

RESEARCH REPORT

Oral Health in Individuals with Cognitive and Intellectual and Developmental Disabilities

Evidence from National Surveys and Claims Data

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Authors

Lisa J. Heaton, PhD

Manager of Scientific Publications, Analytics and Data Insights
CareQuest Institute for Oral Health

Morgan Santoro, MPH

Biostatistician, Analytics and Data Insights
CareQuest Institute for Oral Health

Eric P. Tranby, PhD

Senior Director, Analytics and Data Insights
CareQuest Institute for Oral Health

Acknowledgments

Elizabeth Alpert, DDS, MPH

Instructor, Oral Health Policy and Epidemiology
Harvard School of Dental Medicine

Emily Haanschoten, MSPH

Biostatistician, Analytics and Data Insights
CareQuest Institute for Oral Health

Caroline McLeod, MS, RDH

Value-Based Care Solutions Manager, Health Transformation
CareQuest Institute for Oral Health

Melanie Morris, PhD, LICSW

Assistant Professor
University of Washington, School of Social Work

Hoangmai (Mai) Pham, MD, MPH

President and CEO
Institute for Exceptional Care

Madison Vinson, MSHI

Data Product Engineer II, Analytics and Data Insights
CareQuest Institute for Oral Health

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Executive Summary

This study provides a comprehensive, multi-dataset analysis of oral health outcomes, access, utilization, and expenditures among individuals with cognitive disabilities (CD) and intellectual and developmental disabilities (IDD) in the United States, using nationally representative survey data (State of Oral Health Equity in America [SOHEA]), federal expenditure data (Medical Expenditure Panel Survey [MEPS]), and commercial and Medicaid claims (Merative).

- Across all three data systems, results consistently demonstrate that **individuals with CD/IDD experience substantial oral health inequities relative to those without disabilities.**
- **Individuals with CD/IDD have significantly worse oral health outcomes**, including higher prevalence of self-reported fair or poor oral health, tooth loss, and oral health symptoms (e.g., toothache, cracked teeth, bad breath). They are also more likely to rely on emergency departments for dental care, reflecting unmet preventive care needs and delayed treatment.
- Despite higher rates of public insurance coverage, **individuals with CD/IDD face persistent barriers to accessing care.** They are more likely to delay dental care due to cost and more likely to report being unable to afford needed services, with adjusted analyses showing approximately three times higher odds of cost-related barriers compared to those without disabilities.
- Expenditure analyses further indicate that **individuals with CD/IDD incur higher overall dental and medical spending**, reflecting both greater need and increased reliance on complex or invasive services.
- Claims-based findings show **higher frequency of extractions, anesthesia, and inpatient or emergency care**, suggesting a pattern of episodic, treatment-oriented care rather than routine prevention.
- Disadvantages are particularly pronounced among Medicaid-insured populations, where **individuals with CD/IDD represent a larger share of enrollees and exhibit high medical spending alongside relatively low dental spending.**

Overall, the findings indicate that insurance coverage alone is insufficient to ensure equitable access to dental care. Persistent structural barriers — including limited provider availability, inadequate training, and fragmentation between medical and dental systems — contribute to ongoing disparities.

The findings of this study indicate that insurance coverage alone is insufficient to ensure equitable access to dental care for individuals with cognitive and intellectual and developmental disabilities. Persistent structural barriers — including limited provider availability, inadequate training, and fragmentation between medical and dental systems — contribute to ongoing disparities.



Introduction

Individuals with [intellectual and developmental disabilities \(IDD\)](#) experience a wide range of conditions that affect physical, intellectual, and emotional development, including autism spectrum disorder, cerebral palsy, spina bifida, and Down syndrome.

IDD is included under the umbrella of [cognitive disabilities \(CDs\)](#), which refers to “any impairment(s) in mental processes, memory, attention, processing speed, problem-solving, or language.” In other words, individuals with IDD are considered to have CD, but not all individuals with CD have IDD. As this report will present data from sources that cover individuals with both CD and IDD, the collective term “cognitive disabilities/ intellectual and developmental disabilities” (abbreviated CD/ IDD) will be used throughout this report, except in cases where data for one group alone is presented.

Individuals with CD/IDD experience a [disproportionate burden of oral health problems](#), such as caries (decay/cavities) and periodontal (gum) disease, compared to the general population. Prior research consistently documents higher prevalence of [untreated caries, periodontal disease, and tooth loss](#) among people with CD/IDD. Oral health risks among individuals with CD/IDD can be shaped by clinical factors, such as [xerostomia \(dry mouth\) due to medications](#), and challenges with oral

health self-care due to [limited fine motor skills](#) and [reliance on caregiver support](#) and recognition of their oral health needs to facilitate care. Risks are also shaped by broader social drivers of health. Factors such as [cost of care](#), lack of transportation access, and anxiety related to dental care all influence daily

Individuals with CD/IDD experience a disproportionate burden of oral health problems, such as caries and periodontal disease, compared to the general population.

oral hygiene practices and dental care utilization. In addition, individuals with CD/IDD frequently encounter systemic obstacles to care, including limited availability of dentists [trained in special care dentistry](#) and [financial disincentives](#) within public insurance programs such as Medicaid to cover care for individuals with CD/IDD. Likely as a result of these systemic obstacles to care, individuals with CD/IDD have [lower rates of preventive dental care](#), particularly those with CD/IDD who rely on Medicaid for dental care and live in states with limited adult dental Medicaid benefits.

Despite strong evidence of inequities, existing research on oral health among individuals with CD/IDD remains fragmented. Many studies rely on single, small data sources that capture only one dimension of oral health, such as self-reported status, claims-based utilization, or clinical observations within specific care settings. [No single national data system comprehensively captures](#) oral health needs, service use, expenditures, and patient-reported experiences for adults with CD/IDD. Moreover, [definitions and classification systems for disability vary widely across datasets](#), limiting comparability across studies and constraining efforts to generate population-level estimates.

Another challenge in this literature concerns the [heterogeneity of disability experiences](#). Individuals with CD/IDD differ substantially in terms of underlying diagnoses, functional limitations, support needs, and capacity to cooperate with routine dental care. Grouping all individuals with CD/IDD

together risks [obscuring meaningful variation](#) in oral health risk and service use. Descriptive analyses that examine outcomes across disability types and levels of impairment can help clarify patterns of need and inform more responsive care delivery models, even in the absence of causal inference.

This study aims to provide a comprehensive, multi-dataset descriptive assessment of oral health outcomes among individuals with CD/IDD in the United States. Specifically, we sought to:

1. Quantify differences in oral health status, access to care, and utilization between individuals with CD/IDD and those without disabilities
2. Examine variation across disability types using patient-reported, expenditure, and claims-based data
3. Describe patterns of dental spending, medical spending, and reliance on emergency services associated with oral health needs of individuals with CD/IDD
4. Highlight strengths and limitations of existing national data sources for studying oral health among people with CD/IDD

By integrating evidence from national surveys and administrative claims, this report aims to strengthen the empirical foundation for research, policy, and practice efforts focused on improving oral health equity for individuals with disabilities.

Data Sources and Analytical Methods

State of Oral Health Equity in America Survey

The [State of Oral Health Equity in America \(SOHEA\)](#) is the largest nationally representative survey focused exclusively on US adults' knowledge, attitudes, experiences, and behaviors related to oral health. The study is administered by NORC at the University of Chicago through the [probability-based AmeriSpeak panel](#). Analysis of SOHEA data used pooled cross-sectional survey data from 2024–2026 and incorporated survey weights to produce nationally representative estimates. CD/IDD status was assessed via a self-reported question specifically about CD (rather than IDD specifically): “Do you have any of the following disabilities: cognitive disability (because of a physical, mental, or emotional problem, having difficulty remembering, concentrating, or making decisions)?” (See Table 1 for an explanation of how CD/IDD was defined for each data source.)

Descriptive analyses examined differences in oral health status, access to care, utilization patterns, oral health symptoms, and emergency department use between individuals with and without cognitive disabilities. Weighted chi-square tests were used to assess group differences in categorical outcomes. Multivariable logistic regression models were used to estimate adjusted associations between cognitive disability status and key oral health outcomes, including not having visited a dentist in the prior two years, fair or poor self-rated oral health, having lost one or more teeth due to caries or periodontal disease, having experienced one or more oral health problems in the past year, having no planned dental visit in the coming year, and seeking care for an oral health problem in an emergency department.

All models are adjusted for age, gender, race and ethnicity, educational attainment, household income, dental insurance coverage, and metropolitan residence. Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) are reported. Statistical significance was assessed at an alpha level of 0.05.

