



ODDS Oregon Needs Assessment (ONA) Third Party Analysis Review Report

FINAL REPORT

PREPARED FOR:

Oregon Department of Human Services, Office of Developmental Disabilities Services

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EXECUTIVE SUMMARY

The Oregon Department of Human Services (DHS) Office of Developmental Disabilities Services (ODDS) engaged the University Center for Excellence in Developmental Disabilities (UCEDD) and the Biostatistics Design Program (BDP) at Oregon Health & Science University (OHSU) to review the results of pilot testing completed on the Oregon Needs Assessment (ONA) tool. Mission Analytics (MA) Group, Inc. developed and initially pilot tested the ONA tool. The purpose of this review is to determine if the methods, analysis, and conclusions drawn by MA were accurate and appropriate.

This report provides the details of our review of the draft report prepared by MA and supplementary documents provided by ODDS. It includes the following information:

- a re-analysis using the same analysis methods as MA
- a review of the methods of analysis for appropriateness
- identification of strengths in the development and testing the ONA tool
- corrections or additions based on OHSU's analysis
- recommendations for consideration to continue validation of the ONA tool

Strengths and Additions to Testing

Based on our review and analyses, we have identified aspects of the analysis that were conducted well, and have supplemented or corrected some points in the MA report with information from our own analyses. Key points in each of these areas are listed below.

Steps that Mission Analytics took that contributed to the ONA tool quality include:

- Ensuring that the ONA tool covers all of the applicable content that was previously assessed through multiple assessment tools
- Drawing on existing item sets that have already undergone some level of testing
- Obtaining ratings from two assessors for a subset of pilot test participants to ensure there is inter-rater reliability (IRR) or in other words, agreement among raters
- Incorporation of stakeholder input at multiple points
- Software code files for quantitative analyses that were maintained well, enabling replication of the quantitative analysis steps

OHSU conducted additional analyses to provide ODDS with accurate and comprehensive information. These additions include:

- Including raw counts in tables so readers can see the number of people the findings are based upon for each item.
- Noting how many respondents, by age group, were missing data on items that did not have skip patterns to learn if there was a pattern to missing data. Breaking this information down helps determine whether adults were different from children.
- Adding statistical testing to tables 1, 2, & 3 to show whether the sample of respondents chosen for IRR testing represents the population not chosen for IRR testing.
- Adding a comprehensive description of methods used to analyze IRR. This provides more detail (sufficient to enable replication) than was included in the methods document we received. It also includes a more accurate description of the meaning and interpretation of 95% confidence intervals.
- We have incorporated intraclass correlation coefficients (ICCs) into our reporting, as a measure of inter-rater reliability. (Although analyses were completed by the MA team, they had not yet been integrated into the draft report we received.) This includes reporting of correct 95% confidence

intervals of the ICC estimates and descriptions of the level of reliability (excellent, good, moderate, or poor) of each item based on published standards for assessing IRR.

Findings

Based on our review, the OHSU team has made the following conclusions about the work done by MA and about the quality of the ONA tool itself:

Conclusions about the work of the MA team:

- The results reported by MA were sufficiently accurate. Some of our results differ slightly from MA's, but the differences are minor and do not affect conclusions regarding the quality of the ONA tool.
- The methods MA used for pilot testing and analysis were generally appropriate. Strengths included:
 - Selection of a random sample of clients to participate in pilot testing
 - Separate reporting of response frequencies for adults and children on each item
 - Inclusion of IRR testing for a subset of pilot test participants
 - An essentially random method of assigning clients to the IRR sub-group
 - Adequate numbers of adult clients for IRR testing of many of the items
 - Use of an appropriate statistical model for analyzing IRR data
- However, OHSU believes it is important to examine IRR of items separately for adults and children. A weakness of the existing data is that only 9 children were included the IRR sample.

Conclusions about the ONA tool:

- The ONA has strong "face validity" because items were drawn from other tools commonly used for similar purposes.
- The ONA has undergone a more rigorous testing process than is typically the case for similar assessment tools used in other states.
- The majority of the ONA items have acceptable reliability for adults. At the end of this report, we identify items that currently have enough data and strong enough findings for us to be confident they are reliable for adults. We also list the items for which we believe additional data would be beneficial.
- Inter-rater reliability of the tool is not yet established for children due to the low numbers of children included in IRR testing. We include recommendations (below) for addressing this gap through ongoing quality assurance checking during implementation.

In summary, our findings support the conclusions outlined in the Mission Analytics Group, Inc. draft report. It is our opinion that the approach to development of the ONA and the testing methodology used by Mission Analytics Group, Inc. were rooted in best practice and were appropriate. While we conclude that the inter-rater reliability of the ONA is not yet fully established, the results thus far are highly encouraging. Moreover, the testing steps that have been completed place Oregon at the forefront of efforts to objectively assess the support needs of clients with developmental disabilities. We believe it is reasonable and appropriate to proceed with implementation of the ONA, provided ongoing monitoring is undertaken (as recommended below) to continue assessing reliability.

Recommendations

With the conclusion of the ONA tool pilot testing phase, we submit the following recommendations to strengthen the validation and reliability of the ONA tool as ODDS moves into the implementation phase:

- 1) Recommendations for implementing post-pilot sampling during an ONA tool implementation phase:

- a. Develop a quality assurance process that includes scheduled and continued IRR sampling, data analysis, and consideration of stakeholder input until the ONA tool is fully validated and reliable for both child and adult populations.
 - b. The quality assurance process should ensure that a minimum of 30 adults and 30 children have IRR data for each item. Where there are skip patterns that result in small numbers of respondents being assessed on “drill down” items, targeted sampling is recommended as a strategy to collect sufficient data on those items during the post-pilot phase. Collection of the existing pilot data was a logical and important first step, the results of which can now guide additional IRR sampling during the post-pilot phase.
 - c. Analyses thus far have been conducted at the item level only. As implementation proceeds, ODDS may wish to examine agreement between assessors on determinations of support needs for clients, based on groups of items or on the ONA as a whole.
 - d. As data collection continues to establish reliability of the ONA tool, the quality assurance process should include a clear path for individuals receiving services from ODDS to have their determinations reviewed. This review process should take place in a timely manner where health and safety are a primary consideration.
- 2) Recommendations for follow up to the MA analysis and reporting:
- a. Provide a clear rationale for why some sections and items of the tool were not covered in the analyses reported by MA. For example, if a decision was made to drop some items from the tool after pilot testing started, those changes and the reasons for them should be explained. The draft report we received included such explanations for some sets of items but not others.
 - b. If sections or items that were not included in the original analysis are: 1) retained in the ONA tool; and 2) used for rate setting and level of service determination, we recommended that those items be identified and analyzed to ensure that inter-rater reliability has been comprehensively assessed.
 - c. Any items used to determine rate setting or level of service that have been modified since the pilot data were collected should be retested by analyzing data collected during the ongoing quality assurance process.

BACKGROUND

The Mission Analytics Group, Inc. (MA) report included the following background, which we have retained here for reference:

“The Office of Developmental Disability Services (ODDS) within the Oregon Department of Human Services is required to conduct a functional needs assessment to inform the individual support plan (ISP) for any individual receiving Medicaid funded supports through an ODDS program. The 2013 Oregon Legislature (under SB 5529) directed ODDS to implement a single, uniform needs assessment tool, requiring it to “be evidence-based and consider broad stakeholder input.” As a single tool, the assessment is intended to be the basis for an Individual Support Plan (ISP), identifying strengths, needs, preferences and risks to be addressed. It also needs to establish whether individuals meet the Intermediate Care Facility for Individuals with Intellectual Disabilities (ICF-IID) level of care (LOC) criteria, mandated for participation in a waiver or Community First Choice (K plan).

To meet these requirements, ODDS contracted with Mission Analytics Group, Inc., in partnership with HCBS Strategies and George Washington University (GWU), to review, revise, test and validate a uniform assessment tool. Mission Analytics’ work was coordinated through the ReBAR (Restructuring Budgets, Assessments and Rates) staff at ODDS. Early in 2016, ReBAR and the Mission Analytics team developed a revised needs assessment called the Oregon Needs Assessment or ONA.”

According to the MA report, the ONA was pilot tested with a randomly selected subsample of individuals who would normally receive an annual assessment during the pilot period. MA prepared a draft report presenting results of the pilot test.

The following is new background information pertaining specifically to the present report on a third party review conducted of the MA report and associated supplemental materials:

In late 2017, ODDS contacted OHSU’s University Center for Excellence in Developmental Disabilities (UCEDD) to request that we review the pilot test results report submitted by Mission Analytics Group, Inc. (MA) and determine whether: a) the methods used for collecting and analyzing the data were appropriate; b) replicate and confirm (validate) their findings; and c) provide recommendations for alternate or additional steps needed to ensure that the ONA is a valid and reliable tool. The UCEDD partnered with OHSU’s Biostatistics Design Program in carrying out this work. This report presents our findings from our review and re-analysis of the data.

METHODS

Materials Reviewed and Analyzed

We received the following documents, datasets, and analysis code files from ODDS for our review:

- 1) Validation Report-31May2017-draft-withoutIRR (pdf document)
- 2) ODDS Reliability Analysis (Word document)
- 3) ODDS_ICC_Results (Excel spreadsheet)
- 4) Asmts by Client + Demog (Excel data file)
- 5) Asmts by Client + Q&A (Excel data file)
- 6) Reshape_v1 (Stata Do-file)
- 7) Run ICC_recreated Jan2518 (Stata Do-file)

Quantitative Analysis Methods¹

All data analyses were done using STATA v15. We received data from ODDS in an Excel file. We also received the STATA do files previously created for data management, frequencies and calculating the intra-class correlation coefficients (ICC) for inter-rater reliability analysis (IRR). We reviewed the do files and agreed with the methods that had been used for managing the data and the model that was selected for conducting ICC analyses. We then replicated the same data management steps (e.g. recoding variables) and ran our own frequency and ICC analyses for comparison purposes.

We ran frequencies for adults and children for all items on the ONA tool. (See separate pdf files for full results.) The IRR methods document we received as a supplement to the MA draft report stated that IRR was tested for items with scaled response options in the (ONA) tool. Consistent with the analyses that were done previously, we conducted IRR analyses for the same items that were included in the original spreadsheet of IRR results. IRR data were collected on 53 clients from the pilot sample of 521 clients. According to ODDS, those 53 clients were selected as follows:

“A random selection model was used. Each assessor had been assigned specific areas to schedule and conduct ONA assessments. They scheduled based on the availability of the people (and their teams) of those who had been randomly selected. One day each week was held for IRR assessments and the people who had chosen to schedule on that day (without awareness of it being an IRR day) received an IRR assessment. Additional IRRs were conducted if a second assessor was available on a day (due to a cancelled assessment) and within commuting distance of another assessor who had a scheduled ONA.”

We compared the IRR group to the group with one assessment using chi-square tests to determine whether the two groups differed from each other in any statistically significant way (as indicated by a p-value <.05). Ideally, the two groups should not be statistically different, which would signify that the IRR group adequately represented the rest of the sample.

As stated in the original methods document, two trained assessors from a larger group of assessors rated each client. ICCs were used to measure the agreement between the assessor pairs. Two types of agreement were examined – individual consistency (are the scores of both assessors in the same direction) and absolute agreement (do both assessors give the same scores). Both pieces of information are important to understanding the extent of reliability given the absence of a gold standard response. OHSU is clarifying that, in this instance, the absolute agreement is more important since the goal is to examine whether multiple raters rate the same client similarly. In other words, we want to know not just whether both assessors would agree that a particular client needs supports in a certain area, but we really want to know whether both assessors agree on the exact *level* of support the client needs. Thus, a more stringent criterion is applied in calculating the absolute agreement, and it therefore also ends up being a more conservative approach to calculating the ICC. We have provided both the individual consistency ICCs' and the absolute agreement ICCs' in a separate Excel file.

We report the individual ICC rather than the average ICC. The individual ICC measures the correlation between separate single measurements (i.e. measurements by more than one rater) of the same individual whereas the average ICC measures the correlation between averages of multiple ratings made by different raters on the same individual. Here, we are interested in examining the correlation between separate one-time ratings of the same individual, thus, individual ICC is the correct metric.

¹ Complete documentation of the stakeholder feedback processes and data specific to the pilot period was not available to the OHSU team. Therefore, the ODDS and OHSU staffs agreed to exclude from this report attempted validation of the qualitative perspective included in MA's report.

Our analyses assumed that the raters were randomly selected from a population of trained raters with similar characteristics, thus, a two-way random effects model was used in which the assessor and the client were treated as random effects. This model allows the results to be generalized to the population of raters that possess similar characteristics as the selected raters in this study (Koo and Li, 2016)².

ICC values can range from 0 to 1. Higher ICC values indicate greater IRR. An ICC estimate of 1 indicates perfect agreement and 0 indicates only random agreement. The below guidelines (Koo and Li, 2016)² can be used to evaluate the level of reliability:

- Less than 0.5 indicates poor reliability
- Between 0.5 and 0.75 indicates moderate reliability
- Between 0.75 and 0.9 indicate good reliability
- Greater than 0.9 indicates excellent reliability

These guidelines should be used with the ICC values that are reported in conjunction with their 95% confidence intervals (CI). A confidence interval is a range where we can be reasonably certain that the true parameter of interest is contained. If we were to estimate the ICC 100 times in 100 samples of clients then we would expect 95 of them to include the true ICC value (Pagano & Gauvreau, 2000)³. For example, if we report an ICC of 0.90 and a 95% CI of 0.83 – 0.94, this indicates that the true ICC could be anywhere between 0.83 and 0.94. In accordance with the guidelines for evaluating the level of reliability stated above, this would indicate “good to excellent” reliability as the lower bound of the CI is in the “good” range, despite the point estimate and upper bound of the CI being in the “excellent” range. If we were to report an ICC of 0.92 and a corresponding 95% CI of 0.91 to 0.95, then we would rate this as “excellent” reliability because the estimate and both ends of the CI are all within the “excellent” range. Wider confidence intervals indicate greater uncertainty about the true ICC. Confidence intervals that span more than two categories (for example, from “poor” to “good” or from “moderate” to “excellent”) are wide enough that caution should be used in interpreting the level of reliability for those particular items.

All ICCs reported in this document are individual, absolute-agreement values from a two-way random effects model with their corresponding 95% CIs. Items with very small response counts have been excluded, the ICC interpretations regarding reliability are not robust. We also performed some very preliminary analyses examining ICCs separately for adults and children. The low number of children in the IRR sample meant that none of the ICC estimates were robust for individuals under age 18.

The MA report noted that some ONA items were drawn from other sources, especially the Functional Assessment Standardized Items (FASI) from the Testing Experience and Functional Tools project funded by the Centers for Medicare and Medicaid Services. The report described the FASI items as having established reliability. We attempted to verify that statement and were unable to do so. We found an online report from alpha testing of the items and a timeline indicating that reliability testing of the items was scheduled to occur during 2016. However, we were unable to find a report of reliability testing results, and we were not able to determine at what point in 2016 reliability testing was completed relative to the timeline of ONA development. Nonetheless, drawing on existing items that had already undergone some level of testing was a reasonable strategy. Moreover, the ONA pilot test included its own reliability testing.

² Koo, T.K. and Yi, M.Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine*, 15, 155-163.

³ Pagano, M. and Gauvreau, K. (2000). *Principles of Biostatistics*. Duxbury.

Structure of the Report

Mission Analytics Group, Inc. (MA) provided a draft report focusing on certain sections of the tool. We followed the basic structure of that report in our own reporting, presenting information for each of those same sections and subsections of the tool, in the same order used by the original report. For frequency analyses, we included side-by-side tables in our report so results from our analyses can easily be compared to the results of the original analyses. There seemed to be some overlap across categories in the lettered subheadings (following the frequency tables) under each subsection of items in the original report. Therefore, we modified these subheadings to use the following structure for each subsection of items:

Are these items reliable?

