



# TEFT Final Summary Report for Colorado

**Prepared for**  
Centers for Medicare & Medicaid Services

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## Introduction and Overview:

The "Testing Experience and Functional Tools in Community-Based Long-Term Services and Supports" (TEFT) program is an initiative of the federal Centers for Medicaid & Medicare Services (CMS). In March 2014, the Centers for Medicare & Medicaid Services (CMS) awarded TEFT grants to nine states to test quality measurement tools and demonstrate e-health in Medicaid community-based long-term services and supports (CB-LTSS). It is noteworthy that, of these nine states, Colorado is the only state presently working in all four aspects of the TEFT concept laid out by CMS.

This is the first-time CMS is promoting the use of health information technology (HIT) in CB-LTSS systems. As a result of TEFT, new tools for measuring quality and care coordination will be made available to states providing Medicaid CB-LTSS.

The TEFT grant program, spanning 5 years including a No Cost Extension (NCE) period through March 2019, is designed to field test a cross-disability experience of care survey and a set of functional assessment items, demonstrate personal health records, and create an electronic LTSS service plan standard. TEFT will provide national measures and valuable feedback on how HIT can be implemented in this component of Medicaid programs.

As developed by CMS, the TEFT grant pilot initiative addresses the program's four main components:

- 1) EoC – Experience of Care
- 2) PHR - Personal Health Record
- 3) FASI - Functional Assessment and Standardized Items
- 4) eLTSS – Electronic Long-Term Services and Supports

The purpose of this report is to provide CMS with information about each component along with final reports for all the four components and future plans for the Colorado Department of Health Care Policy and Financing (the Department) on each individual component of the TEFT.

## Experience of Care (EoC)

Under the TEFT grant, 9 state grantees participated in the field testing of a beneficiary experience of care survey from 2013 through 2015. The states were Arizona, Colorado, Connecticut, Georgia, Kentucky, Louisiana, Maryland, Minnesota, and New Hampshire. In June 2016, the survey received the trademark of the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) program, which is funded by the Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services. The official name of the final trademarked survey is the CAHPS® Home and Community-Based Services Survey (or HCBS CAHPS Survey for short). The survey is a quality of life tool that examines a member's satisfaction with HCBS services and the impact that the services have on the member's perceived quality of life. The CAHPS data has been adopted by the National Quality Forum as a measure for member experience of HCBS. Because of stakeholder feedback and other considerations, the Department is using the National Core Indicators – Aging and Disabilities (NCI-AD) and – Developmental Disabilities, which are used for the same purpose as the CAHPS.

### Round 1 Updates

The purpose of the survey was to elicit feedback about beneficiary experience of care related to their HCBS services, for quality oversight purposes and for potentially identifying areas for improvement. Colorado field tested the survey with members in the Waiver for the Elderly, Blind and Disabled and the Supported Living Services, which targets individuals with developmental or intellectual disabilities. The purpose of the field test was for 1) Data collection for testing the reliability and validity of the survey and 2) CAHPS certification. The Round 1 field test was not designed to derive state-specific or program-specific estimates. In Colorado, the survey and the estimates were not representative due to the lack of proxies, limited response from Supported Living Services (SLS) waiver population and other key factors.

### Round 2 Updates :

The Department contracted with Omni Research to conduct telephonic interviews and establish an online survey tool for Round 2 data collection. Vital Research was contracted with, to conduct in-person interviews using the HCBS CAHPS survey tool. The purpose of Round 2 data collection in Colorado was to assess survey modality performance with a cross-disability tool (most effective methodologies for obtaining responses to surveys). The following were the the different modalities tested:

- Phone - OMNI
- In-person- Vital Research
- Electronic – OMNI

The sample is evenly divided between Elderly, Blind & Disabled (EBD) & SLS waiver population. The Department had a goal is to get 500 total surveys across the three modalities mentioned above. Following was the sample representants for Round 2 testing.

In-Person Sample Comparison (Age, Waiver Type, and Region Significant):

- **Over-Representation**
  - 45-54 age range clients
  - 55-64 age range clients
  - EBD clients
- **Under-Representation**
  - 18-24 age range clients
  - Frontier clients
  - SLS Clients

Telephone Sample Comparison (Gender, Waiver Type, and Age Significant)

- **Over-Representation**
  - Females
  - EBD Waivers
- **Under-Representation**
  - Males
  - 35-44 age range clients
  - SLS Waivers

Online Sample Comparison (Age and Guardian Status Significant)

- **Over-Representation**
  - 25-34 age range clients
  - Clients with guardians
- **Under-Representation**
  - Clients without guardians

**Findings from Round 2 Multi-Modality Testing**

Survey Type	In-Person	Phone	Online
Cost per Survey	Most expensive: Interviewer training, time, travel	Moderately expensive: Interviewer training, time	Least expensive: Automated distribution & collection
Response Rate	Highest	Moderate	Lowest
Ability to Probe	High: personal interaction	Moderate: interviewer can clarify responses	None: no interviewer to probe/clarify responses
Interviewer Bias	Increased likelihood of bias	Some bias	None: completed without interviewer
Geographic Reach	Local/Regional Restriction	Wide geographic coverage	Wide geographic coverage
Data Collection Timeline	Slowest: scheduling and conducting interviews	Moderate: calling and interviewing	Fastest: immediate delivery and respondents complete in own time
Other Considerations	Manual data entry Capture demeanor, emotions, & behaviors	Decreased use of landline phones Short notice for respondents	Less friendly to low-literacy audiences Not accessible for those without internet

The final report for EoC component can be found [here](#).

## Personal Health Record (PHR)

This component of the TEFT grant was designated to design an IT system platform standard that incorporates a waiver recipient's individualized health records from multiple sources into one location. The system platform provided a secure, user-based system login for viewing the client's relevant topics.

The design of the PHR had to meet several criteria for the grant including:

1. Having Accessible Technology for the waiver populations
2. Contain clinical data
3. Contain non-clinical data
4. Have admissions, discharge, and transfer data
5. Be able to produce and distribute a care summary document
6. Communicate with a designated care team
7. Produce or at least provision a care plan
8. Be real-time within any 24-hour period.

In Colorado the Department contracted with Colorado Regional Health Information Organization (CORHIO) to coordinate the Personal Health Record (PHR) component of the TEFT grant. During this time, CORHIO worked closely with the Department, Quality Health Network (QHN), and FEi Systems to build a PHR that was rolled out in a pilot to Medicaid eLTSS population for testing and direct feedback. The PHR included the following data and functions:

- A calendar module where the member can add individual calendar events to the PHR calendar.
- The ability to export calendar events (both individual events and ALL calendar events) from the PHR, so that the member can import the events into other third-party calendars, such as Outlook and/or Google calendar.
- The ability to view a subset of their clinical encounter data (admit date, discharge date, hospital location, and attending provider name) as supplied by CORHIO and QHN.
- The ability to view the most recent version of the completed person-centered plan, which is transmitted in a .csv form, as supplied by the Department.
- The ability to view the most recent version of the Uniform Long-Term Care 100.2 (ULTC 100.2), Colorado's current functional assessment to determine the Nursing Facility - Level of Care (NF-LOC) for HCBS programs, as supplied by the Department.
- The ability to view the most recent service unit's data (units of service approved, utilized, and remaining for each service as supplied in the Department's .csv file.
- The ability for members to provide feedback regarding their experience, good and bad, in an electronic format directly to FEi and CORHIO, so that improvements may be documented and considered for future PHR efforts.
- The ability to upload/import external file attachments from their desktop, laptop, and/or mobile device into the PHR. They were also able to assign the upload attachment to a category, if desired.
- Messaging feature allowing the member and their case manager to communicate via secure messaging within the Personal Health Record.

- Specific Care Manager role, allowing case managers to view recent hospitalizations and claims information of their clients.

### PHR pilot

PHR desktop and mobile application were developed with the above requirements and with enhancements like secure communications between case managers and individuals receiving services, access for case managers to member profile with member approval. Surveys and focus groups were conducted with different members using the PHR. Testing for effectiveness and usefulness to members was completed. Findings reports and the future recommendations for PHR were completed.

PHR Pilot Site findings and Recommendations can be found [here](#).

### Future Steps

- The Department is in process of developing and implementing Aerial, new care and case management system for HCBS case management, which also includes include a member-facing application that functions much like a PHR and includes direct communication with a care team.
- The Department is in process to leverage the member facing application included in Aerial tool called the Incircle application, which is developed by Meddecision, subcontractor of DXC.

## Functional Assessment and Standardized Items (FASI)

Under the TEFT grant, FASI includes items to measure functional ability including mobility, activities of daily living (e.g., bathing, dressing), instrumental activities of daily living (e.g., meal preparation), and caregiver availability. With a person-centered focus, the FASI also includes items that ask the individuals to identify goals they would like to achieve regarding their functioning.

The goals of the Department are to integrate FASI into a person-centered, comprehensive assessment and support planning process that eventually replaces the items in the ULTC 100.2, which used for nursing facility level of care (NF-LOC) determinations in Colorado, with reliable and valid items. In order to meet these goals, the Department planned implementation of FASI in two phases.

### Round 1:

The Round 1, FASI field test examined the reliability of the FASI dataset for people served in Medicaid CB-LTSS programs. The assessment period was from March 2017 through June 2017 and 227 assessments were completed within populations with Serious Mental Illness, Intellectual and Developmental Disabilities, Brain Injury. Final FASI items were embedded into a comprehensive assessment tool developed by HCBS Strategies, Inc, which is currently

referred to as the new LTSS Assessment Tool. Incorporation of these items provides the Department with a more reliable assessment tool to inform eligibility and support planning.

## Round 2:

Following the Round 1 field test and the finalization of FASI, the Department through a contract with HCBS Strategies, incorporated FASI into a comprehensive assessment process and piloted its new LOC assessment, which included the FASI Round 2 data collection. Round 2 data collection tested the FASI for meaningfulness for support plan development and informed a comparative analysis with the ULTC 100.2, with the FASI. The comparative analysis will be used to establish new eligibility thresholds using the FASI, which will eventually replace the ULTC 100.2 assessment tool by 2021.

During this phase, case managers at Single Entry Point (SEP) agencies and Community Centered Boards (CCBs) assessed participants using both the ULTC 100.2 and FASI items from the new process. Data was collected for 84 participants. The level of care (LOC) pilot only collected data using the LOC Screen, which includes both current assessment tool items from the ULTC 100.2 and the FASI items designed to replace them. The purpose of this pilot was to compare the items across the current and new tools and comply with a TEFT grant requirements for Round 2 data collection. This [report](#) presents the initial findings from this phase. These findings will inform later phases of the pilot as data collection to establish LOC thresholds continues.

The new assessment tool will greatly improve the eligibility process and support planning for Medicaid LTSS programs and benefits. This new tool will be unique, in that it will focus on developing person-centered individual support plans, enhancing self-direction, and is expected to facilitate greater coordination of services. For more information, please see the [Colorado Assessment Tool Blog](#)

The [new Colorado Assessment Process](#) and the [crosswalk of FASI elements](#) can be found in appendix.

## Future Steps

- Pilot the full assessments & support plan process to continue to collect information necessary to recreate LOC determinations and to complete a time study to determine how long case managers would take to complete the process.
- Rollout new process statewide by implementing the changes from the results of the pilot.
- Integrate the new assessment, which include FASI, into the development of a person-centered support plan based on identified needs.
- Develop a work plan to identify what items, which more than likely will include FASI, will be used to assign individual budgets and support levels to members with an LTSS for the purchase of CB-LTSS.

## Electronic Long-Term Services and Supports (eLTSS)

The CMS along with Office of National Coordinator for Health Information Technology (ONC) partnered under the TEFT grant to identify and develop a service plan data standard to enable electronic exchange of LTSS data between providers, beneficiaries and case managers to better help coordinate care.

The Department participated in the harmonization process and worked closely with ONC-CMS in identifying the core data set of 56 data elements for a CB-LTSS support plan. The Department included the 56 data elements except the Service Delivery Address in the new Person-Centered Support Plan that was automated into Aerial. The crosswalk for all the elements along with the Aerial support plan design document can be found [here](#). The pilot of the full support plan will begin in October 2019 and based on the recommendations from the pilot the support plan will be modified.

The Department also conducted a [survey](#) to collect information from CB-LTSS providers on their current electronic/information technology environment to better understand providers current capabilities, usage and what functionality providers think is most important in the sharing of data electronically. The survey also helps the Department to better understand the providers level of interoperability, which means the ability of computer systems or software to exchange and make use of information. Survey findings/summary report can be found [here](#).

The Department participated in Georgia's Health Level Seven (HL7) balloting process and helped shape the content for the HL7 process, provided feedback and casted a vote for the "eLTSS White paper," which is now renamed as the "eLTSS Informative Document" published via HL7 in February 2019.

The Department contracted with Orchestrate Healthcare LLC and worked to draft an eLTSS Standard Implementation plan on how to achieve higher levels of interoperability based on the survey responses from providers. [Here](#) is the standard Implementation plan along with the recommendations.

### Future Steps:

- The Support Plan pilot will begin in October 2019. Based on the results of the pilot, which includes feedback/recommendations from the pilot participants, the support plan may be modified.
- The Department will review the eLTSS Standard Implementation Plan developed by Orchestrate Healthcare LLC and come up with a timeline and project plan on how to proceed with achieving higher levels of interoperability among CB-LTSS providers.
- The Department will continue working with ONC-CMS to further define additional data standards for eLTSS.

## Appendices

EoC Final Report

## INTRODUCTION AND OVERVIEW

### A. Purpose of the Report

Under the Testing Experience and Functional Tools (TEFT) in Community-Based Long Term Services and Supports planning and demonstration grant, 9 state grantees participated in the field testing of a beneficiary experience of care survey from 2013 through 2015. The states were Arizona, Colorado, Connecticut, Georgia, Kentucky, Louisiana, Maryland, Minnesota, and New Hampshire. In June 2016, the survey received the trademark of the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) program, which is funded by the Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services. The official name of the final trademarked survey is the CAHPS® Home and Community-Based Services Survey (or HCBS CAHPS Survey for short). Under TEFT, states also are demonstrating the use of the survey for quality oversight purposes and for potentially identifying areas for improvement. The purpose of this report is to provide the Centers for Medicare & Medicaid Services (CMS) with information about (1) each TEFT grantee's experience in fielding the survey in Round 2 of the Experience of Care component, (2) the results from the data collection and analysis, and (3) how the state is using the results.

### B. State HCBS Programs That Were Administered the Round 2 Survey

Number of HCBS Programs Surveyed: 526

#### Program 1

- Name of program: [Elderly Blind Disabled Waiver \(EBD\)](#)
- Population(s) served: [Individuals who are Elderly Blind and Disabled](#)
- Total number of enrollees: [28495](#)
- Program funding sources. Check all that apply.
  - Medicaid
  - Non-Medicaid: Describe
- Managed long-term services and supports:  Yes  No
- Briefly explain why this program was chosen to survey: [selected by the Department as it is the largest waiver population in medicaid.](#)

#### Program 2

- Name of program: [Supported Living Services Waiver \(SLS\)](#)
- Population(s) served: [individuals with intellectual and developmental disabilities](#)
- Total number of enrollees: [5145](#)
- Program funding sources. Check all that apply.
  - Medicaid
  - Non-Medicaid: Describe
- Managed long-term services and supports:  Yes  No

- Briefly explain why this program was chosen to survey: key population selected by the Department for this project due to the original contract agreement in 2014. Both waiver populations are part of the larger TEFT initiative to include PHR, eLTSS and FASI.

### C. Intended State Use of Round 2 Findings

1. Describe the issue(s) that the Round 2 survey results are intended to inform or the questions that the Round 2 results aim to answer for the state. For example, general uses of the results may include internal quality monitoring, identifying areas for quality improvement, documentation of required assurances, sharing progress with stakeholders, considering for value-based purchasing (e.g., incentive payments for performance), reporting performance metrics by operating entities (e.g., managed care organizations) or providers (e.g., case management agencies), and public reporting. Please describe the intended use of the findings in as specific terms as possible .

The purpose of this study was to assess the suitability of three survey modalities- in person, phone, and electronic - for collecting information from beneficiaries of Medicaid community-based long-term services and supports (CB-LTSS). The particular tool used was the Home and Community Based-Consumer Assessment of Health Care Providers and Services (HCBS-CAHPS). While every effort was made to minimize differences in the design of the survey instrument and protocols across modalities, some adaptations were necessary to support collection of data in an online format. Thus, the primary objective and utility of this study was not to establish the online validity of the HCBS-CAHPS instrument specifically, but rather to understand the relative feasibility and value of collecting service satisfaction data across the three modalities, including considerations of responsiveness (e.g., response rates, accessibility), engagement (survey completion rates, ease of experience), and cost (e.g., personnel time for planning and implementation). This multi-modality survey administration and modality performance assessment is a component of the TEFT (Testing Experience Functional Tools) Demonstration Grant awarded to the Colorado Department of Health Care Policy and Financing (HCPF). Findings from analyses conducted to assess modality performance are presented in this report. This report also contains lessons learned from each modality and recommendations for future survey administration strategies.

**METHODS**

**A. Sampling Strategy**

1. What were the criteria for participation? Check all that apply.

- Currently enrolled in the HCBS program
- Enrolled in the HCBS program for a specific time period: Describe [currently enrolled client](#)
- Receiving care coordination service through the HCBS program
- Other inclusion criteria: Describe

2. What exclusions were applied, if any? Check all that apply.

- Age: Describe [under 18 years of age](#)
- Currently hospitalized
- Currently in an institution: Describe
- Prior survey participation: Describe [all clients were de-duplicated from previous implementation years.](#)
- Other exclusion criteria: Describe

3. For each program and subgroup sampled, what was the total number of eligible beneficiaries, the total sample size, and the targeted number of complete surveys?

<b>Program</b>	<b>Subgroup (if Applicable)</b>	<b>Total Number of Beneficiaries Meeting Criteria</b>	<b>Total Sample Size (i.e., Sample Pull)</b>	<b>Targeted Number of Complete Surveys (Effective Sample Size)</b>
In Person Surveys (Divided evenly between SLS and EBD waivers)			478	133
Online Survey (Divided evenly between SLS and EBD waivers)			2000 (original sample size was 1000, but the desired response rate was not reached in a reasonable amount of time. )	117

Program	Subgroup (if Applicable)	Total Number of Beneficiaries Meeting Criteria	Total Sample Size (i.e., Sample Pull)	Targeted Number of Complete Surveys (Effective Sample Size)
Phone Survey (Divided evenly between SLS and EBD waivers)			1000	276

4. How was the total sample size (i.e., sample pull) determined? Check all that apply.

- Round 1 guidance on effective sample size
- Round 1 response rates
- Other Round 1 guidance: Describe
- Non-TEFT survey experience with response rates: Describe [OMNI, the TEFT EoC vendor for both the phone and online version offered guidance on the sample framing criteria.](#)
- Calculation of representative sample sizes: describe specifications (e.g., confidence interval, margin of error)
- Other source of estimates: Describe

5. How were samples drawn for small programs?

- Census was taken
- Small programs serving a similar HCBS population were combined: Describe
- Other: Describe [Both populations had statistically significant sample sizes.](#)

6. Were random samples drawn for each nonsmall program (if no subgroups) or subgroup?

- Yes
- No: Describe

7. What tool was used to select the random sample? The data analysis team at HCPF (Health Care Policy and Financing) used their sampling methodologies to pull the random sample.

- STATA “sample” command
- Excel random number function
- SAS random number generator
- Lottery system
- Other: Describe
- Not applicable

8. What efforts were made to increase sample data accuracy in order to minimize nonresponse? Check all that apply.

- Checking individual data fields (e.g., phone numbers): Explain
- Reviewing service records against death records
- Ensuring up-to-date guardian information: Describe

- Working with care coordinators/case managers: Describe
- Working with managed care organizations: Describe
- Other: Describe

9. Did the state grantee need to pull, or draw, the sample(s) for Round 2 more than one time?

- No
- Yes: Describe [2 samples had to be pulled since the response rate was too low for the Online modality. An additional sample of 1000 was pulled \(total of 2000\).](#)

#### B. Survey Instrument

1. Which survey was administered in Round 2?

- Interim HCBS EoC Survey
- Final HCBS CAHPS Survey

2. Were state-specific modifications made to the survey instrument?

- Yes: Briefly describe [The survey instrument was modified for the online version since the cognitive screening section was not able to be automated with the specified responses.](#)
- No

3. Was the supplemental employment module administered?

- Yes
- No

4. In what languages was the survey administered? Check all that apply.

- English
- Spanish
- Other language: Specify

#### C. Beneficiary Protections

1. CMS advised grantees to consult their Institutional Review Board (IRB) for Round 2. Some states require IRB approval for survey administration, and others do not. Was IRB approval requested by the grantee?

- Yes: Name the IRB
- No

2. Did the IRB recommend or require certain actions?

- Yes: Briefly describe
- No

3. How was beneficiary consent to participate obtained? Please describe separately for each mode of survey administration used.

- Telephone survey: verbal consent by phone
- In-person survey: verbal and signed consent
- Other survey mode: online consent to participate

4. Did you enact any data use agreements with vendors or analysts?

- Yes: Briefly describe: OMNI Institute (phone and online version) & Vital Research, LLC (in-person version); WYSAC (subcontracted by OMNI for phone survey).
- No

#### D. Data Collection Process

1. Describe the outreach and recruitment techniques used in Round 2 data collection. All clients within sample frame were sent a pre-notification letter explaining that they would be hearing from a company external to HCPF to solicit their participation on the survey. The in-person respondents were sent a letter indicating they would be contacted by a representative from Vital Research and all associated survey information and the purpose of the survey. The phone respondents were sent a letter with similar communications as the in-person letter, but instead indicating they may be contacted by a WYSAC representative on behalf of the State of CO. The online respondents were sent a letter with specific online instructions, along with a hyperlink for participants to use to access the survey.

2. Describe any accommodations made to facilitate the inclusion of people with cognitive or speech challenges. Our vendors hired interviewers that

3. Who administered the survey instrument and collected responses in Round 2?

- In-house state staff
- External survey research center: name of organization Vital Research, LLC (in-person) and OMNI Institute (phone and online versions)
- Advocates and/or self-advocates: name of organization
- Peer interviewer
- Other: Describe

4. For each program and mode of survey administration used, what were the dates when the survey was fielded and what was the total number of surveys collected?

Program	Mode of Administration (e.g., In Person, Telephone)	Start and End Dates for Administration	Total Number of Surveys Collected
EBD Waiver	In person/Phone/Online	Jan 2017-March 2017	70/117/30
SLS Waiver	In Person/Phone/Online	January 2017-April 2017	31/77/41

5. If peer interviewers were used to conduct the survey, were modifications made to the survey administration process?

- Yes: Describe (e.g., training, recording of responses)
- No
- Not applicable

6. If a Web-based version of the survey was self-administered, were modifications made to the survey administration process?

- Yes: Describe (e.g., instrument redesign)
- No
- Not applicable

**This section details the adaptations that were made to the survey to make it online-compatible.**

Several of the questions in this survey have alternative question options for the interviewer to use if during administration the respondent is unable to understand the wording of the primary question(s). Due to the inability of the online software to detect lack of comprehension among respondents, the alternative survey question options were removed.

- The “Refused” and “Unclear” survey response options were removed. If a respondent skipped a question they were asked, this response was coded as “refused” prior to analysis.
- The cognitive screen questions two and three were changed from open-ended to close-ended response options so that the questions could be used to screen out/disqualify participants without need for (human) interpretation of responses.
  - - Q5, Q7, and Q9 which ask the respondent how they refer to their personal assistant, behavioral health specialist, and case manager were removed because generic terminology was needed to meet programming specifications o Standardized language was used throughout the survey when referring to personal assistants, behavioral health specialists, and case managers.
  -

- - Q97-99 were omitted because they were designed for an interviewer to complete and could not be converted to client responses o These questions were replaced with three supplemental questions about modality preference:
  - Q97: How easy or difficult was it for you to take this online survey? (Very easy, easy, neutral, difficult, or very difficult).
  - Q98: If you were asked to take this survey again, how would you prefer to take it? (In-person, on the phone, online)
  - Q99: Which electronic device did you use to take this survey? (computer, mobile phone, tablet, other device).
- Q100-102 were re-worded so the client could answer them (e.g. Did someone help you take the survey? How did they help you? Who helped you?)

In addition to instrument adaptations, the online survey differed from the other two modalities in that only paper mailers were sent to clients in the online sampling frame to solicit participation in the survey. Sufficient resources were not available to support administration of phone calls to solicit participation, and no email contact information was available for potential participants. It should be noted that the expected or optimal method for recruiting participants for an online survey would be in the online environment, such as via email or website links. Beyond sending an initial mailer to potential participants, OMNI sent follow-up mailers approximately two weeks later to remind clients to participate in the survey.

The key distinction between the online survey and the other two modalities was the decision to administer the survey to a second sample based on the low response rate obtained from the first sample. As mentioned previously, HCPF sought to obtain a 20% response-rate (200 out of 1,000) from the online sampling frame. However, due to issues with the sampling frame, many participants were screened out on the initial survey question that pertains to their eligibility to participate in the survey. A prenotification letter from HCPF and an initial mailer from OMNI were sent to a second sample of 1,000 clients. Responses obtained from both online samples were combined for reporting.

7. For each program and mode of survey administration used, how many surveys collected involved proxy respondents and how many used the alternate (simplified) response option? Proxy respondents are individuals who answered all (or some) of the survey questions for the beneficiary. This is different from individuals who assisted the beneficiary with the survey, for example, restating questions, translating items, or helping to use communication equipment.

**Table 7: Breakdown of Proxy Response Rates by Modality**

Proxy Respondent Percentages	In-Person	Online	Phone	Total
Answered All Questions	30%	55%	76%	59%
Answered Some Questions	35%	14%	12%	17%
Restated Questions in a Different Way	26%	27%	14%	22%
Translated Questions	26%	6%	0%	7%
Assisted Communication Devices	4%	2%	0%	2%
Other	4%	20%	2%	10%
Received Help from Someone Paid to Provide Support	26%	24%	27%	25%

*This was not stratified by individual program type.*

## E. Approach to Proxy Responses

1. Were proxy responses allowed in Round 2?

- Yes, for all programs surveyed
- Yes, but only for some programs surveyed: Name program(s)
- Proxy respondents were not allowed for any programs

2. What, if any, requirements applied to who could be a proxy respondent? Describe both explicit inclusion criteria and explicit exclusion criteria.

### Proxy Respondents

An additional point of comparison worth examining when assessing differences across modalities is the proportion of respondents that reported having someone help them complete the survey. An estimated 33.6% of all respondents received help completing the survey. Among the different survey modalities, those who completed the survey online were nearly three times more likely (71.8%) than those who responded to the in-person (22.8%) or phone survey (25.3%) to receive help completing the survey. The online survey did not ask about the availability of proxies at the outset of the survey, but a certain level of cognition can be assumed among those completing an online survey given the lack of prompts available to the participant. The number of proxies used for the phone and in-person surveys were not documented, but the responses to the final questions of the survey were used to assess the need for assistance across all three modalities.

Among those who reported receiving help completing the survey, 59% stated the person who helped them complete the survey answered all survey questions for them. Across the survey modes, the phone method yielded the highest percentage of individuals who answered all survey questions (76%) if help was received as seen in Table 7 below. Table 7 also shows in detail the type of help received among those who reported receiving help. Of special note, 25% of all respondents who received help completing the survey indicated that they received this help from an individual who is paid to help them. This finding did not vary across modality, and may call into question the quality of data obtained from those respondents given that many of the questions ask about the level and quality of service being provided by individuals paid to assist them.

3. Was the survey instrument modified in any way to accommodate proxy respondents?

- Yes: Briefly describe
- No
- Not applicable (no proxy respondents allowed)

4. Were any survey questions restricted to being answered only by the HCBS program participant?

- Yes: Briefly describe [Yes, if a proxy is not available or necessary for the survey administration, the survey questions should only be answered by the HCBS participant.](#)
- No

Not applicable (no proxy respondents allowed)

5. Describe how survey administration and data collection differed for proxy respondents.

An additional point of comparison worth examining when assessing differences across modalities is the proportion of respondents that reported having someone help them complete the survey. An estimated 33.6% of all respondents received help completing the survey. Among the different survey modalities, those who completed the survey online were nearly three times more likely (71.8%) than those who responded to the in-person (22.8%) or phone survey (25.3%) to receive help completing the survey. The online survey did not ask about the availability of proxies at the outset of the survey, but a certain level of cognition can be assumed among those completing an online survey given the lack of prompts available to the participant. The number of proxies used for the phone and in-person surveys were not documented, but the responses to the final questions of the survey were used to assess the need for assistance across all three modalities.

Among those who reported receiving help completing the survey, 59% stated the person who helped them complete the survey answered all survey questions for them. Across the survey modes, the phone method yielded the highest percentage of individuals who answered all survey questions (76%) if help was received as seen in Table 7 below. Table 7 also shows in detail the type of help received among those who reported receiving help. Of special note, 25% of all respondents who received help completing the survey indicated that they received this help from an individual who is paid to help them. This finding did not vary across modality, and may call into question the quality of data obtained from those respondents given that many of the questions ask about the level and quality of service being provided by individuals paid to assist them.

**Table 7: Breakdown of Proxy Response Rates by Modality**

Proxy Respondent Percentages	In-Person	Online	Phone	Total
Answered All Questions	30%	55%	76%	59%
Answered Some Questions	35%	14%	12%	17%
Restated Questions in a Different Way	26%	27%	14%	22%
Translated Questions	26%	6%	0%	7%
Assisted Communication Devices	4%	2%	0%	2%
Other	4%	20%	2%	10%
Received Help from Someone Paid to Provide Support	26%	24%	27%	25%

6. Were the survey results analyzed separately by the proxy status of respondents?

Yes

No

F. Analysis of Round 2 Data

1. When analyzing the survey results for an HCBS program, what types of analyses were conducted? Check all that apply.

Description of responses for the HCBS program overall

Comparison of responses for subgroups within a single HCBS program

Responses for one HCBS program compared with other individual HCBS programs in the state

Responses for one HCBS program compared with the state overall

Other: Describe [The primary purpose of the Round 2 Data was to determine preferences and differences among three modalities of administration \(phone, online and in-person\).](#)

2. For comparisons of responses by subgroups within a single HCBS program, what subgroups were analyzed? Check all that apply.

- Different managed care organizations that provide services to Medicaid Managed Long Term Services and Supports program participants
- Different case management agencies that serve the program participants
- Different geographic areas (e.g., counties, regions) where program participants reside
- Proxy subgroups (i.e., proxy respondents, proxy assistance, and no proxy)
- Other subgroups: Describe [guardianship status](#); [HCBS waiver type](#); [other demographic and client characteristics](#)

3. For comparisons of responses for one HCBS program to responses for one or more other programs in the state, describe which programs were compared.

**Table 4: Comparison of In-Person Sampling Frame to In-Person Sample Obtained**

Demographic Variable	Demographic Category	In-Person Sampling Frame		In-Person Completed Surveys	
		%	N=477	%	N=101
Gender	Female	59.1	282	66.3	67
	Male	40.9	195	33.7	34
Race	White	43.8	209	36.6	37
	Spanish American	18.7	89	24.8	25
	Black	6.5	31	9.9	10
	Other	21.6	103	21.8	22
	Unknown	9.4	45	6.9	7
Age	18-24	16.4	78	6.9	7
	25-34	16.4	78	9.9	10
	35-44	12.6	60	12.9	13
	45-54	11.1	53	18.8	19
	55-64	17.4	83	25.7	26
	65-74	10.9	52	11.9	12
	75+	15.3	73	13.9	14
Region	Urban	84.1	401	88.1	89
	Rural	12.6	60	11.9	12
	Frontier	3.4	16	–	–
Guardian	Yes	9.6	46	5.9	6
	No	90.4	431	94.1	95
Waiver	EBD	50.1	239	69.3	70
	SLS	49.9	238	30.7	31

**Table 5: Comparison of Telephone Sampling Frame to Telephone Sample Obtained**

Demographic Variable	Demographic Category	Telephone Sampling Frame		Telephone Completed Surveys	
		%	N=1005	%	N=195
Gender	Female	53.3	536	62.4	121
	Male	46.7	469	37.6	73
Race	White	41.6	418	42.3	82
	Spanish American	13.6	137	11.9	23
	Black	4.7	47	6.7	13
	Other	30.6	308	32.5	63
	Unknown	9.5	95	6.7	13
Age	18-24	12.7	128	11.9	23
	25-34	21.8	219	20.1	39
	35-44	11.0	111	7.2	14
	45-54	9.5	95	9.8	19
	55-64	14.8	149	18.0	35
	65-74	11.8	119	17.0	33
	75+	18.3	184	16.0	31
Region	Outside Colorado	0.3	3	–	–
	Urban	85.1	855	80.9	157
	Rural	11.2	113	14.4	28
	Frontier	3.4	34	4.6	9
Guardian	Yes	8.2	82	9.3	18
	No	91.8	923	90.7	176
Waiver	EBD	50.1	504	60.3	117
	SLS	49.9	501	39.7	77

**Table 6: Comparison of Online Sampling Frame to Online Sample Obtained**

Demographic Variable	Demographic Category	Online Sampling Frame		Online Completed Surveys	
		%	N=1005	%	N=71
Gender	Female	54.9	1093	59.2	42
	Male	45.1	899	40.8	29
Race	White	43.3	863	39.4	28
	Spanish American	18.7	280	9.9	7
	Black	5.1	102	5.6	4
	Other	28.0	557	31.0	22
	Unknown	9.4	190	14.1	10
Age	18-24	16.4	313	15.5	11
	25-34	16.4	392	35.2	25
	35-44	12.6	227	9.9	7
	45-54	11.1	234	11.3	8
	55-64	17.4	286	11.3	8
	65-74	10.9	219	8.5	6
	75+	15.3	321	8.5	6
Region	Outside Colorado	0.4	8	1.4	1
	Urban	82.6	1646	87.3	62
	Rural	12.7	252	9.9	7
	Frontier	4.3	86	1.4	1
Guardian	Yes	7.7	154	21.1	15
	No	92.3	1838	78.9	56
Waiver	EBD	50.0	996	42.3	30
	SLS	50.0	996	57.7	41

*In-Person Sample Comparison (Age, Waiver Type, and Region Significant):*

- **Over-Representation**
  - 45-54 age range clients
  - 55-64 age range clients
  - EBD clients
- **Under-Representation**
  - 18-24 age range clients
  - Frontier clients
  - SLS Clients

*Telephone Sample Comparison (Gender, Waiver Type, and Age Significant)*

- **Over-Representation**
  - Females
  - EBD Waivers
- **Under-Representation**
  - Males
  - 35-44 age range clients
  - SLS Waivers

*Online Sample Comparison (Age and Guardian Status Significant)*

- **Over-Representation**
  - 25-34 age range clients
  - Clients with guardians
- **Under-Representation**
  - Clients without guardians

4. Were tests of statistical significance performed on differences in results?

Yes: Describe

### **Analyses for Efficiency Measures**

First, descriptive statistics were used to compare the number of respondents for each modality to their respective sampling frames to calculate overall survey response rates. Similarly, the percentages of respondents that failed the cognitive screen were also calculated to determine the cognitive screen fail rate for each modality. Bivariate analysis (Pearson Chi-Square test) was performed to determine whether the cognitive screen fail rate was significantly different across modalities. Pearson Chi-Square tests assess the direction and strength of relationships between two categorical variables (e.g. survey modality and gender). A statistically significant result in a Chi-Square test is one that produces a *p-value* of <.05. Moreover, these tests are also used to generate Adjusted Residuals which determine the magnitude of the difference between groups. To understand the interpretation of these results, any finding discussed below was statistically significant with an Adjusted Residual over 2.0 or below -2.0. These tests are commonly used when examining differences between groups using categorical variables, such as the ones being explored in this study. Next, descriptive statistics were used to examine survey completion times across modality. Finally, information was provided by each vendor related to personnel hours expended for the project for comparison purposes

No

5. Were reliability statistics (e.g., Interunit Reliability, or IUR) calculated on the basis of the actual Round 2 results?

Yes: Describe

No

6. Who prepared the data collected in Round 2 for analysis? Check all that apply.

Internal staff at state agency

External survey vendor

Separate analytics contractor

Other entity: Describe

7. Who performed the analyses of the data collected in Round 2? Check all that apply.

Internal staff at state agency

External survey vendor

Separate analytics contractor

Other entity: Describe

8. Was the CAHPS Analysis Program (i.e., CAHPS macro, available at <https://www.ahrq.gov/cahps/surveys-guidance/helpful-resources/analysis/index.html>) used to adjust Round 2 results for case mix and/or to calculate scores?

Yes

No

9. Describe any issues encountered in using the CAHPS Analysis Program (i.e., CAHPS macro).  
NA

10. What factors were used to adjust Round 2 survey results for case mix?

General health rating

Mental health rating

Age

Sex

Education

Whether the respondent lives alone

Survey administration mode

Response option

Proxy status

Results were not adjusted for case mix

11. Which type(s) of measures were produced with Round 2 results? Check all that apply.

- Composites (i.e., scale measures)
- Global Rating items
- Recommendation items
- Individual items
- Other entity: Describe

12. Which type(s) of score(s) were used to present Round 2 results? Check all that apply.

- Average score (i.e., the mean across all response categories)
- Top-box score (i.e., the percentage of respondents who chose the most positive response category(s) for an item)
- Other score: Describe [No scores were used to present Round 2 Results](#)

#### G. Other Differences From Round 1 Methods

1. Describe any other known substantial differences in the approach to fielding and analyzing Round 2 from Round 1 that are not addressed above.

This year, we focused our effort instead on conducting a study to compare the suitability of various modalities for administering the CAHPS, with a focus on piloting an online version of the survey instrument. The study focused primarily on identifying and documenting necessary adaptations to the data collection protocols and instrument to support pilot testing of an online version of the survey; and capturing and comparing the following information by modality to identify implications and recommendations for future CAHPS administrations:

- response rates and rates of missing data, by modality
- sample demographics, by modality
- representativeness of sample compared to sampling frame, by modality
- resources required to administer the survey in each modality, and
- client preferences and perceived ease of use for each survey modality

Basic cleaning procedures and descriptive were also conducted on the resulting dataset of 526 respondents across the three modalities. However, no further preparation or analysis was conducted on the data to support reporting purposes, including adjustments for case mix, calculations of scores, etc., as this was beyond the purview of our study objectives for this year.

## RESULTS

### A. Presentation of Results

1. With what audiences were Round 2 results shared (or will they be)? Check all that apply.

- State program management staff
- Other state agency staff
- Beneficiaries and consumer representatives
- Providers
- Other stakeholders: Describe
- General public
- Other: Describe

2. In what formats were Round 2 results made available (or will they be) to stakeholders/audiences? Check all that apply.

- Summary bullets
- Graphs
- Data tables (excluding those in this report)
- Detailed reports
- Other: Describe

### B. Response Rates

The remainder of the Results Section reports results based on the grantee's analysis of complete surveys, not all returned surveys. On the basis of the CAHPS definition, a complete survey is one in which the respondent provided a substantive response to at least half of the items that all respondents are eligible to answer.

Please report the response rates for Round 2.

## Response Rates

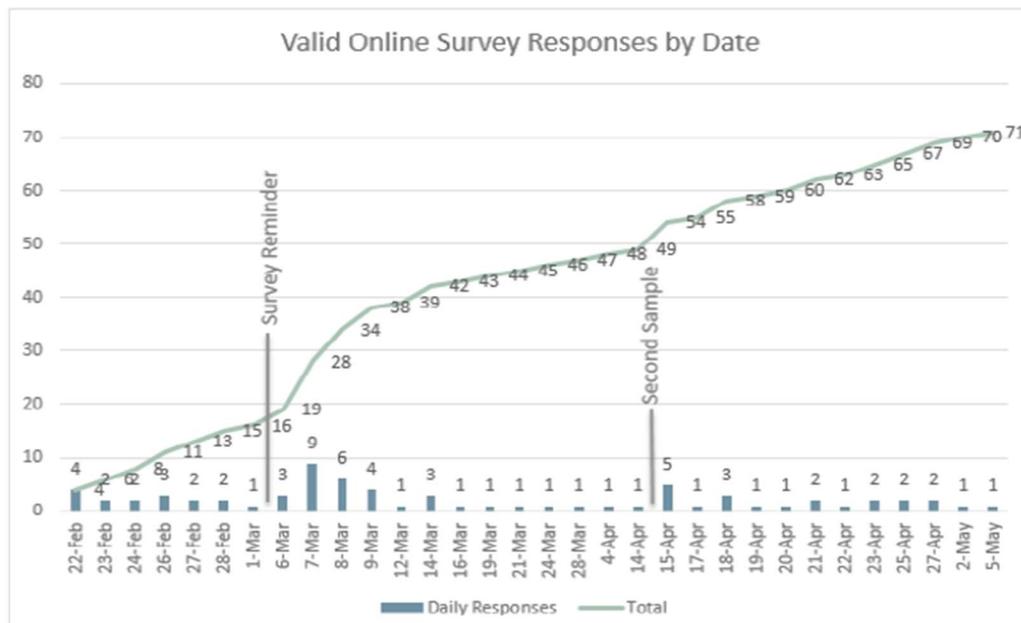
Overall response rates for the three survey modalities are displayed in Table 1 below. The phone and in-person survey efforts yielded overall responses from approximately 27% of their sampling frames, while the online method only yielded initial responses from 5.9% of its sampling frame. To more concretely measure response rates, separate calculations were performed in which those respondents that failed the cognitive screen were removed in the response rate calculation. As illustrated in the table below, when those that failed the cognitive screen were removed from the sample, the response rates dipped to 21.2% for the in-person modality, 19.3% for phone, and 3.6% for online.

**Table 1: Response Rates by Modality**

Measuring Frame	In-Person	Online	Phone	Total
Sampling Frame	477	1992	1005	3474
Total Survey Responses (#)	133	117	276	526
% of Sample Responding	27.8%	5.9%	27.5%	15.1%
Passed Cognitive Screen (#)	101	71	194	366
% of Sample with Valid Responses	21.2%	3.6%	19.3%	10.5%

It should be noted that the final response rate for the online survey reflects the combined rate achieved from the two successively drawn samples. After the initial sampling frame of n=1,000 only resulted in 48 completed surveys (excluding cognitive screen fails), it was decided in consultation with HCPF to draw a second, independent random sample of n=1,000 (without replacement) in an effort to boost the overall sample size. Figure 1 below demonstrates the timeline of completed responses for the online survey to illustrate the impact of the second sample on the overall sample size. For reference, recruitment of the second sample began on April 11th, 2017. The date of April 14th was the first date that a survey was completed by a client from the second sample. While the second sample only generated an additional 23 responses, the cognitive screen fail rate declined in the second sample indicating improvement in the selection of the sampling frame. Worth noting, Figure 1 illustrates the detectable increase in survey responses that occurred following the survey reminder that was sent to the initial sample. Due to limited time and resources, it was not possible to send a follow-up mailer to the second sample but this does allow for comparison between the two approaches (one mailer vs. two mailers).

**Figure 1: Valid Online Responses by Date**



One challenge that was present across all modalities and negatively influenced response rates was the prevalence of bad contact information for the clients contained in the sampling frames. The existence of bad contact information among those being targeted for this survey is not surprising given that HCPF clients are likely not required to update their contact information when relocating. Descriptions of what qualified as bad contact information and the case counts for each modality are provided in the table below:

**Table 2: Bad Contact Information by Modality**

Modality	Description	Number of Cases
In-Person	Disconnected or wrong phone number, no forwarding information available	54
Phone	Disconnected or wrong number, technical issues with the phone, no forwarding information available	364
Online	Mailers returned as undeliverable or recipient unknown	86 <sup>2</sup>

While it is not possible to draw true comparisons across modalities when examining bad contact info due to the unique implementation features previously discussed, it is important to draw attention to this issue in the context of response rates since the “pure” response rate would be calculated by excluding those with bad contact information and those otherwise deemed ineligible to complete the survey. In the following section, we also discuss the unforeseen challenge, common across the three modalities, of the large proportion of participants deemed ineligible to complete the survey due to not currently receiving services.