Medical Expenditure Panel Survey (MEPS)

The [Medical Expenditure Panel Survey \(MEPS\)](#) is a set of large-scale, nationally representative surveys on the cost and use of health care by individuals and families in the US. Pooled MEPS data from 2021–2023 were analyzed using survey procedures that account for complex sampling design, including stratification, clustering, and person-level weights, consistent with Agency for Healthcare Research and Quality (AHRQ) analytic guidance. CD status was defined using MEPS functional limitation measures derived from the family-level cognitive limitation variable (COGLIM31; see Table 1). This variable is constructed based on a three-part question assessing whether any adult family members experience confusion or memory loss, have difficulty making decisions, or require supervision for their own safety. Individuals were classified as having a cognitive limitation if at least one of these indicators was reported as “yes.” These questions pertain only to adult family members (18+); therefore, individuals younger than 18 were coded as inapplicable. Cognitive disability was analyzed both as a binary indicator and, where feasible, in combination with multiple disability classifications.

Descriptive statistics were used to characterize sociodemographic characteristics, insurance coverage, dental service utilization, and medical and dental expenditures among individuals with and without cognitive disabilities. Group differences were assessed using weighted chi-square tests for categorical variables and weighted t-tests for continuous variables. Multivariable regression models were used to estimate adjusted associations between cognitive disability status and key outcomes. Logistic regression models were fit for binary outcomes, controlling for age, gender, race and ethnicity, educational attainment, household income, medical insurance type, and dental insurance type.

Given the right-skewed distribution of expenditure outcomes, total dental and total medical expenditures were analyzed using generalized linear models (GLMs) with a gamma distribution and log link. Results are presented as exponentiated coefficients to facilitate interpretation. Sensitivity analyses using quasi-Poisson log-link models were conducted to assess robustness of results to alternative distributional assumptions. All expenditure measures were inflation-adjusted and reported in US dollars. Adjusted estimates are reported with 95% confidence intervals, and statistical significance was evaluated at an alpha level of 0.05.

Merative Medical and Dental Claims

[Merative administrative medical and dental claims data](#) from 2021–2023 were analyzed separately for commercially insured and Medicaid-insured populations. De-identified data from all age groups (0 through 65+ years) were used for these analyses. Individuals with IDD were identified using a comprehensive, study-specific set of more than 350 International Classification of Diseases, Tenth Revision (ICD-10) diagnosis codes (see Table 1). This code set was compiled from an ICD-10 workbook used in prior commercial claims analyses and informed by external resources, including the Dental Quality Alliance (DQA) Special Populations User Guide and materials from the IDD Counts Initiative coordinated by the Administration for Community Living. A broad range of conditions associated with IDD, including intellectual disability, autism spectrum disorder, cerebral palsy, genetic and chromosomal syndromes, and other neurodevelopmental conditions, were captured. The complete list of ICD-10 codes used to identify IDD is provided in Appendix A.

Merative commercial claims data were used to examine patterns of dental procedures, emergency and inpatient utilization, and associated medical and dental expenditures among individuals with and without IDD. Analyses were conducted at the enrollee level.

Descriptive statistics summarized demographic characteristics, prevalence of selected dental procedures, and mean medical and dental expenditures by disability status. Group differences were assessed using chi-square tests for categorical outcomes and t-tests for continuous outcomes. Procedure-based outcomes included having one or more claims for multi-surface restorations, dental extractions, dental anesthesia, inpatient non-traumatic dental conditions (NTDCs), and emergency department NTDC visits. Procedure rates were calculated as counts of events per enrollee.

Multivariable logistic regression models were used to estimate adjusted associations between IDD status and binary utilization outcomes, including emergency department NTDC visits and selected dental procedures. Models are adjusted for age (categorized as 0–5, 6–9, 10–14, 15–20, 21–44, 45–64, and 65+ years) and gender, the demographic variables consistently available in the commercial claims data.

Merative Medicaid claims data were analyzed to assess dental service utilization, emergency and inpatient care for NTDCs, and associated expenditures among Medicaid-insured individuals with and without IDD. Compared to commercial claims, Medicaid data capture a higher proportion of individuals with diagnosed disabilities but remain subject to limitations related to diagnostic completeness and coding variability.



Results

Table 2 shows a summary of the findings across all four data sources (SOHEA, MEPS, and Merative Medicaid and commercial). Across all data sources, individuals with CD/IDD consistently experience worse oral health outcomes, greater financial barriers to care, and higher reliance on emergency and invasive dental services than those without disabilities. These findings collectively indicate that, despite higher levels of insurance coverage, unmet need and structural barriers to accessing preventive and routine care are consistent across survey, expenditure, and claims data.

Demographics of individuals with CD/IDD by data source are presented in Table 3. While individuals with CD/IDD represented 6%–8% of individuals in the MEPS, SOHEA, and Merative commercial datasets, individuals with CD/IDD represented 17.4% of individuals in the Merative Medicaid dataset. Adults aged 60–65 or above represented nearly half of MEPS respondents (48.7%; 60+), one fifth of SOHEA respondents (22.3%; 60+), and 2%–3% of adults in the Merative datasets (65+). While the majority of individuals with CD/IDD across datasets reported their race/ethnicity as non-Hispanic white, the second most commonly reported race/ethnicity in MEPS and Merative Medicaid was non-Hispanic Black; in SOHEA, Hispanic was the second most commonly reported race/ethnicity. Race/ethnicity data was not available from

Merative commercial data. Individuals with CD/IDD were more likely to be female in MEPS (60.2%) and Merative Medicaid (57%). Education and income data were not available from either Merative source. In both MEPS and SOHEA, those with CD/IDD were most likely to earn \$30,000 or less annually (51.4% and 46.5%, respectively).

Population Estimates

SOHEA Survey Findings (2024–2026)

Analysis of SOHEA data shows that, compared to individuals without CD, individuals with CD tended to be younger (22.3% of adults aged 60+ with CD compared to 33.8% of adults of the same age without CD), Hispanic (18.7% of Hispanic adults with CD vs. 14.8% of Hispanic adults without CD), male (50.3% of males with CD vs. 48.7% of males without CD), have a high school degree/GED or lower (46.4% with CD vs. 32.9% without), and earn less than \$30,000 annually (46.5% with CD, 20.7% without; Table 4).

Those with CD were more likely to have dental insurance than those without CD (31.1% of those with CD vs. 26.3% without CD, respectively; Table 5) yet were less likely to have seen a dentist in the past two years (70.2% with CD vs. 80.2% without CD) and less likely to report planning to see a dentist in the coming

year (87% vs. 92.5%). Individuals with CD were more likely to report having fair/poor oral health (as opposed to excellent/very good/good oral health) than those without CD (58.8% vs. 78.4%), more likely to have had one or more teeth removed due to caries (tooth decay) or periodontal (gum) disease (58.5% vs. 45.9%), and more likely to have had at least one oral health problem in the last year (81.9% vs. 51.1%). Those with CD were more likely to have visited an ED in the prior year for an oral health problem (12.6% vs. 3.5%).

Logistic regression analysis found no significant difference in the odds of not having had a dental visit in the prior two years for those with CD compared to those without CD when controlling for age, race/ethnicity, gender, education, income, dental insurance, and metropolitan residence (OR = 1.17, 95% CI = 0.88, 1.54; $p = 0.3$; Table 6). However, those with CD had three times the odds of seeking care for an oral health problem in an ED compared to those without CD (OR = 3.00, 95% CI = 2.00–4.50; $p < 0.001$; Table 7).

Logistic regression results examining the association between CD status and self-reported fair/poor oral health, no planned dental visit in the coming year, having lost at least one tooth due to caries or periodontal disease, and having at least one oral health problem in the past year can be found in Appendices A–D. Compared with respondents without CD, respondents with CD were more likely to report fair/poor oral health, to have lost one or more permanent teeth, and to have experienced one or more oral health problems in the past year. No difference was observed in plans to visit a dentist in the coming year.

MEPS Findings (2021–2023)

Analysis of MEPS data shows that, compared to individuals without CD, individuals with CD tended to be older (48.7% aged 60+ with CD compared to 35.3% without CD), female (60.2% with CD vs. 54.9% without), have a high school degree/GED or lower (59.2% with CD vs. 37.6% without), and earn less than \$30,000 annually (51.4% with CD, 26.1% without; Table 8). Those with CD were more likely to have public health insurance than those without CD (36.7% vs. 8.6%, respectively) as well as public dental insurance (31.3% vs. 12.2%, respectively; Table 9). While those with CD had slightly more dental visits on average (mean = 2.45, standard deviation (sd) = 1.96) than those without CD (mean = 2.21, sd = 1.69), 21.5% of individuals with CD said they delayed dental care due to cost, compared to 8.1% of those without. Similarly, three times as many individuals with CD said they could not afford dental care (15%) than those without CD (5%).

