ASPE ASSISTANT SECRETARY FOR PLANNING AND EVALUATION

OFFICE OF BEHAVIORAL HEALTH, DISABILITY, AND AGING POLICY

ISSUE BRIEF

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IDENTIFYING AND CLASSIFYING MEDICAID HOME AND COMMUNITY-BASED SERVICES CLAIMS IN THE TRANSFORMED MEDICAID STATISTICAL INFORMATION SYSTEM, 2016-2020

KEY POINTS

- Home and community-based services (HCBS), primarily funded through Medicaid, are a range of medical and non-medical services provided in home and community settings that support individuals with functional limitations to reside in these settings rather than in institutions.
- Assessing use of Medicaid-funded HCBS at the national level, particularly by type of service, can be challenging because of variation in state Medicaid coverage and the use of codes on claims for these services. While the Transformed Medicaid Statistical Information System (T-MSIS) has an HCBS taxonomy code set that allows states to report the type of service on claims, few states use the taxonomy codes, and the data element is considered unusable.
- Using procedure codes and other data elements found in the 2016-2020 T-MSIS Analytic Files Research Identifiable Files, we identified HCBS claims paid by Medicaid, classifying claims into 20 service categories.
- Claims for services in all 20 HCBS categories were identified across all years. Among states and territories that met the data quality criteria for inclusion in the analysis, 10 states, the District of Columbia, and the U.S. Virgin Islands had no claims for home health services, a mandatory service type for Medicaid programs, and the U.S. Virgin Islands had no personal care services claims. Few claims were identified for rent for live-in caregiver services.
- This methodology can be used to analyze Medicaid HCBS use by type of service across states despite variation in state Medicaid programs and reporting of services.

BACKGROUND

Home and community-based services (HCBS) are a range of medical and non-medical services, also referred to as long-term services and supports (LTSS), provided in home and community settings rather than in institutions.[1] Examples of HCBS include case management, personal care, home health, day services, and non-medical transportation. HCBS support a variety of people, including older adults and people with disabilities, who need help with routine activities of daily living.[1] Some HCBS are funded through private insurance and out-of-pocket spending, and unmet service and support needs are often met through unpaid assistance from family,[2,3] but Medicaid is the primary source of funding for HCBS and accounted for more than half of all HCBS spending in 2020.[2]

In recent decades, policy and programmatic efforts have incentivized use of HCBS over institutional LTSS, leading to increased use of HCBS consistent with many people's preferences for receiving services in the community.[4] Yet assessing HCBS use at the national level can be challenging because of variation in states' Medicaid coverage policies. Under Medicaid, states are not required to cover most HCBS, but can choose to do

so under a variety of optional authorities that differ by the types of services covered and eligibility criteria.[5] These authorities include the 1915(c) HCBS waiver, 1915(i) HCBS state plan option, 1915(j) self-directed personal assistant services, 1915(k) Community First Choice, and Section 1115 demonstration waiver.[6,7] In addition, states can use the Money Follows the Person grant program and the Program of All-Inclusive Care for the Elderly (PACE) as additional pathways to cover HCBS.[8,9] This patchwork of pathways states use to cover HCBS leads to variation in eligibility, scope of benefits, and delivery systems across state Medicaid programs. For example, as of 2018, two-thirds of states offered the personal care state plan option, but far fewer elected additional optional state plan services.[10] All states, however, offer at least one optional HCBS program or waiver.[10]

Variation in Medicaid HCBS programs across states creates challenges when analyzing HCBS use nationally, particularly by type of service, due to differences in reporting of services, in addition to differences in services offered across programs. Medicaid claims for HCBS often are not clearly labeled, and procedure codes are not consistent across states.[11] HCBS waiver services are often reported as "other" services, making it difficult to distinguish between different types of HCBS.[11] When services have more specific labels, they often vary by name across states. Some states use national codes, and others use state-specific codes that differ from one state to the next.[11] Inconsistencies in data labeling and procedure codes used stem from differing guidance given to providers and data processing procedures across states and, in some cases, across HCBS programs within a state.[12] In many states, multiple departments, with varying reporting requirements, oversee HCBS programs. To standardize reporting, the Centers for Medicare & Medicaid Services (CMS) developed a nationwide HCBS taxonomy code set and made it available for states to use when reporting Medicaid data to the Transformed Medicaid Statistical Information System (T-MSIS).[11] Currently, however, few states use the HCBS taxonomy codes, and the data element in T-MSIS is considered unusable.[13]