### C. Tabular and Narrative Summary of Results

Table #1 narrative summary: *This table demonstrates the response rates associated with each of the three modalities administered in the HCBS CAHPS Round 2.*

Table #1 title: Response Rates by Modality

**Table 1: Response Rates by Modality**

Measuring Frame	In-Person	Online	Phone	Total
Sampling Frame	477	1992	1005	3474
Total Survey Responses (#)	133	117	276	526
% of Sample Responding	27.8%	5.9%	27.5%	15.1%
Passed Cognitive Screen (#)	101	71	194	366
% of Sample with Valid Responses	21.2%	3.6%	19.3%	10.5%

Table #2 narrative summary: *Table 2 demonstrates the “bad contact” information associated with the three survey modalities.*

Table #2 title: Bad Contact Information by Modality

**Table 2: Bad Contact Information by Modality**

Modality	Description	Number of Cases
In-Person	Disconnected or wrong phone number, no forwarding information available	54
Phone	Disconnected or wrong number, technical issues with the phone, no forwarding information available	364
Online	Mailers returned as undeliverable or recipient unknown	86 <sup>2</sup>

Table #3 narrative summary: *Table 3 demonstrates the total duration of each modality as it relates to time it takes to complete the survey with a member (in minutes).*

Table #3 title: Survey Duration by Modality

**Table 3: Survey Duration by Modality**

Survey Modality	Minimum Survey Duration (In Minutes)	Maximum Survey Duration (In Minutes)	Average (Mean) Survey Duration (In Minutes)
In-Person	5	105	48
Online	5	63	17
Phone	4	49	22

Table #4 narrative summary: *Table 4 demonstrates the frequency distributions performed to compare the obtained samples to their respective sampling frames.*

Table #4 title: Comparison of In-Person Sampling Frame to the In-Person Sample Obtained

Table 4: Comparison of In-Person Sampling Frame to In-Person Sample Obtained

Demographic Variable	Demographic Category	In-Person Sampling Frame		In-Person Completed Surveys	
		%	N=477	%	N=101
Gender	Female	59.1	282	66.3	67
	Male	40.9	195	33.7	34
Race	White	43.8	209	36.6	37
	Spanish American	18.7	89	24.8	25
	Black	6.5	31	9.9	10
	Other	21.6	103	21.8	22
	Unknown	9.4	45	6.9	7
Age	18-24	16.4	78	6.9	7
	25-34	16.4	78	9.9	10
	35-44	12.6	60	12.9	13
	45-54	11.1	53	18.8	19
	55-64	17.4	83	25.7	26
	65-74	10.9	52	11.9	12
Region	75+	15.3	73	13.9	14
	Urban	84.1	401	88.1	89
	Rural	12.6	60	11.9	12
Guardian	Frontier	3.4	16	-	-
	Yes	9.6	46	5.9	6
Waiver	No	90.4	431	94.1	95
	EBD	50.1	239	69.3	70
Waiver	SLS	49.9	238	30.7	31

Table #5 narrative summary: *Table 5 demonstrates the frequency distributions performed to compare the obtained samples to their respective sampling frames.*

Table #5 title: Comparison of Telephone Sampling Frame to Telephone Sample Obtained

**Table 5: Comparison of Telephone Sampling Frame to Telephone Sample Obtained**

Demographic Variable	Demographic Category	Telephone Sampling Frame		Telephone Completed Surveys	
		%	N=1005	%	N=195
Gender	Female	53.3	536	62.4	121
	Male	46.7	469	37.6	73
Race	White	41.6	418	42.3	82
	Spanish American	13.6	137	11.9	23
	Black	4.7	47	6.7	13
	Other	30.6	308	32.5	63
	Unknown	9.5	95	6.7	13
Age	18-24	12.7	128	11.9	23
	25-34	21.8	219	20.1	39
	35-44	11.0	111	7.2	14
	45-54	9.5	95	9.8	19
	55-64	14.8	149	18.0	35
	65-74	11.8	119	17.0	33
	75+	18.3	184	16.0	31
Region	Outside Colorado	0.3	3	–	–
	Urban	85.1	855	80.9	157
	Rural	11.2	113	14.4	28
	Frontier	3.4	34	4.6	9
Guardian	Yes	8.2	82	9.3	18
	No	91.8	923	90.7	176
Waiver	EBD	50.1	504	60.3	117
	SLS	49.9	501	39.7	77

Table #6 narrative summary: *Table 6 demonstrates the frequency distributions performed to compare the obtained samples to their respective sampling frames.*

Table #6 title: Comparison of Online Sampling Frame to Online Sample Obtained

**Table 6: Comparison of Online Sampling Frame to Online Sample Obtained**

Demographic Variable	Demographic Category	Online Sampling Frame		Online Completed Surveys	
		%	N=1005	%	N=71
Gender	Female	54.9	1093	59.2	42
	Male	45.1	899	40.8	29
Race	White	43.3	863	39.4	28
	Spanish American	18.7	280	9.9	7
	Black	5.1	102	5.6	4
	Other	28.0	557	31.0	22
	Unknown	9.4	190	14.1	10
Age	18-24	16.4	313	15.5	11
	25-34	16.4	392	35.2	25
	35-44	12.6	227	9.9	7
	45-54	11.1	234	11.3	8
	55-64	17.4	286	11.3	8
	65-74	10.9	219	8.5	6
	75+	15.3	321	8.5	6
Region	Outside Colorado	0.4	8	1.4	1
	Urban	82.6	1646	87.3	62
	Rural	12.7	252	9.9	7
	Frontier	4.3	86	1.4	1
Guardian	Yes	7.7	154	21.1	15
	No	92.3	1838	78.9	56
Waiver	EBD	50.0	996	42.3	30
	SLS	50.0	996	57.7	41

Table #7 narrative summary: Table 7 depicts the various Proxy Respondent Percentages by each modality.

Table #7 title: Breakdown of Proxy Response Rates by Modality

**Table 7: Breakdown of Proxy Response Rates by Modality**

Proxy Respondent Percentages	In-Person	Online	Phone	Total
Answered All Questions	30%	55%	76%	59%
Answered Some Questions	35%	14%	12%	17%
Restated Questions in a Different Way	26%	27%	14%	22%
Translated Questions	26%	6%	0%	7%
Assisted Communication Devices	4%	2%	0%	2%
Other	4%	20%	2%	10%
Received Help from Someone Paid to Provide Support	26%	24%	27%	25%

Table #8 narrative summary: Table 8 depicts the differences in missing data for each modality.

Table #8 title: Percentage of Respondents with Missing Data by Modality

**Table 8: Percentage of Respondents with Missing Data by Modality**

Type of Missing Data	In-Person	Phone	Online	All
Don't Know	24.1%	16.6%	25.2%	20.4%
Refused	0%	14.1%	0%	7.4%
Unclear	9%	2.9%	0%	3.8%
Total	29.3%	28.2%	25.2%	28%

Note: The total for each modality will not necessarily equal the sum because it is likely that the same individual provided different types of missing data and can therefore be counted twice in the calculations across types of missing data

Table #9 narrative summary: Table 9 illustrates the patterns of “don’t know” responses for each modality by the question item on the survey. The top 3 questions with the “don’t know” responses were provided for each modality for comparison purposes.

Table #9 title: Top 3 “Don’t Know” Response Items by Modality

Modality	% Missing Data	Item
In Person	8.1	Q56: In the last 3 months, did your service plan include...none/some/most/all of the things that are important to you?
	5.2	Q54: Using any number from 0 to 10, where 0 is the worst help from case managers possible and 10 is the best help from case managers possible, what number would you use to rate the help you get from your case manager?
	4.5	Q15: Sometimes staff cannot come to work on a day that they are scheduled. In the last 3 months, when staff could not come to work on a day that they were scheduled, did someone let you know that your personal assistant or behavioral health staff could not come that day?
Online	10.7	Q15: Sometimes staff cannot come to work on a day that they are scheduled. In the last 3 months, when staff could not come to work on a day that they were scheduled, did someone let you know that your personal assistant or behavioral health staff could not come that day?
	10.5	Q47: Would you recommend the homemakers who help your family and friends if they needed homemaker services? Would you say you would recommend the homemaker...
	7.1	Q33: In the last 3 months, did you feel personal assistants or behavioral health staff knew what kind of help you needed with everyday activities, like getting ready in the morning, getting groceries, or going places in your community?
Modality	% Missing Data	Item
Phone	4.9	Q42: In the last 3 months, how often were the explanations homemakers gave you hard to understand because of an accent or the way they spoke English? Would you say...
	3.8	Q33: In the last 3 months, did you feel personal assistants or behavioral health staff knew what kind of help you needed with everyday activities, like getting ready in the morning, getting groceries, or going places in your community?
	3.1	Q64: In the last 3 months, was there a person you could talk to if someone hurt you or did something to you that you didn't like?

Table #10 narrative summary: Table 10 illustrates the patterns of “Refused” responses during the interview for each modality.

Table #10 title: Most Common “Refuse” Response Items by Modality

Table 10: Most Common “Refused” Response Items by Modality

Modality	%	Item
In Person	1.0	Q86: What is the highest grade or level of school that you have completed?
Phone	12.9	Q15: Sometimes staff cannot come to work on a day that they are scheduled. In the last 3 months, when staff could not come to work on a day that they were scheduled, did someone let you know that your personal assistant or behavioral health staff could not come that day?
	2.4	Q44: In the last 3 months, how often did homemakers listen carefully to you? Would you say...
	2.3	Q33: In the last 3 months, did you feel personal assistants or behavioral health staff knew what kind of help you needed with everyday activities, like getting ready in the morning, getting groceries, or going places in your community?

Table #11 narrative summary: Table 11 illustrates the patterns of “Unclear” responses for each modality.

Table #11 title: Most Common “Unclear” Response Items by Modality

Table 11: Most Common “Unclear” Response Items by Modality

Modality	%	Item
In Person	2.9	Q62: In the last 3 months, how often did this ride arrive on time to pick you up? Would you say...
	2.7	Q45: In the last 3 months, did you feel homemakers knew what kind of help you needed?
	2.0	Q80: In the last 3 months, did you take part in deciding what to do with your time each day?
Phone	9.1	Q78a: In the last 3 months, when you wanted to, how often could you do things in the community that you like? Would you say...
	1.5	Q36: Would you recommend the personal assistants who help you to your family and friends if they need help with everyday activities? Would you say you recommend the personal assistants...
	1.0	Q78: In the last 3 months, when you wanted to, how often could you do things in the community that you like? Would you say...

Table #12 narrative summary: Table 12 illustrates the differences in perceptions as it relates to the Disadvantages and Advantages of each modality as reported by members.

Table #12 title: Advantages and Disadvantages of Each Modality

**Table 12: Advantages and Disadvantages of Each Modality**

Survey Type	In-Person	Phone	Online
Cost per Survey	Most expensive: Interviewer training, time, travel	Moderately expensive: Interviewer training, time	Least expensive: Automated distribution & collection
Response Rate	Highest	Moderate	Lowest
Ability to Probe	High: personal interaction	Moderate: interviewer can clarify responses	None: no interviewer to probe/clarify responses
Interviewer Bias	Increased likelihood of bias	Some bias	None: completed without interviewer
Geographic Reach	Local/Regional Restriction	Wide geographic coverage	Wide geographic coverage
Data Collection Timeline	Slowest: scheduling and conducting interviews	Moderate: calling and interviewing	Fastest: immediate delivery and respondents complete in own time
Other Considerations	Manual data entry Capture demeanor, emotions, & behaviors	Decreased use of landline phones Short notice for respondents	Less friendly to low-literacy audiences Not accessible for those without internet

## FINDINGS AND FUTURE USE

### A. HCBS Program Findings From Round 2

## Lessons Learned & Recommendations

This study sought to assess the performance of three modalities in the administration of the CAHPS survey to a sample of Medicaid recipients in Colorado. Each modality came with its unique advantages and disadvantages, many of which have been discussed in this report. With regard to the performance of the modalities as measured by several indicators of efficiency, several key findings emerged. When examining response rates and cognitive screen fail rates, the in-person and phone modalities performed better than the online modality. The online survey produced the lowest response rate and the highest cognitive fail rate, making it the least efficient modality on these two measures. However, the online survey had the lowest average survey duration period and expended the fewest personnel hours compared to the phone and in-person modalities making it superior on these measures. There are several factors that should be taken into consideration when evaluating the efficiency findings. First, when comparing modalities by personnel hours expended, it is important to consider the sample sizes obtained. When calculating the average number of personnel hours needed to obtain one completed survey, the phone modality appeared to be the most efficient. However, response rates would likely greatly increase and personnel hours substantially decrease even further for the online

modality if the survey was to be administered electronically as intended. Therefore, if this (or other surveys) were to be administered using an online format in the future, every effort should be made to obtain email addresses of potential participants or distribute the survey using a commonly-used web address to increase efficiency for that modality.

Several interesting findings were also revealed when assessing modality performance by the quality of data obtained. By comparing the samples obtained by modality to their respective sampling frames, this study examined the representativeness of samples obtained. Findings revealed that all samples differed from their sampling frames on the distribution across age categories. In addition, the in-person and phone samples contained an over-representation of EBD waiver clients and an under-representation of SLS clients in comparison to their respective sampling frames. The online sample had an over-representation of clients with guardians when compared to the online sampling frame. When looking at these findings in sum, the three modalities performed similarly in terms of sample representativeness, regardless of sample sizes and other considerations previously discussed. However, when comparing samples obtained to sampling frames, response rates and sample sizes should always be considered and it is important to note that the online modality performed much poorer than the other two modalities in this capacity. It should also be noted that a certain level of cognition is required for the completion of online surveys, given the limited availability of prompts. This caveat should be considered when assessing the sample obtained from the online modality, in that it may not be reflective of the population being sampled as a whole.

The quality of data obtained was also measured by comparing the modalities by the samples obtained in terms of the distribution of demographic and other client characteristics. The goal of these analyses was to determine whether certain characteristics make a client more or less likely to complete the survey using a specific modality. When excluding differences found between the sampling frames and comparing the modalities by the samples obtained, Spanish American clients were least likely to take the online survey, while clients with the “Unknown” race designation were least likely to take the in-person survey. Additional findings suggest that the in-person modality is preferred among older clients, while younger clients prefer the online modality based on sample distributions. Moreover, EBD waiver clients were least likely to take the online survey, whereas the SLS clients were least likely to take the phone or in-person survey. Clients without guardians were most likely to take the phone survey, while clients with guardians were most likely to take the online survey. Caution should be used when interpreting these findings given the low case counts in each demographic category of the online sample. With this caveat in mind, further research would be needed to explore the true “success” of the online modality specifically by utilizing more effective survey distribution strategies as previously discussed. Moreover, the adaptations made to the cognitive screen (close-ended vs. open-ended questions) may have caused some respondents to complete the survey that would have otherwise been screened out in the phone or in-person modalities where open-ended responses were required to proceed.

Data quality was also explored by examining patterns of missing data. As stated previously, the prevalence of missing data was so low that only limited exploratory analysis could be performed. While few cases of missing data were identified, the themes in the missing data trends suggest that the question areas with greater (albeit objectively low) prevalence of missing data pertained to the quality of services being performed, communication with providers, and satisfaction with services provided. The descriptive analyses revealed that the overall prevalence and themes of missing data were similar across modalities. However, findings did reveal that the online survey generated the smallest proportion of respondents with missing data, and this is likely due to the nature of that modality. This finding suggests that the less direct contact a respondent has with an interviewer, the more likely they are to respond to sensitive questions. Again, a larger online sample size would be needed to confirm this assertion.

The final measures of modality performance examined for this study were client perceptions related to ease of use and overall preference. The ease of use measure was only available for the phone and online modalities. Findings revealed that respondents of the phone survey were more likely than respondents of the online survey to suggest that their respective modality was easy to use, while online survey respondents were more likely than phone survey respondents to indicate that the modality they used was difficult to navigate. When assessing preferred modality for online and phone respondents, both groups of respondents indicated that the modality they used in the current study would be the same one that they would prefer in the future. Similarly, both groups indicated very little interest in using the in-person modality. One consideration that should be included when interpreting these findings is that the non-intrusive nature of the online modality comports itself to greater self-selection among participants. For this modality, there was no requirement to opt-in or out verbally to someone reaching you on the phone. Solicitation to participation was entirely impersonal, which likely means this sub-sample of online participants is biased toward this modality at the outset of the study. It should also be noted that given the demographics of the target population and anecdotal information that was shared with researchers from clients during the study, the online modality was not the preferred approach for most clients.

**Key Findings:**

**Table 12: Advantages and Disadvantages of Each Modality**

Survey Type	In-Person	Phone	Online
Cost per Survey	Most expensive: Interviewer training, time, travel	Moderately expensive: Interviewer training, time	Least expensive: Automated distribution & collection
Response Rate	Highest	Moderate	Lowest
Ability to Probe	High: personal interaction	Moderate: interviewer can clarify responses	None: no interviewer to probe/clarify responses
Interviewer Bias	Increased likelihood of bias	Some bias	None: completed without interviewer
Geographic Reach	Local/Regional Restriction	Wide geographic coverage	Wide geographic coverage
Data Collection Timeline	Slowest: scheduling and conducting interviews	Moderate: calling and interviewing	Fastest: immediate delivery and respondents complete in own time
Other Considerations	Manual data entry Capture demeanor, emotions, & behaviors	Decreased use of landline phones Short notice for respondents	Less friendly to low-literacy audiences Not accessible for those without internet

2. Describe how the state used the information learned from Round 2 of the survey, that is, what the state did with the new knowledge and what impact the Round 2 information had on the HCBS program(s) or other state activities. Please include programmatic, policy-oriented, and funding-related impacts, if relevant. The State plans to use this data to determine “best practices” for administering HCBS surveys in the future. The programmatic effect will likely have an impact in surveys in the 2018-19 state fiscal year. Currently, we are looking at ways in which policy can be impacted with these person and family-centered approaches. Our state currently participates in the NCI surveys (NCI-AD and NCI-IDD). We would like to use this approach with those surveys as well, assuming our partners are willing to include both an electronic and phone modality for NCI.

1. Describe the key practices that contributed to success in implementing Round 2 of the survey. We were able to work with existing vendors that administer the in-person survey for the NCI-AD and NCI-IDD (Vital Research). They are very experienced working with these populations and understand the complexity of interviewing clients with special needs. They were also willing to collaborate with our vendor, OMNI who was responsible for the entirety of the analysis and reporting for the project.

2. Describe the key challenges to using the survey in Round 2 and how these were addressed. We encountered some issues around using the cognitive screening tool for the online (electronic) version. We worked with Truven and have a better understanding of how this can better be implemented and create more efficiencies moving forward.

We had trouble completing our goal of 100 online surveys. We had to pull an additional data set to reach a statistically significant sample.

Since we contracted directly with OMNI, they then had to subcontract to the telephone vendor, which made communication more challenging. We had to make requests to through OMNI in order to fulfill requests by CMS for telephone-specific practices and protocol. It created a lag in our work timeline, but not enough to impact the project as a whole.

3. Describe what was learned from Round 2 about using proxy respondents when surveying persons with disabilities. We learned that it was difficult to measure this with the electronic modality. We also have to be very clear on the definition of a “proxy” as some may be hired help, which creates a conflict of interest as the survey asks questions related to quality of care associated with their work with the clients and the clients perspective.

4. Describe what was learned from Round 2 about other aspects of using the CAHPS HCBS Survey to assess the experience of care for individuals in HCBS programs, for example, electronic administration mode and peer interviews. [We learned that ultimately having a variety of modalities is ideal to serve a wider range of populations and preferences.](#)

B. Intended Future State Use of the HCBS CAHPS Survey [It is unclear if Colorado will continue to use the CAHPS HCBS survey in the future as we have similar surveys currently in place that address similar quality of care needs for the HCBS populations.](#)

1. Does the state intend to use the HCBS CAHPS Survey in its HCBS programs in the future?

Yes

No

Currently undecided

2. If the state intends to use the HCBS CAHPS Survey in its HCBS programs in the future, explain how.

3. If the state does not intend to use the HCBS CAHPS Survey in its HCBS programs in the future, explain why. [We currently use the NCI surveys.](#)

## PHR Pilot Site findings and Recommendations

Which parts of the system worked:

- a. The requirements of the PHR were as follows:
  - i. A calendar module where the member can add individual calendar events to the PHR calendar.
  - ii. The ability to export calendar events (both individual events and ALL calendar events) from the PHR, so that the member can import the events into other third-party calendars, such as Outlook and/or Google calendar.
  - iii. The ability to view a subset of their clinical encounter data (admit date, discharge date, hospital location, and attending provider name), as supplied by CORHIO and QHN.
  - iv. The ability to view the most recent version of the completed person-centered plan, which is transmitted in a .csv form, as supplied by the Department.
  - v. The ability to view the most recent version of the ULTC 100.2 Assessment as supplied by the Department.
  - vi. The ability to view the most recent service unit's data (units of service approved, utilized, and remaining, for each service as supplied in the Department's .csv file.
  - vii. The ability for members to provide feedback regarding their experience, good and bad, in an electronic format directly to FEI and CORHIO, so that improvements may be documented and considered for future PHR efforts.
  - viii. The ability to upload/import external file attachments from their desktop, laptop, and/or mobile device into the PHR. They will also be able to assign the upload attachment to a category, if desired.
  - ix. Messaging feature allowing the member and their case manager to communicate via secure messaging within the Personal Health Record.
  - x. Specific Care Manager role, allowing them to view recent hospitalizations and claims information of their clients.

What worked:

- xii. The system appeared to be easy to use but the number of people who actually attempted to use it was very small. Less than 10 and it may have been no more than 5 actual users and only 1 person indicated they requested help to actually use the PHR, but no one complained of it being too difficult to use.
- xiii. Secure messaging was a very helpful tool to facilitate communication between the stakeholders who created the PHR, FEI and CORHIO, and those who used it as well as between Case Manager and Member Beneficiary. Due to the small sample size conclusions and recommendations are made based on experience with portals/PHR's nationwide as follows:
  1. Portal use, PHR's are a form of portals, has been very low in the US Healthcare system. 7% of all available portals are actually used by participants. The small sample size would be reflective of US averages.
  2. While the sample size is not statistically conclusive it could be enhanced from the single digit use level by adding secure texting to link activity in the portal via a single

click. Portal users say that they use it most often when they get an update via email or text link from a provider that they can simply click and auto sign on to and that should be considered here.

xiii. All other listed functions above worked at some level of success.

#### Unanticipated Difficulties:

- xiv. The small sample size used was not anticipated and significantly impacted the results of the pilot. A sample size of statistical significance would have been much better for drawing appropriate conclusions and making relevant recommendation going forward as well as identifying fixable problems during the pilot.
- xv. Only one person indicated they needed training which is either an indication of effective training or it may have meant that most didn't use the system to its' fullest extent. During a full implementation of the PHR it would be best to demonstrate capabilities at go-live and potentially do a follow up survey to insure that use was meeting expectations across all categories of benefits.
- xvi. No measurement system was put in place to look at how often the system was used, and which features were most popular at the end user level.
- xvii. A lack of awareness on the availability of the PHR also contributed to the small sample size. The time delays between the initial focus groups and the actual test were very long in part due to the funding delays on the grant itself. Focus groups were done in year 1 of the grant building momentum for the stakeholders but actual pilot site testing didn't occur until year 4 without repeating the focus group process in their original form.
- xviii. Stakeholder electronic status was much worse than was expected. The PHR was setup to run on a desktop level computer or at the very least a tablet of sufficient size, mobile phones and capabilities. Most member beneficiaries, or care givers, only had access to their smart phones, and an app was created by FEI for this purpose, but screen size is a limiting factor and probably detracted from the amount of real value they could get from it and may predetermined their belief about the value of a PHR when it is introduced to them again post pilot. Action will be needed to highlight form factor use in a full implementation.

#### Lessons Learned:

- xix. Lesson 1. PHR as a concept, and as a technical construct, when we started down the path with TEFT seemed like a natural fit for distributing clinical and waiver-based information to stakeholders. The track record of PHR, in other clinical and commercial environments, used over the past 4 years that we have worked on TEFT has not proven to be a highly valued source of information. The primary problem isn't that the information isn't rich enough it is because the process of accessing it is not within the daily workflow of users.
  - 1. The Care manager user: A care manager engaging with a patient/beneficiary or their family/care giver works within the software they use for care management. Asking

them to work within that software environment and to engage through a separate PHR adds more work but not more value as we tested it.

2. The beneficiary user: PHR's are widely used across the clinical healthcare spectrum and the average patient with more than one problem or disease has up to 7 different PHR's they are subscribed to. As a result, current PHR use is approximately 7% nationwide. PHR's are provided by a beneficiary's primary care doctor, multiple specialists, multiple care locations such as hospitals or clinics, and other non-clinical providers for example. Most have chosen not to use any of them.
  3. The family member/care giver: Also has the same number of PHR's to use/manage as the beneficiary themselves. One of two scenarios occur that reduce the value of the PHR. The first is that clinical data may not be well understood in the context presented. IE: you can see a lab result or information on an encounter with a provider, but you don't understand what the data means so you just call the provider's office. The second issue is that most people engaged with the ID/DD or EBD populations are very invested in the process of caring for their loved ones and have a text or phone call-based relationship with their providers and there isn't enough value in the PHR to use it. In addition, many people with disabilities, and especially young adults, are very engaged in advocating for themselves with or without the engagement of a family member or designated care giver. As a result, many in the designated population already know more information than the PHR gives them.
- xx. Lesson 2. Secure email was used as a communication tool between stakeholders during the pilot. Secure email is far better than non-secure email but not state of the art in today's environment causing a decline in usefulness. People will use email but the open rate of email averages just over 20% versus the 99% open rate of a text. There should have been an ability to use secure texting to not only due basic communication with stakeholders but also to use as a pointer to the PHR with a direct link in the text when there was relevant information or a need for a response.
- xxi. Lesson 3. A four-year plan with technology should include significant flexibility to account for the pace of change in the technology world. TEFT was a four-year grant. We laid out a plan for the four elements of TEFT in applying for the grant and we made a mistake in not suggesting that we build the technology in two primary parts. The first part would have been building a foundational data base (could have been a single data base or a single conceptual data based being able to draw from multiple sources as needed) that would house the information needed to be available for distribution. Clinical data, eLTSS data elements, survey data, waiver data, and HCBS data would have been gathered in this database. The second part of the TEFT plan should have included a way to add technical flexibility in the distribution and communication models to be used. Technology is changing so rapidly that any plan beyond a year should allow for changes even if the implementation timeline is greater than a year. We should have stated our intention to do a yearly assessment of the available technologies for information distribution and not made final decision on what we were going to ultimately implement until we got to the point of doing the pilot itself. If we had done that I believe we would have ended up choosing a secure texting communication tool with pointers and reminders to the appropriate information we gathered in the database.

- xxii. Lesson 4. Funding delays in federal grants are a reality and should be managed accordingly. Deliverables were carried over multiple years, and needed to be in some situations, but at the end of each year there should have been something that the stakeholders saw real value in that would allow them to stay more engaged in the process even if funding for the next step were delayed. During stakeholder engagements, live or via direct communication, we should have set the expectation and kept them up to date on technology and feature changes that were happening that would affect the delivery of the benefits being proposed to them through the TEFT grant. Time and delays could have been used to our advantage by showing the focus groups how the grant was allowing us to stay current on technology and processes that would meet their needs. Focus groups done upfront were necessary to introduce TEFT. Yearly, or at the time of any significant technology change, updates would have been a good way to keep them engaged in how the process was going.
- xxiii. Lesson 5. With the two waiver populations involved, ID/DD and EBD, it would have been more effective to first show the PHR and TEFT technology set to the care givers & beneficiaries in the population. They were the group most likely to benefit, not care managers who made up the primary audience in the original focus groups, and they were in a unique position to communicate what they would use not just what we thought they might.
- xxiv. Lesson 6. The use of a calendar inside the PHR was ill advised given how people use calendars in their daily life. Calendars for most people are on their smart phones and should have been integrated instead of supplementing with an additional calendar. For those who don't have smart phones, they also did not have access to the PHR through other means anyway. It is important to give the care manager/coordinator a way to setup appointments with and for the beneficiary. The use of a secure texting with links to available appointments and a downloadable calendar event exists today and has for at least 24 months. The time, costs, and roll out of a separate calendar was ill advised.
- xxv. Lesson 7. The person-centered plan was distributed via a csv file which is not an effective way of providing information to beneficiaries. With the bulk of users reporting that they don't have desktop computers the use of a csv file that would likely have to be converted to an excel file wasn't going to work. Doing a survey prior to technology planning would have uncovered this problem. The possibility also exists to use a pdf file format that is editable instead of the csv file.
- xxvi. Lesson 8. Beneficiaries and care givers were far more interested in HCBS information and the ability to apply and monitor it then they were clinical data. They expect their care manager and providers to manage their clinical needs while they clearly see themselves as the primary managers for the waiver benefits.

Recommendations in the next phase of the PHR:

- xxvii. Conduct a survey of technology capabilities before any further design or build of the PHR is done. Will provide for a much better understanding of who can and should use the PHR.

- xxviii. Incorporate the use of the secure texting communication tool provided with the implementation of the Aerial system. Make sure the technology chosen and implementation process used are scalable for a much broader Medicaid beneficiary population to accommodate future growth.
- xxix. Do additional focus groups to get perspective about information needs that beneficiaries and other stakeholders would like included in the PHR. This could include medical dictionary access, waiver application information, disease management information or anything else that would enhance value and drive use.

## FASI Round 2 – LOC Comparative Analysis Report

## Executive Summary

The Colorado Department of Health Care Policy and Financing (the Department) contracted with HCBS Strategies to pilot its new assessment and support planning process for Medicaid-funded long-term services and supports (LTSS). The Department undertook this effort because of concerns about the reliability and validity of the items in the current tool used for eligibility determinations, the Uniform Long-Term Care (ULTC) 100.2; the lack of consistent collection of all necessary data; and the ability of the current tool to support a person-centered process, including the development of a person-centered Support Plan.

The first two phases of this pilot collect data necessary to replicate current level of care (LOC) criteria used for establishing eligibility for Medicaid home and community-based services (HCBS) waivers and create objective criteria where none exist. This report compares individual ULTC 100.2 items and matching items in the new process, which includes Functional Assessment Standardized Items (FASI). The next report will summarize the effort to replicate or create new LOC. The findings in this report will be helpful in informing the variations of eligibility criteria that should be tested in the next phase. During this phase, case managers at Single Entry Point (SEP) agencies, Community Centered Boards (CCBs), and Department of Human Services (DHS) assessed participants using both the ULTC 100.2 and items from the new process. Data was collected for 84 participants.

The ULTC 100.2 items and comparable items in the new process were collapsed into binary measures (i.e., only having two choices) that only indicated whether a participant scored as being impaired enough that the item counted towards meeting LOC. In the ULTC 100.2, these binary variables are (a) did not meet LOC (a score of 0 or 1) and (b) met LOC (a 2 or 3). The level of agreement across the items ranged from 50% to 94% with the lowest levels of agreement being for wheelchair mobility and the highest being for bathing. The data also showed surprising patterns, including people scoring as being completely independent on the new tools but scoring in the two most impaired categories in the ULTC 100.2.

The report discusses some of the challenges with the structure of the items and training for the ULTC 100.2 and how this might account for some of the differences for all the items. For example, case managers are trained that the ULTC 100.2 scoring for mobility should exclude the use equipment (e.g., a cane or walker). This results in case managers scoring individuals only needed equipment such as a cane or a walker to walk independently as being impaired on the ULTC 100.2 mobility item, but as being independent or only needing set up help on the FASI mobility items.

The findings highlight the fundamental flaws of the ULTC 100.2 and reinforce the need to change this tool. The findings also demonstrate how challenging it will be to replicate the LOC decisions using the ULTC 100.2 because of these flaws.

## Background

The Colorado Department of Health Care Policy and Financing (the Department) contracted with HCBS Strategies to pilot its new assessment and support planning process for Medicaid-funded long-term services and supports (LTSS). The Department undertook this effort because of concerns about the reliability and validity of the items in the current tool used for eligibility determinations; the lack of consistent collection of all necessary data; and the ability of the current tool to support a person-centered process, including the development of a person-centered Support Plan. Senate Bill 16-192, which was enacted after the Department began this effort, added a legislative mandate to create a new LTSS assessment tool. A report that describes the approach for developing these new processes and an overview of the processes can be found at

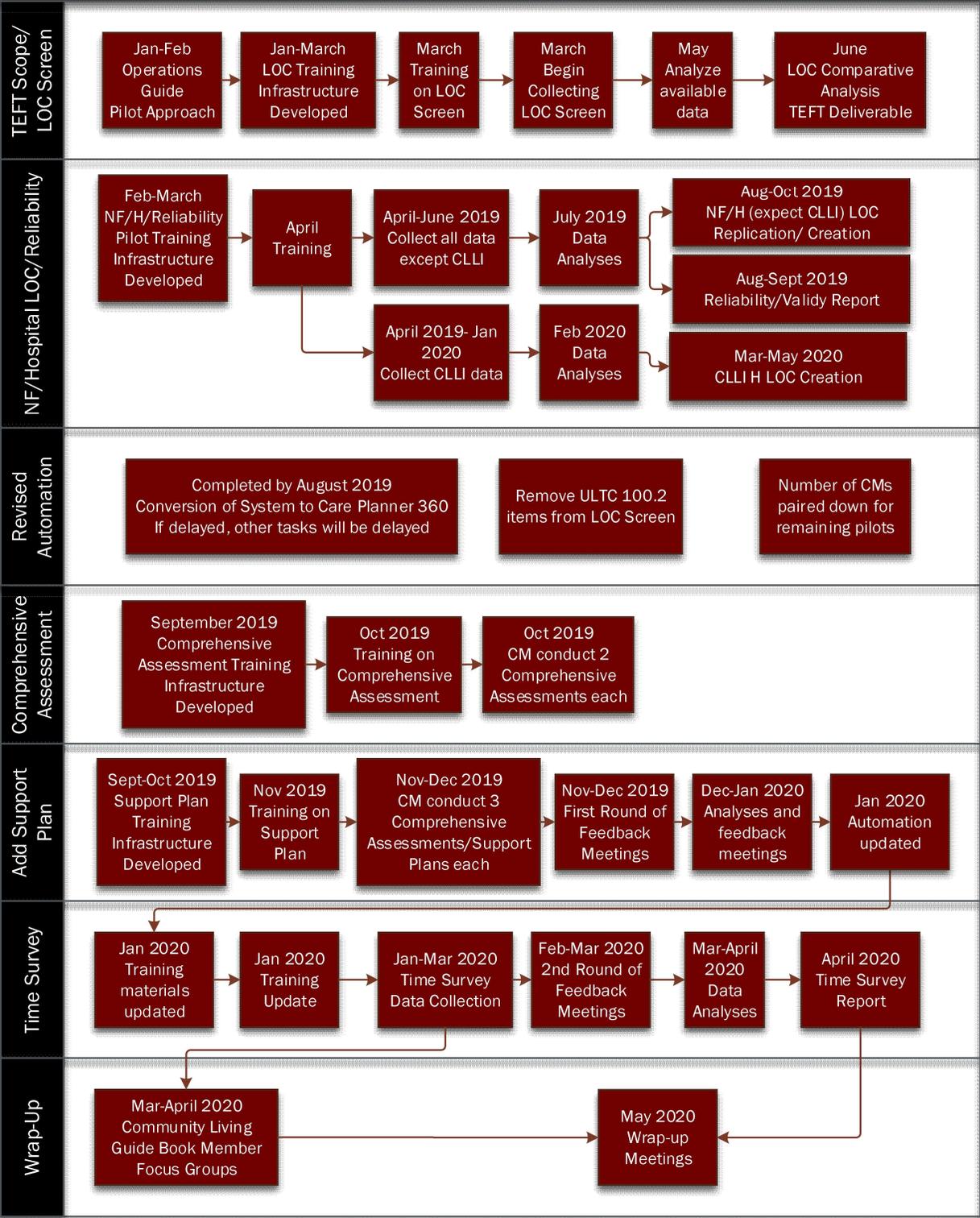
<https://drive.google.com/file/d/1hwCLxMFZFz1LrdwN2HBagsPshBGvKa-j/view?usp=sharing>.

The pilot consists of the following phases that are shown in **Exhibit 1**:

- The first phase will collect data for analyses necessary to fulfill key business operations, notably, determining eligibility for Medicaid LTSS in Colorado. This phase has two components:
  - The level of care (LOC) pilot only collected data using the LOC Screen, which includes both current assessment tool items from the ULTC 100.2 and the items designed to replace them. The purpose of this pilot was to compare the items across the current and new tools and comply with Center for Medicare & Medicaid Services' (CMS) Testing Experience Functional Tools (TEFT) grant. This report presents the findings from this phase.
  - The Nursing Facility (NF)/Hospital (H)-LOC and Reliability pilot collects data necessary to fulfill the following functions:
    - Replicating the NF-LOC for adults
    - Establishing a more objective NF-LOC criteria for children
    - Establishing objective and prospective H-LOC for all of Colorado's relevant HCBS waivers
    - Testing the reliability, including the inter-rater reliability, of select items in the new assessment that may be used for NF-LOC, H-LOC, and resource allocation and that have not previously been tested for reliability.
- The second phase assesses the workflow of the process using the automation that is intended to be used in the field, Care Planner 360, an automated care planning platform in the Aerial Case Management Data System provided by Meddecision.

# Work Flow For the Assessment/Support Plan Pilots

Revised 6-11-19



The overall approach of the pilot should allow the case managers to become familiar with the new assessment and support planning processes in stages that build upon each other rather than requiring that they learn the entire process at once. The LOC pilot allowed case managers to have significant exposure to scoring the items that are most central to establishing LOC: Activities of Daily Living (ADLs), behavior, and memory/cognition. The next phase introduces the rest of the assessment items.

The primary goal of the first two pilot phases is to replicate current LOC criteria and create objective criteria where none exist. While determining these LOC thresholds will primarily rely on the items collected during the LOC pilot, data collected in the second pilot will likely help explain eligibility changes for some people and help determine what actions to take. This will be done by establishing a highly flexible modeling file that will be used to test many variations of eligibility criteria.

This report only compares individual ULTC 100.2 items and matching FASI items rather than modeling eligibility. These findings will be helpful in informing the variations of eligibility criteria that should be tested.

It is important to note that while the data indicate substantial differences across the tools, these differences may not require a change to determining eligibility because even if eligibility changes for a single item, participants may still be made eligible based on other items.

## Methodology

The purpose of the LOC pilot was to allow the case managers to become skilled at collecting data that was central to determining LOC eligibility. These data also provided a first look at how items from the current tool, the ULTC 100.2, and items from the new assessment process compare. It was also important to be able to collect data to meet CMS grant data collection and reporting requirements.

## Items

To replace the ULTC 100.2, the Department needed to collect information using new items that could be used to replicate eligibility criteria. Thus, the pilot collected data on both the ULTC 100.2 and new items.

Most of the new items used for eligibility came from a CMS-funded effort that was part of the Testing Experience and Functional Tools (TEFT) Demonstration Grant. This effort developed a database of items called the Functional Assessment Standardized Items (FASI).

After cross-walking the FASI and ULTC 100.2 items and eligibility thresholds, several areas for which new items were needed to capture information on subtle sub-criteria within the ULTC 100.2 were identified. For example, the ULTC 100.2 toileting item contains the phrase, “or is unable to keep self and environment clean”. It is possible for a case manager to interpret this as an independent criterion and score individuals who are otherwise independent on toileting, but having difficulty keeping either themselves or their environments clean, as exceeding the eligibility threshold. Assessment items were added to assess whether this sub-criteria impact eligibility.

## Case Managers

Case managers were drawn from the existing pool of case managers at the Single-Entry Points (SEPs), Community Centered Boards (CCBs), and the Department of Human Services (DHS) who currently conduct assessments. An invitation that emphasized the importance of this effort and the compensation available went out to all case managers. One hundred and twenty-three

case managers expressed a desire to participate. Information on the number of assessments these case managers conducted in the past year and the populations they assessed was obtained, and this information was utilized to select a pool of 68 case managers based on the following criteria:

- The total number of assessments they had conducted in the past year.
- The populations they had assessed. Almost all case managers who assessed children and/or people with mental health issues were selected to ensure enough assessments with these individuals were conducted.
- The geographic area they served, to have a range of agencies and representation in urban, rural, and frontier settings.

This pool of 68 case managers also included four additional case managers who, after not being selected, indicated that the number of assessments they would be conducting would be substantially higher than the information from the past year predicted.

Case managers participated in a day-long training that was held in-person at five sites across the state. Because of severe weather issues (Colorado's first "Bomb Cyclone") one of these trainings had to be conducted via webinar. Several case managers withdrew from the pilot because they left their agencies or had other family or work pressures they did not originally anticipate. At the end of this phase, 60 case managers were participating in the pilot.

### Participants

Participants were selected from scheduled ULTC 100.2 initial assessments or reassessments.

Because we wanted all case managers to have a chance at conducting at least one pilot assessment, we targeted assessments for 25 individuals in the following three categories: Individuals with intellectual and developmental disabilities (IDD), older adults and adults with physical disabilities elderly, blind, and disabled (EBD)), and individuals with mental health conditions. We also targeted ten assessments with children.

Case managers were instructed to offer all participants with whom they have scheduled assessments the opportunity to participate in the pilot to prevent them from introducing a selection bias (e.g., only selecting cases that would take less time to assess). Because older adults and individuals with intellectual and developmental disabilities (IDD) represent a larger portion of the selected case managers' caseloads, we authorized assessments for a smaller portion of these individuals.

All assessments were conducted between March 12 and April 2, 2019. Upon conclusion, 84 of the targeted 85 assessments were completed; one assessment from the EBD population fell through at the last minute.

### Activities of Daily Living (ADLs)

#### Use of Observation, Self-Report, and Proxy

Case managers were asked to code whether they used observation, the participant's self-report, or the report of a proxy, typically a caregiver but could also be another individual the participant chose to be at the assessment, to determine how to score an ADL. In determining support needs on an ADL, direct observation was generally found to be more valid than the other two

approaches<sup>1</sup>. While direct observation of the actual performance of an ADL may not be possible because of privacy (notably for bathing or toileting) or safety (such as having a participant, who has difficulty transferring demonstrate a transfer), observation of similar movements (e.g., having someone raise their hands over their head to try to identify potential challenges in washing hair) can be used to assist in the scoring. In these cases, the case manager could combine information from observation with information from the participant and/or a proxy to determine a score.

Even if the case manager could directly observe a participant performing an ADL, it is often helpful to obtain information from the participant and available proxies because performance can often vary and there may be factors that increase dependency (e.g., more difficulty later in the day when the participant is fatigued).

**Exhibit 2** presents the case managers’ reports of the approaches they used to score ADLs for the 84 participants in this sample. In addition to summarizing the percentage of assessments for which the approach was used, the exhibit also presents the percentage of assessments using all three approaches, two of the three, and only one.

**Exhibit 2: Methods Used by Case managers to Code ADLs**

ADL	% Using Observation	% Using Self Report	% Using Proxy	% Using 1 Approach	% Using 2 Approaches	% Using All 3
Bathing	7%	64%	62%	68%	31%	1%
Upper Body Dressing	5%	64%	60%	71%	29%	0%
Lower Body Dressing	5%	65%	57%	73%	27%	0%
Footwear	6%	64%	60%	70%	30%	0%
Toilet Hygiene	4%	61%	56%	80%	20%	0%
Toilet Transfer	4%	62%	54%	81%	19%	0%
Menses Care	17%	54%	45%	86%	13%	1%
Walk 10 Feet	38%	66%	47%	58%	33%	9%
Walk 50 Feet	21%	64%	49%	70%	26%	4%
Walk 150 Feet	12%	66%	50%	74%	25%	1%
Walk Outside Home	38%	68%	49%	79%	17%	4%
Wheel 50 Feet	31%	44%	69%	63%	31%	6%
Wheel 150 Feet	13%	44%	69%	75%	25%	0%
Transfer- Roll Left & Right	11%	64%	50%	75%	25%	0%
Transfer- Sit to Lying	7%	62%	52%	80%	19%	1%
Transfer- Lying to Sitting on Side of Bed	7%	62%	52%	79%	21%	0%
Transfer- Sit to Stand	26%	62%	54%	62%	35%	4%
Transfer- Chair/Bed to Chair Transfer	10%	63%	51%	77%	21%	1%
Car Transfer	7%	64%	51%	77%	23%	0%
Eating	5%	63%	56%	77%	21%	1%
Tube Feeding	10%	60%	51%	81%	18%	1%
Average across all ADLs	14%	61%	54%	74%	24 %	2%

Case managers used self-report the most (61% of the time across all the ADLs), followed by proxy report (54%). On average, observation was only documented as being used 14% of the time across all ADLs. Scoring based on observation was highest for the mobility items, which were as high as 38%. However, because case managers are highly likely to see the participant

<sup>1</sup> Mlinac, M. E., & Feng, M. C. (2016). Assessment of Activities of Daily Living, Self-Care, and Independence. *Archives of Clinical Neuropsychology*, 31(6), 506-516. doi:10.1093/arclin/acw049

walk, observe that the participant is unable to walk, or observe that there is some difficulty with walking, even this number appears very low.

Case managers only used one source of information most of the time (74% across all ADLs) and this source of information was typically self-report or proxy. Case managers reported using all three sources of information very rarely (2%).

This pattern of conducting assessments likely hurts the reliability and validity of both the ULTC 100.2 and the new items, including the FASI items. If these findings remain consistent across the entire pilot, the Department should launch a robust effort to train case managers to use multiple sources of information, especially observation. In doing so, the Department will need to recognize that conducting a robust assessment using multiple sources of information will likely take longer than just using one source of information.

