regard to funding, a recent study demonstrated that states with greater investment in integrated employment services (via HCBS waivers) achieved more consistent employment for people with I/DD across the life span.[63] Without substantial changes in the funding and provision of employment supports for this population, the effects of unemployment and its related economic and health sequelae may compound as an estimated one million youth on the autism spectrum reach the age of 18 years old over the next decade.[15] Resultant gaps in achieving or maintaining employment are particularly difficult for young persons with disabilities who are attempting to enter the workforce as a step toward a career[63] but instead

encounter suboptimal outcomes, including financial instability, which add to cumulative disadvantages. This employment "service cliff" represents an injustice to youth with developmental disabilities who are entitled to special education services to support their ability to participate in their communities, through employment or other means, but then are not entitled to the services they need as adults to find, access, and maintain employment.[38]

Young people in the general population who need assistance to find employment, and people who are seeking job retraining, have multiple avenues for acquiring these skills—such as "one stops" (American Job Centers), vocational training programs, internships, and apprenticeships. The WIOA attempted to strengthen the use of these pathways into employment to build capacity to serve youth with disabilities and to "promote improvement in the structure and delivery of services."[64] Yet, anecdotally, most autistic youth and those with other disabilities are still primarily referred to VR and Medicaid for employment supports, even though these systems lack capacity to serve all who are referred. To this point, VR was initially designed to meet the needs of veterans—not youth with I/DD—and definitely not autistic youth; just as Medicaid was designed as a health insurance program and HCBS waivers were not designed to be the sole solution for long-term employment needs.[38] Fully maximizing alternate employment pathways, however, as the WIOA intended, could reduce burden on federal and state systems.

We note several limitations to our findings. First, VR and Medicaid data are administrative and do not reflect the absolute level of need for services within the autistic population. Standard limitations apply to analysis of administrative and claims data in that they are more subject to error and bias on the part of those who entered the data, and there may be inaccuracies in case closure information within the VR data. Despite their inherent flaws, VR and Medicaid data are among the largest sources of information about the employment services experiences of autistic people. Additionally, Medicaid FFS data do not reflect people served in managed care models. Furthermore, it is possible that some people could have received both VR and Medicaid HCBS employment services during the data years.

Second, the dramatic increases in observed autism prevalence within surveillance efforts complicate, and potentially bias, trend analyses of the prevalence of services within publicly funded programs. For example, it is difficult to know whether increased demand for services, via rising numbers of autistic individuals in the US population, has driven increases in VR service utilization or whether changes in state-level VR program procedures made the program easier for autistic people to access. We are unaware of any such changes that would have occurred across states during the study years. Nevertheless, it is possible that programmatic factors drove a portion of the increase in VR service use. Likewise, it is plausible that a "diagnostic substitution" phenomenon could be reflected in the general increase in employment service use among autistic adults, as autism awareness and diagnosis increased

within communities, whereas service use stagnated or declined among those with ID. Researchers have similarly noted the possibility that diagnostic substitution is contributing to increasing numbers of students in the autism eligibility category within administrative special education data[65]; however, the underlying prevalence of ID in children did not decrease during the study period.[6] Our study sought to examine employment services funded through VR and Medicaid to examine the implications for the systems, which means that changes in autism prevalence does matter within the confines of these systems.

Third, to our knowledge, this was the first attempt to align Medicaid- and VR-funded employment services to understand their distribution. Given a lack of applied models for categorizing employment services by broad categories, our groupings are subject to error. For example, states may categorize Medicaid-funded career planning services as day habilitation, supported employment, or other categories.[33] Therefore, more people may have received this service than was detectable. Given these limitations, we did not attempt to directly compare services across programs by types. Our categorizations do represent an effort to further the conversation about the main types of services, according to their purposes, and to advance our general understanding of what people are receiving. Future research that aims to compare service receipt with program outcomes across VR and Medicaid would benefit from input from leadership within the RSA and CMS. Further, any future research on comparative efficacy of VR versus Medicaid services would need to take into account potential selection bias, given that VR service users likely represent a more privileged group of people who do not have to meet low-income criteria and who tend to be less diverse in race and ethnicity.

Fourth, we note that states vary in which types of HCBS waivers they utilize and eligibility criteria. Although a few states have autism-specific waivers in place for adults, we did not attempt to evaluate differences in employment services delivered through autism-specific waivers. Finally, in terms of estimating need versus capacity, we are unable to accurately analyze the number of autistic people who may have been on waitlists for HCBS waivers owing to a lack of publicly available wait list data. In 2014, nearly 317,000 people with I/DD, including autism, were on waitlists for Medicaid HCBS waiver services,[66] a number that has climbed to nearly 600,000 in 2022.[67]

Conclusions

Evaluation and monitoring of publicly funded programs employment service use among autistic users versus those with other types of disabilities is paramount given the dramatic growth in the autistic segment of the I/DD population—now one in 36 children[56]—and the potential positive influence of employment on their health

and well-being. Although this study indicated that VR appeared to be absorbing short-term employment needs of autistic people, Medicaid was severely lacking—and losing ground—in serving those who need longer-term employment services. VR far outpaced growth in both number of autistic people served and total expenditures across the study years in comparison with Medicaid.

When provided with appropriate services, many autistic individuals are able to work and to reap the associated benefits of employment on health and well-being. Investing in employment services for the autistic population is not simply a matter of "doing the right thing." It is a matter of economic consequence—in terms of alleviating poverty and addressing unemployment as a social determinant of health. Systems like Medicaid, and Medicaid HCBS waivers, were created to foster public health. Yet, continued reliance on these public programs, without significant reform to improve access to employment services and improved employment outcomes, ultimately serves to undermine program effectiveness.