Gamma regression analysis found that individuals with CD had 33% higher mean dental spending ($\exp(\beta) = 1.06$, 95% CI = 1.05, 1.06; $p < 0.001$) than those without CD, after controlling for

age, race/ethnicity, gender, education, annual income, medical insurance type and dental insurance type (Table 10). Dental expenditures also varied by age, with higher average spending observed among adults aged 30–44 and 45–59, and the highest spending among adults aged 60 and older, compared to younger adults aged 18–29. Adults identifying as Asian, non-Hispanic and Black, non-Hispanic had higher average spending than white non-Hispanic adults. Those with a bachelor's degree or higher had lower average spending than individuals with less than a high school degree. Those with public dental insurance had lower average dental spending, and adults with public medical insurance or no medical insurance had higher average dental spending than those with private dental and medical insurance, respectively.

Logistic regression analysis found that those with CD had three times the odds of delaying dental care due to costs than those without CD, after controlling for age, race/ethnicity, gender, education, income, and medical and dental insurance (OR = 3.01, 95% CI = 2.28, 3.96, $p < 0.001$; Table 11). Similarly, those with CD were more than three times as likely to be unable to afford dental care than those without CD (OR = 3.13, 95% CI = 2.33, 4.20; $p < 0.001$; Table 12).

Medicaid Insured Population

Merative Medicaid Claims Findings (2022–2024)

Analysis of Merative Medicaid claims data shows that, compared to individuals without IDD, individuals with IDD tended to be male (59% of males with IDD compared to 40% of males without IDD), non-Hispanic white (64% with IDD compared to 52% of those without IDD), and younger (2.1% aged 65+ with IDD vs. 12% of those age 65+ without; Table 13). Merative Medicaid data do not include information on individuals' education, income, or residential location. Individuals with and without IDD had similar percentages of having one or more claims for multiple-surface restorations, extractions, dental anesthesia, inpatient non-traumatic dental claims, and ED non-traumatic dental claims (Table 14).

Gamma regression analysis found that individuals with IDD had 6% higher mean dental spending ($\exp(\beta) = 1.07$, 95% CI = 1.07, 1.08; $p < 0.001$) than those without IDD after controlling for age, gender and race/ethnicity (Table 15). Dental spending varied substantially across life stages, with higher expenditures observed among older children, including adolescents (6–20 years), and working-age adults (21–64) compared with the youngest children (0–5 years). Spending was somewhat lower among adults aged 65 years and older. Differences were also observed by race and ethnicity, with lower average dental spending among Black enrollees and higher spending among Hispanic and other racial and ethnic groups compared to white enrollees.

Logistic regression analysis of Merative Medicaid data found that those with IDD had higher odds of having one or more multiple surface restoration claims than those without IDD, after controlling for age and gender (OR = 1.12, 95% CI = 1.11, 1.13; $p < 0.001$; Table 16). Similarly, those with IDD had slightly higher odds of seeking care in an ED for a non-traumatic dental condition than those without IDD (OR = 1.05, 95% CI = 1.03, 1.08; $p < 0.001$; Table 17) Logistic regression results predicting having one or more claims for dental anesthesia, extractions, or inpatient non-traumatic dental care can be found in Appendices E–G; compared with individuals without IDD, those with IDD had higher odds of having one or more of these types of claims.

Commercially Insured Population

Merative Commercial Claims Findings (2022–2024)

Analysis of Merative commercial claims data shows that, compared to individuals without IDD, individuals with IDD tended to be male (53% with IDD compared to 47% without IDD), and younger (2.9% aged 65+ with IDD vs. 18% of those without; Table 18). Merative commercial data do not include information on individuals' race/ethnicity, education, income, or residential location. Individuals with and without IDD had similar percentages of having one or more claims for multiple-surface restorations, extractions, inpatient non-traumatic dental claims, and ED non-traumatic dental claims (Table 19). Those with IDD had nearly twice the percentage of one or more dental

anesthesia claims (5.4%) compared to those without IDD (2.9%). Individuals with IDD had consistently higher average medical and dental costs, in total and across different types of claims.

Gamma regression analysis found that individuals with IDD had 7% higher mean dental spending ($\exp(\beta) = 1.07$, 95% CI = 1.07, 1.08; $p < 0.001$) than those without IDD after controlling for age and gender (Table 20). Dental expenditures also varied by age, with higher average spending observed among older children and adults compared to children under five. The highest levels of average dental spending were observed among individuals aged 10–14, 45–64, and 65 and older.

Logistic regression analysis of Merative commercial data found that those with IDD had higher odds of having one or more multiple surface restoration claims than those without IDD after controlling for age and gender (OR = 1.18, 95% CI = 1.17, 1.19; $p < 0.001$; Table 21). Similarly, those with IDD had higher odds of seeking care in an ED for a non-traumatic dental condition than those without IDD (OR = 1.53, 95% CI = 1.43, 1.63; $p < 0.001$; Table 22). Logistic regression results predicting having one or more claims for dental anesthesia, extractions, or inpatient non-traumatic dental care can be found in Appendices H–J; those with IDD were more likely than those without to have one or more of these types of claims.

Discussion

This study provides a comprehensive, multi-dataset assessment of oral health outcomes, service use, and expenditures among individuals with cognitive and intellectual and developmental disabilities (CD/IDD) in the United States. By integrating patient-reported survey data (SOHEA), nationally representative expenditure data (MEPS), and administrative medical and dental claims (Merative commercial and Medicaid claims data), the analysis offers converging evidence of persistent oral health inequities affecting individuals with CD/IDD across the lifespan and across insurance contexts.

Across all data sources, individuals with CD/IDD experienced worse oral health outcomes and greater reliance on acute and invasive services relative to individuals without disabilities. Survey data revealed poorer self-rated oral health, higher prevalence of tooth loss, more frequent oral health symptoms, and substantially higher odds of emergency department use for oral health problems. Expenditure and utilization data

showed higher dental and medical spending, increased reliance on extractions and anesthesia, and greater involvement of emergency and inpatient care for non-traumatic dental conditions. The consistency of these patterns across independent data systems strengthens confidence that the observed disparities reflect structural and systemic inequities rather than artifacts of a single dataset.

Findings from MEPS and SOHEA highlight the persistence of unmet dental need among individuals with CD/IDD, even after adjusting for sociodemographic characteristics and insurance coverage. Individuals with CD/IDD were substantially more likely to report delaying dental care due to cost or being unable to afford needed dental services, despite higher rates of public insurance coverage. Similarly, SOHEA data showed that individuals with CD/IDD were less likely to have had a recent dental visit and more likely to seek care for oral health problems in emergency settings.

Together, these findings reinforce the conclusion that insurance coverage alone is insufficient to ensure timely, preventive, and appropriate dental care for individuals with CD/IDD.

[Nonfinancial barriers](#), including limited availability of trained providers, transportation difficulties, dental anxiety, and experiences of stigma or discrimination in clinical settings, likely play a substantial role in shaping observed patterns of care.

Merative claims data extend these findings by providing insight into the types of dental services received by individuals with CD/IDD. Across both commercial and Medicaid populations, individuals with CD/IDD were more likely to receive dental anesthesia, to undergo extractions and, in some contexts, to experience ED or inpatient care for non-traumatic dental conditions. These patterns are consistent with a greater reliance on episodic, invasive, and facility-based care rather than routine prevention and early intervention. There is a [shortage of dentists trained to care for individuals with CD/IDD](#), and dental students and providers often report limited confidence in treating individuals in this population, resulting in greater reliance on providing [treatment under sedation](#) when available.

Importantly, these utilization patterns should not be interpreted as direct measures of disease severity. Claims data reflect services billed rather than unmet need or clinical necessity. Higher rates of anesthesia or extractions may reflect delayed care, limited provider willingness to treat patients with disabilities in office-based settings, or difficulties providing routine care without additional support. Nonetheless, the alignment between claims-based utilization patterns and survey-reported access barriers underscores the cumulative consequences of systemic barriers over time.