### Overview of the Structure of the Coding of the ADLs

#### ULTC 100.2

The ULTC 100.2 ADL items included a definition of the ADL (e.g., bathing is defined as, “The ability to shower, bathe or take sponge baths for the purpose of maintaining adequate hygiene”) and responses options that range from 0 to 3 that correspond to:

- Score 0: No support needed
- Score 1: Minimal support needed
- Score 2: Moderate support needed
- Score 3: Total Support needed

Except for the response option for 0 (“The client is independent in completing activity safely”), the exact language for the other response options was different for each ADL.

#### FASI

FASI generally consisted of two parallel items for each ADL. The first item asked about the participant’s usual performance in the past three days. The second item asked about the participant’s most dependent episode experienced in the past 30 days.

For both items, the level of impairment was coded as follows:

**06. Independent-** Participant completes the activity by him/herself with no assistance from helper.

- ✓ Participant DOES NOT require assistance or preparation prior to engaging in the activity
- ✓ Participant DOES NOT require review or follow-up after the activity has been completed
- ✓ Participant completes the activity without assistance from a support person
- ✓ Participant has not required support for the item in the past 30 days

**00. Age Appropriate Dependence-** Only used for children ages 4-17. - The participant requires a level of support consistent with his/her age.

- ✓ Requires assistance that is consistent with a child of the same chronological age who does not have a disability
- ✓ If assistance that is required is related to a disability related issue, DO NOT use this score. Instead, select the score that most accurately reflects the level of support needed.

**05. Setup or Clean-up Assistance-** Helper sets up or cleans up; participant completes activity. Helper assists only prior to or following the activity.

- ✓ Participant REQUIRES assistance or preparation prior to engaging in the activity
- ✓ And/or Participant REQUIRES review or follow-up after the activity is complete

- ✓ Participant then completes the activity without assistance from a support person
- ✓ Includes cueing via telephone to set-up or clean-up

**04. Supervision or Touching Assistance (Including cueing and/or visual prompts)-** Helper provides verbal cues or touching/steadying assistance as participant completes activity. Assistance may be provided throughout the activity or intermittently.

- ✓ Support person monitors some or all parts of the activity
- ✓ Support person provides cues, verbal direction or visual prompts during some or all steps of an activity
- ✓ Support person provides NO physical assistance beyond simple touch cues during the activity

**03. Partial/Moderate Assistance-** Helper does less than half the effort. Helper lifts, holds, or supports trunk or limbs, but provides less than half the effort.

- ✓ The participant functionally contributes more than half the effort for the activity

**02. Substantial/Maximal Assistance-** Helper does more than half the effort. Helper lifts or holds trunk or limbs and provides more than half the effort.

- ✓ The participant functionally contributes less than half the effort for the activity

**01. Dependent-** Helper does all of the effort. Participant does none of the effort to complete the task OR the assistance of 2 or more helpers is required for the participant to complete the activity.

- ✓ Participant DOES NOT contribute functionally to any part of the activity
  - ✓ The participant may contribute symbolically to the activity
  - ✓ Support person completes the activity for the participant
- OR
- ✓ Two or more support persons are required to complete the task

**07. Not Attempted- Participant refused-** Participant refuses support to complete the task. The activity was completed unsuccessfully by the participant, but the participant refuses support in this area and the activity is not completed by another person OR the participant refuses to answer *and there is no other source of information*.

**08. Not Attempted due to short-term medical condition or safety concerns-** For example, when a participant is undergoing treatment for an acute exacerbation of a mental, physical, or behavioral health issue and does not perform a task due to temporary safety concerns related to their illness or condition.

**88. Not applicable-** Participant does not engage in this activity regularly; support not required. The activity is not completed by another person.

Because the FASI items were not designed nor tested for children under age 18, the age-appropriate dependence category was created for this assessment. The next phase will assess whether this change impacted the reliability of these items.

### Comparing the ULTC 100.2 and FASI ADL Items

A participant can meet LOC using the ULTC 100.2 if she or he receives a score of moderate or total support (score of 2+) in at least 2 of 6 ADL's or at least moderate support (score of 2+) in either Behaviors or Memory/Cognition. Because the critical comparison between the ULTC 100.2 and FASI items for this effort was whether the switch to the new item may impact eligibility, the ULTC 100.2 response options were collapsed into binary categories:

- Do not exceed ULTC 100.2 threshold – a score of 0 or 1
- Exceed ULTC 100.2 threshold – a score of 2 or 3

A challenge with the structure of the current ULTC 100.2 items is that for some of the ADLs, the response option for a score of 2 contains additional criteria that are not in the ADL definition. For example, the response option for toileting introduces the construct of keeping the toileting environment clean. In the discussion of the ADLs below, we always present the definition for each ADL and present components of the response options if they include new criteria.

Some of the ULTC 100.2 items consist of multiple criteria embedded within a single item that are broken into separate items in FASI. For example, the ULTC 100.2 toileting item includes both toilet transfer and adjusting clothing and cleaning oneself. In these cases, we provide comparisons to all relevant FASI items.

For each of the ADLs, a table is provided (**Exhibit 4** for bathing) that presents the frequency for the FASI item followed by the percentage of participants who received that score who exceed the ULTC 100.2 impairment threshold. In comparing the items across tools, it is expected that participants scoring as independent or needing only setup or clean-up assistance on the FASI would not exceed the ULTC 100.2 threshold and that everyone who scores as partial/moderate assistance or more impaired would exceed the threshold (see **Exhibit 3a**). In talking with case managers, it became clear that some interpreted the supervision/touching assistance response as being sufficient to exceed the ULTC 100.2 threshold, while others did not. Thus, it is expected that some, but not all, of the participants receiving these scores would exceed the threshold.

**Exhibit 3a: Expected Outcomes when Comparing FASI and ULTC 100.2 ADL Items- Responses Included in Analyses**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent		0%		0%
Age appropriate dependence		0%		0%
Setup or Clean-up Assistance		0%		0%
Supervision or touching assistance		Between 0%-100%		Between 0%-100%
Partial/moderate assistance		100%		100%
Substantial/maximal assistance		100%		100%
Dependent		100%		100%

Also provided are the responses scored as activity not attempted- refused, activity not attempted- health/safety, and not applicable as part of this table (see **Exhibit 3b**). These responses were

excluded from the analyses because they do not provide enough information to make a comparison with the binary ULTC 100.2 item. Because of this, case managers were trained to only use these responses if there was no other information for scoring the support needed to safely complete the task.

**Exhibit 3b: Expected Outcomes when Comparing FASI and ULTC 100.2 ADL Items- Responses Not Included in Analyses**

Not included:	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Activity not attempted-refused				
Activity not attempted-health/safety				
Not applicable				

A second table is also provided (**Exhibit 5** for bathing) that collapses the response options for the FASI items into two categories: exceeds and does not exceed the eligibility threshold. Because in comparing the ULTC 100.2 and FASI response options it was not clear where to draw the line for the FASI threshold, we present thresholds for two different cutoffs: 1) supervision/touching assistance or more impaired and 2) a more stringent threshold of needing partial assistance or being more impaired. The second table provides the following summary information:

- The amount of agreement across the FASI and ULTC 100.2 thresholds. For example, a score of 90% would mean that 90% of the time case managers gave the participants scores on the ULTC 100.2 and corresponding FASI items that resulted in the same outcome (either exceeding or not exceeding the threshold). This concept is similar to measuring the correlation across the two items.
- The percentage of people who exceed one threshold who did not exceed the other.

**Bathing**

The following are the definitions for bathing:

- **ULTC 100.2:** The ability to shower, bathe or take sponge baths for the purpose of maintaining adequate hygiene.
- **FASI:** The ability to bathe self in shower or tub, including washing, rinsing, and drying self. Does not include transferring in/out of tub/shower.

The major difference between the items is that while the FASI item explicitly excludes getting in and out of the tub or shower (which is typically the most challenging part of bathing), the ULTC 100.2 item is vague about this issue. The definition of bathing does not address it. Scoring option 1, “The client requires oversight help or reminding; can bathe safely without assistance or supervision but may not be able to get into and out of the tub alone,” implies that this should be considered, however, this is not a factor that is mentioned in the other scoring choices. Thus, case managers may interpret whether to consider the assistance needed getting in and out of a tub or shower differently.

**Exhibit 4** shows that while everyone scored as needing substantial assistance or higher on the FASI item exceeded the ULTC 100.2 LOC threshold, one of the eight people (12%) who were scored as needing partial/moderate assistance did not exceed the threshold and another person scored as independent did exceed the threshold.

**Exhibit 4: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Bathing**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	31	3%	28	0%
Age appropriate dependence	2	50%	2	50%
Setup or Clean-up Assistance	5	0%	3	0%
Supervision or touching assistance	7	57%	10	40%
Partial/moderate assistance	8	88%	10	100%
Substantial/maximal assistance	20	100%	19	100%
Dependent	10	100%	11	100%
<b>Total</b>	<b>83</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 5** shows a high level, but nowhere near perfect, agreement across the FASI and ULTC 100.2 items when they are collapsed into binary choices, with the level of agreement being slightly higher when using the lower supervision cutoff for the Usual Performance measure. The level of agreement is slightly lower for the Most Dependent measure.

**Exhibit 5: Level of Agreement Among Binary Summary ULTC 100.2 and FASI Measures for Bathing Items**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	93.80%	90.10%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	92.60%	92.60%
% who score supervision or higher who do <u>not</u> exceed ULTC 100.2	8.89%	16.00%
% who exceed ULTC 100.2 who do <u>not</u> score supervision or higher	8.89%	0.00%
% who score partial assistance or higher who do <u>not</u> exceed ULTC 100.2	2.63%	5.00%
% who exceed ULTC 100.2 who do <u>not</u> score partial assistance or higher	11.90%	9.52%

Almost 9% of the people who exceeded the FASI supervision threshold did not exceed the ULTC 100.2 threshold. Conversely, almost 9% of the individuals who exceeded the ULTC 100.2 threshold did not exceed the FASI threshold. When using the more stringent partial/moderate assistance threshold for FASI, less than 3% did not exceed the ULTC 100.2 threshold, however, nearly 12% of the participants who exceeded the ULTC 100.2 threshold did not exceed the more stringent FASI criteria.

#### Dressing

The following are the definitions using for dressing:

- **ULTC 100.2 Item:** The ability to dress and undress as necessary. This includes the ability to put on prostheses, braces, anti-embolism hose or other assistive devices and includes fine motor coordination for buttons and zippers. Includes choice of appropriate clothing for the weather. Difficulties with a zipper or buttons at the back of a dress or blouse do not constitute a functional deficit.
- FASI separates dressing into three different items:
  - **Upper Body Dressing FASI Item:** The ability to put on and remove shirt or pajama top. Includes buttoning, if applicable.
  - **Lower Body Dressing FASI Item:** The ability to dress and undress below the waist, including fasteners. Does not include footwear
  - **Footwear FASI Item:** The ability to put on and take off socks and shoes or other footwear that are appropriate for safe mobility.

Case managers’ interpretations about how to score the ULTC 100.2 dressing item may differ based on whether and how they consider assistive devices in scoring the ULTC 100.2 items. While case managers are trained to score with or without the use of equipment, the current assessment does not enforce this requirement in its structure, allowing for case managers to score differently regarding assistive devices.

**Exhibits 6 through 11** present the analyses that compares each of the individual FASI items to the single ULTC 100.2 dressing item.

Dressing: Upper Body

**Exhibit 6: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Upper Body Dressing**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	40	10%	38	11%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	8	25%	7	29%
Supervision or touching assistance	6	33%	9	22%
Partial/moderate assistance	12	58%	8	38%
Substantial/maximal assistance	11	82%	14	86%
Dependent	6	100%	7	100%
<b>Total</b>	<b>84</b>		<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	0		0	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 7: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Upper Body Dressing Items**

<b>Scenario</b>	<b>Usual</b>	<b>Most Dependent</b>
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	79.50%	75.90%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	81.90%	81.90%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	32.35%	36.84%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	20.00%	20.00%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	24.14%	24.14%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	26.67%	26.67%

Dressing: Lower Body

**Exhibit 8: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Lower Body Dressing Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	43	7%	40	8%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	7	14%	5	20%
Supervision or touching assistance	3	33%	7	14%
Partial/moderate assistance	9	67%	7	57%
Substantial/maximal assistance	12	83%	12	83%
Dependent	9	100%	11	100%
<b>Total</b>	<b>84</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>100%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	0		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 9: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Lower Body Dressing Items**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	86.70%	80.70%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	87.90%	86.70%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	21.21%	0.30%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	13.33%	13.33%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	16.67%	16.67%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	16.67%	16.67%

Dressing: Footwear

**Exhibit 10: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Footwear Dressing Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	44	9%	39	8%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	6	33%	6	33%
Supervision or touching assistance	2	50%	5	20%
Partial/moderate assistance	7	43%	7	29%
Substantial/maximal assistance	10	80%	12	75%
Dependent	12	92%	13	92%
<b>Total</b>	<b>82</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>98%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	2		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

### Exhibit 11: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Footwear Dressing Items

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	80.70%	77.00%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	80.70%	80.70%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	25.81%	35.14%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	20.69%	17.24%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	24.14%	28.13%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	24.14%	20.69%

#### Most Impaired Score on Any of the Three Dressing Options

Because the ULTC 100.2 item includes all aspects of dressing, creating an item that combines the three FASI items most closely replicates the construct the ULTC 100.2 measures. This was accomplished by creating an item that selected the score across the three items for which the participant scored as being most dependent.

**Exhibit 12** shows how this item compares with the ULTC 100.2 threshold for dressing. One of the six individuals (17%) who only needed setup or clean-up assistance on any of the dressing items was scored as exceeding the ULTC 100.2 threshold even though the definition for that item would appear to preclude setup or clean-up assistance. This may be explained by case managers complying with instructions to select scoring option 1 or 2 in the ULTC 100.2 if dressing cannot be completed in a “reasonable amount of time.” Conversely several participants who needed partial/moderate assistance or substantial/maximal assistance were scored as not being impaired enough to exceed the ULTC 100.2 threshold.

**Exhibit 12: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Highest Dressing Item Score**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	35	0%	32	8%
Age appropriate dependence	0	0%	0	0%
Setup or Clean-up Assistance	6	17%	4	20%
Supervision or touching assistance	6	63%	9	14%
Partial/moderate assistance	8	71%	10	57%
Substantial/maximal assistance	14	93%	12	83%
Dependent	14	100%	16	100%
<b>Total</b>	<b>83</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 13** shows that the rates of agreement among the binary versions of the FASI and ULTC 100.2 items are substantially lower than was found for bathing. The highest agreement was found when using the Usual Performance item and the more restrictive partial/moderate assistance threshold.

The case managers appeared to score the ULTC 100.2 item more narrowly than the combined FASI items, with far more people who exceeded the FASI threshold not exceeding the ULTC 100.2 threshold than vice versa.

**Exhibit 13: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Highest Dressing Item Score**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	83.10%	77.10%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	88.00%	85.50%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	30.95%	38.30%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	3.33%	3.33%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	22.22%	26.32%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	6.67%	6.67%

**Toileting**

The items for toileting differ across the two tools:

- **ULTC 100.2 Item:** The ability to use the toilet, commode, bedpan or urinal. This includes transferring on/off the toilet, cleansing of self, changing of apparel, managing an ostomy or catheter and adjusting clothing.

- **Scoring Option 2:** The client needs physical assistance or standby with toileting, including bowel/bladder training, a bowel/bladder program, catheter, ostomy care for safety or is unable to keep self and environment clean.
- **FASI** has two items that correspond to toileting:
  - **FASI Toilet Hygiene:** The ability to maintain perineal/feminine hygiene, adjust clothes before and after using toilet, commode, bedpan, urinal. If managing ostomy, include wiping opening but not managing equipment.
  - **FASI Toilet Transfer:** The ability to safely get on and off a toilet or commode.

**Exhibits 14-15** present the findings for the comparison of the ULTC 100.2 toileting item to the FASI toilet hygiene, while **Exhibits 16-17** presents the comparison to the FASI toilet transfer item. Because the ULTC 100.2 item combines both hygiene and transfer, both **Exhibits 18-19**, which compare the ULTC 100.2 toileting item to the highest score received on either item contained in the FASI, are also provided.

Toilet Hygiene

**Exhibit 14: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Toilet Hygiene**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	45	2%	42	2%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	6	17%	6	17%
Supervision or touching assistance	5	60%	7	43%
Partial/moderate assistance	6	83%	4	50%
Substantial/maximal assistance	6	50%	9	56%
Dependent	12	100%	13	100%
<b>Total</b>	<b>81</b>		<b>82</b>	
<b>Total as % of all assessments</b>	<b>96%</b>		<b>98%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	1		0	
Not applicable	2		2	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 15: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Toilet Hygiene**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	90.00%	86.25%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	88.75%	87.50%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	20.69%	30.30%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	8.00%	8.00%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	16.67%	23.08%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	20.00%	20.00%

Toilet Transfer

**Exhibit 16: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Toilet Transfer Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	62	16%	59	15%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	2	0%	2	0%
Supervision or touching assistance	2	50%	4	25%
Partial/moderate assistance	5	80%	4	75%
Substantial/maximal assistance	3	67%	3	67%
Dependent	5	100%	7	100%
<b>Total</b>	<b>80</b>		<b>80</b>	
<b>Total as % of all assessments</b>	<b>95%</b>		<b>95%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	4		4	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 17: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Toilet Transfer Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	83.50%	82.30%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	83.50%	84.80%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	20.00%	27.78%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	45.45%	40.91%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	15.38%	14.29%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	50.00%	45.45%

Most Impaired Score on Either FASI Toileting Item

**Exhibit 18**, which compares the binary version of the ULTC 100.2 toileting item against a measure that combines the highest score on the FASI toilet hygiene and toilet transferring items, suggest inconsistency in the ULTC 100.2 scoring:

- Two people (4% of the people in this category) who were scored as being independent on both toilet transfer and toilet hygiene were scored as exceeding the ULTC 100.2 threshold.
- One (17%) of the six people scored as only needing setup or clean-up assistance exceeded the ULTC 100.2 threshold.
- Two (29%) of the seven participants scored as needing partial/moderate assistance did not exceed the threshold for the ULTC 100.2.
- Three (60%) of the five people scored as needing substantial/maximal assistance did not exceed the threshold for the ULTC 100.2.

**Exhibit 18: Comparison of the FASI Frequency to the Binary ULTC 100.2 Item for the Combined Toilet Hygiene and Toilet Transfer Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	47	4%	42	4%
Age appropriate dependence	0	0%	0	0%
Setup or Clean-up Assistance	6	17%	6	17%
Supervision or touching assistance	5	60%	7	29%
Partial/moderate assistance	7	71%	6	50%
Substantial/maximal assistance	5	40%	8	50%
Dependent	13	100%	14	100%
<b>Total</b>	<b>83</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

Exhibit 19 shows that using the Usual Performance item and setting the threshold as needing supervision or more assistance resulted in the most agreement with the ULTC 100.2 toileting item.

**Exhibit 19: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for the Combined Toilet Hygiene and Toilet Transfer Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	88.00%	81.90%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	86.70%	85.50%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	23.33%	34.26%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	11.54%	11.54%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	20.00%	25.00%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	23.08%	19.23%

Other ULTC 100.2 Toileting Sub-Criteria

The major difference between the FASI and ULTC 100.2 items is that the ULTC 100.2 definition includes transferring on and off the toilet while the FASI toilet hygiene item excludes transferring. In addition, the ULTC 100.2 item also contains the following constructs that are not part of the FASI item:

- The ULTC 100.2 definition appears to suggest that if someone can manage an ostomy or catheter without assistance, he or she should be scored as independent. However, some

case managers may consider these as assistive devices and score someone based on their performance if they did not use the device.

- Some case managers may consider the ability to keep the environment clean as a separate criterion for the ULTC 100.2, while others may base the score solely on the ADL definition.

To assess whether any of the sub-criteria in the ULTC 100.2 impact LOC eligibility, items were included to directly assess them:

- How often does the participant need assistance to keep him/herself clean after toileting? (Findings are presented in **Exhibit 20**).
- How often does the participant need assistance to keep toilet environment clean? (Findings are presented in **Exhibit 21**).

Also provided are the following related FASI items:

- **Bladder Toileting Program-** Is a toileting program (e.g., scheduled toileting or prompted voiding) currently being used to manage the participant’s urinary continence? (**Exhibit 22**).
- **Managing Bladder Equipment** - Does the participant require assistance with managing equipment related to bladder incontinence (e.g., urinal, bedpan, indwelling catheter, intermittent catheterization, incontinence pads/ undergarments)? (**Exhibit 23**).
- **Bowel Program-** Is a bowel program currently being used to manage the participant’s bowel continence? (**Exhibit 24**).
- **Managing Bowel Equipment-** Does the participant require assistance with managing equipment related to bowel incontinence (e.g., ostomy, incontinence pads/ undergarments)? (**Exhibit 25**).

The modeling process will determine if any of these items are necessary to replicate LOC.

**Exhibit 20: Comparison of the Scores to the Binary ULTC 100.2 Item for Keep Self Clean After Toileting Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Never	41	0%
Daily	35	71%
Weekly	5	20%
Monthly or less	3	0%
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	
<b>Not included:</b>		
Not applicable	0	
<b>Overall Total</b>	<b>100%</b>	

**Exhibit 21: Comparison of the Scores to the Binary ULTC 100.2 Item for Keep Environment Clean After Toileting Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Never	23	0%

Daily	31	68%
Weekly	23	22%
Monthly or less	7	0%
Total	84	
Not applicable	0	

**Exhibit 22: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Bladder Toileting Program Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Yes	12	58%
No	72	26%
Total	84	
Total as % of all assessments	100%	
<b>Not included:</b>		
Not applicable	0	
Overall Total	84	

**Exhibit 23: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Managing Bladder Equipment Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Yes	24	75%
No	20	10%
Total	44	
Total as % of all assessments	52%	
<b>Not included:</b>		
Not applicable	40	
Overall Total	84	

**Exhibit 24: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Bowel Program Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Yes	10	70%
No	74	26%
Total	84	
Total as % of all assessments	100%	
<b>Not included:</b>		
Not applicable	0	
Overall Total	84	

**Exhibit 25: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Managing Bowel Equipment Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Yes	22	77%
No	20	15%
Total	42	
Total as % of all assessments	50%	
<b>Not included:</b>		
Not applicable	42	
Overall Total	84	

**Menses Care**

The pilot also captured information on a new item, menses care, that is not measured in either the ULTC 100.2 or FASI. This item was constructed to be similar to FASI items. The definition of menses care is, “Able to use tampons, sanitary napkins, or other menses care items; wash hands after changing tampons or sanitary napkins; change tampons or sanitary napkins as required to keep the blood from soaking through clothes; and properly dispose of tampons or sanitary napkins.”

**Exhibit 26** presents summary data which suggests that menses care is a need for about 1/5 (17) of the assessments and that more than 1/3 (6) of the people needing menses care cannot do so independently.

**Exhibit 26: Summary of Responses to Menses Care Item**

FASI Codes	Usual Frequency	Most Dependent Frequency
Independent	11	11
Age appropriate dependence	0	0
Setup or Clean-up Assistance	0	0
Supervision or touching assistance	1	1
Partial/moderate assistance	0	0
Substantial/maximal assistance	0	0
Dependent	5	5
Total	17	17
Total as % of all assessments	20%	20%
<b>Not included:</b>		
Activity not attempted-refused	0	0
Activity not attempted-health/safety	0	0
Not applicable	67	67
Overall Total	84	84
Overall Total as % of all assessments	100%	100%

**Mobility**

There is a single item for mobility in the ULTC 100.2, while six FASI mobility constructs were included in the pilot tool:

- **ULTC 100.2 Definition:** The ability to move between locations in the individual’s living environment inside and outside the home. Note: Score client’s mobility without regard to use of equipment other than the use of prosthesis.

- **Scoring Option 2:** The client is not safe to ambulate or move between locations alone; needs regular cueing, stand-by assistance, or hands on assistance for safety both in the home and outside the home.
- **FASI** contains the following mobility items:
  - **Walk 10 feet:** Once standing, the ability to walk at least 10 feet in a room, corridor or similar space.
  - **Walk 50 feet with two turns:** Once standing, the ability to walk at least 50 feet and make two turns.
  - **Walk 150 feet:** Once standing, the ability to walk at least 150 feet in a corridor or similar space.
  - **Walk Outside the Home-** Code the participant's level of independence for walking OUTSIDE OF THE HOME based on the furthest distance that the participant could walk "Independent" above. If no distance was selected as "Independent", code for walking 10 feet outside the home
  - **Wheel 50 feet with two turns:** Once seated in a wheelchair/scooter, the ability to wheel at least 50 feet and make two turns.
  - **Wheel 150 feet:** Once seated in wheelchair/scooter, the ability to wheel at least 150 feet in a corridor or similar space.

Case managers are trained that the ULTC 100.2 instruction “Score client’s mobility without regard to use of equipment other than the use of prosthesis” indicates that anyone using equipment (e.g., a cane or walker) would score 2 or higher, therefore, the item would count towards LOC.

In contrast, FASI assesses the need for assistance with mobility with the use of assistive devices. It asks a series of questions that assess walking and wheeling (when the person uses a wheelchair) separately and whether the need for assistance increases as the length walked or wheeled increases or changes in the environment in which the mobility occurs.

#### Walking

**Exhibit 27** shows that 91% (76) of the 84 people assessed walked.

**Exhibit 27: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Participant Walks Item**

Does participant walk?	Frequency	% of Responses
Yes	76	91%
No, and walking is not indicated	6	7%
No, but walking is indicated in the future	2	2%

Of those who walked, about 85% (64 individuals) were able to walk independently for ten feet using the FASI item (see **Exhibit 28**). However, nearly a fifth of these people (12 individuals) exceeded the ULTC 100.2 threshold for mobility. Everyone who was scored as needing supervision or greater support exceeded the ULTC 100.2 threshold.

**Exhibit 28: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Walk 10 Feet Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	64	19%	57	14%
Age appropriate dependence	2	0%	2	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	2	100%	6	67%
Partial/moderate assistance	4	100%	7	71%
Substantial/maximal assistance	3	100%	4	100%
Dependent	0	0%	0	0%
<b>Total</b>	<b>75</b>		<b>76</b>	
<b>Total as % of all assessments</b>	<b>89%</b>		<b>90%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	9		8	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

Exhibit 29 shows that while there is more than 80% agreement across these items when they are converted into binary measures, unlike the other ADLs, when there is disagreement it is because the ULTC 100.2 mobility scores are much more liberal than this FASI item.

**Exhibit 29: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Walk 10 Feet Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	83.50%	84.90%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	80.80%	82.20%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	0.00%	23.53%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	57.00%	61.90%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	0.00%	18.18%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	67.00%	42.86%

When measuring the ability to walk 50 feet, very few of the participants who were scored as independent exceeded the ULTC 100.2 threshold. However, a sizeable number of the participants who were scored as needing supervision/touching assistance, partial/moderate assistance or even substantial/ maximal assistance were not scored as exceeding the ULTC 100.2 threshold.

**Exhibit 30: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Walk 50 Feet Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	44	5%	50	10%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	13	46%	12	58%
Partial/moderate assistance	7	57%	6	50%
Substantial/maximal assistance	9	89%	5	100%
Dependent	0	0%	0	0%
<b>Total</b>	<b>74</b>		<b>74</b>	
<b>Total as % of all assessments</b>	<b>88%</b>		<b>88%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	10		10	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

Although the FASI walk 50 feet item has roughly the same level of agreement to the ULTC 100.2 mobility item as the walk 10 feet item, the disagreements in scoring go both ways (see Exhibits 29 and 31).

**Exhibit 31: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Walk 50 Feet Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	82.20%	82.20%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	83.60%	79.50%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	37.93%	34.78%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	10.00%	25.00%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	25.00%	27.27%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	40.00%	60.00%

The FASI item that assessed the ability to walk 150 feet performed similarly to the 50 feet item when compared to the binary version of the FASI mobility item (see Exhibit 32).

**Exhibit 32: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Walk 150 Feet Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	45	7%	40	10%
Age appropriate dependence	1	0%	0	0%
Setup or Clean-up Assistance	0	0%	1	0%
Supervision or touching assistance	9	44%	13	58%
Partial/moderate assistance	6	50%	5	50%
Substantial/maximal assistance	5	80%	7	100%
Dependent	3	67%	3	0%
<b>Total</b>	<b>69</b>		<b>69</b>	
<b>Total as % of all assessments</b>	<b>82%</b>		<b>82%</b>	
<b>Not included:</b>				
Activity not attempted-refused	1		1	
Activity not attempted-health/safety	2		1	
Not applicable	12		13	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 33: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Walk 150 Feet Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	80.90%	81.20%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	82.40%	82.60%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	43.48%	42.86%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	18.75%	5.88%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	35.71%	33.33%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	43.75%	41.18%

The FASI walking outside the home item displayed a similar pattern to the 50- and 150-foot items (see **Exhibit 34**) but produced substantially lower levels of agreement with the ULTC 100.2 binary item than the other two measures (see **Exhibit 35**).

**Exhibit 34: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Walk Outside the Home Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	47	15%	42	10%
Age appropriate dependence	0	0%	0	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	13	31%	15	40%
Partial/moderate assistance	8	38%	9	22%
Substantial/maximal assistance	4	100%	6	83%
Dependent	0	0%	1	100%
<b>Total</b>	<b>72</b>		<b>73</b>	
<b>Total as % of all assessments</b>	<b>86%</b>		<b>87%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	1		1	
Not applicable	11		10	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 35: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Walk Outside of Home Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	70.80%	71.20%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	77.80%	75.30%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	56.00%	54.84%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	38.89%	22.22%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	41.67%	50.00%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	58.82%	55.56%

**Wheeling**

It was surprising to find that two of the 16 people (12.5%) who used a wheelchair/scooter did not exceed the ULTC 100.2 mobility threshold (see **Exhibit 36**) because these people should have been scored on their ability to walk without the wheelchair/scooter.

**Exhibit 36: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Use Wheelchair/Scooter Item**

Does the participant use a wheelchair/scooter?	Frequency	% who exceed mobility LOC
Yes	16	87.50%
No	68	22.10%

This finding became even more puzzling because these two individuals who did not exceed the ULTC 100.2 mobility threshold used motorized wheelchairs/scooters (see **Exhibit 37**). This may be explained if the equipment being used is a scooter instead of a motorized wheelchair. In

this case a participant could ambulate independently inside and outside but use a motorized scooter for ambulating outdoors (e.g. for convenience at the grocery store).

**Exhibit 37: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Type of Wheelchair/Scooter Item**

Type of wheelchair/scooter	Frequency	% who exceed mobility LOC
Manual	10	100.00%
Motorized	6	66.70%

The finding that two people using wheelchairs who were classified on the FASI items as being independent in using that wheelchair who did not exceed the ULTC 100.2 mobility threshold suggests that some case managers were scoring the ULTC 100.2 mobility item based on their performance with the assistive device (See Exhibits 38 and 40).

**Exhibit 38: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Wheel 50 Feet Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	7	71%	6	67%
Age appropriate dependence	0	0%	0	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	3	100%	3	100%
Partial/moderate assistance	0	0%	1	100%
Substantial/maximal assistance	2	100%	1	100%
Dependent	4	100%	5	100%
<b>Total</b>	<b>16</b>		<b>16</b>	
<b>Total as % of all assessments</b>	<b>19%</b>		<b>19%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	68		68	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 39: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Wheel 50 Feet Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	68.80%	75.00%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	50.00%	56.20%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	0.00%	0.00%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	35.71%	28.57%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	0.00%	0.00%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	57.14%	50.00%

**Exhibit 40: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Wheel 150 Feet Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	6	67%	5	60%
Age appropriate dependence	0	0%	0	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	2	100%	2	100%
Partial/moderate assistance	0	0%	1	100%
Substantial/maximal assistance	3	100%	2	100%
Dependent	5	100%	6	100%
<b>Total</b>	<b>16</b>		<b>16</b>	
<b>Total as % of all assessments</b>	<b>19%</b>		<b>19%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	68		68	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 41: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Wheel 150 Feet Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	75.00%	81.20%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	62.50%	68.80%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	0.00%	0.00%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	29.00%	21.00%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	0.00%	0.00%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	43.00%	36.00%

**Transferring**

Similar to mobility, the ULTC 100.2 includes a single item for transferring, while FASI includes several items.

- **ULTC 100.2 Definition:** The physical ability to move between surfaces: from bed/chair to wheelchair, walker or standing position; the ability to get in and out of bed or usual sleeping place; the ability to use assisted devices for transfers. Note: Score client’s mobility without regard to use of equipment.”
- **FASI** assesses transferring using the following items that measure increasingly challenging components of transferring:
  - **Roll left and right-** The ability to roll from lying on back to left and right side and return to lying on back on the bed (see **Exhibits 42** and **43**).

- **Sit to lying-** The ability to move from sitting on side of bed to lying flat on the bed (see **Exhibits 44 and 45**).
- **Lying to sitting on side of bed-** The ability to safely move from lying on the back to sitting on the side of the bed with feet flat on the floor, and with no back support (see **Exhibits 46 and 47**).
- **Sit to stand-** The ability to safely come to a standing position from sitting in a chair or on the side of the bed (see **Exhibits 48 and 49**).
- **Chair/Bed-to-Chair Transfer -** The ability to safely transfer to and from a bed to a chair (see **Exhibits 50 and 51**).
- **Car transfer-** The ability to transfer in and out of a car or van on the passenger side. Does not include the ability to open/close door or fasten seat belt (see **Exhibits 52 and 53**).

The two ULTC 100.2 response items that establish whether the participant meets the LOC threshold (i.e., receiving a score of 2 rather than 1) are particularly problematic:

- **Scoring Option 1:** The client transfers safely without assistance most of the time but may need standby assistance for cueing or balance; occasional hands on assistance needed.
- **Scoring Option 2:** The client transfer requires standby or hands on assistance for safety; client may bear some weight.

Case managers had different interpretations regarding whether someone who only needed supervision should be scored as 1 or 2 and the response options could be read to support either interpretation.

The level of agreement between the FASI item and the individual transferring items range from 79% to 87%, with the highest level of agreement being with the chair/bed-to-chair transfer item using the supervision threshold (see **Exhibits 50 and 51**). After these tables a measure that compares the greatest level of impairment on any of the transferring items is presented.

**Exhibit 42: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Roll Left & Right Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	64	17%	60	17%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	7	71%	7	29%
Partial/moderate assistance	4	75%	6	100%
Substantial/maximal assistance	2	100%	3	67%
Dependent	6	100%	7	100%
<b>Total</b>	<b>84</b>		<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	0		0	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 43: Breakdown of 100.2 and LOC Screen Scores Across Different Scenarios for LOC Roll Left & Right Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	83.10%	80.70%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	79.50%	84.30%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	15.79%	26.09%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	40.74%	37.04%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	8.33%	6.25%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	59.26%	44.44%

**Exhibit 44: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Sit to Lying Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	65	17%	60	15%
Age appropriate dependence	2	0%	2	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	5	100%	5	60%
Partial/moderate assistance	5	80%	6	83%
Substantial/maximal assistance	2	100%	5	80%
Dependent	4	100%	5	100%
<b>Total</b>	<b>83</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 45: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Sit to Lying Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	85.20%	84.00%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	79.00%	82.70%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	6.25%	19.05%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	42.31%	34.62%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	9.09%	12.50%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	61.54%	46.15%

**Exhibit 46: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Lying to Sitting on Side of Bed Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	67	19%	59	15%
Age appropriate dependence	2	0%	1	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	2	100%	6	33%
Partial/moderate assistance	3	100%	6	83%
Substantial/maximal assistance	4	100%	5	100%
Dependent	4	100%	5	100%
<b>Total</b>	<b>82</b>		<b>82</b>	
<b>Total as % of all assessments</b>	<b>98%</b>		<b>98%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	2		2	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 47: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Lying to Sitting on Side of Bed Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	83.80%	82.70%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	81.20%	85.20%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	0.00%	22.73%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	50.00%	34.62%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	0.00%	6.25%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	57.69%	42.31%

**Exhibit 48: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Sit to Stand Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	59	12%	50	8%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	1	100%	0	0%
Supervision or touching assistance	6	50%	13	39%
Partial/moderate assistance	4	75%	5	60%
Substantial/maximal assistance	8	100%	9	100%
Dependent	1	100%	2	100%
<b>Total</b>	<b>80</b>		<b>80</b>	
<b>Total as % of all assessments</b>	<b>95%</b>		<b>95%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	1		1	
Not applicable	3		3	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 49: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Sit to Stand Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	84.80%	82.30%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	84.80%	86.10%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	21.05%	34.48%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	34.78%	17.39%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	7.69%	12.50%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	47.83%	33.33%

**Exhibit 50: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Chair/Bed-to-Chair Transfer Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	62	15%	56	11%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	0	0%	0	0%
Supervision or touching assistance	6	67%	8	63%
Partial/moderate assistance	3	100%	3	33%
Substantial/maximal assistance	6	50%	9	100%
Dependent	5	100%	6	100%
<b>Total</b>	<b>83</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 51: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Chair/Bed to Chair Transfer Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	86.60%	86.60%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	84.10%	84.10%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	11.11%	23.81%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	33.33%	22.22%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	0.00%	11.11%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	48.15%	40.74%

**Exhibit 52: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Car Transfer Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	47	2%	42	10%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	1	17%	1	0%
Supervision or touching assistance	5	60%	9	33%
Partial/moderate assistance	11	83%	8	38%
Substantial/maximal assistance	7	50%	11	73%
Dependent	4	100%	5	80%
<b>Total</b>	<b>76</b>		<b>77</b>	
<b>Total as % of all assessments</b>	<b>90%</b>		<b>92%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	1		1	
Not applicable	7		6	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

**Exhibit 53: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Car Transfer Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	78.70%	75.00%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	80.00%	78.90%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	40.74%	45.45%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	23.81%	18.18%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	36.36%	37.50%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	33.33%	31.82%

**Exhibit 54** compares the binary ULTC 100.2 transferring item to the greatest level of impairment on any of the transferring items. Surprisingly, almost a tenth of the participants classified as being independent on all of the transferring items (4 individuals) were classified as exceeding the ULTC 100.2 threshold. Conversely, sizeable numbers of people needing hands-on assistance with one or more of the transferring items did not exceed the ULTC 100.2 threshold.

**Exhibit 54: Comparison of the FASI Scores to the Binary ULTC 100.2 Item on the Item that Combines all the Transferring Items**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	45	9%	40	8%
Age appropriate dependence	0	0%	0	0%
Setup or Clean-up Assistance	1	0%	1	0%
Supervision or touching assistance	9	33%	11	18%
Partial/moderate assistance	10	40%	10	50%
Substantial/maximal assistance	8	88%	10	70%
Dependent	10	90%	11	91%
<b>Total</b>	<b>83</b>		<b>83</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>99%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		1	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

The level of agreement for these two items was relatively low (see **Exhibit 55**) with the greatest agreement using the FASI partial assistance or greater threshold. The ULTC 100.2 threshold was slightly more restrictive than the partial or higher threshold and substantially more restrictive than the supervision or higher threshold.

**Exhibit 55: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Highest Transfer Score Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	78.30%	74.70%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	81.90%	83.10%
% who score supervision or higher who do <b>not</b> exceed ULTC 100.2	37.84%	42.86%
% who exceed ULTC 100.2 who do <b>not</b> score supervision or higher	14.81%	11.11%
% who score partial assistance or higher who do <b>not</b> exceed ULTC 100.2	28.57%	29.03%
% who exceed ULTC 100.2 who do <b>not</b> score partial assistance or higher	25.93%	18.52%

**Eating**

The following are the definitions for the eating items in the two tools:

- **ULTC 100.2:** The ability to eat and drink using routine or adaptive utensils. This also includes the ability to cut, chew and swallow food. Note: if a person is fed via tube feedings or intravenously, check box 0 if they can do independently, or box 1, 2, or 3 if they require another person to assist.
- **FASI: Eating-** The ability to use suitable utensils to bring food to the mouth and swallow food once the meal is presented on a table/tray. This includes modified food consistency.

The major difference between the two items is that the ULTC 100.2 includes cutting and chewing food, while FASI would score someone who has difficulty with cutting and chewing based on their performance eating food that would not necessarily require chewing.

The definitions for the ULTC 100.2 also introduce variability into the scoring:

- **Scoring Option 1:** The client can feed self, chew and swallow foods but may need reminding to maintain adequate intake; may need food cut up; can feed self if food brought to them, with or without adaptive feeding equipment.
- **Scoring Option 2:** The client can feed self but needs line of sight standby assistance for frequent gagging, choking, swallowing difficulty; or aspiration resulting in the need for medical intervention. The client needs reminder/assistance with adaptive feeding equipment; or must be fed some or all food by mouth by another person.

A major challenge with scoring might be (1) whether the case manager assumes the participant does or does not use adaptive utensils when scoring the participant and (2) if the case manager scores based solely on the food the participant actually eats versus any type of food that could be eaten. For example, if a participant typically eats soft food and uses adaptive utensils to assist with grip, a case manager who scores based on the amount of difficulty eating a steak without the aid of any adaptive utensil would likely assign a different score than a case manager who scored based on the food the participant actually eats with the assistance of adaptive utensils that are typically used. Because of a lack of clarity in these definitions, case managers had different interpretations about whether to consider adaptive equipment when scoring an item and if and when standby assistance would justify a score of 1 versus 2.

Given these differences, the scoring of the ULTC 100.2 and FASI eating items is surprisingly consistent. The differences likely explain the few people who were scored as being independent or needing only setup or clean-up assistance who exceeded the ULTC 100.2 threshold (see **Exhibit 56**).

**Exhibit 56: Comparison of the FASI Scores to the Binary ULTC 100.2 Item for Eating Item**

FASI Codes	Usual		Most Dependent	
	Frequency	% Exceeding ULTC 100.2 Threshold	Frequency	% Exceeding ULTC 100.2 Threshold
Independent	58	5%	57	5%
Age appropriate dependence	1	0%	1	0%
Setup or Clean-up Assistance	7	29%	5	20%
Supervision or touching assistance	5	20%	6	17%
Partial/moderate assistance	2	100%	3	67%
Substantial/maximal assistance	6	100%	7	100%
Dependent	4	100%	3	100%
<b>Total</b>	<b>83</b>		<b>82</b>	
<b>Total as % of all assessments</b>	<b>99%</b>		<b>98%</b>	
<b>Not included:</b>				
Activity not attempted-refused	0		0	
Activity not attempted-health/safety	0		0	
Not applicable	1		2	
<b>Overall Total</b>	<b>84</b>		<b>84</b>	
<b>Overall Total as % of all assessments</b>	<b>100%</b>		<b>100%</b>	

The level of agreement when using binary measures of the two items was as high as 93% (see **Exhibit 57**). It was highest for the Usual Performance item using the FASI partial/moderate assistance or greater need threshold. However, when using the supervision or greater need threshold, disagreements went both ways. When there was a disagreement, it was typically that the person exceeded the ULTC 100.2 threshold, but not the FASI partial assistance threshold.

**Exhibit 57: Level of Agreement among Binary Summary ULTC 100.2 and FASI Measures for Eating Item**

Scenario	Usual	Most Dependent
Agreement - ULTC 100.2 and FASI supervision or greater need threshold	89.00%	87.70%
Agreement - ULTC 100.2 and FASI partial or greater need threshold	92.70%	92.60%
% who score supervision or higher who do <b>not exceed ULTC 100.2</b>	23.53%	31.58%
% who exceed ULTC 100.2 who do <b>not score supervision or higher</b>	27.78%	23.53%
% who score partial assistance or higher who do <b>not exceed ULTC 100.2</b>	0.00%	7.69%
% who exceed ULTC 100.2 who do <b>not score partial assistance or higher</b>	33.33%	29.41%

**Behaviors**

The ULTC 100.2 has a single item that assesses the need for supervision due to a behavior issue that, if scored 2 or 3, classifies the participant as exceeding LOC:

- **ULTC 100.2 Definition-** The ability to engage in safe actions and interactions and refrain from unsafe actions and interactions (Note, consider the client’s inability versus unwillingness to refrain from unsafe actions and interactions).
  - The following are the scoring responses for the items that score just below meeting LOC (1) or meeting LOC (2):

- **Scoring Option 1:** The client exhibits some inappropriate behaviors but not resulting in injury to self, others and/or property. The client may require redirection. Minimal intervention is needed.
  - **Scoring Option 2:** The client exhibits inappropriate behaviors that put self, others or property at risk. The client frequently requires more than verbal redirection to interrupt inappropriate behaviors.
- The following types of behavior are embedded in this item:
  - Danger to self
  - Danger to others
  - Causing deliberate property damage

In talking with case managers, it became clear that they often also included aggressive verbal behavior when scoring this item.

