December 2018

Assessment of Race, Ethnicity, Language and Disability (READLD) Data Quality in the Oregon Health Plan ONE System

Oregon Health Authority

EQUITY AND INCLUSION DIVISION

Acknowledgments

Author

Marjorie McGee, PhD

Others contributing to the report

The Equity and Inclusion Division deeply appreciates the time and effort the following individuals and organizations gave that made it possible to conduct this assessment:

- Oregon Health Authority and Oregon Department of Human Services staff
- Oregonians who applied for the Oregon Health Plan using the ONE system from Sept. 1, 2017, through June 30, 2018
- Aileen Duldulao, PhD, from the Multnomah County Health Department for consultation on how to test the agreement of answers to the language questions.

For more information

Contact OHAREALD.Questions@odhsoha.oregon.gov or 971-673-3390.

How to cite this publication

Please cite this publication as follows:

McGee, MG. (2018). Summary: Assessment of race, ethnicity, language and disability (REALD) data quality in the Oregon Health Plan ONE system. Portland, Oregon: Oregon Health Authority, Equity and Inclusion Division.

You can get this document in other languages, large print, braille or a format you prefer. Contact Office of Equity and Inclusion at 971-673-3390 or email OHAREALD.Questions@odhsoha.oregon.gov. We accept all relay calls or you can dial 711.

Contents

- Acknowledgments 2
- Executive summary 5
- Introduction 6
  - About OregONEligibility (ONE) system 6
  - The data quality assessment of REALD data in ONE 6
  - Findings 7
  - Opportunities for improvement 7
- Background 9
  - About the REALD data collection standards 9
  - OregONEligibility (ONE) system and MMIS 9
  - Purpose 10
- Methods 13
- Findings 21
  - Overall response rates 21
  - Race and ethnicity: What can we infer from this analytic sample? 23
  - Disability. What can we infer from this analytic sample? 30
  - Language: What can we infer from this analytic sample? 36
  - Concordance (consistency): To what extent are certain REALD questions consistent with each other? 44
  - Limitations affecting our ability to identify, measure and address inequities 55
- Recommendations 59
- Glossary 63

» Appendix A. Rulemaking Advisory Committee and Subcommittee members 67
» Appendix B. At-a-glance view of REALD questions and categories. 69
» Appendix C. Annotated screenshot of race fields in MMIS 71
» Appendix D. REALD methodological notes for the American Community Survey 72
» Appendix E. Supplemental tables 75
» Appendix F. Example of race and ethnic identity data in long format 78
» Endnotes 79

Executive summary

In 2013, the Oregon Legislature passed HB 2134. The law directed the Oregon Health Authority (OHA), collaborating with the Department of Human Services (DHS), to standardize and improve methods of collecting race, ethnicity, spoken and written language, and disability (REALD) demographics. This effort came from a need to address inconsistent and insufficient DHS and OHA data collection standards used to collect these variables. Uniform and effective collection of these variables allows better measurement and comparison of disparities in services and health. Ultimately, this improves service delivery quality. Collecting race, ethnicity, language and disability demographic data has many benefits, including the following:

- Meets federal and state reporting requirements
- Helps better understand the population we work with and/or serve
- Identifies and addresses social and health disparities
- Guides the development of culturally specific and accessible services
- Guides equitable resource allocation to address disparities, and,
- Helps plan for programs and services according to accessibility, cultural and linguistic needs.

Introduction

The Oregon Health Authority's Equity and Inclusion (OEI) Division collected one year of Oregon Health Plan applicant data from the OregONEligibility (ONE) system. The OEI Race, Ethnicity, Language and Disability (REALD) policy data analyst performed a detailed data quality analysis. The analysis addressed six overarching data quality questions and resulted in 16 recommendations that will inform the Integrated Eligibility (IE) system's development. The analysis will also help develop and incorporate REALD into other data systems. One of the recommendations in this report was addressed after the analyses were completed in 2018. A summary of this report, including the recommendations, was released in May 2019. This full report provides additional background and technical detail on the data quality analysis.

About OregONEligibility (ONE) system

Over 80 percent of clients served by DHS and OHA receive Medicaid services. OHA has focused on efforts over the past two years to better ensure that Oregon's new online eligibility system, used for Medicaid eligibility determination, became fully compliant with the REALD standards. After an intensive design process in winter and spring of 2017, the revised ONE system launched in June 2017. The data from the ONE system flow into the Oregon Medicaid Management Information System (MMIS) *, along with many other data systems related to modified adjusted gross income (MAGI) and non-MAGI services. Researchers then access the data via the Decision Support Surveillance and Utilization Review System (DSSURS), a database separate from MMIS.

The data quality assessment of REALD data in ONE

Following one year of data collection of Oregon Health Plan applicants via the OregONEligibility (ONE) system, OEI conducted a detailed data quality analysis, building upon the preliminary analyses done by researchers in the DHS Office of Forecasting, Research and Analysis (OFRA). This assessment sought to learn more about the nature of the non-responses to the REALD data and other data quality issues that could inform Integrated Eligibility system and other related data processes' development. Six broad evaluation questions guided the assessment; all focused on

* The Oregon Medicaid Management Information System (MMIS) is a Centers for Medicare and Medicaid Services (CMS) approved system that supports the operation of the Medicaid program.

the REALD data quality, which came from new MMIS enrollees between Sept. 1, 2017, and June 30, 2018.

Findings

Based on this assessment, the profile of enrollees in MMIS with respect to language, English proficiency and disability does not reflect the profile of what we know about Oregonians receiving health insurance through Medicaid based on American Community Survey (ACS) data. However, other profile data of enrollees in MMIS does appear to be consistent with ACS data of Oregonians receiving Medicaid.

The validity of the REALD data in MMIS to responses from the language and disability questions is inadequate because of the questions' format and design (i.e., ability for respondents to skip questions) rather than the questions themselves.

These limitations may largely be due to the large number of "did not answer" responses (which comes from allowing the REALD questions to be skipped altogether). Applicants did not have to choose "decline" if they did not want to answer the question. However, the use of the decline option (if the person really does not want to answer) is helpful; we can use that information to see if there are patterns in declining and, if so, determine how to address this.

Several limitations stem from how the data changes when flowing from the ONE system to MMIS and then to DSSURS. For example, the default of "English" is done in MMIS if the preferred written or spoken language was skipped; this affected the validity of the data responses. For example, a need for interpretation was noted, but one's ability to speak English was reported as "very well" or "well."

Due to these data quality issues and limitations, we cannot rely on these responses to identify and address disparities. OHA staff also cannot assure language access based on these responses.

Opportunities for improvement

We can make some changes to the IE system before it launches that could dramatically improve both data quality and the data's usefulness in identifying and addressing disparities. Sixteen recommendations were identified; these can be summarized thematically in the following categories:

- Data collection and data collection design (ONE/IE)
- Validation of response protocols (ONE/IE)
- System protocols
- Exploring an alternate data system and/or process to retrieve and store

REALD data

- Continuous quality improvement processes and exploratory research

Five of the 16 recommendations should be implemented sooner than later, and preferably before the launch of the IE system in 2020.* Doing so will likely significantly improve the data quality with a minimum of costs and effort. These five recommendations are:

- Require individuals to pick a response option (including "decline" or "unknown response"), removing the option to skip a question.†
- Have the "did not answer" response only available as an option when the paper application is reviewed manually, and it is clear that the applicant did not answer the question.
- Remove the default of "English" in MMIS if the enrollee did not answer the questions about preferred written and/or spoken language.
- Because of the system's limitations noted in these recommendations, consider if MMIS should be the main source of data for REALD. A separate REALD database with access to the date/time fields from ONE and the original REALD data before being changed by MMIS may be easier and more cost effective than trying to make REALD fit into MMIS in ways MMIS is not able to handle.
- Establish a continuous quality improvement (CQI) team focusing on REALD data quality in ONE and later in IE.

This report gives a through description of the assessment questions, methodology, findings and resulting recommendations. OHA and DHS plan to use these findings to better serve Oregonians. This work may be a model for other states. It will help us use REALD standards to identify and address disparities in access to services and service outcomes.

* As of May 2019, it will not be possible to make changes to the integrated ONE system prior to the 2020 system implementation due to an effort to minimize any changes while the system is being tested. The earliest the recommendations related to integrated ONE could be addressed through the prioritization process is 2021.

† Update: This recommendation was implemented in May 2019 in the ONE system.

Background

About the REALD data collection standards

REALD is an effort to increase and standardize race, ethnicity, language and disability data collection across the Department of Human Services (DHS) and the Oregon Health Authority (OHA). House Bill 2134, passed by the Oregon Legislature in 2013, directed creation of standardized data categories and questions for OHA and DHS datasets. Developing standardized data categories and questions involved an extensive process of convening the Rulemaking Advisory Committee made up of 17 individuals representing diverse communities and organizations, as well as input from an internal subcommittee with representation from OHA, DHS and Shared Services (e.g., Information Services) (see Appendix A). The standardized data categories and questions were finalized in Oregon Administrative Rules (OARs) 943-070-0000 through 943-070-0070.

The REALD standards allow Oregon to lead the nation in identifying and addressing health inequities that reflect differences in race, ethnicity, language and disability. Accurately identifying disparities and subpopulations that may benefit from targeted interventions requires data collection with more granularity in race, ethnicity and language (1,2,3). There is also a need for data collection of disability as a demographic to fully identify and address preventable health disparities experienced by people with disabilities (4, 5). See Appendix B for an at-a-glance view of the REALD data collection standards.

OregONEligibility (ONE) system and MMIS

The eligibility application system for the Oregon Health Plan, OregONEligibility (ONE), launched Dec. 15, 2015. OHA convened a workgroup within the Health Systems Division in 2016 to begin updating the ONE system. This process included frequent design sessions from January through April 2017 in order to launch the revised ONE system in June 2017. Following the design sessions, OHA Health Systems revised, tested and implemented several new questions on the eligibility screens. The revised ONE system launched in June 2017.

The OregONEligibility (ONE) system has two portals that process new applications, changes and renewals for the Oregon Health Plan: 1) the applicant portal and, 2) the worker portal. An individual or community partner uses the applicant portal when directly applying for OHP online, without the need to complete a paper application.

The worker portal is used when a paper application is submitted or when an eligibility worker assists an applicant directly. In rare cases a DHS eligibility worker may enroll an applicant in a "legacy" eligibility system that does not include REALD data elements. Both the applicant portal and the worker portal have incorporated all REALD data categories and questions. However, the OHP paper application has not yet been updated to include all REALD questions. That update will occur in December 2019. The next generation of the ONE system, the Integrated Eligibility (IE) system, is due to go live spring 2020, and roll out incrementally throughout 2020. All aspects of the IE system are expected to be REALD compliant.

The data from the ONE system flow into the Oregon Medicaid Management Information System (MMIS), along with many other data systems related to MAGI and non-MAGI services. The MMIS data then flows into the Decision Support Surveillance and Utilization Review System (DSSURS). DSSURS is the primary point for OHA and DHS researchers to access data from the ONE system.

Several ONE design decisions were made with regards to the applicant portal that greatly influenced this assessment. The first relates to the "did not answer" response that is imputed by the system. The original intention of the "did not answer" was for the OHA data entry worker to confirm that the individual skipped the question on the paper application. However, this response option ended up being used to populate missing responses to most REALD demographic items. This decision resulted in many "did not answer" responses recorded in the applicant portal. Another design decision was the default imputation of "English" in MMIS if the applicant did not answer the question about preferred spoken and/or written languages.

Purpose

Following one year of collecting data of Oregon Health Plan applicants via the OregONEligibility (ONE) system, OEI conducted a detailed data quality analysis, building upon the preliminary analyses done by researchers in the Office of Forecasting, Research and Analysis (OFRA). The OFRA analyses revealed many non-responses such as "did not answer" or "unknown. A heavy reliance on the "other" race subgroup options also surfaced. Therefore, this assessment sought to learn more about the nature of the non-responses to the REALD data and other data quality issues to inform the Integrated Eligibility system's development and for other related data processes.

Specifically, based on the REALD data collected from the applicant portal of new OHP members enrolled between Sept. 1, 2017, and June 30, 2018, OEI sought to address six broad evaluation questions:

1. **Response rate overall**: To what extent are OHP enrollees answering the

REALD questions?

a. What are the rates of passive non-responses? *

b. What are the rates of active non-responses?

2. **Race and ethnicity**: What can we infer from this analytic sample about enrollees who answered the race and ethnicity questions?

   a. Is the profile of OHP enrollees similar to ACS estimates of Oregonians receiving Medicaid?

   b. Are there discernable patterns in non-responses?

   c. Among those who answered the race and ethnicity questions, to what extent were the "other" categories used?

3. **Disability**: What can we infer from this analytic sample about enrollees who answered the disability questions?

   a. Is the profile of OHP enrollees similar to ACS estimates of Oregonians receiving Medicaid?

   b. Are there discernable patterns in non-responses?

   c. To what extent did those who reported a disability also answer the age follow-up question?

   d. What can we infer from this analytic sample about enrollees who answered the disability questions?

4. **Language**: What can we infer from this analytic sample about enrollees who answered any of the REALD language questions?

   a. Is the profile of OHP enrollees similar to ACS estimates of Oregonians receiving Medicaid with respect to:

      i. Preferred language (spoken and written)?

      ii. English proficiency?

      iii. Need for interpretation (any)?

      iv. Alternate formats?

5. **Concordance (consistency)**: To what extent are the REALD questions

* A passive non-response is one where the person may have skipped the question or was not exposed to the question in the first place, such as when applying for OHP using the paper application, or their record being derived from the DHS mainframe. An active non-response is one in which one actively "declined to answer" or indicated that they "don't know" (or "unknown") the answer to the question.

consistent with each other?

a. To what extent are responses to the language questions consistent with each other related to:

   i. Preferred spoken language and English proficiency?

   ii. Need for interpretation (any) and English proficiency?

b. To what extent are responses to the language questions consistent with other READLD responses as appropriate related to:

   i. Hearing disability and sign interpretation?

   ii. Alternate formats and disability?

6. **Limitations**: To what extent do the limitations that emerge from this assessment affect our ability to identify, measure and address inequities or disparities?

Methods

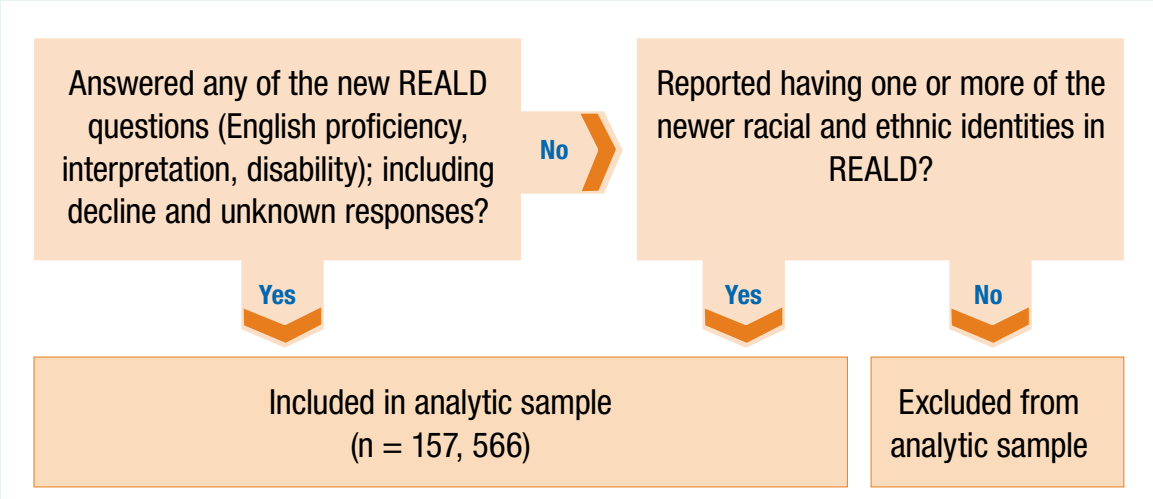
The analytic sample

Because the REALD data collection standards were not yet implemented across all MMIS data sources, it was important to create an analytic sample to represent just those exposed to the REALD questions since July 2017 via the applicant portal of the ONE system. OEI began with a sample of enrollees in the OHP from Sept. 1, 2017, to the end of June 2018. OEI picked Sept. 1, 2017, because community assistors had provided training in August and September 2017. This produced an initial sample of 198,318 individuals.

However, within the initial sample of enrollees, we excluded those who enrolled using the paper application or were added by a DHS eligibility worker in a "legacy" eligibility system that does not include REALD data elements. It was not possible to discern directly, using DSSURS data, how one's application was initially submitted. After consulting with the OHA MMIS research analyst, several assumptions were made to create a "ONE/applicant portal" analytic sample.

First, those with an active response (including decline and unknown) to any of the disability, interpretation or English proficiency questions were included in the analytic sample because responses to these questions could only have been derived from the newly revised online ONE application. Second, if someone did not answer any of the

Figure 1: Creating analytic sample from 198,318 "new to MMIS" OHP enrollees



disability, English proficiency and interpretation questions, but did have one or more of the newer racial and ethnic identities only available in the applicant portal, they were also included in the analytic sample (see Figure 1). The final analytic sample consisted of 157,566 individuals (80% of the initial sample). Within this sample, 2,956 individuals had older race responses resulting from either historical data previously entered on an OHP application or from one of the data systems feeding into MMIS; 714 had a mix of older and newer racial and ethnic identities (Table 1).

Primary race

Background. The Excel file with the MMIS dataset had 11 race codes (Race_Code, Race_Code_1 through Race_Code_10). The first race variable (Race_Code) represented the primary race variable in MMIS. Race_Code_1 through Race_Code_10 represented additional racial and ethnic identities reported by the enrollee (including decline, unknown, did not answer as applicable). These were ordered with the most recent identities coming first (see Appendix C for a sample screen shot with annotations).

However, without any temporal time/date fields, it was difficult to ascertain if the identities populated in these race fields represented identities from the last application/renewal update, or if there was a cumulation of all known identities. Further, there were some problems related to how primary race was constructed in MMIS. The current rules governing how primary race is created are as follows:

- If a singular race value is present in the secondary race (e.g., Race_Code_1) and no value is present in the primary race [Race_Code], populate the singular value in the primary race code.
- If more than one race value is present in the secondary race and no value is present in the primary race, the primary is set to 98 (unknown), and the secondary race codes will be concatenated.
- If no race values are present in either the primary or secondary race fields, populate the primary with 98 (unknown) and leave the secondary race field blank.

Adjusted primary race variable. These rules meant that, in some cases, race and ethnic identity data collected were not usable in their original form. Therefore, OEI created a different type of primary race field. To do this, we used the "most identify/rarest" group methodology to impute a primary race if the person did not indicate a primary race, and in which there are two or more races reported.