In 2014, a call was issued for innovation and investment to propel employment outcomes for autistic people.[68] Nearly 10 years later, investments in employment services and outcomes remain poor and innovations are generally limited to demonstration projects. Our findings highlight the obstacles present in siloed systems of care that largely fail to integrate care across programs, or to capture data about service use across systems, and lack effective measurement of program impacts beyond the primary goals of employment service delivery.[69] Furthermore, the level of complexity encountered when attempting to understand the public employment services landscape likely also reflects the barriers faced by individuals and families as they try to navigate these systems to access services. Moving forward, it will be critically important to establish a more transparent system of monitoring, evaluating, and improving access and utilization of employment services across our public service systems, particularly if our nation continues to opt out of providing supportive services as an entitlement required to fully realize the intended impacts of special education on employment.

References

1. Saha S, Cohen BB, Nagy J, McPherson ME, Phillips R. Well-being in the nation: a living library of measures to drive multi-sector population health improvement and address social determinants. *Milbank Q*. 2020;98(3):641-663. https://doi.org/10.1111/1468-0009.12477
2. Social determinants of health. World Health Organization. Accessed March 21, 2023. https://www.who.int/health-topics/social-determinants-of-health
3. van der Noordt M, IJzelenberg H, Droomers M, Proper KI. Health effects of employment: a systematic review of prospective studies. *Occup Environ Med*. 2014;71(10):730-736. https://doi.org/10.1135/oemed-2013-101891

4. Bush PW, Drake RE, Xie H, McHugo GJ, Haslett WR. The long-term impact of employment on mental health service use and costs for persons with severe mental illness. *Psychiatr Serv*. 2009;60(8):1024-1031. https://doi.org/10.1176/ps.2009.60.8.1024
5. Dietz PM, Rose CE, McArthur D, Maenner M. National and state estimates of adults with autism spectrum disorder. *J Autism Dev Disord*. 2020;50(12):4258-4266. https://doi.org/10.1007/s10803-020-04494-4
6. Zablotsky B, Black LI, Maenner MJ, et al. Prevalence and trends of developmental disabilities among children in the United States: 2009–2017. *Pediatrics*. 2019;144(4):e20190811. https://doi.org/10.1542/peds.2019-0811
7. Roux AM, Shattuck PT, Cooper BP, Anderson KA, Wagner M, Narendorf SC. Postsecondary employment experiences among young adults with an autism spectrum disorder. *J Am Acad Child Adolesc Psychiatry*. 2013;52(9):931-939. https://doi.org/10.1016/j.jaac.2013.05.019
8. Roux AM, Shattuck PT, Rast JE, Rava JA, Anderson KA. *National Autism Indicators Report: Transition into Young Adulthood*. A.J. Drexel Autism Institute; 2015. Accessed March 27, 2023. https://policyimpactproject.org/transition-into-young-adulthood-full-report/
9. Roux AM, Rast JE, Anderson KA, Shattuck PT. *National Autism Indicators Report: Vocational Rehabilitation*. A.J. Drexel Autism Institute; 2016. Accessed March 27, 2023. https://policyimpactproject.org/national-autism-indicators-report-vocational-rehabilitation/
10. Stapleton DC, O'Day BL, Livermore GA, Imparato AJ. Dismantling the poverty trap: disability policy for the twenty-first century. *Milbank Q*. 2006;84(4):701-732. https://doi.org/10.1111/j.1468-0009.2006.00465.x
11. Anderson KA, Hemmeter J, Wittenburg D, et al. National and state trends in autistic adult supplemental security income awardees: 2005–2019. *J Autism Dev Disord*. 202;52(8):3547-3559. https://doi.org/10.1007/s10803-021-05215-1
12. Shea LL, Koffer Miller KH, Verstreate K, Tao S, Mandell D. States' use of Medicaid to meet the needs of autistic individuals. *Health Serv Res*. 2021;56(6):1207-1214. https://doi.org/10.1111/1475-6773.13671
13. Burgess S, Cimera RE. Employment outcomes of transition-aged adults with autism spectrum disorders: a state of the states report. *Am J Intellet Dev Disabil*. 2014;119(1):64-83. https://doi.org/10.1352/1944-7558-119.1.64
14. Hall AC, Freeze S, Butterworth J, Hoff D. Employment funding for intellectual/developmental disability systems. *J Vocat Rehabil*. 2011;34(1):1-15. https://doi.org/10.3233/JVR-2010-0529
15. Shattuck PT, Garfield T, Roux AM, et al. Services for adults with autism spectrum disorder: a systems perspective. *Curr Psychiatry Rep*. 2020;22(3):13. https://doi.org/10.1007/s11920-202-1136-7
16. *2016–2017 Interagency Autism Coordinating Committee Strategic Plan for Autism Spectrum Disorder*. Interagency Autism Coordinating Committee; Office of Autism Research Coordination; 2017. Accessed March 23, 2023. https://iacc.hhs.gov/publications/strategic-plan/2017/strategic_plan_2017.pdf