- **New Assessment Items-** Because the FASI does not contain measures that were comparable to this, these items were based on the State of Minnesota’s assessment process, MnCHOICES. The following are the items chosen to replicate the ULTC 100.2 constructs:
  - **Injurious to Self-** Participant displays disruptive or dangerous behavioral symptoms not directed towards others, including self-injurious behaviors (e.g., hitting or scratching self, attempts to pull out IVs).
  - **Physically aggressive or combative-** Participant displays physical behavior symptoms directed toward others (e.g., hits, kicks, pushes, or punches others, throws objects, spitting).
  - **Verbally aggressive towards others** - Participant displays verbal behavioral symptoms directed towards others (e.g., yelling, screaming, threatening, cursing, excessive profanity, sexual references).
  - **Property destruction** - Participant engages in behavior, or would without an intervention, to intentionally disassemble, damage or destroy public or private property or possessions.

There are four scoring options for each behavior issue:

- No history and no concern about this behavior/Behavior is present but is consistent with chronological age
- Has history, no symptoms or interventions in past year, no concern about reoccurrence
- Has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence
- Currently requires intervention and/or displays symptoms and behavior is not consistent with chronological age

The ULTC 100.2 item also factors in the type and frequency of intervention necessary to “interrupt” these behaviors. Therefore, additional information to be able to replicate this component of the criteria was collected. If “Currently requires intervention and/or displays symptoms and behavior is not consistent with chronological age” is selected, the following additional information is collected:

- Intervention type:

- **Cueing/Verbal prompt** – Responds to simple verbal or gestural redirection
- **Physical Prompts** – Responds to simple cueing using physical touch or leading
- **Planned Intervention** – Requires a planned intervention approach using positive reinforcement, extensive supervision, restriction of rights (all settings), or other intervention to be carried out by staff or unpaid caregivers.
- **Other, describe** – Requires other approaches
- Intervention frequency:
  - **Never** - Intervention is not needed
  - **Less than monthly to once per month** - Intervention occurs once per month or less. This option may also indicate that the behavior is intermittent and/or cyclical
  - **More than once per month and up to weekly** - Intervention occurs twice or more per month, up to once per week
  - **More than once per week and up to daily** - Intervention occurs twice or more per week, up to once per day
  - **2+ times per day (at least 5 days per week)** - Intervention occurs 2 or more times per day, at least 5 days per week

**Exhibits 58 through 73** provide the following information:

- The frequencies for each behavior and the percentage of people for each category meeting a binary version (i.e., does not exceed the threshold (score of 0 or 1) or exceeds the threshold (score of 2 or 3)) of the ULTC 100.2 behavior item (the first exhibit for each behavior).
- The level of agreement between a binary version of the new item in comparison to a binary version of the ULTC 100.2 item (the second exhibit for each behavior). Two versions are provided:
  - The first compares the binary ULTC 100.2 to a binary item that counts both “Has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence” and “Currently requires intervention and/or displays symptoms and behavior is not consistent with chronological age” as exceeding the threshold.
  - The second compares the binary ULTC 100.2 to a binary item that counts only “Currently requires intervention and/or displays symptoms and behavior is not consistent with chronological age” as exceeding the threshold.
- The distributions of interventions taken to disrupt the behavior and how often these interventions are required (the third exhibit for each behavior).

Injurious to Self

**Exhibit 58: Comparison of the Injurious to Self Scores to the Binary ULTC 100.2 Behavior Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No history and no concern about this behavior	49	25%
Has history, no concern about reoccurrence	11	46%
Has history, case manager has concerns about re-occurrence	3	67%
Currently requires intervention and/or displays symptoms	21	91%
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 59: Summary Percent Agreement Between LOC Screen Behavior Cutoff Scores for Injurious to Self**

Scenario	%
% Agreement with ULTC 100.2 using cutoff of has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence or currently requires intervention	76.20%
% Agreement with ULTC 100.2 using cutoff of currently requires intervention	75%

**Exhibit 60: Distribution for Intervention Types for Injurious to Self**

Intervention	Frequency	% for Intervention	% for Behavior
<b>Cueing</b>	12	100%	57%
Less than monthly to 1 per month	1	8%	5%
More than 1 per month to weekly	1	8%	5%
More than 1 per week up to daily	2	17%	10%
2+ time per day (at least 5 days/week)	8	67%	38%
<b>Physical Prompts</b>	8	100%	38%
Less than monthly to 1 per month	1	13%	5%
More than 1 per month to weekly	1	13%	5%
More than 1 per week up to daily	2	25%	10%
2+ time per day (at least 5 days/week)	4	50%	19%
<b>Planned intervention</b>	15	100%	71%
Less than monthly to 1 per month	2	13%	10%
More than 1 per month to weekly	2	13%	10%
More than 1 per week up to daily	3	20%	14%
2+ time per day (at least 5 days/week)	8	53%	38%
<b>Other</b>	2	100%	10%
Less than monthly to 1 per month	1	50%	5%
More than 1 per month to weekly	0	0%	0%
More than 1 per week up to daily	0	0%	0%
2+ time per day (at least 5 days/week)	1	50%	5%

Physically Aggressive or Combative

**Exhibit 61: Comparison of the Physically Aggressive or Combative Scores to the Binary ULTC 100.2 /Behavior Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No history and no concern about this behavior	52	25%
Has history, no concern about reoccurrence	6	83%
Has history, case manager has concerns about re-occurrence	7	43%
Currently requires intervention and/or displays symptoms	19	90%
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 62: Summary Percent Agreement Between LOC Screen Behavior Cutoff Scores for Physically Aggressive or Combative**

Scenario	%
% Agreement with ULTC 100.2 using cutoff of has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence or currently requires intervention	71.40%
% Agreement with ULTC 100.2 using cutoff of currently requires intervention	73%

**Exhibit 63: Distribution for Intervention Types for Physically Aggressive or Combative**

Intervention	Frequency	% for Intervention	% for Behavior
Cueing	15	100%	71%
Less than monthly to 1 per month	2	13%	11%
More than 1 per month to weekly	4	27%	21%
More than 1 per week up to daily	3	20%	16%
2+ time per day (at least 5 days/week)	6	40%	32%
Physical Prompts	9	100%	43%
Less than monthly to 1 per month	1	11%	5%
More than 1 per month to weekly	2	22%	11%
More than 1 per week up to daily	3	33%	16%
2+ time per day (at least 5 days/week)	3	33%	16%
Planned intervention	11	100%	52%
Less than monthly to 1 per month	0	0%	0%
More than 1 per month to weekly	1	9%	5%
More than 1 per week up to daily	5	45%	26%
2+ time per day (at least 5 days/week)	6	55%	32%
Other	2	100%	10%
Less than monthly to 1 per month	1	50%	5%
More than 1 per month to weekly	0	0%	0%
More than 1 per week up to daily	1	50%	5%
2+ time per day (at least 5 days/week)	0	0%	0%

### Verbally Aggressive Towards Others

#### Exhibit 64: Comparison of the Verbally Aggressive Towards Others to the Binary ULTC 100.2 Behavior Item

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No history and no concern about this behavior	44	25%
Has history, no concern about reoccurrence	12	42%
Has history, case manager has concerns about re-occurrence	3	67%
Currently requires intervention and/or displays symptoms	25	80%
Total	84	
Total as % of all assessments	100%	

#### Exhibit 65: Summary Percent Agreement Between LOC Screen Behavior Cutoff Scores for Verbally Aggressive Towards Others

Scenario	%
% Agreement with ULTC 100.2 using cutoff of Has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence or currently requires intervention	73.80%
% Agreement with ULTC 100.2 using cutoff of currently requires intervention	73%

#### Exhibit 66: Distribution for Intervention Types for Verbally Aggressive Towards Others

Intervention	Frequency	% for Intervention	% for Behavior
Cueing	20	100%	71%
Less than monthly to 1 per month	4	20%	16%
More than 1 per month to weekly	4	20%	16%
More than 1 per week up to daily	6	30%	24%
2+ time per day (at least 5 days/week)	6	30%	24%
Physical Prompts	2	100%	43%
Less than monthly to 1 per month	0	0%	0%
More than 1 per month to weekly	0	0%	0%
More than 1 per week up to daily	2	100%	8%
2+ time per day (at least 5 days/week)	0	0%	0%
Planned intervention	12	100%	52%
Less than monthly to 1 per month	0	0%	0%
More than 1 per month to weekly	2	17%	8%
More than 1 per week up to daily	4	33%	16%
2+ time per day (at least 5 days/week)	6	50%	24%
Other	4	100%	10%
Less than monthly to 1 per month	0	0%	0%
More than 1 per month to weekly	1	25%	4%
More than 1 per week up to daily	3	75%	12%
2+ time per day (at least 5 days/week)	0	0%	0%

### Property Destruction

#### Exhibit 67: Comparison of the Property Destruction Scores to the Binary ULTC 100.2 Behavior Item

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No history and no concern about this behavior	62	31%
Has history, no concern about reoccurrence	7	71%
Has history, case manager has concerns about re-occurrence	3	100%
Currently requires intervention and/or displays symptoms	12	92%
Total	84	
Total as % of all assessments	100%	

#### Exhibit 68: Summary Percent Agreement Between LOC Screen Behavior Cutoff Scores for Property Destruction

Scenario	%
% Agreement with ULTC 100.2 using cutoff of has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence or currently requires intervention	70.20%
% Agreement with ULTC 100.2 using cutoff of currently requires intervention	67%

### Exhibit 69: Distribution for Intervention Types for Property Destruction

Intervention	Frequency	% for Intervention	% for Behavior
Cueing	9	100%	71%
Less than monthly to 1 per month	3	33%	25%
More than 1 per month to weekly	2	22%	17%
More than 1 per week up to daily	2	22%	17%
2+ time per day (at least 5 days/week)	2	22%	17%
Physical Prompts	3	100%	43%
Less than monthly to 1 per month	0	0%	0%
More than 1 per month to weekly	1	33%	8%
More than 1 per week up to daily	2	67%	17%
2+ time per day (at least 5 days/week)	0	0%	0%
Planned intervention	7	100%	52%
Less than monthly to 1 per month	1	14%	8%
More than 1 per month to weekly	1	14%	8%
More than 1 per week up to daily	3	43%	25%
2+ time per day (at least 5 days/week)	2	29%	17%
Other	2	100%	10%
Less than monthly to 1 per month	1	50%	5%
More than 1 per month to weekly	0	0%	0%
More than 1 per week up to daily	1	50%	5%
2+ time per day (at least 5 days/week)	0	0%	0%

#### Highest Score Across Behavior Items

**Exhibit 70** compares an item that takes the highest score for each participant on all the behavior items with the ULTC 100.2 threshold (2 or greater) for behavior. It was expected that no one who scored in one of the first two categories (No history and no concern about behavior or Has history, no concern about reoccurrence) would have exceeded the ULTC 100.2 threshold.

However, one person with no history of any of the behavior problems (4%) and 13 people with a history, but no concern about the reoccurrence of any of the behaviors (31%), received a score on the ULTC 100.2 that was high enough to allow them to meet LOC solely based on this item.

Conversely, 18% of those who currently were requiring an intervention for one or more of these behaviors (7 individuals) did not exceed the ULTC 100.2 threshold. This may be due to the case manager perceiving the amount and type of intervention needed was not substantial enough to exceed the ULTC 100.2 criterion.

**Exhibit 70: Comparison of the Highest Score Across all Behavior Items to the Binary ULTC 100.2 Behavior Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No history and no concern about this behavior	26	4%
Has history, no concern about reoccurrence	13	31%
Has history, case manager has concerns about reoccurrence	7	29%
Currently requires intervention and/or displays symptoms	38	82%
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 71** presents the level of agreement between two different binary versions of the new behavior item shown in **Exhibit 70** with the binary version of the ULTC 100.2 behavior threshold (score of 2 or higher). The first new binary variable counts “has history, case manager has concerns about reoccurrence” and “currently requires intervention and/or displays symptoms” while the second version of the binary variable only considers “currently requires intervention and/or displays symptoms” as exceeding the threshold. The ULTC behavior item was a closer match when using a threshold that only included the “currently requires intervention and/or displays symptoms” category (83%) than when also including the “has history, case manager has concerns about reoccurrence” category (79.8%).

**Exhibit 71: Level of Agreement among Binary Summary ULTC 100.2 and Highest Score for New Assessment Measures for Behaviors**

Scenario	Usual
% Agreement with ULTC 100.2 using cutoff of Has history, no symptoms or intervention in past year, case manager has concerns about re-occurrence or currently requires intervention	79.8%
% Agreement with ULTC 100.2 using cutoff of currently requires intervention	83%
% who score as currently having behavior issue who do not exceed ULTC 100.2 behavior threshold	13%
% who exceed ULTC 100.2 behavior threshold who do not score as having a current behavior	27%
% who score as currently have or at-risk of having behavior issue who do not exceed ULTC 100.2 behavior threshold	18%
% who exceed ULTC 100.2 behavior threshold who do not score as having or being at-risk of having a current behavior	18%

27% of the people who exceed the ULTC 100.2 threshold were not scored as having any active behavior issues and an additional 18% of the people exceeding the ULTC 100.2 threshold were not even scored as being at risk of a behavior issue.

Conversely, 13% of participants who had an active behavior issue did not exceed the ULTC 100.2 behavior threshold and another 5% who were at risk of a behavior issue reoccurring did not exceed the ULTC 100.2 threshold.

**Occurrence/Reoccurrence of Behavior**

The pilot also asked, “How likely is it that disruptive or dangerous behaviors would occur and/or escalate if services were withdrawn?” to act as another check to minimize the risk of removing essential services. **Exhibit 72** shows that a substantial number of people rated as being not at risk for the reoccurrence of a behavior exceeded the ULTC 100.2 threshold.

**Exhibit 72: Comparison of the Occurrence/Reoccurrence of Behavior Item to the Binary ULTC 100.2 Supervision/Behavior Threshold**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Behavior would almost certainly reoccur	21	71%
Very Likely	12	83%
Likely	9	44%
Unlikely	13	23%
Highly Unlikely	13	15%
Not Sure	6	33%
Not currently receiving services	10	20%

**Exhibit 73** shows how the criteria case managers used to determine how to code this item. This item was based mostly on the report of a proxy (67%, 56 individuals) or the participant (60%, 50 individuals). Case managers only reported using observation as the basis of this determination one-fifth of the time.

**Exhibit 73: Methods Used by Case managers to Code Whether Behavior Would Reoccur if Services were Withdrawn**

Scenario	Frequency	Percent
Observation	17	20%
Self-report	50	60%
Proxy	56	67%
% using just 1	50	60%
% using 2 approaches	29	35%
% using all 3	5	6%

Memory and Cognition

The following tables summarize the 84 responses for the memory and cognition items that were obtained during the pilot. The following items were used for this comparison:

- **ULTC 100.2 Item:** The age appropriate ability to acquire and use information, reason, problem solve, complete tasks or communicate needs in order to care for oneself safely.
  - **Scoring Response 2:** The client requires consistent and ongoing reminding and assistance with planning or requires regular assistance with adjusting to both new and familiar routines, including regular monitoring and/or supervision, or is unable to make safe decisions, or cannot make his/her basic needs known.

The new assessment items begin with an item to determine if there are potential difficulties with memory and cognition (see **Exhibit 74**):

- **Difficulty with Memory & Cognition-** Does the participant have any difficulty with memory (e.g., retain relevant functional information), attention (e.g., ability to stay focused on task), problem solving, planning, organizing or judgment?

**Exhibit 74: Summary of the Frequency and Percent of Responses for Difficulty with Memory and Cognition Item**

Response Options	Frequency	%
Yes	72	86%
No	9	11%
Unknown	3	4%

For the purposes of pilot data collection, the follow-up items were asked of all individuals, regardless of the response to this item. The follow-up items include:

- **Memory-** Ability to retain relevant functional information, both short and long term (See **Exhibits 75-76**)
- **Attention-** Level of Impairment: Ability to stay focused on a task (See **Exhibits 77-78**)
- **Problem Solving -** Ability to discover, analyze, and address an issue with the objective of overcoming obstacles and finding a solution that best resolves the issue (See **Exhibits 79-80**)
- **Planning -** Ability to think about and arrange the activities required to achieve a desired goal (See **Exhibits 81-82**)

- **Judgment** - Ability to predict and anticipate outcomes based on information provided (See Exhibits 83-84)
- **Ability to make appropriate decisions-** Ability to make appropriate decisions regarding daily tasks, such as picking out an outfit, deciding when and what to eat, or selecting what to do throughout the day (See Exhibits 85-86)

Memory

**Exhibit 75: Comparison of the Memory Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	11	82%
Age appropriate difficulty/dependence	2	100%
Mildly impaired: demonstrates some difficulty	29	45%
Moderately impaired: demonstrates marked difficulty	14	79%
Severely impaired: demonstrates extreme difficulty	13	100%
Impairment present, unable to determine degree of impairment	5	80%
Unable to answer	0	
Not applicable	10	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 76: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Memory Item**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	64%
% Agreement with ULTC 100.2 using cutoff = severe	68%

Attention

**Exhibit 77: Comparison of the Attention Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	16	44%
Age appropriate difficulty/dependence	2	100%
Mildly impaired: demonstrates some difficulty	23	61%
Moderately impaired: demonstrates marked difficulty	18	89%
Severely impaired: demonstrates extreme difficulty	13	92%
Impairment present, unable to determine degree of impairment	2	50%
Unable to answer	0	
Not applicable	10	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 78: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Attention Item**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	68%
% Agreement with ULTC 100.2 using cutoff = severe	61%

Problem Solving

**Exhibit 79: Comparison of the Problem-Solving Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	11	36%
Age appropriate difficulty/dependence	3	100%
Mildly impaired: demonstrates some difficulty	21	52%
Moderately impaired: demonstrates marked difficulty	13	77%
Severely impaired: demonstrates extreme difficulty	23	100%
Impairment present, unable to determine degree of impairment	2	50%
Unable to answer	0	
Not applicable	11	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 80: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Problem Solving Item**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	68%

% Agreement with ULTC 100.2 using cutoff = severe	67%
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Planning

**Exhibit 81: Comparison of the Planning Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	12	82%
Age appropriate difficulty/dependence	3	100%
Mildly impaired: demonstrates some difficulty	21	57%
Moderately impaired: demonstrates marked difficulty	16	81%
Severely impaired: demonstrates extreme difficulty	16	100%
Impairment present, unable to determine degree of impairment	5	80%
Unable to answer	1	
Not applicable	10	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 82: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Planning Item**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	63%
% Agreement with ULTC 100.2 using cutoff = severe	59%

Judgment

**Exhibit 83: Comparison of the Judgment Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	11	18%
Age appropriate difficulty/dependence	3	100%
Mildly impaired: demonstrates some difficulty	20	55%
Moderately impaired: demonstrates marked difficulty	14	79%
Severely impaired: demonstrates extreme difficulty	23	100%
Impairment present, unable to determine degree of impairment	3	67%
Unable to answer	0	
Not applicable	1	
<b>Total</b>	<b>75</b>	
<b>Total as % of all assessments</b>	<b>89%</b>	

**Exhibit 84: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Judgment Item**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	65%
% Agreement with ULTC 100.2 using cutoff = severe	63%

Decision Making

**Exhibit 85: Comparison of the Decision-Making Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	32	34%
Age appropriate difficulty/dependence	3	100%
Mildly impaired: demonstrates some difficulty	21	71%
Moderately impaired: demonstrates marked difficulty	12	92%
Severely impaired: demonstrates extreme difficulty	13	100%
Impairment present, unable to determine degree of impairment	1	0%
Unable to answer	0	
Not applicable	2	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 86: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Decision Making Item**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	63%
% Agreement with ULTC 100.2 using cutoff = severe	52%

Highest Score Across Memory & Cognition Items

**Exhibit 82** compares an item that takes the highest score for each participant on all the cognition items with the ULTC 100.2 threshold (2 or greater) for cognition. It was expected that participants who score as moderately impaired or higher would exceed the ULTC 100.2 threshold.

More than one fourth of the people in the mildly impaired category (6 individuals) were scored as exceeding the ULTC 100.2 threshold. Conversely, more than a fourth who scored as being moderately impaired (5 individuals) and one person who scored as being severely impaired did not exceed this threshold.

**Exhibit 87: Comparison of the Highest Score across the Cognitive Items to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
No impairment	8	0%
Age appropriate difficulty/dependence	not included	
Mildly impaired: demonstrates some difficulty	22	27%
Moderately impaired: demonstrates marked difficulty	19	74%
Severely impaired: demonstrates extreme difficulty	33	97%
Impairment present, unable to determine degree of	not included	

impairment		
Unable to answer	not included	
Not applicable	2	
Total	84	
Total as % of all assessments	100%	

**Exhibit 88** presents the level of agreement of this item when collapsed to a binary item with a binary version of the ULTC 100.2 cognition threshold (2 or higher). The ULTC cognition item was a closer match when using a threshold that of moderately impaired (85%) than severely impaired (74%).

**Exhibit 88: Level of Agreement Among Binary Summary ULTC 100.2 and New Assessment Measure for Highest Score Across the Cognitive Items**

Scenario	%
% Agreement with ULTC 100.2 using cutoff = moderate	85.40%
% Agreement with ULTC 100.2 using cutoff = severe	74.40%
% who score as moderately impaired or higher who do not exceed ULTC 100.2 cognitive Threshold	11.54%
% who exceed ULTC 100.2 cognitive Threshold who do not score as having been moderately impaired or higher	11.54%
% who score as being severely impaired or higher who do not exceed ULTC 100.2 cognitive Threshold	3.03%
% who exceed ULTC 100.2 cognitive Threshold who do not score as being severely impaired or higher	38.46%

**Location Where Memory & Cognition Impairments Occur**

If a participant exhibited impairment (excluding age appropriate difficulty/dependence) in any of the memory and cognition categories, case managers documented all the areas in which this difficulty was present. For example, a participant may not have issues with attention at home but become overwhelmed and be unable to focus his/her attention in the community because of a sensory processing issue.

**Exhibit 89** presents the results of this categorization across each of the memory and cognition categories. Community (60-68%, 50 to 57 individuals) and home (63-67%, 53 to 56 individuals) had the highest prevalence of impairment across the categories, while planning in school had the lowest prevalence (6%, 5 individuals).

**Exhibit 89: Locations Where Impairment Occurs Across the Memory & Cognition Items**

ADL	Home	Work	School	Community
Memory	65%	8%	11%	67%
Attention	63%	10%	11%	60%
Problem Solving	67%	7%	12%	62%
Planning	63%	8%	6%	67%
Judgment	67%	8%	13%	68%

**Ability to Communicate with Familiar and Unfamiliar Individuals**

There were two additional new items within the Memory & Cognition area to enhance the understanding of how participants express themselves with individuals they are familiar with, such as a family or regular support, and individuals they are not familiar with (see **Exhibits 90-91**):

- **Expressing Self with Familiar Individuals-** Participant’s ability to express ideas or wants with individuals he/she is familiar with.
- **Expressing Self with Unfamiliar Individuals-** Participant’s ability to express ideas or wants with individuals he/she is not familiar with.

**Exhibits 90 and 91** provide a comparison of these expression items. The number of individuals who were able to express complex messages without difficulty with individuals they were familiar with (36, 42%) was substantially larger than those who were able to express complex messages with individuals they were unfamiliar with (23, 26%).

Based on the language of the ULTC 100.2 scoring response two “Cannot make his/her basic needs known”, it was presumed that all individuals who frequently exhibit difficulty with expressing needs and ideas would exceed the LOC threshold. This was the case for individuals the participant is familiar with, however there were three individuals (17%) who had frequent difficulty expressing needs and ideas with individuals they were unfamiliar with who did not exceed the LOC threshold.

**Exhibit 90: Comparison of the Expressing Self with Familiar Individuals Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Expresses complex messages without difficulty.	36	42%
Age appropriate difficulty/dependence	3	75%
Exhibits some difficulty with expressing needs and ideas (e.g., some words or finishing thoughts).	22	64%
Frequently exhibits difficulty with expressing needs and ideas.	18	100%
Rarely/never expresses self.	3	100%
Unable to assess	1	
Unknown	0	
Not Applicable	1	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Exhibit 91: Comparison of the Expressing Self with Unfamiliar Individuals Item Scores to the Binary ULTC 100.2 Memory & Cognition Item**

Response Options	Frequency	% Exceeding ULTC 100.2 Threshold
Expresses complex messages without difficulty.	23	26%
Age appropriate difficulty/dependence	1	100%
Exhibits some difficulty with expressing needs and ideas (e.g., some words or finishing thoughts).	26	65%
Frequently exhibits difficulty with expressing needs and ideas.	18	83%
Rarely/never expresses self.	13	100%
Unable to assess	2	
Unknown	1	
<b>Total</b>	<b>84</b>	
<b>Total as % of all assessments</b>	<b>100%</b>	

**Use of Observation, Self-Report, and Proxy**

**Exhibit 92** shows how the criteria case managers used to determine how to code the Memory and Cognition items. These items were based mostly on the report of a proxy (61-63%, 51-53 individuals) or the participant (46-56%, 39-47 individuals). Case managers only reported using observation more than one third of the time for the item on expressing ideas or needs with individuals the participant is familiar with (37%, 31).

## Exhibit 92: Methods Used by Case Managers to Code Memory & Cognition Items

ADL	% Using Observation	% Using Self Report	% Using Proxy
Memory	26%	50%	61%
Attention	32%	51%	61%
Problem Solving	20%	49%	62%
Planning	20%	46%	63%
Judgment	19%	48%	61%
Decision Making	24%	56%	63%
Expressing Self- Familiar With	37%	56%	62%
Expressing Self- Unfamiliar With	40%	56%	62%

### Conclusion

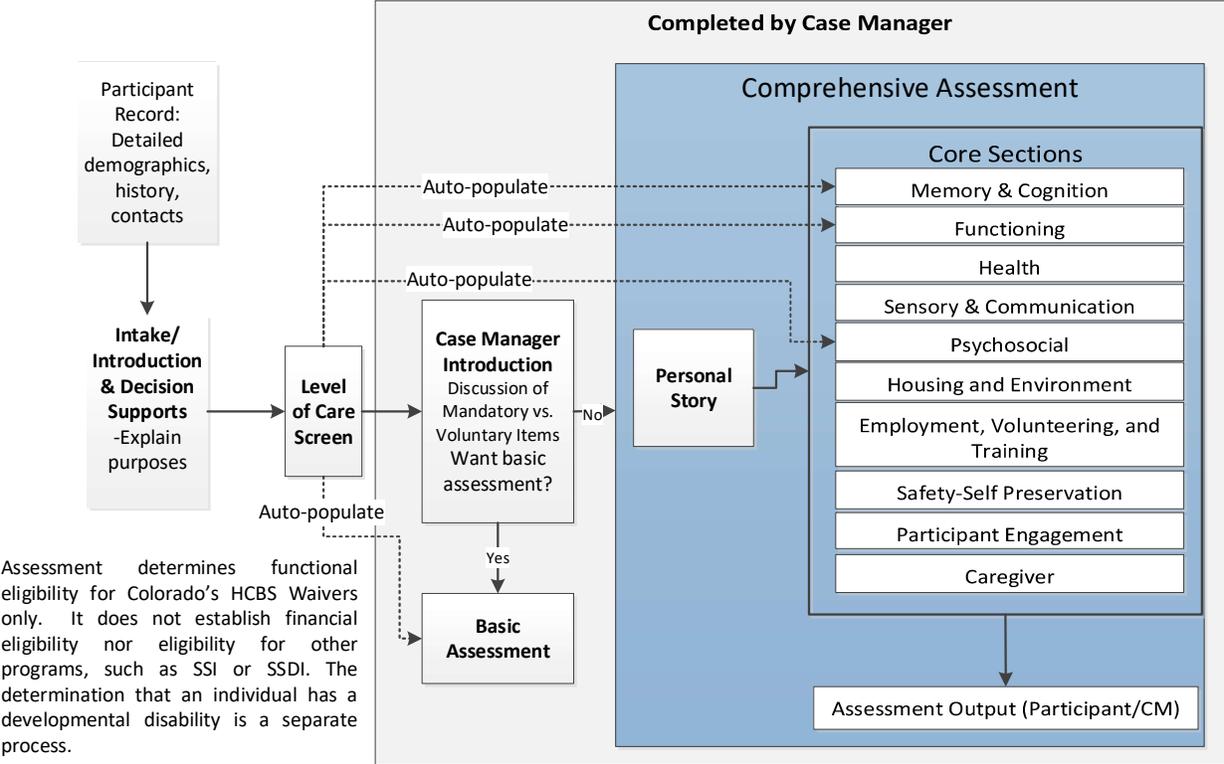
The findings of this report highlight the differences between the ULTC 100.2 and the new assessment items. Although the new items were selected to capture data on similar constructs, changes were necessary to reflect best practices for reliability and validity, including using the FASI items wherever possible. The changes that result from this may impact eligibility. Many of these differences are caused by the ULTC 100.2 training that instructs case managers to score participants' ability to perform tasks in the absence of any adaptive equipment. This is contrary to the approach taken by other LTSS assessment tools, which generally try to assess the amount of human support needed after accounting for the use of any adaptive equipment. The findings highlight the fundamental flaws of the ULTC 100.2 and reinforce the need to change this tool. The findings also demonstrate how challenging it will be to replicate the LOC decisions using the ULTC 100.2 because of these flaws. These findings suggest that it will be especially important to pay attention to the following areas in the effort to replicate LOC:

- Mobility, notably the scoring of people who are independent with the use of equipment, such as a walker or cane.
- Eating, notably the scoring of people who only need assistance with cutting and chewing
- Behaviors, given that some people who were scored as exceeding the ULTC 100.2 behavior threshold did not appear to have any active behavior issue on the new items and others that had active issues on the new items were not scored as exceeding the ULTC 100.2 behavior threshold.

While there are substantial differences between the current and new tool, the scores agree in the vast majority of cases. Because Colorado's nursing facility LOC criteria includes multiple pathways for eligibility (i.e., 2 or more ADLs, Supervision, and/or Memory/Cognition), these differences may only have a minimal impact on the ability to replicate LOC while minimizing changes in eligibility. The next phase of the pilot will capture additional information and expand the total sample to over 500 participants. These data will be used to model the impact on eligibility, determine whether these differences in individual items impact eligibility, and determine what can be done to mitigate any impact.

## Colorado New Assessment and Support Plan Process

# New Colorado Assessment Process (Revised 2-21-19)



Assessment determines functional eligibility for Colorado's HCBS Waivers only. It does not establish financial eligibility nor eligibility for other programs, such as SSI or SSDI. The determination that an individual has a developmental disability is a separate process.

### Crosswalk of FASI elements in new CO Assessment

File	Module	Section	Questions
Basic Assessment/ Functioning 4 and Older	III.1.Functioning - ADL's	<b>1. Mobility</b>	1A. Does the participant walk?
			1B. Walk 10 feet: Once standing, the ability to walk at least 10 feet in a room, corridor or similar space.
			1C. Walk 50 feet with two turns: Once standing, the ability to walk at least 50 feet and make two turns.
			1D. Walk 150 feet: Once standing, the ability to walk at least 150 feet in a corridor or similar space
			1F. Walks 10 feet on uneven surfaces: The ability to walk 10 feet on uneven or sloping surfaces, such as grass or gravel
			1G. 1 step (curb): The ability to step over a curb or up and down one step.
			1H. 4 steps: The ability to go up and down four steps with or without a rail.
			1I. 12 steps: The ability to go up and down 12 steps with or without a rail.
			1J. Carries something in both hands: While walking indoors e.g., several dishes, light laundry basket, tray with food.
			1K. Picking up object: The ability to bend/stoop from a standing position to pick up a small object, such as a spoon, from the floor.
			1L. Walks for 15 minutes: Without stopping or resting (e.g., department store, supermarket
			1M. Walks across a street: Crosses street before light turns red
			1N. Does the participant use a wheelchair or scooter?

			1O. Wheel 50 feet with two turns: Once seated in a wheelchair/scooter, the ability to wheel at least 50 feet and make two turns.
			1P. Wheel 150 feet: Once seated in wheelchair/scooter, the ability to wheel at least 150 feet in a corridor or similar space
			1Q. Wheels for 15 minutes: Without stopping or resting (e.g., department store, supermarket)
			1R. Wheels across a street: Crosses street before light turns red
		<b>2. Transfer</b>	2A. Roll left and right- The ability to roll from lying on back to left and right side, and return to lying on back on the bed.
			2B. Sit to lying- The ability to move from sitting on side of bed to lying flat on the bed
			2C. Lying to sitting on side of bed- The ability to safely move from lying on the back to sitting on the side of the bed with feet flat on the floor, and with no back support
			2D. Sit to stand- The ability to safely come to a standing position from sitting in a chair or on the side of the bed.
			2E. Chair/Bed-to-Chair Transfer - The ability to safely transfer to and from a bed to a chair.
			2F. Car transfer- The ability to transfer in and out of a car or van on the passenger side. Does not include the ability to open/close door or fasten seat belt.
		<b>3. Bathing</b>	3A. Shower/bathe self- The ability to bathe self in shower or tub, including washing, rinsing, and drying self. Does not include transferring in/out of tub/shower.

		<b>4.Dressing</b>	4A. Upper Body Dressing - The ability to put on and remove shirt or pajama top. Includes buttoning, if applicable
			4B. Lower Body Dressing - The ability to dress and undress below the waist, including fasteners. Does not include footwear.
			4C. Putting on/taking off footwear - The ability to put on and take off socks and shoes or other footwear that are appropriate for safe mobility.
		<b>5.Toileting</b>	5A. Toilet hygiene-The ability to maintain perineal/feminine hygiene, adjust clothes before and after using toilet, commode, bedpan, urinal. If managing ostomy, include wiping opening but not managing equipment.
			5D. Toilet Transfer: The ability to safely get on and off a toilet or commode.
			5F. Does the participant require assistance with managing equipment related to bladder incontinence (e.g., urinal, bedpan, indwelling catheter, intermittent catheterization, incontinence pads/ undergarments)
			5G. Is a toileting program (e.g., scheduled toileting or prompted voiding) currently being used to manage the participant's urinary continence?
			5H. Does the participant require assistance with managing equipment related to bowel incontinence (e.g., ostomy, incontinence pads/ undergarments)?
			5I. Is a bowel program currently being used to manage the participant's bowel continence?
			5J. Does the participant use equipment or devices for toileting?
		<b>6.Eating</b>	6A. Eating - The ability to use suitable utensils to bring food to the mouth and swallow food once the meal is presented on a table/tray. This includes modified food consistency.

			6C. Oral Hygiene – The ability to use suitable items to clean teeth. [Dentures (if applicable): The ability to remove and replace dentures from and to the mouth, and manage equipment for soaking and rinsing them.]
<b>Basic Assessment/ Functioning 4 and Older</b>	<b>III.2 Functioning - IADL's</b>	<b>Medication Management</b>	1A. Medication management-oral medication: The ability to prepare and take all prescribed oral medications reliably and safely, including administration of the correct dosage at the appropriate times/intervals.
			1B. Medication management-inhalant/mist medications: The ability to prepare and take all prescribed inhalant/mist medications reliably and safely, including administration of the correct dosage at the appropriate times/intervals.
			1C. Medication management-injectable medications: The ability to prepare and take all prescribed injectable medications reliably and safely, including administration of the correct dosage at the appropriate times/intervals.
		<b>Making a Light Meal</b>	2A. Make a light cold meal - The ability to plan and prepare all aspects of a light cold meal such as a bowl of cereal and a sandwich and cold drink
			2B. Make a light hot meal - The ability to plan and prepare all aspects of a light hot meal such as heating a bowl of soup and reheating a prepared meal.
		<b>House work</b>	3A. Light daily housework- The ability to complete light daily housework to maintain a safe home environment such that the participant is not at risk for harm within their home. Examples include wiping counter tops or doing dishes.
			3B. Heavier periodic housework: The ability to complete heavier periodic housework to maintain a safe home environment such that the participant is not at risk for harm

			within their home. Examples include doing laundry, vacuuming, cleaning bathroom.
		<b>Telephone Use</b>	4A. Telephone-Answering: The ability to answer call in participant's customary manner and maintain for 1 minute or longer. Does not include getting to the phone.
			4B. Telephone-placing call: The ability to place call in participant's customary manner and maintain for 1 minute or longer. Does not include getting to the phone.
		<b>Shopping</b>	5A. Light Shopping - Once at store, can locate and select up to five needed goods, take to check out, and complete purchasing transaction.
		<b>Money Management</b>	6A. Simple financial management: The ability to complete financial transactions such as counting coins, verifying change for a single item transaction, writing a check, online/mobile bill pay, banking, or shopping.
			6B. Complex financial management: The ability to complete financial decision-making such as budget and remembering to pay bills
<b>Basic Assessment</b>	<b>V. Sensory and Communication</b>	<b>1 Vision</b>	1. Indicate all vision devices and aids needed at time of assessment. Check all that apply:
		<b>3 Functional Communication</b>	1. Indicate all communication devices and aids needed at time of assessment. Check all that apply:
<b>Basic Assessment</b>	<b>VIII Housing and Environment</b>	<b>1. Housing Status</b>	1. Participant's residence: Autofill from Participant Information A. Last 3 Days: B. Past Month:

<b>Care Giver</b>		<b><i>1. Caregiver Information</i></b>	1. Does the participant have assistance in their home?
			2. Code the level of assistance in the participant's home (both paid and unpaid) during the past month.
<b>Level of Care</b>	<b>3.Mobility and Transferring</b>	<b><i>1. Mobility</i></b>	1A. Does the participant walk?
			1B. Walk 10 feet: Once standing, the ability to walk at least 10 feet in a room, corridor or similar space.
			1C. Walk 50 feet with two turns: Once standing, the ability to walk at least 50 feet and make two turns.
			1D. Walk 150 feet: Once standing, the ability to walk at least 150 feet in a corridor or similar space
			1F. Does the participant use a wheelchair or scooter?
			Indicate the type of wheelchair/scooter used for this assessment:
			1G. Wheel 50 feet with two turns: Once seated in a wheelchair/scooter, the ability to wheel at least 50 feet and make two turns.
			1H.Wheel 150 feet: Once seated in wheelchair/scooter, the ability to wheel at least 150 feet in a corridor or similar space.
		<b><i>2. Transfer</i></b>	2A.Roll left and right- The ability to roll from lying on back to left and right side, and return to lying on back on the bed.
			2B. Sit to lying- The ability to move from sitting on side of bed to lying flat on the bed
			2C. Lying to sitting on side of bed- The ability to safely move from lying on the back to sitting on the side of the bed with feet flat on the floor, and with no back support

			2D. Sit to stand- The ability to safely come to a standing position from sitting in a chair or on the side of the bed.
			2E. Chair/Bed-to-Chair Transfer - The ability to safely transfer to and from a bed to a chair.
			2F. Car transfer- The ability to transfer in and out of a car or van on the passenger side. Does not include the ability to open/close door or fasten seat belt.
	<b>5. Additional ADL Items</b>	<b>1.Bathing</b>	1A. Shower/bathe self- The ability to bathe self in shower or tub, including washing, rinsing, and drying self. Does not include transferring in/out of tub/shower.
		<b>2.Dressing</b>	2A. Upper Body Dressing - The ability to put on and remove shirt or pajama top. Includes buttoning, if applicable
			2B. Lower Body Dressing - The ability to dress and undress below the waist, including fasteners. Does not include footwear.
			2C. Putting on/taking off footwear - The ability to put on and take off socks and shoes or other footwear that are appropriate for safe mobility.
		<b>4.Toileting</b>	4A. Toilet hygiene-The ability to maintain perineal/feminine hygiene, adjust clothes before and after using toilet, commode, bedpan, urinal. If managing ostomy, include wiping opening but not managing equipment.
			4D. Toilet Transfer: The ability to safely get on and off a toilet or commode.
			4E. Does the participant require assistance with managing equipment related to bladder incontinence (e.g., urinal, bedpan, indwelling catheter, intermittent catheterization, incontinence pads/ undergarments)

			4F. Is a toileting program (e.g., scheduled toileting or prompted voiding) currently being used to manage the participant's urinary continence?
			4G. Does the participant require assistance with managing equipment related to bowel incontinence (e.g., ostomy, incontinence pads/ undergarments)?
			4H. Is a bowel program currently being used to manage the participant's bowel continence?
		6.Eating	5A. Eating - The ability to use suitable utensils to bring food to the mouth and swallow food once the meal is presented on a table/tray. This includes modified food consistency.
			5B. Tube feeding - The ability to manage all equipment/supplies related to obtaining nutrition.

**Not Included Items:**

- 1) As Personal story module covers participant Preferences, priorities summary question under each section was removed in Assessment
- 2) Separate section for electronic wheelchair was removed and combined all the necessary questions under Mobility section

## Colorado New Support Plan Design Document

## Aerial LTSS Person-Centered Support Planning: Support Plan and Waiver Algorithms and Outputs for TEFT Grant Requirements

### Introduction

On February 20, 2019, Medecision pivoted to a rapid application development platform to implement support plan and waiver algorithms as well as output capabilities in the Aerial solution. The current care planner solution was not able to meet these needs, and therefore, this pivot was necessary. The requirements are articulated in the March 31<sup>st</sup>, 2019 deliverable from the Statement of Work 001 Aerial Assessment Pilot Project between Medecision and DXC. This recommendation was proposed to DXC and the Colorado Department of Health Care and Policy Financing (The Department) on February 20<sup>th</sup> and approved on February 22, 2019. All parties agreed that this was the best option to ensure delivery of the support plan, waiver algorithm and output capabilities requirement for the Testing Experience and Functional Tools (TEFT) Grant Funding demonstration.

For the March 31 deliverable, the Aerial platform has been enhanced and configured to support The Department's Medicaid business objectives. These enhancements are the foundation for additional work in the later phases of this project. These changes were those identified to be necessary for the TEFT grant demonstration.

### Objectives

This document provides the following information based on work completed as of 4/29/2019:

- Complete workflow diagram and narratives on the recommended usage of Aerial for the use of the Support Plan, Waiver Algorithms and Outputs for TEFT Grant demonstration
- An overview of the new capabilities in the Aerial platform
- Requirements traceability for line items in scope for a March 31<sup>st</sup> deliverable as detailed in Statement of Work 001 Aerial Assessment Pilot Project document.

The focus of this document is on the Support Plan capabilities added to the Aerial Platform. This document briefly touches on the assessment capability. All assessment requirements and in-depth workflow are intentionally excluded from this document.

## Support Plan Workflow for TEFT

This diagram is a high-level view of the Support Plan workflow that the Aerial platform supports. Each swim lane of the diagram represents a capability of the Aerial application. This diagram assumes that a participant is eligible for services.

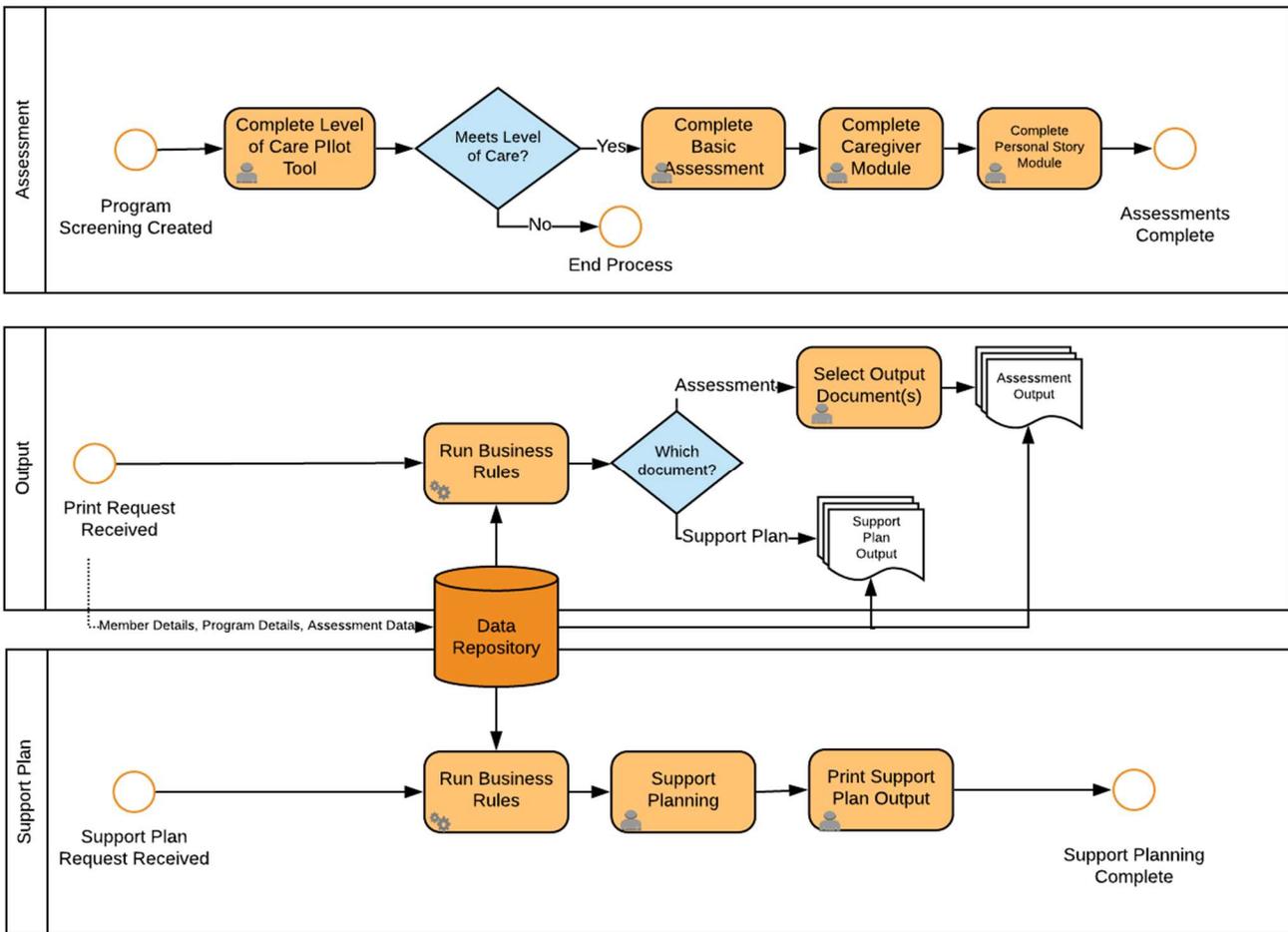


FIGURE 1

## Participant Assessment Output / Assessment Output

The Outputs are key items pulled forward from the assessment modules and used to build the support plan and indicate which waiver criteria is met. The “Assessment Output” is used by the Case Manager (CM), and the “Participant Output” is used by the Participant. The Outputs are the same with the exception of the Participant output which has additional sections to identify who information is shared with and what information is shared. The output process invokes the rules engine to determine which waivers the participant is eligible for as this information is included in the assessment output.