Historically, CMS used other data sources, including CMS-64 data and CMS 372 data, to report national and state HCBS expenditures in their Medicaid LTSS Annual Expenditures Reports,[14] as well as counts of 1915(c) waiver program participants nationally and by state.[15] However, the data sources used for the analyses presented in these reports are at the aggregate level, rather than the enrollee level, and do not allow for detailed analysis of the use of specific types of services (e.g., case management, personal care services, or non-medical transportation) within certain HCBS programs or authorities (e.g., 1915(c) waiver programs or 1915(i) HCBS state plan option). In 2022, CMS published a brief with estimated counts of HCBS users in 2019, calculated using data from the T-MSIS Analytic Files (TAF).[16] However, the brief presents HCBS user estimates by service categories used in the LTSS expenditures reports and categories defined in Section 9817 of the American Rescue Plan Act of 2021, and does not disaggregate users within these categories by type of service used.

To support research analyzing Medicaid-funded HCBS use by type of service across states, we assessed whether a modified version of an HCBS taxonomy developed for use with Medicaid Analytic eXtract (MAX) enrollment and claims data submitted to the Medicaid Statistical Information System (MSIS) (the data collection system CMS used prior to T-MSIS) could be used to identify and classify HCBS claims submitted to T-MSIS.[11] This issue brief describes methods to identify and classify HCBS claims by type of service using a taxonomy of 20 service categories.

METHODS

Data

We identified HCBS claims and classified them into service categories using claims and enrollment data from the 2016-2020 TAF Research Identifiable Files (RIF). States, the District of Columbia, and territories report Medicaid and Children's Health Insurance Program (CHIP) data, including data on enrollment, demographics,

service use, and payment, to T-MSIS. TAF RIF are T-MSIS data that have been optimized for research.[17] TAF RIF are organized by year and include non-void and non-duplicate final action claims. Specifically, we used the Other Services (OT) file to identify HCBS claims.[i] The OT file includes fee-for-service claims, managed care encounters, and financial transaction records, including capitation payments, service tracking claims, and supplemental payments, paid for by Medicaid or CHIP.

To evaluate the accuracy and completeness of data, we used data quality assessments from the Data Quality (DQ) Atlas.[ii] For this analysis, we did not include data from states for years in which their data were considered unusable, as of August 2022, based on DQ Atlas thresholds for at least one of the following topics: examining the volume of service use records in the OT file (Claims Volume--OT) and examining when procedure code is missing or invalid on professional claims in the OT file (Procedure Codes--OT Professional).[iii] We excluded Utah for 2016, 2017, 2018, 2019, and 2020 because of unusable procedure codes on professional claims. We also excluded Arkansas for 2020 because of unusable procedure codes. We excluded the U.S. Virgin Islands from our 2016 analyses because the territory did not submit data for that year. We excluded Guam, American Samoa, and the Northern Mariana Islands for all years because they did not report to T-MSIS during the study period).

HCBS Categories

To create an HCBS taxonomy for use with TAF RIF data (TAF RIF HCBS taxonomy), we started with 17 service categories, shown in ***Table 1***, previously used in the HCBS taxonomy developed by Truven Health and Mathematica for use with MAX data (MAX HCBS taxonomy).[11,18,19] When reviewing these 17 categories from the MAX HCBS taxonomy,[iv] we found that home health services and personal care services in a home-based or school-based setting were grouped into two categories: round-the-clock services and home-based services. To enable analysis of these three service types separately from other HCBS, we created three new HCBS categories: home health, personal care services, and school-based personal care services. These three new categories are not mutually exclusive with the MAX HCBS taxonomy categories, meaning claims for certain services could be classified as round-the-clock services or home-based services *and* as home health, personal care, or school-based personal care services. The ***Appendix*** has a table listing each of the categories in the TAF RIF HCBS taxonomy and the services or groups of services included in each category.

[i] The OT file includes services that are not included in the inpatient (IP) or long-term care (LT) files. The IP and LT files capture claims from institutional providers. All individual provider and ambulatory claims are in the OT file.

[ii] For more information, see the DQ Atlas: https://www.medicaid.gov/dq-atlas/welcome.