Disparities were particularly pronounced among individuals insured through Medicaid, who represented a substantially higher share of the population with CD/IDD in claims data and experienced higher overall medical expenditures alongside relatively low dental spending. This pattern highlights the disconnect between medical and dental care systems and reinforces longstanding concerns about the inadequacy of adult dental benefits, provider participation, and care coordination within Medicaid programs. While Medicaid coverage is essential for many individuals with CD/IDD, the findings suggest that coverage alone does not guarantee access to comprehensive, high-quality dental care.

A key strength of this study is the use of multiple complementary data sources to examine oral health inequities between individuals with CD/IDD and those without. As noted earlier, no single dataset captures the full spectrum of oral

health needs, experiences, utilization, and expenditures. Survey data illuminate patient-reported outcomes and access barriers, MEPS provides national estimates of spending and cost-related unmet need, and claims data offer detailed information on procedures and service settings. Together, these data allow triangulation of findings and provide a more complete picture of oral health inequities.

At the same time, limitations should be considered when interpreting these findings. Disability identification varies across data sources and is inherently imperfect: Survey-based measures rely on self- or caregiver-reporting, while claims-based identification depends on diagnostic coding and likely undercounts individuals with CD/IDD. [Differences in disability definitions across datasets](#) limit direct comparability and likely result in conservative estimates of disparities. In addition, none of the data sources include [standardized measures of disability severity](#), functional limitations, or support needs, hindering analyses of heterogeneity within the CD/IDD population. Claims-based analyses reflect services billed rather than underlying oral health need, disease severity, or quality of care; observed differences in utilization may therefore reflect access barriers, benefit design, provider availability, or coding practices rather than clinical appropriateness. Finally, analyses relied on cross-sectional or pooled cross-sectional data, limiting causal inference and the ability to assess longitudinal trajectories. Despite these limitations, the consistency of findings across multiple independent data sources strengthens confidence in the overall patterns observed.

Findings from this study underscore the need for policy and practice strategies that move beyond coverage expansion alone to address the structural barriers faced by individuals with CD/IDD in accessing oral health care. Potential approaches include [strengthening provider training in special care dentistry](#), expanding use of multidisciplinary and [community-based care models](#), increasing reimbursement for longer or more complex visits, and [enhancing coordination](#) between dental, medical, and disability support systems.

From a research perspective, improving disability identification in health data systems is essential. Standardized, validated measures that [capture functional limitations and support needs](#) would enable more precise monitoring of inequities and more targeted policy responses. Future research should also prioritize patient-centered outcomes, longitudinal analyses, and evaluations of interventions designed to increase access to preventive and dignified oral health care for individuals with CD/IDD.



Conclusions

Using nationally representative survey data and large administrative claims datasets, this study documents persistent and multifaceted oral health disparities between individuals with CD/IDD and those without such disabilities.

Across data sources, individuals with CD/IDD experience worse oral health outcomes, greater financial barriers, and increased reliance on acute and invasive services. Addressing these inequities will require coordinated efforts to strengthen data infrastructure, reform care delivery systems, and integrate oral health into broader health equity initiatives focused on individuals with disabilities.

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Table 1. Definitions of Cognitive and Intellectual and Developmental Disabilities (CD/IDD) from Each Data Source

Data Source	Population Label Used in Data Source	How Disability Was Defined or Identified	Key Definitional Notes
State of Oral Health Equity in America survey (SOHEA)	Cognitive disability (CD)	CD status was assessed using a self-reported survey question: “Do you have any of the following disabilities — cognitive disability (because of a physical, mental, or emotional problem, having difficulty remembering, concentrating, or making decisions)?”	This measure captures self-reported difficulty with remembering, concentrating, or making decisions. It identifies cognitive disability rather than IDD specifically.
Medical Expenditure Panel Survey (MEPS)	Cognitive disability (CD)	CD status was defined using MEPS functional limitation measure, based on whether any adult family member experiences confusion or memory loss, has difficulty making decisions, or requires supervision for their own safety. Individuals were classified as having a cognitive limitation if at least one indicator was reported as “yes.”	The MEPS cognitive limitation questions apply only to adult family members aged 18 or older, so individuals younger than 18 were coded as inapplicable. CD was analyzed as a binary indicator and, where feasible, in combination with other disability classifications.
Merative Medicaid claims	Intellectual and developmental disability (IDD)	Individuals with IDD were identified using a set of more than 350 ICD-10 diagnosis codes compiled from an ICD-10 workbook used in prior commercial claims analyses and informed by external resources, including the Dental Quality Alliance Special Populations User Guide and the IDD Counts Initiative coordinated by the Administration for Community Living.	This claims-based definition captures diagnosed conditions associated with IDD, including intellectual disability, autism spectrum disorder, cerebral palsy, genetic and chromosomal syndromes, and other neurodevelopmental conditions.
Merative commercial claims	Intellectual and developmental disability (IDD)	Individuals with IDD were identified using the same study-specific ICD-10 code set used for the Merative Medicaid claims analyses.	See note for Merative Medicaid claims data above.

CD = cognitive disability; IDD = intellectual and developmental disability; SOHEA = State of Oral Health Equity in America survey; MEPS = Medical Expenditure Panel Survey. The categories are not directly comparable across datasets because survey-based measures rely on self- or caregiver-reporting, while claims-based measures rely on diagnostic coding.

Table 2. Summary of Findings Across Four Data Sources

Domain	SOHEA (Survey Data)	MEPS (Expenditures & Access Data)	Merative Claims (Medicaid & Commercial Data)
Population share with CD/IDD	~6.3% of respondents	~7.3% of population	~6%–8% (commercial); 17.4% (Medicaid)
Oral health status	Worse self-rated oral health; more tooth loss and poor oral health symptoms	Not directly self-reported; reflects higher treatment needs	Patterns of invasive procedures suggest worse underlying oral health
Dental visits/access	Lower likelihood of recent dental visits; fewer planned visits	Slightly more visits on average, but higher unmet need	Similar procedure rates, but disparities in care type and intensity
Cost barriers	Not measured	~3× higher odds of delaying care or being unable to afford care	Not directly measured; reflected indirectly in utilization patterns
Emergency department use	Much higher ED use for dental problems (OR≈3.0)	Not primary outcome	Higher odds of ED visits for NTDCs (Medicaid and commercial)
Type of care received	Higher symptom burden suggests unmet preventive care	Mix of routine and delayed care due to cost	Greater use of extractions, anesthesia, inpatient and ED care
Dental expenditures	Not measured	~33% higher dental spending among individuals with CD	6%–7% higher dental spending among individuals with IDD
Medical expenditures	Not measured	Substantially higher overall medical spending	Much higher total medical spending, especially in Medicaid
Key interpretation	Poorer outcomes and lower preventive engagement	High unmet need despite insurance coverage	Greater reliance on invasive and acute care services

CD = cognitive disability; ED = emergency department; IDD = intellectual and developmental disability; MEPS = Medical Expenditures Panel Survey; NTDC = non-traumatic dental condition; OR = odds ratio; SOHEA = State of Oral Health Equity in America survey.

Table 3. Demographic Characteristics of Individuals with Cognitive Disability (CD) or Intellectual and Developmental Disability (IDD) by Data Source

Characteristic	MEPS (2021–23)	SOHEA (2024–25)	Merative Commercial (2021–23)	Merative Medicaid (2021–23)
Total sample	108,138,469	11,607	5,879,552	6,365,659
Number with CD/IDD	7,884,460 (7.3%)	728 (6.3%)	378,702 (6.4%)	1,107,067 (17.4%)
Age in years				
18–29	1,307,953 (16.6%)	165 (22.6%)	N/A	N/A
30–44	1,267,861 (16.1%)	221 (30.3%)	124,514 (33%; 21–44 y)	1,625,848 (26%; 21–44 y)
45–59	1,467,339 (18.6%)	180 (24.7%)	50,363 (13%; 45–64 y)	83,748 (7.6%; 45–64 y)
60+	3,841,308 (48.7%)	163 (22.3%)	11,010 (2.9%; 65+)	22,737 (2.1%; 65+)
Race/ethnicity				
Asian, non-Hispanic	251,826 (3.2%)	14 (1.9%)	N/A	N/A
Black, non-Hispanic	779,989 (9.9%)	88 (12.1%)	N/A	1,447,908 (26%)
Hispanic	732,143 (9.3%)	136 (18.7%)	N/A	756,320 (13%)
Other, non-Hispanic or 2+ races	318,887 (4.0%)	34 (4.6%)	N/A	404,431 (7.1%)
White, non-Hispanic	5,801,615 (73.6%)	457 (62.8%)	N/A	3,054,375 (54%)
Gender				
Male	3,140,453 (39.8%)	354 (50.3%)	202,087 (53%)	2,754,821 (43%)
Female	4,743,917 (60.2%)	350 (49.7%)	176,615 (47%)	3,610,751 (57%)
Education level				
No degree/less than HS	841,066 (10.7%)	89 (12.2%)	N/A	N/A
High school/GED	3,802,109 (48.5%)	251 (34.4%)	N/A	N/A
Bachelor's degree	1,345,798 (17.2%)	99 (13.6%)	N/A	N/A
Graduate degree	861,109 (11.0%)	32 (4.4%)	N/A	N/A
Other degree/ associate's degree	989,584 (12.6%)	258 (35.4%)	N/A	N/A
Annual income				
Less than \$30,000	3,810,347 (51.4%)	339 (46.5%)	N/A	N/A
\$30,000 to <\$60,000	1,869,723 (25.2%)	172 (23.5%)	N/A	N/A
\$60,000 to <\$100,000	1,077,181 (14.5%)	130 (17.8%)	N/A	N/A
\$100,000 or more	651,191 (8.8%)	89 (12.2%)	N/A	N/A