For the TEFT demonstration the Level of Care, Basic Assessment, Caregiver and Personal Story modules are used to pull forward into the Outputs. These modules should be completed prior to generating the Outputs, however, only the Level of Care and Basic Assessment are required to generate an Output.

## Output Generation

Outputs can be printed and or saved as PDFs.

From the participant's Comprehensive Member View (CMV), click "Print" to view the outputs available to print and or save.

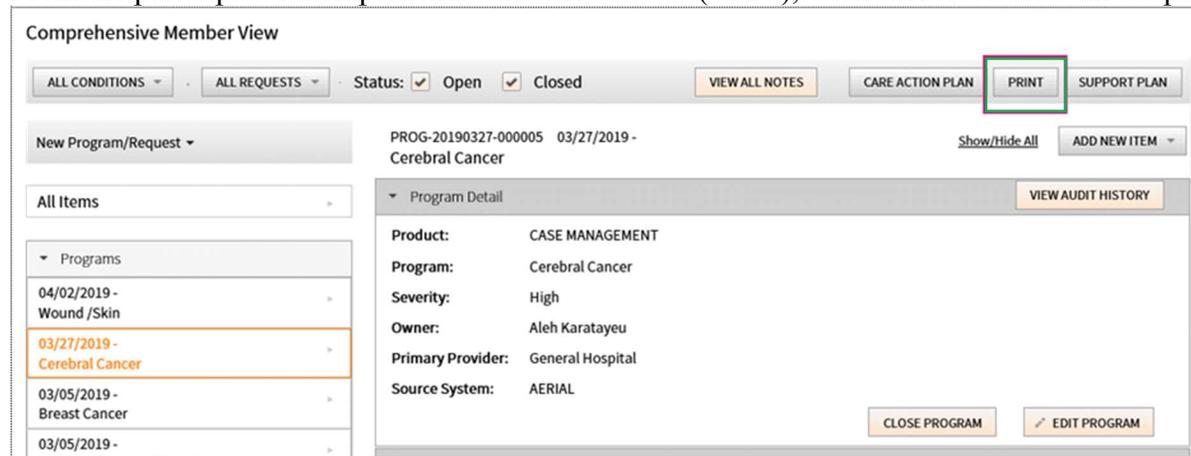
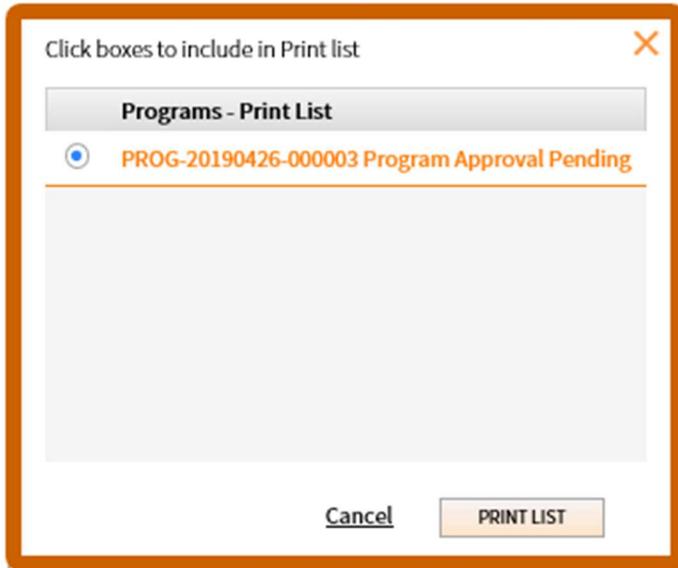


Figure 2.

Select the desired program. Click "Print List".

*Note: For TEFT - only Program Approval Pending displays.*



*Figure 3.*

To view an Output, click the arrow next to the desired Output.

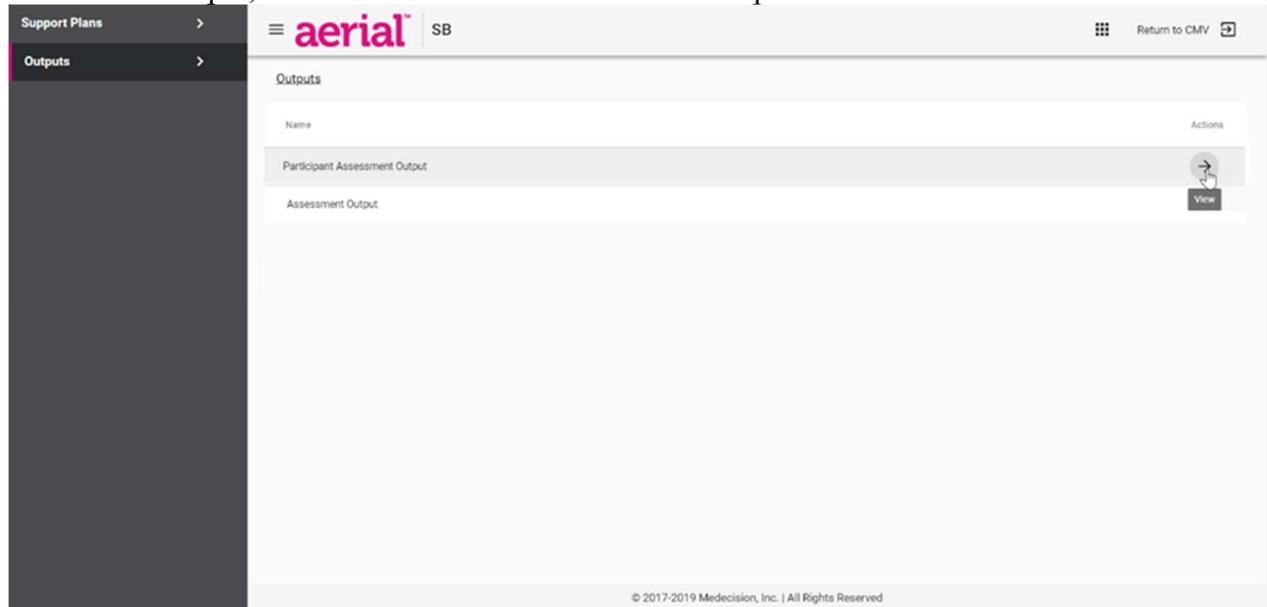


Figure 4.

Click the execute arrow to generate the Output. Click the Print icon to save print or save as a PDF.

< BACK ▶

### Participant Assessment Output

Client First Name	Person	 Health First <b>COLORADO</b> <small>Colorado's Medicaid Program</small>	Case Manager Name	Jessica Monroe
Client Last Name	Four		Case Management Agency	
Date of Birth	11/01/2003		Case Manager Phone Number	
Medicaid ID	FOUR		Date	05/01/2019

**I. PERSONAL STORY**

**1. Personal Profile**

**1A. I choose to skip this section.**

Yes

No

**1B. What would you like others to know about you/your child or events that have importance in your/your child's life?**

But I must explain to you how all this mistaken idea of denouncing pleasure and praising pain was born and I will give you a complete account of the system, and expound the actual teachings of the great explorer of the truth, the master-builder of human happiness. No one rejects, dislikes, or avoids pleasure itself, because it is pleasure, but because those who do not know how to pursue pleasure rationally encounter consequences that are extremely painful. Nor again is there anyone who loves or pursues or desires to obtain pain of itself, because it is pain, but because occasionally

**1C. Strengths**

But I must explain to you how all this mistaken idea of denouncing pleasure and praising pain was born and I will give you a complete account of the system, and expound the actual teachings of the great explorer of the truth, the master-builder of human happiness. No one rejects, dislikes, or avoids pleasure itself, because it is pleasure, but because those who do not know how to pursue pleasure rationally encounter consequences that are extremely painful. Nor again is there anyone who loves or pursues or desires to obtain pain of itself, because it is pain, but because occasionally

**1D. Areas of Need and Solutions**

Figure 5.

## Support Plan

The Support Plan uses information captured in the assessment process to develop a person-centered plan for meeting a participant's Long-Term Services and Supports (LTSS) needs. The format and data contents are based on the Support Plan module provided by The Department. The following twenty sections are included:

1. Participant's Identifying Information
2. Support Plan Administrative Information
3. Explanation of the Support Planning Process
4. For Reassessment Only -Progress Towards Goals from Previous Support Plan
5. Personal Goals
6. Activities to Fulfill Goals
7. Health and Safety
8. For Reassessment Only - Utilization of Services
9. Directing my Services
10. Choosing Medicaid Home and Community Based Services
11. Identifying my Supports
12. Provisions for Temporary Increase in Services
13. Referrals
14. Back-up Plans
15. Disaster Relocation Planning
16. Minimizing my Risks
17. Modifications of Rights / Setting Exception
18. Advance Directives
19. Case Management Monitoring
20. Comments, Guidance, and Concerns from Members of my Team

### Support Plan Pull Forward

Data is pulled forward into the Support Plan from the member details, program details, user details and or assessments based on requirements provided by The Department. Data is also pulled forward from previous sections of the support plan. The Case Manager, in collaboration with the participant, manually completes the remainder of the Support Plan. The following sections contain data that is pulled forward into the Support Plan.

Section	Source
Section 1: Participant's Identifying Information	Basic Assessment – Sensory and Communication: Functional Communication Section
Section 2: Support Plan Administrative Information	Program Details: ‘Custom Fields’- Certification Start Date and Certification End Date. User Details: Case Manager – Name, Telephone, Agency
Section 10: Choosing Medicaid Home and Community Based Services	Rules engine waiver eligibility determination - based on responses in the member details and assessments
Section 11: Identifying My Supports	Caregiver Assessment – Paid Caregivers (Medicaid), Paid Caregivers (Other Source) and Unpaid Caregivers.
Section 14: Back-up Plans	Section 11: Identifying My Supports – Paid and Unpaid Caregivers identified as ‘Back Up’ supports.
Section 16: Minimizing My Risks	Section 6: Activities to Fulfill Goals- Activities in which there are unmet ‘Needs.’

## Creating a Support Plan

For the TEFT demonstration, the Level of Care, Basic Assessment, Caregiver and Personal Story modules were used to pull forward into the Support Plans. These modules should be completed prior to generating the Support Plan, however, **only** the Level of Care and Basic Assessment are required to generate a Support Plan

From a participant's CMV, click "Support Plan" to access the list of the participant's programs.

Comprehensive Member View

The screenshot displays the 'Comprehensive Member View' interface. At the top, there are navigation tabs: 'ALL CONDITIONS', 'ALL REQUESTS', 'Status: Open Closed', 'VIEW ALL NOTES', 'CARE ACTION PLAN', 'PRINT', and 'SUPPORT PLAN' (highlighted with a red box). Below the tabs, there is a 'New Program/Request' section with a dropdown menu. The main content area is divided into two columns. The left column shows a list of programs under the heading 'Programs', with the selected program '03/27/2019 - Cerebral Cancer' highlighted in orange. The right column shows the 'Program Detail' for the selected program, including fields for Product, Program, Severity, Owner, Primary Provider, and Source System. At the bottom of the program detail, there are buttons for 'CLOSE PROGRAM' and 'EDIT PROGRAM'.

ALL CONDITIONS . ALL REQUESTS . Status:  Open  Closed . VIEW ALL NOTES . CARE ACTION PLAN . PRINT . **SUPPORT PLAN** ^

New Program/Request ▾ PROG-20190327-000005 03/27/2019 - Cerebral Cancer Show/Hide All ADD NEW ITEM ▾

All Items ▾

Programs

- 04/02/2019 - Wound /Skin ▸
- 03/27/2019 - Cerebral Cancer ▸**
- 03/05/2019 - Breast Cancer ▸
- 03/05/2019 - ... ▸

Program Detail VIEW AUDIT HISTORY

Product: CASE MANAGEMENT  
Program: Cerebral Cancer  
Severity: High  
Owner: Aleh Karatayeu  
Primary Provider: General Hospital  
Source System: AERIAL

CLOSE PROGRAM EDIT PROGRAM

Figure 6.

Select the desired program. Click "Launch Support Plan"

Note: For TEFT - only Program Approval Pending displays

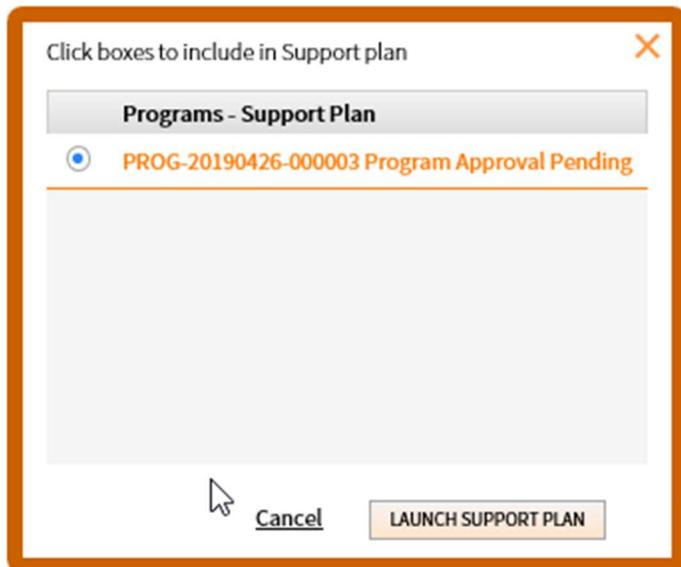


Figure 7.

The Support Plan launches displaying the user's initials, participant's demographic information, and sections of the Support Plan and navigation tools.

Click the exclamation icon next to the participant's name to view additional demographic information.



## Support Plan Navigation

Navigation options/icons include: menu icon, left navigation panel, Aerial applications (apps), return to CMV, expand/collapse all sections, expand and collapse individual sections, save and print icons and scroll bars.

**Menu Icon-** Click the menu icon to open or close the left navigation panel.

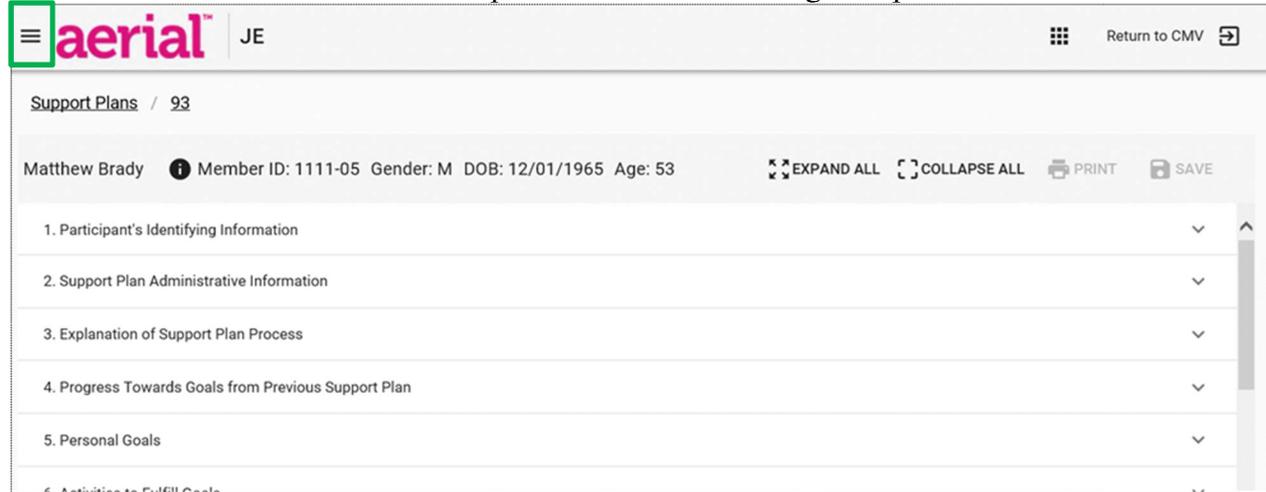


Figure 11.

**Left Navigation Panel** - The left navigation panel allows the user to view, print and or save available Support Plans and or Outputs. - More information on this functionality is provided in a later section.

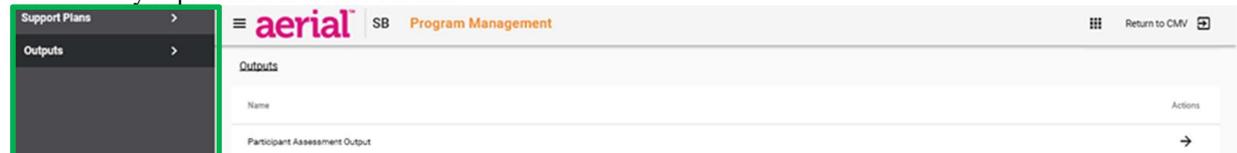


Figure 12.

**Aerial Apps** - Click the Aerial Application box to display the available applications. The user can click on the applications to easily navigate between them (see Figure 14). This is currently only turned on for Support Plan. Future enhancements will provide additional capability.



Figure 13.

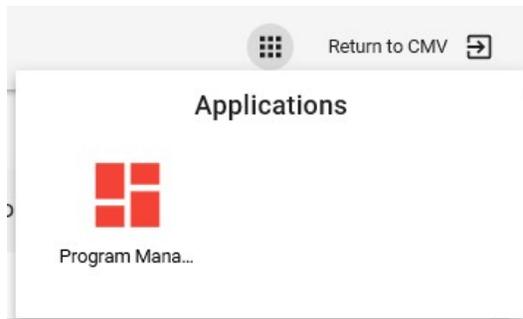


Figure 14.

**Return to CMV** - Click the arrow to return to the CMV.



Figure 15.

## Expand and Collapse Sections

Two icons are provided that allow the user to easily expand all sections or collapse all sections.

☰ **aerial** | JE ☰ Return to CMV ↩

---

Support Plans / 93

Matthew Brady ⓘ Member ID: 1111-05 Gender: M DOB: 12/01/1965 Age: 53 🔍 EXPAND ALL 🗑 COLLAPSE ALL 🖨 PRINT 💾 SAVE

1. Participant's Identifying Information	▼	▲
2. Support Plan Administrative Information	▼	
3. Explanation of Support Plan Process	▼	
4. Progress Towards Goals from Previous Support Plan	▼	
5. Personal Goals	▼	
6. Anticipate to Fulfill Goals	▼	

Figure 16.

Click the down caret to the right of a section to expand just the chosen section. Click the up caret to the right of the section to collapse the chosen section.

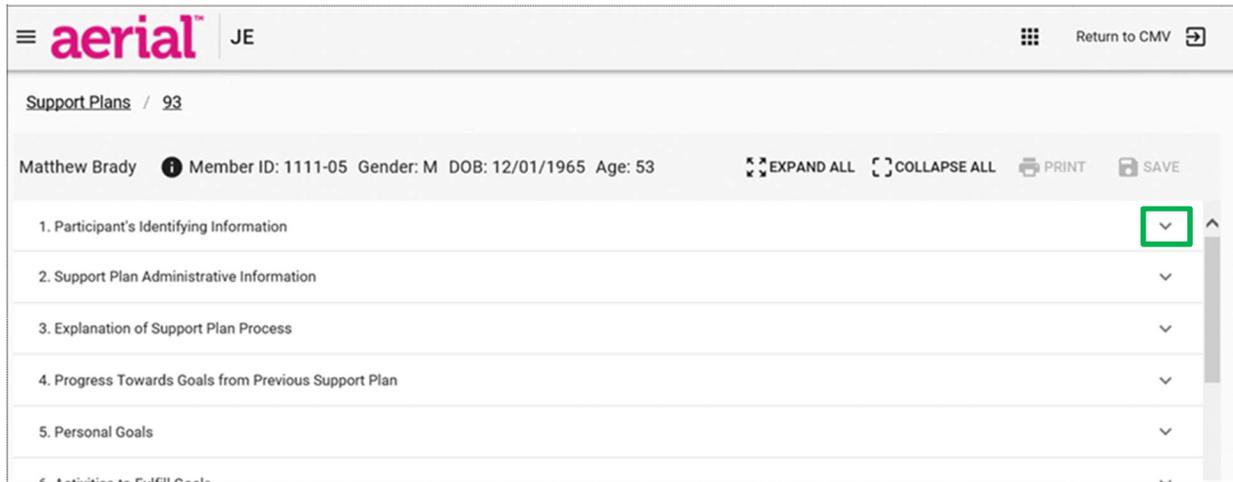


Figure 17.

**Print** – The Print icon is disabled until the Support Plan is saved. Print functionality will be reviewed in a later section.

*Print disabled.*



Figure 18.

*Print enabled.*

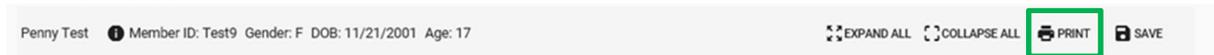
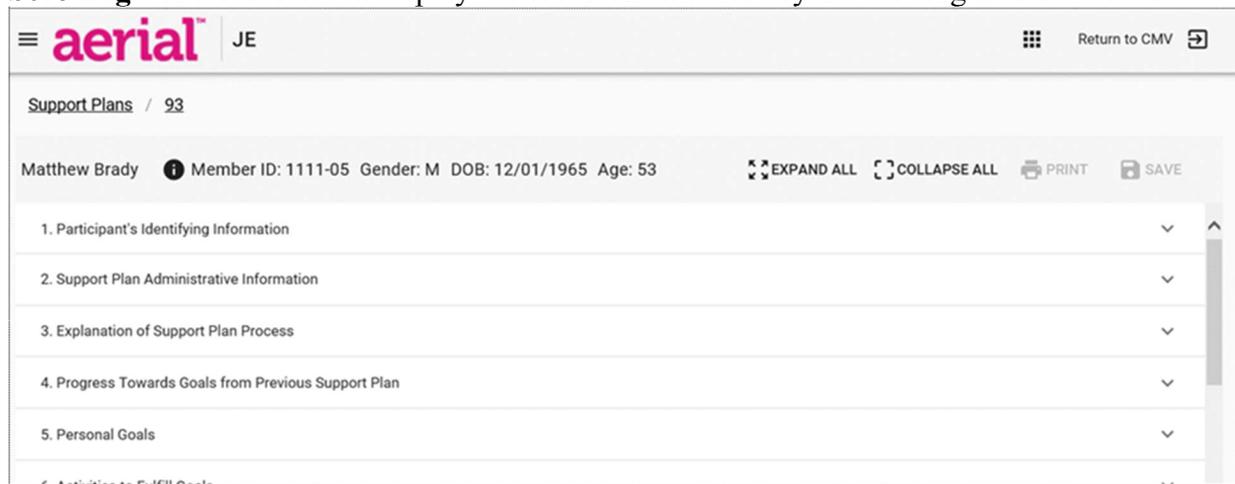


Figure 19.

**Scrolling** – A scroll bar will display when content extends beyond the length of the screen.



*Figure 20.*

## Support Plan Sections

### Section 1: Participant's Identifying Information

This section is pulled forward from information gathered during the assessment process.

**aerial** | JE Program Management Return to CMV

Support Plans / 110

Person Four | Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 EXPAND ALL COLLAPSE ALL PRINT SAVE

1. Participant's Identifying Information

1. Case manager reviewed information in Member Details with participant and information is current?  
 No  Yes

2. Method(s) participant likes to use to communicate with others:

<input checked="" type="checkbox"/> Verbal English	<input type="checkbox"/> Verbal Spanish
<input type="checkbox"/> Verbal Other Language, Identify:	<input type="checkbox"/> Sign Language
<input type="checkbox"/> Writing/Braille	<input type="checkbox"/> Gestures
<input type="checkbox"/> Facial Expression	<input checked="" type="checkbox"/> Texting/Media/Social Media
<input type="checkbox"/> Electronic Device	<input type="checkbox"/> Other

4. Method(s) participant likes others to use to communicate with him/her:

<input checked="" type="checkbox"/> English	<input type="checkbox"/> Verbal Spanish
<input type="checkbox"/> Verbal Other Language, Identify:	<input type="checkbox"/> Sign Language
<input type="checkbox"/> Writing/Braille	<input type="checkbox"/> Gestures

Figure 21.

## Section 2: Support Plan Administrative Information

This section is pulled forward from Aerial Care Management program details and user.

Select the calendar icon to use the calendar for date selections. The date may also be entered manually by clicking on the field. The format to use when entering the date manually is YYYY-MM-DD. In the table for “Individuals Contributing to the Plan”, additional individuals can be added. There is no limit on the number of people that can be indicated as contributors to the plan.

The screenshot displays the 'Support Plan Administrative Information' section for 'Person Four' (Member ID: FOUR, Gender: F, DOB: 11/01/2003, Age: 15). The form contains the following sections:

- 1. Support Plan Type:** Radio button options include Initial/Enrollment (selected), Continued Stay Review, Revision, Community Care Transition (CCT) Certification Extension, Deinstitutionalization (DI), and Readmission to institution.
- 2. Location of Support Planning Meeting:** Radio button options include Participant's Home (selected), Other family member's home, Other community setting, Case management agency office, Hospital, Nursing Facility, NCF/IDO, and Other.
- 3. Date Support Plan was initiated:** A date selection field with a calendar icon.
- 4. Sug Start:** A date field.
- 5. Case:** A text field containing 'JESSIE'.
- 6. Cls:** A date field.
- 7. Cls:** A date field.
- 8. Individuals contributing to the plan:** A table with multiple rows for adding contributors.

The calendar for April 2019 is open, showing the 15th as the selected date. The table for 'Individuals contributing to the plan' is currently empty.

Figure 22.

### Section 3: Explanation of the Support Plan Process

The case manager will have the ability to answer questions and fill out the information on this screen. This screen includes a Notes/Comments section that has a 600-character limit. It also supports the ability to copy and paste text.

Required questions and instructions intended to guide the case manager are in red.

The screenshot shows a web interface for 'Support Plans' with a breadcrumb trail 'Support Plans / 110'. The user profile for 'Person Four' is displayed, including Member ID: FOUR, Gender: F, DOB: 11/01/2003, and Age: 15. The form contains several sections:

- Section 3: Explanation of Support Plan Process** (highlighted with a green box):
  - 1. I and/or my representative have received a Handbook explaining the Assessment and Support Planning processes prior to my Support Plan meeting.
    - No
    - Yes
  - I Reviewed Handbook with the participant/representative prior to proceeding
  - 1a. Notes / Comments
- Section 2:** The case manager discussed the following with me and I understand:
  - The contents of the handbook and any questions I/my representative have
  - What person - centered goals are and how they will be developed
  - What supports are available for making decisions and whether I would like this support
  - Service options, including opportunities for participant direction
  - Differences for supports available for children transition to adult services (16+)
  - Rights modifications for children transitioning to adult services (16+)
  - What to expect and not expect from development of my Support Plan
  - Next steps after my Support Plan is developed
  - How to report mistreatment (including abuse, neglect, exploitation) and other critical incidents
- Section 3:** The case manager discussed the following rights and responsibilities with me and I understand (Check all that apply):
  - The rights and responsibilities of the participant, legally recognized representative, and case manager when developing my Support Plan
  - The responsibilities of my team (myself, family, and others I've invited to participate) to provide accurate information throughout the Assessment and Support Plan process

Figure 23.

### Section 4: For Reassessment Only - Progress Towards Goals from Previous Support Plan Progress Towards Goals from Previous Support Plan

This section is used for participants at reassessment to determine progress that has been made on the goals established during the previous meeting and whether additional steps are needed to meet/maintain the goals. Click the "+" icon to add goals. There is no limit to the number of goals that can be added

**Note:** For the TEFT deliverable, pull forward from previous support plans was determined to be out of scope.

**aerial™** JE Program Management Return to CMV

Support Plans / 110

Person Four Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 EXPAND ALL COLLAPSE ALL PRINT SAVE

1. Participant's Identifying Information
2. Support Plan Administrative Information
3. Explanation of Support Plan Process
4. Progress Towards Goals from Previous Support Plan

Progress Towards Goals

+

	Goal	How Progress Towards Goal Will be Measured	Timeframe for Achieving	Progress Made Towards Goal	Systemic Barriers	Actions
No data available						

Rows per page: 10

*Figure 24.*  
Click on the "+" icon

Progress Towards Goals

< 🔒

Details

Goal

---

How Progress Towards Goal Will be Measured

---

Timeframe for Achieving

---

Progress Made Towards Goal

---

Score of Progress Towards Goal

- Goal achieved, can remove
- Goal being achieved but should remain active
- Goal is on target to be accomplished
- Goal relevant, barriers to overcome:
- Goal no longer relevant, should be removed. Explain:

*Figure 25*

## Section 5: Personal Goals

This section allows a case manager to work with the participant to develop personal goals. Up to 25 goals can be entered for the participant. To add a new goal, the case manager will select the + icon and the system will present a screen to enter the following information:

- Goal – Free text up to 600 characters
- Participant ranking of goal – drop down selecting the downward-facing triangle icon (▼) of a scale from 1-25
- Legally Recognized Representative Ranking of Goal – dropdown selecting the downward-facing triangle icon (▼) of a scale from 1-25
- Participant Rating of How Meaningful Goal is - drop down selecting the downward-facing triangle icon (▼) using a Likert scale from Extremely Meaningful to Not Meaningful.
- Legally Recognized Representative Ranking of Goal – dropdown selecting the downward-facing triangle icon (▼) using a Likert scale from Extremely Meaningful to Not Meaningful.
- How progress will be measured – Free text up to 600 characters
- Timeframe for Achieving Goal - dropdown selecting the downward-facing triangle icon (▼) reveals options Ongoing, Future, Other
- Describe – Free text up to 600 characters

☰ aerial | JE Program Management Return to CMV

---

Support Plans / 110

Person Four 👤 Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 EXPAND ALL COLLAPSE ALL PRINT SAVE

4. Progress Towards Goals from Previous Support Plan ▼

5. Personal Goals ▲

Transition to Adult Services – Goals and/or activities that should be included to address transition to adult services.

- Apply for SSI/LTC Medicaid
- Develop replacement activities that will become active after the transition to an adult wavier
- Discuss replacement activities that will become active after the child is no longer eligible for EPSDT services, including Private Duty Nursing
- Develop replacement activities that will become active after the child is no longer eligible for EPSDT services, including Private Duty Nursing

I would like to develop personal goals?

No  Yes

**Goals**

< 📄

**Details**

Goal  
 I want to take a walk with my dogs every day.

---

Participant Ranking of Goal  
 1 ▼

---

Legally Recognized Representative Ranking of Goal  
 1 ▼

---

Participant Rating of How Meaningful Goal Is  
**Extremely Meaningful** ▼

---

Legally Recognized Representative Rating of How Meaningful Goal Is  
**Very Meaningful** ▼

Figure 26.

## Section 6: Activities to Fulfill Goals

This section enables a case manager to document the activities necessary to complete each of the participant's goals. Click the "+" icon to enter a new activity with the following information:

- Activities to fulfill goal – free text with a 600-character limit
- Start Date – select calendar icon to open the calendar and select a start date. The date may also be entered manually by clicking on the field. The format to use when entering the date manually is YYYY-MM-DD.
- End Date - select calendar icon to open the calendar and select an end date. The date may also be entered manually by clicking on the field. The format to use when entering the date manually is YYYY-MM-DD.
- Preference/Guidance – free text with a 600-character limit
- Skill Building – Checkbox
- Participant Direction – Checkbox
- Identify Services and Supports to Fulfill the Activity – free text with a 600-character limit
- Support Sources - free text with a 600-character limit
- Unmet Need – Check Box
- Systemic Challenges - free text with a 600-character limit
- Other Challenges - free text with a 600-character limit

*Note: A goal must be entered and saved in Section 5 before an activity can be created. Only 1 activity can be created for a goal. Adding multiple activities per goal is a future enhancement.*

Support Plans / 120

Sharon Test Member ID: STEST Gender: F DOB: 01/01/1970 Age: 49 EXPAND ALL COLLAPSE ALL PRINT SAVE

3. Personal Goals

\* 6. Activities to Fulfill Goals

1. I would like to develop activities to fulfill goals.

No  Yes

Required

2. Activities to fulfill goals:

< [lock icon]

Details

Goal

Activities to fulfill goal

---

[calendar icon] Start Date

---

[calendar icon] End Date

---

Preference/Guidance

Figure 27.

## Section 7: Health and Safety

This section is used to document the health and safety issues of the participant. The Support Plan was designed to allow a participant to choose not to address a health and safety issue; however, this issue would need to be discussed in the Minimizing My Risks section. The participant, or legally recognized representative, must acknowledge that he or she understands and is willing to accept the risk.

The screenshot displays the Aerial Program Management interface. At the top, the user is identified as 'JE Program Management'. The page title is 'Support Plans / 120'. The participant's information is 'Sharon Test', Member ID: STEST, Gender: F, DOB: 01/01/1970, Age: 49. Action buttons include 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. The form is divided into sections: '3. Personal Goals', '6. Activities to Fulfill Goals', and '7. Health and Safety'. Under '7. Health and Safety', question 1 asks: '1. Are there any health and/or safety issues that are not addressed by the personal goals?' with radio buttons for 'No' and 'Yes'. Question 2 is a required field: '2. Describe the health and/or safety issue to be addressed:'. A modal window is open for this question, titled 'Details', containing a dropdown menu with the text 'Participant has a need for the following', a text area for 'Describe specific need:', and checkboxes for 'Issue identified by: Me, Representative, Case manager, Other'. Below the modal, there are checkboxes for 'I want to address issue:' and 'My Legally Recognized Representative wants to address issue:'.

Figure 28.

## Section 8: For Reassessment ONLY – Utilization of Services

This section is used to document the services that the participant was not able to utilize.

**Note:** For the TEFT deliverable, automatic population of this section was determined to be out of scope.

Person Four Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 EXPAND ALL COLLAPSE ALL PRINT SAVE

5. Personal Goals

6. Activities to Fulfill Goals

7. Health and Safety

8. For Reassessment ONLY - Utilization of Services

Add derutilization of Services

<input type="checkbox"/>	Services for which authorizations were 20% higher than what was used	Reason for under-use of services	Description of Issue	Changes to my plan prevent this from happening again	System changes needed to prevent this from happening again
No data available					

Figure 29.

To document the services the participant was not able to utilize, the case manager selects the "+" icon and enters the following information:

- Services for which authorizations were 20% higher than what was used – free text 600 character limit
- Reasons for under-use of services with two selection circles
  - Authorized more than I needed
  - I was not able to get all the services that I needed
- Description of Issue – free text 600 character limit
- Changes to my plan prevent this from happening again – free text 600 character limit
- System changes needed to prevent this from happening again – free text 600 character limit

Person Four ⓘ Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 🔍 EXPAND ALL 📄 COLLAPSE ALL 🖨️ PRINT 📁 SAVE

1. Underutilization of Services

< 📄

Details

Services for which authorizations were 20% higher than what was used

---

Reason for under-use of services

Authorized more than I needed

I was not able to get all the services that I needed

Description of Issue

---

Changes to my plan prevent this from happening again

---

System changes needed to prevent this from happening again

*Figure 30.*

## Section 9: Directing My Services

This section has two parts. The first half gauges the participant's interest in participant-directed services and establishes whether participant-directed services should be considered when selecting a waiver. The second half is used for reassessments and collects information from participants already enrolled in participant-directed services about changes that the participant would like to make.

The screenshot displays the Aerial program management interface. At the top, the Aerial logo is on the left, and 'JE Program Management' is in the center. On the right, there are icons for 'Return to CMV' and a help icon. Below the header, the user's profile information is shown: 'Person Four', 'Member ID: FOUR', 'Gender: F', 'DOB: 11/01/2003', and 'Age: 15'. To the right of the profile are icons for 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. The main content area is titled '8. For Reassessment ONLY - Utilization of Services' and contains a sub-section '9. Directing My Services'. Below this sub-section, there is a paragraph of instructions: 'Have brief discussion with participant and representative about participant directed services, including an overview of the programs and services that are available. Participant direction is only available in certain waivers which includes the option to direct services or have an authorized representative direct service if participant does not wish to or is not able to.' This is followed by a question: '1. I am interested in discussing participant-directed services.' with three radio button options: 'Yes, already enrolled in participant directed services', 'Yes, not currently enrolled in participant directed services', and 'No'. Below the options is a 'Required' label. The next question is '2. I want to be able to select, dismiss, and manage the people I want to help me, including family members or friends.' with five radio button options: 'Strongly Agree', 'Agree', 'Neither Agree or Disagree', 'Disagree', and 'Strongly Disagree'. The final question is '3. I want to be able to choose how much I pay the people whowork for me.' with five radio button options: 'Strongly Agree', 'Agree', 'Neither Agree or Disagree', 'Disagree', and 'Strongly Disagree'.

Figure 31.

## Section 10: Choosing Medicaid Home and Community Based Services

This section uses a rules engine that provides the waiver programs a participant is eligible to enroll in. The rules engine is derived from responses in the participant details/demographics and assessments. The rules engine provides the participant the waiver programs they are eligible for, allowing them to discuss the pros and cons of each waiver and the best option.

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39

EXPAND ALL COLLAPSE ALL PRINT SAVE

10. Choosing Medicaid Home and Community Based Services

I would like to complete this section

No  Yes

2. I am eligible for the following Medicaid programs:

Medicaid HCBS Waivers	Services	Pros	Cons
Persons with a Spinal Cord Injury (SCI) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Acupuncture Adult Day Services Alternative Therapies Chiropractic Care Consumer-Directed Attendant Support Services (CDASS)/Peer Mentorship Home Delivered Meals Home Modification Homemaker Services In-Home Support Services (IHSS)	Independent Living Skills Training (ILST) Massage Therapy Medication Reminder Non-Medical Transportation Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	
Elderly, Blind, and Disabled (EBD) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS)/Peer Mentorship Home Delivered Meals Home Modification Homemaker Services	In-Home Support Services (IHSS) Independent Living Skills Training (ILST) Medication Reminder Non-Medical Transportation Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	
Community Mental Health Supports (CMHS) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS)/Peer Mentorship Home Delivered Meals Home Modification	Independent Living Skills Training (ILST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	

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Figure 32.

Click on the pencil icon to edit the waiver.

 SB Return to CMV

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39

EXPAND ALL COLLAPSE ALL PRINT SAVE

10. Choosing Medicaid Home and Community Based Services

I would like to complete this section

No  Yes

Required

2. I am eligible for the following Medicaid programs:

Medicaid HCBS Waivers	Services	Pros	Cons
Persons with a Spinal Cord Injury (SCI) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Acupuncture Adult Day Services Alternative Therapies Chiropractic Care Consumer-Directed Attendant Support Services (CDASS)/Peer Mentorship Home Delivered Meals Home Modification Homemaker Services In-Home Support Services (IHSS)	Independent Living Skills Training (LST) Massage Therapy Medication Reminder Non-Medical Transportation Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	

Figure 34.

Select the desired option by clicking on the checkbox and save.

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39 EXPAND ALL COLLAPSE ALL PRINT SAVE

No  Yes

Required  
2. I am eligible for the following Medicaid programs:

Medicaid HCBS Waivers	Services	Pros	Cons
<input checked="" type="checkbox"/> Persons with a Spinal Cord Injury (SCI) Waiver Selected: Yes <input type="checkbox"/> Has Waiting List: No <input checked="" type="checkbox"/> Allow Participant Direction: Yes	Acupuncture Adult Day Services Alternative Therapies Chiropractic Care Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services In-Home Support Services (IHSS)	Independent Living Skills Training (LST) Massage Therapy Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	No waiting list, comprehensive services for county of location, Acupuncture, Massage Therapy
<input type="checkbox"/> Elderly, Blind, and Disabled (EBD) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	In-Home Support Services (IHSS) Independent Living Skills Training (LST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	
<input type="checkbox"/> Community Mental Health Supports (CMHS) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	Independent Living Skills Training (LST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	

The DD Waiver Status Review - Review Waiting List Status for the DD Waiver

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Figure 34.

Click the Save icon to save edits made to the waiver. Click the "x" icon to cancel changes.

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39 EXPAND ALL COLLAPSE ALL PRINT SAVE

No  Yes

Required  
2. I am eligible for the following Medicaid programs:

Medicaid HCBS Waivers	Services	Pros	Cons
<input checked="" type="checkbox"/> Persons with a Spinal Cord Injury (SCI) Waiver Selected: Yes <input type="checkbox"/> Has Waiting List: No <input checked="" type="checkbox"/> Allow Participant Direction: Yes	Acupuncture Adult Day Services Alternative Therapies Chiropractic Care Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services In-Home Support Services (IHSS)	Independent Living Skills Training (LST) Massage Therapy Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	No waiting list, comprehensive services for county of location, Acupuncture, Massage Therapy
<input type="checkbox"/> Elderly, Blind, and Disabled (EBD) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	In-Home Support Services (IHSS) Independent Living Skills Training (LST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	
<input type="checkbox"/> Community Mental Health Supports (CMHS) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	Independent Living Skills Training (LST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	

Figure 35.



After the case manager saves edits to a waiver, updates are reflected in the waiver. The case manager can continue to edit and save, as needed.

The screenshot displays the Aerial web application interface for a case manager. At the top, the user's name 'Alex Smith' and Member ID '1111-02' are shown, along with demographic information: Gender: M, DOB: 12/01/1979, Age: 39. The interface includes utility icons for 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. A 'Required' section contains a question: '2. I am eligible for the following Medicaid programs:'. Below this is a table of services categorized into 'Medicaid HCBS Waivers', 'Services', 'Pros', and 'Cons'. The 'Medicaid HCBS Waivers' section is highlighted with a red box and contains three entries: 'Persons with a Spinal Cord Injury (SCI)', 'Elderly, Blind, and Disabled (EBD) Waiver', and 'Community Mental Health Supports (CMHS)'. The 'Services' section is highlighted with a green box and contains a list of services including 'Acupuncture', 'Adult Day Services', 'Alternative Therapies', 'Chiropractic Care', 'Consumer-Directed Attendant Support Services (CDASS)', 'Home Delivered Meals', 'Home Modification', 'Homemaker Services', 'In-Home Support Services (IHSS)', 'Adult Day Services', 'Adult Day Transportation', 'Alternative Care Facilities', 'Community Transition Services', 'Consumer-Directed Attendant Support Services (CDASS)', 'Home Delivered Meals', 'Home Modification', and 'Homemaker Services'. The 'Pros' section is highlighted with a green box and contains the text: 'No waiting list, comprehensive services for county of location, Acupuncture, Massage Therapy'. The 'Cons' section is empty. The footer of the page reads '© 2017-2019 Meddecision, Inc. | All Rights Reserved'.

Figure 36.

Validation rules are in place the prevent more than one waiver from being selected.

**aerial** SB Return to CMV

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39 EXPAND ALL COLLAPSE ALL PRINT SAVE

No  Yes

Required  
2. I am eligible for the following Medicaid programs:

Medicaid HCBS Waivers	Services	Price	Cons
<input checked="" type="checkbox"/> Persons with a Spinal Cord Injury (SCI) Waiver Selected: Yes Has Waiting List: No Allow Participant Direction: Yes	Acupuncture Adult Day Services Alternative Therapies Chiropractic Care Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services In-Home Support Services (IHSS)	Independent Living Skills Training (ILST) Massage Medication Management Non-Medical Transportation Peer Mentorship Personal Care Respite Care	No waiting list, comprehensive services for county of location, Acupuncture, ...
<input type="checkbox"/> Elderly, Blind, and Disabled (EBD) Waiver Selected: No <input checked="" type="checkbox"/> Has Waiting List: No <input type="checkbox"/> Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	In-Home Support Services (IHSS) Independent Living Skills Training (ILST) Medication Management Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> Community Mental Health Supports (CMHS) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	Independent Living Skills Training (LST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	<input type="checkbox"/>

The CD, Waiver, Plan, Request, Order, Waiver, and Order for the CD Waiver

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**Warning**

Only 1 waiver can be selected

OK

Figure 37.