[iii] We evaluated the DQ Atlas thresholds for this analysis using the preliminary version of the 2020 TAF RIF.

[iv] The MAX HCBS taxonomy has 18 categories, including an "unknown" category. For this analysis, we did not use the "unknown" category, only mapping claims for services that could be identified as belonging to one of the other 17 categories

Table 1. HCBS Categories from the MAX HCBS Taxonomy	
HCBS claims were categorized as one of the following:	
• Caregiver Support[a] • Case Management[a] • Community Transition Services • Day Services[a] • Equipment, Technology, and Modifications[a] • Home-based Services[a] • Home-delivered Meals • Non-medical Transportation[a] • Nursing[a]	• Other HCBS[a] • Other Health and Therapeutic Services[a] • Other Mental Health and Behavioral Health Services[a] • Participant Training[a] • Rent for Live-in Caregiver • Round-the-clock Services[a] • Services Supporting Self-Direction • Supported Employment
Note: a. For these service categories, we implemented additional inclusion criteria to categorize a claim as HCBS when paid by a program that offers HCBS, such as a 1915(k) program. The MAX HCBS taxonomy was created for 1915(c) services only, and only included FFS claims.[11] The TAF RIFHCBS taxonomy expands on the MAX HCBS taxonomy in 3 ways by including claims from: (1) other HCBS programs; (2) state plan HCBS; and (3) managed care plans that provide HCBS. Therefore, additional inclusion criteria were required for certain categories of services.	

Classification of Claims

To identify and classify TAF RIF claims for HCBS, we used national Healthcare Common Procedure Coding System (HCPCS) procedure codes, Current Procedural Terminology (CPT) procedure codes, and state-specific procedure codes when we could identify them. In addition, we considered procedure code modifiers, place of service codes, and type of service codes on claims. Procedure code modifiers provide more detail about the service that might not be obvious from the procedure code. If a procedure code could fall into multiple service categories, we used modifiers and place of service and type of service codes to assign the service to only one category.

For the 17 HCBS categories from the MAX HCBS taxonomy, we assigned claims to each category using methods originally developed by Mathematica and Truven Health to create the MAX HCBS taxonomy.[11] Use of this methodology was possible because procedure codes, procedure code modifiers, place of service codes, and type of service codes present in MAX are also present in the TAF RIF. ***Figure 1*** shows the four ways that we determined a claim was for a home and community-based service and to which category it belonged.

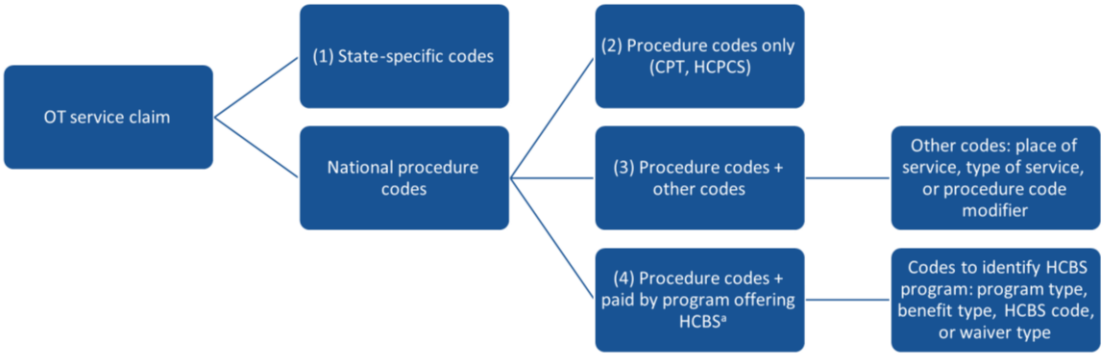
First, we identified state-specific procedure codes, giving them precedence over national procedure codes, and used them to classify claims (***Figure 1***, Pathway 1). In the MAX HCBS taxonomy, 15 states had state-specific codes for HCBS.[20] Because states can add or retire state-specific codes, we reviewed the most frequently occurring state-specific codes in the OT file paid by a program covering HCBS.[v] This investigation identified additional state-specific codes for HCBS in 42 states. In total, 46 states had state-specific codes for HCBS. The five states for which we did not find any state-specific codes were Alabama, Arizona, Illinois, Kentucky, and Nebraska. Puerto Rico and the U.S. Virgin Islands did not have any territory-specific codes for HCBS.