17. Barth S, Lewis S, Simmons T. *Medicaid Services for People with Intellectual or Developmental Disabilities – Evolution of Addressing Service Needs and Preferences: Report to the Medicaid and CHIP Payment and Access Commission*. Health Management Associates; 2020. Accessed March 23, 2023. https://www.macpac.gov/wp-content/uploads/2021/01/Medicaid-Services-for-People-with-Intellectual-or-Developmental-Disabilities-%E2%80%93-Evolution-of-Addressing-Service-Needs-and-Preferences.pdf
18. Whittle HJ, Palar K, Ranadive NA, Turan JM, Kushel M, Weiser SD. "The land of the sick and the land of the healthy": disability, bureaucracy, and stigma among people living with poverty and chronic illness in the United States. *Soc Sci Med*. 2017;190:181-189. https://doi.org/10.1016/j.socscimed.2017.08.031
19. Hiersteiner D, Bradley V, Ne'eman A, Bershadsky J, Bonardi A. Putting the research in context: the life experience and outcomes of adults on the autism spectrum receiving services in 29 states. *Inclusion*. 2017;5(1):45-59. https://doi.org/10.1352/2326-6988-5.1.45
20. Alverson CY, Yamamoto SH. Employment outcomes of Vocational Rehabilitation clients with autism spectrum disorders. *Career Dev Transit Except Individ*. 2017;40(3):144-155. https://doi.org/10.1177/2165143416629366
21. Migliore A, Landa C. *Employment Trends of Young Adults with Cognitive Disabilities: 2004–2011 (Data Note 47)*. University of Massachusetts Boston; 2013. Accessed March 27, 2023. https://www.statedata.info/datanotes/number-47.
22. Chan F, Kregel J. *Supported Employment for People with Intellectual Disabilities, Autism Spectrum Disorders, and Schizophrenia: a Propensity Matched Comparison of Vocational Rehabilitation Outcomes*. Working Paper Number 2019-07. Mathematica; 2019. Accessed March 23, 2023. https://www.mathematica.org/publications/supported-employment-for-people-with-intellectual-disabilities-autism-spectrum-disorders
23. Wehman P, Chan F, Ditchman N, Kang H-J. Effect of supported employment on Vocational Rehabilitation outcomes of transition-age youth with intellectual and developmental disabilities: a case control study. *Intellect Dev Disabil*. 2014;52(4):296-310. https://doi.org/10.1352/1934-9556-52.4.296
24. Lucchese A. Order of selection: how Vocational Rehabilitation agencies prioritize service to individuals with disabilities. The Council of State Governments. April 25, 2022. Accessed March 23, 2023. https://seed.csg.org/order-of-selection-how-vocational-rehabilitation-agencies-prioritize-service-to-individuals-with-disabilities/
25. Order of selection information. Rehabiltiation Services Administration. Accessed March 23, 2023. https://rsa.ed.gov/about/programs/vocational-rehabilitation-state-grants/order-of-selection-information
26. Schott W, Nonnemacher S, Shea L. Service use and unmet needs among adults with autism awaiting home-and community-based Medicaid services. *J Autism Dev Disord*. 2021;51(4):1188-1200. https://doi.org/10.1007/s10803-020-04593-2
27. Peebles V, Bohl A. The HCBS taxonomy: a new language for classifying home- and community-based services. *Medicare Medicaid Res Rev*. 2014;4(3):E1-E17. https://doi.org/10.5600/mmrr.004.03.b01

28. Winsor J, Timmons JC, Butterworth J, et al. *StateData: The National Report on Employment Services and Outcomes Through 2018*. Institute for Community Inclusion; 2021. Accessed March 27, 2023. https://www.thinkwork.org/sites/default/files/files/state_data_2021_F.pdf
29. *Rehabilitation Act: Vocational Rehabilitation State Grants*. Congressional Research Service; 2014. Accessed March 23, 2023. https://www.everycrsreport.com/files/20141230_R43855_d5a0c2acc49edfe1fa726907c4d8cad01b94de2d.pdf
30. Butterworth J, Winsor J, Smith FA, et al. *StateData: The National Report on Employment Services and Outcomes*. Institute for Community Inclusion; 2015. Accessed March 27, 2023. https://scholarworks.umb.edu/ici_pubs/74/
31. Federal medical assistance percentage (FMAP) for Medicaid and multiplier. Kaiser Family Foundation. Accessed August 9, 2021. https://www.kff.org/medicaid/state-indicator/federal-matching-rate-and-multiplier/
32. State financial eligibility criteria for Medicaid HCBS waivers by target population. Kaiser Family Foundation. Accessed March 23, 2023. https://www.kff.org/other/state-indicator/state-financial-eligibility-criteria-for-medicaid-hcbs-waivers-by-target-population
33. Updates to the Section 1915(c) Waiver Instructions and Technical Guide regarding employment and employment related services. Centers for Medicare & Medicaid Services. September 16, 2011. Accessed June 22, 2022. https://www.hhs.gov/guidance/document/updates-1915c-waiver-instructions-and-technical-guide-regarding-employment-and-employment
34. *The State Vocational Rehabilitation Services Program Before and After Enactment of the Workforce Innovation and Opportunity Act in 2014*. Rehabilitation Services Administration; 2020. Accessed March 17, 2023. https://rsa.ed.gov/sites/default/files/publications/state-of-vr-program-after-wioa.pdf
35. Boeltzig H, Winsor J, Haines K. *Research to Practice: Collaboration between State Intellectual and Developmental Disabilities Agencies and State Vocational Rehabilitation Agencies: Results of a National Survey*. Institute for Community Inclusion; 2011. Accessed March 23, 2023. http://scholarworks.umb.edu/ici_researchtopractice/3
36. Moynihan D, Herd P, Harvey H. Administrative burden: learning, psychological, and compliance costs in citizen-state interactions. *J Public Adm Res Theory*. 2015;25(1):43-69. https://doi.org/10.1093/jopart/muu009
37. Herd P, Moynihan D. Administrative burdens in health policy. *J Health Hum Serv Adm*. 2020;43(1):3-16. doi:10.37808/jhhsa.43.1.2
38. Bagenstos SR. The disability cliff. *Democracy*. 2015;(35):55-67.
39. *Revision of PD-13-05 Vocational Rehabilitation Program Case Service Report (RSA-911) Data Elements (RSA-PD-14-101)*. Rehabilitation Services Administration; 2013.
40. Chen JL, Sung C, Pi S. Vocational Rehabilitation service patterns and outcomes for individuals with autism of different ages. *J Autism Dev Disord*. 2015;45(9):3015-3029. https://doi.org/10.1007/s10803-015-2465-y
41. Nevala N, Pehkonen I, Teittinen A, Vesala HT, Pörtfors P, Anttila H. The effectiveness of rehabilitation interventions on the employment and

functioning of people with intellectual disabilities: a systematic review. *J Occup Rehabil*. 2019;29(4):773-802. https://doi.org/10.1007/s10926-019-09837-2