MEPS = Medical Expenditures Panel Survey; SOHEA = State of Oral Health Equity in America survey; N/A = not available

Table 4. Demographic Characteristics for Individuals with and Without Cognitive Disability (CD) — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Characteristic	CD	Non-CD	p-value
Total sample	728 (6.3%)	10,879 (93.7%)	
Age in years			<0.001
18–29	165 (22.6%)	1,690 (15.5%)	
30–44	221 (30.3%)	2,981 (27.4%)	
45–59	180 (24.7%)	2,535 (23.3%)	
60+	163 (22.3%)	3,673 (33.8%)	
Race/ethnicity			0.026
Asian, non-Hispanic	14 (1.9%)	547 (5.0%)	
Black, non-Hispanic	88 (12.1%)	1,234 (11.3%)	
Hispanic	136 (18.7%)	1,614 (14.8%)	
Other, non-Hispanic or 2+ races	34 (4.6%)	443 (4.1%)	
White, non-Hispanic	457 (62.8%)	7,042 (64.7%)	
Gender			0.4
Male	354 (50.3%)	5,169 (47.8%)	
Female	350 (49.7%)	5,634 (52.2%)	
Education level			<0.001
No degree/less than HS	89 (12.2%)	596 (5.5%)	
High school/GED	251 (34.4%)	2,977 (27.4%)	
Bachelor's degree	258 (35.4%)	3,427 (31.5%)	
Graduate degree	99 (13.6%)	2,260 (20.8%)	
Other degree/associate's degree	32 (4.4%)	1,618 (14.9%)	
Annual income			<0.001
Less than \$30,000	339 (46.5%)	2,251 (20.7%)	
\$30,000 to <\$60,000	172 (23.5%)	2,797 (25.7%)	
\$60,000 to <\$100,000	130 (17.8%)	2,653 (24.4%)	
\$100,000 or more	89 (12.2%)	3,178 (29.2%)	

Bolded row = significant at p<0.05 level

Table 5. Dental and Medical-Related Factors for Individuals with and Without Cognitive Disability (CD) — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Characteristic	CD	Non-CD	p-value
Dental insurance			0.047
Yes	225 (31.1%)	2,848 (26.3%)	
No	498 (68.9%)	7,968 (73.7%)	
Last dental visit			<0.001
Less than 2 years ago	506 (70.2%)	8,675 (80.2%)	
More than 2 years ago	215 (29.8%)	2,135 (19.8%)	
Plan to see a dentist in the coming year			<0.001
Yes	571 (87.0%)	9,173 (92.5%)	
No	85 (13.0%)	748 (7.5%)	
Self-rated oral health			<0.001
Excellent/very good/good	422 (58.8%)	8,511 (78.4%)	
Fair/poor	296 (41.2%)	2,341 (21.6%)	
Teeth removed due to caries/periodontal disease			<0.001
None	301 (41.5%)	5,858 (54.1%)	
One or more	424 (58.5%)	4,972 (45.9%)	
Experienced 1+ oral health symptoms in the prior year			<0.001
Yes	597 (81.9%)	5,564 (51.1%)	
No	132 (18.1%)	5,314 (48.9%)	
ED visit in the past year for oral health problem			<0.001
Yes	92 (12.6%)	377 (3.5%)	
No	635 (87.4%)	10,470 (96.5%)	

Bolded row = significant at p<0.05 level

Table 6. Logistic Regression Analyses Predicting Not Having a Dental Visit in the Prior Two Years — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Predictor	Odds Ratio	95% CI	p-value
Cognitive disability			
No	—	—	
Yes	1.17	0.88, 1.54	0.3
Age in years			
18–29	ref	ref	ref
30–44	1.28	1.00, 1.64	0.053
45–59	1.05	0.82, 1.36	0.7
60+	0.57	0.45, 0.73	<0.001
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	0.78	0.49, 1.22	0.3
Black, non-Hispanic	0.88	0.69, 1.12	0.3
Hispanic	1.02	0.81, 1.28	0.9
Other, non-Hispanic or 2+ races	1.41	1.00, 1.98	0.051
Gender			
Male	ref	ref	ref
Female	0.75	0.64, 0.87	<0.001
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	1.20	0.86, 1.67	0.3
Some college/associate's degree	1.01	0.73, 1.39	>0.9
Bachelor's degree	0.67	0.47, 0.96	0.030
Graduate degree	0.40	0.27, 0.61	<0.001
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	0.83	0.68, 1.01	0.062
\$60,000 to <\$100,000	0.62	0.50, 0.77	<0.001
\$100,000 or more	0.38	0.29, 0.48	<0.001
Dental insurance			
No dental insurance	ref	ref	ref
Dental insurance	0.30	0.26, 0.35	<0.001
Residential location			
Nonmetropolitan	ref	ref	ref
Metropolitan	0.87	0.72, 1.05	0.2

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for age, race/ethnicity, gender, education, income, dental insurance, and metropolitan residence.

Table 7. Logistic Regression Analyses Predicting Seeking Dental Care in an Emergency Department in the Past Year — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	<i>ref</i>	<i>ref</i>	<i>ref</i>
Cognitive disability	3.00	2.00, 4.50	<0.001
Age in years			
18–29	<i>ref</i>	<i>ref</i>	<i>ref</i>
30–44	1.31	0.85, 2.02	0.2
45–59	0.66	0.41, 1.06	0.083
60+	0.37	0.23, 0.61	<0.001
Race/ethnicity			
White, non-Hispanic	<i>ref</i>	<i>ref</i>	<i>ref</i>
Asian, non-Hispanic	1.65	0.64, 4.24	0.3
Black, non-Hispanic	3.55	2.37, 5.30	<0.001
Hispanic	1.81	1.15, 2.82	0.01
Other, non-Hispanic or 2+ races	2.42	1.33, 4.38	0.004
Gender			
Male	<i>ref</i>	<i>ref</i>	<i>ref</i>
Female	0.93	0.68, 1.26	0.6
Education level			
No degree/less than HS	<i>ref</i>	<i>ref</i>	<i>ref</i>
High school/GED	0.73	0.44, 1.19	0.2
Some college/associate's degree	0.37	0.22, 0.59	<0.001
Bachelor's degree	0.35	0.18, 0.64	<0.001
Graduate degree	0.22	0.10, 0.49	<0.001
Annual income			
Less than \$30,000	<i>ref</i>	<i>ref</i>	<i>ref</i>
\$30,000 to <\$60,000	0.74	0.50, 1.10	0.14
\$60,000 to <\$100,000	0.74	0.49, 1.13	0.2
\$100,000 or more	0.37	0.21, 0.66	<0.001
Dental insurance			
No dental insurance	<i>ref</i>	<i>ref</i>	<i>ref</i>
Dental insurance	0.75	0.53, 1.04	0.085
Residential location			
Nonmetropolitan	<i>ref</i>	<i>ref</i>	<i>ref</i>
Metropolitan	0.94	0.63, 1.40	0.8

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for age, race/ethnicity, gender, education, income, and medical and dental insurance.