Next, we reviewed national procedure codes (HCPCS and CPT procedure codes), using them to identify and classify claims for HCBS that were not identified using state-specific procedure codes. For claims with national procedure codes, there are three ways to identify an HCBS claim: using the procedure code only, using the

[v] ***Table 2*** provides the relevant codes for identifying services paid for by a program covering HCBS

procedure code and other codes, or using the procedure code and codes indicating a service was paid by an HCBS program.

Figure 1. Pathways for Classifying Claims for HCBS



HCBS = home and community-based services; OT = Other Services; CPT = Current Procedural Terminology; HCPCS = Healthcare Common Procedure Coding System.

Note:

a. For certain services, we added the requirement that the service must be paid for by an HCBS program. Whether the claim was paid by a program offering HCBS was determined by codes identifying services paid by 1915(c), 1915(k), 1915(i), 1915(j), Money Follows the Person, or the PACE programs.

For claims with national procedure codes in the MAX HCBS taxonomy that met the criteria for HCBS and contained enough information to classify a claim (e.g., G0154--services of skilled nurse in home health setting), we used only the procedure code to identify and classify the claim (***Figure 1***, Pathway 2). But if a claim could be mapped to multiple service categories based on a procedure code alone, we used procedure code modifiers and place of service and type of service codes to determine to which service category to assign the claim (***Figure 1***, Pathway 3).[vi,vii] For example, procedure code T2025 is a generic code for waiver services, but, when accompanied by a procedure code modifier such as TD for services from a registered nurse, HE for behavioral health services, or GP for physical therapy, the procedure code and accompanying modifier can be used to assign the claim to the appropriate service category.

For certain categories of HCBS, we required that the service must be paid for by a program covering HCBS (e.g., Sections 1915(c), 1915(k), 1915(i), and 1915(j), Money Follows the Person, and PACE) (***Figure 1***, Pathway 4).[viii] This additional criterion was necessary due to a key difference between the TAF RIF HCBS taxonomy and the MAX HCBS taxonomy. For the MAX HCBS taxonomy, Truven Health and Mathematica first identified only Section 1915(c) fee-for-service wavier service claims prior to classifying claims by service type.[11] When

[vi] Place of service codes used to identify HCBS claims were: 04 = homeless shelter, 12 = home, 13 = assisted living facility, 14 = group home, 16 = temporary lodging, 55 = residential substance abuse treatment facility, and 56 = psychiatric residential treatment center. The type of service codes used to identify HCBS claims were: 016 = home health services--nursing services, 017 = home health services--home health aide services, 018 = home health services--medical supplies, equipment, and appliances suitable for use in the home, 019 = home health services--physical therapy, 020 = home health services--occupational therapy, 021 = home health services--speech pathology and audiology services, 022 = private duty nursing services, 051 = personal care services, 053 = targeted case management services, 056 = transportation services, 064 = HCBS--home health aide services, and 079 = HCBS-65-plus--home health aide services.

[vii] Procedure code modifiers used in this analysis include: TD = registered nurse, TE = licensed practical nurse/licensed vocational nurse, HE = mental health program, HH = integrated mental health/substance abuse program, GP = physical therapy, GO = occupational therapy, GN = outpatient speech language service.

[viii] ***Table 1*** identifies the HCBS categories that required services to be covered by a specific HCBS program.

identifying HCBS claims, we started with all claims in the TAF RIF, including claims for services that were provided outside of home and community-based settings. Therefore, we needed the additional criterion to more precisely identify whether a claim was for a service provided in a home or community-based setting.

Claims information used to determine whether the service was provided by a program covering HCBS included program type, benefit type, HCBS service, and waiver type codes (***Table 2***). The claim had to have at least one of these codes to be considered a claim for HCBS. For example, the procedure code H0006 (alcohol and/or drug services, case management) might or might not refer to a home and community-based service. To confirm the claim was for HCBS, and classify it as case management, the claim had to have at least one of the relevant codes in ***Table 2***.