IRR findings are summarized in tables presenting IRR sample sizes for each item, ICC estimates and their 95% confidence intervals, and descriptions of the level of reliability of each item based on the guidelines above from Koo and Li, 2016. (Side-by-side comparisons of OHSU and MA findings are included in a separate Excel file.)

Additional considerations from quantitative data:

Where applicable, we report additional information, such as a pattern of results indicating that a skip pattern may need to be added. If MA made a similar statement in their report, we noted whether we concurred with their assessment or if we provided further details.

CHARACTERISTICS OF COMPLETED ASSESSMENTS

The tables below show the characteristics of individuals for whom ONAs were completed during pilot testing. These are subdivided into those with one assessment and those with two assessments (the IRR sample). OHSU's results for gender distribution of the two samples match those in the MA report, as do our percentages for age in the group with one assessment. For the group with 2 assessments, percentages of 25-34 year olds and 35-54 year olds differ slightly from those MA reported. Because raw counts were not included in the original tables, it is difficult to identify a reason for the differences, but they are minor.

A key concern of the OHSU team is that the IRR sample included a smaller proportion of children than the overall sample (in both MA and OHSU analyses). Although the difference between groups was not statistically significant, only 9 children were included in the IRR sample, which means reliability of the measure for use with children is not yet established.

Table 1: Gender & Age of Pilot Sample

Mission Analytics Inc. Results			OHSU Results		
Characteristics	One assessment	Two assessments (IRR)	One assessment N(%)	Two assessments N(%)	p-value
Total Count (N)	468	53	469	53	
Gender					0.90
Male	61%	62%	288 (61.4%)	33 (62.3%)	
Female	39%	38%	181 (38.6%)	20 (37.7%)	
Age Category					0.38
Under 12 years old	12%	8%	55 (11.7%)	4 (7.6%)	
12 to 17 years old	11%	9%	49 (10.5%)	5 (9.4%)	
18 to 24 years old	14%	8%	66 (14.1%)	4 (7.6%)	
25 to 34 years old	21%	19%	98 (20.9%)	9 (17.9%)	
35 to 54 years old	24%	32%	114 (24.3%)	18 (34.0%)	
55 or older	19%	25%	87 (18.6%)	13 (24.5%)	

Table 2: Service Settings of Pilot Sample

Mission Analytics Inc. Results			OHSU Results		
Characteristics	One assessment	Two assessments (IRR)	One assessment	Two assessments (IRR)	p-value*
Total Count (N)	468	53	469	53	
Adults			365	44	0.38
24hr Residential (SE50)	29%	34%	135 (28.8%)	18 (34.0%)	
Brokerage In-Home (SE149)	18%	13%	86 (18.3%)	8 (15.1%)	
Comp In-Home (SE49)	12%	6%	56 (11.9%)	3 (5.7%)	
Foster Care (SE58)	15%	25%	69 (14.7%)	12 (22.7%)	
Supported Living (SE51)	4%	6%	19 (4.1%)	3 (5.7%)	
Children			104	9	0.47
Children's In-Home Services (SE151)	15%	9%	69 (14.7%)	6 (11.3%)	
Children's Intensive In-Home (SE145)	1%	0%	3 (0.6%)	0 (0.0%)	
Children's Residential System (SE142)	2%	0%	9 (1.9%)	0 (0.0%)	
Comp In-Home (SE49)	2%	2%	10 (2.1%)	0 (0.0%)	
Foster Care (SE58)	2%	6%	11 (2.3%)	3 (5.7%)	
Other	>1%	0%	1 (0.2%)	0 (0.0%)	
SACU (SE141)	>1%	0%	1 (0.2%)	0 (0.0%)	

*Although we used the full samples as the denominator for percentages, as MA did, we calculated p values separately for adults and children.

Our service setting percentages matched those in the MA table for people with one assessment, with the exception that they used >1% when it should be <1%. There were a few differences between our findings and MA's for people with two assessments. Differences were 2 percentage points or less.

Table 3: County of Residence of Pilot Sample

Characteristics	Mission Analytics Inc. Results		OHSU Results		
	One assessment	Two assessments (IRR)	One assessment	Two assessments (IRR)	p-value*
Total Count (N)	468	53	469	53	0.03
Baker	1%	0%	4 (0.9%)	0 (0.0%)	
Benton	1%	0%	3 (0.6%)	0 (0.0%)	
Clackamas	1%	2%	4 (0.9%)	1 (1.9%)	
Clatsop	>1%	6%	2 (0.4%)	3 (5.7%)	
Columbia	2%	0%	9 (1.9%)	0 (0.0%)	
Coos*	4%	4%	19 (4.0%)	2 (3.8%)	
Crook	>1%	0%	1 (0.2%)	0 (0.0%)	
Curry*	1%	0%	4 (0.9%)	0 (0.0%)	
Deschutes	>1%	0%	2 (0.4%)	0 (0.0%)	
Douglas	1%	0%	3 (0.6%)	1 (1.9%)	
Jackson*	11%	6%	52 (11.1%)	4 (7.6%)	
Josephine	1%	6%	5 (1.1%)	2 (3.8%)	
Klamath*	9%	0%	43 (9.2%)	0 (0.0%)	
Lane*	4%	8%	21 (4.5%)	5 (9.5%)	
Lincoln*	1%	0%	6 (1.3%)	0 (0.0%)	
Linn*	12%	9%	55 (11.7%)	4 (7.6%)	
Marion*	8%	2%	37 (7.9%)	1 (1.9%)	
Multnomah*	26%	38%	120 (25.6%)	20 (37.7%)	
Polk	1%	0%	5 (1.1%)	0 (0.0%)	
Umatilla*	3%	4%	12 (2.6%)	2 (3.8%)	
Washington*	12%	15%	55 (11.7%)	8 (15.1%)	
Yamhill	>1%	0%	1 (0.2%)	0 (0.0%)	
<Unknown>	1%	2%	6 (1.3%)	0 (0.0%)	

*Indicates counties whose CDDP or brokerage agencies participated.

Our percentages for county of residence matched those in the MA report for people with one assessment, with the exception that >1% was used in the MA tables when it should have been <1%. We found several differences from MA's findings for the IRR sample, although most of the differences were less than two percentage points. Although the distribution of counties for those who received two assessments is significantly different from those who received one assessment ($p=0.03$), it is unlikely that IRR results would differ substantially by county. The IRR sample included a reasonable distribution across urban and more rural counties.

COMMENTS ON ITEMS IN SECTIONS I-IV

The MA report included the following background information about the initial sections of the tool: "The ONA is designed to replace a number of different instruments, including the LOC, the ANA/CAN and the risk assessment. As a tool for service planning, many of the early sections of the ONA are included to provide background information and guidance to the assessor. This includes Assessment and Demographic Information, Communication and Memory and Cognition (Sections I through III). A fourth section, Community and Social, was initially included to promote person-centered planning. However, in the course of the pilot testing, the ReBAR assessors concluded these items were appropriate for the ISP development but were not as helpful for a functional assessment managed through the ReBAR team."

The MA report went on to state: "Section V, ADLs and IADLs, therefore represents the first section that provides critical information for the functional assessment and level of care. This section, along with Section VI Behaviors and Section VIII, are the central focus for our analysis of the reliability and validity of the ONA items."

The OHSU team was unsure why items about communication, memory, and cognition were seen as tangential to assessing functional capacity and level of care needs. We believe a full analysis of these items should be reported, or a clear explanation provided as to why such reporting is not needed.

FINDINGS ON ADL ITEMS (SECTION V)

The MA report stated: “Out of the 468 assessments in the main sample, three had only text responses and are not included in the frequencies. That leaves a maximum of 360 responses for adults and 105 for children.” The OHSU team was unable to identify the 3 adults who only had text responses. Therefore, our sample size for response frequencies among adults is slightly different, and our frequencies are thus slightly different from those previously reported. Differences are negligible and do not affect interpretations regarding the items.

ADLs: 8. Dressing

Table 4: Dressing. Response Frequencies, Core Sample, Adults and Children

Mission Analytics Inc.			OHSU*			
a) Upper Body Dressing - The ability to put on and remove shirt or pajama top. Includes buttoning, if applicable.	Frequencies (Adults) N = 357	Frequencies (Children) N = 100	N	%	N	%
			N=360	100.00	N=100	100.00
Independent	28.6	11.0	104	28.89	11	11.00
Setup or clean-up assistance	24.6	18.0	89	24.72	18	18.00
Supervision or touching assistance	11.2	18.0	40	11.11	18	18.00
Partial/moderate assistance	16.0	30.0	57	15.83	30	30.00
Substantial/maximal assistance	7.8	14.0	28	7.78	14	14.00
Dependent	11.8	9.0	42	11.67	9	9.00
Person refused	0.0	0.0	0	0.0	0	0.0
Not applicable	0.0	0.0	0	0.0	0	0.0
Not attempted	0.0	0.0	0	0.0	0	0.0
b) Lower Body Dressing – The ability to dress and undress below the waist, including fasteners. Does not include footwear.	N = 356	N = 100	N=358	%= 100.00	N= 100	%=100.00
Independent	30.9	13.0	112	31.72	13	13.00
Setup or clean-up assistance	21.9	15.0	78	21.79	15	15.00
Supervision or touching assistance	12.4	18.0	44	12.29	18	18.00
Partial/moderate assistance	12.1	29.0	43	12.01	29	29.00
Substantial/maximal assistance	8.4	14.0	30	8.38	14	14.00
Dependent	14.3	11.0	51	14.25	11	11.00
Person refused	0.0	0.0	0	0.0	0	0.0
Not applicable	0.0	0.0	0	0.0	0	0.0
Not attempted	0.0	0.0	0	0.0	0	0.0
c) Putting on/taking off footwear – Ability to put on and take off socks and shoes or other footwear that are appropriate for safe mobility?	N = 356	N = 100	N=358	%= 100.00	N= 100	%=100.00
Independent	42.7	16.0	154	43.02	16	16
Setup or clean-up assistance	12.4	4.0	44	12.29	4	4.0
Supervision or touching assistance	7.3	15.0	26	7.26	15	15.00
Partial/moderate assistance	13.2	36.0	47	13.13	36	36.00
Substantial/maximal assistance	7.3	16.0	26	7.26	16	16.00
Dependent	16.8	13.0	60	16.76	13	13.00
Person refused	0.0	0.0	0	0.00	0	0.00
Not applicable	0.3	0.0	1	0.28	0	0.00
Not attempted	0.0	0.0	0	0.00	0	0.00
d) How often does the individual require assistance w/dressing more than five times per day?	N = 342	N = 98	N= 344	%= 100.00	N = 98	%= 100.00
Never	88.6	82.7	305	88.66	81	82.65
Less than once per month	0.6	3.1	2	0.58	3	3.06
Less than once per week	0.3	1.0	1	0.29	1	1.02
About once per week	2.6	4.1	9	2.62	4	4.08
More than once per week	2.6	1.0	9	2.62	1	1.02
Dependent	16.8	13.0	60	16.76	13	13.00

g) Is skill training needed to increase independence?	N = 316	N = 92	N= 317	%= 100.00	N= 92	%= 100.00
Yes	6.3	34.8	20	6.31	32	34.78
No	93.7	65.2	297	93.69	60	65.22

*Adults – 2 missing for b and c; 16 missing for d; 43 missing for g; Children – 5 missing for a, b, and c; 7 missing for d and 13 for g.

Are these items reliable? ICCs from a two-way random effects model were calculated for items 8a, 8b and 8c as a measure of reliability. These items had good to excellent reliability, as shown in the table below.

Table 5: Reliability of Dressing Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
8a	0.92	0.86	0.95	Good - Excellent	52
8b	0.92	0.86	0.95	Good - Excellent	51
8c	0.92	0.87	0.95	Good - Excellent	51

Additional considerations from quantitative data: Nothing to add beyond what was in the MA report.

ADLs: 9. Transferring and Positioning

Items for this section are skipped for children under age 3 (one assessment).

Table 6: Transferring and Positioning. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Roll left and right – The ability to roll from lying on back to left and right side, and return to lying on back.	N = 352	N = 102	N= 354	%= 100.00	N= 102	%=100.00
Independent	88.6	94.1	314	88.70	96	34.12
Setup or clean-up assistance	0.0	0.0	0.0	0.0	0.0	0.0
Supervision or touching assistance	0.3	0.0	1	0.28	0.0	0.0
Partial/moderate assistance	2.8	2.9	10	2.82	3	2.94
Substantial/maximal assistance	1.1	0.0	4	1.13	0.0	0.0
Dependent	6.5	2.9	23	6.50	3	2.94
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.3	0.0	1	0.28	0.0	0.0
Not attempted due to medical condition or safety concerns	0.3	0.0	1	0.28	0.0	0.0
b) Sit to lying – The ability to move from sitting on side of bed to lying flat on bed.	N = 349	N = 102	N= 351	%= 100.00	N= 102	%= 100.00
Independent	85.7	94.1	301	85.75	96	94.12
Setup or clean-up assistance	0.6	0.0	2	0.57	0.0	0.0
Supervision or touching assistance	1.4	1.0	5	1.42	1	0.98
Partial/moderate assistance	2.3	0.0	8	2.28	0.0	0.0
Substantial/maximal assistance	2.0	0.0	7	1.99	0.0	0.0
Dependent	7.5	4.9	26	7.41	5	4.90
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.3	0.0	1	0.28	0.0	0.0
Not attempted due to medical condition or safety concerns	0.3	0.0	1	0.28	0.0	0.0
c) 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.	N = 342	N = 102	N= 344	%= 100.00	N= 102	%= 100.00
Independent	81.0	92.2	279	81.10	94	92.16
Setup or clean-up assistance	0.9	0.0	3	0.87	0.0	0.0
Supervision or touching assistance	2.1	0.0	7	2.03	0.0	0.0
Partial/moderate assistance	3.8	2.0	13	3.78	2	1.96
Substantial/maximal assistance	2.3	1.0	8	2.33	1	0.98
Dependent	9.1	4.9	31	9.01	5	4.90
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.3	0.0	1	0.29	0.0	0.0
Not attempted due to medical condition or safety concerns	0.6	0.0	2	0.58	0.0	0.0
d) Sit to stand – The ability to safely come to a standing position from sitting in a chair or on the side of the bed.	N = 342	N = 98	N = 350	%= 100.00	N = 101	%= 100.00
Independent	71.6	88.1	251	71.71	89	88.12
Setup or clean-up assistance	1.4	0.0	5	1.43	0.0	0.0

Supervision or touching assistance	4.9	0.0	17	4.86	0.0	0.0
Partial/moderate assistance	8.6	3.0	30	8.57	3	2.97
Substantial/maximal assistance	3.7	3.0	13	3.71	3	2.97
Dependent	6.0	5.0	21	6.00	5	4.95
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	1.4	1.0	5	1.43	1	0.99
Not attempted due to medical condition or safety concerns	2.3	0.0	8	2.29	0.0	0.0
e) Chair/bed to chair transfer: The ability to safely transfer to and from a bed to a chair (or wheelchair).	N = 350	N = 101	N = 352	%= 100	N = 101	%= 100.00
Independent	43.1	52.5	153	43.47	53	52.48
Setup or clean-up assistance	1.1	0.0	4	1.14	0.0	0.0
Supervision or touching assistance	4.6	2.0	16	4.55	0.0	0.0
Partial/moderate assistance	3.4	0.0	12	3.41	0.0	0.0
Substantial/maximal assistance	4.0	2.0	14	3.98	2	1.98
Dependent	8.0	5.9	28	7.95	6	5.94
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	35.7	39.6	125	35.51	40	39.60
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0
h) Is skill training needed to increase independence?	N = 320	N = 96	N= 322	%= 100.00	N= 96	%= 100.00
Yes	0.0	1.0	0.0	0.0	1	1.04
No	100.0	99.0	322	100.00	95	98.96

*Adults- 6 missing for a; 9 for b; 16 missing for c; 10 missing for d; 8 missing for e; 38 missing for h. Children – 3 missing for a, b, c; 4 missing for d, e; 9 missing for h.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 9a, 9b, 9c, 9d and 9e as a measure of reliability, and are shown below. Item 9e had a response count of 17 (from n=53) which is not a large enough sample size to be confident that this item is reliable. Items 9a, 9b, 9c and 9d had moderate to excellent reliability.