42. Nye-Lengerman K. Vocational Rehabilitation service usage and outcomes for individuals with autism spectrum disorder. *Res Autism Spectr Disord*. 2017;41-42(July):39-50. https://doi.org/10.1016/j.rasd.2017.08.003
43. Nord DK, Stancliffe RJ, Nye-Lengerman K, Hewitt AS. Employment in the community for people with and without autism: a comparative analysis. *Res Autism Spectr Disord*. 2016;24:11-16.
44. Migliore A, Timmons J, Butterworth J, Lugas J. Predictors of employment and postsecondary education of youth with autism. *Rehab Counsel Bull*. 2012;55(3):176-184. https://doi.org/10.1177/0034355212438943
45. Kaya C, Chan F, Rumrill P, et al. Vocational Rehabilitation services and competitive employment for transition-age youth with autism spectrum disorders. *J Vocat Rehab*. 2016;45(1):73-83.
46. Butterworth J, Migliore A, Timmons J. *Services and Outcomes for Transition Age Young Adults with Autism Spectrum Disorders: Secondary Analysis of the NLTS2 and RSA 911*. Institute of Community Inclusion; 2010.
47. Roux AM, Rast JE, Anderson KA, Shattuck PT. *National Autism Indicators Report: Developmental Disability Services and Outcomes in Adulthood*. A.J. Drexel Autism Institute; 2017. Accessed March 23, 2023. https://policyimpactproject.org/developmental-disability-services-and-outcomes-in-adulthood/
48. Friedman C, Nye-Lengerman K. Exploring the role of prevocational services for people with intellectual and developmental disabilities in Medicaid HCBS waivers. *J Vocat Rehab*. 2018;49(1):127-138. https://doi.org/10.3233/JVR-180959
49. Tanis ES, Lulinski A, Wu J, Braddock DL, Hemp R. *The State of the States in Intellectual and Developmental Disabilities: 2019*. 12th ed. Kansas University Center on Developmental Disabilities; 2022. Accessed March 27, 2023. https://stateofthestates.org/wp-content/uploads/documents/UnitedStates.pdf
50. *Application for a 1915(c) Home and Community-Based Waiver {Version 3.6, January 2019}. Instructions, Technical Guide and Review Criteria (January 2019)*. Centers for Medicare & Medicaid Services; 2019. Accessed March 27, 2023. https://wms-mmdl.cms.gov/WMS/help/35/Instructions_TechnicalGuide_V3.6.pdf
51. Age and sex composition in the United States: 2016. United States Census Bureau. *Updated October 8, 2021. Accessed October 5, 2022*. https://www.census.gov/data/tables/2016/demo/age-and-sex/2016-age-sex-composition.html
52. Data & statistics on autism spectrum disorder. Centers for Disease Control and Prevention. Updated April 4, 2023. Accessed October 5, 2022. https://www.cdc.gov/ncbddd/autism/data.html
53. Shattuck PT, Narendorf SC, Cooper B, Sterzing PR, Wagner M, Taylor JL. Postsecondary education and employment among youth with an autism spectrum disorder. *Pediatr*. 2012;129(6):1042-1049. https://doi.org/10.1542/peds.2011-2864
54. Shattuck PT, Rast JE, Roux AM, et al. *National Autism Indicators Report: High School Students on the Autism Spectrum*. A.J. Drexel Autism Institute; 2018.

Accessed March 23, 2023. https://policyimpactproject.org/high-school-students-on-the-autism-spectrum/

55. Anderson KA, Hemmeter J, Rast JE, Roux AM, Shattuck PT. Trends in supplemental security income payments to adults with autism. *Psychiatr Serv*. 2020;71(6):602-607. https://doi.org/10.1176/appi.ps.201900265
56. Maenner M, Warren Z, Williams A, et. al. Prevalence and characteristics of autism spectrum disorder among children aged 8 years - Autism and Developmental Disabilities Monitoring Network, 11 sites. United States, 2020. *MMWR Surveill Summ*. 2023;72(2):1-14.
57. Winter AS, Fountain C, Cheslack-Postava K, Bearmana PS. The social patterning of autism diagnoses reversed in California between 1992 and 2018. *Proc Natl Acad Sci USA*. 2020;117(48):30295-30302. https://doi.org/10.1073/pnas.2015762117
58. Nevison C, Zahorodny W. Race/ethnicity-resolved time trends in United States ASD prevalence estimates from IDEA and ADDM. *J Autism Dev Disord*. 2019;49(12):4721-4730. https://doi.org/10.1007/s10803-019-04188-6
59. Shenouda J, Barrett E, Davidow AL, Halperin W, Silenzio VMB, Zahorodny W. Prevalence of autism spectrum disorder in a large, diverse metropolitan area: variation by sociodemographic factors. *Autism Res*. 2022;15(1):146-155. https://doi.org/10.1002/aur.2628
60. Croen LA, Zerbo O, Qian Y, et al. The health status of adults on the autism spectrum. *Autism*. 2015;19(7):814-823. https://doi.org/10.1177/1362361315577517
61. Kerns CM, Rast JE, Shattuck PT. Prevalence and correlates of caregiver-reported mental health conditions in youth with autism spectrum disorder in the United States. *J Clin Psychiatry*. 2020;82(1):20m13242. https://doi.org/10.4088/JCP.20m13242
62. Winsor J, Timmons J, Butterworth J, et al. *StateData: The National Report on Employment Services and Outcomes 2016*. Institute for Community Inclusion; 2017. Accessed March 23, 2023. https://www.thinkwork.org/sites/statedata.info/files/files/statedata_bluebook_narrative_2016.pdf
63. Nord D, Grossi T, Andresen J. Employment equity for people with IDD across the lifespan: the effects of state funding. *Intellect Dev Disab*. 2020;58(4):288-300.
64. *Training and Employment Guidance Letter WIOA No: 14–15: Operating Guidance for the Workforce Innovation and Opportunity Act (WIOA or Opportunity Act)*. US Department of Labor; 2016. Accessed March 27, 2023. https://www.dol.gov/sites/dolgov/files/ETA/advisories/TEGL/2016/tegl_14-15.pdf
65. Cardinal DN, Griffiths AJ, Maupin ZD, Fraumeni-McBride J. An investigation of increased rates of autism in U.S. public schools. *Psychol Sch*. 2021;58(1):124-140. https://doi.org/10.1002/pits.22425
66. Bragdon T. *The Case for Inclusion 2014*. United Cerebral Palsy; 2014. Accessed March 27, 2023. https://ucp.org/wp-content/uploads/2018/07/Case_For_Inclusion_Report_2014.pdf