The case manager can select a waiver even when the waiver has a wait list.

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39

EXPAND ALL COLLAPSE ALL PRINT SAVE

No  Yes

Required  
2. I am eligible for the following Medicaid programs:

Medicaid HRS Waivers	Services	Pros	Cons
<input checked="" type="checkbox"/> Persons with a Spinal Cord Injury (SCI) Waiver Selected: Yes Has Waiting List: No Allow Participant Direction: Yes	Acupuncture Adult Day Services Alternative Therapies Chiropractic Care Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services In-Home Support Services (IHSS)	Independent Living Skills Training (ILST) Massage Therapy Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	No waiting list, comprehensive services for county of location, Acupuncture, Massage Therapy
<input type="checkbox"/> Elderly, Blind, and Disabled (EBD) Waiver Selected: No Has Waiting List: Yes Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	In-Home Support Services (IHSS) Independent Living Skills Training (ILST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	
<input type="checkbox"/> Community Mental Health Supports (CMHS) Waiver Selected: No Has Waiting List: No Allow Participant Direction: No	Adult Day Services Adult Day Transportation Alternative Care Facilities Community Transition Services Consumer-Directed Attendant Support Services (CDASS) Home Delivered Meals Home Modification Homemaker Services	Independent Living Skills Training (ILST) Medication Reminder Non-Medical Transportation Peer Mentorship Personal Care Personal Emergency Response System/Electronic Monitoring (PERS) Respite Care	

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Figure 38.

## Section 11: Identify My Supports

**THIS SECTION IDENTIFIES SUPPORTS AND AUTHORIZATION OF SERVICES. THE SCREENS DISPLAYED BELOW WILL ALLOW THE USER TO ENTER ALL INFORMATION NECESSARY FOR EACH SUPPORT AND SERVICE.** Information on individuals supporting the participant is pulled forward into this section. Information pulled forward to this section may be edited by selecting the pencil icon on the right-hand side of the table. It may be necessary to use the horizontal scroll bar on the table to access this pencil icon.

**FOR EACH SERVICE, THE COST IS AUTOMATICALLY CALCULATED BASED ON THE MAPPING SUPPLIED TO MEDECISION FROM DXC AND THE DEPARTMENT.**

**Note: THE LIST OF SERVICES AVAILABLE IS DEPENDENT ON THE WAIVER SELECTED IN SECTION 10. THEREFORE, IF NO WAIVER IS SELECTED, NO SERVICES ARE AVAILABLE.**

Support Plans / 66

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39

EXPAND ALL COLLAPSE ALL PRINT SAVE

11. Identifying my Supports

\* Would like to identify my supports  
1. I would like to identify unpaid supports and/or supports paid by another source

No  Yes

2. previous documented Paid Caregiver Supports through Medicaid

<input type="checkbox"/>	Name/Agency	Preferred Phone #	Preferred Email	Distance from participant	Caregiver ID	Relationship to Participant	Caregiver help (Check all that apply)	Describe need	Frequency: How Often is Assistance Provided?	What should be covered
<input type="checkbox"/>	Todd Jones	8798767654	Todd@aol.com			Regular support, Back-up support	Self-care assistance (for example, bathing, dressing, toileting, or eating/feeding), Mobility assistance (for example, bed mobility, transfers, ambulating, or wheeling), JADL assistance (for example, making meals, housekeeping, telephone, shopping, or finances), Medication administration (for example, oral, inhaled, or injectable medications), Medical procedures/ treatments (for example, changing wound dressing, or home exercise program), Management of equipment (for example, oxygen			

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Figure 39.



Click the "+" icon to add a new service.

The screenshot shows the Aerial SB Support Plans interface for Alex Smith (Member ID: 1111-02, Gender: M, DOB: 12/01/1979, Age: 39). The page displays a support calendar completion status and a table for HCBS waiver services. A red box highlights a '+' icon in the top-left corner of the table, indicating where to click to add a new service. The table has columns for Funding Stream, Service, Unit Type, Number Of Units, Unit Rate, Total Cost of Service, Start, End, Assessed Need, Guidance to workers, Skills Building, and Provider. The table is currently empty, showing 'No data available'. Below the table, there is a section for State Plan Benefits with a '+' icon to add services.

Funding Stream	Service	Unit Type	Number Of Units	Unit Rate	Total Cost of Service	Start	End	Assessed Need	Guidance to workers	Skills Building	Pr
No data available											

Figure 40.

After clicking the "+" icon, additional fields are displayed.

Support Plans / 56

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39 EXPAND ALL COLLAPSE ALL PRINT SAVE

Support calendar was completed:  
 No  Yes

9.  
7a. Medicaid HCBS waiver services to be Authorized- The following services will be authorized to help me achieve my goals.

<

Details  
Funding Stream HCBS Waiver  
Persons with a Spinal Cord Injury (SCI) Waiver

Service  
Unit Type  
Number Of Units  
Unit Rate  
\$  
Total Cost of Service  
\$

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Figure 41.

A list of services is displayed for the case manager.

The screenshot shows the Aerial SB user interface. At the top, the user is identified as Alex Smith with Member ID: 1111-02, Gender: M, DOB: 12/01/1979, and Age: 39. The page title is 'Support Plans / 66'. Below the user information, there are navigation options: EXPAND ALL, COLLAPSE ALL, PRINT, and SAVE. A message states 'Support calendar was completed:' with radio buttons for 'No' and 'Yes'. Section 9 is titled '7a. Medicaid HCBS waiver services to be Authorized- The following services will be authorized to help me achieve my goals.' Below this, a dropdown menu is open, showing details for 'Funding Stream HCBS Waiver' and 'Persons with a Spinal Cord Injury (SCI) Waiver'. A list of services is displayed, with a green box highlighting the first five items:

- T2025 - CDASS Services U1 SC
- S5161 - EMER RSPNS SYS SERV PERMONTH U1 SC
- S5160 - EMER RESPONSE SYS INSTALTST U1 SC
- T1019 - IHSS REL PERSONAL CARE SER PER 15 MIN U1 SC HR KX
- 97124 - MASSAGE THERAPY U1 SC
- 97814 - ACUPUNCT W/STIMUL ADDL 15M U1 SC

Figure 42.

The case manager fills out Number of Units. Unit Type and Unit Rate are pre-populated. Total Cost of Service is calculated. **Note: THE LIST OF SERVICES AVAILABLE IS DEPENDENT ON THE WAIVER SELECTED IN SECTION 10. THEREFORE, IF A WAIVER IS NOT SELECTED, NO SERVICES ARE AVAILABLE.**

☰ **aerial™** | SB ☰ Return to CMV ↩

---

**Alex Smith** ⓘ Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39 
 ⌵ EXPAND ALL ⌵ COLLAPSE ALL 🖨️ PRINT 📄 SAVE

Support calendar was completed:

No  Yes

9.

7a. Medicaid HCBS waiver services to be Authorized- The following services will be authorized to help me achieve my goals.

< 🔒

**Details**

Funding Stream HCBS Waiver

Persons with a Spinal Cord Injury (SCI) Waiver

Service

97124 - MASSAGE THERAPY U1 SC

---

Unit Type

15 Minutes

Number Of Units

4

---

Unit Rate

\$ 14.20

Total Cost of Service

\$ 56.80

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Figure 43.

Once the case manager completes entering details for a specific service, they are displayed in the Support Plan.

Alex Smith Member ID: 1111-02 Gender: M DOB: 12/01/1979 Age: 39

8. Voluntary Support Calendar - The Support Calendar is a voluntary spreadsheet that will allow me to plan the type and amount of support that I will need during different weeks. For example, I may need a different level of support during a work week than I do during a holiday or vacation week.  
Support calendar was completed:  
 No  Yes

7a. Medicaid HCBS waiver services to be Authorized- The following services will be authorized to help me achieve my goals.

	Funding Stream	HCBS Waiver	Service	Unit Type	Number Of Units	Unit Rate	Total Cost of Service	Start	End	Assessed Need	Guidance to workers	Skills Building
<input type="checkbox"/>	Persons with a Spinal Cord Injury (SCI) Waiver	97124-	MASSAGE THERAPY U1 SC	15 Minutes	4	14.20	56.80	2019-03-21	2019-06-14		Provide assistance for participant lack of mobility	

7b. State Plan Benefits – I receive the following services to help me achieve my goals.

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Figure 44.

Additional supports can be considered by the case manager.

Support Plans / 120

Sharon Test Member ID: STEST Gender: F DOB: 01/01/1970 Age: 49

EXPAND ALL COLLAPSE ALL PRINT SAVE

[For the "Assessed Needs Support is Assisting with" select relevant assessment module(s) where need is identified and use text box to specify the need]

5. Other sources of caregiver supports paid for by any other source (Other than Medicaid). Are there any other potential sources of supports paid for by any other source (Other than Medicaid) beyond what was identified during the assessment?

Prompt to see if there are other source of support, such as churches or neighbors, that should be considered.

No  Yes

+

<input type="checkbox"/>	Name/Agency Information	Amount, Duration, and Frequency of Support	Assessed Needs Support is Assisting With	Back-up Planning	Guidance for Supports	Other Considerations	Actions
No data available							

Rows per page: 10

[For the "Assessed Needs Support is Assisting with" select relevant assessment module(s) where need is identified and use text box to specify the need]

6. Previously Documented Unpaid Caregiver Supports

+

<input type="checkbox"/>	Caregiver Information	Distance from participant	Relationship to Participant:	Caregiver help (Check all that apply)	Assessed Needs Support is Assisting With	Frequency: How Often is Assistance Provided?	Back-up
No data available							

Rows per page: 10

Figure 45.

## Section 12: Provisions for Temporary Increase in Services

In this section, members can provide scenarios in which additional supports may be necessary so that other (or changed) supports can be triggered without having to amend the plan. These scenarios should only be describing temporary situations. If the change in support is likely to be ongoing, the Support Plan should be updated.

The case manager can complete these sections and add a free text description to item 2.

The screenshot displays the 'aerial' web application interface. At the top, the user is identified as 'Person Four' with Member ID: FOUR, Gender: F, DOB: 11/01/2003, and Age: 15. The page title is 'Program Management'. Navigation options include 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. The main content area is divided into sections:

- 11. Identifying my Supports** (collapsed)
- 12. Provisions for Temporary Increase in Services** (expanded)

Section 12 contains three items:

- 1. My plan will include the ability to temporarily increase services:**  
 No  Yes
- 2. Description of circumstances that may result in need to temporarily increase services:**  
This section is currently empty.
- 3. Voluntary Support Calendar-** The Support Calendar is a voluntary spreadsheet that will allow me to plan the type and amount of support that I will need during different weeks. For example, I may need a different level of support during a work week than I do during a holiday or vacation week.  
If support calendar was previously completed, update as necessary based on potential temporary service needs.  
Support Calendar was completed:  
 No  Yes

Below these items is a table titled 'Services to be Authorized on a Temporary Basis':

	Funding Stream	HCBS Waiver	Service	Unit Rate	Unit Type	Total Cost of Service	Assessed Need	Actions
No data available								

At the bottom right of the table area, there is a 'Rows per page' dropdown set to 10, with navigation arrows for previous and next pages.

Figure 46.

If the case manager needs to add services to be authorized on a temporary basis, the user will select the “+” icon and then will be presented with the following information to be completed:

- Service
- Unit Type
- Number of Units
- Unit Rate
- \$
- Total Cost of Service
- \$
- Start
- End
- Assessed Need – user selects downward-facing triangle and picks from one of 10 options
- Assessed Need Details – free text 600-character limit
- Guidance to Workers – free text 600-character limit
- Skills Building – Check box if applicable
- Provider Agency – free text 600-character limit


JE Program Management
Return to CMV

---

Person Four Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15

 EXPAND ALL COLLAPSE ALL PRINT SAVE

No  Yes

Services to be Authorized on a Temporary Basis

<
+

**Details**  
 Funding Stream HCBS Waiver

Service ▼

---

Unit Type

---

Number Of Units ⌵

---

Unit Rate  
 \$

---

Total Cost of Service  
 \$

---

📅 Start

---

📅 End

---

Assessed Need ▼

---

Assessed Need Details

Figure 47.

## Section 13: Referrals

This section documents the referrals for additional services, support or training that are associated with the participant. Referrals are not necessary for Medicaid services that are included in the Support Plan or if the participant is already connected to the entity.

Click the "+" icon to add the following referral information:

- Referral Agency
- Reason for Referral
- Who will follow-up?
- Contact Information for Referral

The screenshot displays the Aerial Program Management interface. At the top, the user is identified as 'JE Program Management' with a 'Return to CMV' link. The main content area shows a navigation menu with sections: '11. Identifying my Supports', '12. Provisions for Temporary Increase in Services', and '13. Referrals'. The '13. Referrals' section is expanded, revealing a 'Support Plan Referral' table. The table has a header row with columns: 'Referral Agency', 'Reason for referral', 'Who will follow-up', 'Contact Information for Referral', and 'Actions'. A '+' icon is visible above the table, and a 'No data available' message is shown in the table body. At the bottom right, there is a 'Rows per page: 10' dropdown menu and navigation arrows.

Figure 48.

After the referral information is added, click the Save icon to save the referral. To return to the referral section, click the left arrow icon.

Support Plan Referral

< 

**Details**

Referral Agency  
**Colorado Provider Group**

---

Reason for referral  
**Individual needs additional support on getting transportation to the office**

---

Who will follow-up  
**Janet Smith, case manager**

---

Contact Information for Referral  
**Janet Smith, 570 262 0556**

*Figure 49.*

Additional referrals can be added by clicking the “+” sign. You can also edit using the pencil icon or remove using the trash can icon.



The screenshot shows a table titled "Support Plan Referral" with the following columns: Referral Agency, Reason for referral, Who will follow-up, Contact Information for Referral, and Actions. A single row is visible with the following data: Colorado Provider Group, Individual needs additional support on getting transportation to the office, Janet Smith, case manager, Janet Smith, 570 262 0556. A green box highlights a "+" icon in the top left corner, and another green box highlights the action icons (pencil and trash) in the Actions column of the first row.

Referral Agency	Reason for referral	Who will follow-up	Contact Information for Referral	Actions
Colorado Provider Group	Individual needs additional support on getting transportation to the office	Janet Smith, case manager	Janet Smith, 570 262 0556	

Figure 50.

## Section 14: Back-up Plans

Supports identified in Section 11 (Identifying My Supports) are pulled forward to this section. Additional back - up supports can be added manually as applicable.

☰ **aerial** | JE **Program Management** Return to CMV

---

Person Four 👤 Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 
 ⌵ EXPAND ALL ⌵ COLLAPSE ALL 🖨️ PRINT 💾 SAVE

14 Back-up Plans ^

**Paid Caregiver Supports Through Medicaid**

+ ^

<input type="checkbox"/>	Support Source	Support source responsible for arranging back-up	What should I do if the support does not show up	Who else can help, how they can help, and any other supports are not available (optional is support responsible for arranging back-up)	Action	Actions
No data available						
Rows per page: 10 - < >						

---

**Caregiver Supports Paid by Another Source (Other than Medicaid)**

+ ^

<input type="checkbox"/>	Support Source	Support source responsible for arranging back-up	What should I do if the support does not show up	Who else can help, how they can help, and any other supports are not available (optional is support responsible for arranging back-up)	Action	Actions
No data available						
Rows per page: 10 - < >						

---

**Unpaid Caregiver Supports**

+ ^

<input type="checkbox"/>	Support Source	Support source responsible for arranging back-up	What should I do if the support does not show up	Who else can help, how they can help, and any other supports are not available (optional is support responsible for arranging back-up)	Action	Actions
No data available						
Rows per page: 10 - < >						

---

**Medicaid Waiver/State Plan Supports**

+ ^

<input type="checkbox"/>	Support Source	Support source responsible for arranging back-up	What should I do if the support does not show up	Who else can help, how they can help, and any other supports are not available (optional is support responsible for arranging back-up)	Action	Actions
No data available						
Rows per page: 10 - < >						

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Figure 51.

Contact Information for my Back-up Supports

< 

Name  
Required

Phone Number to Call  
Required

Phone Number Text  
Required

Email Address  
Required

*Figure 52.*

## Section 15: Disaster Relocation Planning

This voluntary section documents the central plan for where the participant will relocate in the event of a disaster, such as a flood or a fire.

Select the "+" icon to add details in each sub-section.

☰ **aerial** | JE **Program Management** Return to CMV

---

Person Four ● Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15 EXPAND ALL COLLAPSE ALL PRINT SAVE

**14. Back-up Plans**

**15. Disaster Relocation Planning**

1. I would like to develop a Disaster Relocation Plan or provide information about my current Disaster Relocation Plan.  
 No  Yes

2. My provider has or will develop a Safety Plan for me and/or my information has been entered into or will be entered into a provider or other system for my safety and disaster response used by first responders in my area, such as Smart911:  
 Not entered  Developed by provider  
 Entered into response system, date of last update:  Will be entered into response system, date information will be entered:

a. Name of system \_\_\_\_\_  
 b. Weblink for system \_\_\_\_\_

**3. Emergency Contacts and Relocation Sites- If I need to move to another location in an emergency, these individuals/organizations should be contacted. I have also ranked my preferences for where I should be relocated**

+

<input type="checkbox"/>	Name/Organization (Order should reflect priority of individuals to contact)	Relationship	Primary Phone Number	Secondary Phone Number	Options for Relocation (Rank your preference)	Address (Enter only if site is a relocation option)	Actions
No data available							

Rows per page: 10 - < >

**4. If I need to relocate because of an emergency, this is what I will need to take:**

+

<input type="checkbox"/>	Medication & Equipment to Take	Information to Take	Special Instructions to Share	Actions
No data available				

Rows per page: 10 - < >

Figure 53.

## Section 16: Minimizing My Risks

This section identifies, discusses and mitigates the risks for participants. It has four primary areas:

- Risks related to medical dependency on electricity
  - Identified whether a participant can go without power for at least 24 hours without their health or safety being threatened.
- Risks identified within the Assessment and Support Plan
- Plans to reduce risk
- Identification and acceptance of remaining risks (not addressed by the Support Plan)

The screenshot shows the Aerial program management interface. At the top, there is a navigation bar with the Aerial logo, the user 'JE', and the current page 'Program Management'. A 'Return to CMV' link is also visible. Below the navigation bar, the breadcrumb 'Support Plans / 110' is shown. The main content area displays the profile of 'Person Four' with details: Member ID: FOUR, Gender: F, DOB: 11/01/2003, Age: 15. There are controls for 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. A list of support plans is shown, with '16. Minimizing My Risks' expanded. The expanded section contains several questions with radio button options:

- 1. I depend on medical devices that require electricity
  - No
  - Yes
- 2. I have applied for an energy assistance program
  - No
  - Yes
- 3. I have a back-up generator
  - No
  - Yes, my provider is responsible for making sure I have electricity
  - Yes, I have a back-up generator
- a. I need to get a backup generator.
  - No, do not want one
  - Yes, but cannot get one due to systemic barriers or other issues:
  - Yes, plan for obtaining back-up generator

At the bottom of the page, there is a copyright notice: © 2017-2019 Medecision, Inc. | All Rights Reserved.

Figure 54.



## Section 17: Modification of Rights/ Settings Exception

This section ensures that any rights modifications or exceptions to the set requirements follow state and federal rules.

The screenshot shows a web application interface for 'aerial' with a user profile for 'Person Four' (Member ID: FOUR, Gender: F, DOB: 11/01/2003, Age: 15). The interface is titled 'Program Management' and includes navigation icons for 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. The main content area displays a list of sections: '15. Disaster Relocation Planning', '16. Minimizing My Risks', and '17. Modifying My Rights/Setting Exceptions'. Section 17 is expanded and contains three questions:

1. Were emergency control procedures used since the last assessment?  
 No  Yes
2. Are actions being taken to prevent the need for continued use of emergency control procedures?  
 No, describe why not:  
 Yes, describe actions: I have someone living with
3. I will be in a setting in which certain actions must be taken before my rights are modified:  
 No  Yes

At the bottom of the section, there is a text input field with the placeholder text: 'Discuss whether participant would like more information'.

Figure 55.

## Section 18: Advance Directives

In this section, participants and their legally recognized representatives can develop, update or share advance directives, such as Power of Attorney, Living Wills or Medical Power of Attorney documents.


JE Program Management
Return to CMV

---

Person Four  Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15
 
 EXPAND ALL
  COLLAPSE ALL
  PRINT
  SAVE

16. Minimizing My Risks ▼

17. Modifying My Rights/Setting Exceptions ▼

18. Advance Directives ▲

1. Participant has someone who assists with or is legally authorized to make decisions (e.g., POA, DPOA, legal guardian, etc.):

No  Yes

2. Name of individual(s) or agency(ies) assisting or authorized in making decisions:

---

3. Type of Legal Guardianship

Limited guardianship, Describe

Full guardianship

4. Decision making capacity

<input type="checkbox"/> Guardian (Non Parental)	<input type="checkbox"/> Parent/Guardian
<input type="checkbox"/> Trustee	<input type="checkbox"/> Representative Payee
<input type="checkbox"/> Legally Authorized Representative	<input type="checkbox"/> Responsible Party
<input type="checkbox"/> Conservator	<input type="checkbox"/> Power of Attorney (POA)
<input type="checkbox"/> Surrogate Decision-maker for health care decisions (DPOA)	<input type="checkbox"/> Partner of Parent

*Figure 56.*

## Section 19: Case Management Monitoring

This section documents the frequency and mechanism through which the participant would like to be contacted by their case manager.

Person Four ● Member ID: FOUR Gender: F DOB: 11/01/2003 Age: 15

EXPAND ALL COLLAPSE ALL PRINT SAVE

19. Case Management Monitoring

1. Minimum monitoring my Case Manager is required to do:

- Quarterly face-to-face (IDD waivers)
- Quarterly phone (other waivers)

2. I would prefer that my Case Manager check in with me:

- The minimum amount required
- More than the minimum, describe:

My preferences for how my Case Manager contacts me  
(rank preferences, put N/A if do not have)

In person

---

By telephone

---

By email

---

By text

---

Other

---

Describe

4. When I meet with my Case Manager in person, I would prefer these meetings to happen at:

- My Home
- Other location(s) where services are being delivered

5. If something important occurs, such as a change to my service eligibility or a support worker will not show up, I would prefer that the following people also be notified:

- No one
- The following people:

Figure 57.

## Section 20: Comments, Guidance, and Concerns from Members of my Team

This section provides the participant and their team with the opportunity to discuss feedback about the Support Plan and make any necessary updates before signing the plan.

The screenshot shows the 'aerial' program management interface. At the top, there is a header with the 'aerial' logo, 'JE Program Management', and a 'Return to CMV' link. Below the header, the user information for 'Person Four' is displayed: Member ID: FOUR, Gender: F, DOB: 11/01/2003, Age: 15. There are icons for 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE'. The main content area is titled '20. Comments, Guidance, and concerns from members of my team' and includes a sub-section '1. Comments, guidance, and concerns about services, supports, next steps, or other areas of the Plan. If no comment, enter "None". If there is no representative of the category, enter "N/A"'. Below this, there are five sections for input: 'a. Case Manager', 'b. Agency Representative. Identify agency', 'c. Agency Representative. Identify agency', 'd. Other Support. Identify name and relationship', and 'e. Other Support. Identify name and relationship'. Each section has a text area for input.

Figure 58.

## Completing the Support Plan

Once the case manager has completed the Support Plan, including all required questions, click "Save".

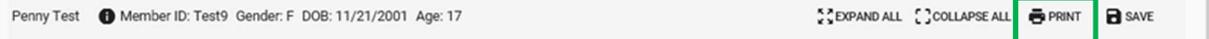
The screenshot shows the 'aerial' program management interface for 'Penny Test' (Member ID: Test9, Gender: F, DOB: 11/21/2001, Age: 17). The 'EXPAND ALL', 'COLLAPSE ALL', 'PRINT', and 'SAVE' icons are visible at the bottom. The 'SAVE' button is highlighted with a green box.

Figure 59.

## Support Plan Participant Printout

The Support Plan is expected to be printed and distributed to the participant. This document is based on the template provided by the Department. It includes the data captured during the support planning process and a signature page which will be signed in wet ink by the participant.

From the Support Plan, click the Print icon. If the icon is not enabled, then the Support Plan has not been saved.

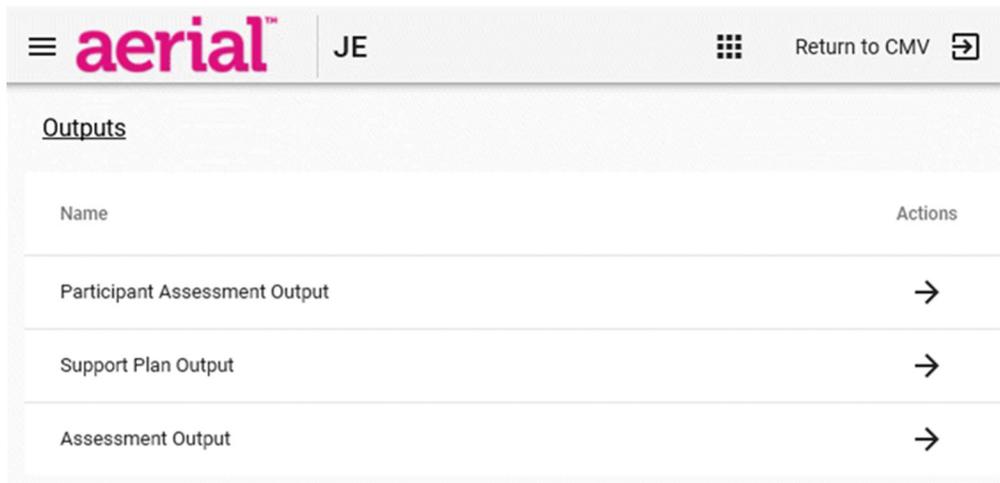


*Figure 60.*

A list of available options for printing will display. Select "Support Plan Output".

*Note – Future Enhancements*

- "Support Plan Output" will be changed to "Support Plan"
- The list title "Outputs" will be updated to "Print List" or something to reflect all print options.



The screenshot shows the 'aerial' web application interface. At the top left is the 'aerial' logo in pink. To its right is the user identifier 'JE'. Further right is a grid icon and the text 'Return to CMV' with an external link icon. Below the header is a section titled 'Outputs'. Underneath is a table with two columns: 'Name' and 'Actions'. The table contains three rows of data:

Name	Actions
Participant Assessment Output	→
Support Plan Output	→
Assessment Output	→

*Figure 61.*

A new window opens with a PDF version of the Support Plan. Click the right arrow to display the preview of the Support Plan Output. Use the scroll bar on the right to review the details of the support plan.

Click the Print icon to print the assessment or save it as a PDF through standard print dialog. To return to the Comprehensive Member View, click the right arrow icon at the top right corner of the screen.

Support Plan Output

Client First Name	Person	Case Manager Name	Jessica Monroe
Client Last Name	Four	Case Management Agency	
Date of Birth	11/01/2003	Case Manager Phone Number	
Medicaid ID	FOUR	Date	04/19/2019

**1. PARTICIPANT'S IDENTIFYING INFORMATION**

1. Name of Individual:  
Person Four

2. Current Mailing Address:  
15 John Street

3. City:  
Livingston

4. State:  
PA

5. Zip:  
19007

6. Preferred method of contact:

Email

Cell phone

Work phone

Home phone

Texting

Figure 62.

To print a Support Plan from the participant's Comprehensive Member View, use the same process used to print Assessments. The Support Plan option will now display in the list. Repeat the instructions for Figures 63-64.

## Tips

### 1. Left Panel Navigation

The Support Plan on the left navigation panel is still under development. Only the trash can icon can be used to delete the data in a Support Plan.

Support Plans

Support Plans	Actions
<input type="checkbox"/> Support Plan Certification Period Display	
<input type="checkbox"/> Start Date: End Date:	

Rows per page: 10 1-1 of 1

Figure 64.

2. **Section 3 – Required Questions**

Required questions and instructions intended to guide the case manager are in red. Instructions in red are not necessarily required questions. A future enhancement will change the color or format of instructions to clearly differentiate between required questions and instructions.

3. **Section 6 – Activities for a Goal**

A goal must be entered and saved in Section 5 before an activity can be created. Only 1 activity can be created for a goal. Adding multiple activities per goal is a future enhancement.

4. **Section 11 – List of Services**

**THE LIST OF SERVICES AVAILABLE IS DEPENDENT ON THE WAIVER SELECTED IN SECTION 10. THEREFORE, IF NO WAIVER IS SELECTED, NO SERVICES ARE AVAILABLE.**

5. **Waiver Eligibility Logic** Use the approved Waiver Eligibility Logic requirement for Section 10 testing. This is available in a separate document.

## 55 Data Elements Mapping

As of 6/6/2019, Medecision was informed by DXC that one of the original 56 data elements for the TEFT grant has been removed. The table below captures the mapping of all elements included in the solution. The removed element has been struck through.

Data Element Name	Data Element Definition	Support Plan Location	Field
Person Name	The name of the person whom the plan is for	Header	First Name, Middle Name, Last Name
Person Identifier	A string of character(s) used to identify the person whom the plan is for. This may be the Medicaid ID number where applicable.	Header	Member ID
Person Identifier Type	The type of unique identifier used to identify the person whom the plan is for. Values include Medicaid Number, State ID, Claim Number, Medical Record Number, Other (free text)	Header	ID Type
Person Date of Birth	The birth date of the person whom the plan is for	Header	Date of Birth
Person Phone Number	The primary phone number of the person whom the plan is for, or his/her legal representative, where applicable.	Member Details	Home OR Work/Office OR Cellular
Person Address	The address of the person whom the plan is for	Member Details	Address 1, Address 2, City, State, Zip Code

Emergency Contact Name	The name of the individual or entity identified to contact in case of emergency.	Section 15, Question 3	Name/Organization
Emergency Contact Relationship	The relationship (e.g., spouse, neighbor, guardian, daughter) of the individual identified to contact in case of emergency.	Section 15, Question 3	Relationship
Emergency Contact Phone Number	The primary phone number (and extension when applicable) of the individual or entity identified to contact in case of emergency.	Section 15, Question 3	Primary Phone Number
Emergency Backup Plan	Description of how to address unforeseen events, emergency health events, emergency events, problems with medical equipment and supplies, and unavailable staffing situations for critical services that put the person's health and safety at risk. This can be included as free text or attachment.	Section 15	Disaster Relocation Planning
Goal	A statement of a desired result that the person wants to achieve	Section 5	Goal
Step or Action	A planned measurable step or action that needs to be taken to accomplish a goal identified by the person.	Section 6	Activities to fulfill goal
Strength	A favorable attribute of the person, his/her support network, environment and/or elements of his/her life.	Section 6	Strength

Assessed Need	The clinical and/or community-based necessity or desire as identified through an assessment that should be addressed by a service	Section 11, Questions 2-7, 9, 10	Assessed Need Assessed Need Description
Person Setting Choice Indicator	Indicator that reflects the setting in which the person resides is chosen by the individual.	Housing and Environment Assessment	Is the setting participant will transition to or, if not transitioning, resides in his/her preferred setting?
Person Setting Choice Options	The alternative home and community-based settings that were considered by the individual.	Housing and Environment Assessment	Summary of discussion about where Participant live:
Plan Monitor Name	The name of the person responsible for monitoring the plan.	Section 19, question 5	If something important occurs, such as a change to my service eligibility or a support worker will not show up, I would prefer that the following people also be notified:
Plan Monitor Phone Number	The primary phone number (and extension when applicable) of the plan monitor.	Section 19, question 5	If something important occurs, such as a change to my service eligibility or a support worker will not show up, I would prefer that the following people also be notified:
Preference	Presents the person's personal thoughts about something he or she feels is relevant to his or her life experience and may be pertinent when planning.	Section 6, Question 2	Preference/Guidance for each activity
Service Options Given Indicator	States whether or not the person was given a choice of services outlined in the plan.	Section 10	Pros and Cons of the Medicaid programs I am eligible for

Service Selection Indicator	States whether or not the person participated in the selection of the services outlined in the plan.	Section 20, Question 7	I led the creation of my Support Plan as much as I wanted and am capable of
Service Plan Agreement Indicator	States whether or not the person agrees to the services outlined in the plan	Signature Sheet	
Service Provider Options Given Indicator	States whether or not the person was offered a choice of providers for each service.	Section 11, Question 10	I have been informed that: I have a choice of available long-term services and supports; I have the right to select among qualified providers; I can change providers at any time.
Service Provider Selection Agreement Indicator	States whether or not the person feels he/she made an informed choice in selecting the provider for each service	Section 11, Question 11	I have been given a list of qualified providers or provided with directions on how to access the list.
Plan Effective Date	The date upon which the plan goes into effect. Start date is required, end date is optional.	Section 20, Question 10	Date participant considers plan as final
Person Signature	The depiction of the person's signature as proof of identity and intent for the plan.	Signature Sheet	My (Participant's) Signature
Person Printed Name	The printed or typed name of the person.	Signature Sheet	My (Participant's) Name
Person Signature Date	The date the person signed the plan	Signature Sheet	Date
Guardian / Legal Representative Signature	The depiction of the guardian or legally authorized representative's signature as proof of identity and intent for the plan.	Signature Sheet	Legally Recognized Representative Signature

Guardian / Legal Representative Printed Name	The printed or typed name of the guardian or legally authorized representative	Signature Sheet	Legally Recognized Representative Printed Name
	The date the guardian or legally authorized representative signed the plan.	Signature Sheet	Date
Support Planner Signature	The depiction of the support planner's signature as proof of identity and intent for the plan.	Signature Sheet	Signature of Case Manager who helped develop the plan
Support Planner Printed Name	The printed or typed name of the support planner.	Signature Sheet	Printed Name of Case Manager who helped develop the plan
Support Planner Signature Date	The date the support planner signed the plan.	Signature Sheet	Date
Service Provider Signature	The depiction of the service provider's signature as proof they agree to the services they will provide.	Signature Sheet	Agency Representative Signature
Service Provider Printed Name	The printed or typed name of the service provider.	Signature Sheet	Agency Representative Printed Name
Service Provider Signature Date	The date the service provider signed the plan.	Signature Sheet	Date
Identified Risk	An aspect of a person's life, behavior, environmental exposure, personal characteristic, or barrier that increases the likelihood of disease, condition, injury to self or others, or interaction with the criminal justice system.	Section 16, Questions 7-9	Summary of Health and/or safety risks
Risk Management Plan	Description of planned activities to minimize identified risks that endanger the person's health and	Section 16, Question 10	Plans for reducing risk

	safety. This can be included as free text or attachment		
Service Name	Identifies the paid and/or non-paid service/support provided to a person. Include the code and display name plus any modifiers when a coding system (e.g., Healthcare Common Procedure Coding System (HCPCS), Home Health Revenue Codes) is used	Section 11, Question 7a & 7b	Service
Self-Directed Service Indicator	Indicates whether the individual chose to self-direct the service.	Section 11, Question 17	I can self-direct my services
Service Start Date	The start date of the service being provided.	Section 11, Question 7a & 7b	Start
Service End Date	The end date of the service being provided.	Section 11, Question 7a & 7b	End
Service Delivery Address	The address where service delivery will take place if service will not be provided at the person's address.	Not Included	As per stakeholders' feedback, this element was removed from the support plan.
Service Comment	Additional information related to the service being provided. This field could capture additional information of the frequency of the service, how the person wants the service delivered and only used when the comment provides additional detail of the service not already handled by another element.	Section 11, Question 7a & 7b	Guidance to Workers

Service Funding Source	The source of payment for the service	Section 11, Question 7a & 7b	Funding Stream
Service Unit Quantity	The numerical amount of the service unit being provided for a frequency. This element is slated to be used in conjunction with Service Quantity Interval and Unit of Service Type elements to form a full description of how often a service is provided. For example, a service being provided 7 units per week, the Service Unit Quantity = "7." For a service being provided 8 hours a day, the Service Unit Value = "8."	Section 11, Question 7a & 7b	Number of Units
Unit of Service Type	A named quantity in terms of which services are measured or specified, used as a standard measurement of like services. Values include: minute(s), 8 hour(s), quarter hour(s), hour(s), half day(s), full day(s), day(s), week(s), month(s), dollar(s), meal(s), mile(s), visit(s)/session(s), installation(s), none, other (free text). This element is slated to be used in conjunction with Service Unit Quantity interval and Service Unit Quantity elements to form a full description of how often a service is provided. For example, a service being provided 7 units per week,	Section 11, Question 7a & 7b	Unit Type

	<p>the Unit of Service Type = “units.”  For a service being provided 8 hours a day, the Unit of Service Type = “hours.”</p>		
Service Unit Quantity Interval	<p>A period of time corresponding to the quantity of service(s) indicated. Values include: per day, per week, per month, per year, one time only, other (free text). This element is slated to be used in conjunction with Unit of Service Type and Service Unit Quantity elements to form a full description of how often a service is provided. For example, a service being provided 7 units per week, the Service Unit Quantity Interval = “per week.” For a service being provided 8 hours a day, the Service Unit Quantity Interval = “per day.”</p>	Section 11, Question 7a & 7b	# of Units
Service Rate per Unit	The rate of one unit for a service.	Section 11, Question 7a & 7b	Unit Rate
Total Cost of Service	The total cost of a service for the plan	Section 11, Question 7a & 7b	Total Cost for Cost Containment Review

Support Planner Name	The name of the person (e.g., Case Manager, Care Coordinator, Plan Coordinator) who helped develop the plan.	Section 2 Question 5	Case Manager Name
Support Planner Phone Number	The primary phone number (and extension when applicable) of the support planner	Section 2, Question 7	Case Manager Phone
Service Provider Name	The name of the entity or individual providing the service. For paid services use the organization/agency name, for non-paid services use the first and last name of the individual providing the service.	Signature Sheet	Agency Name
Service Provider Phone Number	The primary phone number (and extension when applicable) of the service provider.	Signature Sheet	Agency Phone Number
Non-Paid Provider Relationship	The relationship (e.g., spouse, neighbor, guardian, daughter) of the individual providing a non-paid service or support to the person.	Section 11, Questions 2 & 3	Relationship to Participant

## Environmental Survey for HCBS Providers

**Introduction included with the survey:** Colorado’s Department of Health Care Policy and Financing (the Department) is working with the Centers for Medicare and Medicaid Services (CMS) through a grant to establish national standards for the electronic sharing of data related to long-term services and supports (LTSS) among individuals who use LTSS, providers and case managers. The grant also supports the testing of a personal health record, which provides individuals access to their LTSS data, such as support plan data. As part of this grant and to further this work, the Department would like to collect a little information from you on your current electronic/information technology environment to better understand your current capabilities and usage and what functionality you think is most important in the sharing of data electronically. Please answer the 11 - question survey and then we will reach out to you with further information.

### The Survey Questions:

Please provide your contact information if you are interested:

Name, Email Address, Phone Number

**Overview:** 37 questions were sent out to the group of relevant Stakeholders for the environmental survey for the planned eLTSS Plan users. The questions used were:

Q1: Please provide your contact information.

Q2: What Medicaid LTSS services do you provide? Please check all that apply:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Adult Day Services          | <input checked="" type="checkbox"/> In-home Support                |
| <input checked="" type="checkbox"/> Alternative care facilities | <input checked="" type="checkbox"/> Long-Term Home Health Services |
| <input checked="" type="checkbox"/> Community Transition        | <input checked="" type="checkbox"/> Personal Care Services         |
| <input checked="" type="checkbox"/> Day Habilitation            | <input checked="" type="checkbox"/> Personal Emergency             |
| <input checked="" type="checkbox"/> Homemaker Services          | <input checked="" type="checkbox"/> Residential Habilitation       |

Q3: Do you have an Electronic Health Record (E.H.R.)?

Q4 a: If yes, select which E.H.R.?

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Athenahealth    | <input checked="" type="checkbox"/> Next Gen        |
| <input checked="" type="checkbox"/> Allscripts      | <input checked="" type="checkbox"/> NueMD           |
| <input checked="" type="checkbox"/> Care Logic      | <input checked="" type="checkbox"/> Penelope        |
| <input checked="" type="checkbox"/> Cerner          | <input checked="" type="checkbox"/> Practice Fusion |
| <input checked="" type="checkbox"/> eClinical Works | <input checked="" type="checkbox"/> Simple Practice |
| <input checked="" type="checkbox"/> Epic            | <input checked="" type="checkbox"/> TheraNest       |
| <input checked="" type="checkbox"/> GE              | <input checked="" type="checkbox"/> TherapyNotes    |
| <input checked="" type="checkbox"/> Greenway        | <input checked="" type="checkbox"/> Valant          |
| <input type="checkbox"/> Medics                     |   |

Q5: If you do not have an E.H.R. then do you have or utilize an electronic client record, a place to store files specific to individual members you serve that contain information on services provided, assessments, and other client specific information in your agency?

Q6 a: What vendor provides your client record system?

Q7 b: What is the name of the system used?

Q8 c: Do you use a file format standard like a word document format, Excel format (or) specific type of database that you query by typing in client names (or) other format?

Q9 d: What type of data do you store? Please check all that apply:

- Assessment Information
- Billing
- Care Plan
- Contract Notes
- Demographic Information
- Service Information

Q10: Do you have an electronic billing system to bill Medicaid and/or clients/beneficiaries you are working with?

Q11 a: What vendor provides this system?

Q12 b: What is the name of the system used?

Q13 c: Do you log-in to an online portal provided by the Department's vendor, DXC?

Q14 d: If No, do you have another means by which you submit billing to the Department? Please Describe:

Q15: Health Information Exchanges (HIE), such as Colorado Regional Health Information Organization (CORHIO) and Quality Health Network (QHN), aggregate and share clinical data on individual with physicians, clinical staff, hospitals and patients for care coordination. Are you connected to one of these HIEs?

Q16 a: If yes, select which HIE?

CORHIO

QHN

Q17 b: If you are connected to an HIE what data do you exchange with it?

Demographic Information

Clinical Information

Q18 c: Do you use the HIE for messaging between your agency and another provider?

Q19 d: If you are not connected to an HIE what information would you like to share with and receive from other providers regarding beneficiaries you work with?

Q20: Are you directly connected to any hospitals via electronic means? A direct email system where you communicate client/beneficiary information or even scheduling information for when clients need care. Please check all that apply:

Secure Direct Email

Scheduling System

Secure Texting

Q21: Are you able to share or receive information electronically from other providers such as support plan or care plan, or authorization of services?

Q22 a: Select which items are shared electronically

Care Giver Name and Contact Information

Demographic Data

Notes on Services Provided

Notes on special circumstances or experiences

Social Determinants/Assessment Data

Support Plan approvals for all Services

Support Plan Hours

Utilization data of authorized services

Q23 b: What would you like to see shared? Select from list

Care Giver Name and Contact Information

Demographic Data

Notes on Services Provided

Notes on special circumstances or experiences

Social Determinants/Assessment Data

Support Plan approvals for all Services

Support Plan Hours

Utilization data of authorized services

Q24: Do the individuals you serve have online access to any of the following? Please check all that apply:

Your schedule to book appointments or schedule services

A way to send you electronic messages

Use of an online portal which allows them to see information on their health, the care they are receiving, or any services provided by you or others

Q25: Are you able to log into an online portal via the internet to receive data from the state related to specific Medicaid beneficiaries?

Q26 a: What do you currently use the portal for:

Check PAR's (Prior Authorization Requests)

Find Providers

Find specific information related to the waiver

Submit Billing

Verify Eligibility

Q27 b: What additional information would you like to see shared via portal that is not currently available?

Q28: Do you allow employees to download applications on to their phones that support business or clinical processes, either private or company provided phones for interaction with their clients with your agency or payers such as Medicaid?

Q29 a: Which apps do you allow?

Customer relationship management (CRM) tools

Mileage Trackers

Reporting Tool for post visit reports

Scheduling System

Secure Texting Application

Q30 b: If so, what restrictions do they have?

Q31 c: If not do you plan to use them in the future for secure messaging?

Q32 d: What information would like to see shared if you did have the capability?

Q33: If you didn't already can you please explain below how you use technology on a daily basis:

Billing

Business Processes

Clinical tracking (Allergies, specific clinical conditions etc)

Customer Relationship Management (CRM)

Reporting

Scheduling

Secure Texting

Q34 a: Are you acquiring new technology in the near term to be used in your business?

Q35 b: If you are acquiring new technology would you consider using, or do you currently use, Apple Health or other application programming interfaces, to exchange information with your patients/beneficiaries directly?