Table 7: Reliability of Transferring and Positioning Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
9a	0.78	0.63	0.87	Moderate – Good	47
9b	1	1	1	Excellent	45
9c	0.95	0.91	0.97	Excellent	46
9d	0.97	0.95	0.99	Excellent	43
9e	Insufficient Data				17

Additional considerations from quantitative data: As suggested in the original report, there may need to be a skip pattern for 9e where the question is only asked if the person answers ‘Yes’ to a preceding wheelchair use question. This is indicated by the approximately 36% who responded with “Not applicable” and 43% who responded saying they were “Independent”.

ADLs: 10. Mobility

For this section, the items are skipped for children under 3 (one assessment). For individuals who walk, items a-h are asked, along with m, n and q. (Questions on preferences and guidance for individuals providing support, items 10o and 10p are excluded from frequencies.)

Table 8: Mobility. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Does the person walk?	N = 352	N = 101	N= 354	%= 100.00	N= 101	%=100.00
No, and walking goal is not indicated	7.1	1.0	25	7.06	1	0.99
No, and walking is indicated infuture	1.7	3.0	6	1.69	3	2.97
Yes	91.2	96.0	323	91.24	97	96.04
b) Walks 10 feet: Once standing, the ability to talk at least10 feet in a room, corridor, or similar space.	N = 318	N = 98	N= 320	%= 100.00	N= 98	%=100.00

Independent	75.8	89.8	243	75.94	88	89.80
Setup or clean-up assistance	0.3	0.0	1	0.31	0.0	0.0
Supervision or touching assistance	16.4	3.1	52	16.25	3	3.06
Partial/moderate assistance	4.4	6.1	14	4.38	6	6.12
Substantial/maximal assistance	2.2	1.0	7	2.19	1	1.02
Dependent	0.6	0.0	2	0.63	0.0	0.0
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.3	0.0	1	0.31	0.0	0.0
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
c) Walks 50 feet with two turns: Once standing, the ability to walk at least 50 feet and make two turns.	N = 317	N = 96	N= 319	%= 100.00	N= 96	%= 100.00
Independent	69.1	87.5	221	69.28	84	87.50
Setup or clean-up assistance	0.6	0.0	2	0.63	0.0	0.0
Supervision or touching assistance	19.6	3.1	62	19.44	3	3.13
Partial/moderate assistance	4.7	8.3	15	4.70	8	8.33
Substantial/maximal assistance	1.9	0.0	6	1.88	0.0	0.0
Dependent	0.6	1.0	2	0.63	1	1.04
Person refused	0.3	0.0	0.0	0.0	0.0	0.0
Not applicable	1.3	0.0	4	1.25	0.0	0.0
Not attempted due to medical condition or safety concerns	1.9	0.0	6	1.88	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
d) Walks 150 feet: Once standing, the ability to walk at least 150 feet in a corridor or similar space.	N = 316	N = 96	N= 318	%= 100.00	N= 96	%=100.00
Independent	64.6	84.3	206	64.78	81	84.38
Setup or clean-up assistance	1.3	0.0	4	1.26	0.0	0.0
Supervision or touching assistance	18.4	4.2	58	18.24	4	4.17
Partial/moderate assistance	6.0	6.3	19	5.97	6	6.25
Substantial/maximal assistance	1.9	2.1	6	1.89	2	2.08
Dependent	1.6	1.0	5	1.57	1	1.04
Person refused	0.6	0.0	0.0	0.0	0.0	0.0
Not applicable	1.6	0.0	5	1.57	0.0	0.0
Not attempted due to medical condition or safety concerns	4.1	2.1	13	4.09	2	2.08
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
e) Step onto/off a curb: The ability to step on/off a curb or up and down one step.	N = 316	N = 95	N= 318	%= 100.00	N= 95	%=100.00
Independent	55.1	72.6	176	55.35	69	72.63
Setup or clean-up assistance	1.3	1.1	4	1.26	1	1.05
Supervision or touching assistance	21.2	13.7	67	21.07	13	13.68
Partial/moderate assistance	15.2	10.5	48	15.09	10	10.53
Substantial/maximal assistance	2.5	0.0	8	2.52	0.0	0.0
Dependent	1.0	2.1	3	0.94	2	2.11
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	1.3	0.0	4	1.26	0.0	0.0
Not attempted due to medical condition or safety concerns	2.5	0.0	8	2.52	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
f) 4 steps: The ability to go up and down four steps with or without a rail.	N = 315	N = 95	N= 317	%= 100.00	N=95	%=100.00
Independent	54.6	67.4	174	54.89	64	67.37
Setup or clean-up assistance	1.0	2.1	3	0.95	2	2.11
Supervision or touching assistance	18.7	19.0	59	18.61	18	18.95
Partial/moderate assistance	11.4	6.3	36	11.36	6	6.32
Substantial/maximal assistance	2.2	2.1	7	2.21	2	2.11
Dependent	2.2	2.1	7	2.21	2	2.11
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	1.9	1.1	6	1.89	1	1.05
Not attempted due to medical condition or safety concerns	7.9	0.0	25	7.89	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
g) 12 steps: The ability to go up and down 12 steps with or without a rail.	N = 317	N = 97	N= 319	%= 100.00	N= 97	%=100.00
Independent	51.4	65.0	165	51.72	63	67.37
Setup or clean-up assistance	1.6	2.1	5	1.57	2	2.11
Supervision or touching assistance	15.8	18.6	50	15.67	18	18.95
Partial/moderate assistance	7.9	8.3	25	7.84	8	6.32

Substantial/maximal assistance	1.0	1.0	3	0.94	1	2.11
Dependent	1.3	3.1	4	1.25	3	2.11
Person refused	0.6	0.0	2	0.63	0.0	0.0
Not applicable	3.2	1.0	10	3.13	1	1.05
Not attempted due to medical condition or safety concerns	17.4	0.0	55	17.24	1	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
h) Walks indoors: From room to room, around furniture and other obstacles.	N = 314	N = 94	N= 316	%= 100.00	N= 94	%=100.00
Independent	72.3	77.7	229	72.47	73	77.66
Setup or clean-up assistance	2.2	2.1	7	2.22	2	2.13
Supervision or touching assistance	17.2	13.8	54	17.09	13	13.83
Partial/moderate assistance	3.8	5.3	12	3.80	5	5.32
Substantial/maximal assistance	3.2	1.1	10	3.16	1	1.06
Dependent	0.6	0.0	2	0.63	0.0	0.0
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.3	0.0	1	0.32	0.0	0.0
Not attempted due to medical condition or safety concerns	0.3	0.0	1	0.32	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
i) Does the person use a wheelchair or scooter?	N = 345	N = 100	N= 347	%= 100.00	N= 100	%=100.00
Yes, currently uses	20.6	10.0	71	20.46	10	10.00
No, does not use	79.1	90.0	275	79.25	90	90.00
No, unmet need	0.3	0.0	1	0.29	0.0	0.0
k) Wheels 50 feet with two turns: Once seated in wheelchair/scooter, the ability to wheel at least 50 feet & make two turns.	N = 72	N = 10	N= 73	%= 100.00	N= 10	%=100.00
Independent	6.9	0.0	5	6.85	0.0	0.0
Setup or clean-up assistance	0.0	0.0	0.0	0.0	0.0	0.0
Supervision or touching assistance	5.5	0.0	4	5.48	0.0	0.0
Partial/moderate assistance	2.7	0.0	2	2.74	0.0	0.0
Substantial/maximal assistance	15.1	0.0	11	15.07	0.0	0.0
Dependent	64.3	100.0	47	64.38	100	100.00
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	1.4	0.0	1	1.37	0.0	0.0
Not attempted due to medical condition or safety concerns	4.1	0.0	3	4.11	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
l) Wheels 150 feet: Once seated in wheelchair/scooter, the ability to wheel at least 150 feet in a corridor or similar space.	N = 72	N = 11	N= 72	%= 100.00	N= 11	%=100.00
Independent	4.2	0.0	3	4.17	0.0	0.0
Setup or clean-up assistance	0.0	0.0	0.0	0.0	0.0	0.0
Supervision or touching assistance	6.9	0.0	5	6.94	0.0	0.0
Partial/moderate assistance	2.8	0.0	2	2.78	0.0	0.0
Substantial/maximal assistance	11.1	0.0	8	11.11	0.0	0.0
Dependent	70.8	90.9	51	70.83	10	90.91
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.0	9.1	0.0	0.0	1	9.09
Not attempted due to medical condition or safety concerns	4.2	0.0	3	4.17	0.0	0.0
Skipped because answered alternative item	0.0	0.0	0.0	0.0	0.0	0.0
m) Has the individual had two or more falls in the past year? RISK ITEM	N = 344	N = 102	N= 346	%= 100.00	N= 102	%=100.00
No	66.9	69.6	232	67.05	71	69.61
Yes	31.4	28.4	108	31.21	29	28.43
Unknown	1.7	2.0	6	1.73	2	1.96
n) Has the individual ever had fall(s) that resulted in major injury? RISK ITEM	N = 345	N = 101	N= 347	%= 100.00	N= 101	%=100.00
No	65.5	78.2	228	65.71	79	78.22
Yes	31.3	18.8	108	31.12	19	18.81
Unknown	3.2	3.0	11	3.17	3	2.97
q) Is skill training needed to increase independence?	N = 316	N = 91	N= 318	%= 100.00	N= 91	%=100.00
Yes	1.9	9.9	6	1.89	9	9.89
No	98.1	90.1	312	98.11	82	90.11

*Adults – a missing 6, b missing 40, c missing 41, d, e, q missing 42, f missing 43, g missing 41, h missing 44, i and n missing 13, m missing 14;

Children – a missing 4, b missing 7, c, d missing 9, e, f missing 10, g missing 8, h missing 9, i missing 5, m missing 3, n missing 4, q missing 14.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 10a, through 10k and 10l as a measure of reliability. The wide confidence intervals for items 10c and 10h indicate

a need for caution when interpreting the reliability of those items, particularly given that the lower bounds of the confidence intervals for these items were in the “poor” range. Item 10f also had a wide confidence interval with the bounds spanning from moderate to good to excellent. Items 10k and 10l only had 10 (out of n=53) response counts which is not enough sample size for a robust ICC estimate.

Table 9: Reliability of Mobility Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
10a	0.90	0.83	0.94	Good – Excellent	50
10b	0.17	-0.15	0.45	Poor	41
10c	0.57	0.32	0.75	Poor – Moderate	41
10d	0.80	0.66	0.89	Moderate – Good	40
10e	0.88	0.78	0.93	Good – Excellent	40
10f	0.85	0.73	0.92	Moderate – Excellent	36
10g	0.79	0.62	0.89	Moderate – Good	34
10h	0.65	0.43	0.80	Poor – Good	42
10k	Insufficient Data				10
10l	Insufficient Data				10

Additional considerations from quantitative data: We have nothing to add beyond what Mission Analytics originally reported, “There is a high frequency of Independent responses on even the harder items, and this frequency is higher for the easier tasks. Therefore, a skip pattern could be introduced to use the hardest mobility question to identify independent individuals on other items– one such question could be 10d – Walks 150 feet. All individuals independent on 10d were found to be independent on 10b, and nearly all were independent on 10c. The questions on steps (10e-10g) could also be reordered. A similar skip pattern could be put in place for individuals in wheelchairs (e.g. for item l), though very few individuals (<10) are independent in wheeling 150 feet.”

ADLs: 11. Eating and Tube Feeding

Following what was done in the MA report, the frequencies exclude the check box items for parenteral/IV feeding, feeding tubes and mechanically altered foods. Item 11b is skipped for children under 4.

Table 10: Eating and Tube Feeding. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
b) 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. Includes modified food consistency.	N = 355	N = 99	N= 357	%= 100.00	= 99	%=100.00
Independent	41.7	28.3	150	42.02	28	28.28
Setup or clean-up assistance	5.9	2.0	21	5.88	2	2.02
Supervision or touching assistance	36.3	47.5	129	36.13	47	47.47
Partial/moderate assistance	5.4	12.1	19	5.32	12	12.12
Substantial/maximal assistance	2.5	4.0	9	2.52	4	4.04
Dependent	5.6	2.0	20	5.60	2	2.02
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.6	3.0	2	0.56	3	3.03
Not attempted due to medical condition or safety concerns	2.0	0.0	7	1.96	1	1.01
c) Tube Feeding – The ability to manage all equipment/supplies related to obtaining nutrition.	N = 344	N = 101	N=346	%=100.00	N= 101	%= 100.00
Independent	0.6	2.0	2	0.58	2	1.98
Setup or clean-up assistance	0.0	0.0	0.0	0.0	0.0	0.0
Supervision or touching assistance	0.3	0.0	1	0.29	0.0	0.0
Partial/moderate assistance	0.0	0.0	0.0	0.0	0.0	0.0
Substantial/maximal assistance	0.0	0.0	0.0	0.0	0.0	0.0
Dependent	4.9	6.9	17	4.91	7	6.93
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	94.2	91.1	326	94.22	92	91.09
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0

f) Is skill training needed to increase independence?	N = 309	N = 97	N = 311	%= 100.00	N = 97	%= 100.00
Yes	3.2	20.6	10	3.22	20	20.62
No	96.8	79.4	301	96.78	77	79.38
h) Does the individual refuse food or liquids because of food preferences or sensory issues, such as texture or taste? RISK ITEM	N = 345	N = 102	N= 347	%= 100.00	N= 102	%= 100.00
Yes	30.4	61.8	105	30.26	63	61.76
No	69.6	38.2	242	69.74	39	38.24
i) Does the individual drool excessively? RISK ITEM	N = 349	N = 100	N= 351	%= 100.00	N= 100	%= 100.00
Yes	6.9	12.0	24	6.84	12	12.00
No	93.1	88.0	327	93.16	88	88.00
j) Does the individual complain of chest pain, heartburn, or have small, frequent vomiting (especially after meals) or unusual burping (happens frequently or sounds wet)? RISK ITEM	N = 352	N = 101	N= 354	%= 100.00	N= 101	%= 100.00
Yes	33.2	23.8	117	33.05	24	23.76
No	66.8	76.2	237	66.95	77	76.24
k) Has the individual required intravenous (IV) fluids due to dehydration in the past year? RISK ITEM	N = 351	N = 101	N= 353	%= 100.00	N= 101	%= 100.00
Yes	5.4	3.0	19	5.38	3	2.97
No	94.6	97.0	334	94.62	98	97.03

*Adults – b missing 3, c missing 14, f missing 49, h missing 13, i missing 9, j missing 6, k missing 7; Children – b missing 6, c missing 4, f missing 8, h missing 3, i missing 5, j, k missing 4.

Are these items reliable? An intraclass correlation coefficient (ICC) from a two-way random effects model was calculated for item 11b as a measure of reliability. Item 11c only had 3 response counts (out of n=53), thus ICC could not be calculated.