67. Dawson L. *The Case for Inclusion2022: Blazing Trails to Sustainability for Community Disability Services*. United Cerebral Palsy; ANCOR Foundation; 2022. Accessed March 27, 2023. https://www.ucpcleveland.org/2022/03/08/2022-case-for-inclusion/
68. Shattuck PT, Roux AM. Autism: moving toward an innovation and investment mindset. *JAMA Pediatr*. 2014;168(8):698-699. https://doi.org/10.1001/jamapediatrics.2014.585
69. Shogren KA, Wittenburg D. Improving outcomes of transition-age youth with disabilities: a life course perspective. *Career Dev Transit Except Individ*. 2020;43(1):18-28. https://doi.org/10.1177/2165143419887853

Conflict of Interest Disclosures: The authors have no conflicts of interest to declare.

Funding/Support: This project was supported by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) under cooperative agreements UJ2MC31073 and UT6MC45902 Autism Transitions Research Project. The information, content, and/or conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by, the HRSA, HHS, or the US government.

Address correspondence to: Anne M. Roux, A.J. Drexel Autism Institute, Drexel University, 3020 Market St, Suite 560, Philadelphia, PA 19104 (email: amr376@drexel.edu).

Appendix 1

Medicaid Procedure Codes for Day Services and Supported Employment Services Included in Analysis, by HCBS Taxonomy Category (or ICD-10 Procedure Coding System) and Service Name

Day Services					
Prevocational Services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	Habilitation, prevocational, waiver; per diem	T2014	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR033
06:HCPCS	Habilitation, prevocational, waiver; per hour	T2015	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR034
10:OTHER SYS	PRE VOC; STATE; FULL DAY	4458	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR035
10:OTHER SYS	PRE VOC; STATE; HOURLY	4459	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR036
10:OTHER SYS	PRE VOC; VOLUNTARY; HOURLY	4463	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR037
10:OTHER SYS	PRE VOC; VOLUNTARY; $10.00 PER UNIT FEE	4464	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR038
10:OTHER SYS	PRE VOC; VOLUNTARY; $1.00 PER UNIT FEE	4465	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR039
10:OTHER SYS	PRE-VOCATIONAL SERVICES PER HOUR (MAS = 40 HOURS/WEEK)	1560P	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR040
06:HCPCS	MR/RD WAIVER PREVOCATIONAL HABILITATION	X6983	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR041

Day Services

Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
10:OTHER SYS	PREVOC. WORK ACTIVITY	M	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR042
10:OTHER SYS	PVOC SRV GROUP RATE - SED	1315	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR043
10:Other Sys	PREVOCATIONAL SERVICES	108	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - 15 MINUTE UNIT	MR044
06:HCPCS	PREVOCATIONAL COUNSELING - WAIVER	W1425	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR045
06:HCPCS	PRE-VOCATIONAL SERVICE, 1/2 DAY, MR WAIVER	W1426	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR046
06:HCPCS	PREVOCATIONAL SERVICE, MR WAIVER,PER HR	W4425	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR047
06:HCPCS	EDUCATIONAL SUPPORT SERVICES: GENERAL ADULT EDUCATIONAL SERVICES INCLUDING CMTY COLLEGE, UNIVERSITY OR COLLEGE-LEVEL COURSES, CLASSES, TUTORING TO RECEIVE GED DEGREE, & ASSISTANCE TO PARTICIPATE IN APPRENTICESHIP PROGRAMS. OUTCOME BASED UNIT.	W7284	10:OTHER SYS	ADULT DAY/VOC HAB COMBO - DAILY UNIT	MR048
06:HCPCS	PREVOC SERV 2390 BASE: DEVELOP SKILLS FOR PLACEMENT IN HIGHER VOCATIONAL PROG & ULTIMATELY COMPETITIVE EMPLOY. FACILITY-BASED EMPLOY, OCCUPATIONAL TRNG, VOCATIONAL EVAL, VOCATIONAL FAC, WORK ACTIVITIES CNTR. STAFF:INDIV NO LESS THAN 1:15. 15 MIN UNIT	W7087			