Table 8. Demographic Characteristics for Individuals with and Without Cognitive Disability (CD) — Medical Expenditures Panel Survey, 2021–23 (108,138,469)

Characteristic	CD	Non-CD	p-value
Total sample	7,884,460	99,872,592	
Type of disability			p<0.001
No disability	0 (0.0%)	87,200,108 (87.3%)	
Cognitive only	3,617,749 (45.9%)	0 (0.0%)	
Physical only	0 (0.0%)	6,930,723 (6.9%)	
Visual only	0 (0.0%)	814,829 (0.8%)	
Hearing only	0 (0.0%)	3,161,965 (3.2%)	
Multiple disabilities	4,266,711 (54.1%)	1,764,967 (1.8%)	
Age in years			p<0.001
18–29	1,307,953 (16.6%)	15,658,219 (15.7%)	
30–44	1,267,861 (16.1%)	24,503,731 (24.5%)	
45–59	1,467,339 (18.6%)	24,440,049 (24.5%)	
60+	3,841,308 (48.7%)	35,270,593 (35.3%)	
Race/ethnicity			p<0.001
Asian, non-Hispanic	251,826 (3.2%)	6,314,517 (6.3%)	
Black, non-Hispanic	779,989 (9.9%)	8,816,513 (8.8%)	
Hispanic	732,143 (9.3%)	10,485,680 (10.5%)	
Other, non-Hispanic or 2+ races	318,887 (4.0%)	2,437,453 (2.4%)	
White, non-Hispanic	5,801,615 (73.6%)	71,818,428 (71.9%)	
Gender			p=0.002
Male	3,140,543 (39.8%)	45,091,800 (45.1%)	
Female	4,743,917 (60.2%)	54,780,791 (54.9%)	
Education level			p<0.001
No degree/less than HS	841,066 (10.7%)	4,166,446 (4.2%)	
High school/GED	3,802,109 (48.5%)	33,152,932 (33.4%)	
Bachelor's degree	1,345,798 (17.2%)	29,049,748 (29.3%)	
Graduate degree	861,109 (11.0%)	21,472,041 (21.6%)	
Other degree/associate's degree	989,584 (12.6%)	11,368,018 (11.5%)	
Annual income			p<0.001
Less than \$30,000	3,810,347 (51.4%)	25,281,596 (26.1%)	
\$30,000 to <\$60,000	1,869,723 (25.2%)	26,607,023 (27.5%)	
\$60,000 to <\$100,000	1,077,181 (14.5%)	22,663,506 (23.4%)	
\$100,000 or more	651,191 (8.8%)	22,233,506 (23.0%)	

Bolded row = significant at p<0.05 level

Table 9. Dental and Medical-Related Costs for Individuals with and Without Cognitive Disability (CD) — Medical Expenditures Panel Survey, 2021–23 (108,138,469)

Characteristic	CD	Non-CD	p-value
Medical insurance type			<0.001
Private	2,852,338 (61.8%)	64,562,894 (88.7%)	
Public	1,695,579 (36.7%)	6,279,047 (8.6%)	
Uninsured	70,388 (1.5%)	1,932,314 (2.7%)	
Dental insurance type			<0.001
Private	3,551,435 (45.8%)	68,237,225 (68.7%)	
Public	2,421,249 (31.3%)	12,084,110 (12.2%)	
Uninsured/self-pay	1,774,401 (22.9%)	19,063,243 (19.2%)	
Number of dental visits (mean, sd)	2.45 (1.96)	2.21 (1.69)	0.001
Delayed dental care due to cost			<0.001
Yes	6,165,378 (78.5%)	91,592,539 (91.9%)	
No	1,687,608 (21.5%)	8,061,954 (8.1%)	
Could not afford dental care			<0.001
Yes	6,678,494 (85.0%)	94,813,412 (95.1%)	
No	1,179,108 (15.0%)	4,865,200 (4.9%)	
Total medical expenditures (mean USD, sd)	20,159 (35,106)	9,518 (23,610)	0.001
Total dental expenditures (mean USD, sd)	1,174 (2,036)	971 (1,948)	<0.001

sd = standard deviation; bolded row = significant at p<0.05 level; USD = United States dollars

Table 10. Gamma Regression Analyses Predicting Total Dental Expenditures — Medical Expenditures Panel Survey, 2021–23 (108,138,469)

Predictor	exp(β)	95% CI	p-value
Cognitive disability			
No	ref	ref	ref
Yes	1.33	1.12, 1.58	<0.001
Age in years			
18–29	ref	ref	ref
30–44	1.21	1.06, 1.38	0.005
45–59	1.22	1.07, 1.39	0.002
60+	1.77	1.47, 2.12	<0.001
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	1.20	1.05, 1.38	0.008
Black, non-Hispanic	1.15	1.00, 1.33	0.045
Hispanic	1.00	0.87, 1.15	>0.9
Other, non-Hispanic or 2+ races	1.14	0.95, 1.35	0.2
Gender			
Male	ref	ref	ref
Female	1.06	0.98, 1.14	0.2
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	0.88	0.69, 1.12	0.3
Bachelor's degree	0.71	0.56, 0.91	0.007
Graduate degree	0.71	0.56, 0.91	0.008
Other degree/associate's degree	0.87	0.66, 1.15	0.3
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	0.94	0.84, 1.06	0.3
\$60,000 to <\$100,000	1.11	0.96, 1.28	0.15
\$100,000 or more	1.09	0.95, 1.25	0.2
Medical insurance type			
Private	ref	ref	ref
Public	1.51	1.24, 1.84	<0.001
Uninsured	1.28	1.02, 1.62	0.035
Dental insurance type			
Private	ref	ref	ref
Public	0.57	0.46, 0.72	<0.001
Uninsured/self-pay	0.88	0.76, 1.03	0.11

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, race/ethnicity, gender, education, income, and medical and dental insurance.

Table 11. Logistic Regression Analyses Predicting Delaying Dental Care Due to Costs — Medical Expenditures Panel Survey, 2021–23 (108,138,469)

Predictor	Odds Ratio	95% CI	p-value
Cognitive disability			
No	ref	ref	ref
Yes	3.01	2.28, 3.96	<0.001
Age in years			
18–29	ref	ref	ref
30–44	0.90	0.72, 1.11	0.3
45–59	0.94	0.78, 1.13	0.5
60+	0.72	0.55, 0.96	0.025
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	1.05	0.74, 1.50	0.8
Black, non-Hispanic	1.14	0.92, 1.41	0.2
Hispanic	1.27	1.04, 1.55	0.019
Other, non-Hispanic or 2+ races	1.54	1.04, 2.27	0.031
Gender			
Male	ref	ref	ref
Female	1.31	1.14, 1.51	<0.001
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	1.44	1.04, 2.01	0.028
Bachelor's degree	1.32	0.93, 1.87	0.12
Graduate degree	1.13	0.76, 1.67	0.6
Other degree/associate's degree	1.43	0.95, 2.14	0.088
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	1.17	0.96, 1.43	0.12
\$60,000 to <\$100,000	0.93	0.75, 1.17	0.5
\$100,000 or more	0.66	0.49, 0.90	0.008
Medical insurance type			
Private	ref	ref	ref
Public	1.34	0.82, 2.19	0.2
Uninsured	2.96	2.08, 4.22	<0.001
Dental insurance type			
Private	ref	ref	ref
Public	1.51	0.95, 2.41	0.084
Uninsured/self-pay	2.39	1.98, 2.89	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, race/ethnicity, gender, education, income, and medical and dental insurance.

Table 12. Logistic Regression Analyses Predicting Not Being Able to Afford Dental Care — Medical Expenditures Panel Survey, 2021–23 (108,138,469)

Predictor	Odds Ratio	95% CI	p-value
Cognitive disability			
No	ref	ref	ref
Yes	3.13	2.33, 4.20	<0.001
Age in years			
18–29	ref	ref	ref
30–44	1.17	0.90, 1.51	0.2
45–59	1.21	0.94, 1.56	0.13
60+	0.68	0.47, 0.97	0.033
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	1.22	0.80, 1.87	0.3
Black, non-Hispanic	1.31	1.04, 1.65	0.022
Hispanic	1.44	1.14, 1.83	0.003
Other, non-Hispanic or 2+ races	1.77	1.13, 2.76	0.012
Gender			
Male	ref	ref	ref
Female	1.34	1.14, 1.59	<0.001
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	1.29	0.89, 1.88	0.2
Bachelor's degree	0.97	0.63, 1.50	0.9
Graduate degree	0.80	0.51, 1.25	0.3
Other degree/associate's degree	1.17	0.75, 1.83	0.5
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	1.20	0.95, 1.52	0.12
\$60,000 to <\$100,000	0.86	0.64, 1.14	0.3
\$100,000 or more	0.48	0.34, 0.67	<0.001
Medical insurance type			
Private	ref	ref	ref
Public	1.64	0.99, 2.72	0.056
Uninsured	2.79	1.85, 4.19	<0.001
Dental insurance type			
Private	ref	ref	ref
Public	1.50	0.92, 2.45	0.10
Uninsured/self-pay	2.62	2.12, 3.24	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, race/ethnicity, gender, education, income, and medical and dental insurance