Table 11: Reliability of Eating and Tube Feeding Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
11b	0.83	0.71	0.90	Moderate - Good	48
11c	Insufficient Data				3

Additional considerations from quantitative data: As already stated in the MA report, a skip pattern is needed for the tube-feeding question since 94% of the responses were “Not Applicable”.

The MA report also noted: “As with the dressing items, the share Independent on Eating was much lower for children than for adults, even though the question was not asked for children under 4 (excludes three cases). These differences, combined with the high level of skill training for children, may suggest difficulty in disentangling age-associated developmental status from functional limitations for children.”

The OHSU team sees this concern as further evidence of the need to assess reliability of items for children separate from adults.

ADLs: 12. Elimination

Toileting questions are skipped for children under 4.

Table 12: Elimination. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Toileting – The ability to maintain perineal hygiene, adjust clothes before and after using the toilet, commode, bedpan, or urinal. If managing an ostomy, include wiping the opening but not managing equipment.	N = 354	N = 100	N= 356	%= 100.00	N= 100	%=100.00
Independent	42.7	23.0	153	42.98	23	23.00
Setup or clean-up assistance	11.0	11.0	39	10.96	11	11.00
Supervision or touching assistance	7.6	10.0	27	7.58	10	10.00
Partial/moderate assistance	13.0	25.0	46	12.92	25	25.00

Substantial/maximal assistance	9.0	12.0	32	8.99	12	12.00
Dependent	11.3	11.0	40	11.24	11	11.00
Person refused	0.3	1.0	1	0.28	1	1.00
Not applicable	3.4	6.0	12	3.87	6	6.00
Not attempted	1.7	1.0	6	1.69	1	1.00
b) Toilet transfer – The ability to safely get on and off a toilet or commode.	N = 350	N = 99	N=352	%=100.00	N= 99	%=100.00
Independent	74.9	80.8	264	75.00	80	80.81
Setup or clean-up assistance	1.1	2.0	4	1.14	2	2.02
Supervision or touching assistance	3.4	3.0	12	3.41	3	3.03
Partial/moderate assistance	3.4	5.1	12	3.41	5	5.05
Substantial/maximal assistance	3.1	2.0	11	3.13	2	2.02
Dependent	4.9	1.0	17	4.83	1	1.01
Person refused	0.3	1.0	1	0.28	1	1.01
Not applicable	6.0	5.1	21	5.97	5	5.05
Not attempted	2.9	0.0	10	2.84	0.0	0.0
c) Indicate the frequency of bladder incontinence:	N = 350	N = 99	N = 352	%=100.00	N = 99	%=100.00
Continent (no documented incontinence)	51.7	45.5	183	51.99	45	45.45
Continent due to existing support/program	1.1	2.0	4	1.14	2	2.02
Stress incontinence only – bladder (e.g. when coughing or jumping)	0.6	0.0	2	0.57	0.0	0.0
Incontinent less than daily	16.0	20.2	56	15.91	20	20.20
Incontinent daily (at least once a day)	16.3	17.2	57	16.19	17	17.17
Always incontinent	13.1	15.2	46	13.07	15	15.15
No urine output (e.g. renal failure)	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable (e.g. indwelling catheter)	1.1	0.0	4	1.14	0.0	0.0
d) Does the individual require assistance w/managing equipment related to bladder incontinence (e.g. urinal, bedpan, indwelling catheter, intermittent catheterization, incontinence pads/undergarments)	N = 169	N = 54	N= 169	%= 100.00	N= 54	%=100.00
Yes	63.3	74.1	107	63.31	40	74.07
No	36.7	25.9	62	36.69	14	25.93
e) Is a toileting program (e.g. scheduled toileting or prompted voiding) currently being used to manage the individual's urinary continence?	N = 169	N = 54	N = 169	%=100.00	N = 54	%=100.00
Yes	34.9	48.2	59	34.91	26	48.15
No	65.1	51.9	110	65.09	28	51.85
f) Indicate the frequency of bowel incontinence	N = 347	N = 99	N = 349	%= 100.00	N = 99	%=100.00
Continent (no documented incontinence)	62.8	58.6	220	63.04	58	58.59
Continent due to existing support/program	1.1	5.1	4	1.15	5	5.05
Incontinent less than daily	18.4	12.1	64	18.34	12	12.12
Incontinent daily (at least once a day)	8.7	10.1	30	8.60	10	10.10
Always incontinent	8.9	14.1	31	8.88	14	14.14
No bowel output	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable (e.g. indwellingcatheter)	0.0	0.0	0.0	0.0	0.0	0.0
g) Does the individual require assistance with managing equipment related to bowel incontinence (e.g. ostomy, incontinence pads/undergarments)?	N = 130	N = 40	N= 130	%= 100.00	N= 40	%=100.00
Yes	73.9	80.0	96	73.85	32	80.00
No	26.2	20.0	34	26.15	8	20.00
h) Is a bowel program currently being used to manage the individual's bowelcontinence?	N = 127	N = 41	N= 127	%= 100.00	N= 41	%=100.00
Yes	31.5	56.1	40	31.50	23	56.10
No	68.5	43.9	87	68.50	18	43.90
k) Is skill training needed to increase independence?	N = 323	N = 93	N = 325	%= 100.00	N = 93	%=100.00
No	4.0	31.2	312	96.00	64	68.82
Yes	96.0	68.8	13	4.00	29	31.18
l) Does the individual take routine bowel medications for constipation or take "as needed" (PRN) medications for constipation more than two times a month within the past year (do not include fiber)?	N = 354	N = 99	N= 356	%= 100.00	N= 99	%=100.00
Yes	36.7	24.2	130	36.52	24	24.24
No	63.3	75.8	226	63.48	75	75.76
m) Does the individual have a diagnosis of chronic constipation or have ongoing issues with constipation?	N = 350	N = 99	N= 352	%= 100.00	N= 99	%=100.00
Yes	44.6	43.4	156	44.32	43	43.53
No	55.4	56.6	196	55.68	56	56.57

n) Has the individual required a suppository or enema for constipation within the past year?	N = 159	N = 43	N= 159	%= 100.00	N= 43	%=100.00
Yes	24.5	20.9	39	24.53	9	20.93
No	75.5	79.1	120	75.47	34	79.07
o) Does the individual require digital impaction removal by the caregiver five or more days a week?	N = 158	N = 41	N= 158	%= 100.00	N= 41	%=100.00
Yes	0.6	2.4	1	0.63	1	2.44
No	99.4	97.6	157	99.37	40	97.56
p) Has the individual had more than one episode in the past year of complaining of pain when having a bowel movement?	N = 160	N = 43	N= 160	%= 100.00	N= 43	%=100.00
Yes	45.0	67.4	72	45.00	29	67.44
No	43.8	27.9	70	43.75	12	27.91
Unknown	11.3	4.7	18	11.25	2	4.65
q) Has the individual had more than one known episode of hard stool in the past year?	N = 161	N = 43	N= 161	%= 100.00	N= 43	%= 100.00
Yes	57.1	81.4	92	57.14	35	81.40
No	37.3	14.0	60	37.27	6	13.95
Unknown	5.6	4.7	9	5.59	2	4.65
r) Does the individual take a medication that causes constipation and would not recognize or communicate if he/she constipated?	N = 161	N = 43	N= 161	%= 100.00	N= 43	%= 100.00
Yes	59.6	32.6	96	59.63	14	32.56
No	40.4	67.4	65	40.37	29	67.44

*Adults – a missing 4, b, c missing 8, f missing 11, k missing 35, l missing 4, m missing 8; Children – a missing 5, b, c, f missing 6, k missing 12, l, m missing 6.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 12a and 12b as a measure of reliability, and are shown below. These items had moderate to excellent reliability.

Table 13: Reliability of Elimination Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
12a	0.93	0.88	0.96	Good – Excellent	44
12b	0.76	0.59	0.87	Moderate – Good	43

Additional considerations from qualitative data: Nothing to add.

ADLs: 13. Showering and Bathing

Frequencies are not included for preferences and guidance for individuals providing support. These questions are skipped for children under 5 (excludes six cases).

Table 14: Showering/Bathing. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Shower/bathe self: The ability to bathe self in shower or tub, including washing, rinsing, and drying self. Include transferring in/out of tub/shower.	N = 355	N = 97	N= 357	%= 100.00	N= 97	%=100.00
Independent	21.1	2.1	76	21.29	2	2.06
Setup or clean-up assistance	18.6	12.4	67	18.77	12	12.37
Supervision or touching assistance	14.1	12.4	50	14.01	12	12.37
Partial/moderate assistance	8.5	21.7	30	8.40	21	21.65
Substantial/maximal assistance	13.5	19.6	48	13.45	19	19.59
Dependent	22.8	30.9	81	22.69	30	30.93
Person refused	0.3	0.0	1	0.28	0.0	0.0
Not applicable	0.0	1.0	0.0	0.0	1	1.03
Not attempted due to medical condition or safety concerns	1.1	0.0	4	1.12	0.0	0.0
b) Wash upper body: The ability to wash, rinse, and dry the face, hands, chest, and arms while sitting in a chair or bed.	N = 352	N = 97	N=354	%= 100.00	N= 97	%=100.00
Independent	12.2	2.1	44	12.43	2	2.06
Setup or clean-up assistance	1.4	1.0	6	1.69	1	1.03

Supervision or touching assistance	5.7	3.1	20	5.65	3	3.09
Partial/moderate assistance	1.7	2.1	6	1.69	2	2.06
Substantial/maximal assistance	2.8	1.0	10	2.82	1	1.03
Dependent	13.4	5.2	47	13.28	5	5.15
Person refused	0.3	0.0	1	0.28	0.0	0.0
Not applicable	62.5	85.6	220	62.15	83	85.57
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0
e) Is skill training needed to increase independence?	N = 322	N = 91	N = 324	%= 100.00	N = 91	%=100.00
Yes	4.7	33.0	15	4.63	30	32.97
No	95.3	67.0	309	95.37	61	67.03

*Adults – a missing 3, b missing 6, e missing 36; Children – a, b missing 8, e missing 14

Are these items reliable? An intraclass correlation coefficient (ICC) from a two-way random effects model was calculated for item 13a as a measure of reliability. Item 13b did not have a high enough response count to be able to report an ICC estimate.

Table 15: Reliability of Showering/Bathing Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
13a	0.95	0.92	0.97	Excellent	49
13b	Insufficient Data				6

Additional considerations from quantitative data: The MA reported noted that item 13b is meant to be skipped for those scored as Independent on 13a, but that this skip did not appear to have been in place. Further, despite high levels of assistance need recorded on 13a, 13b was usually coded as not applicable.

Similarly, the OHSU team found that 62% of 13b respondents answered “Not applicable” to that question, suggesting that the skip pattern was not enforced. Only those who did not answer ‘Independent’ to 13a should be asked 13b. The OHSU team also found that 63 out of the 81 respondents (78%), who answered ‘Dependent’ to question 13a, answered ‘Not applicable’ to 13b. This suggests that there is confusion about when 13b actually needs to be completed.

ADLs: 14. Oral Hygiene and 15. General Hygiene

Frequencies are not included for preferences and guidance for individuals providing support. The oral hygiene and menses questions are skipped for children under 5 (excludes six cases).

Table 16: Oral and General Hygiene. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
14a) 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.]	N = 354	N = 98	N = 355	%= 100.00	N = 98	%=100.00
Independent	14.2	3.1	51	14.37	3	3.06
Setup or clean-up assistance	23.5	17.4	84	23.66	17	17.35
Supervision or touching assistance	21.8	21.4	77	21.69	21	21.43
Partial/moderate assistance	6.2	11.2	22	6.20	11	11.22
Substantial/maximal assistance	6.5	14.3	23	6.48	14	14.29
Dependent	24.4	30.6	86	24.23	30	30.61
Person refused	1.4	2.0	5	1.41	2	2.04
Not applicable	2.0	0.0	7	1.97	0.0	0.0
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0
e) Is skill training needed to increase independence?	N = 326	N = 91	N =	%=	N =	%=
Yes	8.9	27.5				
No	91.1	72.5				
15a) Menses Care – Able to use tampons or sanitary napkins; wash hands after changing pads or tampons; change pad or tampon as required keep the blood from soaking through clothes; and properly dispose of pad or tampon.	N = 349	N = 98	N = 351	%= 100.00	N = 98	%= 100.00
Independent	6.3	2.0	23	6.55	2	2.04
Setup or clean-up assistance	2.9	3.1	10	2.85	3	3.06
Supervision or touching assistance	3.7	3.1	13	3.70	3	3.06
Partial/moderate assistance	1.2	1.0	4	1.14	1	1.02
Substantial/maximal assistance	0.9	0.0	3	0.85	0.0	0.0
Dependent	6.0	6.1	21	5.98	6	6.12
Person refused	0.3	0.0	1	0.28	0.0	0.0
Not applicable	78.8	84.7	276	78.63	83	84.69
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0
b) Other General Hygiene – The ability to perform other hygiene maintenance tasks, such as hair brushing, shaving, nail care, and applying deodorant. Note: Excludes toilet, menses care, and oral hygiene.	N = 349	N = 97	N = 350	%= 100.00	N = 97	%= 100.00
Independent	14.9	3.1	52	14.86	3	3.09
Setup or clean-up assistance	10.3	12.4	37	10.57	12	12.37
Supervision or touching assistance	7.5	8.3	26	7.43	8	8.25
Partial/moderate assistance	24.6	21.7	86	24.57	21	21.65
Substantial/maximal assistance	16.9	27.8	59	16.86	27	27.84
Dependent	25.2	25.8	88	25.14	25	25.77
Person refused	0.6	0.0	2	0.57	0.0	0.0
Not applicable	0.0	1.0	0.0	0.0	1	1.03
Not attempted due to medical condition or safety concerns	0.0	0.0	0.0	0.0	0.0	0.0
e) Is skill training needed to increase independence?	N = 317	N = 91	N = 319	%=100.00	N = 91	%= 100.00
Yes	7.3	28.6	23	7.21	26	28.57
No	92.7	71.4	296	92.79	65	71.43

*Adults – 14a missing 5, 15a missing 9, 15b missing 10, 15e missing 41; Children – 14a, 15a missing 7, 15b missing 8, 15e missing 10.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 14a, 15a and 15b as a measure of reliability. Absolute ICCs for 14a and 15b were good to excellent. 15a did not have enough response count for a robust ICC estimate.

Table 17: Reliability of Oral and General Hygiene Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
14a	0.95	0.91	0.97	Excellent	50
15a	Insufficient Data				6
15b	0.88	0.80	0.93	Good - Excellent	50

Additional considerations from quantitative data: Item 15a (Menses care) should be asked only for females.

Although the MA report stated that the “not applicable” response option served as a de facto skip for this question, we recommend formalizing the skip pattern so that unnecessary questions will not even need to be asked or coded. In addition to excluding males, an initial question could be asked of females to determine whether or not they menstruate. Girls who have not yet begun menstruating and post-menopausal women would not need to be asked the subsequent menstrual hygiene questions.

FINDINGS ON IADLS ITEMS (SECTION V)

Frequencies are not included for preferences and guidance for individuals providing support.

IADLs: 18. Housework, 19. Meal Preparation, 20. Laundry

These questions are skipped for children under 12 (excludes 55 cases).