Table 2. TAF RIF Data Elements and Relevant Codes for Identifying Claims Paid by an HCBS Program

TAF RIF Data Element	Relevant Codes[a]
Program Type	07--Home and Community-Based Care Waiver Services 08--Money Follows the Person 11--Community First Choice (1915(k)) 13--HCBS State Plan Option (1915(i)) 16--1915(j) Self-directed Personal Assistance Services/Personal Care under State Plan or 1915(c) Waiver
Benefit Type	054--Community First Choice 055--Health Home Services 105--Program of All-inclusive Care for the Elderly (PACE) Services 106--Self-directed Personal Assistance Services under 1915(j)
HCBS Service Code	1--The HCBS was provided under 1915(i) 2--The HCBS was provided under 1915(j) 3--The HCBS was provided under 1915(k) 4--The HCBS was provided under 1915(c) HCBS waiver 5--The HCBS was provided under 1115 waiver 7 The HCBS was not provided under the statutes identified above and was of a long-term care nature
Waiver Type	06-20, 33--1915(c) waiver

Note:
a. Codes are defined in the TAF Other Services (OT) file data documentation found on the Research Data Assistance Center website (https://resdac.org/cms-data/files/taf-ot/data-documentation).

For the three new HCBS categories not in the MAX HCBS taxonomy (home health services, personal care services, and school-based personal care services), we used similar data elements to identify and classify services under these categories (***Table 3***). With this classification, home health services, personal care services, and school-based personal care services are not required to be paid by an HCBS program (i.e., they were identified through only pathways 1, 2, or 3 in ***Figure 1***).[ix] Services in these three categories are not mutually exclusive with the original MAX HCBS taxonomy categories; these services are also counted in and are a subset of services in the round-the-clock or home-based service categories.

[ix] Any state plan services that meet the criteria in ***Table 3*** would be included in the counts for home health, personal care, and school-based personal care services. We cannot identify state plan services explicitly because there is no indicator for state plan authorities in T-MSIS. A service not provided under other waivers or authorities, however, may be assumed to be a state plan service.

Table 3. New HCBS Categories and the Specifications Used to Identify Claims in These Categories		
Service Category	**Requirements for Service Category**	**Relevant Codes[a]**
Home Health	Requires 1 relevant service type code and 1 relevant benefit type code.	Type of Service Codes 016-021--Home health services[b] Benefit Type Codes 015-017, 022, 068--Home health services[c] 076--Home health aide
Personal Care Services	Requires 1 relevant procedure code.[d]	Procedure Codes T1019--Personal care services, per 15 minutes T1020--Personal care services, per diem 99509--Home visit for assistances of daily living and personal care S5125--Attendant care services, per 15 minutes S5126--Attendant care services, per diem
School-Based Personal Care Services	Requires 1 relevant procedure code and the school place of service of code.	Procedure Codes T1019--Personal care services, per 15 minutes T1020--Personal care services, per diem 99509--Home visit for assistances of daily living and personal care S5125--Attendant care services, per 15 minutes S5126--Attendant care services, per diem Place of Service Code 03--School

Notes:
a. Codes are defined in the TAF Other Services (OT) file data documentation found on the Research Data Assistance Center website (https://resdac.org/cms-data/files/taf-ot/data-documentation).
b. Type of service codes 016-021 for home health services further classify services into nursing services, home health aide services, medical supplies, equipment and appliances suitable for use in the home, physical therapy, occupational therapy, or speech pathology, and audiology services.
c. Benefit type codes 015-017, 022, and 068 for home health services further classify benefits to intermittent or part-time nursing services provided by a home health agency, services provided by a home health agency, medical supplies, equipment, and appliances suitable for use in the home, or physical therapy, occupational therapy, speech pathology, and audiology provided by a home health agency.
d. We also collected state-specific procedure codes and specifications to identify more personal care services.

FINDINGS

Using the methods described in this issue brief, we identified Medicaid HCBS claims in all states and territories that are reporting to T-MSIS and were not excluded from the analysis due to data quality issues. The TAF RIF taxonomy identified HCBS claims in all service categories in all years.[x] However, 10 states (Arkansas, California, Florida, Maine, Minnesota, Mississippi, Oklahoma, Oregon, South Dakota, and Vermont), the District of Columbia, and the U.S. Virgin Islands did not have any claims for home health services, a mandatory service type for Medicaid programs, and the U.S. Virgin Islands did not have any personal care service or school-based personal care service claims. There were few claims for rent for live-in caregiver services (for which the

[x] In the TAF RIF files, claims records include two levels of information: (1) a header-level record that provides summary-level information about the claim; and (2) one or more line-level records (service lines) that provide details about the specific services provided. When identifying HCBS in the TAF RIF, a single claim header record might be counted under multiple HCBS categories because each service line is assigned to only one HCBS category, which means a header will be assigned to multiple categories if it has multiple line records assigned to different categories.

taxonomy only contains state-specific procedure codes from Minnesota and New York), and it is recommended that TAF RIF users do not include this category in their analyses.