For example, for those who identified both as Western European and African American whose primary race field did not contain a racial and ethnic identity, their primary race identity would be assigned to the African American subgroup.

The order of rarest to most common racial and ethnic groups for Oregon statewide is Middle Eastern and North African, Native Hawaiian and Pacific Islander, Black or African American, American Indian and Alaska Native, Hispanic or Latino/a/x, Asian and then White.

These modifications resulted in recovering primary race data for 12,373 individuals, a 578% decrease in the number of "other race alone" and a 253% decrease in unknown primary race. The increase in aggregated racial and ethnic categories ranged from 38% (Latino/a/x, and American Indian and Alaska Native) to 2% for White (Table 2).

Table 1: Type of race categories in OHP sample for data quality assessment

	All		Old only		Old and new		New only	
	Number	%	Number	%	Number	%	Number	%
White	64,198	64.8	2,220	75.1	308	43.1	61,982	64.9
Asian	2,663	2.7	85	2.9	44	6.2	2,566	2.7
Hispanic or Latino/a/x	17,472	17.6	1	0.0	1	0.1	17,208	18.0
Black/African American	5,924	6.0	265	9.0	66	9.2	5,562	5.8
American Indian and Alaska Native	6,774	6.8	304	10.3	241	33.8	6,282	6.6
Native Hawaiian and Pacific Islander	1,389	1.4	81	2.7	54	7.6	1,256	1.3
Middle Eastern or North African	400	0.4					400	
Other race alone	214	0.2					214	
Total	**99,034**	**100**	**2,956**	**100**	**714**	**100**	**95,470**	**100**

Note: "Old only" means that granular REALD racial and ethnic categories were not present for the individual. "New only" means that only granular racial and ethnic identities were present.

Table 2: Primary race: Old and new compared

	Old (MMIS)		New		Difference (old-new)	
	Number	%	Number	%	Number	%
Other race alone	1,450	0.9	214	0.1	1,236	577.6%
Hispanic or Latino/a/x	10,883	6.9	17,472	11.1	6,589	37.7%
American Indian and Alaska Native	4,237	2.7	6,774	4.3	2,537	37.5%
Native Hawaiian and Pacific Islander	887	0.6	1,389	0.9	502	36.1%
Black/African American	4,214	2.7	5,924	3.8	1,710	28.9%
Asian	1,935	1.2	2,663	1.7	728	27.3%
Middle Eastern or North African	327	0.2	400	0.3	73	18.3%
White	62,728	39.8	64,198	40.7	1,470	2.3%
Subtotal	**86,661**	**55.0**	**99,034**	**62.9**	**12,373**	**12.5%**
Unknown	13,358	8.5	3,783	2.4	9,575	253.1%
Decline	13,190	8.4	11,972	7.6	1,218	10.2%
Did not answer	44,357	28.2	42,777	27.1	1,580	3.7%
Total	**157,566**	**100**	**157,566**	**100**		

Note: Difference reflects absolute difference.

Middle Eastern or North African (MENA)

Background. Many individuals identifying as Middle Eastern or North African (MENA) do not see themselves as "White." Recognizing that racial and ethnic identities are socially constructed and fluid over time (7, 8), individuals selecting "Middle Eastern or North African" were aggregated to the "MENA" group (and not subsumed into the "White" category).

The disability questions and the terms disability, limitations and person first language

See Table 3 for a description of the disability questions; note that none of the questions relating to disability contain the word "disability." REALD disability questions were designed to capture disability prevalence (population) to identify and address social and health disparities in order to identify people with disabilities who are more likely to experience inequities due to their disability or functional limitation. Asking if and how people identify as people with disabilities does not capture well the population of people with disabilities; many people with disabilities do not identify as disabled (9). Asking people about their medical diagnoses or impairment is also limiting because people could have an impairment but not have any limitations that would expose them to greater risk of experiencing discrimination or exclusion based on the limitation(s) (9).

For these reasons, the REALD disability questions were based on functional limitations. The first six are from the U.S. Department of Health and Human Services (HHS) data collection standards for race, ethnicity, sex, primary language and disability status (10). All federally sponsored surveys require these questions. We often refer to these questions as "the ACS (American Community Survey) disability questions." They originated from the work of a federal interagency work group the Office of Management and Budget brought together in 1997. The work group was told they could have up to six questions (11). This workgroup agreed that four domains (vision, hearing, mobility and cognitive functioning) identified most people with disabilities. They added two questions "that could be used for monitoring independent living and the need for services" (11). The six questions also needed to align with the ADA and meet the needs of different agencies collecting disability as a demographic (11). The resulting six ACS questions must be used as a set to assure a meaningful measure of disability (11).

Table 3: REALD disability questions

Construct	Question	Age	Source
1. Hearing	Are you deaf or have serious difficulty hearing?	None	ACS
2. Vision	Are you blind or have serious difficulty seeing, even when wearing glasses?		
3. Mobility	Do you have serious difficulty walking or climbing stairs?	Age 5 or older	
4. Cognitive	Because of a physical, mental or emotional problem, do you have difficulty remembering, concentrating or making decisions?		
5. Self-care	Do you have difficulty bathing or dressing?		
6. Independent living	Because of a physical, mental or emotional problem, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?	Age 15 or older	
7. Activity limitation	Does a physical, mental or emotional condition limit your activities in any way?	Age 18 or older	BRFSS

Note: ACS = American Community Survey (Census Bureau survey); BRFSS = Behavioral Risk Factor Surveillance System

The seventh disability question is from the Behavioral Risk Factor Surveillance System (BRFSS) survey. Note that some people perceive this question as offensive, particularly from the viewpoint of the social model of disability. This model sees the inaccessible and discriminating society, not the individual, as disabling (12). In other words, the problem is not that the person has a limitation; the problem is accessibility.

Terms: Identities and limitations

Individuals who identify as "people with disabilities" usually prefer the term "disability" to the term "limitations." However, most of the questions in the survey refer to limitations and not disabilities. Thus, this report frequently uses the terms from the questions.

Composite disability variable

Composite disability variable. Because there are seven disability questions and people with disabilities commonly report having more than one limitation, * OEI created a composite disability variable to create unduplicated counts. The disability data could be used in a meaningful way that considers the heterogeneity among people with disabilities. Non-response on one or more of the disability questions did not exclude responses to the other disability questions from being used to create the composite variable.

Dichotomous limited English proficiency (LEP) variable

Background. The English proficiency question, "How well do you speak English?" (5 years or older) has six response options for English proficiency: "very well," "well," "not well," "not at all," "unknown" and "decline." The Census defines those with limited English proficiency as not reporting speaking English "very well"; this is based on research in which those who were not native English speakers reporting speaking English "very well" had similar proficiency test results as those native English speakers, while those who reported speaking English "well," "not well" and "not at all" had significant lower proficiency test scores (13).

Limited English proficiency (LEP) variables. A dichotomous variable (yes/no) for LEP was created, with "very well" indicating proficiency in English, and "well," "not well" and "not at all" indicating limited English proficiency. Later, for the purposes of testing congruence, another LEP variable was created in which "very well" and "well" meant proficiency in English, and "not well" and "not at all" indicated limited in English proficiency.

Background for other REALD language questions

Preferred written/spoken language: "In what language do you want us to write to you? In what language do you want us to speak with you?" Responses for the first question about preferred (written) language included a drop-down table of a list of languages, with an option for the individual to select "other." Responses for the second question (spoken) included an initial drop-down table of a short list of languages; those who selected "other" were then directed to a more comprehensive list of languages from another table. The default for both questions becomes English in MMIS (instead of leaving it blank or coded as missing or "did not answer").

Alternate format. The data received from the MMIS included responses to those who said yes to, "Do you need written materials in an alternate format?" and indicated what their preferred format was, such as large print.

* More than half of those with a disability reporting health insurance through Medicaid (ACS 2012–2016 PUMS data) reported having more than one limitation.

Interpreter needs. There are two interpreter questions: 1) "Do you need an interpreter?" and 2) "Do you need a sign language interpreter?"

Comparing to American Community Survey (ACS)

When appropriate, OEI compared the profile of OHP enrollees to Oregonians using the 2012–16 American Community Survey (ACS). The ACS provides a Public Use Microdata Sample (PUMS) dataset of Oregonians that allows researchers to more deeply examine the ACS data. Counts and percentages from ACS data reflect weighted estimates. Most granular race and ethnic identities were derived using ancestry and primary language spoken at home as needed. See Appendix D for more details.

Tests of congruence

Tests of congruence were limited to those age 15 and older because the parent's or guardian's role in the application process may influence responses to the language questions. In assessing congruence, three assumptions guided our analyses:

1. Limited English proficiency will indicate:
    a. A preferred spoken language other than English and,
    b. Interpretation needs.
2. Need for sign interpretation is generally associated with people who are Deaf/deaf* or have serious difficulty hearing.
3. Need for alternate format is generally associated with people having serious difficulty seeing, even with glasses.

Using these assumptions, OEI sought to answer two questions related to congruence:

1. To what extent do responses to selected REALD questions (listed in the assumptions) "agree" or are associated with assumed expected responses and,
2. How well do certain REALD questions work to identify certain subpopulations associated with other REALD questions?

OEI used basic descriptive cross-tabulations and a test of sensitivity commonly used to evaluate screening tests, such as screening for breast cancer. The "sensitivity" of the screening test indicates the probability that the screening test detects the condition of interest (such as breast cancer) when, in fact, said condition is present. However, because we cannot know the truth of responses to the questions, OEI used the terms "positive agreement" instead of "sensitivity" (14). OEI sometimes used

* Deaf refers to those who identify as members of the Deaf community.

the term "probability," e.g., "the probability that the English proficiency question identifies those needing language interpretation was x%…" This is the same as saying the positive percent agreement was x%. (See "Percent agreement" in glossary for more information.)

Findings

1. Overall response rates

To what extent are OHP enrollees answering the REALD questions?

Of the 157,566 individuals identified as being exposed to the REALD questions in the applicant portal of the ONE system, 33% answered all REALD key questions (which could include a decline or unknown response). Slightly more than one-third (34%) of the applicants answered the question about racial and ethnic identity but not any of the disability questions, and 22% answered the disability questions but not the question about racial and ethnic identity. Five percent of enrollees in the analytic sample answered just the question about English proficiency and/or interpreter needs (Table 4a).

Passive non-responses

A passive non-response is one where the person may have skipped the question or was not exposed to the question in the first place, such as when applying for OHP using the paper application, or their record being derived from the DHS mainframe. Most passive non-responses found in this assessment were classified as "did not answer" (See Table 4b and Table 4c). The number of "**did not answer**" responses range from 27% (race and ethnicity) to 35% (need for sign language interpreter). "Did not answer" was used 244,433 times, representing 101,597 individuals (65% of the sample) (Table 4c).

The other type of passive non-responses were null/blank responses or "**not questioned**" (NQ) responses, which totaled to 617 across all five key REALD questions, representing 402 enrollees (0.3%). The NQ response is reserved for situations where it would have been inappropriate to ask the individual the question. Most enrollees with an NQ response had just one of these types of responses (n = 265, 0.2%) (Table 4b). The NQ responses were considerably smaller in number and most of these were recorded for disability (n = 245, 0.2%) (Table 4c).

Active non-responses

An active non-response is one in which one actively "declined to answer" or indicated that they "don't know" (or "unknown") the answer to the question. Nine percent of enrollees used the "**declined to answer**" response at least once. "Declined" was used 16,073 times, representing 14,124 individuals (9% of the sample) (Table 4c). By far the decline rate was highest with respect to race and ethnicity (8%); sign and spoken

language interpretation questions have the lowest rate (0.4%). Slightly more than 1% of enrollees "declined to answer" at least one disability question (Table 4c).

"**Unknown**" or "**don't know**" was used 8,879 times, representing 7,777 individuals (5%). Most unknown responses were associated with the racial and ethnic identity question (Table 4c). A key principle associated with the REALD standards is that of self-reporting; therefore, we want applicants to use the "unknown" option if they do not know they would identify and/or do not know how others in their household would identify.

Table 4a: Overall response rates

The number and percentages of enrollees who answered:	Number	%
All key REALD questions	52,491	33.3
Racial and ethnic identity questions but not disability questions	46,617	29.6
Disability questions but not racial and ethnic identity questions	34,230	21.7
Racial and ethnic identity and disability* questions	15,681	10.0
English proficiency and/or interpreter questions only	8,547	5.4
Total	**157,566**	**100**

Note: Responses in this context include "decline to answer" and "unknown" responses because these are active responses made by the enrollee.

* Responses overall — not total across seven disability questions.

Table 4b: Number and percent of non-responses — overall

Number of REALD questions*	Passive non-responses				Active non-responses			
	Did not answer		Not questioned		Declined		Don't know	
	Number	%	Number	%	Number	%	Number	%
0	55,969	35.5	157,164	99.7	143,442	91.0	149,553	94.9
1	36,068	22.9	265	0.2	12,753	8.1	7,476	4.7
2	11,844	7.5	77	0.0	875	0.6	314	0.2
3	19,063	12.1	42	0.0	432	0.3	119	0.1
4	34,622	22.0	18	0.0	46	0.0	102	0.1
5	0	0.0	0	0.0	18	0.0	2	0.0
Total	**157,566**	**100**	**157,566**	**100**	**157,566**	**100**	**157,566**	**100**

Note: NQ = Not questioned. Responses in this context include "decline to answer" and "unknown" responses because these are active responses made by the enrollee. The five key REALD questions included questions on racial and ethnic identity, need for language interpretation, need for sign language interpretation, English proficiency and disability. (Any response to one or more of the disability questions is counted as a response to the disability questions overall.)

* Example of how to interpret using the number of REALD questions: 35.5% of enrollees did not use the "did not answer" response at all, while 22% used this response for four of five REALD questions. The five key REALD questions include racial and ethnic identity, need for language interpretation, need for sign language interpretation, English proficiency and disability.

Table 4c: Number and percent of non-responses by REALD questions

REALD questions	Passive non-responses				Active non-responses			
	Did not answer		Not questioned		Declined		Don't know	
	Number	%	Number	%	Number	%	Number	%
Race and ethnicity	42,777	27.1	0	0.0	11,972	7.6	4,029	2.6
Disability*	54,919	34.9	245	0.2	2,076	1.3	2,748	1.7
English proficiency†	47,717	34.6	102	0.1	703	0.5	1,499	1.1
Sign interpreter	55,201	35.0	135	0.1	659	0.4	265	0.2
Language interpreter	54,819	34.8	135	0.1	663	0.4	338	0.2
Total responses	**255,433**		**617**		**16,073**		**8,879**	
Total people	**101,597**	**64.5**	**403**	**0.3**	**14,124**	**9.0**	**7,777**	**4.9**

2. Race and ethnicity: What can we infer from this analytic sample?

Is the profile of OHP enrollees similar to the 2016 ACS estimates of Oregonians receiving Medicaid?

There were 98,788 individuals in the analytic sample with a racial and ethnic response recorded. We compared how individuals answered the racial and ethnic identity questions to those reporting receiving Medicaid (using ACS 2012–2016 estimates). The resulting aggregate figures are comparable to the ACS figures for Oregon, using the same "most identify/rarest" group methodology (Table 5a). Usable primary race fields were available for approximately 62.9% of the sample; nearly one-third of the enrollees had a "did not answer" response, and 10% either declined or had an "unknown" response (Table 5b).

* Responses overall –– not total across seven disability questions
† Excluded if under age 5 (n=137,845)

Table 5a: Racial and ethnic identity of OHP enrollees by primary race compared to ACS 2016 estimates

	OHP sample		2012–2016 ACS estimates					
			Medicaid			All		
	Number	%	Number	%	MOE	Number	%	MOE
White	64,191	64.8	482,077	63.2	0.7	2,507,402	73.8	0.3
Asian	2,662	2.7	29,106	3.8	0.3	186,624	5.5	0.1
Hispanic or Latino/a/x	17,470	17.6	155,805	20.4	0.6	434,138	12.8	0.2
Black/African American	5,924	6.0	39,122	5.1	0.3	100,493	3.0	0.1
American Indian and Alaska Native	6,773	6.8	41,460	5.4	0.3	110,152	3.2	0.1
Native Hawaiian and Pacific Islander	1,389	1.4	8,124	1.1	0.2	28,580	0.8	0.1
Middle Eastern or North African	400	0.4	6,560	0.9	0.1	26,813	0.8	0.1
Other race alone	214	0.2	938	0.1	0.1	3,415	0.1	0.0
Total	**99,023**	**100**	**763,192**	**100**		**3,397,617**	**100**	

Note: MOE = Margin of error (95% confidence intervals); use caution if the MOE is large relative to the estimate (% in preceding column). Excluded those older than age 65 and/or active in the military to enable comparisons of OHP sample to ACS estimates.

Table 5b: Racial and ethnic identity of OHP enrollees by primary race

	Number	Column %	Subgroup %
American Indian and Alaska Native	6,774	4.3	6.8
Asian	2,663	1.7	2.7
Black/African American	5,924	3.8	6.0
Hispanic or Latino/a/x	17,472	11.1	17.6
Middle Eastern or North African	400	0.3	0.4
Native Hawaiian and Pacific Islander	1,389	0.9	1.4
White	64,198	40.7	64.8
Other race alone	214	0.1	0.2
Subtotal	**99,034**	**62.9**	**100**
Decline	11,972	7.6	76.0
Unknown	3,783	2.4	24.0
Subtotal	**15,755**	**10**	**100**
Did not answer	42,777	27.1	100
Total	**157,566**	**100**	**100**

Note: See methodological notes regarding adjustments to primary race.

The total number of granular racial and ethnic identities totaled 109,906 (including 2,479 who indicated other racial and ethnic identities) (Table 6). Because nearly 3,000 applicants had only an older race category*, and because one could have more than one identity within a "parent" group, the granular subcategories will not all add up to the total in the "parent" or broader racial and ethnic category. The percentage of those selecting two or more racial and ethnic identities across major aggregated race and ethnic groups ranged from 7% (Micronesian) to 80% (Japanese). The most homogeneous subgroups were as follows: Hmong, Vietnamese, Central American Latino/a/x, Micronesian and Other White (see Figure 2).

Of the 993 individuals who identified as indigenous Mexican, Central or South American, 13% (n = 175) also identified as Hispanic or Latino/a/x. It is possible that those with a strong indigenous identity from Latin America do not identify as Hispanic or Latino/a/x. One way to unpack this further would be to ask enrollees why they selected the indigenous Mexican, Central or South American category, but none of the Hispanic or Latino/a/x subcategories.

Are there discernable patterns in non-responses?

Non-randomized patterns in non-responses to the race and ethnicity question were not detected. A spot check of a few OHP applications revealed a couple of instances where the applicant wrote "Native American" and answered the questions about tribal membership but did not select any of the racial and ethnic identity categories in the next question. However, without analyzing the open-text responses to the question "How do you identify your race, ethnicity, tribal affiliation, country of origin, or ancestry?", we are limited in further understanding this.