Table 18: Housework, Meal Preparation & Laundry. Response Frequencies, Core Sample, Adults & Children

Mission Analytics Inc.			OHSU*			
18a) Housework – The ability to safely and effectively maintain cleanliness of the living environment by washing cooking and eating utensils, cleaning the stove, sinks, toilets, tubs/showers, and counter; sweeping, vacuuming, and washing floors; and taking out garbage.	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
	N = 353	N = 49	N= 355	%= 100.00	N= 52	%=100.00
Independent	1.7	0.0	6	1.69	0.0	0.0
Setup or clean-up assistance	2.8	0.0	10	2.82	0.0	0.0
Supervision or touching assistance	10.5	16.3	38	10.70	8	15.38
Partial/moderate assistance	20.4	30.6	73	20.56	15	28.85
Substantial/maximal assistance	36.8	38.8	130	36.62	20	38.46
Dependent	26.9	14.3	95	26.76	9	17.31
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.0	0.0	0.0	0.0	0.0	0.0
Not attempted	0.9	0.0	3	0.85	0.0	0.0
d) Is skill training needed to increase independence?	N = 318	N = 43	N=320	%= 100.00	N= 46	%=100.00
Yes	12.3	34.9	39	12.19	15	32.61
No	87.7	65.1	281	87.81	31	67.39
19a) Make a light meal – The ability to plan and prepare all aspects of a light meal such as a bowl of cereal or a sandwich and cold drink, or reheat a prepared meal.	N = 352	N = 49	N= 353	%= 100.00	N= 51	%=100.00
Independent	13.9	6.1	49	13.88	3	5.88
Setup or clean-up assistance	2.6	0.0	9	2.55	0.0	0.0
Supervision or touching assistance	11.9	14.3	42	11.90	7	13.73
Partial/moderate assistance	17.9	28.6	64	18.13	14	27.45
Substantial/maximal assistance	17.1	20.4	60	17.00	10	19.61
Dependent	35.2	30.6	124	35.13	17	33.33
Person refused	0.6	0.0	0.0	0.0	0.0	0.0
Not applicable	0.0	0.0	0.0	0.0	0.0	0.0
Not attempted	0.9	0.0	3	0.85	0.0	0.0
d) Is skill training needed to increase independence?	N = 314	N = 46	N= 315	%= 100.00	N= 49	%=100.00
Yes	16.6	30.4	53	16.83	15	30.61
No	83.4	69.6	262	83.17	34	69.39

20a) Laundry: Includes all aspects of completing a load of laundry using a washer and dryer. Includes sorting, loading and unloading, adding laundry detergent, and folding laundry.	N = 350	N = 49	N= 351	%= 100.00	N= 52	%=100.00
Independent	8.3	0.0	29	8.26	0.0	0.0
Setup or clean-up assistance	8.9	4.1	31	8.83	2	3.85
Supervision or touching assistance	14.9	20.4	53	15.10	10	19.23
Partial/moderate assistance	14.0	18.4	49	13.96	9	17.31
Substantial/maximal assistance	26.6	24.5	93	26.50	13	25.00
Dependent	26.9	32.7	94	26.78	18	34.62
Person refused	0.3	0.0	0.0	0.0	0.0	0.0
Not applicable	0.0	0.0	0.0	0.0	0.0	0.0
Not attempted due to medical condition or safety concerns	0.3	0.0	1	0.28	0.0	0.0
d) Is skill training needed to increase independence?	N = 305	N = 44	N= 306	%= 100.00	N= 47	%=100.00
Yes	11.2	36.4	34	11.11	16	34.04
No	88.9	63.6	272	88.89	31	65.96

*Adults – 18a missing 5; 18d missing 40, 19a missing 7, 19d missing 45, 20a missing 9, 20d missing 54; Children – 12 and under excluded.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 18a, 19a and 20a as a measure of reliability. Item 19a had a wide confidence interval for the ICC, with the lower bound in the poor range, hence caution needs to be used when examining this item. Items 18a and 20a had good to excellent reliability.

Table 19: Reliability of Housework, Meal Preparation & Laundry Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
18a	0.88	0.79	0.93	Good – Excellent	44
19a	0.59	0.36	0.75	Poor – Good	46
20a	0.89	0.80	0.94	Good – Excellent	45

Additional considerations from quantitative data: Nothing to add.

IADLs: 21. Transportation

The public transportation question is skipped for children under 12. The car transfer question is skipped for children under age 3.

Table 20: Transportation. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Use public transportation: The ability to plan and use public transportation. Includes boarding, riding, and disembarking from transportation.	N = 353	N = 52	N= 355	%= 100.00	N= 52	%=100.00
Independent	7.9	5.8	28	7.89	3	5.77
Setup or clean-up assistance	5.7	1.9	20	5.63	1	1.92
Supervision or touching assistance	7.4	11.5	26	7.32	6	11.54
Partial/moderate assistance	7.4	7.7	28	7.89	4	7.69
Substantial/maximal assistance	4.3	7.7	15	4.23	4	7.69
Dependent	25.2	19.2	89	25.07	10	19.23
Person refused	1.1	0.0	4	1.13	0.00	0.00
Not applicable	29.2	0.0	103	29.01	22	42.31
Not attempted due to medical condition or safety concerns	11.9	3.9	42	11.83	2	3.85
b) 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.	N = 345	N = 87	N= 347	%= 100.00	N= 87	%=100.00
Independent	55.9	72.4	195	56.20	63	72.41
Setup or clean-up assistance	1.7	0.0	6	1.73	0.0	0.0
Supervision or touching assistance	11.0	5.8	38	10.95	5	5.75
Partial/moderate assistance	13.6	8.0	47	13.54	7	8.05
Substantial/maximal assistance	4.4	3.5	15	4.32	3	3.45
Dependent	9.9	9.2	34	9.80	8	9.20

Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	2.0	1.2	7	2.02	1	1.15
Not attempted due to medical condition or safety concerns	1.5	0.0	5	1.44	0.0	0.0
e) Is skill training needed to increase independence?	N = 314	N = 87	N= 315	%= 100.00	N= 83	%=100.00
Yes	8.9	20.5	29	9.21	17	20.48
No	91.1	79.5	286	90.79	66	79.52

*Adults – a missing 5, b missing 13, e missing 45; Children – 12 and under excluded for a (6 missing for 13-18 year olds); b missing 18; e missing 22.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 21a and 21b as a measure of reliability. Item 21a did not have enough response count for a robust ICC estimate. Item 21b had excellent reliability.

Table 21: Reliability of Transportation Items

		95% CI			
Item No.	Individual ICC	Lower Bound	Upper Bound	Inter-rater Reliability	N
21a	Insufficient Data				20
21b	0.95	0.90	0.97	Excellent	49

Additional considerations from quantitative data: The MA report suggested it would be helpful to clarify when the public transportation question should be asked for rural populations. The OHSU team agrees that there may be a need for an additional question regarding public transportation availability and use to establish a skip pattern for item 21a, given that 29% of the adult population answered “Not applicable”. The MA report also noted that some children over age 12 were missing data on the public transportation item. OHSU found that 13% (6 out of 48) of eligible children has missing data on this item. Thus, a similar lead question and skip pattern may be needed for 12-17 year olds on this question.

IADLs: 22 and 23. Money Management and Light Shopping

These questions are skipped for children under 12.

Table 22: Money Management & Light Shopping. Response Frequencies, Core Sample, Adults & Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	Frequency (Adults)	%	Frequency (Children)	%
22a) Money Management – The ability to manage finances for basic necessities (food, clothing, shelter), including counting money and making change, paying bills/writing checks, making budgeting and other financial decisions, and balancing checkbook.	N = 353	N = 48	N= 353	%= 100.00	N= 51	%=100.00
Independent	1.1	0.0	4	1.13	0.0	0.0
Setup or clean-up assistance	0.6	0.0	2	0.57	0.0	0.0
Supervision or touching assistance	0.9	2.1	3	0.85	1	1.96
Partial/moderate assistance	8.8	10.4	31	8.78	5	9.80
Substantial/maximal assistance	26.1	25.0	93	26.35	12	23.53
Dependent	62.2	62.5	219	62.04	33	64.71
Person refused	0.0	0.0	0.0	0.0	0.0	0.0
Not applicable	0.3	0.0	1	0.28	0.0	0.0
Not attempted	0.0	0.0	0.0	0.0	0.0	0.0
c) Is skill training needed to increase independence?	N = 312	N = 44	N=313	%= 100.00	N= 47	%=100.00
Yes	11.2	45.5	36	11.50	20	42.55
No	88.9	54.6	277	88.50	27	57.45
23a) Light shopping: Once at a store, can locate and select up to five groceries and personal care items, take to check out, and complete purchasing transaction.	N = 351	N = 47	N= 351	%= 100.00	N= 50	%=100.00
Independent	8.0	2.1	28	7.98	1	2.00
Setup or clean-up assistance	4.3	2.1	15	4.27	9	18.00
Supervision or touching assistance	16.2	19.2	57	16.24	9	18.00
Partial/moderate assistance	19.7	21.3	69	19.66	10	20.00
Substantial/maximal assistance	25.1	36.2	88	25.07	17	34.00
Dependent	25.1	19.2	88	25.07	12	24.00
Person refused	0.9	0.0	3	0.85	0.0	0.0

Not applicable	0.0	0.0	0.0	0.0	0.0	0.0
Not attempted	0.9	0.0	3	0.85	0.0	0.0
b) Walks for 15 minutes: Without stopping or resting (e.g. department store, supermarket)	N = 341	N = 43	N= 341	%= 100.00	N= 46	%=100.00
Independent	62.2	83.7	212	62.17	4	8.70
Setup or clean-up assistance	0.6	0.0	2	0.59	37	80.43
Supervision or touching assistance	12.6	7.0	43	12.61	3	6.52
Partial/moderate assistance	4.1	2.3	14	4.11	1	2.17
Substantial/maximal assistance	1.8	0.0	6	1.76	0.0	0.0
Dependent	2.4	2.3	8	2.35	1	2.17
Person refused	0.6	0.0	2	0.59	0.0	0.0
Not applicable	8.5	4.7	29	8.50	0.0	0.0
Not attempted	7.3	0.0	25	7.33	0.0	0.0
c) Wheels for 15 minutes: Without stopping or resting (e.g. department store, supermarket)	N = 334	N = 43	N=334	%= 100.00	N= 46	%=100.00
Independent	8.4	2.3	28	8.38	1	2.17
Setup or clean-up assistance	0.3	0.0	1	0.30	0.0	0.0
Supervision or touching assistance	1.8	0.0	6	1.80	0.0	0.0
Partial/moderate assistance	0.0	0.0	0.0	0.0	0.0	0.0
Substantial/maximal assistance	2.4	0.0	8	2.40	0.0	0.0
Dependent	13.2	7.0	0.0	0.0	4	8.70
Person refused	0.3	0.0	1	0.30	0.0	0.0
Not applicable	71.9	90.7	240	71.86	41	89.13
Not attempted	1.8	0.0	6	1.80	0.0	0.0
f) Is skill training needed to increase independence?	N = 318	N = 43	N=318	%= 100.00	N= 45	%=100.00
Yes	8.2	50.0	26	8.18	21	46.67
No	91.8	50.0	292	91.82	24	53.33

*Adults – 22a missing 7, 22c missing 47, 23a missing 9, 23b missing 19, 23c missing 26, 23f missing 42; Children – 12 and under excluded

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 22a and items 23a through 23c as a measure of reliability. Items 22a, 23a and 23b had moderate to good reliability. Item 23c did not have enough response count for a robust ICC estimate.

Table 23: Reliability of Money Management & Light Shopping Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
22a	0.75	0.59	0.85	Moderate – Good	46
23a	0.82	0.69	0.89	Moderate – Good	45
23b	0.74	0.53	0.86	Moderate - Good	33
23c	Insufficient Data				7

Additional considerations from quantitative data: Nothing to add beyond what was in the Mission Analytics report.

FINDINGS ON BEHAVIOR ITEMS (SECTION VI)

In keeping the focus and structure established in the Mission Analytics report, we focus here on the questions related to the behavior issue, without drilling down into the presenting behaviors or the text responses describing the behaviors. Assessment of items is presented in three parts: the Specific Behavior Items (items 25-41), Intervention Frequency (items 43 and 44) and the Behavior Support Plan.

Behaviors: 25-41 Behavior Issues

Table 24: Behavior Issues: Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
25. Injurious to Self – Individual displays intentional disruptive or						

dangerous behavioral symptoms not directed toward others, including self-injurious behaviors (e.g. hitting or scratching self, attempts to pull out IVs).	N = 350	N = 102	N= 351	%= 100.00	N= 102	%=100.00
No history, no concern about this behavior	60.6	40.2	213	60.68	41	40.20
Has history, has not displayed symptoms in past year, no concern about reoccurrence	2.3	5.9	8	2.28	6	5.88
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	2.6	1.0	9	2.56	1	0.98
No history, but assessor has concerns may become an issue.	0.3	0.0	1	0.28	0.0	0.0
Yes, present in past year	34.3	52.9	120	34.19	54	52.94
26. Aggressive or combative – Individual displays physical behavior symptoms directed toward others (e.g., hits, kicks, pushes, or punches others, throws objects, spitting).	N = 349	N = 101	N= 350	%= 100.00	N= 101	%=100.00
No history, no concern about this behavior	56.5	28.7	198	56.57	29	28.71
Has history, has not displayed symptoms in past year, no concern about reoccurrence	4.6	2.0	16	4.57	2	1.98
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	5.4	4.0	19	5.43	4	3.96
No history, but assessor has concerns may become an issue.	0.3	0.0	1	0.29	0.0	0.0
Yes, present in past year	33.2	65.4	116	33.14	66	65.35
27. Injurious to animals – Individual displays, or would without intervention, behaviors that would result in the injury of an animal.	N = 347	N = 102	N= 348	%=100.00	N= 102	%=100.00
No history, no concern about this behavior	90.5	66.7	315	90.52	68	66.67
Has history, has not displayed symptoms in past year, no concern about reoccurrence	1.2	1.0	4	1.15	1	0.98
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	3.8	3.9	13	3.74	4	3.92
No history, but assessor has concerns may become an issue.	0.0	2.0	0.0	0.0	2	1.96
Yes, present in past year	4.6	26.5	16	4.60	27	26.47
28. Aggressive towards others, verbal – Individual displays verbal behavioral symptoms directed towards others (e.g., yelling, screaming, threatening, cursing, excessive profanity, sexual references).	N = 348	N = 103	N= 349	%= 100.00	N= 103	%=100.00
No history, no concern about this behavior	50.3	49.5	176	50.43	51	49.51
Has history, has not displayed symptoms in past year, no concern about reoccurrence	0.9	1.0	3	0.86	1	0.97
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	1.4	1.0	5	1.43	1	0.97
No history, but assessor has concerns may become an issue.	0.3	0.0	1	0.29	0.0	0.0
Yes, present in past year	47.1	48.5	164	46.99	50	48.54
29. Socially unacceptable behavior – Individual expresses him/herself, or would without an intervention, in an inappropriate or unacceptable manner (e.g., inappropriate sexual comments or other behaviors, smearing/throwing food or feces)	N = 343	N = 101	N =344	%= 100.00	N = 101	%=100.00
No history, no concern about this behavior	47.8	31.7	165	47.97	32	31.68
Has history, has not displayed symptoms in past year, no concern about reoccurrence	1.8	0.0	6	1.74	0.0	0.0
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	2.0	0.0	7	2.03	0.0	0.0
No history, but assessor has concerns may become an issue.	0.0	0.0	0.0	0.0		
Yes, present in past year	48.4	68.3	166	48.26	69	68.32
30. Sexual aggression/assault – Individual displays, or would without intervention, behaviors that are sexually aggressive (e.g., grabbing, thrusting) or assaultive (e.g., pushing up against wall and groping) towards others.	N = 346	N = 100	N= 347	%= 100.00	N= 100	%=100.00
No history, no concern about this behavior	90.5	93.0	314	90.49	93	93.00
Has history, has not displayed symptoms in past year, no concern about reoccurrence	1.2	1.0	4	1.15	1	1.00
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	2.6	2.0	9	2.59	2	2.00
No history, but assessor has concerns may become an issue.	0.9	2.0	3	0.86	2	2.00
Yes, present in past year	4.9	2.0	17	4.90	2	2.00
31. Property destruction: Major – Individual engages in behavior, or would without an intervention, with intent to destroy public or private property or possessions. To be characterized as major, there must be intent to destroy and destruction is either aggressive (e.g., punching walls and breaking windows) or causes						