Limitations

There are a few limitations with the methodology presented in this brief. First, identifying Medicaid HCBS in the TAF RIF depends on states' and territories' complete and accurate T-MSIS data submissions.[xi] If a procedure code was not reported accurately, we may have been unable to identify or classify HCBS claims into a service category. For example, the U.S. Virgin Islands, the District of Columbia, and states for which we could not identify services in certain categories (e.g., home health) most likely offer these services, but their claims were not coded in a way that allowed for their identification. Second, we did not solicit input on the taxonomy from other federal agencies, state agencies, and other key stakeholders. Third, we did not compare our findings with other sources of information to assess their validity.

CONCLUSION

Building off an HCBS taxonomy developed for use with MAX data, we developed an approach to identifying and classifying HCBS claims in the TAF RIF data. This methodology captures claims for HCBS provided under various HCBS authorities, not just 1915(c) waiver programs, and may be used to analyze Medicaid-funded HCBS use across states. Until the quality of the HCBS taxonomy data element in T-MSIS improves, researchers may use the TAF RIF HCBS taxonomy to assess HCBS use by type of service. However, it should be noted that this methodology has not been validated. Future work could include validating the TAF RIF HCBS taxonomy and using the taxonomy to analyze HCBS use by type of service and relationships between HCBS use, other health care use, and health and person-centered outcomes.

[xi] As we noted in the ***Methods*** section, we excluded Utah for 2016, 2017, 2018, 2019, and 2020 and excluded Arkansas for 2020. The U.S. Virgin Islands did not submit data for 2016, so we excluded it for that year only. Guam, American Samoa, and the Northern Mariana Islands do not report to T-MSIS, so we also excluded them from the TAF RIF taxonomy.

APPENDIX: TAF RIF HCBS TAXONOMY CATEGORIES AND RELATED SERVICES

TAF RIF HCBS Taxonomy Category	Service or Service Group
Caregiver Support	Respite, out of home Respite, in home Caregiver counseling and/or training
Case Management	Case management
Community Transition Services	Community transition services
Day Services	Prevocational services Day habilitation Education services Day treatment/partial hospitalization Adult day health Adult day services (social model) Community integration Medical day care for children
Equipment, Technology, and Modifications	Personal emergency response system Home and/or vehicle accessibility adaptations Equipment and technology Supplies
Home-Based Services	Home-based habilitation Home health aide Personal care Companion Homemaker Chore
Home-Delivered Meals	Home-delivered meals
Home Health Services	Home health Home health aide
Nursing	Private duty nursing Skilled nursing
Non-Medical Transportation	Non-medical transportation
Other Health and Therapeutic Services	Health monitoring Health assessment Medication assessment and/or management Nutrition consultation Physician services Prescription drugs Dental services Occupational therapy Physical therapy Speech, hearing, and language therapy Respiratory therapy Cognitive rehabilitative therapy Other therapies

TAF RIF HCBS Taxonomy Category	Service or Service Group
Other Mental Health and Behavioral Services	Mental health assessment Assertive community treatment Crisis intervention Behavior support Peer specialist Counseling Psychosocial rehabilitation Clinic services Other mental health and behavioral services
Other Services	Goods and services Interpreter Housing consultation Other
Participant Training	Participant training
Personal Care Services	Group living Home health aide Personal care
Rent and Food Expenses for Live-In Caregiver	Rent and food expenses for live-in caregiver
Round-the-Clock Services	Group living, residential habilitation Group living, mental health services Group living, other Shared living, residential habilitation Shared living, mental health services Shared living, other In-home residential habilitation In-home round-the-clock mental health services In-home round-the-clock services, other
School-Based Personal Care Services	Group living Home health aide Personal care
Services Supporting Participant Direction	Financial management services in support of participant direction Information and assistance in support of participant direction
Supported Employment	Job development Ongoing supported employment, individual Ongoing supported employment, group Career planning

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