Table 13. Demographic Characteristics for Individuals with and Without Intellectual and Developmental Disabilities — Merative Medicaid, 2021–2023 (N=6,365,659)

Characteristic	IDD	Non-IDD	p-value
Gender			<0.001
Male	654,824 (59%)	2,099,997 (40%)	
Female	452,232 (41%)	3,158,519 (60%)	
Age in years			<0.001
0–5	225,123 (20%)	719,797 (14%)	
6–9	195,189 (18%)	403,253 (7.7%)	
10–14	211,830 (19%)	521,802 (9.9%)	
15–20	142,212 (13%)	605,956 (12%)	
21–44	226,228 (20%)	1,399,620 (27%)	
45–64	83,748 (7.6%)	988,842 (19%)	
65+	22,737 (2.1%)	619,322 (12%)	
Race/ethnicity			<0.001
Black	207,089 (21%)	1,240,819 (26%)	
Hispanic	88,218 (9.1%)	668,102 (14%)	
Other	58,022 (6.0%)	346,409 (7.4%)	
White	616,871 (64%)	2,437,504 (52%)	

Bolded row = significant at p<0.05 level

Table 14. Dental and Medical-Related Costs for Individuals with and Without Intellectual and Developmental Disabilities — Merative Medicaid, 2021–2023 (N=5,879,552)

Predictor	IDD	Non-IDD	p-value
1+ multiple-surface restoration claims			<0.001
No	937,758 (85%)	4,627,463 (88%)	
Yes	169,309 (15%)	631,129 (12%)	
1+ extraction claims			<0.001
No	970,144 (88%)	4,714,006 (90%)	
Yes	136,923 (12%)	544,586 (10%)	
1+ dental anesthesia claims			<0.001
No	1,067,167 (96%)	5,139,087 (98%)	
Yes	39,900 (3.6%)	119,505 (2.3%)	
1+ inpatient NTDC claims			<0.001
No	1,106,176 (100%)	5,255,453 (100%)	
Yes	891 (<0.01%)	3,139 (<0.01%)	
1+ emergency department NTDC claims			<0.001
No	1,093,717 (99%)	5,185,416 (99%)	
Yes	13,350 (1.2%)	73,176 (1.4%)	
Average total medical and dental costs (mean USD, sd)	30,819 (99,054)	11,837 (52,259)	<0.001
Average total medical costs (mean USD, sd)	30,493 (99,024)	11,590 (52,264)	<0.001
Average total dental costs (mean USD, sd)	725 (1,031)	685 (944)	<0.001
Average total multiple surface restoration costs (mean USD, sd)	362 (388)	347 (334)	<0.001
Average total extraction costs (mean USD, sd)	197 (396)	191 (279)	<0.001
Average total dental anesthesia costs (mean USD, sd)	432 (493)	332 (308)	<0.001
Average total inpatient NTDC costs costs (mean USD, sd)	3,632 (14,198)	2,625 (10,210)	0.01
Average total emergency department NTDC costs (mean USD, sd)	381 (1,036)	328 (877)	<0.001

NTDC = non-traumatic dental conditions; sd = standard deviation; bolded row = significant at p<0.05 level; USD = United States dollars

Table 15. Gamma Regression Analyses Predicting Total Dental Expenditures — Merative Medicaid, 2021–2023 (N=6,365,659)

Characteristic	exp(β)	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.06	1.05, 1.06	<0.001
Age in years			
0–5	ref	ref	ref
6–9	1.39	1.38, 1.39	<0.001
10–14	1.53	1.52, 1.54	<0.001
15–20	1.41	1.40, 1.42	<0.001
21–44	1.27	1.26, 1.27	<0.001
45–64	1.38	1.37, 1.39	<0.001
65+	0.97	0.96, 0.98	<0.001
Gender			
Male	ref	ref	ref
Female	1.02	1.01, 1.02	<0.001
Race/ethnicity			
White	ref	ref	ref
Black	0.78	0.78, 0.79	<0.001
Hispanic	1.02	1.01, 1.02	<0.001
Other	1.13	1.12, 1.14	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, gender, and race/ethnicity.

Table 16. Logistic Regression Analyses Predicting Having One or More Multi-Surface Restoration Claims — Merative Medicaid, 2021–2023 (N=6,365,659)

Characteristic	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.12	1.11, 1.13	<0.001
Age in years			
0–5	ref	ref	ref
6–9	3.39	3.36, 3.43	<0.001
10–14	2.78	2.75, 2.81	<0.001
15–20	2.61	2.58, 2.64	<0.001
21–44	2.02	2.01, 2.04	<0.001
45–64	1.26	1.24, 1.27	<0.001
65+	0.34	0.34, 0.35	<0.001
Gender			
Male	ref	ref	ref
Female	1.17	1.16, 1.18	<0.001
Race/ethnicity			
White	ref	ref	ref
Black	0.72	0.72, 0.73	<0.001
Hispanic	1.28	1.27, 1.29	<0.001
Other	1.46	1.44, 1.47	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, gender, and race/ethnicity.

Table 17. Logistic Regression Analyses Predicting Visiting an Emergency Department for a Non-Traumatic Dental Condition — Merative Medicaid, 2021–2023 (N=6,365,659)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.05	1.03, 1.08	<0.001
Age in years			
0–5	ref	ref	ref
6–9	0.63	0.60, 0.66	<0.001
10–14	0.49	0.47, 0.51	<0.001
15–20	1.37	1.32, 1.42	<0.001
21–44	4.10	3.98, 4.21	<0.001
45–64	2.05	1.99, 2.12	<0.001
65+	0.57	0.54, 0.60	<0.001
Gender			
Male	ref	ref	ref
Female	1.02	1.01, 1.04	0.004
Race/ethnicity			
White	ref	ref	ref
Black	1.27	1.25, 1.29	<0.001
Hispanic	0.68	0.66, 0.69	<0.001
Other	0.76	0.73, 0.78	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, gender, and race/ethnicity.

Table 18. Demographic Characteristics for Individuals with and Without Intellectual and Developmental Disabilities — Merative Commercial, 2021–2023 (N=5,879,552)

Characteristic	IDD	Non-IDD	p-value
Gender			<0.001
Male	202,087 (53%)	2,582,624 (47%)	
Female	176,615 (47%)	2,918,226 (53%)	
Age in years			<0.001
0–5	41,792 (11%)	229,723 (4.2%)	
6–9	36,562 (9.7%)	204,810 (3.7%)	
10–14	52,026 (14%)	306,875 (5.6%)	
15–20	62,435 (16%)	415,237 (7.5%)	
21–44	124,514 (33%)	1,619,564 (29%)	
45–64	50,363 (13%)	1,750,203 (32%)	
65+	11,010 (2.9%)	974,438 (18%)	

Bolded row = significant at p<0.05 level. Model controls for gender and age.

Table 19. Dental and Medical-Related Costs for Individuals with and Without Intellectual and Developmental Disabilities — Merative Commercial, 2021–2023 (N=6,365,659)

Predictor	IDD	Non-IDD	p-value
1+ multiple-surface restoration claims			<0.001
No	295,001 (78%)	4,377,099 (80%)	
Yes	83,701 (22%)	1,123,751 (20%)	
1+ extraction claims			<0.001
No	327,345 (86%)	4,833,646 (88%)	
Yes	51,357 (14%)	667,204 (12%)	
1+ dental anesthesia claims			<0.001
No	358,354 (95%)	5,338,785 (97%)	
Yes	20,348 (5.4%)	162,065 (2.9%)	
1+ inpatient NTDC claims			<0.001
No	378,555 (100%)	5,499,661 (100%)	
Yes	147 (<0.1%)	1,189 (<0.1%)	
1+ emergency department NTDC claims			<0.001
No	377,683 (100%)	5,490,287 (100%)	
Yes	1,019 (0.3%)	10,563 (0.2%)	
Average total medical and dental costs (mean USD, sd)	20,023 (74,019)	14,261 (42,678)	<0.001
Average total medical costs (mean USD, sd)	18,966 (73,976)	13,234 (42,604)	<0.001
Average total dental costs (mean USD, sd)	1,329 (1,507)	1,377 (1,518)	<0.001
Average total multiple surface restoration costs (mean USD, sd)	384 (345)	334 (280)	<0.001
Average total extraction costs (mean USD, sd)	393 (445)	324 (317)	<0.001
Average total dental anesthesia costs (mean USD, sd)	379 (238)	374 (236)	0.006
Average total inpatient NTDC costs (mean USD, sd)	7,975 (14,544)	5,579 (14,531)	0.065
Average total emergency department NTDC costs (mean USD, sd)	1,365 (2,125)	1,148 (1,768)	0.002

NTDC = non-traumatic dental conditions; sd = standard deviation; bolded row = significant at p<0.05 level; USD = United States dollars

Table 20. Gamma Regression Analyses Predicting Total Dental Expenditures — Merative Commercial, 2021–2023 (N=5,879,552)

Characteristic	exp(β)	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.07	1.07, 1.08	<0.001
Age in years			
0–5	ref	ref	ref
6–9	1.81	1.80, 1.82	<0.001
10–14	2.83	2.82, 2.85	<0.001
15–20	2.10	2.08, 2.11	<0.001
21–44	1.98	1.97, 1.99	<0.001
45–64	2.67	2.65, 2.68	<0.001
65+	2.78	2.76, 2.80	<0.001
Gender			
Male	ref	ref	ref
Female	1.01	1.01, 1.01	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age and gender.