damage that is likely to cost in excess of \$500 to repair or replace (e.g., breaking a television or video game system) in a single incident. It is not necessary to obtain actual cost estimates.	N = 343	N = 102	N = 344	%= 100.00	N = 102	%=100.00
No history, no concern about this behavior	83.4	68.6	287	83.43	70	68.63
Has history, has not displayed symptoms in past year, no concern about reoccurrence	2.9	1.0	10	2.91	1	0.98
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	3.5	7.8	12	3.49	8	7.84
No history, but assessor has concerns may become an issue.	0.3	4.9	1	0.29	5	4.90
Yes, present in past year	9.9	17.7	34	9.88	18	17.65
32. Property destruction: Minor –Individual engages in behavior, or would without an intervention, that disassembles or damage public or private property or possessions. The individual is intentionally engaging in an act that leads to damage, though may not have the intent to cause damage. Minor refers to incidents that do not meet the major criteria: not aggressive and not likely to cost more than \$500 to repair or replace.	N = 347	N = 102	N = 348	%= 100.00	N = 102	%=100.00
No history, no concern about this behavior	71.5	49.0	249	71.55	50	49.02
Has history, has not displayed symptoms in past year, no concern about reoccurrence	2.6	4.9	9	2.59	5	4.90
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	2.9	1.0	10	2.87	1	0.98
No history, but assessor has concerns may become an issue.	0.0	2.0	0.0	0.0	2	1.96
Yes, present in past year	23.1	43.1	80	22.99	44	43.14
33. Leaving Supervised Area –Individual purposefully, or would without an intervention, leaves an area or group without telling others or departs from the supervising staff unexpectedly resulting in increased vulnerability.	N = 348	N = 102	N = 349	%= 100.00	N = 102	%= 100.00
No history, no concern about this behavior	65.5	33.3	229	65.62	34	33.33
Has history, has not displayed symptoms in past year, no concern about reoccurrence	4.0	3.9	14	4.01	4	3.92
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	3.7	5.9	13	3.72	6	5.88
No history, but assessor has concerns may become an issue.	1.2	0.0	4	1.15	0.0	0.0
Yes, present in past year	25.6	56.9	89	25.50	58	56.86
34. Pica (Ingestion of non-nutritive substances) and/or placing non-edible objects in mouth –Does not require diagnosis of Pica, only presenting behaviors. Individual ingests, or will without an intervention, non-food items (e.g., liquid detergent, coins, paper clips, cigarettes) or the individual places non-edible objects in his/her mouth that may cause poisoning, aspiration, choking and/or severe injury.	N = 344	N = 102	N = 345	%= 100.00	N = 102	%=100.00
No history, no concern about this behavior	89.8	67.7	310	89.96	69	67.65
Has history, has not displayed symptoms in past year, no concern about reoccurrence	0.6	2.9	2	0.58	3	2.94
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	1.2	0.0	4	1.16	0.0	0.0
No history, but assessor has concerns may become an issue.	0.3	0.0	1	0.29	0.0	0.0
Yes, present in past year	8.1	29.4	28	8.12	30	29.41
35. Difficulties regulating emotions – Individual has instances, or would without an intervention, of emotional behavior that are atypical of others in similar situations.	N = 347	N = 102	N= 348	%= 100.00	N=102	%=100.00
No history, no concern about this behavior	28.2	12.8	99	28.45	13	12.75
Has history, has not displayed symptoms in past year, no concern about reoccurrence	1.4	0.0	5	1.44	0.0	0.0
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	1.2	0.0	4	1.15	0.0	0.0
No history, but assessor has concerns may become an issue.	0.3	0.0	1	0.29	0.0	0.0
Yes, present in past year	68.9	87.3	239	68.68	89	87.25
36. Refusing ADL/IADL and/or medical care –Individual resists required assistance (e.g., resists ADL assistance or medications)	N = 346	N = 100	N= 347	%= 100.00	N=100	%=100.00
No history, no concern about this behavior	53.2	40.0	185	53.31	40	40.00
Has history, has not displayed symptoms in past year, no concern about reoccurrence	1.5	0.0	5	1.44	0.0	0.0

Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	1.7	0.0	6	1.73	0.0	0.0
No history, but assessor has concerns may become an issue.	0.0	1.0	0.0	0.0	1	1.00
Yes, present in past year	43.6	59.0	151	43.52	59	59.00
37. Rapid ingestion of food or liquids that presents a health or safety risk to the individual. RISKITEM	N = 343	N = 102	N= 344	%= 100.00	N=102	%=100.00
No history, no concern about this behavior	73.2	64.7	252	73.26	66	64.71
Has history, has not displayed symptoms in past year, no concern about reoccurrence	0.6	2.0	2	0.58	2	1.96
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	0.6	0.0	2	0.58	0.0	0.0
No history, but assessor has concerns may become an issue.	0.3	0.0	1	0.29	0.0	0.0
Yes, present in past year	25.4	33.3	87	25.29	34	33.33
38. Withdrawal –Participant has a tendency, or would without an intervention, to avoid, isolate or retreat from conversation, interaction or activity.	N = 347	N = 102	N= 348	%= 100.00	N=102	%=100.00
No history, no concern about this behavior	69.5	72.6	242	69.54	74	72.55
Has history, has not displayed symptoms in past year, no concern about reoccurrence	0.6	1.0	2	0.57	1	0.98
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	1.2	0.0	4	1.15	0.0	0.0
No history, but assessor has concerns may become an issue.	0.0	0.0	0.0	0.0	0.0	0.0
Yes, present in past year	28.8	25.5	100	28.74	27	26.47
39. Intrusiveness –Participant has a tendency, or would without an intervention, for entering personal or private space without regard or permission.	N = 343	N = 101	N= 344	%= 100.00	N=101	%=100.00
No history, no concern about this behavior	56.6	47.5	195	59.69	48	47.52
Has history, has not displayed symptoms in past year, no concern about reoccurrence	0.6	0.0	2	0.58	0.0	0.0
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	0.6	0.0	2	0.58	0.0	0.0
No history, but assessor has concerns may become an issue.	0.0	0.0	0.0	0.0	0.0	0.0
Yes, present in past year	42.3	52.5	145	42.15	53	52.48
40. Susceptibility to Victimization –Participant engages in, or would without an intervention, behaviors that increase or could potentially increase the participant's level of risk or harm or exploitation by others such as befriending strangers.	N = 341	N = 102	N= 342	%= 100.00	N=102	%=100.00
No history, no concern about this behavior	52.2	59.8	179	52.34	61	59.80
Has history, has not displayed symptoms in past year, no concern about reoccurrence	3.2	2.9	11	3.22	3	2.94
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	5.9	4.9	20	5.85	5	4.90
No history, but assessor has concerns may become an issue.	2.9	2.0	10	2.92	2	1.96
Yes, present in past year	35.8	30.4	122	35.67	31	30.96
41. Legal Involvement –Individual has been engaged with or is at risk of being engaged with law enforcement or Psychiatric Security Review Board (PSRB), arrested, and/or convicted of breaking a law or laws and has been determined to have had knowledge of breaking laws.	N = 342	N = 103	N= 343	%= 100.00	N= 103	%=100.00
No history, no concern about this behavior	81.3	88.4	279	81.34	91	88.35
Has history, has not displayed symptoms in past year, no concern about reoccurrence	4.7	2.9	16	4.66	3	2.91
Has history, has not displayed symptoms in past year, assessor has concerns about reoccurrence	4.4	1.0	15	4.37	1	0.97
No history, but assessor has concerns may become an issue.	1.2	1.0	4	1.17	1	0.97
Yes, present in past year	8.5	6.8	29	8.45	7	6.80

*Adults – 25 missing 9, 26 missing 10, 27 missing 12, 28 missing 11, 29 missing 16, 30 missing 13, 31 missing 16, 32 missing 12, 33 missing 11, 34 missing 15, 35 missing 12, 36 missing 13, 37 missing 16, 38 missing 12, 39 missing 16, 40 missing 18, 41 missing 17; Children – 25 missing 3, 26 missing 4, 27 missing 3, 28 missing 2, 29 missing 4, 30 missing 5, 31, 32, 33, 34, 35 missing 3, 36 missing 5, 37, 38 missing 3, 39 missing 4, 40 missing 3, 41 missing 2.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 25 through 41 as a measure of reliability. Results for items 27a, 30a, 34a and 41a should be interpreted with caution since the ICC confidence intervals are wide (see table on next page). This is of particular concern for item 27a, where the lower bound of the 95% CI indicates that reliability could be poor. Items 25a, 26a, 28a, 29a, 32a, 33a, 38a and 39a had good to excellent reliability. Items 31a, 35a, 36a, 37a and 40a had moderate to good reliability.

Table 25: Reliability of Behavior Issues Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
25a	0.89	0.82	0.94	Good – Excellent	47
26a	0.99	0.99	1.00	Excellent	48
27a	0.55	0.32	0.72	Poor - Moderate	47
28a	0.99	0.99	1.00	Excellent	48
29a	0.94	0.89	0.96	Good – Excellent	48
30a	0.84	0.73	0.91	Moderate – Excellent	47
31a	0.71	0.53	0.83	Moderate – Good	47
32a	0.89	0.81	0.93	Good – Excellent	48
33a	0.97	0.94	0.98	Excellent	48
34a	0.83	0.70	0.90	Moderate – Excellent	46
35a	0.74	0.58	0.85	Moderate – Good	47
36a	0.79	0.63	0.88	Moderate – Good	44
37a	0.81	0.68	0.89	Moderate – Good	45
38a	0.85	0.75	0.92	Good – Excellent	48
39a	0.91	0.83	0.95	Good – Excellent	44
40a	0.76	0.60	0.86	Moderate – Good	43
41a	0.84	0.72	0.91	Moderate – Excellent	43

Additional considerations from quantitative data: Nothing to add.

Behaviors: 43-44 Intervention Frequency and Other Behavior Items

Table 26: Intervention Frequency & Other Behavior. Response Frequencies, Core Sample, Adults & Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
43. Intervention frequency: How often does the individual require intervention and/or environment management due to any behavior issue (not specifically to each presenting behavior)						
a) Cueing	N = 357	N = 102	N= 347	%= 100.00	N= 102	%=100.00
None	11.2	2.9	39	11.24	3	2.94
<Once per month	3.5	0.0	12	3.46	0.0	0.0
Once per month	1.2	0.0	4	1.15	0.0	0.0
>Once per month	4.6	1.0	16	4.61	1	0.98
1-3 times per week	10.7	2.9	37	10.66	3	2.94
4 or more times per week, less than daily	9.2	6.9	32	9.22	7	6.86
<5 times per day	17.3	16.7	60	17.29	17	16.67
5 or more times per day	42.4	69.6	147	42.36	71	69.61
b) Physical Prompts –	N = 334	N = 101	N= 334	%= 100.00	N=101	%=100.00
None	60.5	30.7	202	60.48	31	30.69
<Once per month	5.1	3.0	17	5.09	3	2.97
Once per month	2.1	0.0	7	2.10	0.0	0.0
>Once per month	1.2	2.0	4	1.20	2	1.98
1-3 times per week	4.5	6.9	15	4.49	7	6.93
4 or more times per week, less than daily	3.0	2.0	10	2.99	2	1.98
<5 times per day	6.9	18.8	23	6.89	19	18.81
5 or more times per day	17.8	36.6	56	16.77	37	36.63
c) PPIs –	N = 322	N = 99	N= 322	%= 100.00	N=99	%=100.00
None	87.9	52.5	283	87.89	52	52.53
<Once per month	6.5	4.0	21	6.52	4	4.04
Once per month	0.3	5.1	1	0.31	5	5.05
>Once per month	0.9	8.1	3	0.93	8	8.08
1-3 times per week	1.6	8.1	5	1.55	8	8.08
4 or more times per week, less than daily	0.6	5.1	2	0.62	5	5.05
<5 times per day	1.2	10.1	4	1.24	10	10.10
5 or more times per day	0.9	7.1	3	0.93	7	7.07

44. Other behavior items a) How likely is it that disruptive or dangerous behaviors would occur and/or escalate if services were withdrawn?	N = 348	N = 101	N=349	%= 100.00	N=101	%=100.00
Highly unlikely	8.1	4.0	28	8.02	4	3.96
Unlikely	9.2	2.0	32	9.17	2	1.98
Likely	10.6	7.9	37	10.60	8	7.92
Very Likely	15.2	10.9	53	15.19	11	10.89
Behavior would almost certainly reoccur	46.8	74.3	164	46.99	75	74.26
Not sure	4.0	0.0	14	4.01	0.0	0.0
Not currently receiving services	6.0	1.0	21	6.02	1	0.99
b) Is a court mandated restriction currently in place against the individual?	N = 338	N = 99	N=338	%= 100.00	N=99	%=100.00
Yes	2.7	1.0	329	97.34	1	1.01
No	97.3	99.0	9	2.66	98	98.99
c) Does the individual have a current court mandated restriction in place against anyone? RISK ITEM	N = 333	N = 100	N=333	%= 100.00	N= 100	%=100.00
Yes	2.4	5.0	8	2.40	5	5.00
No	97.6	95.0	325	97.60	95	95.00
d) Is there a concern about abuse of substances, including illegal drugs, marijuana, prescription medication, or alcohol? RISK ITEM	N = 337	N = 99	N= 338	%= 100.00	N= 99	%=100.00
Yes	7.1	0.0	25	7.40	0.0	0.00
No	92.6	100.0	312	92.31	99	100.00
Chose not to answer	0.3	0.0	1	0.30	0.00	0.00

*Adults – 43a missing 13, 43b missing 26, 43c missing 38, 44a missing 11, 44c missing 27, 44d missing 22; Children – 43a missing 3, 43b missing 4, 43c missing 6, 44a missing 4, 44b missing 5, 44c missing 6.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 43a, 43b, 43c, 44a, 44b and 44c as a measure of reliability. Items 43a, 43b and 43c had moderate to excellent reliability. Items 44a, 44b and 44c had poor reliability; all ICC estimates for these items were below 0.50 with 95% CI bounds ranging from -0.30 to 0.69.

Table 27: Reliability of Intervention Frequency & Other Behavior Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
43a	0.98	0.96	0.99	Excellent	48
43b	0.90	0.81	0.94	Good – Excellent	41
43c	0.75	0.58	0.86	Moderate – Good	39
44a	0.13	-0.15	0.40	Poor	46
44b	-2.2E-16	-0.30	0.30	Poor	42
44c	0.49	0.22	0.69	Poor - Moderate	41

Additional considerations from quantitative data: Nothing to add.