Among those who answered the race and ethnicity questions, to what extent were the "other" categories used?

Five of the seven major racial and ethnic identity categories contain an option for "other" racial and ethnic subgroups (Table 6). Enrollees who identified as "Other White" (85% of all whites) appeared to use this option most. The higher percentages of those picking Other Pacific Islander (41% of all NHPI) or Other Hispanic or Latino/a/x (35% of all Latino/a/x) may be slightly inflated.† The percentage of these individuals selecting another identity within the major race group ranged from 13% (Other White) to 46% (Other Hispanic/Latino/a/x (Figure 2).

* Because nearly 3,000 applicants had just one or more older aggregated race category(ies), and because one could also have more than one identity within a "parent" (aggregate) group, the granular subcategories will not add up to the total in the "parent" or broader racial and ethnic identity category.

† Slight inflation may be due to older racial codes such as "Cuban" coded as other Hispanic in this assessment. In some cases, the individual had a response to the older ethnicity question (Hispanic) but a non-response to the REALD racial and ethnic identity questions; these cases were then recoded as "other Latino/a/x" for this assessment.

Comparison of granular racial and ethnic identities of enrollees to the ACS estimates are fraught with differences in how the granular categories were constructed; for example, the ACS does not provide an option for "Other White." That said, it could be informative to compare the granular categories for certain groups to help guide future explorations of how effective these categories might be in capturing how individuals identify. ACS estimates of Oregonians receiving Medicaid (excluding those age 66 and older) in Oregon suggest that 38% of White Oregonians have a Western European ancestry. However, in the OHP sample, only 10% of those with White identities selected Western European (Table 6). The difference may well be a function of how people identify versus imputation of ACS data using ancestry, language and place of birth information (see Appendix D for more information). It is also possible that many people chose "Other White" because they do not know the specificity of their White origins. In the context of how race is socially constructed and the construction of "whiteness" in the United States with the historical benefits of giving up one's ethnicity to be White, the high number of "Other White" is not surprising (15). Had we asked about ancestry as well, it is possible that a different picture would have emerged that was more congruent with ACS estimates.

Another reason for selecting an "other" category may simply be due to the limitations of the categories provided. For example, approximately 41% of those selecting a "Native Hawaiian and Pacific Islander" category selected "Other Pacific Islander" (Table 6). This may be due to the many racial and ethnic identities subsumed within the "Pacific islander" category than what is offered. Interestingly, the proportion of Samoans and Tongans are lower compared to the ACS estimates (Table 6).

Similarly, approximately 35% of those indicating a Latino/a/x ethnic identity picked "Other Hispanic or Latino/a/x." This may well be due to other identities not captured by the three Hispanic subcategories; e.g., someone who identified as Cuban or Puerto Rican may select "Other Hispanic or Latino/a/x." One way to unpack this further would be to ask enrollees why they selected "Other Hispanic or Latino/a/x."

Table 6: Granular racial/ethnic identities by OHP sample compared to ACS 2016 estimates

	OHP sample (n = 99,023)			ACS Medicaid (n = 763,192)				ACS all (n = 3,397,617)			
	Number	C%	S%	Number	C%	MOE	S%	Number	C%	MOE	S%
American Indian and Alaska Native	7,624	6.8	100	44,466	5.8	0.3	100	117,501	3.5	0.1	100
American Indian	5,870	5.3	77.0	20,655	2.7	0.2	46.5	56,057	1.7	0.1	47.7
Alaska Native	591	0.5	7.8	372	0.1	0.0	0.8	1,480	0.0	0.0	1.3
Indigenous Mexican, Central and/or South American	993	0.9	13.0	3,397	0.5	0.1	7.6	8,578	0.3	0.0	7.3
Canadian Inuit, Metis, First Nation*	37	0.0	0.5	21,982	2.9	0.3	49.4	56,474	1.7	0.1	48.1
Asian	3,102	2.8	100	33,733	4.4	0.3	100	202,312	6.0	0.1	100
Asian Indian	153	0.1	4.9	1,942	0.3	0.1	5.8	24,381	0.7	0.1	12.1
Chinese	604	0.5	19.5	8,982	1.2	0.1	26.6	49,163	1.5	0.1	24.3
Filipino	525	0.5	16.9	5,609	0.7	0.1	16.6	32,082	0.9	0.1	15.9
Hmong	36	0.0	1.2	496	0.1	0.0	1.5	3,273	0.1	0.0	1.6
Japanese	310	0.3	10.0	3,240	0.4	0.1	9.6	27,068	0.8	0.1	13.4
Korean	295	0.3	9.5	2,523	0.3	0.1	7.5	20,005	0.6	0.1	9.9
Laotian	62	0.1	2.0	849	0.1	0.1	2.5	5,166	0.2	0.0	2.6
Vietnamese	492	0.4	15.9	6,798	0.9	0.1	20.2	31,400	0.9	0.1	15.5
South Asian	62	0.1	2.0	2,072	0.3	0.1	6.1	5,643	0.2	0.0	2.8
Other Asian	589	0.5	19.0	4,414	0.6	0.1	13.1	17,484	0.5	0.0	8.6
Black/African American	6,131	5.5	100	39,973	5.2	0.3	100	102,225	3.0	0.1	100
African American	4,410	4.0	71.9	18,318	2.4	0.2	45.8	47,149	1.4	0.1	46.1
African	505	0.5	8.2	4,834	0.6	0.1	12.1	10,788	0.3	0.0	10.6
Caribbean	82	0.1	1.3	721	0.1	0.0	1.8	3,532	0.1	0.0	3.5
Other Black	967	0.9	15.8	16,100	2.1	0.2	40.3	40,793	1.2	0.1	39.9
Hispanic or Latino/a/x	19,081	17.1	100	174,267	22.8	0.6	100	479,411	14.1	0.2	100
Mexican	11,419	10.2	59.8	153,731	20.1	0.6	88.2	405,148	11.9	0.2	84.5
Central American	1,078	1.0	5.6	5,878	0.8	0.1	3.4	21,834	0.6	0.1	4.6
South American	383	0.3	2.0	2,144	0.3	0.1	1.2	12,731	0.4	0.0	2.7
Other Latino/a/x	6,681	6.0	35.0	12,996	1.7	0.2	7.5	42,131	1.2	0.1	8.8

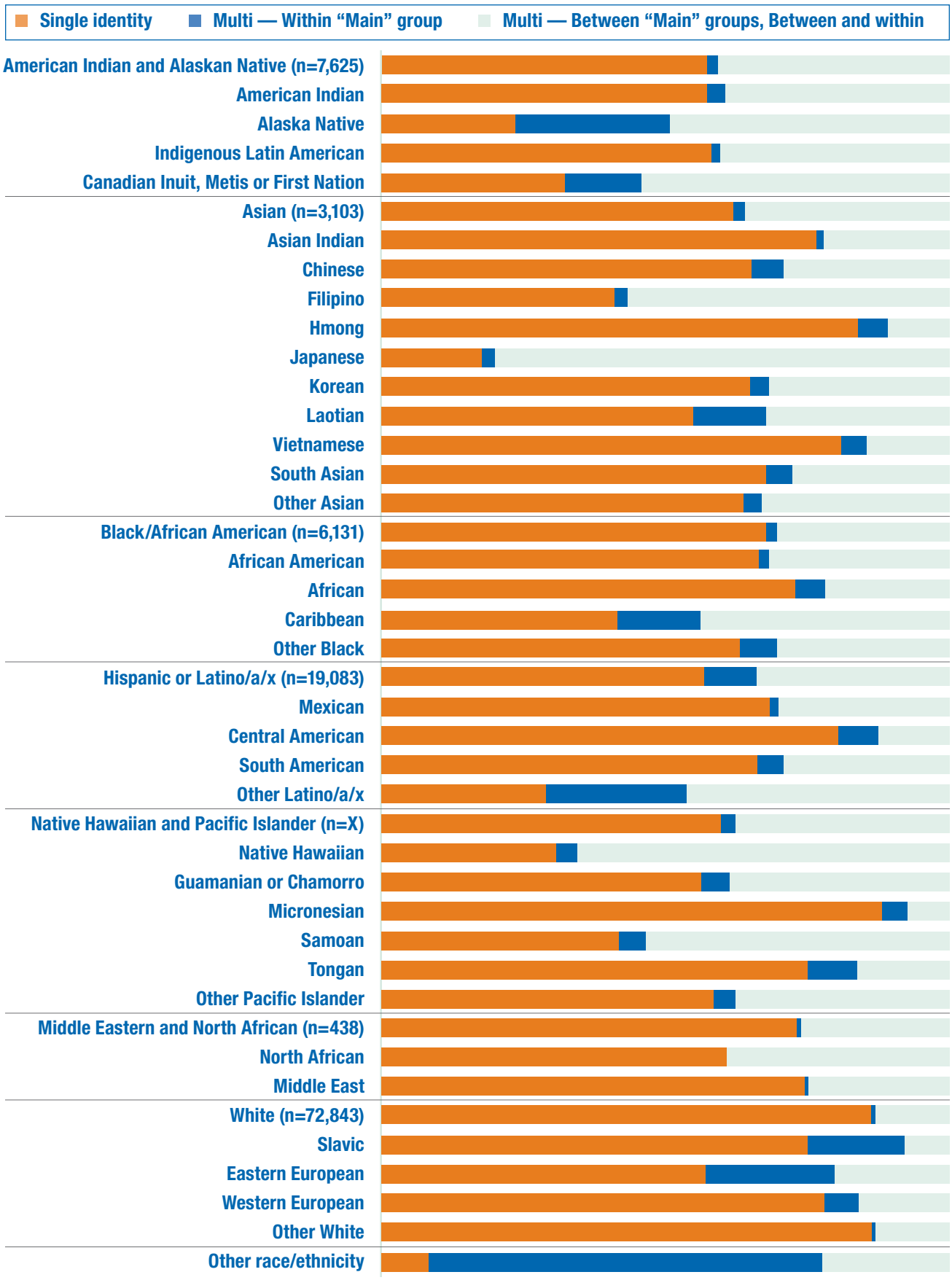
* The "Canadian Inuit, Metis, or First Nation" category is not directly captured by ACS; those identifying as "other AIAN" using ACS were put into this category. Thus, comparisons of people in this category in MMIS to ACS is not recommended.

	OHP sample (n = 99,023)			ACS Medicaid (n = 763,192)				ACS all (n = 3,397,617)			
	Number	C%	S%	Number	C%	MOE	S%	Number	C%	MOE	S%
Native Hawaiian and Pacific Islander	1,471	1.3	100	8,170	1.1	0.2	100	28,626	0.8	0.1	100
Native Hawaiian	261	0.2	17.7	2,955	0.4	0.1	36.2	9,750	0.3	0.0	34.1
Guamanian or Chamorro	107	0.1	7.3	287	0.0	0.0	3.5	2,118	0.1	0.0	7.4
Micronesian*	276	0.2	18.8	1,829	0.2	0.1	22.4	5,139	0.2	0.0	18.0
Samoan	126	0.1	8.6	936	0.1	0.1	11.5	2,676	0.1	0.0	9.3
Tongan	37	0.0	2.5	475	0.1	0.0	5.8	1,160	0.0	0.0	4.1
Other Pacific Islander	601	0.5	40.9	1,941	0.3	0.1	23.8	8,781	0.3	0.0	30.7
Middle Eastern and North African	438	0.4	100	6,560	0.9	0.1	100	26,813	0.8	0.1	100
North African	59	0.1	13.5	313	0.0	0.0	4.8	2,095	0.1	0.0	7.8
Middle Eastern	383	0.3	87.4	6,346	0.8	0.1	96.7	25,693	0.8	0.1	95.8
White	72,836	65.2	100	646,871	84.8	0.5	100	2,969,366	87.4	0.2	100
Slavic	650	0.6	0.9	14,692	1.9	0.2	2.3	55,974	1.7	0.1	1.9
Eastern European	1,046	0.9	1.4	10,629	1.4	0.2	1.6	79,699	2.4	0.1	2.7
Western European	7,604	6.8	10.4	247,166	32.4	0.6	38.2	1,447,251	42.6	0.3	48.7
Other White	61,864	55.4	84.9	374,687	49.1	0.7	57.9	1,387,011	40.8	0.3	46.7
Other race/ethnicity	2,479	2.2	100	938	0.1	0.1	na	3,415	0.1	0.0	na
Total identities (not people)	111,637			961,247				3,953,122			

Note: MOE = Margin of error (95% confidence intervals); use caution if the MOE is large relative to the estimate (% in preceding column). C% = Column percentages. S% = Subgroup percentages. Counts are of identities, not individuals. Excluded those older than age 65 and in the military to aid comparisons between sample and ACS. Use caution in comparing OHA figures to ACS figures due to differences in how racial/ethnic identities for subgroups were identified (see Appendix D for more information).

* The Micronesian category was intended to capture people affected by the Compact of Free Association (COFA) that includes those from the Federated States of Micronesia (Yap, Chuuk, Pohnpei and Kosrae), Palau and the Marshall Islands.

Figure 2: Racial ethnic identities: alone and in combination (%, all ages)



3. Disability: What can we infer from this analytic sample?

Is the profile of OHP enrollees similar to the 2016 ACS estimates of Oregonians receiving Medicaid?

The profile of OHP enrollees was similar to ACS estimates of people with disabilities generally, but not with people with disabilities receiving insurance through Medicaid (Table 7a). Overall, 12% of enrollees have a disability/limitation of some type compared to 21% of those receiving Medicaid (ACS estimates).

Table 7a: Disability among new OHP enrollees compared to ACS 2016 estimates

	OHP sample		ACS 2016 estimates for Oregon					
			Medicaid			All		
	Number	%	Number	%	MOE	Number	%	MOE
Non-disabled	85,645	87.78	601,403	78.8	0.6	3,027,159	89.1	0.2
Disability	11,926	12.2	161,789	21.2	0.6	370,458	10.9	0.2
Activity limitation difficulty only	2,241	2.3	Not available					
Deaf/hard of hearing only	630	0.65	8,792	1.2	0.1	44,391	1.3	0.1
Blind/low vision only	893	0.92	7,788	1.0	0.1	26,320	0.8	0.1
Mobility only	989	1.01	36,448	4.8	0.3	75,536	2.2	0.1
Cognitive/memory only	2,515	2.58	17,157	2.2	0.2	50,800	1.5	0.1
Two or more disabilities	1,144	1.17	17,704	2.3	0.2	42,089	1.2	0.1
Self-care and/or independent living*	3,514	3.6	73,900	9.7	0.4	131,322	3.9	0.1
Total	**97,571**	**100**	**763,192**	**100**		**3,397,617**	**100**	

Note: MOE = Margin of error (95% confidence intervals); use caution if the MOE is large relative to the estimate (% in preceding column). Excluded those older than age 65 and or in the military to aid comparisons between sample and ACS.

The large number of "did not answer" responses (35% overall) may be affecting the profile of enrollees (Table 7b). It is also possible the Census's imputation of unknown, refusals and missing responses is creating some of these discrepancies. For example, a study conducted by Siorida and Young (16) on the Census's imputation of disability items on the ACS indicated a greater need for imputations of responses to the missing responses to the disability questions among Latino/a/x, older people and those who are limited in English proficiency; this may be the case for individuals in this sample.

* Includes those with self-care and/or independent living difficulties; many may have other disabilities as well.

Table 7b: Responses to disability questions among OHP enrollees

	Number	Column %	Subgroup %
Non-disabled	85,648	54.4	87.8
Activity limitation difficulty only	2,241	1.4	2.3
Deaf/hard of hearing only	631	0.4	0.6
Blind/low vision only	893	0.6	0.9
Mobility only	989	0.6	1.0
Cognitive/memory only	2,515	1.6	2.6
Two or more disabilities*	1,144	0.7	1.2
Two or more disabilities including self-care and/or independent living difficulties	3,517	2.2	3.6
Subtotal	**97,578**	**61.9**	**100**
Decline	2,076	1.3	43.0
Unknown	2,748	1.7	57.0
Subtotal	**4,824**	**3.0**	**100**
Not questioned	245	0.2	0.4
Did not answer	54,919	34.9	99.6
Subtotal	55,164	35.1	100
Total	**157,566**	**100**	**100**

Note: Disability composite variable with unduplicated counts is represented here. Not everyone answered all seven questions.

Are there discernable patterns in non-responses?

There were no discernable patterns in non-responses with respect to disability questions. That said, it was odd that 2,241 individuals who reported having an activity limitation due to a "physical, mental or emotional condition" did not indicate having another limitation of any type (Table 7a, 7b). This suggests a need for further exploration to learn if there is another type of functional limitation not captured by the other six disability questions. It also indicates a need for validation protocol within the ONE system.

Most applicants younger than age 66 with disabilities indicated having just one limitation (66%); less than 5% indicated having four or more limitations (Table 8). In contrast, ACS data of people younger than age 66 with disabilities receiving Medicaid indicated that approximately 13% had four or more limitations. Overall, approximately 9% of Oregonians younger than age 66 with disabilities indicated having four or more limitations.

* Excluding those with self-care and or independent living difficulties.

Table 8: Number of limitations reported by new OHP enrollees compared to ACS 2016 estimates

	OHP sample		ACS 2012–2016 Oregon estimates					
			Medicaid			All		
	Number	%	Number	%	MOE	Number	%	MOE
None	85,645	87.8	601,403	78.8	0.6	3,027,159	89.1	0.2
1	7,806	8	76,964	10.1	0.4	211,558	6.2	0.2
2	2,591	2.7	40,308	5.3	0.3	82,630	2.4	0.1
3	966	1.0	23,120	3.0	0.2	42,126	1.2	0.1
4	436	0.5	14,910	2.0	0.2	23,237	0.7	0.1
5	102	0.1	5,016	0.7	0.1	7,969	0.2	0.0
6	25	0.03	1,471	0.2	0.1	2,938	0.1	0.0
Total	**97,571**	**100**	**763,192**	**100**		**3,397,617**	**100**	

Note: MOE = Margin of error (95% confidence intervals); use caution if the MOE is large relative to the estimate (% in preceding column). Excluded those older than age 65 and or in the military to aid comparisons between sample and ACS.

A visual scan of Table 9 reveals similarities in response rates for each disability question. These response rates do not suggest a systematic pattern in non-responses or social desirability bias. Rather, the responses are relatively similar across all disability questions. That said, the "did not answer" responses are highest for the activity limitation question (33%). It is possible that the large number of "did not answer" responses resulted in an underestimate of the number of OHP enrollees with disabilities as well as the number of limitations among enrollees.