Day Services					
Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	PREVOC SERV 2390 LVL 1: DEVELOP SKILLS FOR PLACEMENT IN HIGHER VOCATIONAL PROG & ULTIMATELY COMPETITIVE EMPLOY. FACILITY-BASED EMPLOY, OCCUPATIONAL TRNG, VOCATIONAL EVAL, VOCATIONAL FAC, WORK ACTIVITIES CNTR. STAFF:INDIV <1:15 TO 1:7.5. 15 MIN UNIT	W7088			
06:HCPCS	PREVOC SERV 2390 LVL 2: DEVELOP SKILLS FOR PLACEMENT IN HIGHER VOCATIONAL PROG & ULTIMATELY COMPETITIVE EMPLOY. FACILITY-BASED EMPLOY, OCCUPATIONAL TRNG, VOCATIONAL EVAL, VOCATIONAL FAC, WORK ACTIVITIES CNTR. STAFF:INDIV <1:7.5 TO >1:1. 15 MIN UNIT	W7089			
06:HCPCS	PREVOC SERV 2390 LVL 3: DEVELOP SKILLS FOR PLACEMENT IN HIGHER VOCATIONAL PROG & ULTIMATELY COMPETITIVE EMPLOY. FACILITY-BASED EMPLOY, OCCUPATIONAL TRNG, VOCATIONAL EVAL, VOCATIONAL FAC, WORK ACTIVITIES CNTR. STAFF:INDIV 1:1. 15 MIN UNIT	W7090			

Day Services					
Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	PREVOC SERV 2390 LVL 3 ENH: DEVEL SKILLS FOR PLACEMENT IN HIGHER VOCATIONAL PROG & COMPETITIVE EMPLOY. FAC-BASED EMPLOY, OCCUPATIONAL TRNG, VOCATIONAL EVAL, VOCATIONAL FAC, WORK ACTIVITIES CNTR. STAFF:INDIV 1:1 WITH LICENSED/DEGREE STAFF. 15 MIN UNIT	W7091			
06:HCPCS	PREVOC SERV 2390 LVL 4: DEVELOP SKILLS FOR PLACEMENT IN HIGHER VOCATIONAL PROG & ULTIMATELY COMPETITIVE EMPLOY. FACILITY-BASED EMPLOY, OCCUPATIONAL TRNG, VOCATIONAL EVAL, VOCATIONAL FAC, WORK ACTIVITIES CNTR. STAFF:INDIV 2:1. 15 MIN UNIT	W7092			

Day Services					
Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	TRANSITIONAL WORK SERV-BASE: TRANSITIONAL WORK INCLUDES MOBILE WORK FORCE, WORK STATION IN INDUSTRY, AFFIRMATIVE INDUSTRY, ENCLAVE. 40 HRS/INDIV/WEEK LIMIT WITH LICENSED DAY, SUPPORTED EMPLOY, AND PREVOC SERV. STAFF:INDIV 1:10 TO >1:6-15 MIN UNIT	W7237			
06:HCPCS	TRANSITIONAL WORK SERVICES-STAFF SUPPORT LEVEL 1. INCLUDES, BUT IS NOT LIMITED TO: MOBILE WORK FORCE, WORK STATION IN INDUSTRY, AFFIRMATIVE INDUSTRY AND ENCLAVE. PROVISION OF THE SERVICE AT A STAFF TO INDVDL RATIO OF <1:6 TO 1:3:5. PER 15 MIN.	W7239			
06:HCPCS	TRANSITIONAL WORK SERVICES-STAFF SUPPORT LEVEL 2. INCLUDES, BUT IS NOT LIMITED TO: MOBILE WORK FORCE, WORK STATION IN INDUSTRY, AFFIRMATIVE INDUSTRY AND ENCLAVE. PROVISION OF THE SERVICE AT A STAFF TO INDIVIDUAL RATIO OF <1:35 TO >1:1. PER 15 MIN	W7241			

Day Services

Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	TRANSITIONAL WORK SERV-LVL 3: TRANSITIONAL WORK INCLUDES MOBILE WORK FORCE, WORK STATION IN INDUSTRY, AFFIRMATIVE INDUSTRY, ENCLAVE. 40 HRS/INDIV/WEEK LIMIT WITH LICENSED DAY, SUPPORTED EMPLOY, AND PREVOC SERV. STAFF:INDIV OF 1:1. 15 MIN UNIT	W7245			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT GROUP A-1	MR017			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR018			

Day Services

Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR019			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR020			
10:OTHER SYS	VOCATIONAL HABILITATION - DAILY UNIT	MR021			
10:OTHER SYS	VOCATIONAL HABILITATION - DAILY UNIT	MR022			

Day Services

Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
10:OTHER SYS	VOCATIONAL HABILITATION - DAILY UNIT	MR023			
10:OTHER SYS	VOCATIONAL HABILITATION - DAILY UNIT	MR024			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR025			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR026			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR027			

Day Services

Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR028			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR029			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR030			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR031			
10:OTHER SYS	VOCATIONAL HABILITATION - 15 MINUTE UNIT	MR032			

Day Services					
Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	WORK ACTIVITY PROGRAM	Z9312			
06:HCPCS	WORK ACTIVITY PROGRAM	Z9312			
ICD-10-PCS	Vocational Activities and Functional Community or Work Reintegration Skills Assessment	F02ZHZZ			
ICD-10-PCS	Vocational Activities and Functional Community or Work Reintegration Skills Assessment using Other Equipment	F02ZHYZ			

Day Services

Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
ICD-10-PCS	Vocational Activities and Functional Community or Work Reintegration Skills Assessment using Assistive, Adaptive, Supportive or Protective Equipment	F02ZHFZ			
ICD-10-PCS	Vocational Activities and Functional Community or Work Reintegration Skills Assessment using Orthosis	F02ZHEZ			
HCPCS	Habilitation, prevocational, waiver; per 15 minutes	T2047			
10:Other Sys	PVOC SRV GROUP RATE DD	1342			
06:HCPCS	TRANSITIONAL WORK SERVICES, AUTISM. STAFFING RATIO <1:3.5 TO >1:1. PROVIDED IN 15 MINUTE UNITS	W0011			