Behaviors: 45 Behavior Support Plan

Table 28: Behavior Support Plan. Response Frequencies, Core Sample, Adults & Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Has a Behavior Support Plan (BSP) been created for the individual?	N = 353	N = 52	N= 355	%= 100.00	N= 52	%=100.00
Yes	25.4	35.9	88	25.36	37	35.92
No	74.6	64.1	259	74.64	66	64.08
b) Does the BSP include Protective Physical Interventions (PPIs)?	N = 89	N = 37	N=89	%= 100.00	N= 37	%= 100.00
Yes	42.7	54.1	38	42.70	20	54.05
No	57.3	46.0	51	57.30	17	45.95
c) Is the BSP currently being implemented by caregivers?	N = 89	N = 37	N=89	%= 100.00	N= 37	%= 100.00
Yes	92.1	75.7	82	92.13	28	75.68
No	7.8	24.3	7	7.87	9	24.32

d) Does the BSP implementation include documentation of the incidence of behavior?	N = 89	N = 37	N= 89	%= 100.00	N= 37	%= 100.00
Yes	82.0	48.7	73	82.02	18	48.65
No	18.0	51.4	16	17.98	19	51.35
e) Has the individual's Behavior Support Plan been revised 2 or more times in the last 12 months to address new behaviors, or to address significant changes in either the behavior or the effectiveness of the behavior support strategies?	N = 89	N = 37	N=89	%= 100.00	N= 37	%= 100.00
Yes	19.1	18.9	17	19.10	7	18.92
No	80.9	81.1	72	80.90	30	81.08
f) Does the individual's BSP include complex behavior support tools that must be developed or significantly altered by a caregiver one or more times per month? (Such as social stories or visual structure systems.)	N = 87	N = 37	N=87	%= 100.00	N= 37	%= 100.00
Yes	13.8	5.4	12	13.79	2	5.41
No	86.2	94.6	75	86.21	35	94.59
g) Has the individual required PPIs, other than deflection and evasion, 3 or more times in the last 6 months?	N = 336	N = 101	N=337	%= 100.00	N= 101	%=100.00
Yes	7.1	40.6	24	7.12	41	40.59
No	92.9	59.4	313	92.88	60	59.41
h) Has the individual required PPIs, other than deflection and evasion, 5 or more times in the last 12 months?	N = 338	N = 100	N=339	%= 100.00	N= 100	%=100.00
Yes	6.5	36.0	22	6.49	36	36.00
No	93.5	64.0	317	93.51	64	64.00
i) Has the individual required PPIs including deflection and evasion maneuvers, at least twice every month for the last 6 months?	N = 336	N = 101	N=337	%= 100.00	N= 101	%=100.00
Yes	10.1	31.7	34	10.09	32	31.68
No	89.9	68.3	303	89.91	69	68.32
j) Has the individual required emergency services, crisis intervention services or protective services to address a dangerous behavior 2 or more times in the past 12 months?	N = 340	N = 101	N=341	%= 100.00	N= 101	%= 100.00
Yes	3.8	5.9	13	3.81	6	5.94
No	96.2	94.1	328	96.19	95	94.06

*Adults – a missing 13, g missing 23, h missing 21, i missing 23, j missing 19; Children – a missing 2, g missing 4, h missing 5, i missing 4, j missing 5

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 45a through 45j as a measure of reliability. Items 45b through 45f had a skip pattern i.e. these questions were only asked for those individuals that answered “Yes” to having a Behavior Support Plan (BSP) and thus, the number of responses in the IRR sample (14 out of n=53) was too low for a robust ICC calculation. Items 45g, 45h and 45i should be examined with caution, as the confidence interval for the ICC is wide, especially for 45h where the lower bound is in the poor range.

Table 29: Reliability of Behavior Support Plan Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
45a	0.90	0.83	0.95	Good – Excellent	46
45b	Insufficient Data				14
45c					14
45d					14
45e					14
45f					14
45g	0.85	0.74	0.91	Moderate – Excellent	45
45h	0.54	0.30	0.72	Poor – Moderate	45
45i	0.85	0.74	0.91	Moderate – Excellent	44
45j	0	-0.29	0.29	Poor	44

Additional considerations from quantitative data: Nothing to add.

FINDINGS ON MEDICAL ITEMS (SECTION VIII)

Item 52 in this section consists of “check all that apply” responses for health conditions and specific diagnoses, as well as detailed lists of therapies and treatments. Mission Analytics stated that these objective diagnoses and treatments are better evaluated by clinicians rather than assessors and did not report data on this item. Consistent with the Mission Analytics report, we do not provide data on Item 52 in our report. Data on Items 51 and 53-56 are provided below.

Medical: 51. General Medical Supports

Table 30: General Medical Support. Response Frequencies, Core Sample, Adults and Children

Mission Analytics Inc.			OHSU*			
a) In the past 6 months, how many times has another person recommended that the individual seek medical attention for an issue that the individual was unaware of or unwilling to seek attention for? LOC criteria	Frequencies (Adults)	Frequencies (Children)	Frequency (Adults)	%	Frequency (Children)	%
None	N = 353	N/A	N= 352	%= 100.00	N/A	N/A
One	48.7	N/A	172	48.86	N/A	N/A
Two or three	18.8	N/A	66	18.75	N/A	N/A
More than three	12.8	N/A	45	12.78	N/A	N/A
c) Does the individual currently experience a lack of access to medical care, including mental health care, because of transportation, geographical, financial, cultural, or other non- behavioral reasons? RISK ITEM	N = 345	N = 99	N= 346	%= 100.00	N=99	%=100.00
Yes	8.1	6.1	28	8.09	6	6.06
No	91.9	93.9	318	91.91	93	93.4
d) Does the individual require documented daily monitoring of temperature, respiration, heart rate, and blood pressure according to a documented physician’s order? E&E CRITERIA	N = 343	N = 100	N= 344	%= 100.00	N	N=100
Yes	1.5	0.0	5	1.45	0.0	0.0
No	98.5	100.0	339	98.55	100	100.00
e) The individual does not report or is unable to describe pain and/or signs of illness and where it is located. RISK ITEM	N = 351	N = 100	N=352	%=100.00	N	N=100
Yes	39.9	31.0	141	40.06	31	31.00
No	60.1	69.0	211	59.94	69	69.00
f) Does the individual need assistance to make and/or keep medical appointments?	N = 350	N/A	N= 351	%= 100.00	N/A	N/A
Yes	26.5	N/A	339	96.58	N/A	N/A
No	73.5	N/A	12	3.42	N/A	N/A

*Adults – a missing 8, c missing 14, d missing 16, e missing 8, f missing 9; Children – c missing 6, d, e missing 5.

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 51c, 51d, 51e and 51f as a measure of reliability. Item 51f should be examined with caution, as the confidence interval for the ICC is wide and the lower bound is in the poor range.

Table 31: Reliability of General Medical Support Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
51c	-0.06	-0.32	0.21	Poor	51
51d	1	1	1	Excellent	49
51e	0.78	0.65	0.87	Moderate – Good	50
51f	0.37	0.08	0.60	Poor - Moderate	43

Additional considerations from quantitative data: As stated in the Mission Analytics report, the individual might need assistance making or keeping medical appointments for behavioral or cognitive reasons; these might not be clearly captured in this section.

Medical: 53. Seizure and Diabetes Screen

Table 32: Seizure and Diabetes Screen. Response Frequencies, Core Sample, Adults and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	Frequency (Adults)	%	Frequency (Children)	%
a) Does the individual have a diagnosis of seizures or epilepsy or has the individual had a seizure within the past five (5) years?	N = 351	N = 101	N= 93	%	N= 100	%
Yes	26.5	22.8	93	26.42	23	22.77
No	73.5	77.2	259	73.58	78	77.23
c) Does the individual require support to prevent injury during or prior to a seizure episode?	N = 87	N = 21	N = 87	%=100.00	N = 21	%=100.00
Yes	63.2	61.9	55	63.22	13	61.90
Less than monthly	62.1	46.7	36	62.07	7	46.67
Less than weekly	12.1	13.3	7	12.07	2	13.33
Less than daily	6.9	66.7	4	6.90	1	6.67
Daily	19.0	33.3	11	18.97	5	33.33
No	36.8	38.1	32	36.78	8	38.10
d) Does the individual have a diagnosis of diabetes or pre- diabetes?	N = 346	N = 101	N=347	%= 100.00	N= 101	%= 100.00
Yes, diabetes	11.0	0.0	38	10.95	0.0	0.0
Yes, pre-diabetes	4.6	1.0	16	4.61	1	0.99
No	84.4	99.0	293	84.44	100	99.01
e) Does the individual use a diabetic insulin pump?	N = 52	N/A	N=52	%= 100.00	N= 1	%=100.00
Yes	0.0	N/A	0.0	0.0	0.00	0.00
No	100.0	N/A	52	100.00	1	100.00
f) Does the individual's diabetes management include administration of sliding scale insulin?	N = 54	N/A	N=54	%= 100.00	N= 1	%= 100.00
Yes, administered by the individual without in-person assistance	5.6	N/A	43	79.63	0.0	0.0
Yes, administered by the individual with in-person assistance	7.4	N/A	3	5.56	0.0	0.0
Yes, administered by support person	7.4	N/A	4	7.41	0.0	0.0
No	79.6	N/A	43	79.63	1	100.00

*Adults – a missing 8, d missing 13; Children – a, d missing 4.

Are these items reliable? An intraclass correlation coefficient (ICCs) from a two-way random effects model was calculated for item 53a as a measure of reliability. Results indicated perfect agreement and excellent reliability.

Additional considerations from quantitative data: Nothing to add.

Medical: 54-55. Treatments/Therapies and Medication

The medication management questions (items 55f-i) were skipped for children under age 18.

Table 33: Treatments/Therapies & Medication. Response Frequencies, Core Sample, Adults & Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
54 a) Is the individual currently receiving or in need of any special treatments or therapies, such as pacemaker, ostomy care, oxygen/respiratory therapy, feeding tube, or dialysis?	N = 337	N = 97	N= 338	%= 100.00	N= 97	%=100.00
No	58.2	100.0	197	58.28	39	40.21
Yes	41.8	0.0	141	41.72	58	59.79
Unsure	0.0	0.0	0.0	0.0	0.0	0.0
Chose not to answer	0.0	0.0	0.0	0.0	0.0	0.0
55 a) Individual currently takes prescription medications.	N = 350	N = 102	N= 350	%=100.00	N= 102	%=100.00
No	8.6	15.7	30	8.57	16	15.69
Yes	91.4	84.3	320	91.43	86	84.31
b) Is a list of medications kept somewhere else for the individual?	N = 295	N = 83	N=295	%=100.00	N= 83	%= 100.00
Yes	86.4	51.8	255	86.44	43	51.81
No	13.6	48.2	40	13.56	40	48.19
d) Regularly takes over the counter medications, vitamins or supplements.	N = 297	N = 78	N=297	%= 100.00	N= 78	%=100.00

No	24.6	56.4	224	75.42	34	43.59
Yes	75.4	43.6	73	24.58	44	56.41
e) Does the individual take medication known to cause dehydration? RISK ITEM	N = 314	N = 80	N= 314	%=100.00	N= 80	%= 100.00
None the participant, proxy, or assessor is aware of	79.6	93.8	250	79.62	75	93.75
Yes	20.4	6.3	64	20.38	5	6.25
f) 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.	N = 316	N/A	N=316	%=100.00	N/A	N/A
Independent	6.3	N/A	20	6.33	N/A	N/A
Setup or clean-up assistance	7.0	N/A	22	6.96	N/A	N/A
Supervision or touching assistance	6.3	N/A	20	6.33	N/A	N/A
Partial/moderate assistance	6.3	N/A	20	6.33	N/A	N/A
Substantial/maximal assistance	23.4	N/A	74	23.42	N/A	N/A
Dependent	46.2	N/A	146	46.20	N/A	N/A
Person refused	0.0	N/A	0.0	0.0	N/A	N/A
Not applicable	2.2	N/A	7	2.22	N/A	N/A
Not attempted	2.2	N/A	7	2.22	N/A	N/A
g) 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.	N = 313	N/A	N= 313	%=100.00	N/A	N/A
Independent	4.5	N/A	14	4.47	N/A	N/A
Setup or clean-up assistance	3.2	N/A	10	3.19	N/A	N/A
Supervision or touching assistance	2.6	N/A	8	2.56	N/A	N/A
Partial/moderate assistance	0.3	N/A	1	0.32	N/A	N/A
Substantial/maximal assistance	1.9	N/A	6	1.92	N/A	N/A
Dependent	7.4	N/A	23	7.35	N/A	N/A
Person refused	0.0	N/A	0.0	0.0	N/A	N/A
Not applicable	80.2	N/A	251	80.19	N/A	N/A
Not attempted	0.0	N/A	0.0	0.0	N/A	N/A
h) 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.	N = 311	N/A	N= 311	%= 100.00	N/A	N/A
Independent	2.6	N/A	8	2.57	N/A	N/A
Setup or clean-up assistance	0.0	N/A	0.0	0.0	N/A	N/A
Supervision or touching assistance	0.6	N/A	2	0.64	N/A	N/A
Partial/moderate assistance	1.3	N/A	4	1.29	N/A	N/A
Substantial/maximal assistance	0.6	N/A	2	0.64	N/A	N/A
Dependent	6.8	N/A	21	6.75	N/A	N/A
Person refused	0.0	N/A	0.0	0.0	N/A	N/A
Not applicable	88.1	N/A	274	88.10	N/A	N/A
Not attempted	0.0	N/A	0.0	0.0	N/A	N/A
i) Medication management – topical medications: The ability to prepare and apply all prescribed topical medications reliably and safely, including administration of the correct dosage at the appropriate times/intervals.	N = 313	N/A	N=313	%= 100.00	N/A	N/A
Independent	4.2	N/A	13	4.15	N/A	N/A
Setup or clean-up assistance	2.6	N/A	8	2.56	N/A	N/A
Supervision or touching assistance	2.6	N/A	8	2.56	N/A	N/A
Partial/moderate assistance	3.2	N/A	10	3.19	N/A	N/A
Substantial/maximal assistance	4.5	N/A	14	4.47	N/A	N/A
Dependent	36.1	N/A	113	36.10	N/A	N/A
Person refused	0.3	N/A	1	0.32	N/A	N/A
Not applicable	46.7	N/A	146	46.65	N/A	N/A
Not attempted	0.0	N/A	0.0	0.0	N/A	N/A

*Adults – 54a missing 22, 55a missing 10, 55e missing 46, 55f missing 44, 55g missing 47, 55h missing 49, 55i missing 47; Children – 54a missing 8, 55a missing 3

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 54a, 55a, 55b, 55d, 55e, 55f, and 55i as a measure of reliability. ICC could not be calculated for 55g, 55h and 55i because of the low number of responses. Items 55b, 55d and 55f should be examined with caution, as the confidence intervals for the ICCs are wide, especially for 55d since the lower bound is in the poor range.

Table 34: Reliability of Treatments/Therapies & Medication Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
54a	0.87	0.76	0.92	Good – Excellent	44
55a	0.74	0.58	0.84	Moderate – Good	49
55b	0.84	0.69	0.92	Moderate – Excellent	28
55d	0.68	0.46	0.83	Poor – Good	35
55e	0.86	0.75	0.92	Good – Excellent	39
55f	0.86	0.74	0.93	Moderate - Excellent	36
55g	Insufficient Data				6
55h					3
55i					21

Additional considerations from quantitative data: OHSU concurs with Mission Analytics’ conclusion that additional questions to establish skip patterns for questions on inhalants, injectables and topical medications could be used such that the ability to prepare and take those medications would only be assessed for individuals who are on those particular medications.