It is odd that approximately 2.5% of the sample had a "not questioned" or null response for the disability questions relating to mobility, cognitive and self-care, and independent living limitations for reasons not related to their age; the number was lower (n=245) for hearing, vision and activity limitations (Table 9).

To what extent did those who reported a disability also answer the age follow-up question?

If an enrollee answered "yes" to having a specific limitation such as hearing, vision, mobility, memory/cognitive, doing errands (independent living) or bathing/dressing (self-care), that person would be asked the age follow-up question ("…at what age did this condition begin?"). Those who only indicated having an activity limitation were not asked about the age the (general) activity limitation began.

Ninety-six percent of enrollees (9,302 of 9,689) answered at least one of the age follow-up questions if they indicated having one or more of six specific limitations. The percentage of those who indicated having a disability but skipped the age follow-up question ranged from 3% (mobility) to 5% (vision). We recommend checking

to see if the presentation and format of the age follow-up question is clearly accessible to those with vision limitations (Table 10a).

There were 664 "did not answer" responses (387 enrollees) and 52 responses (41 enrollees) reflecting data quality issues (in which the current age was less than when the disability was acquired). Individuals with vision limitations (5%; Table 10a) made up the group with the highest percentage of missing responses. We recommend clarifying if this relates to how the question is formatted and placed in the ONE system.

One-third of the sample of people with disabilities acquired their disability before age 18, and currently are between the age of 18 and 44. This may reflect the impact disability, as a social determinant of health, has on enrolling in OHP. Approximately 22% of the sample was older than 44 years and acquired their disability after age 25 (Table 10b). See Appendix E (Table E1, E2, E3) for more information by disability type and age acquired.

Table 9: Disability alone and in combination

	Hearing			Vision			Mobility			Cognitive		
	Number	C%	S%	Number	C%	MOE	Number	C%	MOE	Number	C%	MOE
No DA	85,116	54.0	87.9	85,089	54.0	87.9	75,098	54.5	86.7	74,660	54.2	86.8
Not this DA	10,203	6.5	10.5	9,775	6.2	10.1	8,584	6.2	9.9	5,789	4.2	6.7
This DA only	631	0.4	0.7	893	0.6	0.9	989	0.7	1.1	2,515	1.8	2.9
This DA+	844	0.5	0.9	1,019	0.6	1.1	1,984	1.4	2.3	3,081	2.2	3.6
Subtotal	**96,794**	**61.4**	**100**	**96,776**	**61.4**	**100**	**86,655**	**62.9**	**100**	**86,045**	**62.4**	**100**
Declined	2,034	1.3	41.2	2,036	1.3	40.6	1,957	1.4	48.6	2,277	1.7	46.4
Unknown	2,903	1.8	58.8	2,975	1.9	59.4	2,070	1.5	51.4	2,629	1.9	53.6
Subtotal	**4,937**	**3.1**	**100**	**5,011**	**3.2**	**100**	**4,027**	**2.9**	**100**	**4,906**	**3.6**	**100**
Null/blank							177	0.1	0.4	177	0.1	0.4
DN	55,590	35.3	99.6	55,534	35.2	99.6	45,912	33.3	97.3	45,643	33.1	97.3
NQ	245	0.2	0.4	245	0.2	0.4	1,074	0.8	2.3	1,074	0.8	2.3
Subtotal	**55,835**	**35.4**	**100**	**55,779**	**35.4**	**100**	**47,163**	**34.2**	**100**	**46,894**	**34.0**	**100**
Total	**157,566**	**100**		**157,566**	**100**		**137,845**	**100**		**137,845**	**100**	
Age NA							**19,721**	**12.5**		**19,721**	**12.5**	

	Self-care			Independent living			Activity limitations		
	Number	C%	S%	Number	C%	MOE	Number	C%	MOE
No DA	75,166	54.5	86.7	65,041	56.6	85.8	75,009	50.8	86.7
Not this DA	10,580	7.7	12.2	7,628	6.6	10.1	4,002	2.7	4.6
This DA only	37	0.0	0.0	502	0.4	0.7	2241	1.5	2.6
This DA+	907	0.7	1.0	2,655	2.3	3.5	5,275	3.6	6.1
Subtotal	**86,690**	**62.9**	**100**	**75,826**	**65.9**	**100**	**86,527**	**58.6**	**100**
Declined	1,916	1.4	48.9	1,891	1.6	47.8	2,436	1.7	47.7
Unknown	2,003	1.5	51.1	2,061	1.8	52.2	2,674	1.8	52.3
Subtotal	**3,919**	**2.8**	**100**	**3,952**	**3.4**	**100**	**5,110**	**3.5**	**100**
Null/blank	153	0.1	0.4				177	0.1	0.4
DN	34,167	29.7	97.0	55,674	37.7	99.6	45,912	33.3	97.3
NQ	916	0.8	2.6	245	0.2	0.4	1,074	0.8	2.3
Subtotal	**35,236**	**30.6**	**100**	**55,919**	**37.9**	**100**	**47,163**	**34.2**	**100**
Total	**115,014**	**100**		**147,556**	**100**		**137,845**	**100**	
Age NA	**42,552**	**27.0**		**10,010**	**6.4**		**19,721**	**12.5**	

Note: N = 157,566; C% = column %; S% = % within subgroup; DA = disability; DA+ = this disability plus one or more; NQ= not questioned; DN = did not answer. Age NA = people who because of age were not asked the disability question; the total and column percent for this row is based on an N of 157,566. There are age limitations to some of the disability questions: questions about hearing and vision are asked of all individuals; questions about activity limitations, mobility (stairs), memory, concentrating or remembering (cognitive) and self-care (dressing) are asked only if the individual is age 5 or more. The question about independent living (errands) is asked only of those age 15 or older.

Table 10a: OHP enrollees by disability and age-acquired disability

	Hearing		Vision		Mobility		Cognitive		Self-care		Independent living	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Missing age	49	3.3	98	5.1	87	2.9	244	4.4	34	3.6	152	4.8
DQ	9	0.6	4	0.2	16	0.5	13	0.2	4	0.4	6	0.2
Age 0–4	316	21	262	14	113	3.8	772	14	60	6.4	251	8
Age 5–14	222	15	483	25	122	4.1	1,752	31	34	3.6	566	17.9
Age 15–17	68	4.6	99	5.2	88	3	439	7.8	24	2.5	250	7.9
Age 18–24	179	12	141	7.4	275	9.3	622	11	73	7.7	500	15.8
Age 25–34	162	11	132	6.9	492	17	595	11	162	17.2	468	14.8
Age 35–44	201	14	248	13	571	19	475	8.5	184	19.5	372	11.8
Age 45–54	185	13	296	16	747	25	452	8.1	223	23.6	368	11.7
Age 55–64	83	5.6	149	7.8	461	16	232	4.2	146	15.5	222	7
Age 65 and older	1	0.1	0	0	1	0	0	0	0	0	2	0.1
Total	**1,475**	**100**	**1,912**	**100**	**2,973**	**100**	**5,596**	**100**	**944**	**100**	**3,157**	**100**
Mean age (SD; age range)	23.5 (18.8; 0-70)		25.4 (19.4; 0-64)		38.1 (15.8; 0-92)		20.3 (16.5; 0-64)		37.5 (16.6; 0-64)		26.6 (16.9; 0-75)	

Note: DQ = data quality issues as age acquired disability was greater than current age; SD = standard deviation. Number of enrollees with at least one disability/limitation was 9,689. There were 52 data quality issues among 41 individuals (0.4%); 387 (4%) of the 9,689 individuals did not answer at least one age follow-up question.

Table 10b: OHP enrollees by disability and earliest age acquired any disability

Current age/age acquired disability	Hearing only		Vision only		Mobility only		Cognitive only		2+ disabilities		Self-care/IL*		All	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
< age 18 /1 year ago	16	2.6	38	4.5	2	0.2	47	1.9	2	0.2	8	0.2	113	1.2
< age 18/<age 18	81	13.2	124	14.6	8	0.8	378	15.5	77	7.0	91	2.7	759	8.1
18–44/1 year ago	22	3.6	44	5.2	100	10.4	123	5.0	10	0.9	260	7.7	559	6.0
18–44/<age 18	169	27.6	279	32.7	73	7.6	1,114	45.6	292	26.6	1,215	36.1	3,142	33.7
18–44/age 19–24	41	6.7	34	4.0	30	3.1	160	6.5	51	4.6	258	7.7	574	6.2
18–44/age 25+	50	8.2	56	6.6	136	14.2	212	8.7	65	5.9	353	10.5	872	9.3
45+/1 year ago	13	2.1	47	5.5	146	15.2	52	2.1	20	1.8	232	6.9	510	5.5
45+/<age 18	53	8.7	60	7.0	28	2.9	112	4.6	162	14.7	215	6.4	630	6.8
45+/age 19–24	18	2.9	8	0.9	14	1.5	18	0.7	34	3.1	42	1.2	134	1.4
45+/Age 25+	149	24.3	162	19.0	422	44.0	228	9.3	386	35.1	688	20.5	2,035	21.8
Total	**612**	**100**	**852**	**100**	**959**	**100**	**2,444**	**100**	**1,099**	**100**	**3,362**	**100**	**9,328**	**100**

Note: N = 9,328 (does not include those with only an activity limitation). IL = independent living. 428 individuals (4.4%) either did not answer the age follow-up question to when acquired disability, or their current age was less than age acquired (data quality issue).

* May have other disabilities as well.

4. Language: What can we infer from this analytic sample?

This section will first describe what we know about enrollees who answered one or more of the six REALD language questions.

Preferred language (spoken and written)

When an applicant is asked "In what language do you want us to write to you?" that individual selects from a limited list of languages. This list is not as exhaustive as the list of options for the question "In what language do you want us to speak with you?" This may be because there had never been a request for that particular language, or it may be because the number of requests for that language fell below the "safe harbor" threshold.* This led to the larger number of undetermined responses for written languages compared to spoken languages (Table 11a). Additionally, because English is imputed in MMIS if the applicant skipped the preferred written and spoken languages questions, we cannot assume the applicant selected English from the list of languages.

A comparison of responses to preferred spoken language in the ONE system to the ACS question ("Do you speak another language other than English at home?") is limited because the questions are different. That said, it is notable that while the ACS estimates suggest that approximately 22% of Oregonians receiving Medicaid (ages 5–65) report speaking a primary language at home that is not English, less than 10% of OHP enrollees indicated a preference for OHA staff to speak or write to them in a language other than English (Table 11b).

Nearly all enrollees (99%) preferring written materials in a language other than English also indicated having a preferred spoken language other than English. Nearly 550 enrollees (ages 5+) said they prefer that OHA write to them in English but use another language for speaking. Written language preference was unknown or undetermined for 584 individuals who preferred a spoken language other than English (Table 11c).

English proficiency

The number of individuals answering "well," "not well" and "not at all" about their English proficiency was 13,438 (15% of 87814) (Table 12a). The Census Bureau would

* OHA can use the safe harbor provision threshold under Title VI regulations. This means if the program provides written translations under these circumstances, such action will be considered strong evidence of compliance with Title VI written-translation obligations. Safe harbor for written translations of vital documents for each eligible LEP language group are those that constitute 5 percent or 1,000, whichever is less, of the population of persons eligible to be served or likely to be affected or encountered.

consider these individuals limited in English proficiency. Comparisons of how OHP enrollees answered the English proficiency question to the American Community Survey indicate substantial differences (Table 12b). The profile of enrollees with limited English proficiency (LEP) becomes fuzzier when considering preferred spoken language; of those who prefer to speak English, 8% are limited in English proficiency. When we excluded enrollees, who preferred OHA talk to them in English, the percentage of people reporting limited English proficiency changed drastically but still did not come close to the ACS Medicaid estimates.

Table 11a: Primary written and spoken language

Primary written language	Number	%	% without English	Primary spoken language	Number	%	% without English
English	121,200	87.9		English	124,332	90.2	
Spanish	11,205	8.1	91.8	Spanish	11,421	8.3	86.3
Russian	355	0.3	2.9	Russian	387	0.3	2.9
Vietnamese	241	0.2	2.0	Cantonese, Mandarin, Chinese	304	0.2	2.3
Cantonese, Mandarin, Chinese	229	0.2	1.9	Vietnamese	269	0.2	2.0
Somali	56	0.0	0.5	Arabic	182	0.1	1.4
Arabic	21	0.0	0.2	Korean	81	0.1	0.6
Korean	19	0.0	0.2	Somali	72	0.1	0.5
Amharic	9	0.0	0.1	Swahili	70	0.1	0.5
Swahili	9	0.0	0.1	Hmong, Mong, Mien	52	0.0	0.4
Marshallese	7	0.0	0.1	Amharic	40	0.0	0.3
Burmese, Falam, Mon, Zomi	6	0.0	0.0	Farsi/Persian	47	0.0	0.4
Nepali	6	0.0	0.0	Other Pacific Islander	28	0.0	0.2
Farsi/Persian	5	0.0	0.0	Pashto,Pashtu	28	0.0	0.2
Oromo	5	0.0	0.0	Marshallese	21	0.0	0.2
Laotian	4	0.0	0.0	Nepali	21	0.0	0.2
Tongan	4	0.0	0.0	French	17	0.0	0.1
Hmong, Mong, Mien	3	0.0	0.0	Oromo	16	0.0	0.1
Other Pacific Islander	3	0.0	0.0	Thai	16	0.0	0.1
Pashto,Pashtu	3	0.0	0.0	Tigrinya	16	0.0	0.1
Tigrinya	3	0.0	0.0	Tagalog	15	0.0	0.1
French Creole	2	0.0	0.0	Punjabi	13	0.0	0.1
Portuguese	2	0.0	0.0	Laotian	12	0.0	0.1
Albanian	1	0.0	0.0	Afrikaans	10	0.0	0.1
Central American Indian	1	0.0	0.0	Japanese	9	0.0	0.1
Dutch	1	0.0	0.0	Karen	9	0.0	0.1
Hebrew	1	0.0	0.0	Cambodian	8	0.0	0.1
Japanese	1	0.0	0.0	Romanian	8	0.0	0.1

Primary written language	Number	%	% without English	Primary spoken language	Number	%	% without English
Karen	1	0.0	0.0	Tongan	7	0.0	0.1
Tagalog	1	0.0	0.0	Bosnian	4	0.0	0.0
Thai	1	0.0	0.0	Hebrew	4	0.0	0.0
				Hindi	4	0.0	0.0
				Samoan	4	0.0	0.0
				French Creole	3	0.0	0.0
				Gujarati	3	0.0	0.0
				Indonesian	3	0.0	0.0
				Italian	3	0.0	0.0
				North American Indian	3	0.0	0.0
				Portuguese	3	0.0	0.0
				Taiwanese	3	0.0	0.0
				Albanian	2	0.0	0.0
				Bengali	2	0.0	0.0
				Central American Indian	2	0.0	0.0
				Kurdish	2	0.0	0.0
				Polish	2	0.0	0.0
				Serbian	2	0.0	0.0
				Armenian	1	0.0	0.0
				Dutch	1	0.0	0.0
				German	1	0.0	0.0
				Haitian Creole	1	0.0	0.0
				Tongan	1	0.0	0.0
				Sign languages	2	0.0	
Undetermined	4,410	3.2		Undetermined	272	0.2	
Unknown	30	0.0		Unknown	6	0.0	
Total	**137,845**	**100**	**100**	**Total**	**137,845**	**100**	**100**
Total excluding English & unknowns		12,205 (8.9%)		Total excluding English & unknowns		13,233 (9.6%)	

Note: Excluded enrollees younger than 5 years of age.

Table 11b: Preferred spoken language if other than English compared to ACS 2016 estimates

	OHP sample		ACS 2012–2016 Oregon estimates					
			Medicaid			All		
	Number	%	Number	%	MOE	Number	%	MOE
No	124,321	90.4	512,467	78.4	0.7	2,642,078	83.4	0.3
Yes	13,233	9.6	141,100	21.6	0.7	525,933	16.6	0.3
Total	**137,554**	**100**	**653,567**	**100**		**3,168,011**	**100**	

Note: MOE = margin of error (95% confidence intervals); use caution if the MOE is large relative to the estimate (% in preceding column). Excluded those under age 5 and those older than age 66, as well as those with unknown or undetermined preferred spoken language, to aid comparability to ACS data. Use caution in comparing the sample to ACS as the question is phrased differently in both (ACS question is "Do you speak another language other than English at home?" because the REALD question is: "In which language do you prefer to speak to us?").

Table 11c: Number of responses to English as preferred language compared to not English

Preferred written language	Preferred spoken language									Total		
	English			Not English			Unknown					
	Number	C%	R%	Number	C%	R%	Number	C%	R%	Number	C%	R%
English	120,622	97.0	99.5	545	4.1	0.4	33	11.9	0.0	121,200	87.9	100
Not English	95	0.1	0.8	12,106	91.5	99.2	4	1.4	0.0	12,205	8.9	100
Unknown	3615	2.9	81.4	584	4.4	13.2	241	86.7	5.4	4,440	3.2	100
Total	**124,332**	**100**	**90.2**	**13,235**	**100**	**9.6**	**278**	**100**	**0.2**	**137,845**	**100**	**100**

Note: C% = column percentages; R% = row percentages. Unknown also includes undetermined. Excluded people under age 5.

Table 12a: Responses to English proficiency questions among OHP enrollees

		Number	Column %	Subgroup %
English proficiency	Very well	74,376	47.2	84.7
Limited English proficiency	Well	7,171	4.6	8.2
	Not well	3,293	2.1	3.7
	Not at all	2,974	1.9	3.4
Subtotal		**87,814**	**55.7**	**100**
Declined		703	0.4	31.9
Unknown		1,499	1.0	68.1
Subtotal		**2,202**	**1.4**	**100**
Null/blank		10	0.0	0.0
Under age 5		19,721	12.5	29.2
Not questioned		102	0.1	0.2
Did not answer		47,717	30.3	70.6
Total		**157,566**	**100**	

Table 12b: Response to English proficiency question compared to ACS 2016 estimates

	Sample				ACS 2012–2016 Oregon estimates (of those indicating primary language other than English)					
	All		Preferred spoken language is not English*		Medicaid			All		
	Number	%	Number	%	Number	%	MOE	Number	%	MOE
Very well	74,370	84.7	2,256	23.9	93,013	65.9	1.7	324,701	61.8	0.9
Well	7,170	8.17	1,625	17.3	22,923	16.2	1.3	98,858	18.8	0.7
Not well	3,293	3.75	2,777	29.5	16,967	12.0	1.2	73,406	14.0	0.6
Not at all	2,972	3.38	2,765	29.3	8,197	5.8	0.9	28,611	5.4	0.4
Total	**87,805**	**100**	**9,497**	**100**	**141,100**	**100**		**525,576**	**100**	

Note: MOE = margin of error (95% confidence intervals); use caution if the MOE is large relative to the estimate (% in preceding column). Excluded those under age 5 and those older than age 66, as well as those with unknown or undetermined preferred spoken language, to aid comparability to ACS data.