Q36 c: In health care, technology standards define the structure and syntax of the electronic communication and standardize the ways for collecting, aggregating, sending and receiving information for the purpose of improving care coordination and data sharing. Would you consider making information technology standards part of your purchasing criteria?

Q37 d: How do you currently use data and how would you like to use it relative to the technology you have now?

I use data as a documentation tool only to document services provided

I use data to influence/make decisions about services we provide

I don't really use data other than what I have generated in the process of providing services

**The targeted audience for the survey.**

The target audience consisted of all HCBS providers in the state and totaled more than 1500 providers whose primary service-related activities included:

- Adult Day Services
- Alternative care facilities
- Community Transition
- Day Habilitation
- Homemaker Services
- In-home Support
- Long-Term Home Health Services
- Personal Care Services
- Personal Emergency
- Residential Habilitation

The survey was released to the target audience on August 31, 2018 and completed on September 17, 2018 via survey monkey. Results indicated that 130 responses, roughly 8% were received back and that met our expectations for survey results.

## Summary Report of Environmental Survey

## Background

As part of the Testing Experience Functional Tools (TEFT) grant a survey was conducted to determine the level of interoperability that exists within the stakeholder group comprised of providers and beneficiaries within the waiver groups of persons with disabilities, persons with functional disabilities and older persons with disabilities. The survey was conducted over a 3-week period and a decision was made not to survey beneficiaries directly because interoperability in this case was more practically considered at the provider level only. The survey universe was approximately 2000 potential providers.

The office of the national coordinator for health IT technology (ONC) defines three levels/tiers of interoperability. Tier 1 is foundational, tier 2 is structural and tier 3 is semantic. Definition of each level is as follows:

- A. Tier 1 - Foundational is data exchange between IT systems where the receiving system does not interpret the data.
- B. Tier 2 - Structural interoperability exists where the receiving system preserves the meaning of the data at the data field level.
- C. Tier 3 - Semantic interoperability exists where the structure and codification of the data allows interpretation and use of data.

The survey was conducted to determine if any or all of the providers could operate at the tier 1 level and for those that could the intention was to interview the specific provider to determine if they were at a tier 2 or 3 level of interoperability. This portion of the TEFT grant focused on the concept that a Personal Health Record (PHR) could be used as a multi-directional communication tool in the form of a portal-based application between beneficiary, provider and case manager to exchange clinical, waiver, and social determinants information to improve the outcomes and satisfaction level of the beneficiary or their designated care giver. The PHR was hosted by Colorado Regional Health Information Organization (CORHIO), a state designated health information exchange (HIE) to help facilitate interoperability of data systems across the population of stakeholders.

In discussions throughout the 4-year TEFT grant period it was determined by the Department that the application of a PHR was not strictly going to be applied, as a typical PHR would be, directly used by beneficiaries, because the beneficiaries are within a waiver group that is highly challenged in using technology and often uses a care giver in place of direct interaction. Providers will be the focus of the PHR because they have a unique direct relationship with the beneficiaries in these waiver groups and information on the services provided to the beneficiary typically flows through them anyway.

## Survey Description

The survey consisted of 11 primary questions with a total of 26 sub questions making it a total of 37 questions. These questions were submitted via Survey Monkey to a broad audience of HCBS providers and 130 responses were received. The total number of survey responses sent out is not specifically known due to email address problems and staff changes, but 130 responses is well within the statistically significant margin of error. The survey itself was conducted in September of 2018 over a 3-week period.

Survey questions were structured around IT status and interoperability between providers and the Department as well as between providers and the state designated HIE. Questions started with establishing a baseline of which services the respondent provided to specific waiver populations to qualify what interoperability might be possible. For example, if a service provider worked with community-based services, such as providing transportation, there would be little need to have access to clinical portals through an interoperable PHR. There may however, even in this instance, be a need for some input to the State Medicaid team or a case manager on any observation that the provider made that could be indication of important changes in the status of the beneficiary and that input could come from a driver, for example. In cases where the provider was more clinically focused the level of interoperability required is much higher and more detail was sought to determine the possibilities.

Questions 2 and 3 were designed to find out if the provider had an electronic medical record (EMR) and if so what brand and did they use certain standard formats or tools so that current and future state interoperability could be determined and forecasted. Question 4 regarded their billing system and what they used because even for those who did not have an EMR a billing system represents possibilities for interoperability through access to an online portal where information can be shared. 24 providers indicated they had an EMR but only 4 knew what the brand was which leads us to believe that they may not actually understand what an EMR is and subsequent follow up was used to determine the validity of those answers.

Questions 5-7 dealt with the status of the providers connectivity to the state designated, or a regional HIE, as well as connection directly to hospitals. Sub questions were included to determine what data was shared when there was a connection, clinical versus assessment or billing data, and what data they would like to share if sharing were possible where it didn't exist today. Question 8 requested information on what data was shared, if any, with beneficiaries in an electronic method. The nature of this question was to determine if interoperability could have extended to the beneficiaries themselves through the use of the PHR built through the TEFT grant.

Question 9 requested information about whether the provider themselves had the ability to log into an online system for potential use of a TEFT designed PHR that the providers would use. Question 10 sought information on the whether or not provider organizations would allow employees to download an application on to their personal or business phone in case the determination was made that an application was the best method to create the level of

interoperability needed for future interaction between the regional accountable entities and providers of care to the HCBS communities. Finally question 11, and its sub questions, sought to determine how providers used technology on a daily basis and if they were intending to acquire new technology what they would use it for and would they adhere to recognized standards in order to determine a future state plan to integrate them and at what level of interoperability they may be connected.

## **Findings and Responses**

130 respondents submitted information back to HCPF from this survey. Of those 130 responses 69 were filled out completely and the remainder provided valuable information in specific key areas. In the most important initial response 24 of the 130 respondents indicated they have an EMR and 4 identified the vendor name of that EMR. During subsequent interviews it was determined that many of the 24 who have EMR's, an electronic medical record used to primarily track clinical care around a patient, as any system in which they record beneficiary information in an electronic format. Some have highly specialized systems, like Therapy Notes, that would not qualify for meaningful use standards certification but are still useful for the task at hand because they allow sharing of data.

### *Key findings on EMR questions:*

- A. 24 - EMR's in place in one format or another
- B. 4 - EMR's identified vendors with 3 meeting base interoperability standards
- C. Of the 130 who don't have an EMR; 60 indicated that they use some form of electronic data exchange in their daily work which creates an opportunity to engage in some level of interoperability.

Interoperability does not require an EMR to be successful. Connection to an HIE with open application programming interfaces (API's), which allow for simplified integration between two disparate systems, can allow information exchange in a level 1 interoperability environment.

60 of the respondents are candidates for that level of interoperability and many more can be as they move forward to more digital environments and as standards increase to include FHIR and open API's.

### *Key Findings on data format use questions:*

- A. 91 respondents answered questions on whether or not their data was in a standard format, such as Health Level 7, (HL7) which is a standards body accepted by the health IT world,

Word, Excel or other commonly used format. 60 of the 91 who answered the question indicated that they do in fact use a standard format and the reminding 31 do not.

- B. 87 respondents answered the question about what type of data they store which is important in considering interoperability beyond level 1 because meaning of the data must be maintained and especially in level 3 interoperability where semantic meaning (as an example if Warfarin is order level 3 would tell you why it was ordered since it can be used for multiple diagnosis) is used. The responses included 61 who use it for assessment information which is key baseline data for level 2 or 3 interoperability. 66 respondents store care plan data and 79 store demographic data. Both are also key to utilizing level 2 and 3 interoperability where meaning must be maintained because care plans and demographics reveal things about patient condition that contribute to those levels of interoperability.
- C. 79 respondents indicated that they key contact notes on beneficiaries. In most current systems, that maintain interoperability standards, notes can be templated and searchable which provides the possibility of level 2 or higher interoperability.
- D. The data contained in the survey respondents' answers regarding data storage is not in and of itself and indication that interoperability above level 1 is possible but it does not rule out the possibility of higher-level interoperability because it contains basic information needed to achieve these higher standards.

#### Key Findings on the current connectivity questions:

A. Three questions were asked of survey respondents about connectivity. The first was whether or not they were able to log into an online portal. The second was whether or not they were connected to the state designated HIE, CORHIO. The third question was whether or not they were connected to any hospitals. 61 said they could log into an online portal, 3 said there were connected to CORHIO and 15 said they were connected to hospitals via secure direct email or secure text messaging.

B. These findings are somewhat disappointing with regards to the next steps and time lines associated with getting to level 1 or higher interoperability. When we limit the total number of providers to 79 of several hundred to those who can interact electronically, with the all relevant parties in the state, via either a portal or secure message it means we will get limited use of a PHR unless we find ways to incentivize providers to move forward on the technology curve sooner rather than later. An incentive program for acquiring technology, or upgrading to modern standards, maybe the best option available and should be consider seriously.

*Key Findings on what information is currently shared:*

Question 10 addressed the current situation regarding shared information between providers and between provider and the state. Of note was that 34% of respondents were sharing social determinants, such as eating habits or alcohol use, and 51% were sharing notes on special circumstances. Level 2 interoperability will require sharing of social determinants and notes on special circumstances to provide greater context to the data.

**Lessons Learned and Recommendations:**

*Lessons Learned*

1. Technology does not play a central role in the clinical and beneficiary interaction processes executed by providers who service the HCBS community and specifically they EBD and ID/DD waiver population studied in the TEFT grant.
2. Enough technology is in place today to be effective for at least level 1 interoperability for approximately 80 stakeholder providers today.
3. Data storage is sufficient today to begin a level 2 or 3 strategic plan for interoperability that the State of Colorado's HCBS providers can participate in.
4. PHR, being used in this context as a portal, must be used as a provider tool not a beneficiary tool because the necessary technology and connections between providers and beneficiaries does not exist and is not planned due to the nature of the challenges facing the beneficiaries in these wavier groups.
5. Based on conversations with stakeholders, the number of respondents fairly represents the mean of the total provider stakeholders, so more responses would not have changed the lessons learned our outcomes in any material way.

*Recommendations:*

1. The Department should consider an advisory group, such as the ONC's regional extension centers, to answer questions and make recommendations to any provider who is making a technology-based decision in their practice to ensure that standards are adhered to in the purchasing process. This individual or group should be advertised to the providers so they all know who to contact to prevent the provider from purchasing technology that will not support a road map to level 3 interoperability and beyond. This service should be provided at no cost if possible, to the providers.
2. Secure email or text should be offered to all HCBS providers to establish level 1 interoperability across the spectrum of providers. All information that is not already contained within an application should be transacted through secure email or text to establish value in the

direct link between the Department, RAE's, and providers until a higher level of interoperability can be achieved.

3. A set of data storage standards should be created and maintained by a designated data steward including a data dictionary, by the Department that contains the appropriate data to achieve level 3 interoperability. These data elements and corresponding parameters should then be sent to providers in a clear and concise way to allow them to change their data storage plan as soon as possible. Beyond the 56 data elements prescribed in the eLTSS data set there should be a list of social determinants and clinical data defined for providers. Where possible all elements of the data set should also meet the requirements established by the ONC in either meaningful use or the Trusted Exchange Framework Common Agreement (TEFCA) or both.
4. An incentive plan should be established that helps pay for technology and process deployment in the providers business environment that adheres to standards and supports a level 1, 2, or 3 interoperability plans.
5. Work should continue with ONC + CMS to further define additional data standards for eLTSS. The current data set is only for an HCBS support plan"

## eLTSS Standard Implementation Plan

## Glossary of Terms

ADL – Activities of Daily Living

Application Programming Interface or API – A standard of communication between information systems that facilitates the exchange of data.

CMS – Center for Medicare and Medicaid Services

CORHIO – Colorado Regional Health Information Organization. A HIE organization that stores and forwards data between healthcare providers and stakeholders. CORHIO is the HIE primarily on the eastern side of the continental divide

Electronic Medical Record or EMR – medical only record of care and conditions for a single individual.

eLTSS – electronic long-term services and supports. eLTSS initiative is an ONC-CMS partnership focusing to identify and develop a support plan data standard to enable electronic exchange of LTSS data between providers, beneficiaries and case managers to better help coordinate care.

FASI – Functional Assessment Standardized Items. A part of the TEFT program associated with doing more effective assessment.

Fast Healthcare Interoperability Resource or FHIR – A standard of data exchange that allows systems to talk to each other with a simplified open API level interface to create lower cost integration.

HIE – Health Information Exchange. HIE is the mobilization of health care information electronically across organizations within a region, community or hospital system

Integration – The process of connecting to information systems or information sources for the purposes of communication.

Interoperability – a base term used to describe the level of data exchange that occurs between systems. Levels 0 – 3 have been defined and require specific criteria that varies from the lowest level which is 0 to the highest level of 3.

ONC – Office of the National Coordinator for Health Information Technology. Functions as the IT leader for Health and Human Services

PHR – Personal Health Record. Implied as an electronic health record oriented with data relevant to a single individual.

QHN – Quality Health Network. A HIE organization that stores and forwards data between healthcare providers and stakeholders. QHN is the HIE on the western side of the continental divide.

QHIN – Quality Health Information Network created by the TEFCA regulations. Entities will be chosen by bid to become regional or national hubs for information exchange in US healthcare.

Requirements Traceability Matrix or RTM – a matrix of data elements, 56 for the purpose of this grant, that is organized to create a support plan for the delivery of electronic long-term services and supports. The support plan is electronically created and stored as part of eLTSS record. Each support plan is relevant to a single individual.

S&I Framework – Standards and Implementation Framework for the implementation and communication between information systems in healthcare.

Semantic Interoperability – Level 3 on the interoperability scale. Requires that data exchanged between systems must retain its meaning in the exchange regardless of where the data originated or where it is transferred to.

Social Determinants of Health. - SDOH are the complex circumstances in which individuals are born and live that impact their health. They include intangible factors such as political, socioeconomic, and cultural constructs, as well as place-based conditions including accessible healthcare and education systems, safe environmental conditions, well-designed neighborhoods, and availability of healthy food.

TEFT – Testing Experience Functional Tools grant awarded to 9 states including Colorado in 2015.

Triple Aim – A concept created by the Institute of Healthcare Improvement and states that health systems should seek three aims: to provide lower costs, higher quality healthcare and to better patient experiences.

Trusted Exchange Framework or TEFCA – A concept created by the ONC that proposes to create trusted entities called QHINs that are governed under a Regional Controlling Entity that facilitates data exchange under the guidelines created in the 21<sup>st</sup> Century Cures Act.

21<sup>st</sup> Century Cures Act – statutory regulation created by the US Congress and signed by President Obama to facilitate greater exchange of data between healthcare entities to facilitate the achievement of the Triple Aim standard and give patients simple easy access to their healthcare data.

## Overview of TEFT

### Testing Experience & Functional Tools

The Centers for Medicare & Medicaid Services (CMS) provided Testing Experience and Functional Tools (TEFT) demonstration grant to nine states to test quality measurement tools and demonstrate e-health in Medicaid Home and community-based services (HCBS). The TEFT grant program, spanning the demonstration period (2014-2018), field tested a cross-disability experience of care survey (EOC) and a set of functional assessment items (FASI), demonstrated personal health records, and created an Electronic Long-Term Services and Supports (eLTSS) support plan standard.

Based on the demonstration experience, CMS promotes the use of health information technology (IT) in Medicaid HCBS and, through TEFT, provides national measures and valuable feedback on how an eLTSS standard can advance CMS interoperability goals. Grantee states assisted with the design, testing, and validation of the four TEFT components. The resulting diversity in the state pilot activities provided CMS and states with information on the approaches that show promise in improving quality, support planning, or care coordination in HCBS programs.

### eLTSS as a component of TEFT

The eLTSS Initiative launched on **November 6th, 2014**. This initiative is an Office of the National Coordinator for Health Information Technology (ONC) - CMS partnership focusing on the identification and harmonization of electronic standards that can enable the creation, exchange and re-use of interoperable support plans for use by health care and HCBS providers, payers and the individuals they serve. These plans can help to improve the coordination of health and social services that support an individual's mental and physical health by improving the individual's quality of life.

**The Challenge:** The adoption and use of Health Information Technology (health IT) and quality measurement for HCBS is limited. Limitations include:

- Lack of business and/or financial incentives for service providers to acquire and use health IT to support coordination of services
- Lack of national standards for quality measurement in Long Term Services and Supports (LTSS) outcomes
- Lack of uniformity in the terminology and definitions of data elements, including those important to the beneficiary for assessments and support plans used across and between community-based information systems, clinical care systems and personal health record systems
- Lack of consensus on the interrelationships between a beneficiary's plans across care, services and supports; and
- Lack of evidence and understanding of how health IT may benefit the beneficiary and encourage their adoption and use of technology.

In addition, HCBS provider support planning is expected to be in alignment with the CMS HCBS Waiver Rule, which encourages states that participate in Medicaid programs to develop support plan alternatives for individuals who would otherwise require care in a clinical setting,

such as a nursing facility or hospital. The final rule amends the regulations for the 1915(c) HCBS waiver program, authorized under section 1915(c) of the Social Security Act (the Act), in several ways that are intended to improve the quality of services for individuals receiving HCBS. To address these challenges and to expand on opportunities, the CMS in partnership with the ONC launched the eLTSS Initiative. The eLTSS initiative focused specifically on non-clinical HCBS support planning with the following goals:

- Identifying an agreed upon set of data elements for the capture and sharing of eLTSS support plan information
- Improving provider workflows by enabling secure, single-point data entry for eLTSS support plan development and exchange including authentication and tracking of changes and approvals
- Integrating beneficiary priorities, preferences and goals identified in the HCBS setting with those goals and outcomes included in the beneficiary support plan.
- Improving timeliness for collecting and sharing LTSS information between provider types, between providers and beneficiaries, and between providers and Colorado Department of Health Care Policy and Financing (the Department) Agencies and/or payers, and other entities
- Reducing data collection burden processes (e.g. paper based, manual and/or other electronic) placed on providers/beneficiaries/payers by enabling the reuse of previously collected data
- Supporting the timely transition of relevant eLTSS support plan information at the start of care and service delivery and as the beneficiary's preferences and goals change
- Enabling sending and receiving provider types to initiate changes for beneficiary supports more promptly
- Enabling beneficiaries to lead decision making regarding appropriate care and services to be received
- Increasing beneficiary engagement in preventative services and wellness activities
- Identifying critical gaps and unnecessary overlaps in the care and services needed and delivered to a beneficiary
- Enabling beneficiaries to exchange important care and support plan information across provider groups and with accountable entities and other parties

## Interoperability – A key component for facilitating TEFT – Via the ONC

The nation needs an interoperable health system that empowers individuals to use their electronic health information to the fullest extent; enables providers and communities to deliver smarter, safer, and more efficient care; and promotes innovation at all levels. While the Health Information Technology for Economic and Clinical Health (HITECH) Act stimulated significant health IT adoption and exchange of electronic health information with the goal of every American having access to their electronic health information, 2015's interoperability experience remains a work in progress. The vision is a learning health system where individuals are at the center of their care; where providers have a seamless ability to securely access and use health information from different sources; where an individual's health information is not limited to what is stored in electronic health records

(EHRs), but includes information from many different sources (including technologies that individuals use) and portrays a longitudinal picture of their health, not just episodes of care; where diagnostic tests are only repeated when necessary, because the information is readily available; and where public health agencies and researchers can rapidly learn, develop, and deliver cutting edge treatments.

The primary levels of interoperability have been defined as:

- Level 0: Stand-alone systems have No Interoperability.
- Level 1: “Foundational” interoperability develops the building blocks of information exchange between disparate systems by establishing the inter-connectivity requirements needed for one system or application to share data with and receive data from another. It does not outline the ability for the receiving information technology system to interpret the data without interventions from the end user or other technologies.
- Level 2: “Structural” interoperability defines the structure or format of data exchange (i.e., the message format standards) where there is uniform movement of healthcare data from one system to another such that the clinical or operational purpose and meaning of the data is preserved and unaltered. Structural interoperability defines the syntax of the data exchange. It ensures that data exchanges between information technology systems can be interpreted at the data field level.
- Level 3: “Semantic” interoperability is the ability of two or more systems to exchange information and to interpret and use that information. Semantic interoperability takes advantage of both the structuring of the data exchange and the codification of the data, including standard, publicly available vocabulary, so that the receiving information management systems can interpret the data. Semantic interoperability supports the electronic exchange of patient data and information among authorized parties via potentially disparate health information and technology systems and products to improve quality, costs, safety, efficiency, experience and efficacy of healthcare delivery.

History of ONC efforts to create Health Information Technology (HIT) Interoperability:

### **Promoting Interoperability Programs Milestones**

In 2011, CMS established the Medicare and Medicaid EHR Incentive Programs (now known as the Promoting Interoperability programs) to encourage clinicians, eligible hospitals, and Critical Access Hospitals (CAHs) to Adopt, Implement, Upgrade (AIU), and demonstrate meaningful use of Certified Electronic Health Record Technology (CEHRT).

Historically, the Promoting Interoperability Programs consisted of [three stages](#):

- **Stage 1** set the foundation for the Promoting Interoperability Programs by establishing requirements for the electronic capture of clinical data, including providing patients with electronic copies of health information.

- **Stage 2** expanded upon the Stage 1 criteria with a focus on advancing clinical processes and ensuring that the meaningful use of EHRs supported the aims and priorities of the [National Quality Strategy](#). Stage 2 criteria encouraged the use of CEHRT for continuous quality improvement at the point of care and the exchange of information in the most structured format possible.
- In October 2015, CMS released a final rule that established **Stage 3** in 2017 and beyond, which focuses on using CEHRT to improve health outcomes. In addition, this rule modified Stage 2 to ease reporting requirements and align with other CMS programs.

For more information about Stage 1 and Stage 2, visit the [Requirements for Previous Years](#) page.

To continue our commitment to promoting and prioritizing interoperability of health care data, CMS renamed the EHR Incentive Programs to the Promoting Interoperability Programs in April 2018. This change will move the programs beyond the existing requirements of meaningful use to a new phase of EHR measurement with an increased focus on interoperability and improving patient access to health information.

## **e-LTSS Standard Implementation Plan**

### **Overview:**

#### **What needs to be to accomplish?**

1. The eLTSS Initiative is a ONC-CMS partnership that will focus on identifying and harmonizing electronic standards that can enable the creation, exchange and re-use of interoperable support plans for use by health care and HCBS providers, payers, families and the informal support network that serves the individual beneficiaries. These plans can help to improve the coordination of health and social services that support an individual's mental and physical health.

#### **What must be considered?**

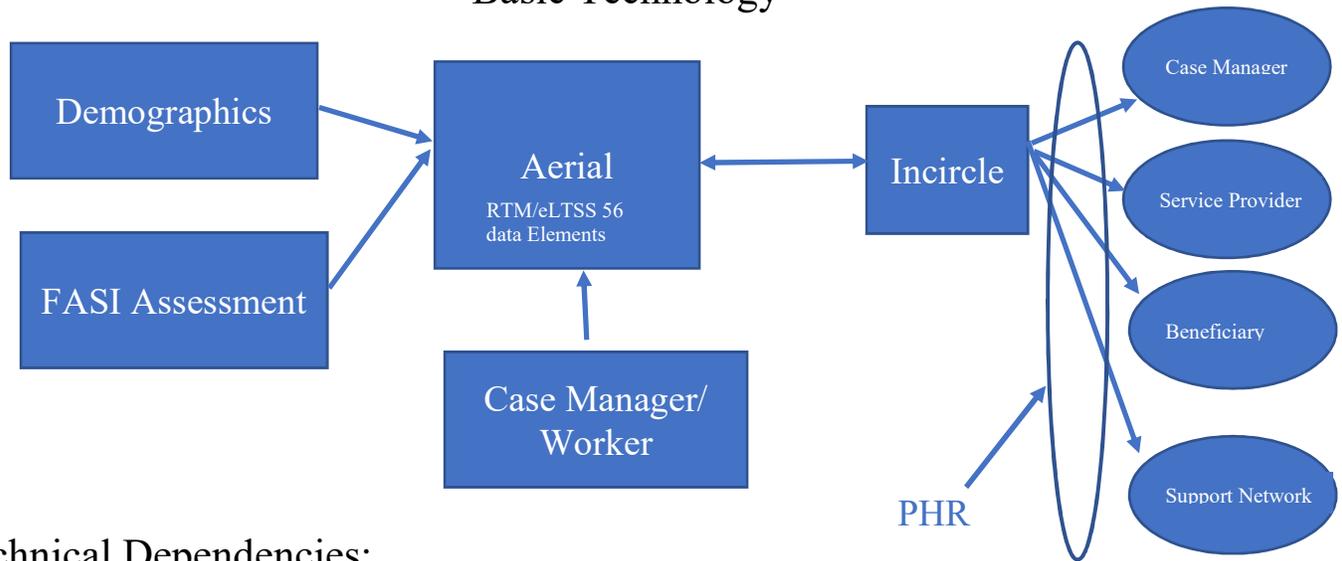
2. Under the TEFT Program LTSS is more specifically:
  - a. A broad array of assistance needed by, and provided to, individuals with physical, cognitive, and/or mental impairments who never acquired, or have lost, the ability to function independently
  - b. LTSS programs focused on providing support with daily activities and include services such as:
    - i. Assistance with activities of daily living (ADLs) and Instrumental ADLs, which are the activities of a person living independently in a community.
    - ii. Adult daycare
    - iii. Home and Community-Based Services (HCBS) Care management
    - iv. Social services
    - v. Assistive technologies
    - vi. Education and training

- vii. Counseling
  - viii. Other supportive services directed towards the individual with disabilities and their informal caregiver(s)
- 3. An effective plan should be developed
  - i. Through a Person-Centered Planning process
  - ii. And allow for Self-Direction
- 4. The plan must consider the Standards and Interoperability Framework (S&I), which is designed to allow disparate systems to interoperate on the basis of standards adopted by the ONC and goals and objectives of implementation.
  - a. It is intended that the plan will include Transport & Security protocols, which are designed to protect health information and privacy while allowing exchange via the internet, and are defined by S&I.
  - b. To the extent possible, depending on definitions of terms and data, the Content Structure, an orderly field by field definition of how data is to be stored and transported, of the S&I framework will also be used.
  - c. Personal Health Record (PHR), a collection of data specific to any individual and may contain clinical and non-clinical data, implementation may be the vehicle that uses Transport & Security as well as content structure in delivering information to meet the TEFT program's objectives, but consideration has been made in this plan to also use these protocols as stand-alone functions with eLTSS.
  - d. Provider and Case Management Agencies (CMA) that support Medicaid beneficiaries in the HCBS waivers, designated, technology readiness as a consideration because of the need to integrate with electronic systems throughout the LTSS environment and those systems vary widely in capability if they exist at all.

## Base Technical Overview:

1. Putting the beneficiary, into an electronic communication process with the care giver and case manager, at the center of the support plan and then using technology to support the person-centered planning process, using the PHR as well as manual technologies, to meet beneficiaries and providers at the technology place they are at is critical to get effective use. The Requirements Traceability Matrix (RTM), created by the ONC as part of the TEFT, that includes 56 data elements initially, and the FASI data will be the focus of the integration and may include additional data elements in the future.
2. While upgrades will not be mandated it is recommended that upgrade guidance, with regards to data files standards, will be provided to the HCBS providers to facilitate interoperability at or above level 1 and ideally at level 3 semantic interoperability.

## Basic Technology



### Technical Dependencies:

1. Aerial will integrate with other data collection and distribution as a sub-system of Medicaid Management Information System (MMIS) and distribute information through InCircle. This is the best strategy technologically and will support a higher level of user adoption. The delivery of base demographics, some of which will come directly through the MMIS and is necessary for eLTSS productivity. Some manual entry will be required and is possible through Aerial via case management.
  - a. 56 data elements will be used from the RTM and the RTM which consists of a combination of demographic data captured in other source systems, such as Program and Eligibility Application Kit (PEAKPro) or Colorado Benefits Management System (CBMS), or during an assessment process and manual entry by care/case managers.
  - b. 6 of the 56 elements are demographic in nature and should be auto populated or manually entered into Aerial from the BIDM and associated systems. Elements are listed in the table below as 1-6.
  - c. Data elements for: Plan Effective Date, Program Name, Total Plan Budget and Total Plan Costs are integrated into the support plan automated in Aerial and updated automatically.
  - d. 4 additional elements of the Emergency Backup plan should also be from the demographic data, contained within MMIS, and are listed as 7-10 in the table below. The department is including these elements as Person Centered Planning (PCP) process because Emergency Backup Plan is supposed to outline who is responsible for providing care in an event when a paid provider doesn't show. It makes more meaningful flow to talk to client about Emergency Backup plan for services and supports in conversation with client during PCP process.
  - e. Tables in Aerial will have service name, rate per unit will be populated with information from MMIS. Some services are negotiated rates and will be manually entered in the support plan in Aerial which will feed into the MMIS via a prior authorization generated through interface with Aerial and the MMIS. Start date and end date will be manually entered by case managers with a system edit that

ensures that the dates are not outside of eligibility spans. Costs of services will be automatically generated in Aerial when case managers enter frequency and duration of services in Aerial

- f. Net integration of 21 of 39 elements, from the table below will be either auto populated into the plan from MMIS or manual entered but sourced from MMIS as the only certified source of data.
- g. The remaining 18 elements will be sourced from multiple sources and many are manual data entry requirements including signatures. Very careful consideration must be given to the use of InCircle as a data sharing tool so that it engages the beneficiary enough to capture relevant data that should be used in care/case management via Aerial. InCircle holds the very real possibility of improving the speed of integration while waiting on the provider stakeholders to complete upgrades to standards-based technologies.
- h. Ease of use of data input and capture are critical to outcomes improvement.

Grouping	Core Data Elements
Beneficiary Demographics	1. Person Name, 2. Identifier, 3. Identifier type, 4. Date of Birth, 5. Phone Number, 6. Address, 7. Emergency Contact Name, 8. Relationship, 9. Relationship, 10. Phone Number, 11. Emergency Backup Plan
Goals & Strengths	12. Goal, 13. Step Or Action, 14. Strength
Person Centered Planning	15. Assessed Need, 16. Person Setting Choice Indicator, 17. Choice Options, 18. Plan Monitor Name, 19. Phone Number, 20. Preference, 21. Service Options Given Selection, 22. Service selection indicator, 23. Service Plan Agreement Indicator, 24. Service Provider Options Given Indicator, 25. Service Provider Selection Agreement Indicator
Plan Information	26. Plan Effective Date
Plan Signatures	27. Plan Signature, 28. Person Printed Name, 29. Person Signature Date, 30. Guardian/Legal Representative Signature, 31. Printed Name, 32. Signature Date, 33. Support Planner Signature, 34. Printed Name, 35. Signature Date, 36. Service provider Signature, 37. Printed Name, 38. Signature Date
Risks	39. identified Risk, 40. Risk Management Plan

<b>Service Information</b>	41. Service Name, 42. Self-Directed Service Indicator, 43. Service Start Date, 44. Service End Date, 45. Service Delivery Address, 46. Service Comment, 47. Service Funding Source, 48. Service Unit Quantity, 49. Service Quantity Interval, 50. Unit of Services Types, 51. Service Rate per Unit, 52. Total Cost of Service
<b>Service Provider Information</b>	53. Support Planner Name, 54. Phone Number, 55. Service Provider Name, 56. Phone Number

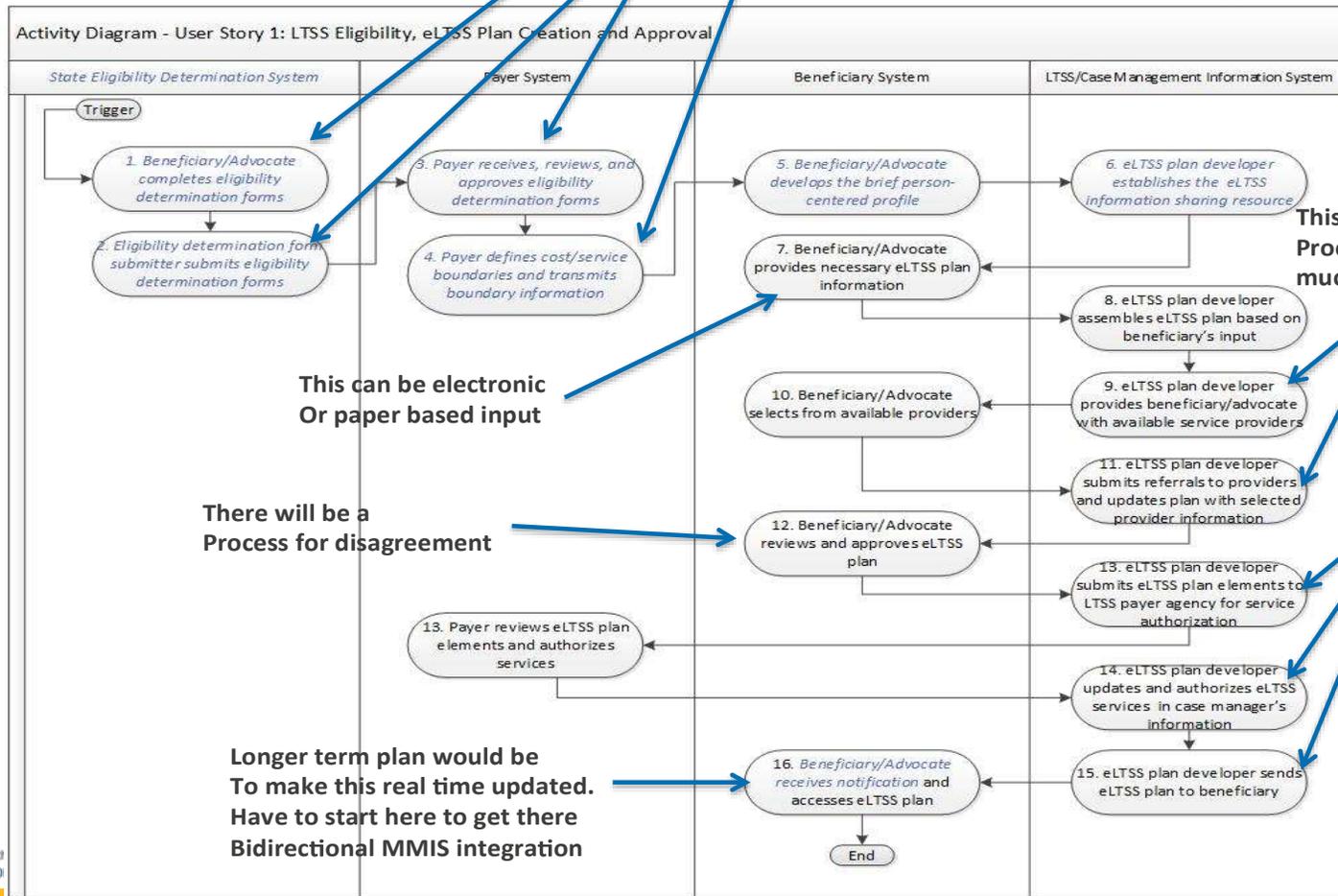
eLTSS Data Elements Table

The implementation of the eLTSS support plan requires a workflow process which is detailed below. Using PHR as a secure delivery vehicle for information outlined in the last 3 steps in the process will insure use and value to the end user stakeholder providers and beneficiaries.

# Pilot proposed process – First Draft.

## MMIS Integration into Step 1 of the Plan

What happens if Provider rejects



This can be electronic Or paper based input

There will be a Process for disagreement

Longer term plan would be To make this real time updated. Have to start here to get there Bidirectional MMIS integration

This 3-Step Process should be much faster

Automation

PHR

## Integration Process – 2 Pathways. Internal integration to existing MMIS and external integration via Interoperability.

### Key points to the internal integration of the e-LTSS plan

1. At this stage, nearing the end of grant year 4+, the MMIS system is live and Aerial is in a development phase. The assessment and support plan are in pilot phase. Integration of the eLTSS data set has changed significantly. A PHR, hosting the eLTSS data set is no longer the primary strategy. eLTSS/RTM and FASI data will be hosted by Aerial and data will be entered where it is absent. Distribution of data will be through Aerial as a case/care management system and by extension through InCircle as a mobile patient engagement tool that allows the beneficiary to share data across a chosen spectrum of users.
2. The method of data exchange will depend on the level of interoperability achieved between the Department IT systems and those of the providers of HCBS services. Interoperability can also be defined to include the beneficiary or designated care giver. Interoperability levels are defined below along with suggested processes for achieving them at appropriate levels for the systems and users defined.
3. The PHR, InCircle, is part of the InterChange/Aerial case and care management system and will not be sourced from a third-party vendor or from CORHIO as the HIE entity, which was the original plan. Broad use, the entire spectrum of Medicaid beneficiaries for example, of a PHR is not part of the short-term plan through some other mechanism in the future.
4. Data collection and integration has become the top priority for all data types that are relevant to the people with intellectual disabilities, people with disabilities or older persons with functional impairments, as part of TEFT but common social determinants data will be collected on all populations through Aerial, InCircle, or even PEAK where applicable. Templates and interfaces with other systems can be created or modified to take in data where necessary. The entire implementation is going to be dependent upon taking in enough of the right data from the right sources making stakeholder integration and interoperability even more critical.
5. Integration is not defined in this case as a connection between systems but rather a subset of collected data being organized into a data set to be used in specific circumstances. IE: the RTM/eLTSS data set is a subset of all the data collected on a beneficiary and it is organized in the manner it is to meet the criteria of an eLTSS support plan. The eLTSS support plan was an agreed upon standard derived in the TEFT process among 9 states who all had input under the direction of CMS and ONC.
6. It is not intended that clinical data will be part of the e-LTSS plan structure, but implementation should integrate with CORHIO for the purposes of delivering clinical data into Aerial for use by the case manager and for distribution via the Incircle itself where applicable. At the time of this writing neither CORHIO or the Department architecture within BIDM or Aerial support Fast Healthcare Interoperability Resources (FHIR) for use with application programming interfaces (APIs) but timelines suggest that FHIR may be in place by the time this level of integration is needed. When a user wants clinical data to be delivered within a PHR a call function through a FHIR API should be able to deliver the result very quickly. FHIR is a much easier way of integrating two

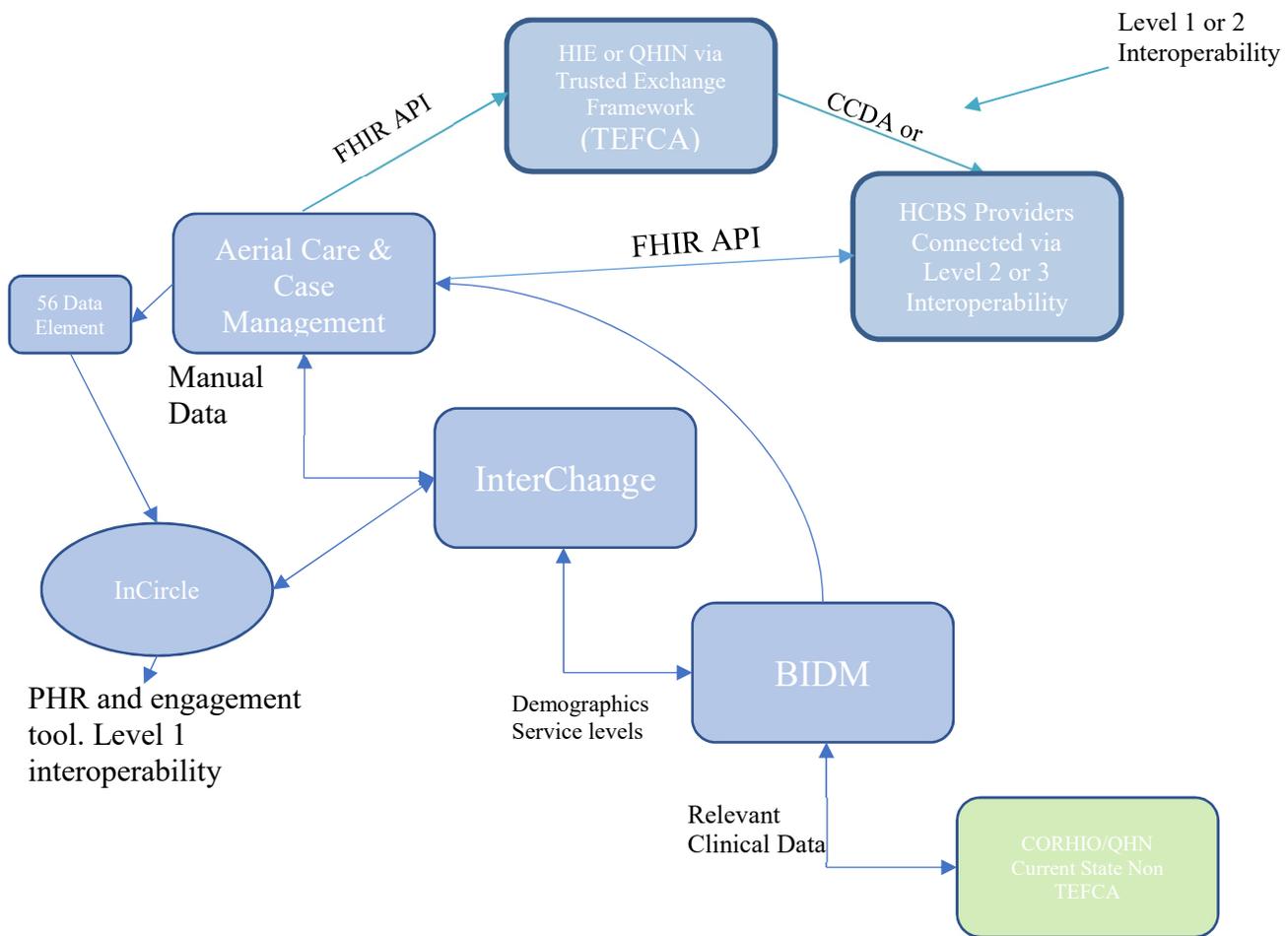
systems and combining data elements into useful interoperable data sets. FHIR will become the standard for integration and interoperability in the near future and was explored here because of its' importance to short term planning. Doing any hard interface work prior to the advent of FHIR is not recommended due to cost and near-term obsolescence. A requirement to have some level of interoperability exists so these systems can communication with each other not only technologically but also with content that is in the appropriate context for improving the quality, decreasing cost and patient experience.

### Key points to the outward integration via interoperability

Most determinants of health status are social and are influenced by actions and encounters that occur outside traditional institutional health care delivery settings, such as in employment, retail, education, and other settings. This shift requires a high degree of information sharing between individuals, providers, and organizations, and therefore a high degree of interoperability between many different types of health IT, such that systems can exchange and use electronic health information without special effort on the part of the user. The goal of this shift is to a nationwide learning health system—an environment that links the care delivery system with communities and societal supports in "closed loops" of electronic health information flow, at many different levels, to enable continuous learning and improved health. This kind of system allows individuals to select platforms and apps to share and use their own electronic health information to meet their needs without undue constraints.

For the purposes of eLTSS integration levels 1 – 3 are most practical because achieving a level 3, semantic or conceptual interoperability insures that the meaning of the data is transferred between systems in the exchange so that the user does not have to interpret the data because the meaning of the data is independent of the system generating it and it comes with a common understanding of terms. This standard meets the criteria established by ONC when they state that the exchange and use must be done without special effort on the part of the user. To effectively use interoperability in the technical infrastructure available with the Department, the term interoperability might be used when the system on the receiving end isn't a system at all but simply a user accessing data via the internet or a secure portal.

Functional Drawing of Interoperability within the Department Eco System – Future.



eLTSS starts with 56 data elements. In the interoperability process the data for those elements comes from internal system sources, such as the MMIS or via manual entry. The distribution of that data will be done via Aerial and in some cases InCircle when the stakeholder does *not* have direct access to Aerial. InCircle will function as a PHR in those cases and should allow for bidirectional data transfer.