Medical: 56. Medical Risk

Table 35: Medical Risk. Response Frequencies, Core Sample, Adults, and Children

	Mission Analytics Inc.		OHSU*			
	Frequencies (Adults)	Frequencies (Children)	N=	%	N	%
a) Aspiration	N = 326	N = 93	N= 326	%= 100.00	N= 93	%=100.00
Not needed	65.6	77.4	214	65.64	72	77.42
Evaluation needed	7.7	8.6	25	7.67	8	8.60
Evaluation complete	26.7	14.0	87	26.69	13	13.98
At medical risk	N = 310	N = 97	N=310	%= 100.00	N= 97	%= 100.00
Yes	36.8	24.8	114	36.77	24	24.74
No	58.4	73.2	181	58.39	71	73.20
Unknown	4.8	2.1	15	4.84	2	2.06
b) Dehydration	N = 322	N = 94	N=322	%= 100.00	N= 94	%= 100.00
Not needed	74.5	89.4	240	74.53	84	89.36
Evaluation needed	6.8	5.3	22	6.83	5	5.32
Evaluation complete	18.6	5.3	60	18.63	5	5.32
At medical risk	N = 307	N = 97	N=307	%= 100.00	N= 97	%= 100.00
Yes	33.6	30.9	103	33.55	30	30.93
No	62.9	68.0	193	62.87	66	68.04
Unknown	3.6	1.0	11	3.58	1	1.03
c) Choking	N = 322	N = 93	N=322	%=100.00	N= 93	%= 100.00
Not needed	66.8	74.2	215	66.77	69	74.19
Evaluation needed	9.3	14.0	30	9.32	13	13.98
Evaluation complete	23.9	11.8	77	23.91	11	11.83
At medical risk	N = 308	N = 96	N=308	%= 100.00	N= 96	%= 100.00
Yes	40.9	34.4	126	40.91	33	34.68
No	53.6	61.5	165	53.57	59	61.46
Unknown	5.5	4.2	17	5.52	4	4.17
d) Constipation	N = 321	N = 93	N= 321	%=100.00	N= 93	%= 100.00
Not needed	66.0	77.4	212	66.04	72	77.42
Evaluation needed	7.8	9.7	25	7.79	9	9.68
Evaluation complete	26.2	12.9	84	26.17	12	12.90
At medical risk	N = 307	N = 97	N=307	%=100.00	N= 97	%= 100.00
Yes	43.7	37.1	134	43.65	36	37.11
No	53.1	60.8	163	53.09	59	60.82
Unknown	3.3	2.1	10	3.26	2	2.06

*Adults – a missing 34, b missing 38, c missing 38, d missing 39; Children – a missing 12, b missing 11, c, d missing

Are these items reliable? Intraclass correlation coefficients (ICCs) from a two-way random effects model were calculated for items 56a through 56d as a measure of reliability. These items had poor to moderate reliability except for item 56a_AtRisk, which had moderate to good reliability.

Table 36: Reliability of Medical Risk Items

Item No.	Individual ICC	95% CI		Inter-rater Reliability	N
		Lower Bound	Upper Bound		
56a	0.49	0.24	0.68	Poor – Moderate	46
56b	0.38	0.09	0.61	Poor – Moderate	43
56c	0.57	0.33	0.74	Poor – Moderate	44
56d	0.38	0.10	0.61	Poor – Moderate	43
56a_AtRisk	0.36	0.04	0.61	Poor – Moderate	37
56b_AtRisk	0.74	0.55	0.86	Moderate – Good	36
56c_AtRisk	0.36	0.05	0.60	Poor – Moderate	39
56d_AtRisk	0.69	0.47	0.83	Poor – Good	36

Additional considerations from quantitative data: Nothing to add.

ISSUES IN OTHER ONA SECTIONS

Consistent with the format of the Mission Analytics report, this final section addresses issues identified in other sections of the tool. As was done in the MA report, we provide complete frequencies for the items as a separate attachment. Below, we summarize findings from our IRR analyses, where data were available.

Section II: Communication

Language Expression and Comprehension: Although these items were not included in the original reliability assessment report, OHSU examined ICCs for these items. Item a exhibited excellent reliability with an absolute ICC of 0.94 (95% CI: 0.90, 0.97). Items b and d had moderate to good reliability with absolute ICCs' of 0.75 (95% CI: 0.60, 0.85) and 0.78 (95% CI: 0.65, 0.87), respectively. Item c had poor to moderate reliability with an absolute ICC of 0.59 (95% CI: 0.38, 0.74). Item e had zero reliability with an absolute ICC of 0.12 (95% CI: -0.16, 0.38).

Section III: Memory and Cognition

Although these items were not included in the original reliability assessment, our preliminary quantitative analyses indicate that all the memory and cognitive items had poor reliability, with the 95% CI lower bounds starting at 0.30.

Section VII: Safety

Environmental Safety: Although these were not items that were included in the original ICC report, OHSU's preliminary analysis reveals that although item A had moderate reliability with an ICC of 0.80 (95% CI: 0.67, 0.88). Items, B, C and D had poor to moderate reliability with ICCs' ranging from -0.03 to 0.63 and 95% CI lower bounds ranging from -0.30 to 0.78.

FINDINGS REGARDING MISSION ANALYTICS GROUP (MA) ANALYSIS AND CONCLUSIONS

OHSU was tasked with assessing three aspects of the work done by Mission Analytics Group, Inc.:

- 1) the accuracy of the analyses (i.e. whether our analyses yielded the same results MAs);
- 2) the appropriateness of the analytic methods they used; and
- 3) the validity of the conclusions they made regarding the ONA items.

In each of these areas, we report our findings regarding the frequency analyses and the IRR analyses. Additionally, our scope of work included offering suggestions for remedying any problems we found with the work done to date. We offer our recommendations in a separate section at the end of this chapter.

Accuracy of Results

Accuracy of frequency analyses: The results of our frequency analyses for children exactly matched those of Mission Analytics Group. As noted earlier, Mission Analytics Group said they had excluded 3 adults from analyses because those adults did not have numeric responses. We were unable to identify those 3 adults. Thus, our frequency analyses for adults used a slightly larger sample size and yielded very slightly different frequencies for the items. The differences between our findings and those reported by Mission Analytics Group are negligible.

Accuracy of IRR analyses: Our point estimates for ICCs closely matched those found on items that were analyzed by Mission Analytics Group and their partners. The lower bounds of the 95% confidence intervals for these estimates also closely matched those reported by Mission Analytics Group. The upper bounds of the 95% confidence intervals did not match, because Mission Analytics Group had reported upper bounds from a different type of ICC analysis. (Note: A conference call with the MA subcontractor who conducted these analyses clarified that this was the result of a coding error in exporting results into tables; the error was subsequently corrected.)

Appropriateness of Analytic Methods

Appropriateness of frequency analysis methods:

Mission Analytics Group appropriately conducted frequency analyses separately for adults and children. We have no concerns about the methods used for these analyses.

Appropriateness of IRR analysis methods:

We agree that conducting ICC analyses using a two-way random effects model (with assessor and client treated as random effects) was an appropriate method of assessing IRR. We also agree that the individual (rather than average) ICC is the correct value to report.

Mission Analytics Group only reported results of ICC analyses for certain items in certain sections of the ONA. OHSU is uncertain why analyses were not conducted to assess reliability of all items in the ONA, but it may be due to decisions that had already been taken about dropping certain items. If so, those decisions should be explained in reports to stakeholders, for the sake of transparency.

Most importantly, OHSU believes it is necessary for ICC analyses to be calculated and reported separately for children and adults. However, among the 53 clients that were selected for IRR analysis, 83% (n=44) were adults and 17% (n=9) were children. Unfortunately, the small number of children in the IRR sample means it is not feasible to conduct separate analyses for children with the currently available data. Thus, the problem here is not with the analytic methods themselves, but rather the sampling methodology that resulted in insufficient numbers of children in the IRR sample.

Moreover, where skip patterns meant that only some people received subsequent items, sample sizes even for adults were too small for stable estimates on many of those “drill down” items. The documents we reviewed acknowledged the latter issue. The degree of sample size loss on items affected by skip patterns may not have been possible to predict in advance. Thus, that aspect of the sampling methodology was not necessarily inappropriate as a first step, the findings of which can then guide subsequent more focused data collection.

Validity of Conclusions

Validity of conclusions from frequency analyses:

Mission Analytics Group used data from frequency analyses to make recommendations as to whether all items and response options are needed, and whether skip patterns may need to be added in some places. We agreed with their conclusions from these analyses.

Validity of conclusions from IRR analyses:

A separate Reliability Analysis document provided as an addendum to the Mission Analytics Group report presented an inaccurate interpretation of 95% confidence intervals for the ICC estimates. That document stated that “The ICC should be between the upper and lower bounds of the CI to be significant at the 95 percent CI.” In fact, *every* ICC estimate will *always* fall within the 95% confidence interval for that estimate. The fact that the estimate invariably falls within its own 95% confidence interval provides no information about significance or degree of reliability. What the 95% CI does tell us is that the true ICC could be anywhere within that range. This is important because, even if the ICC point estimate suggests good reliability, if the lower bound of the CI goes down into the poor range, then we cannot confidently conclude that the reliability of the item is actually good. It could be good or it could be poor. Thus, OHSU categorized the level of reliability of the items based on the full range of the 95% CI. We also noted where caution should be used in interpreting results if CIs were wide enough to cross more than two categories of reliability, and/or if the lower bound of the CI indicated possible poor reliability.

Tables Indicating Reliability Conclusions

The tables below show OHSU’s conclusions regarding reliability of the items, based on quantitative data regarding absolute agreement, using the following groupings:

No Concern: These are items that have adequate sample size, moderate or better reliability, and confidence intervals that are not overly wide.

Possible Concern: These items have wide confidence intervals crossing more than two categories of reliability (i.e., ranging from poor to good, or from moderate to excellent), and/or the lower bound of the confidence interval is in the “poor” range. Items with possible poor reliability (lower bound of CI in poor range) are highlighted in yellow.

Poor Reliability: These are items with an ICC point estimate of less than 0.50.

Insufficient Data: Items for which IRR data were available from fewer than 30 people.

Note that these conclusions are essentially only applicable to adults. Due to the low number of children included in the IRR sample, there is insufficient data to draw conclusions about reliability of any of the items for children under the age of 18.

Table 37: Reliability of ADL items

No Concern	Possible Concern	Poor Reliability	Insufficient Data
8a, 8b, 8c, 9a, 9b, 9c, 9d 10a, 10d, 10e, 10g 11b 12a, 12b 13a 14a 15b	10c 10f 10h	10b	9e 10k 10l 13b 15a

Most of the ADL items had moderate to excellent reliability ($ICC \geq 0.50$) and are of no concern. Two of the mobility items (10c, 10h) had wide confidence intervals with the lower bound in the poor range. One item (10b) had poor reliability ($ICC < 0.50$). Chair to bed transfer (9e), two of the mobility items (10k, 10l), ability to wash upper body (13b) and menses care (15a) items had insufficient data for robust ICC estimation.

Table 38: Reliability of IADL items

No Concern	Possible Concern	Poor Reliability	Insufficient Data
18a 20a 21b 22a 23a 23b	19a 22c	-	21a 23c

Transportation (22c) and meal preparation (19a) had wide 95% confidence bounds with the lower bound in the poor range ($ICC < 0.50$). The public transportation (21a) and light shopping: Wheels for 15 minutes (23c) items had insufficient data for robust ICC estimation. The remaining items in this section did not have any concerns regarding IRR and had moderate to excellent reliability ($ICC \geq 0.50$).

Table 39: Reliability of behavioral items

No Concern	Possible Concern	Poor Reliability	Insufficient Data
25a, 26a, 28a, 29a 31a, 32a, 33a, 35a 36a, 37a, 38a, 39a 40a, 43a, 43b, 43c 44d, 45a	27a 30a, 34a 41a, 42a, 44c 45g, 45h, 45i	44a 44b 45j	45b 45c 45d 45e 45f

Behavior Support Plan drill-down items (45b, 45c, 45d, 45e, 45f) did not have sufficient data for robust ICC estimation. Two of the other behavior items (44a and 44b) and one of the behavior support plan items (45j) had poor reliability ($ICC < 0.50$). Several others had wide confidence intervals and should be interpreted with caution, especially the highlighted items (27a and 45h) which had possibly poor reliability. Item 44c also had a lower bound confidence interval in the poor range. All other items had moderate to excellent reliability ($ICC \geq 0.50$).

Table 40: Reliability of safety items

No Concern	Possible Concern	Poor Reliability	Insufficient Data
48a	47c 48b 49a 49b	47e 48c 48d	49c

Item 48a had moderate reliability ($0.5 < ICC \leq 0.75$). Items 47c and 48b had a wide confidence interval ranging from poor to good reliability. Items 49a and 49b ranged from poor to moderate reliability. One of the abuse, neglect, and exploitation items (49c) had insufficient data for ICC calculation. The remaining items in this section had poor reliability ($ICC < 0.50$).

Table 41: Reliability of medical items

No Concern	Possible Concern	Poor Reliability	Insufficient Data
51d 51e 53a 54a 55a 55e 56b_At Risk	55b 55d 55f 56c 56d_At Risk	51c 51f 56a 56b 56d 56a_At Risk 56c_At Risk	55g 55h 55i

Two general medical support items (51c, 51f) and multiple determination of medical risk items (56a, 56b, 56d, 56a_At Risk, and 56c_At Risk) had poor reliability ($ICC < 0.50$). Items 51d, 51e, 53a, 54a, 55a, 55e and 56b_At Risk had moderate or better reliability. Some of the general medical support and determination of medical risk items (55b, 55d, 55f, 56c, and 56d_At Risk) had wide confidence intervals and need to be interpreted with caution, especially those highlighted in yellow, which had lower bound CIs indicating possible poor reliability. Some of the drill-down medication items (55g-i) did not have sufficient data for robust ICC estimation.

Recommendations

Based on our findings, we believe it is reasonable and appropriate to proceed with implementation of the ONA, provided ongoing monitoring is undertaken to continue assessing reliability. We submit the following recommendations to strengthen the validation and reliability of the ONA tool as ODDS moves into the implementation phase:

Recommendations for implementing post-pilot sampling during an ONA tool implementation phase:

- a. Develop a quality assurance process that includes scheduled and continued IRR sampling, data analysis, and consideration of stakeholder input until the ONA tool is fully validated and reliable for both child and adult populations.
- b. The quality assurance process should ensure that a minimum of 30 adults and 30 children have IRR data for each item. Where there are skip patterns that result in small numbers of respondents being assessed on “drill down” items, targeted sampling is recommended as a strategy is to collect sufficient data on those items in the post-pilot phase. Collection of the existing pilot data was a logical and important first step, the results of which can now guide additional sampling during the post-pilot phase.
- c. Analyses thus far have been conducted at the item level only. As implementation proceeds, ODDS may wish to examine agreement between assessors on determinations of support needs for clients, based on groups of items or on the ONA as a whole.
- d. As data collection continues to establish reliability of the ONA tool, the quality assurance process should include a clear path for individuals receiving services from ODDS to have their determination reviewed. This review process should take place in a timely manner where health and safety are a primary consideration.

Recommendations for follow up to the MA analysis:

- a. Provide a clear rationale for why sections or items of the tool that were not covered in the analyses reported by MA. For example, if a decision was made to drop some items from the tool after pilot testing started, those changes and the reasons for them should be explained. The draft report we received included such explanations for some sets of items but not others.
- b. If sections or items that were not included in the original analysis and are: 1) retained in the ONA tool, and 2) used for rate setting and level of service determination, we recommend those items be identified and analyzed to ensure that inter-rater reliability has been comprehensively assessed.
- c. Any items used to determine rate setting or level of service that have been modified since the pilot data were collected should be retested by analyzing data collected during the ongoing quality assurance process.

In summary, our findings support the conclusions outlined in the Mission Analytics Group, Inc. draft report. It is our opinion that the approach to development of the ONA and the testing methodology used by Mission Analytics Group, Inc. were rooted in best practice and were appropriate. While we conclude that the inter-rater reliability of the ONA is not yet fully established, the results thus far are highly encouraging. Moreover, the testing steps that have been completed place Oregon at the forefront of efforts to objectively assess the support needs of clients with developmental disabilities.