* The ACS only asks about English proficiency of those age 5 or older, and if the primary language spoken at home is not English. For these reasons, to assess comparability to ACS data, we selected this subgroup in which the preferred spoken language was reported not to be English.

Need for interpreter (language and sign)

The first interpreter question is a general language interpreter question: "Do you need an interpreter?" The second interpreter question is more specific: "Do you need a sign language interpreter?" Of those who answered the interpretation question, 9% indicated a need for language interpretation, and 0.3% indicated a need for sign language interpretation (Table 13a).

When comparing responses to both questions across individuals, similarities were found in all categories; those who declined or indicated that they "don't know" to one of the interpretation questions tended to do the same on the other interpretation question (Table13b). Of those who said yes to needing sign language interpretation, 73% (248 of 339) indicated a need for language interpretation. This may be due to the ambiguity in the wording of the language interpretation; by not specifying "spoken" or "oral" language interpretation, people who indicated a need for sign interpretation may have thought both questions applied.

Table 13a: Response to interpreter questions

	Need language interpreter			Need sign language interpreter		
	Number	Column %	Subgroup %	Number	Column %	Subgroup %
No	92,875	58.9	91.4	100,967	64.1	99.7
Yes	8,736	5.5	8.6	339	0.2	0.3
Subtotal	**101,611**	**64.5**	**100**	**101,306**	**64.3**	**100**
Declined	663	0.4	66.2	659	0.4	71.3
Don't know	338	0.2	33.8	265	0.2	28.7
Subtotal	**1,001**	**0.6**	**100**	**924**	**0.6**	**100**
Null/blank	74	0.1	0.1	74	0.1	0.1
Not questioned	61	0.0	0.1	61	0.0	0.1
Did not answer	54,819	34.8	99.8	55,201	35	99.8
Subtotal	**54,954**	**34.9**	**100**	**55,336**	**35.1**	**100**
Total	**157,566**	**100**		**157,566**	**100**	

Table 13b: Sign language and language interpretation responses compared

Sign interpreter needed?	Language (spoken) interpreter needed?							Total
	No	Yes	Declined	DK	Null/blank	NQ	DN	
No	92,380 (99.5%) [91.5%]	8,317 (95.2%) [8.2%]	11 (1.7%) [0.0%]	111 (32.8%) [0.1%]			148 (0.3%) [0.1%]	100,967 (64.1%) [100%]
Yes	88 (0.1%) [26.0%]	248 (2.8%) [73.2%]					3 (0.0%) [0.9%]	339 (0.2%) [100%]
Declined	4 (0.0%) [0.6%]	5 (0.1%) [0.8%]	647 (97.6%) [98.2%]	1 (0.3%) [0.2%]			2 (0.0%) [0.3%]	659 (0.4%) [100%]
Don't know	29 (0.0%) [10.9%]	11 (0.1%) [4.2%]		223 (66.0%) [84.2%]			2 (0.0%) [0.8%]	265 (0.2%) [100%]
Null/blank					74 (100%) [100%]			74 (0.0%) [100%]
NQ						61 (100%) [100%]		61 (0.0%) [100%]
DN	374 (0.4%) [0.7%]	155 (1.8%) [0.3%]	5 (0.8%) [0.0%]	3 (0.9%) [0.0%]			54,664 (99.7%) [99.0%]	55,201 (35.0%) [100%]
Total	**92,875** **(100%)** **[58.9%]**	**8,736** **(100%)** **[5.5%]**	**663** **(100%)** **[0.4%]**	**338** **(100%)** **[0.2%]**	**74** **(100%)** **[0.0%]**	**61** **(100%)** **[0.0%]**	**54,819** **(100%)** **[34.8%]**	**157,566** **(100%)** **[100%]**

Note: DK = don't know; NQ = not questioned; DN = did not answer; ( ) = column percentages; [ ] = row percentages.

Alternate formats

Less than 1% of the analytic sample requested alternate formats; of these individuals, most requested materials in large print (Table 14).

Table 14: Types of alternate formats requested

	Number	Column %	Subgroup %
Audio tape	46	0.0	6.5
Braille	4	0.0	0.6
Disc in ASCII text	11	0.0	1.5
Large print	634	0.4	89.2
Oral presentation	16	0.0	2.3
Subtotal	**711**	**0.5**	**100**
NA — not needed	156,848	99.5	100
Missing	7	0.0	0
Subtotal	**156,855**	**99.5**	**100**
Total	**157,566**	**100**	

5. Concordance (consistency): To what extent are certain REALD questions consistent with each other?

Preferred spoken language and English proficiency

See Table 15a for information on the association of English proficiency with preferred spoken languages. A relatively large number of OHP enrollees (24%) who preferred a spoken language other than English (e.g., Spanish, Russian) skipped the English proficiency question (Table 15b). Nearly half (46%) of those with limited English proficiency stated that English was their preferred spoken language.

Table 15a: Preferred spoken language by limited English proficiency (LEP)

	Not LEP			LEP			Missing			Total		
	Number	%	E%	Number	%	E%	Number	%	MOE	Number	%	E%
English	62,638	98.1		4,925	98.1		37,548	98.1		105,111	98.1	
Spanish	1,096	1.7	91.0	4,792	1.7	83.0	2,358	1.7	80.7	8,246	1.7	83.3
Russian	14	0.0	1.2	105	0.0	1.8	193	0.0	6.6	312	0.0	3.2
Cantonese, Mandarin, Chinese	7	0.0	0.6	198	0.0	3.4	40	0.0	1.4	245	0.0	2.5
Vietnamese	13	0.0	1.1	189	0.0	3.3	30	0.0	1.0	232	0.0	2.3
Arabic	6	0.0	0.5	95	0.0	1.6	46	0.0	1.6	147	0.0	1.5
Korean	6	0.0	0.5	49	0.0	0.8	6	0.0	0.2	61	0.0	0.6
Somali	8	0.0	0.7	32	0.0	0.6	18	0.0	0.6	58	0.0	0.6
Swahili	1	0.0	0.1	29	0.0	0.5	13	0.0	0.4	43	0.0	0.4
Burmese	2	0.0	0.2	28	0.0	0.5	7	0.0	0.2	37	0.0	0.4
Amharic	0	0.0	0.0	27	0.0	0.5	9	0.0	0.3	36	0.0	0.4
Farsi	1	0.0	0.1	19	0.0	0.3	12	0.0	0.4	32	0.0	0.3
Pacific Islander languages	1	0.0	0.1	20	0.0	0.3	2	0.0	0.1	23	0.0	0.2
Pashto/ Pashtu	7	0.0	0.6	2	0.0	0.0	13	0.0	0.4	22	0.0	0.2
Nepali	1	0.0	0.1	12	0.0	0.2	5	0.0	0.2	18	0.0	0.2
Marshallese	2	0.0	0.2	11	0.0	0.2	4	0.0	0.1	17	0.0	0.2
Thai	2	0.0	0.2	14	0.0	0.2	0	0.0	0.0	16	0.0	0.2
Tigrinya	2	0.0	0.2	12	0.0	0.2	2	0.0	0.1	16	0.0	0.2
French	0	0.0	0.0	5	0.0	0.1	9	0.0	0.3	14	0.0	0.1
Tagalog	0	0.0	0.0	10	0.0	0.2	3	0.0	0.1	13	0.0	0.1
Laotian	1	0.0	0.1	10	0.0	0.2	1	0.0	0.0	12	0.0	0.1
Oromo	0	0.0	0.0	8	0.0	0.1	4	0.0	0.1	12	0.0	0.1
Persian	2	0.0	0.2	9	0.0	0.2	0	0.0	0.0	11	0.0	0.1
Punjabi	1	0.0	0.1	9	0.0	0.2	0	0.0	0.0	10	0.0	0.1
Other < 10 / group*	13	0.0	1.1	60	0.0	1.0	25	0.0	0.9	98	0.0	1.0
Unknown	18	0.0	1.5	27	0.0	0.5	127	0.0	4.3	172	0.0	1.7
Total (row %)	**63,842**	**55.5**	**12.2**	**10,697**	**9.3**	**58.3**	**40,470**	**35.2**	**29.5**	**115,009**	**100**	**100**

Note: N = 115,014 (5 did not have a language response); age 15 and older LEP defined as speaking English less than "very well." E = % excluding English.

* Languages in this group include Afrikaans, Bengali, Bosnian, Cambodian, Central American Indian languages, Dutch, French Creole, German, Gujarati, Haitian Creole, Hebrew, Hindi, Hmong, Mong, Mien, Indonesian, Italian, Japanese, Karen, Kurdish, North American Indian languages, Polish, Portuguese, Romanian, Samoan, Serbian, sign languages, Taiwanese and Tongan.

Table 15b: English proficiency response compared to preferred language

English proficiency responses	Preferred language is English?							
	Yes		Number		Undetermined/ unknown		Total	
	Number	%	Number	%	Number	%	Number	%
Not LEP	62,638	59.6	1,186	12.2	18	10.5	63,842	55.5
LEP	4,925	4.7	5,745	59.0	27	15.7	10,697	9.3
Subtotal	**67,563**	**64.3**	**6,931**	**71.2**	**45**	**26.2**	**74,539**	**64.8**
Declined	326	0.3	160	1.6	6	3.5	492	0.4
Don't know	534	0.5	312	3.2	10	5.8	856	0.7
Subtotal	**860**	**0.8**	**472**	**4.9**	**16**	**9.3**	**1,348**	**1.2**
NQ/null	105	0.1	0	0.0	0	0.0	97	0.1
DN	36,583	34.8	2,328	23.9	111	64.5	39,022	33.9
Subtotal	**36,688**	**34.9**	**2,328**	**23.9**	**111**	**64.5**	**39,119**	**34.0**
Total	**105,111**	**100**	**9,731**	**100**	**172**	**100**	**115,014**	**100**

Note: N = 115,014; age 15 and older. LEP defined as speaking English less than "very well."; NQ = not questioned; DN = did not answer.

Testing the congruence of responses to LEP status and preferred spoken language was guided by:

- The fact that preferred spoken language response option defaults to "English" if the applicant did not answer the question, and
- An understanding that not all people who speak a primary language at home other than English may indicate a preference for representatives of OHA/CCOs to speak to them in English.

Therefore, the question of congruence was framed as, "To what extent does a positive response to LEP ("well," "not well," "not at all") indicate a preferred spoken language other than English?"

There was a 54% probability of LEP applicants indicating a preferred spoken language other than English (Table 15c). Because it is possible that those who say they speak English "well" would indicate English as the preferred language in the context of OHA and the OHP application, congruence was examined again. This time, LEP enrollees were those who indicated their English-speaking proficiency as "not well" or "not at all." The results indicated an increase in the probability (54% to 89%) of LEP applicants indicating a preferred spoken language other than English (Table 15d).

Table 15c: Congruence: Preferred spoken language and limited English proficiency (LEP)

		LEP (speak English "well" or "not well" or "not at all")		
		Yes	No	Total
Preferred spoken language is not English	Yes	5,745	1,186	6,931
	No	4,925	62,638	67,563
	Total	**10,670**	**63,824**	**74,494**

Note: N = 115,014: age 15+. Positive percent agreement: 53.8%; negative percent agreement: 98.1%; total percent agreement: 91.8%.

Table 15d: Congruence: Preferred spoken language and limited English proficiency (LEP)

		LEP (speak English "not well" or "not at all")		
		Yes	No	Total
Preferred spoken language is not English	Yes	4,701	2,230	6,931
	No	579	66,984	67,563
	Total	**5,280**	**69,214**	**74,494**

Note: N = 115,014: age 15+. Positive percent agreement: 89%; negative percent agreement: 96.8%; total percent agreement: 96.2%.

Need for interpreters and limited English proficiency

Of those requesting language interpretation, most also identified as limited in English proficiency (63%). A smaller percentage of LEP enrollees indicated a need for sign interpretation (41%). This is understandable because Deaf/deaf people who communicate in English and use sign language for everyday communications may interpret the English proficiency question differently. Nearly 60% and 99% of those who said they did not speak English "very well" indicated that they did not need language and sign interpretation respectively (Table 16).

Testing the agreement of responses to being limited in English proficiency and need for language interpretation was guided by an assumption that not all individuals with limited English proficiency will ask for interpretation because context matters (e.g., geography, availability of interpreters in the preferred language, trust in sharing personal matters with an interpreter who may be a member of the same small community as the applicant). Therefore, the question of congruence was framed as "To what extent does a positive response to LEP ("well," "not well," "not at all") indicate a desire for interpretation?" The results indicate the probability that the English proficiency question identifies those needing language interpretation is 43% (Table 17a); this increased to 75% when "not well" and "not at all" responses to English proficiency were used to define LEP (Table 17b).

Table 16: Relationship between responses to interpreter questions and English proficiency

	Not LEP			LEP			Declined/unknown			Null/NQ/DN			Total		
	Number	R%	C%	Number	R%	C%	Number	R%	C%	Number	R%	C%	Number	R%	C%
Language interpretation															
No	62,050	85.5	97.2	5,997	8.3	56.1	817	1.1	60.6	3,683	5.1	9.4	72,547	100	63.1
Yes	695	11.7	1.1	4,444	75.1	41.5	349	5.9	25.9	429	7.3	1.1	5,917	100	5.1
Subtotal	**62,745**	**80.0**	**98.3**	**10,441**	**13.3**	**97.6**	**1,166**	**1.5**	**86.5**	**4,112**	**5.2**	**10.5**	78,464	100	68.2
Declined	368	82.5	0.6	35	7.8	0.3	27	6.1	2.0	16	3.6	0.0	446	100	0.4
Don't know	55	22.2	0.1	43	17.3	0.4	134	54.0	9.9	16	6.5	0.0	248	100	0.2
Subtotal	**423**	**61.0**	**0.7**	**78**	**11.2**	**0.7**	**161**	**23.2**	**11.9**	**32**	**4.6**	**0.1**	694	100	0.6
Null/NQ/DN	**674**	**1.9**	**1.1**	**178**	**0.5**	**1.7**	**21**	**0.1**	**1.6**	**34,983**	**97.6**	**89.4**	35,856	100	31.2
Total	**63,842**	**55.5**	**100**	**10,697**	**9.3**	**100**	**1,348**	**1.2**	**100**	**39,127**	**34.0**	**100**	115,014	100	100
Sign interpretation															
No	62,622	80.3	98.1	10,293	13.2	96.2	1,178	1.5	87.4	3,909	5.0	10.0	78,002	100	67.8
Yes	110	44.4	0.2	117	47.2	1.1	1	0.4	0.1	20	8.1	0.1	248	100	0.2
Subtotal	**62,732**	**80.2**	**98.3**	**10,410**	**13.3**	**97.3**	**1,179**	**1.5**	**87.5**	**3,929**	**5.0**	**10.0**	**78,250**	**100**	**68.0**
Declined	371	83.0	0.6	31	6.9	0.3	26	5.8	1.9	19	4.3	0.0	447	100	0.4
Don't know	56	28.1	0.1	17	8.5	0.2	117	58.8	8.7	9	4.5	0.0	199	100	0.2
Subtotal	**427**	**66.1**	**0.7**	**48**	**7.4**	**0.4**	**143**	**22.1**	**10.6**	**28**	**4.3**	**0.1**	**646**	**100**	**0.6**
Null/NQ/DN	**683**	**1.9**	**1.1**	**239**	**0.7**	**2.2**	**26**	**0.1**	**1.9**	**35,170**	**97.4**	**89.9**	**36,118**	**100**	**31.4**
Total	**63,842**	**55.5**	**100**	**10,697**	**9.3**	**100**	**1,348**	**1.2**	**100**	**39,127**	**34.0**	**100**	**115,014**	**100**	**100**

Note: Age 15+. LEP = limited English proficiency; null = no response; NQ = not questioned; DN = did not answer (skipped).
LEP defined as those who answered well, not well, or not at all to the question "How well do you speak English?" Those who answered "very well" are considered proficient in English.

Table 17a: Congruence: Need for language interpretation and limited English proficiency (LEP)

		LEP (speak English "well, not well, not at all")		
		Yes	No	Total
Language interpretation needed	Yes	4,444	695	5,139
	No	5,997	62,050	68,047
	Total	**10,441**	**62,745**	**73,186**

Note: N = 115,014, age 15+. Positive percent agreement: 42.6%; negative percent agreement: 98.9%; total percent agreement: 90.9%.

Table 17b: Congruence: Need for language interpretation and limited English proficiency (LEP)

		LEP (speak English "not well, not at all")		
		Yes	No	Total
Language interpretation needed	Yes	3,872	1,267	5,139
	No	1,296	66,751	68,047
	Total	**5,168**	**68,018**	**73,186**

Note: N = 115,014, age 15+. Positive percent agreement: 74.9%; negative percent agreement: 98.1%; total percent agreement: 96.5%.

In summary, while theoretically we should be able to infer that applicants with limited English proficiency would not indicate a preferred spoken language as English, we cannot make this assumption with this sample of applicants. This may be in large part due to the imputation of English as the default if the questions about preferred language are skipped. Additionally, it is likely that limited English proficiency exists on a continuum where those self-reporting LEP could mean little to no English to having just enough proficiency to complete an application written in uncomplicated English. For example, one may consider oneself to be limited in English proficiency but believe one can answer simple questionnaires or provide answers to uncomplicated oral questions without an interpreter. It could also be that, because most folks who self-report as LEP tend to be people of color, needing interpretation could be seen as an added barrier to accessing services, especially when setting up interpretive services can take time or be seen as a nuisance by those providing it.

To what extent are responses to the language questions congruent with other REALD responses as appropriate?

Hearing disability and sign interpretation

Most requests for sign interpretation made by Deaf/deaf/hard of hearing enrollees older than age 14 were those who indicated English as a preferred language (13 of 15). Among the 1,363 individuals who reported being deaf or having serious difficulty hearing, only one indicated sign language as the preferred spoken language, and 84% reported Spanish as their preferred spoken language (Table 18).

Table 18: Preferred spoken languages and interpreter needs among deaf/hard of hearing enrollees

	Interpreter needs											
	None		Sign		Language		Both		Missing/DN		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
English	1,048	98.3	7	100	4	8.2	6	75.0	223	95.7	1,288	94.5
Spanish	17	1.6	0	0	41	83.7	0	0.0	8	3.4	66	4.8
Other languages**	1	0.1	0	0	4	8.2	1	12.5	1	0.4	7	0.5
Sign languages	0	0.0	0	0	0	0.0	1	12.5	0	0.0	1	0.1
Undetermined	0	0.0	0	0	0	0.0	0	0.0	1	0.4	1	0.1
Total	**1,066**	**100**	**7**	**100**	**49**	**100**	**8**	**100**	**233**	**100**	**1,363**	**100**

Note: N = 115,014, age 15+. DN = Did not answer. Answering the question about hearing limitations (yes/no) = 77,180.