**Results of Technology Use Environmental Scan for HCBS Providers:**

The Department conducted a survey to collect information from HCBS providers on their current electronic/information technology environment to better understand providers current capabilities, usage and what functionality providers think is most important in the sharing of data electronically. The survey also helps the Department to better understand the providers level of interoperability, which means the ability of computer systems or software to exchange and make use of information. Here are some of the findings:

### Q3: 2. Do you have an Electronic Health Record (E.H.R.)?

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Answered: 117 Skipped: 13

ANSWER CHOICES	RESPONSES	
Yes	20.51%	24
No	79.49%	93
TOTAL		117

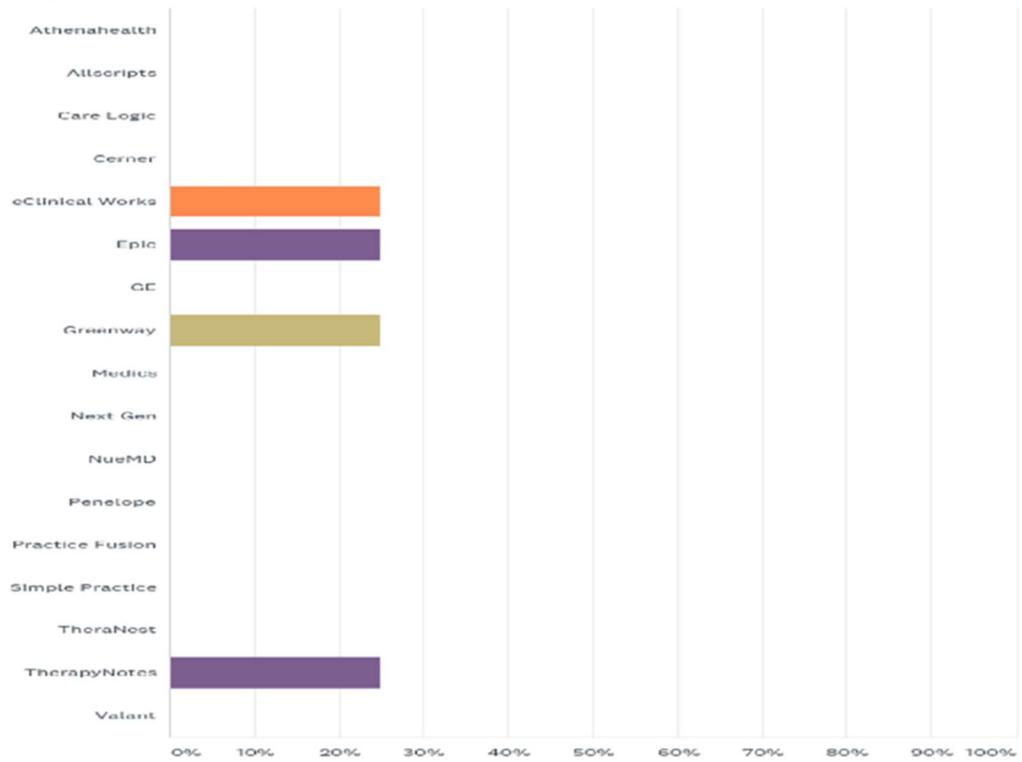
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Powered by  SurveyMonkey

Not knowing which E.H.R you have is a sign that it is not a standard's based E.H.R. Confirmed by Stakeholder Interviews

## Q4: a. If Yes, select which E.H.R?

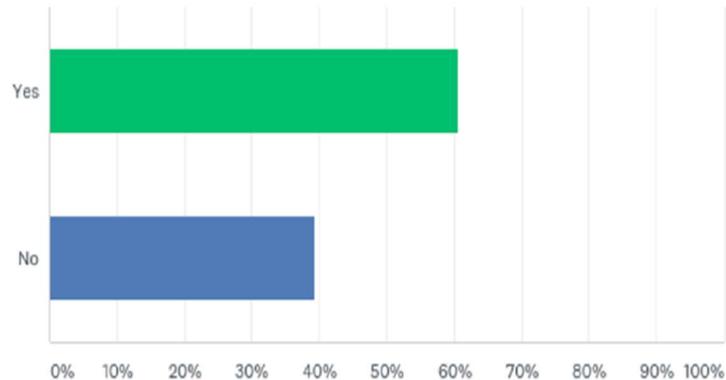
Answered: 4 Skipped: 126



Powered by  SurveyMonkey

Q5: 3. If you do not have an E.H.R. then do you have or utilize an electronic client record, a place to store files specific to individual members you serve that contain information on services provided, assessments, and other client specific information in your agency?

Answered: 99 Skipped: 31



Powered by  SurveyMonkey

60% of respondents use a client record keeping system that is electronic and could receive Secure Direct Email.

## Interoperability Plan

1. As indicated in the results of environmental scan, interoperability with HCBS providers, including the Department to HCBS providers and beneficiaries/care givers, will be a significant challenge. The technology being used today, with the exception of 4 users who have access to an actual Electronic Medical Record (EMR), is very basic computer-based client record keeping systems that do not have standards-based file storage, consumption or distribution capabilities. Only one provider agency in this stakeholder group is connected to an HIE and that user is also an EMR user.
2. Current interoperability levels and steps to move up in interoperability:
  - a. Interoperability Level 0 – 10% of the total population of HCBS providers cannot or does not exchange data via encrypted or secure email because they do not use the computers they have for anything other than a client record. Technically the systems are capable of secure direct email, but they don't currently subscribe to it or use it.

- i. The primary process that should be done to ensure future interoperability is to first implement secure direct email, secondly get users equipped to send and receive secure documents and third they should become portal users through InCircle. For any provider stakeholder that is considering an upgrade of technology the Department should provide guidance and support to insure they buy standards-based technology to improve interoperability. The process for doing those things is outlined below:
  - 1. All stakeholders, through CORHIO or QHN's, should use secure direct email that include addressing capabilities for all approved providers. This does not solve the issue of beneficiaries or their specific care givers but will raise all users to at least a level 0 interoperability.
  - 2. The other alternative would be for the Department to use encrypted email and to mandate data transfer functions through this process, but it has limitations when compared to secure direct email because a provider must be on the Department email system and a provider directory would be limited to those members of the system where a secure direct email from CORHIO or QHN can address a broader email audience.
  
- b. Interoperability Level 1 – 90% of the population of provider-based stakeholders are at a level 1 because they can accept a digital document with a Health Insurance Portability & Accountability Act (HIPAA) level security compliance directly through the Department encrypted email system but there is not automatic association with a patient record nor does the document retain any of its original meaning in a direct digital to digital data transfer from one system application to another.
  - i. The Department should educate providers on how to receive and consume a Continuity of Care Document (CCD) via the Continuity of Care Document Architecture (CCDA). Using secure direct email and a CCD document would move the population of stakeholders to a Level 2 interoperability. A common document format such as a CCD is defined by Health Level 7 (HL7) standards and is exchangeable through virtually any EMR in the state. CCDs can be sent via secure direct email and consumed either as downloadable documents to be parsed into discrete data in systems that have that functionality, most typically found in advanced EMRs, or it can be consumed as a simple PDF and read as a digital document by the user.
  - ii. Providers should move to the portal as soon as it is available. InCircle is planned to be implemented in July 2021 in the current plan. Given the low number of EMRs in use by HCBS providers CCDA is a less likely solution then using a portal such as InCircle. InCircle can share documents in a common format in a unidirectional way and can be enabled to accept information in a template format as feedback from end user providers or beneficiaries as appropriate. The best strategy to adopt initially, with the move to level 2 interoperability, would be to enable access as soon as

- available to InCircle for the 24% who said they use some form of an EMR and the remaining 60% of those who don't but that indicated they use computers for keeping client records. Training will have to be provided.
- iii. For all stakeholders who are considering upgrading their technology, a request for proposal document should be created and provided to them, as a boiler plate that includes language for standards adherence to meet level 2 & 3 interoperability. As they buy the technology they will then be ready to move ahead with higher levels of interoperability.
  - iv. Beneficiaries and their care givers would be exchanging information with the HCBS providers and the Department IT systems via InCircle at this level also. Careful selection should be made of potential pilot users initially so as not to down grade the interaction based on user problems with the PHR application. Enable and test and then repeat after training levels are assessed and modified.
- c. Interoperability Level 3 – no one is currently at this level of interoperability within the stakeholder group surveyed and interviewed.
- i. To get to Level 3 interoperability, the Department must be able to exchange information while retaining the meaning of the data independent of the system sending or receiving it. To effectively get to level 3 for example, a rules engine could receive data from outside its native system and the meaning of the data would immediately become part of the rule set that would generate an alert under certain conditions for example, if the sending system at the HCBS provider location forwarded data to Aerial that include a social determinant notification that a beneficiary “smelled like alcohol” and the beneficiary file had an “alert if any alcohol consumption occurs”, the data being ingested into the system would automatically set off the alert without intervention.
  - ii. Level 3 interoperability requires data dictionaries, which provide structure, format and definitions that must be adhered to when transferring data, that are common to both systems exchanging information. If they are not 100% in agreement some level 3 interoperability can occur but exceptions will have to be manually handled when the receiving system does not understand the data sent.
  - iii. At the point that a provider is prepared to exchange information at a level 3 interoperability it would possible to connect them to Aerial, send a CCD, and have it be parsed into discrete actionable data on the receiving end. The primary barriers to this would be the stakeholder systems being prepared to consume the data within a standard such as HL7 Level 3 or FHIR and the Aerial system being prepared to transmit the data in a format that equals that.
  - iv. Interoperability level 3 connection can be made either directly to Aerial/InCircle or via an intermediary connection to CORHIO or QHN. The connection should be made with, whoever is awarded the Quality Health Information Network (QHIN), agreement, which acts as a regional HIE authority on the Trusted Exchange Framework plan by ONC, which was created to insure compliance to the 21<sup>st</sup> Century Cures Act. The

connection should ensure all systems conform to the basic data standards and can consume data on a query-retrieve call from the designated QHIN entity. Current timelines for the first QHIN to be selected in the US is in 2020 so this method of getting to Level 3 interoperability is not available until sometime in 2021 or beyond.

## Initial Roll Out – Content and Standards for the Data

1. The initial roll out of the RTM/e-LTSS Support Plan is likely be either a spread-sheet or in a word document for two reasons. The first is to facilitate use by stakeholders, other than care or case managers, who do not have common technology nor the ability to consume beyond PDF, Word, or Excel documents. The second is because distribution will be via Aerial which will primarily allow PDF standard views or potential input templates that have to be created and maintained. Templates can provide significant flexibility to the process but too much flexibility creates small fields of data that are less useful or may be out of context or unusable. An example would be providing a start date but not knowing the start of what activity because the template was to be specialized.
  - a. A subset of care/case managers, along with a corresponding population of beneficiaries and service providers should be chosen to test the value and use of the RTM/eLTSS data set and plan – can be achieved by pilot planned in October 2019 for comprehensive Assessment and support plan which consists of FASI and eLTSS data.
2. One more recommendation for the initial rollout is to use the Provider Portal. Provider portal is currently in use by providers for billing, eligibility checks, prior authorizations and keeping client records. The Department can link the provider portal and Aerial system via FHIR API to transfer the eLTSS support plan between the systems. The Department review the functionality of the provider portal and determine if electronic signatures are possible and if the eLTSS support plan can be viewed and downloaded by providers.
3. Phase 2 of the Roll Out will involve adding InCircle users that may include a care support team around beneficiaries at their choosing as well as service providers or the beneficiary themselves. It is recommended that there be some delay between initial roll out of InCircle as a distribution tool for data versus a bidirectional tool to take in data from beneficiaries or their care givers because new technology can appear to be complicated if multiple functions, that have significant workflow changes associated with them, are employed at the same time. Recommended delay time should be no greater than the time necessary to determine that users can effectively use the tool and are using it in their workflow around the beneficiary. If it isn't getting used then that must be addressed before requesting and expecting data from beneficiary's, service providers or care givers.
4. Phase 3 would be a drive for providers to adopt new technology with appropriate standards such as FHIR. Incentives similar to the HI-TECH Meaningful Use program could be used and have been tried in other states.

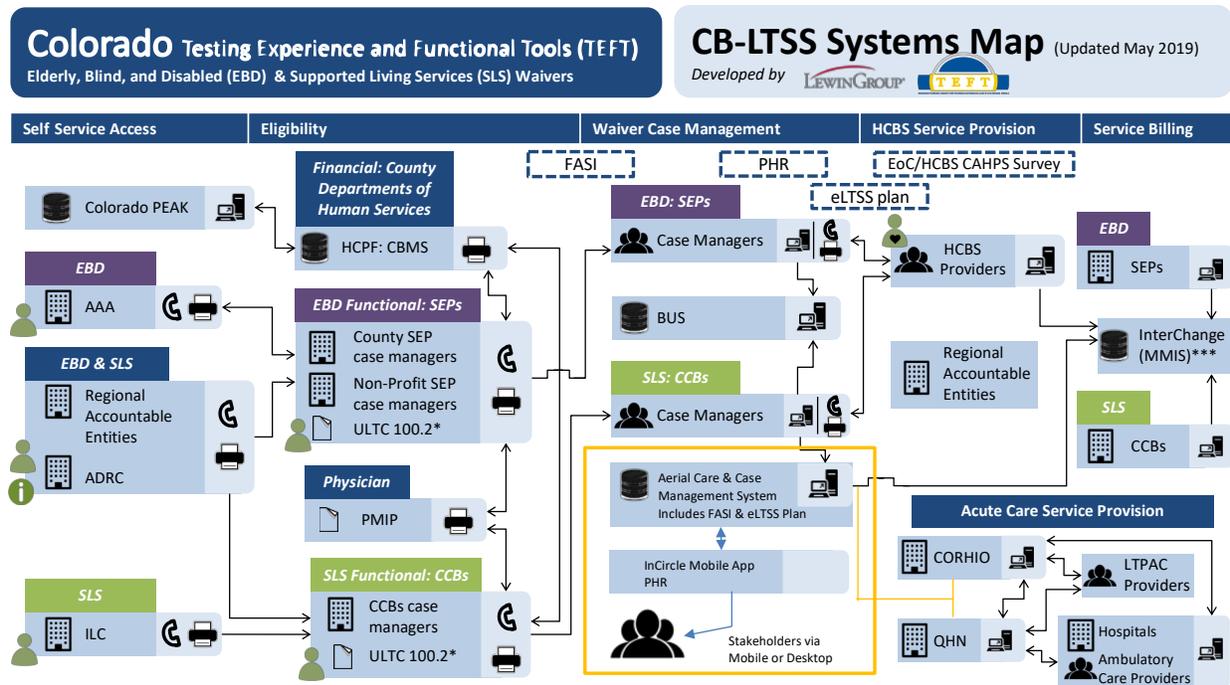
## Scaling

1. Scaling happens in two primary ways. One is the amount of information taken in and used by those who deliver care and those who receive it. In this case the current scale is intended to be 56 elements in a support plan. In the long run in a real time setting the data may be much larger and more diverse including clinical data and other LTSS data if that has an impact on care quality and cost. This type of scaling is dependent on the source and value of the data. It is likely even today that this could be done with the current e-LTSS plan templates.
2. Another scaling consideration is the move from 56 data elements to as many as 124 data elements or more. Data collection is a current weak point and having access to more data makes sense if there is a way to store it and organize it for use in the coordination of care even if that use doesn't occur for several years. Historical data can be very valuable in assessing structural and system performance within the delivery of HCBS services and Medicaid in general as long as the data is collected. There is enough consensus on data needs that the collection process and corresponding data elements should be expanded immediately even if the data won't be used right now. The current barrier to this expansion is the requirement that Aerial, through Medecision, is for 56 data elements and this may have to be addressed between pilot completion and system go live. Data Standards need to be developed in Aerial.
3. The second type of scaling is when there are more beneficiaries, which would also mean more providers of service as well. This type of scaling is also very possible once automation takes place through integration which allows for auto transfer of data and avoids the need for manual processes. In early phase manual processes for a small number of users is okay but as larger numbers of users come online automation will be necessary. Current capacity to scale in a manual sense is estimated at less than 1000 users.

## Risks

1. Budgets – the need to integrate to other systems with or without standards can be very expensive, potentially well over \$200,000 in total cost for a project of this scope.
2. Changes in technology strategy at the Department prior to automation and scaling could delay implementation.
3. Changes in ONC strategy as a result of a new administration which has already taken place in the form of the Trusted Exchange Framework via the 21<sup>st</sup> Century Cures Act. That requirement is causing the need for claims data transparency at the beneficiary level and may impact the use of InCircle as a tool or its roll out timeline.
4. Competing strategy that comes into play at the Department, new legislation, ONC changes, or eHealth innovation.

# Technology Architecture Plan



## Summary

The e-LTSS plan created with 56 data elements can be implemented in the near-term pending pilot completion of the Aerial platform and InCircle. Summary points for implementation are as follows:

1. Data distribution through Aerial, InCircle, and state HIE's is relatively well established although Aerial is still in a development phase.
2. Data collection needs to be outlined and implemented to ensure that relative content is being collected for use now and in the future.
3. Technology integration will be challenging initially due to the level 0 and level 1 interoperability standards that most stakeholders are currently at. Connectivity via direct secure email is poor, at less than 2% of the entire population, and system standards do not match HIT standards widely used in healthcare today. Direct steps, in terms of new technology being developed with FHIR built in will need to be taken to improve interoperability level 2 and 3 integration in the near term.
4. The use of Care/Case managers to input data needed to build an effective RTM/eLTSS data set is required but appears to be well thought out and should function to provide better outcomes.
5. InCircle as an application will be critical to moving into the social determinants domain and driving use of the data once collected.

**Recommendations – The data below reflects the information gathered from specific areas that contributed to the development of the Implementation plan and recommendations for future steps to be taken.**

**InCircle PHR:**

**Future Recommendations for the InCircle PHR:**

1. InCircle should become the de-facto tool for all HCBS beneficiary communication and interaction as soon as practical after the pilot phase has been completed.
2. Provider directories will be needed to qualify who gets to see the data, under HIPAA guidelines, and be a member of a care team. The Office of eHealth and the SIM are working on provider directory technology and expect to have a solution in place in 2019 which likely corresponds well to the time line of the Department and the roll out of InCircle. To manage HIPAA requirements properly provider directories that include HCBS providers must differentiate what data can be seen by which provider based on their role. Role based directories are common in healthcare technology and should be included with the acquisition/development that eHealth is making.
3. Future development of InCircle should include the flexibility to create inbound data templates that are used by the beneficiary, caregiver, HCBS providers and case managers to capture data in a structured format for use in the Aerial care and case management system.

**InCircle Updates or improved functionality recommended:**

1. Insure that HIPAA and Code of Federal Regulations (CFR). Title 42 compliance has been validated. It was indicated that Medecision supports terms and conditions to deal with this, but it needs to be tested against actual criteria to prevent setbacks and improper use of data. Automatic definitions of role and limitations on access to data should be part of the security implementation so that a non-clinical provider does not have access to clinical data as an example. It should not be left to the beneficiary to make the decision if or when their designated care team is allowed data access to InCircle.
2. Given the population of potential users that include waiver beneficiaries InCircle should include the ability to take data in from sensors or wearables that record clinical data from the beneficiary. Aerial product technology representatives have indicated that the product can be integrated with wearable technology. While case managers don't necessarily deal with clinical data the beneficiary having access to all of their data, clinical and non-clinical, in a single portal would improve their use of the portal itself. If the Department expects them to deal with separate portals they will likely use none of them as we have seen in trends of PHR use in the US for 5 years now. Having connectivity between Aerial and CORHIO means you can collect clinical data via wearables and share it with CORHIO for updating the medical record and still have it be displayed for the beneficiary. Some of their goals are in fact clinical related goals and

seeing blood pressure changes or heart rate changes can be a good stimulator of behavior promoting better health. Also wearables data can be used to monitor everything from basic vital signs to how the beneficiary is managing stress to any direct correlation between a social activity and their response to it. For example, a visit from small children may be especially stressful for some but not stressful at all for others.

3. The system should not be rolled out to users whose primary language is Spanish unless the Spanish language feature is enabled. It would create frustration that may cause the beneficiary to abandon use prior to getting value.
4. Electronic signature will be a feature available to users and provides the ability to sign off on their plans. The system should not be rolled out until this is completed.
5. Within the application there are goals, plans and education. Recognizing that the majority of beneficiaries are unlikely to use the education piece it is of note that it is contained within the product and as future waiver population are added it may assist some in getting a better experience. For those who do use it it would be more useable if the first page of the app had their goals and then underneath any goal you could then immediately see the action plan. Linking these pieces of information this way would allow the user to seamlessly connect what they need to do with any information they need to achieve their goal and put it into a workflow that would meet their needs. Making them navigate from looking at a specific goal and then navigate to their plan to meet that exact goal on a separate page and then navigate to another area to get educational videos or articles that are associated with that goal could be frustrating. User capabilities are going to vary widely across the population and preventing this from being a problem would be important in getting high use of the tool.
6. Insure that InCircle has the ability to accept voice commands because many in the population will need them given their disability status. The system should also communicate with them via voice read out.

Having the ability to collaborate in real-time or with asynchronous video exchange for the times that both parties, the Case Manager or HCBS provider and the beneficiary, would be an important long-term feature. It acts like a virtual visit when it is synchronous and a running dialogue between two people on social media when it is asynchronous. Beneficiaries/patients will respond better to a video dialogue regarding what changes they need to make, or things they just need to monitor, then they would with a typical message exchange. It also establishes a sense of urgency so that if things need attention before the next schedule visit they can be addressed. Also allow members on the care team to record an encouraging video/audio.

## **Implementing InCircle Statewide**

InCircle, assuming the updates promised get completed for roll out, is ready to be rolled out almost immediately and because it has both mobile and desk top applications it is flexible enough to serve most of the population. Content for the rollout is the biggest question. The following considerations should be reviewed prior to rollout:

1. For most users clinical and non-clinical data will be necessary. Integration between CORHIO/QHN, with CORHIO serving the eastern side of the state and QHN serving the western side of the state, Aerial will be needed to provide the clinical content to go along with the non-clinical data created and stored in Aerial. Many users would accept just service and waiver-based information based on input from stakeholder meetings. To achieve the highest levels of Triple Aim, clinical data is also needed.
2. Content must be continually updated to reflect new educational and goal-based information.
3. Messaging capability to the persons doctor or nurse would be a nice feature but not completely necessary. Users could request that their doctor or RAE care coordinator join their care teams.
4. Internal to the Department a team would need to be assigned to manage user expectations and deal with issues that arise. This could be a very costly and somewhat difficult process to manage. An alternative would be to allow some case management agencies to fulfill this function, but they must be funded to do so.

## **Understanding the mindset and situation of provider stakeholders**

### **Lessons Learned and Recommendations from the Survey process and impact on the implementation plan:**

#### *Lessons Learned:*

1. Technology does not play a central role in the clinical and beneficiary interaction processes executed by providers who service the HCBS community and specifically the Elderly, Blind, and Disabled (EBD) and Supported Living Services (SLS) waiver population studied in the TEFT grant.
2. Enough technology is in place today to be effective for at least level 1 interoperability for approximately 80 stakeholder providers today.
3. Data storage is sufficient today to begin a level 2 or 3 strategic plan for interoperability that the State of Colorado's HCBS providers can participate in.
4. PHR, being used in this context as a portal, must be used as a provider tool not a beneficiary tool because the necessary technology and connections between providers and beneficiaries does not exist and is not planned due to the nature of the challenges facing the beneficiaries in these waiver groups.
5. Based on conversations with stakeholders, the number of respondents fairly represents the mean of the total provider stakeholders, so more responses would not have changed the lessons learned or outcomes in any material way.

#### *Recommendations:*

1. The Department should consider an advisory group, such as the ONC's regional extension centers, to answer questions and make recommendations to any provider who is making a technology-based decision in their practice to ensure that standards are adhered to in the purchasing process. This individual or group should be advertised to the providers so they all know who to contact to prevent the provider from purchasing technology that will not support a road map to level 3 interoperability and beyond. This service should be provided at no cost if possible, to the providers.
2. Secure email or text should be offered to all HCBS providers to establish level 1 interoperability across the spectrum of providers. All information that is not already contained within an application should be transacted through secure email or text to establish value in the direct link between the Department, RAE's, and providers until a higher level of interoperability can be achieved.
3. Data Storage including 56 elements, list of social determinants, clinical data defined for providers including a data dictionary should be created and maintained by a designated data steward by the Department, to achieve level 3 interoperability. All elements of the data set should also meet the requirements established by the ONC in either meaningful use or the Trusted Exchange Framework Common Agreement (TEFCA) or both. These data elements and corresponding parameters should then be sent to providers in a clear and concise way to allow them to change their data storage plan.
4. An incentive plan should be established that helps pay for technology and process deployment in the provider's business environment that adheres to standards and supports a level 1, 2, or 3 interoperability plans.
5. Work should continue with ONC and CMS to further define additional data standards for eLTSS. The current data set is only for an HCBS support of the support plan.

### **eHealth – Summary and Recommendations and impact on the Implementation Plan**

Office of eHealth Innovation (OeHI) and State Innovation Model (SIM) are working together to create a data rich environment, including claims, social determinants, and clinical data, that support care coordination and a plan to achieve the Triple Aim of increased patient engagement, low cost and higher quality. From 2016 to 2019 significant progress has been made on the design of outcomes as well as the initial steps needed to acquire a master patient index (eMPI) and provider directory technologies. eHealth sees the need for these types of directories to allow for integration of clinical data, although it will also be helpful for sharing non-clinical data such as social determinants of health, which will improve patient outcomes and provide for more timely interactions. They have also made substantial progress on patient engagement through their contract with Mosaic but final reports and findings are not due until May 2019 which is beyond the TEFT grant expiration date. A final OeHI summary report with recommendations will be done, by the OeHI itself, but there is plenty of evidence to support the concept that a social determinants health information exchange and specific data integration and interoperability with OeHI and the SIM is warranted using the data collected and distributed through the developments in TEFT.

**Recommendations:**

1. A financial incentive model be created, similar to the HI-TECH funding used by the Office of the National Coordinator in Health IT, to push HCBS providers to adopt new standards-based technology that will be interoperable with other clinical and demographic systems.
2. Create a consensus-built vision for data sharing and incentivize entities that facilitate data sharing and whole person care accordingly to meet state health goals.
3. Implement financial incentives & technical support to raise floor for technology use and data sharing for specific key groups (e.g., frontier hospitals, community-based organizations, long-term care, County Department of social services, case management agencies to contribute data and facilitate transitions of care).
4. Incorporate consumer/family and provider perspective in data sharing standardization process and innovation.
5. Prioritize data sharing efforts with focus on delivering impact analysis or information to help the state and organizations understand the value proposition and ROI for sharing data— especially social health data.

**eHealth Component Strategy Recommendations****One Year plan:**

Over the course of the next 12 months the eLTSS dataset will be constructed and it will be incorporated into the eLTSS data set support plan and demographics areas within Aerial. The system will be piloted along with the data system and with the assessment tool. Multiple other components still need to be developed in Aerial before it goes live. Aerial is currently projected to launch in July 2021. At that time it may be possible to share info via InCircle to providers. Three things need to be done to make this process more effective and prepare it for an extended time beyond one year.

1. The first step is for someone on the TEFT team to stay engaged with OeHI to ensure that eLTSS social determinants data be factored into the development of the social determinants HIE (s-HIE). HCBS providers can be significant contributors to that data system and they should be asked to provide specific data that aligns with the eHealth and SIM team goals. This includes the possibility of templates being created in InCircle so that data is easily collected and organized in a way to be consumed within the s-HIE as well as by end user providers. A TEFT team member should sit in on all eHealth meetings going forward to make sure this is accomplished.
2. The development effort on eMPI will be helpful for the HCBS providers in consuming and using the TEFT datasets because patient's data will then be stored in a single record that includes HCBS generated data and clinical data. Providers should be registered into the provider directory as well even though it is typically only used for clinical providers because moving to a "Whole Person" healthcare strategy requires that the data be integrated between clinical and non-clinical data, including information about social determinants.
3. An incentive program, similar to the SIM practice enablement program, should be developed and targeted toward high end users in the HCBS community. This would prove the model for electronic exchange of information and develop workflow

components within the HCBS community that can then be scaled to other providers without the unnecessary degradation of productivity typically associated with transitioning to electronics from largely paper based systems. Most conversions to this type of technology take an all or nothing approach by converting the entire technology stack at one time. A more effective strategy would be to study the workflow of the user in their current environment and match changes in a way that doesn't disrupt the most critical aspects all at the same time.

## **Considerations for FASI and eLTSS data Integration**

### **Lessons Learned in the FASI/eLTSS integration meetings:**

1. One of the most important things discussed in any of the meetings was how important it was to figure out what is important TO the person is probably different from what is important FOR the person. (For the person implies what is in their best interest. Architecting a support plan that balances what is important to them will require flexibility in the technology itself in creating a care team around them)
2. Person-centered support must consider not only what data is required but also who and how it will be used. Care-teams could vary by the situation being addressed. For example, a beneficiary may want a different group of people on their care team if the issue is transportation services versus support for a clinical issue.

### **Recommendations:**

1. When considering what data to collect and how to use the plan should consider what is necessary for restoring a person to full health and what will prevent them from having problems. Social determinants, such as a person's alcohol use habits, could be a factor in preventing falls for example.
2. InCircle has the capability to allow bi-directional communication between beneficiaries and providers as well as case managers. Case managers should make it a point to know who the beneficiary wants in their care team and input that into Aerial and allow it to be shared with HCBS providers so they know who to work with and who they should not work with regarding the beneficiary.
3. The architecture must consider the variables that are involved in the support of people with disabilities or functional disabilities and it may require greater customization for one group of beneficiaries versus others.
4. In support of other recommendations listed above a review process for selected beneficiary accounts should be done at least quarterly to insure that the data collected is the right data and that overtime if new data types are created, such as wearables or sensor technology, that it is added to the collection process if valuable.

# TEFT Final Report and Future e-State Enterprise Integration Report

**Overview:** A final review of the Testing Experience and Functional Tools (TEFT) Grant in Colorado for the 4-year period ending March 31, 2019

## Analyzing the Components:

### eLTSS – Electronic Long-Term Services and Support

**Definition via CMS: Electronic Long-Term Services and Supports Support plan Standard (eLTSS)** – ONC has partnered with CMS to identify and harmonize a support plan standard to enable electronic exchange of information relevant to the care of persons receiving HCBS. TEFT grantees will pilot test an eLTSS support plan standard in conjunction with ONC’s Standards and Interoperability (S&I) Framework. The standard encompasses support plan items typically employed by providers and payers to identify and convey the constellation of services and supports for individual beneficiaries of HCBS. Through developing and testing of an eLTSS support plan, CMS aimed to identify, evaluate, and harmonize an eLTSS standard for exchanging eLTSS support plans in HCBS programs. The electronic exchange of eLTSS support plan information can help improve care coordination of a Medicaid beneficiary’s services.

### Goals:

1. Create a Requirements Traceability Matrix (RTM) that includes the elements necessary to create an eLTSS support plan. The primary goal of an eLTSS initiative is to identify, evaluate, and harmonize an eLTSS dataset.
  - a. Result: This was completed in round 1 for 47 element data set and round 2 for a 56-core data element set and 36 non-core data set.
2. Design a technology plan to exchange the eLTSS support plan across HCBS settings to improve care coordination.
  - a. Result: This has been completed but not implemented due to system integration priorities for the new MMIS and Care Management system.
  - b. Integration plans have been completed and will allow the eLTSS data set to populate automatically for some elements and manually for others.
  - c. Distribution of the data elements will be done via either Aerial, for users who have access, or via InCircle, functioning as a Personal Health Record or portal for care givers and providers who don’t have access to Aerial directly.
3. Build the eLTSS support plan in support of a person-centered planning approach.
  - a. Result: The plan is built and is supportive of the PCP approach through the use of Aerial and InCircle. The Department had several stakeholder meetings where the PCP process was created by HCBS Strategies, Inc. The process is being automated within Aerial and includes all the 56 eLTSS data elements except

- “Service Delivery Address” element. The Department removed this element from the eLTSS support plan as per feedback from the Stakeholders.
4. The final eLTSS dataset must be valuable to medical and social service providers.
    - a. Result: The core data set includes the FASI assessment data which defines post-acute care risk and assistance needs and social determinants in the non-core dataset the assessment data will aid medical providers.
  5. Identify and operate within one of the three tiers of eLTSS record exchange.
    - a. Tier I – Basic, Non-Electronic
    - b. Tier II – Secure Electronic Data Exchange
    - c. Tier III – Complete eLTSS Data Model and Exchange
    - d. Result: Through the use of the environmental scan it is now possible to identify each providers Tier status for data exchange and most are at level I.
  6. Validate at least 80% of the original 47 data elements with three HCBS providers.
    - a. Result. During meetings with providers they not only validated the 47-element data set but they wanted a greater number and the Department settled on 56 core data elements and 36 non-core elements.
  7. Execute an environmental scan of HCBS providers to determine their readiness for electronic exchange of data as part of a supplemental funding grant.
    - a. Result: Orchestrate completed the survey in September of 2018 and found that very few HCBS providers were prepared for electronic exchange due to technology limitations and lack of adherence to standards.

#### **Challenges Encountered:**

1. The waiver population chosen was EBD and SLS, which made early discussions with focus groups less productive because the populations were not clear on how they would interact with electronic technology as a data capture, provisioning, and distribution strategy.
2. Delays related to funding issues at the anniversary of each subsequent year of TEFT. In this case delays ranged from several weeks to up to 6 months. Delays caused work from moving forward and loss of continuity, which created challenges for maintaining stakeholder engagement and momentum with contractors.
3. TEFT staffing within the State of Colorado changed on 4 separate occasions over the 4-year period.
4. Technology challenges with the implementation of a new MMIS caused staff availability delays of up to 3 months and included a corresponding loss of continuity.
5. A change in the technology to be used from the start of the grant, Vital, to the end of the 3<sup>rd</sup> year, Aerial, also created challenges and rework relative to data integration and technology strategies.

#### **Lessons Learned (Some data taken directly from the Lewin report)**

1. While gathering feedback about the eLTSS dataset from HCBS program stakeholders, the Department learned that individuals sometimes interpret support plan data elements differently. Standard definitions for all data elements in the eLTSS dataset were

important, which ONC included but weren't universally used when the Department approached stakeholders.

2. Electronic capabilities for LTSS planning and coordination are currently limited and non-integrated. Greater HIE and IT system adoption among HCBS providers and case managers will introduce efficiencies in service coordination and scheduling. Guiding HCBS providers on IT standards for upgrading or acquiring new technology is important due to their lack of IT staff in most cases.
3. PHRs represent an opportunity for improving information sharing with beneficiaries. Providers should be incentivized to participate in work on health IT standards related to HCBS.
4. Include HCBS stakeholders, including agency leadership, case managers, providers, and vendors, in eLTSS IT standards-related initiatives to obtain diverse viewpoints. Holding focus groups with HCBS providers in eLTSS Round 2 helped develop relationships with those providers and define which providers were likely to succeed in early testing.
5. Providers were engaged and gave specific feedback on missing data elements, which elements were beneficial, and which were not relevant to providers' work.

#### **eLTSS Milestones archived and processes followed:**

1. 2014 – TEFT Grant Awarded to 9 states
2. October 2015 – August 2016 eLTSS round 1 data element harmonization.
3. October 2016 – March 2017 eLTSS round 2 data set pilots.
4. May 2017 – August 2017 eLTSS data set finalization.
5. September 2017 – ONC final eLTSS data set published.
6. September 2018 – HL7 Ballot on eLTSS data set.
7. February 2019 – eLTSS Informative Document approved by HL7.

#### **Colorado versus other states:**

1. Throughout the eLTSS data set harmonization, a process by which each field was discussed for its' relative importance to the HCBS providers, Colorado, along with Minnesota, was considering to be the thought leader on eLTSS and HCBS integration, because both states had high levels of provider engagement in the process. HCBS meetings held in Washington DC in three separate years featured a presentation from Colorado, unlike many states, on how the process was being conducted, what the results were, and what the long-term strategy was for other states to emulate.
2. Colorado was one of three states, including Minnesota and Connecticut, to interview users and expand dataset and plan elements to increase effectiveness beyond the original 47 elements and has plans to go beyond the 56 core elements and 36 non-core elements in the future.
3. Colorado was one of four states to create a TEFT webpage to disseminate information and gather feedback.
  - a. Colorado's Department of Health Care Policy and Financing maintains a TEFT webpage, which provides an overview of the grant and webinar recordings from across the five geographical areas, disseminates PHR newsletters and training videos, and announces major milestones related to project implementation.

4. Colorado's architecture and interoperability plan was featured in the final TEFT report from Lewin because it reflected a best practice approach to whole person center care inside a technology architecture.

## PHR – Personal Health Record

**Definition from CMS: Personal Health Record (PHR)** – State Medicaid grantees participating in this component of TEFT will design, test and launch electronic PHRs for HCBS beneficiaries. Grantees will work with stakeholders in their states to identify the content of these PHRs. Potential sources of information to populate the PHRs may include assessment and service/support plan information, health/care information, as well as other information the beneficiary may choose to include for record keeping and/or sharing with providers. Information available in a PHR may assist the beneficiary, their family, and/or caregivers in making care-related decisions and encourage a more active role in managing care. A PHR has the potential to facilitate more efficient care and enhanced outcomes for beneficiaries and their families. Grantees will be working on this component of TEFT throughout the grant period.

The design of the PHR had to meet several criteria for the grant including:

1. Accessible Technology for the waiver population
2. Contain clinical data
3. Contain non-clinical data
4. Have admissions, discharge, and transfer data
5. Be able to produce and distribute a care summary document
6. Communicate with a designated care team
7. Produce or at least provision a support plan
8. Be real-time within any 24-hour period.

In Colorado we modified the design by:

1. Removing the clinical data requirement after the stakeholder meetings
2. Adding in the inclusion of demographics, the Medicaid identifier, and a calendar.

### Goals:

1. Launch a PHR that met the criteria – by November 2016 and modified as need through March 2018
  - a. Result: Initially the Department considered using a DOD system Personal Healthcare Exchange Management System with a built-in survey tool but opted not to use the system due to development needs and available resources which would have extended the timeline beyond the grant period. Stakeholder meetings, with county agencies, HCBS providers, and clinical personnel, were conducted to explain what a PHR was and how it may help them. In the process of those meetings it was determined that clinical data was not nearly as important as non-clinical waiver and service data and that changed the approach from a straight

clinical type PHR to one that was more diverse. FEi was the initial choice but the change in Care Management systems from Vital to Aerial, which includes InCircle as an imbedded portal that could be used as a PHR, was made due to the advantages of working with a single vendor who didn't require integration between the systems. FEi was interoperable with CORHIO and QHN from the beginning. InCircle/Aerial is FHIR enabled and can be interoperable as soon as roll out is ready. This objective will be completed in a test environment and is anticipated to be launched in July 2021. CMS was made aware of the fact that a state wide PHR strategy would occur after the end of TEFT.

2. Enroll beneficiaries into using the PHR with a target of 25
  - a. Result: Piloted the PHR with 8 users and then expanded features and enrolled 17 beneficiaries. Beneficiary' care givers were positive about the value of the tool and the ability to communicate directly back to the HCBS case manager. This allowed them to feel more engaged with the care of their loved one and they could see the data being gathered about the care or services being delivered.
3. Administer the PHR for HCBS waiver populations as defined in the TEFT grant which were SLS and EBD beneficiaries.
  - a. Result: Not completed due to the timeframe for rolling out Aerial and other technology changes.

**Challenges Encountered:**

1. Technology availability at the beneficiary, care giver, and HCBS provider level did not meet basic standards for health care IT. This limited the number of HCBS providers who could actually use the data in their workflow to no more than 4 sites of the hundreds surveyed because they lacked current systems to do this.
2. The original PHR chosen was through the Regional HIE – CORHIO and subsequent early testing centered around clinical data. Focus groups showed that clinical data was not a driving factor for use, waiver data with non-clinical social determinants was the desired data by the providers and waiver beneficiaries.
3. Technology integration could only be simulated, not piloted, because the technology stack inside Colorado Medicaid was changing during the grant period.
4. CMS-ONC integration standards changed from Health Level 7 version 3 (HL7 v3) to Fast Healthcare Interoperability Resources (FHIR) between the beginning and end of the grant period requiring technology strategy changes.
5. Delays related to funding issues at the anniversary of each subsequent year of TEFT. In this case delays ranged from several weeks to up to 6 months.
6. Delays caused work stoppage and loss of continuity
7. TEFT staffing within the State of Colorado changed on 4 separate occasions over the 4-year period.
8. Technology challenges with the implementation of a new MMIS caused diminished staff availability of up to 3 months and included a corresponding loss of continuity.
9. A change in the technology to be used from the start of the grant, Vital, to the end of the 3<sup>rd</sup> year, Aerial with InCircle as a mobile and desktop distribution application, changed the vendor from whom the PHR was to be sourced.

**Lessons Learned (Some information is taken directly from the Lewin Report):**

1. The Department had trouble adhering to the original PHR timeline due to changes in staffing and issues with technical requirements. These issues were unavoidable, but a lesson learned that could be prevented in future projects like this.
2. Recruiting and maintaining an interested group of beneficiary users was another challenge. Confusion among stakeholders about what a PHR was created part of the problem and doing a demonstration of what it was may have helped as opposed to just a slide show.
3. The long period of time between introduction and implementation affected the interest among potential users. The communications strategy for a beneficiary- facing health IT initiative should be deliberate and phased.
4. In the pilots with HCBS beneficiaries, case managers were important stakeholders for disseminating information to beneficiaries (Colorado and Minnesota both did this) and assisting with training or trouble-shooting.
5. IT systems commonly require account verification through an email account as a security measure. However, many potential PHR users in the HCBS populations did not regularly use a computer or have an email address.
6. Soliciting input from the target populations during the design phase of the PHR system and attempt to engage users' interest in the system worked well. In the future the time between design and implementation must be shortened
7. Including assistive technology functions in a system designed for populations with disabilities might positively influence adoption and use. Being able to answer the questions about how the PHR might work for those populations is important.

**PHR Milestones Achieved and Processes Followed:**

1. 2014 - TEFT Grant awarded
2. 2016 – PHR Design phase and development began
3. 2016 – PHR Work plans were developed and approved.
4. 2017 – Minnesota and Kentucky used joint innovative design sessions with their care/case management systems vendors to design and build the PHR.
5. 2017-2018 - Colorado invited PHR vendors to perform system demonstrations for a group of HCBS providers and beneficiaries. Colorado's original vision was to offer beneficiaries the choice of three PHR systems. However, the Department assessed the PHR systems' features against its requirements, and selected only one PHR system which was FEi Systems. This system was later scrapped in favor of a fully integrated PHR, InCircle, to the Care and Case Management system, Aerial, because the longer-term benefits of a single architecture outweighed any feature issue that may have been better with independent systems. The advantage also included a time line improvement of 12-24 months in implementation time.

**Colorado versus other states:**

1. Minnesota was the first state to implement a PHR and did so in 2016 because they have previously installed RelayHealth, a PHR for all Medicaid members in the state, to many of their users.
2. Maryland and Kentucky launch PHR pilots in September of 2017

3. Colorado and Connecticut become the 4<sup>th</sup> and 5<sup>th</sup> states to launch a pilot PHR. Colorado used FEi Systems and a manual process to do identity management testing to insure HIPAA level compliance.
4. Colorado did two environmental scans. The first was to determine which data elements were valuable to providers and case managers and how different presentation processes might affect use. The second survey was an environmental survey process to gain a significant amount of data on where HCBS providers are on the use of standards-based technology. This data can be used for tracking evolution to level 2 or 3 interoperability over a period of up to 5 years into the future and guide upgrade strategies for HCBS providers.
5. Both FEi systems and Aerial/InCircle met the S&I framework criteria and HL7 standards.
  - a. FEi Systems was an off the shelf PHR that had limited functionality while InCircle is moderately customizable and will provide better adherence to the person-centered planning requirements.
6. One of the requirements for PHR was the ability to push information from existing IT systems to the stakeholders and this required integration to MMIS. Colorado was going through an MMIS transition at the time of TEFT grant implementation and this delayed the PHR implementation for more than 2 years.
7. Colorado convened focus groups in five regions to hear perspectives from HCBS case managers and beneficiaries
  - a. Customized features created from focus group feedback:
    - i. Accessibility: large print, adaptive software built-in and widgets/icons
    - ii. Non-clinical data: current assessment, support plan, units of service, primary care provider
    - iii. Communication with care team: secure messaging with case manager
    - iv. Admission, discharge, transfer data (i.e., hospital visit information, admit discharge and transfer data, encounter location, attending provider name)
    - v. Other: demographics, Medicaid identifier, calendar
8. Some states provided advanced technology, like Apple iPads, to the stakeholders, including live training. Colorado did not do this, and it prevented greater acceptance as the PHR test ended up with 25 users instead of the planned 33 and none of those users are using the system today. Maryland was one of the states who provided in-person training and tablets and post implementation surveys done by Lewin show that Maryland was graded higher by stakeholders than any other state.
9. Colorado was one of 4 states of the 9 grantees who will continue to use PHR beyond the test period in the grant.

**Summary:**

There were many challenges for completing the TEFT grant criteria over the past 4 years but there were also some very worthwhile achievements. A defined and accepted eLTSS dataset is complete and will generate a support plan that includes critical data, like risks to the beneficiary and social determinants, which will lead to whole person-centered care. FASI has been tested and incorporated in the comprehensive assessment and support plan workflow for case managers. The data created in the assessments and support plans can be used by medical a non-medical provider alike to provide better quality at a lower cost and deliver a better patient

experience, which is aligned with the Triple Aim. A PHR is ready to deliver data to stakeholders once the roll out has been completed and the technology is ready on the HCBS provider side. There are no specific barriers to completion of all of the original TEFT requirements. For Level 3 interoperability using comprehensive assessments including FASI, to inform a more comprehensive eLTSS Support plan, through Aerial Care and Case Management and InCircle technologies will help to consolidate assessment data and to distribute relevant data to the providers who need it most.