Day Services					
Prevocational services			Day Habilitation		
Category	Name	Code	Category	Name	Code
06:HCPCS	TRANSITIONAL WORK SERVICES, AUTISM. STAFFING RATIO < 1:6 TO > 1:3.5. PROVIDED IN 15 MINUTE UNITS	W0012			
06:HCPCS	HASCI PREVOCATIONAL HABILITATION	X1001			
06:HCPCS	MR/RD WAIVER PREVOCATIONAL HABILITATION	X6983			
06:HCPCS	OUT-OF-HOME HABILITATION SERVICES - PRE-VOCATIONAL SERVICES.	W6107			
10:OTHER SYS	HH - B2H - INDIVIDUAL RATE (PREVOCATIONAL SERVICES)	1341			
10:OTHER SYS	HH - B2H - INDIVIDUAL RATE (PREVOCATIONAL SERVICES)	1368			
10:OTHER SYS	HH - B2H - INDIVIDUAL RATE (PREVOCATIONAL SERVICES)	1314			

Supported Employment Services								
Career Planning	Support Employment: Job Development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
10:Other Sys	VOCATIONAL FUTURES PLANNING	114	06:HCPCS	SUPPORTED EMPLOYMENT - JOB DEVELOPMENT	W5019	06:HCPCS	Supported employment, per 15 minutes	H2023
06:HCPCS	SERVICE INCLUDES ASSESSMENT OF THE PARTICIPANT'S WORK HISTORY, INTERESTS, AND SKILLS AND SITUATIONAL ASSESSMENTS (JOB TRYOUTS) TO ASSESS THE PARTICIPANT'S INTEREST AND APTITUDE IN A PARTICULAR TYPE OF JOB. UNIT OF 1	W7071	06:HCPCS	SUPPORTED EMPLOYMENT, OBTAIN A JOB, MR/BI WAIVER	W1430	06:HCPCS	Supported employment, per diem	H2024

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
ICD-10-PCS	Vocational Counseling	GZ61ZZZ	10:OTHER SYS	DEVELOPMENT WORK ACTIVITY	B	06:HCPCS	Ongoing support to maintain employment, per 15 minutes	H2025
			06:HCPCS	SUPPORTED EMPLOYMENT - EMPLOYER DEVELOPMENT	W5020	06:HCPCS	Ongoing support to maintain employment, per diem	H2026
			06:HCPCS	SUPPORTED EMPLOYMENT - ENHANCED JOB SEARCH	W5021	06:HCPCS	SUPPORT TO MAINTAIN EMPLOYMENT, MR/BI	W1431

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
			06:HCPCS	ASSISTANCE IN FINDING A JOB THAT FITS THE PARTICIPANT'S AND EMPLOYER'S NEEDS, BASED ON DATA FROM THE ASSESSMENTS. A SUCCESSFUL OUTCOME IS DEFINED AS A PERMANENT JOB PLACEMENT FOR THE PERSON FOR AT LEAST 30 CALENDAR DAYS. UNIT OF 1	W7077	06:HCPCS	SUPPORTED EMP. LEVEL 2	W0058
						06:HCPCS	SUPPORTED EMP. LEVEL 3	W0059
						06:HCPCS	SUPPORTED EMPLOYMENT	W2103
						06:HCPCS	SUPPORTED EMPLOYMENT AUTISM WAIVER	W9311

Supported Employment Services								
Career planning	Support Employment: Job development					Supported Employment: Small group or individual		
Category	Name	Code	Category	Name	Code	Category	Name	Code
						06:HCPCS	SUPPORTED EMPLOYMENT: FIND & SUPPORT INDIV IN COMPETITIVE JOBS. PROVIDED BY STAFF WITH TRAINING & EXPERIENCE TO APPROPRIATELY ADDRESS INDIV NEEDS. 40 HRS/INDIV/WEEK LIMIT SHARED WITH LICENSED DAY, TRANSITIONAL WORK, AND PREVOC SERV. 15 MIN UNIT .	W7235
						10:OTHER SYS	SUPPORTED EMPLOYMENT PER HOUR (40 HOURS/WEEK = MAX., CANNOT BE PROVIDED	1572P
						10:OTHER SYS	SUPPORTED EMPLOYMENT PER 15 MIN - MAX 160 UNITS	0320B

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						10:OTHER SYS	HABILITATION SUPPORTED EMPLOYMENT	NF6581
						10:OTHER SYS	SUPPORTED EMPLOYMENT; STATE; FULL DAY	4466
						10:OTHER SYS	SUPPORTED EMPLOY; STATE; $10.00/UNIT FEE	4468
						10:OTHER SYS	SUPPORTED EMPLOYMENT; STATE; MONTHLY	4469

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						10:OTHER SYS	SUPPORT EMPLY; VOL.; MNTHLY DDP LEVEL 1	4471
						10:OTHER SYS	SUPPORT EMPLOY; VOL. MNTHLY DDP LEVEL 2	4472
						10:OTHER SYS	SUPPORT EMPLOY; VOL.;MNTHLY DDP LEVEL 3	4473
						10:OTHER SYS	SUPPORTED EMPLOYMENT	68

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						10:OTHER SYS	HH - B2H - INDIVIDUAL RATE ONLY (SUPPORTED EMPLOYMENT)	1316
						10:OTHER SYS	SUPPORT EMP IND RATE - DD	1343
						10:Other Sys	SUPPORTED EMPLOYMENT	615
						06:HCPCS	SUPPORTED EMPLOYMENT PROGRAM - INDIVIDUAL SERVICES	Z9311

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						06:HCPCS	SUPPORTED EMPLOYMENT PROGRAM - GROUP SERVICES	Z9310
						06:HCPCS	SUPPORTED EMPLOYMENT(1:1)(SELF-DIRECTED)(PER 15 MIN)	X2019
						06:HCPCS	SUPPORTED LIVING(GROUP)(SELF-DIRECTED)(PER 15 MIN)	X2025
						06:HCPCS	SUPPORTED EMPLOYMENT, INSTRUCT, PER DAY	W1410