* Other reported languages from enrollees included Arabic, Marshallese, Farsi, Laotian, Vietnamese.

Table 19: Relationship between responses to hearing disability question and need for interpretation

	Hearing			Deaf/hard of hearing			Declined			Don't know			Null/NQ/DN			Total	
	Number	R%	C%	Number	R%	C%	Number	R%	C%	Number	R%	C%	Number	R%	C%	Number	C%
Sign interpretation																	
No	64,170	83.5	84.6	1,101	1.4	80.8	1,166	1.5	70.1	1,165	1.5	70.4	10,400	13.5	30.1	76,836	66.8
Yes	181	74.2	0.2	15	6.1	1.1	4	1.6	0.2	2	0.8	0.1	46	18.9	0.1	244	0.2
Subtotal	64,351	82.2	84.9	1,116	1.4	81.9	1,170	1.5	70.4	1,167	1.5	70.5	10,446	13.3	30.3	78,250	68.0
Declined	24	5.4	0.0	1	0.2	0.1	362	81.0	21.8	0	0.0	0.0	60	13.4	0.2	447	0.4
Don't know	33	16.6	0.0	5	2.5	0.4	6	3.0	0.4	118	59.3	7.1	37	18.6	0.1	199	0.2
Subtotal	57	8.8	0.1	6	0.9	0.4	368	57.0	22.1	118	18.3	7.1	97	15.0	0.3	646	0.6
Null/NQ/DN	11,418	31.6	15.1	241	0.7	17.7	125	0.3	7.5	370	1.0	22.4	23,964	66.3	69.4	36,118	31.4
Total	**75,826**	**65.9**	**100**	**1,363**	**1.2**	**100**	**1,663**	**1.4**	**100**	**1,655**	**1.4**	**100**	**34,507**	**30.0**	**100**	**115,014**	**100**
Language interpretation																	
No	60,274	84.4	79.5	1,070	1.5	78.5	1,091	1.5	65.6	1,065	1.5	64.4	9,047	12.7	26.2	71,456	62.1
Yes	4,236	72.7	5.6	57	1.0	4.2	90	1.5	5.4	89	1.5	5.4	1,445	24.8	4.2	5,827	5.1
Subtotal	64,510	82.2	85.1	1,127	1.4	82.7	1,181	1.5	71.0	1154	1.5	69.7	10,492	13.4	30.4	78,464	68.2
Declined	29	6.5	0.0	1	0.2	0.1	358	80.3	21.5	0	0.0	0.0	58	13.0	0.2	446	0.4
Don't know	67	27.0	0.1	2	0.8	0.1	6	2.4	0.4	129	52.0	7.8	44	17.7	0.1	248	0.2
Subtotal	96	13.8	0.1	3	0.4	0.2	364	52.4	21.9	129	18.6	7.8	102	14.7	0.3	694	0.6
Null/NQ/DN	11,220	31.1	14.8	233	0.6	17.1	118	0.3	7.1	372	1.0	22.5	23,913	66.2	69.3	36,118	31.4
Total	**75,826**	**65.9**	**100**	**1,363**	**1.2**	**100**	**1,663**	**1.4**	**100**	**1,655**	**1.4**	**100**	**34,507**	**30.0**	**100**	**115,014**	**100**

Note: N = 115,014, age 15+. R% = row percentages; C% = column percentages;
null =null/blank response; NQ=not questioned; DN =don't know.

A review of Table 19 reveals that, of those individuals older than age 14:

- 181 indicated a need for sign interpretation but said they were not deaf or did not have serious difficulty hearing and,
- 15 deaf and 57 hard of hearing individuals indicated a need for sign interpretation and language interpretation.

In testing congruence and agreement, we examined the extent a positive response to sign interpretation need indicated having "serious difficulty hearing." The probability of indicating a hearing disability among individuals requesting sign language interpretation was 8% (Table 20). This is remarkably low.

Table 20: Congruence: Hearing disability and sign interpretation

		Sign interpreter needed		
		Yes	No	Total
Serious difficulty hearing	Yes	15	1,101	1,116
	No	181	64,170	64,351
	Total	**196**	**65,271**	**65,467**

Note: N = 115,014 (age 15 and older). Positive percent agreement: 7.7%; negative percent agreement: 98.3%; total percent agreement: 98%.

Alternate formats and disability

Overall, of the 1,912 individuals indicating having a vision limitation, only 7% (n = 133) requested alternate formats, and most of these individuals requested large print. Specifically, of those requesting alternate formats, only 19% indicated being blind or having difficulty seeing even with glasses (Table 21). This is interesting because we would expect those requesting alternate formats would be mostly people with vision limitations.

The probability (positive percent agreement) of indicating a vision disability among all those older than age 15 requesting alternate formats was 28% (Table 22). A deeper exploration revealed the majority of OHP enrollees requesting alternate formats did not indicate having a disability or limitation of any type (n=254, 47%) (Table 23). The probability (positive percent agreement) of those having a disability of any type among all those older than age 15 requesting alternate formats was 58%; this is considerably higher than the probability those indicating having a vision limitation would request alternate formats (28%, Table 22).

Table 21: Relationship between responses to alternate formats and vision disability questions

	No limitation			Vision limitation			Missing/DN			Total		
	Number	R%	S%	Number	R%	S%	Number	R%	S%	Number	R%	S%
Language interpretation												
Audio tape	18	54.5	5.2	5	3.8	3.8	10	7.6	6.8	33	100	6.8
Braille	0	0.0	0.0	2	66.7	1.5	1	33.3	0.7	3	100	0.7
Disc in ASCII text	6	100	1.7	0	0.0	0.0	0	0.0	0.0	6	100	0.0
Large print	315	55.2	91.6	123	21.5	93.9	133	23.3	91.1	571	100	91.1
Oral presentation	5	62.5	1.5	1	12.5	0.8	2	25.0	1.4	8	100	1.4
Subtotal	**344**	**55.4**	**100**	**131**	**21.1**	**100**	**146**	**23.5**	**100**	**621**	**100**	**100**
Missing/DN	1	33.3	0	0	0.0	0	2	66.7	0	3	100	0
None needed	75,050	65.6	100	1,631	1.4	100	37,709	33.0	100	114,390	100	100
Subtotal	**75,051**	**65.6**	**100**	**1,631**	**1.4**	**100**	**37,711**	**33.0**	**100**	**114,393**	**100**	**100**
Total	**75,395**	**65.6**	**100**	**1,762**	**1.5**	**100**	**37,857**	**32.9**	**100**	**115,014**	**100**	**100**

Note: N = 115,014 (age 15 and older). R% = row percentages; S% = subgroup percentages; DN = don't know.

Table 22: Congruence: Alternate format and vision disability

		Alternate format		
		Yes	No	Total
Is blind or has difficulty seeing even with glasses	Yes	131	1,631	1,762
	No	344	75,051	75,395
	Total	**475**	**76,682**	**77,157**

Note: N = 115,014 (age 15 and older). Positive percent agreement: 27.6%; negative percent agreement: 97.9%; total percent agreement: 97.4%.

Table 23: Responses to disability questions among OHP enrollees requesting alternate formats

	Audio tape			Braille			Disc			Large print		
	Number	R%	S%	Number	R%	S%	Number	R%	S%	Number	R%	S%
No DA	14	6.9	42.4				3	1.5	50.0	183	90.1	32.0
Act. only							1	7.1	16.7	13	92.9	2.3
Hear only										7	100	1.2
Vision only	1	3.3	3.0	2	6.7	66.7				27	90.0	4.7
Mobil. only										30	100	5.3
Cogn. only	1	3.8	3.0				1	3.8	16.7	23	88.5	4.0
2+ DA	1	1.3	3.0				0	0.0	0.0	75	97.4	13.1
SC &/or IL	6	6.0	18.2				1	1.0	16.7	92	92.0	16.1
Subtotal	**23**	**4.7**	**69.7**	**2**	**0.4**	**66.7**	**6**	**1.2**	**100**	**450**	**92.4**	**78.8**
NR	**10**	**7.5**	**30.3**	**1**	**0.7**	**33.3**	**0**	**0.0**	**0**	**121**	**90.3**	**21.2**
Total	**33**	**5.3**	**100**	**3**	**0.5**	**100**	**6**	**1.0**	**100**	**571**	**91.9**	**100**

	Oral			Total		
	Number	R%	S%	Number	R%	S%
No DA	3	1.5	37.5	203	100	32.7
Act. only				14	100	2.3
Hear only				7	100	1.1
Vision only				30	100	4.8
Mobil. only				30	100	4.8
Cogn. only	1	3.8	12.5	26	100	4.2
2+ DA	1	1.3	12.5	77	100	12.4
SC &/or IL	1	1.0	12.5	100	100	16.1
Subtotal	**6**	**1.2**	**75.0**	**487**	**100**	**78.4**
NR	**2**	**1.5**	**25.0**	**134**	**100**	**21.6**
Total	**8**	**1.3**	**100**	**621**	**100**	**100**

Note: N = 115,014 (age 15 and older). R% = row percentages; C% = column percentages; DA = disability, Hear = hearing difficulty; mobil = mobility difficulty; Cogn = cognitive difficulty, SC = self-care, IL = independent living difficulties, NR = non response to disability questions. 114,390 enrollees did not need alternate formats or did not answer the question. Disc is provided in ASCII text; Oral means providing the information orally as in person or over the phone.

Table 24: Congruence: Alternate format and disability

		Alternate format		
		Yes	No	Total
Disabled	Yes	284	10,941	11,225
	No	203	66,409	66,612
	Total	**487**	**77,350**	**77,837**

Note: N = 115,014 (age 15 and older). Positive percent agreement: 58.3%; negative percent agreement: 85.9%; total percent agreement: 85.7%.

Logistic regression analyses were conducted to learn more about who was most likely to request alternate formats. As race can be used as a proxy for both race and class, race was included into the model as a predictor. The results suggest that disability, racial and ethnic identity, and LEP status significantly predicted requests for alternate formats (Table 25). After controlling for the other characteristics, Asians were slightly less likely to request alternate formats. People with disabilities, people who identify as Latino/a/x and individuals indicating limited English proficiency were more likely to request alternate formats compared to non-disabled people, non-Hispanic individuals and those proficient in English. Due to small cell sizes within subgroups by alternate formats, this analysis points to a need for further study, and warrants caution in making further inferences related to racial and ethnic identity and limited English proficiency.

In summary, the profile of individuals requesting alternate formats suggests the usefulness of alternate formats for a broader group of people –– not just people with vision disabilities. Those with limitations that do not rise to the level of a disability may need alternate formats. For example, one may request large print because it means one could read the materials without using reading glasses. It is possible that for some of those with limited English proficiency and/or those who indicated a need for interpretation may have misunderstood the question about alternate formats. It also possible that people with limited English proficiency and/or who need interpretation may be more comfortable reading English documents in large print. Finally, it is also possible that some people with vision disabilities may have skipped the REALD questions due to accessibility issues and/or receiving the application in an alternate format. These possibilities are worth exploring to improve data quality and communication access.

Table 25: Odds of requesting alternate formats

Predictor	Odds ratio	Standard error	Z	P	95% confidence interval	
					LB	UB
Disability (referent group = non-disabled)						
Activity limitation difficulty only	2.4	0.93	2.21	0.027	1.10	5.12
Deaf/hard of hearing only	5.5	2.55	3.69	0.000	2.23	13.65
Blind/low vision only	12.4	3.22	9.67	0.000	7.43	20.61
Mobility only	9.3	2.60	7.95	0.000	5.36	16.06
Cognitive/memory only	3.5	1.01	4.43	0.000	2.02	6.20
Two or more disabilities	24.9	4.67	17.1	0.000	17.20	35.93
Including self-care and/or independent living difficulties	11.2	1.83	14.66	0.000	8.07	15.37
Race/ethnicity (referent group = White)						
Asian	0.2	0.12	-2.09	0.037	0.02	0.88
Hispanic	1.9	0.32	3.6	0.000	1.33	2.62
Black/African American	1.5	0.38	1.41	0.159	0.87	2.41
American Indian and Alaska Native	1.6	0.35	2.01	0.045	1.01	2.41
NHPI/MENA/some other race	0.6	0.33	-0.98	0.328	0.18	1.79
Preferred spoken language is not English	0.9	0.31	-0.17	0.862	0.49	1.81
Limited English proficiency*	2.0	0.38	3.46	0.001	1.34	2.85
Need interpreter (language and/or sign)	1.5	0.45	1.21	0.228	0.79	2.66
Constant	0.0	0.00	-51.23	0.000	0.00	0.00

Note: N = 39,738 (age 15 and older and answered all the questions in the model). NHPI = Native Hawaiian and Pacific Islander; MENA = Middle Eastern or North African. Model statistics: X^2 (15) = 437.29, P < .001 R2 = .132. Italicized predictors were not found to be statistically significant.

* LEP individuals stated they spoke English "well," "not well" or "not at all."

6. Limitations affecting our ability to identify, measure and address inequities

To what extent do the limitations that emerge from this assessment affect our ability to identify, measure and address inequities or disparities?

Limitations stemming from the ONE system data collection design

Many of the limitations mentioned likely stem from the many "did not answer" responses; this is a result of allowing the REALD questions to be skippable. There is a reason for having the option to "decline" or say "unknown." The use of the "decline to answer" option (if the person really does not want to answer) is helpful; we can use that information to see if there are patterns in declining and, if so, how to address this. However, we do not currently know why many enrollees skipped the questions.

Limitations from lack of validation protocols

Certain response patterns from enrollees with regards to language access needs and disability make it difficult to rely on the responses to identify and address disparities. For example, consider what we can or cannot infer based on these types of responses from enrollees:

- Preferred spoken communications in English **and** needed an interpreter **and** did not need sign language interpretation
- Needed both a language interpreter **and** sign interpreter
- Spoke English "not well" or "not at all" **and** did not need interpretation
- Needed written materials in alternate formats **and** did not have a disability
- Needed sign interpretation **and** was not deaf or had serious difficulty hearing
- Had an activity limitation **and** answered no to the other disability question
- Had difficulty with dressing/bathing **and** doing errands on their own (age 15 and older) and did not indicate having a limitation in any of four major domains (hearing, vision, cognitive and mobility).

Some of these responses may be due to misunderstanding the question. Perhaps many of those indicating both a need for language interpreter and a sign interpreter meant they just needed a spoken language interpreter (and thus also indicated not having a hearing loss). Without validation protocols that ask enrollees to confirm responses that seem contradictory, we cannot make hypotheses or inferences helpful in understanding the population being served.

Further, while responses to the questions about preferred spoken/written languages and interpreter needs could be extremely helpful to assure language access (if validated), they do not lend themselves to being used in health disparity research. The context in which these questions are asked may mean that the responses are valid only in the OHP application's context. For example, we cannot assume preferred language reflects primary language spoken at home, and that not needing an interpreter means one never needs an interpreter.

System design and protocols

Primary race. A major limitation relates to primary race. If the person with more than one racial or ethnic identity did not answer the primary race question, we do not use that individual's responses about their racial and ethnic identities. Because the primary race rules only affect those with more than one identity, these rules disproportionately affect the representation of people of color. Without using the race/ethnic identity data enrollees provided before skipping the next question about primary race, we lose the opportunity to improve the completeness of the data in analyses and reporting. This poses a serious limitation in identifying and addressing disparities by race and ethnicity – both with the overall loss of data, and the increased invisibility of people of color in the data.

Tracking data collection. Knowing more about where most of the data quality issues occur would be more effective with targeted technical assistance and training. We would also be more able to rely on the data to inform our knowledge about disparities. However, the current system does not include data fields that would help address data quality by identifying where most of the issues might be occurring. The lack of data field types affects OHA staff in addressing data quality issues efficiently. Specifically, we are not able to track in MMIS:

1. How the data were collected (e.g., applicant portal, worker portal with case worker or assistor, paper application), which makes it difficult to identify and address disparities with attention to just those who have been exposed to the full set of REALD questions

2. Who filled out the application (e.g., the applicant applied directly through the online applicant portal vs a case worker or community assistor helping submit the application)

3. The case worker's or community assistor's location, agency and/or branch.

Limitations in MMIS

Many of the limitations in this section result from how data flow from the ONE system to MMIS and then to DSSURS. In order to fit and/or comply with the parameters of MMIS, some of the data are changed or not captured at all. As illustrated below, the limitations in how REALD data flow into MMIS and then DSSURS undermine the quality of the REALD data and the usefulness of the data to identify and address disparities.

English as the default. The imputation of English in MMIS when the preferred written and/or spoken language was skipped means we cannot rely on responses to the questions about preferred written and spoken language to identify and address disparities associated with language barriers, access and discrimination; OHA staff also cannot ensure language access based on these responses. We learned that this imputation is a result of CMS/MMIS requirements that do not allow for unknown responses.

Open-text fields. Open-text responses to one of the race and ethnicity questions ("How do you identify your race, ethnicity, tribal affiliation, country of origin or ancestry?") is not captured in MMIS. This means we are limited in our ability to learn about emerging subgroups of racial and ethnic identities not currently used, nor are we able to assess congruence between responses to the open-ended question of "How do you identify your race, ethnicity, tribal affiliation, country of origin, or ancestry?" Also, we missed an opportunity to impute race and ethnic identity if the person answered the open-ended question but did not answer the other questions about racial and ethnic identities. These limitations weakened our ability to use the REALD data to identify and address disparities.

Time and date fields. Time and date fields for collecting demographic data from the enrollee do not carry over into MMIS. Therefore, we cannot track over time changes in how people identify their race and ethnicity, their ability to speak English, changes in needs for language access, and changes in limitations. We are not able to use the demographic data in longitudinal studies that consider the fluidity of identities, and in some cases the transient nature of English proficiency, need for language access and disability over the life span. Nor can we assume that the REALD data we are using are current.

Prioritizing data fields from other systems. To complicate this further, the data quality of the REALD responses are affected by the other data systems feeding into MMIS; these systems do not send or populate the same REALD data elements. Updates triggered by MMIS may overwrite or leave different data elements in place. This means, for example, that instead of using the granular racial and ethnic identities reported in the applicant portal, we end up using older race information that is not consistent with the REALD standards.

To summarize, due to the limitations discussed above, the profile of enrollees in MMIS does not reflect the profile of Oregonians reflected in the ACS data with respect to people with disabilities and people with limited English proficiency. We cannot use the MMIS data to generalize beyond the subset of enrollees. The validity of the REALD data in MMIS with respect to the language and disability questions is unreliable — not because of the questions themselves, but because of their format and design in the system (e.g., being able to skip the questions). This makes it difficult for OHA and external stakeholders to rely on the current MMIS data.

Recommendations

The 16 recommendations summarized below should be considered and addressed now in anticipation of the eventual Integrated Eligibility system expected to launch in the next year or so. We have an opportunity to make some changes to the IE system before it launches that could dramatically improve data quality and usefulness in identifying and addressing disparities. **Addressing recommendations 1–2, 7, 14 and 15 now, before the launch of the IE system will likely improve the data quality significantly with minimal costs and effort**.

Data collection and data collection design (ONE/IE)

1. Require individuals to pick a response option (including decline or unknown response).
2. Use the "did not answer" response only for paper applications in which the applicant did not answer the question.
3. Combine the two interpreter questions into one. When one indicates a need for interpretation, a follow-up question should capture the type of interpreter or language.
4. Review the placement of all REALD questions and the age follow-up question "did not answer." Have people with low vision check the visual placement of these questions on the screen, and the accessibility of these questions using screen readers.

Validation of response protocols (ONE/IE)

5. Language: Ask applicants to confirm their responses if the applicant(s):
    a. Prefer spoken communications in English and need an interpreter and do not need sign language interpretation (the validation may need to be modified if the two interpreter questions are combined into one question if recommendation #4 is followed) and,
    b. State they do not speak English "well" or "very well" and they say they do not need interpretation; provide messaging to let them know there is no charge for us to provide interpretation to speak with them in their preferred spoken language.
6. Disability: Ask applicants to confirm their responses if the applicant(s):

a. State they need alternate formats but answered "no" to all disability questions

b. State they need sign interpretation but answered "no" to questions about being deaf or having serious difficulty hearing

c. State they have an activity limitation but answered "no" to the other disability question

d. Are younger than the age they acquired the limitation (for each disability question); ask the applicant to select an age acquired that is equal to or less than current age and,

e. State they have difficulty with dressing/bathing and doing errands on their own (age 15 and older), but say "no" to questions about hearing, vision, cognitive and mobility limitations.

System protocols (MMIS/DSSURS)

7. Remove the default of English in MMIS if the enrollee did not answer the questions about preferred written and/or spoken language. If this is not possible, see recommendation #14.

8. Include open-text fields in MMIS so that the open questions related to race and ethnicity can be analyzed. If this is not possible, see recommendation #14.

9. Develop internal data system protocols whereby REALD data from the applicant portal are not overwritten by legacy systems. If this is not possible, see recommendation #14.

10. Add a date field for each set of REALD responses. If this is not possible, see recommendation #14.

11. Create separate fields for each racial and ethnic identity. See Appendix F for an example of what this could look like in "long" format in which each person's REALD information is structured by the data's collection date. If this is not possible, see recommendation #14.

12. Build in a mechanism to track and assess data quality periodically by:

    a. How the data were collected (e.g., applicant portal, worker portal with case worker or assistor, paper application) and

    b. By whom (e.g., the applicant applied directly through the online applicant portal vs a case worker or community assistor helping s ubmit the application).

In addition, capture the case worker's and community assistor's location and identification to target data quality interventions.

13. Revise primary race "rules" to use "most/rarest" group methodology if there were two or more racial and ethnic identities, and the person did not select a primary race field.

Explore alternate data systems and/or processes to retrieve and store REALD data

14. Because of the system's limitations noted in these recommendations, consider if MMIS should be the main source of data for REALD. A separate REALD database with access to the date/time fields from ONE and the original REALD data before being changed by MMIS may be easier and more cost effective than trying to make REALD fit into MMIS in ways MMIS is not able to handle. If this is possible, it may be a better way of providing quality REALD data to the CCOs and OHA researchers to meet the goal of HB 2134: to identify and address disparities.

Continuous quality improvement processes and exploratory research

15. Establish a continuous quality improvement (CQI) focusing on the quality of the REALD data in ONE and later in IE. In addition to having the full involvement of REALD subject matter experts from OEI and OEMS, it is essential that those who can authorize and ensure recommendations from the CQI team are implemented are also involved and support the process. Specifically, this team could:

    a. Assess the impact on data quality of REALD each time improvements are made to the ONE/IE system within three to six months

    b. Engage with recommendations in this report and,

    c. Learn more what and why some of the data quality issues are occurring, implement solutions, and assess the effectiveness of the solution(s).

16. Conduct exploratory research based on some of the issues raised in this report (e.g., see recommendation #4). The CQI team should lead this research. Specifically, the CQI team should:

    a. Learn more about needs for alternate formats, particularly among people who answered "no" to all disability questions and those with limited English proficiency

    b. Learn about needs for additional granular racial-ethnic categories based on responses to the open-ended question about racial and ethnic identity

— particularly for those who chose an "other" subgroup category (such as Other Pacific Islander, Other Asian, Other White) and,

c. Conduct participant observations and focus groups with community assistors and those working in the call centers to learn more how they are interacting with applicants regarding the REALD questions.

Glossary

Active non-response: An active non-response is when one responds to the question but does not answer it. The person actively declined to answer or indicated not knowing the answer to the question.

Aggregate: The term "aggregate" related to racial and ethnic identities is the combination of identities grouped together to provide information at a broader level. How racial and ethnic identities are combined is generally guided by federal standards, in this case the OMB standards.

American Community Survey (ACS): The ACS is an annual survey using random sampling to survey a smaller proportion of the population to derive estimates for the population. When appropriate, we used weighted estimates derived from the American Community Survey (Public Use Microdata Sample of Oregonians).

Congruence: Congruence in the context of this report is the degree to which responses to two REALD questions agree.

Disability questions (REALD): The REALD disability questions intend to capture disability prevalence (population) using minimal questions. The below disability questions are asked based on national standards:

1. Hearing disability: Are you deaf or do you have serious difficulty hearing?
2. Visual disability: Are you blind or do you have serious difficulty seeing even when wearing glasses?
3. Cognitive disability (asked of persons age 5 or older): Because of a physical, mental or emotional condition, do you have serious difficulty concentrating, remembering or making decisions?
4. Mobility disability (asked of persons age 5 or older): Do you have serious difficulty walking or climbing stairs?
5. Self-care disability (asked of persons age 5 or older): Do you have difficulty dressing or bathing?
6. Independent living disability (asked of persons age 15 or older): Because of a physical, mental or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?

7. Activity limitation (not appropriate for persons younger than 5): Are you limited in any way in any activities because of physical, mental or emotional problems?

DSSURS: DSSURS stands for the Decision Support Surveillance and Utilization Review System. DSSURS is the primary point for OHA and DHS researchers to access data from the ONE system.

Granularity: Granularity refers to the level of detail the data measure. Granular data provide more information than the aggregate or parent group data. For example, the broader Asian population consists of those who identify on a more granular level as Korean, Japanese, Chinese, Vietnamese or other Asian ethnicities.

HB 2134: The Oregon Legislature passed House Bill 2134 in 2013. It requires DHS and OHA to develop a standard to collect race, ethnicity, language and disability (REALD) data in conjunction with community stakeholders. The statuary authority for these rules is codified in ORS 413.042 and 413.161.

Impute/imputation: Impute means to "fill in." In the context of this report, imputation refers to "filling in" incomplete or missing data using existing data when appropriate.

Language questions (REALD): The language access and proficiency questions in the ONE system have both functional and demographic purposes in client/member-based data systems. There are six REALD language questions: 1) How well do you speak English (5 years or older)? 2) In what language do you want us to speak with you? 3) In what language do you want us to write to you? 4) Do you need written materials in an alternate format? If yes, which? 5) Do you need an interpreter (5 years or older)? And 6) Do you need a sign language interpreter?

LEP: LEP refers to limited English proficiency. English proficiency in REALD and in most federal surveys is measured using this question: "How well do you speak English (5 years or older)?" There are four response options in addition to unknown and decline: very well, well, not well, not at all. The Census defines LEP as those who answered "well," "not well" or "not at all."

Magi: MAGI refers to modified adjusted gross income. Medicaid eligibility is determined, in part, using modified adjusted gross income (MAGI).

Margin of error (MOE): MOE stands for margin of error, which is a measure of the degree of sampling variability. The smaller the margin of error the more "precise" the estimate. A margin of error is the difference between an estimate and its upper or lower confidence bounds. Confidence bounds are calculated by adding the MOE to the estimate (upper bound) and subtracting the MOE from the estimate (lower bound); in this report the confidence bounds are calculated using a 95% MOE.

There is a 95% certainty that the actual value lies somewhere between the upper and lower confidence bounds. (17)

MMIS: MMIS is the Oregon Medicaid Management Information System The Oregon Medicaid Management Information System (MMIS) is a Centers for Medicare and Medicaid Services (CMS) approved system that supports the operation of the Medicaid program. The MMIS includes the following types of sub-systems or files: recipient eligibility, Medicaid provider, claims processing, pricing, Surveillance and Utilization Review Subsystem (SURS), and Management Administrative Reporting Subsystem (MARS).

OARs 943-070-0000 through 943-070-007: OAR = Oregon Administrative Rules. These rules established uniform standards and practices for the collection of data on race, ethnicity, preferred spoken or signed and preferred written language, and disability to be followed by the Oregon Health Authority and the Department of Human Services.

OEI, OHA: Office of Equity and Inclusion, a division of the Oregon Health Authority (OHA).

OHP/ONE: OHP = Oregon Health Plan; ONE = OregONEligibility, Oregon's online Medicaid application system.

OMB standards: OMB stands for the Office of Management and Budget. OMB developed minimum standards for race and ethnicity (Directive No. 15) for federal statistics and administrative reporting.

Parent group: See the term "aggregate" above. This term positions the "parent" regarding racial and ethnic identities as the main category. This category is similar to the OMB standards with one exception; the Middle Eastern/North African group is considered a parent group, outside of the White group, for the purposes of this document.

Passive non-response: A passive non-response is one where the person may have skipped the question or was not exposed to the question in the first place, such as when applying for OHP using the paper application, or their record being derived from the DHS mainframe.

Percent agreement. We used a methodology usually used in clinical settings to test the sensitivity of clinical tests to truly detect an underlying condition of interest. This approach is also helpful in testing congruence (consistency) in responses to certain questions where one would expect agreement (or consistency).

- **Overall percent agreement = 100% x (a+d)/(a+b+c+d)**(see Table A below). This is the proportion of subjects in whom the new test and the non-reference standard are in agreement.

- **Positive percent agreement = 100% x a/(a+c)** (see Table A below). This is the proportion of those with a positive non-reference response also indicating a positive response to the new test. **Negative percent agreement = 100% x d/(b+d)**(see Table A below). This is the proportion of those with a negative non-reference response also indicating a negative response to the new test.

Table A. Example table

		Non-reference standard* (or question in the case of this report)		
		Yes	**No**	**Total**
The test or question of which we are testing congruence against the non-reference standard	Yes	A	B	A+B
	No	C	D	C+D
	Total	**A+C**	**B+D**	**A+B+C+D**

Racial/ethnic identity questions: The OHP application asks individuals to select their racial and ethnic identities from among 34 specific racial and ethnic categories. See Appendix B for a list of those categories.

READLD: READLD stands for race, ethnicity, language and disability and refers to the data collection standards developed to comply with HB 2134 and described in OARs 943-070-0000 through 943-070-007.

Subpopulations or subgroups are smaller groups within a broader category. For example, the Vietnamese subpopulation is a group within the broader Asian category. See also "granularity."

* Non-reference standard is the question we are assuming to be true, but it is not the "gold" standard.

Appendix A. Rulemaking Advisory Committee and Subcommittee members

Name	Agency/organization/program	Subject matter expertise
Staff support and oversight to rulemaking process		
Tricia Tillman	OHA/Office of Equity & Inclusion	Oversight of rules process
Emily Wang	OHA/ Office of Equity & Inclusion	HB 2134 rule writer
Both Rulemaking Advisory Committee & Internal Staff Committee		
Tim Holbert	OHA/Multnomah County/Program Design & Evaluation Services	Researcher and analyst
Rulemaking Advisory Committee (external stakeholders)		
Karis Stoudamire-Phillips	MODA	CCOs, equity; race and ethnicity
Maija Yasui	Hood River area CCO CAC, Hood River County Commission on Children & Families	CCOs, rural
Marjorie McGee	Community member; PSU, Regional Research Institute	Disability
Bob Joondeph	Disability Rights Oregon	Disability
Willi Horner-Johnson	Oregon Health & Science University (OHSU)/Oregon Institute on Disability & Development	Disability
Dena Hassouneh	OHSU/School of Nursing	Disability, immigrant, race and ethnicity
Claudia Vargas	Cornelius Vision for an Accessible Community	Disability, rural
Julia Meier	NAYA/ Communities of Color Reports	Race and ethnicity, American Indian and Alaska Native (AIAN) communities
Victoria Warren-Mears	Northwest Portland Area Indian Health Board	Race and ethnicity, AIAN communities
Victoria Demchak	Oregon Primary Care Association (formerly with APANO)	Race and ethnicity, language
Nafisa Fai	Community member	Race and ethnicity, language, immigrant and refugees
Alberto Moreno	Latino Health Coalition	Race and ethnicity, language, immigrant and refugees
Jesse Beason	Northwest Health Foundation	Race and ethnicity, language, immigrant and refugees
Joseph Santos-Lyons	Oregon Health Equity Alliance/Asian Pacific American Network of Oregon	Race and ethnicity, language, immigrant and refugees
Ann Curry-Stevens	Portland State University, School of Social Work	Race and ethnicity, language, immigrant and refugees
Andrew Riley	Immigrant and Refugee Community Organization	Race and ethnicity, language, immigrant and refugees
Juan Vazquez	DHS/Child Welfare	Adult abuse and investigations
Maikia Moua	OHA/Transformation Center	CCOs

Name	Agency/organization/program	Subject matter expertise
Angela Long	DHS/Office of Business Intelligence	Data/operations
Jon Collins	OHA/OHPR-Health Analytics	Data/operations
Robin Brandt	DHS/Vocational Rehabilitation Services	Disability, analyst
Emese Perfecto	DHS/Office of Equity & Multicultural Services	Equity and inclusion specific
Lydia Muniz	DHS/Office of Equity & Multicultural Services	Equity and inclusion specific
Oscar Herrera	DHS/Office of Equity & Multicultural Services	Equity and inclusion specific
Noelle Hartwick	OHA/Office of Equity & Inclusion	Public Health
Susan Greathouse	OHA/Public Health Division/Women, Infants and Children (WIC)	Public Health
Susan Woodbury	OHA/Public Health Division/WIC	Public Health
Richard Leman	OHA/Public Health Division/Acute and Communicable Disease Protection	Researcher/analyst
Annie Woo	DHS/Office of Business Intelligence	Researcher/analyst
Robin Johnson	OHA/Office of Equity & Inclusion	Researcher/analyst
Sarah Bartelmann	OHA/OHPR-Health Analytics	Researcher/analyst
Juanita Heimann	OHA/Public Health Division	Researcher/analyst
Sarah Ramowski	OHA/Public Health Division/Adolescent Health	Researcher/analyst
Rani George	OHA/Public Health Division/Genetics	Researcher/analyst
Karen Hampton	OHA/Public Health Division/Vital Records	Researcher/analyst
Julie Reeder	OHA/Public Health Division/WIC	Researcher/analyst
Rebecca Seel	OHA/Public Health Division/WIC	Researcher/analyst
Frederick King	OHA/Public Health Division/Maternal & Child Health	Researcher/analyst
Keely West	DHS/OHA Shared Services	Rules/policy analyst
Kym Gasper	DHS/OHA Shared Services	Rules coordinator
Melody Riley	DHS/OHA Shared Services	
Jeff Seed	DHS/OHA Shared Services	
Stephanie Murray	OHA	
Lindsey Lane	OHA/Public Health Division/HIV/STD/TB	

Note: REALD Data Leadership Group members also provided input; many of these members were also involved in the internal committee process.

Appendix B. At-a-glance view of READLD questions and categories

Race, Ethnicity, Language and Disability (READLD)

Oregon Health Authority

These questions are optional and your answers are confidential. We would like you to tell us your race, ethnicity, language and disability background so that we can find and address health and service differences.

1. Do you need written materials in an alternate format (Braille, large print, audio recordings, etc.)?

☐ Yes ☐ No ☐ Don't know/Unknown ☐ Don't want to answer/Decline

If yes, which format? _____

Race and Ethnicity

2. How do you identify your **race, ethnicity, tribal affiliation, country of origin, or ancestry?**

_____

3. Which of the following describes your **racial or ethnic identity?** Please check **ALL** that apply.

American Indian or Alaska Native
- ☐ American Indian
- ☐ Alaska Native
- ☐ Canadian Inuit, Metis, or First Nation
- ☐ Indigenous Mexican, Central American, or South American

Hispanic or Latino/a
- ☐ Hispanic or Latino/a Central American
- ☐ Hispanic or Latino/a Mexican
- ☐ Hispanic or Latino/a South American
- ☐ Other Hispanic or Latino/a

Asian
- ☐ Asian Indian
- ☐ Chinese
- ☐ Filipino/a
- ☐ Hmong
- ☐ Japanese
- ☐ Korean
- ☐ Laotian
- ☐ South Asian
- ☐ Vietnamese
- ☐ Other Asian

Native Hawaiian or Pacific Islander
- ☐ Guamanian or Chamorro
- ☐ Micronesian*
- ☐ Native Hawaiian
- ☐ Samoan
- ☐ Tongan*
- ☐ Other Pacific Islander

Black or African American
- ☐ African American
- ☐ African (Black)
- ☐ Caribbean (Black)
- ☐ Other Black

Middle Eastern/Northern African
- ☐ Northern African
- ☐ Middle Eastern

White
- ☐ Eastern European
- ☐ Slavic
- ☐ Western European
- ☐ Other White

Other Categories
- ☐ Other (please list) _____
- ☐ Don't know/Unknown
- ☐ Don't want to answer/Decline

4. If you selected more than one racial or ethnic identity above, please **CIRCLE the ONE that best represents your racial or ethnic identity.** If you have more than one primary racial or ethnic identity please check here: ☐

You can get this document in other languages, large print, braille, or a format you prefer. We accept all relay calls or you can dial 711. Contact:
Program:
Phone:
Email:

Continued on next page

OHA 0074 (9/18)

Language

5. In what **language** do you want us to:

Speak with you _____
Write to you _____

6. Do you need a **sign language** interpreter for us to communicate with you?

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, which type do you need us to communicate with you?
(ASL, PSE, tactile interpreting, etc.)

_____

7. Do you need an **interpreter** for us to communicate with you?

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

8. How well do you speak English?

☐ Very Well ☐ Not at all
☐ Well ☐ Don't know/Unknown
☐ Not Well ☐ Don't want to answer/Decline

Disability Your answers will help us find health and service differences among people with and without functional difficulties. Your answers are confidential.