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						06:HCPCS	OUT-OF-HOME HABILITATION SERVICES - SUPPORTED EMPLOYMENT.	W6106
						10:OTHER SYS	SUPPORTED EMPLOYMENT - COMMUNITY - 15 MINUTE UNIT	MR065
						10:OTHER SYS	SUPPORTED EMPLOYMENT - COMMUNITY - 15 MINUTE UNIT	MR066
						06:HCPCS	Habilitation, supported employment, waiver; per diem	T2018

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						06:HCPCS	Habilitation, supported employment, waiver; per 15 minutes	T2019
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR049
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR050
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR051
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR052
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR053

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR054
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR055
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR056
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR057
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR058
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR059

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - 15 MINUTE UNIT	MR060
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR061
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR062
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR063
						10:OTHER SYS	SUPPORTED EMPLOYMENT - ENCLAVE - DAILY UNIT	MR064

Supported Employment Services								
Career planning	Support Employment: Job development				Supported Employment: Small group or individual			
Category	Name	Code	Category	Name	Code	Category	Name	Code
						06:HCPCS	ENCLAVE, SUPPORT, MR/BI WAIVER	W1433
						HCPCS	Habilitation, supported employment, waiver per diem	T2018
						HCPCS	Habilitation, supported employment, waiver per 15 minutes	T2019
						10:OTHER SYS	SUPPORT EMPLOY; VOL. MNTHLY DDP LEVEL 2	4472
						10:OTHER SYS	SUPPORT EMPLOY; VOL.;MNTHLY DDP LEVEL 3	4473
						06:HCPCS	SUPPORTED EMPLOYMENT PROVIDES ONGOING ASSISTANCE IN DEVELOPING THE COMMUNICATION, SOCIALIZATION, SELF-DIRECTION, SELF-HELP, AND ADAPTIVE SKILLS NECESSARY TO MAINTAIN EMPLOYMENT IN A COMMUNITY SETTING. 15 MIN UNIT	W7200

Appendix 2: Comparison of Vocational Services Funded by Medicaid Versus Vocational Rehabilitation by Type

Medicaid Service Category	VR Service Category
Career Planning Focused, time limited service engaging a participant in identifying a career direction and developing a plan for achieving competitive, integrated employment	**Career Services** • **Assessment**: Services to determine an individual's eligibility for VR and to identify services to be included in the Individualized Plan for Employment • **Diagnosis and Treatment**: Services as "diagnosis of treatment for mental and emotional disorders," "nursing services," "eyeglasses and visual services..," and various therapies • **Information and Referral Services**: Information and referral for individuals who need services from other agencies not available through VR • **VR Counseling and guidance**: Discrete therapeutic counseling and guidance services for an individual to achieve an employment outcome
Prevocational Services Learning and work experiences, including volunteer work, where the individual can develop general, non-job-task-specific strengths and skills that contribute to employability in paid employment in integrated community settings (e.g., ability to follow directions; ability to attend to tasks; workplace problem solving skills).	**Training Services** • **College or university training**: Academic training above the high school level leading to a degree, certificate or other credential • **Occupational/vocational training**: Provided by a community college and/or business, vocational/trade or technical school to prepare students for gainful employment in a recognized occupation, not leading to an academic degree or certification • **On-the-job training**: Training in specific job skills by a prospective employer. Includes apprenticeship-training programs • **Basic academic remedial or literacy training**: Provided to remediate basic academic skills needed to function in competitive employment • **Job readiness training**: Preparation for the world of work (e.g., getting to work on time, appropriate dress) • **Disability-related augmentative skills training**: Includes orientation and mobility; training in the use of low vision aids; Braille; speech reading; etc. • **Miscellaneous training**: Any training not in one of the other categories, including GED or high school training leading to a diploma

Supported Employment - Individual or small group: Intensive on-going support to obtain and maintain paid employment in an integrated setting for an individual or a 2–8 person group. Excludes facility-based settings	**Supported employment** • **On-the-job supports**: Support services provided to an individual who has been placed in employment, including job coaching, follow-up and follow-along, and job retention services • **Supported employment services**: denoted using an outcome indicator that marks whether the person was in supported employment at VR exit
Supported Employment - Job Development: Supports to help attain competitive, integrated employment	**Supported employment (job-related services)** • **Job search assistance**: supports and assists a consumer in searching for an appropriate job • **Job placement assistance**: a referral to a job resulting in an interview
Day Habilitation + Vocational Habilitation Provision of regularly scheduled activities in a non-residential setting, to improve self-help, socialization and adaptive skills, in combination with vocational habilitation.	**(No comparable VR service category)**
(No comparable Medicaid service category. However, costs such as Personal care/assistance can be included under billing for the service being delivered – e.g., Prevocational)	**Personal assistance services** • **Reader services**: Includes reading aloud, transcription of printed information into Braille or sound recordings • **Interpreter services**: Sign language or oral interpretation services • **Personal attendant services**: Bathing, feeding, dressing, providing mobility and transportation, etc.

(No comparable Medicaid service category. However, costs such as Transportation can be included under billing for the service being delivered – e.g., Day Habilitation, Prevocational or Supported employment)	**Additional VR services** • **Transportation services**: training in the use of public transportation vehicles and systems, means travel and related expenses • **Maintenance**: monetary support provided for those expenses such as food, shelter and clothing in excess of normal expenses, and that are necessitated by the individual's participation in VR assessment or services • **Rehabilitation technology**: Addresses barriers via rehabilitation engineering service, and assistive technology devices and services • **Technical assistance services**: provided to conduct market analyses, to develop business plans, and to develop resources about self-employment, telecommuting and small business operation outcomes • **Other services**: all other VR services that cannot be recorded elsewhere.