9. Are you **deaf** or do you have **serious difficulty hearing?**

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

10. Are you **blind** or do you have **serious difficulty seeing,** even when wearing glasses?

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

11. Does a **physical, mental, or emotional condition limit your activities** in any way?

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

12. What is your age today? _____

Please stop now if the person is under age 5

13. Do you have serious difficulty **walking or climbing stairs?**

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

14. Do you have **difficulty dressing or bathing?**

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

15. Because of a **physical, mental, or emotional condition,** do you have serious difficulty:

a. **Concentrating, remembering or making decisions?**

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

Please stop now if you/the person is under age 15

b. **Doing errands alone** such as visiting a doctor's office or shopping?

☐ Yes ☐ Don't know/Unknown
☐ No ☐ Don't want to answer/Decline

If yes, at what age did this condition begin? _____

OHA 0074 (9/18)

Appendix C. Annotated screenshot of race fields in MMIS

Screenshot as it looks in Stata:

Primary Race | Newest race identities ◄——————————————► Older and/or additional race identities

Person #	Race_Code	Race_Code_1	Race_Code_2	Race_Code_3	Race_Code_4	Race_Code_5	Race_Code_6	Race_Code_7	Race_Code_8	Race_Code_9	Race_Code_10
1	HM										
2	HM	CW	HM								
3	U	CE	E								
4	U	7N	CE								
5	II	I									
6	U	AC	AF	CE	HM	II	J				
7	AF	AC	BA	CE	CS	CU	CW	HC	HM	II	IM

Person #	Annotated notes — what does this mean?
1	*This person has just one identity — it was moved into the primary race field (HM = Hispanic/Latino/a Mexican).*
2	*This person indicated two identities and selected as the primary (CW = Western European).*
3	*The person indicated Other White (CE) and Other race (E), but the primary is marked as "Unknown."*
4	*The person indicated Other White (CE) in the past (Race_Code_2), but the most recent race code (_1) is "Did not answer," and the primary race code is "unknown."*
5	*This person has both new and older race codes (II = American Indian; I = AIAN); presumably the American Indian identity is most recent (and not added from other data sources).*
6	*This person has listed up to six identities all REALD, but their primary race is unknown.*
7	*This person listed 11 racial and ethnic identities; the primary race is Filipino/a.*

Appendix D. READLD methodological notes for the American Community Survey

The ACS Public Use Microdata Sample (PUMS) data provide three race variables and two ethnicity variables with different degrees of details. Some of the response options are specific such as Japanese, Alaska Native, American Indian and Chinese. In these cases, the response options translated directly to a READLD race and ethnicity response option. Imputation of specific READLD granular racial and ethnic identities used ancestry, language and place of birth when appropriate. See Table D1 for more information.

Table D1: ACS Imputation methodological notes

		Birthplace*	Ancestry*	Language	Notes
American Indian and Alaska Native					
	American Indian		x	x	
	Alaska Native		x	x	
	Indigenous Mexican, Central and South American		x	x	Mexican, Central and South American Indian
	Other Indian				All others who identified as American Indian or Alaska Native
Asian					
	Asian Indian	x	x	x	Asian Indian, Bengali, East Indian, Punjabi
	Chinese	x	x	x	
	Filipino	x	x	x	
	Hmong		x	x	
	Japanese	x	x	x	
	Korean	x	x	x	
	Laotian	x	x	x	
	Vietnamese	x	x	x	
	South Asian	x	x	x	Bangladesh. Bhutanese, Burmese, Maldivian, Nepal, Pakistani, Sri Lanka
	Other Asian	x	x		All others who identified as Asian
African American or Black					
	African American	x	x		Born in the United States and identified as Black
	African	x	x	x	African countries, excluding North Africa
	Caribbean	x	x	x	Caribbean counties and identified as Black
	Other Black	x	x		All others who identified as Black
Hispanic or Latino/a/x					
	Mexican	x	x		
	Central American	x	x		
	South American	x	x		
	Other Latino/a/x				All others who identified as Hispanic
Native Hawaiian and Pacific Islander					
	Native Hawaiian	x	x	x	
	Guamanian or Chamorro		x	x	

* Languages associated with Micronesia include Carolinian, Chuukese, Mokilese Ngatikese, Pingelapese, Pohnpeian, Mapia, Mortlockese, Namonuito, Pááfang, Puluwatese, Satawalese, Sonsorolese, Tanapag, Tobian, Ulithian and Woleaian.

		Birthplace*	Ancestry*	Language	Notes
	Micronesian	x	x	X*	Micronesian, Marshallese, Yap, Chuuk, Pohnpei, Kosrae, Palau
	Samoan	x	x	x	
	Tongan	x	x	x	
	Other Pacific Islander				All others who identified as Pacific Islander
Middle Eastern and North African					
	North African	x	x	x	Algeria, Egypt, Libya, Morocco, North African not specified
	Middle Eastern	x	x	x	Afghanistan, Bahrain, Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen
White					
	Slavic	x	x	x	Latvia, Lithuania, Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine, former USSR, Uzbekistan
	Eastern European	x	x	x	Bulgaria, Czechoslovakia, Poland, Romania, Yugoslavia, Czech Republic, Slovakia, Bosnia & Herzegovina, Croatia, Macedonia, Estonia, Montenegro
	Western European	x	x	x	Albania, Austria, Belgium, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Azores Islands, Spain, Sweden, Switzerland, England, Scotland, Northern Ireland, Und, UK
	Other White				All others who identified as White.

Note: All categories used available race and ethnicity information in the American Community Survey (2012–2016 PUMS data). Place of birth, ancestry and language information was used only if the individual identified within the main racial and ethnic identity group, such as Asian, Hispanic, White, or Black or African American.

Appendix E. Supplemental tables

Table E1: Age acquired hearing and vision disabilities by current age

Age acquired disability	Current age																			
	0–4		5–14		15–17		18–24		25–34		35–44		45–54		55–64		65+		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Hearing																				
DN	2	6.5	0	0	1	3.6	5	3.5	9	3.4	11	4.7	13	4.1	8	2.2	0	0	49	3.3
DQ	1	3.2	2	2.5	0	0	1	0.7	2	0.8	1	0.4	1	0.3	1	0.3	0	0	9	0.6
0–4	28	90	53	65	13	46	55	39	73	28	36	16	41	13	16	4.3	1	7.7	316	21
5–14			26	32	10	36	33	23	58	22	33	14	38	12	23	6.2	1	7.7	222	15
15–17					4	14	19	13	16	6.1	10	4.3	12	3.8	7	1.9	0	0	68	4.6
18–24							29	20	66	25	32	14	29	9.2	21	5.7	2	15	179	12
25–34									38	15	50	22	32	10	42	11	0	0	162	11
35–44											60	26	82	26	59	16	0	0	201	14
45–54													66	21	115	31	4	31	185	13
55–64															79	21	4	31	83	5.6
65+																	1	7.7	1	0.1
Total	**31**	**100**	**81**	**100**	**28**	**100**	**142**	**100**	**262**	**100**	**233**	**100**	**314**	**100**	**371**	**100**	**13**	**100**	**1,475**	**100**
Vision																				
DN	0	0	2	1.5	9	10	18	7.5	15	4.4	13	5.6	22	5	19	4.7	0	0	98	5.1
DQ	0	0	1	0.7	0	0	1	0.4	0	0	0	0	1	0.2	1	0.2	0	0	4	0.2
0–4	15	100	64	47	13	15	30	13	51	15	29	12	40	9.1	20	4.9	0	0	262	14
5–14			68	50	52	60	121	50	132	39	48	21	35	8	26	6.4	1	7.7	483	25
15–17					13	15	30	13	34	9.9	6	2.6	12	2.7	4	1	0	0	99	5.2
18–24							40	17	57	17	21	9	14	3.2	9	2.2	0	0	141	7.4
25–34									54	16	35	15	22	5	21	5.2	0	0	132	6.9
35–44											81	35	119	27	48	12	0	0	248	13
45–54													174	40	119	29	3	23	296	16
55–64															140	34	9	69	149	7.8
Total	**15**	**100**	**135**	**100**	**87**	**100**	**240**	**100**	**343**	**100**	**233**	**100**	**439**	**100**	**407**	**100**	**13**	**100**	**1,912**	**100**

Note: DN = Did not answer. DQ = Data quality issue where current age is less than age limitation was acquired.

Table E2: Age acquired mobility and cognitive disabilities by current age

Age acquired disability	Current age																	
	5–14		15–17		18–24		25–34		35–44		45–54		55–64		65+		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Mobility																		
DN	0	0	1	5.9	7	3.9	5	1.3	18	3.2	28	3.3	28	2.9	0	0	87	2.9
DQ	0	0	0	0	0	0	3	0.8	3	0.5	8	1	2	0.2	0	0	16	0.5
0–4	14	58.3	7	41.2	20	11.1	24	6.4	20	3.6	15	1.8	12	1.3	1	3.7	113	3.8
5–14	10	41.7	8	47.1	33	18.3	31	8.3	18	3.2	14	1.7	8	0.8	0	0	122	4.1
15–17			1	5.9	37	20.6	24	6.4	7	1.3	13	1.5	6	0.6	0	0	88	3
18–24					83	46.1	91	24.3	44	7.9	36	4.3	21	2.2	0	0	275	9.2
25–34							197	52.5	185	33.2	73	8.7	36	3.8	1	3.7	492	16.5
35–44									262	47	225	26.8	83	8.7	1	3.7	571	19.2
45–54											429	51	312	32.8	6	22.2	747	25.1
55–64													444	46.6	17	63	461	15.5
65+															1	3.7	1	0
Total	**24**	**100**	**17**	**100**	**180**	**100**	**375**	**100**	**557**	**100**	**841**	**100**	**952**	**100**	**27**	**100**	**2,973**	**100**
Cognitive																		
DN	6	1.5	11	5.7	42	4.3	73	5	45	4.4	42	4.7	24	3.9	1	7.1	244	4.4
DQ issue	3	0.8	1	0.5	2	0.2	1	0.1	2	0.2	3	0.3	1	0.2	0	0	13	0.2
0–4	181	45.6	44	22.7	164	16.8	174	11.8	121	11.7	65	7.3	21	3.4	2	14.3	772	13.8
5–14	207	52.1	120	61.9	479	48.9	531	36	250	24.2	131	14.8	34	5.5	0	0	1,752	31.3
15–17			18	9.3	150	15.3	153	10.4	63	6.1	35	3.9	19	3.1	1	7.1	439	7.8
18–24					142	14.5	278	18.9	116	11.3	59	6.7	27	4.3	0	0	622	11.1
25–34							263	17.9	201	19.5	92	10.4	39	6.3	0	0	595	10.6
35–44									233	22.6	185	20.9	57	9.2	0	0	475	8.5
45–54											275	31	176	28.3	1	7.1	452	8.1
55–64													223	35.9	9	64.3	232	4.1
Total	**397**	**100**	**194**	**100**	**979**	**100**	**1,473**	**100**	**1,031**	**100**	**887**	**100**	**621**	**100**	**14**	**100**	**5,596**	**100**

Note: DN = Did not answer. DQ = Data quality issue where current age is less than age limitation was acquired.

Table E3: Age acquired self-care and independent living disabilities by current age

Age acquired disability	Current age																	
	5–14		15–17		18–24		25–34		35–44		45–54		55–64		65+		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Self-care																		
DN	0	0	1	10	2	3.4	4	2.9	3	1.7	10	3.7	14	5.5	0	0	34	3.6
DQ	0	0	0	0	0	0	0	0	2	1.1	2	0.7	0	0	0	0	4	0.4
0–4	24	75	7	70	5	8.6	12	8.8	4	2.3	4	1.5	3	1.2	1	20	60	6.4
5–14	8	25	2	20	10	17.2	7	5.1	4	2.3	2	0.7	1	0.4	0	0	34	3.6
15–17					11	19	9	6.6	3	1.7	1	0.4	0	0	0	0	24	2.5
18–24					30	51.7	20	14.6	12	6.8	5	1.8	6	2.4	0	0	73	7.7
25–34							85	62	46	26	22	8.1	9	3.6	0	0	162	17.2
35–44									103	58.2	63	23.2	18	7.1	0	0	184	19.5
45–54											163	59.9	60	23.7	0	0	223	23.6
55–64													142	56.1	4	80	146	15.5
Total	**32**	**100**	**10**	**100**	**58**	**100**	**137**	**100**	**177**	**100**	**272**	**100**	**253**	**100**	**5**	**100**	**944**	**100**
Independent living																		
DN			1	1.5	23	4.1	49	5.7	34	5.2	29	5.2	16	3.6	0	0	152	4.8
DQ			0	0	0	0	0	0	0	0	3	0.5	3	0.7	0	0	6	0.2
0–4			16	24.2	81	14.3	66	7.7	54	8.2	23	4.1	10	2.3	1	9.1	251	8
5–14			39	59.1	229	40.4	181	21.2	71	10.8	34	6.1	12	2.7	0	0	566	17.9
15–17			10	15.2	96	16.9	92	10.8	36	5.5	13	2.3	3	0.7	0	0	250	7.9
18–24					138	24.3	230	27	87	13.2	34	6.1	11	2.5	0	0	500	15.8
25–34							235	27.5	165	25	54	9.6	13	3	1	9.1	468	14.8
35–44									213	32.3	121	21.6	38	8.7	0	0	372	11.8
45–54											250	44.6	117	26.7	1	9.1	368	11.7
55–64													216	49.2	6	54.5	222	7
65+															2	18.2	2	0.1
Total			**66**	**100**	**567**	**100**	**853**	**100**	**660**	**100**	**561**	**100**	**439**	**100**	**11**	**100**	**3,157**	**100**

Note: DN = Did not answer. DQ = Data quality issue when current age is less than age limitation was acquired.

Appendix F. Example of race and ethnic identity data in long format

Person number (ID)	Date*	Primary	HM	HC	CW	CU	CS	CE	I	II	IM	E	AC	AF	J	BA
1	9/1/2018	HM	Yes													
2	9/1/2018	HM	Yes		Yes											
3	9/2/2018	CE						Yes				Yes				
4	9/1/2018	CE														
4	10/1/2018	7N														
4	10/15/2018	U														
5	7/1/2017	I							Yes							
5	9/1/2018	II								Yes						
6	9/1/2018	Use algorithm†	Yes							Yes			Yes	Yes	Yes	
7	9/1/2018	AF	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes		Yes

Note: 7N = Did not answer; U = Unknown; HM = Hispanic Mexican; HC = Hispanic Central American; CW = Western European;

CU = Eastern European; CS = Slavic; CE = Other White; AIAN = American Indian and Alaska Native (older field); II = American Indian;

IM = Indigenous Mexican, Central or South American; E = Other Race; AC = Chinese; CF = Filipino/a; J= Native Hawaiian; BA = African American. These are just a few of the 34 REALD racial and ethnic identities offered to applicants; not all are displayed in this example.

* Dates are made up for this example of data in long format where the person's race and ethnicity connected to a certain date field.

† Recommend using an algorithm as the person apparently did not answer the question about primary race.

Endnotes

1. Hasnain-Wynia R, Baker DW. Obtaining data on patient race, ethnicity, and primary language in health care organizations: Current challenges and proposed solutions. Health Services Research. 2006;41(4p1):1501–18.
2. Institute of Medicine (IOM), editor. Unequal treatment: Confronting racial and ethnic disparities in health care. Washington, D.C.: The National Academies Press; 2003.
3. Ulmer C, McFadden B, Nerenz DR. Race, ethnicity, and language data: Standardization for health care quality improvement. Washington DC: National Academies Press; 2009.
4. Krahn GL, Walker DK, Correa-De-Araujo R. Persons with disabilities as an unrecognized health disparity population. American Journal of Public Health. 2015;105(S2):S198–S206.
5. Wisdom JP, McGee MG, Horner-Johnson W, Michael YL, Adams E, Berlin M. Health disparities between women with and without disabilities: A review of the research. Social Work in Public Health. 2010;25(3/4):368–86.
6. Mays VM, Ponce NA, Washington DL, Cochran SD. Classification of race and ethnicity: Implications for public health. Annual Review of Public Health. 2003;24(1):83.
7. Office of Information and Regulatory Affairs. Office of Management and Budget proposals from the federal interagency working group for revision of the standards for maintaining, collecting, and presenting federal data on race and ethnicity. Washington D.C.: Office of Management and Budget 2017. [cited 2019 June 13]. Available from https://www.gpo.gov/fdsys/pkg/FR-2017-03-01/pdf/2017-03973.pdf.
8. Federal Interagency Working Group for Research on Race and Ethnicity. (n.d.). Interim report to the office of management and budget: Review of standards for maintaining, collecting, and presenting federal data on race and ethnicity prepared by the federal interagency working group for research on race and ethnicity. Washington DC: Office of Management and Budget.
9. Altman BM. Definitions, concepts, and measures of disability. Annals of Epidemiology. 2014;24(1):2–7.

10. U.S. Department of Health and Human Services. U.S. Department of Health and Human Services implementation guidance on data collection standards for race, ethnicity, sex, primary language, and disability status. 2011 Oct 31 [cited 2019 April 26]. Available from: https://aspe.hhs.gov/pdf-report/hhs-implementation-guidance-data-collection-standards-race-ethnicity-sex-primary-language-and-disability-status.

11. Brault M, Stern S, Raglin D. Evaluation report covering disability. American Community Survey Content Test Report [Internet]. 2007 Jan 3 [cited 2019 April 26]. Available from: https://www.census.gov/content/dam/Census/library/working-papers/2007/acs/2007_Brault_01.pdf.

12. Barnes C. Understanding the social model of disability: Past, present and future. In: Watson N, Roulstone A, Thomas C, editors. Routledge handbook of disability studies. NY: Routledge; 2014. p. 12–29.

13. Kominski R. How good is 'How well'? An examination of the census English-speaking ability question. In American Statistical Association 1989 Proceedings of the Social Statistics Section, 333–38. 1989 Proceedings of the Social Statistics Section [Internet]. 1989:[333–8 pp.]. [cited 2019 April 26]. Available from: https://www.census.gov/population/socdemo/language/ASApaper1989.pdf.

14. Greenhalgh T. Papers that report diagnostic or screening tests. British Medical Journal. 1997;315(7107):540–3.

15. Oppenheimer GM. Paradigm lost: Race, ethnicity, and the search for a new population taxonomy. American Journal of Public Health. 2001;91(7):1049–55.

16. Siordia C, Young R. Methodological note: Allocation of disability items in the American Community Survey. Disability and Health Journal. 2013;6(2):149–53.

17. Erickson W, Lee C, von Schrader S. Cornell University Disability Statistics website Ithaca, NY: Cornell University Yang-Tan Institute; 2018 [cited 2019 April 26]. Available from: http://disabilitystatistics.org/glossary.cfm?g_id=269&view=true.

Oregon Health Authority

EQUITY AND INCLUSION DIVISION

OHA 8178B (06/19)