Table 21. Logistic Regression Analyses Predicting Having One or More Multi-Surface Restoration Claims — Merative Commercial, 2021–2023 (N=5,879,552)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.18	1.17, 1.19	<0.001
Age in years			
0–5	ref	ref	ref
6–9	2.97	2.92, 3.02	<0.001
10–14	1.99	1.96, 2.02	<0.001
15–20	2.75	2.71, 2.79	<0.001
21–44	2.75	2.71, 2.79	<0.001
45–64	2.89	2.85, 2.93	<0.001
65+	2.39	2.36, 2.42	<0.001
Gender			
Male	ref	ref	ref
Female	1.06	1.05, 1.06	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age and gender.

Table 22. Logistic Regression Analyses Predicting Visiting an Emergency Department for a Non-Traumatic Dental Condition — Merative Commercial, 2021–2023 (N=5,879,552)

Characteristic	exp(Beta)	95% CI	p-value
Disability type			
No disability	<i>ref</i>	<i>ref</i>	<i>ref</i>
ID disability	1.53	1.43, 1.63	<0.001
Age in years			
0–5	<i>ref</i>	<i>ref</i>	<i>ref</i>
6–9	0.69	0.60, 0.80	<0.001
10–14	0.43	0.37, 0.50	<0.001
15–20	0.98	0.88, 1.10	0.8
21–44	1.55	1.41, 1.71	<0.001
45–64	1.05	0.95, 1.15	0.4
65+	1.26	1.14, 1.39	<0.001
Gender			
Male	<i>ref</i>	<i>ref</i>	<i>ref</i>
Female	1.07	1.03, 1.11	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age and gender.

Appendix A. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E71.111	3-methylglutaconic aciduria	Metabolic Disorders Presenting with Intellectual Disability
F80.3	Acquired aphasia with epilepsy [Landau-Kleffner]	Learning Disability
P91.1	Acquired periventricular cysts of newborn	Congenital Malformations and Neonatal Injuries of Nervous System
E71.521	Adolescent X-linked adrenoleukodystrophy	Metabolic Disorders Presenting with Intellectual Disability
E71.522	Adrenomyeloneuropathy	Metabolic Disorders Presenting with Intellectual Disability
E70.339	Albinism with hematologic abnormality, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.30	Albinism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
Q87.81	Alport syndrome	Other Conditions Presenting with Intellectual Disability
Q06.0	Amyelia	Spina Bifida and Other Congenital Anomalies of the Nervous System
Q00.0	Anencephaly	Congenital Malformations and Neonatal Injuries of Nervous System
Q93.51	Angelman syndrome	Other Conditions Presenting with Intellectual Disability
E72.21	Argininemia	Metabolic Disorders Presenting with Intellectual Disability
E72.22	Arginosuccinic aciduria	Metabolic Disorders Presenting with Intellectual Disability
Q04.1	Arhinencephaly	Congenital Malformations and Neonatal Injuries of Nervous System
Q07.02	Arnold-Chiari syndrome with hydrocephalus	Spina Bifida
Q07.01	Arnold-Chiari syndrome with spina bifida	Spina Bifida
Q07.03	Arnold-Chiari syndrome with spina bifida and hydrocephalus	Spina Bifida
Q07.00	Arnold-Chiari syndrome without spina bifida or hydrocephalus	Spina Bifida
E70.81	Aromatic L-amino acid decarboxylase deficiency	Metabolic Disorders Presenting with Intellectual Disability
F84.5	Asperger's syndrome	Autism Spectrum Disorder
G80.4	Ataxic cerebral palsy	Cerebral Palsy
G80.3	Athetoid cerebral palsy	Cerebral Palsy
Q03.1	Atresia of foramina of Magendie and Luschka	Congenital Malformations and Neonatal Injuries of Nervous System
F90.2	Attention-deficit hyperactivity disorder, combined type	ADHD
F90.8	Attention-deficit hyperactivity disorder, other type	ADHD

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
F90.1	Attention-deficit hyperactivity disorder, predominantly hyperactive type	ADHD
F90.0	Attention-deficit hyperactivity disorder, predominantly inattentive type	ADHD
F90.9	Attention-deficit hyperactivity disorder, unspecified type	ADHD
F90	Attention-deficit hyperactivity disorders	ADHD
F84.1	Atypical autism	Autism Spectrum Disorder
F84.0	Autistic disorder	Autism Spectrum Disorder
E70.311	Autosomal recessive ocular albinism	Metabolic Disorders Presenting with Intellectual Disability
Q95.2	Balanced autosomal rearrangement in abnormal individual	Other Conditions Presenting with Intellectual Disability
Q95.3	Balanced sex/autosomal rearrangement in abnormal individual	Other Conditions Presenting with Intellectual Disability
Q87.83	Bardet-Biedl syndrome	Other Conditions Presenting with Intellectual Disability
E78.71	Barth syndrome	Other Conditions Presenting with Intellectual Disability
P11.9	Birth injury to central nervous system, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
P11.5	Birth injury to spine and spinal cord	Congenital Malformations and Neonatal Injuries of Nervous System
E71.42	Carnitine deficiency due to inborn errors of metabolism	Metabolic Disorders Presenting with Intellectual Disability
H93.25	Central auditory processing disorder	Learning Disability
P11.0	Cerebral edema due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
P10.1	Cerebral hemorrhage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
G80.9	Cerebral palsy, unspecified	Cerebral Palsy
Q05.0	Cervical spina bifida with hydrocephalus	Spina Bifida
Q05.5	Cervical spina bifida without hydrocephalus	Spina Bifida
E70.330	Chediak-Higashi syndrome	Metabolic Disorders Presenting with Intellectual Disability
E71.520	Childhood cerebral X-linked adrenoleukodystrophy	Metabolic Disorders Presenting with Intellectual Disability
F80.81	Childhood onset fluency disorder	Learning Disability
Q93.2	Chromosome replaced with ring, dicentric or isochromosome	Other Conditions Presenting with Intellectual Disability
E72.23	Citrullinemia	Metabolic Disorders Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E70.0	Classical phenylketonuria	Metabolic Disorders Presenting with Intellectual Disability
G70.2	Congenital and developmental myasthenia	Congenital Malformations and Neonatal Injuries of Nervous System
Q04.6	Congenital cerebral cysts	Congenital Malformations and Neonatal Injuries of Nervous System
Q03.9	Congenital hydrocephalus, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
P94.1	Congenital hypertonia	Congenital Malformations and Neonatal Injuries of Nervous System
P94.2	Congenital hypotonia	Congenital Malformations and Neonatal Injuries of Nervous System
Q04.9	Congenital malformation of brain, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
Q07.9	Congenital malformation of nervous system, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
Q06.9	Congenital malformation of spinal cord, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
Q87.3	Congenital malformation syndromes involving early overgrowth	Other Conditions Presenting with Intellectual Disability
Q87.1	Congenital malformation syndromes predominantly associated with short stature	Other Conditions Presenting with Intellectual Disability
Q87.2	Congenital malformation syndromes predominantly involving limbs	Other Conditions Presenting with Intellectual Disability
Q04.0	Congenital malformations of corpus callosum	Congenital Malformations and Neonatal Injuries of Nervous System
G71.2	Congenital myopathies	Congenital Malformations and Neonatal Injuries of Nervous System
G71.20	Congenital myopathy, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
H53.63	Congenital night blindness	Congenital Malformations and Neonatal Injuries of Nervous System
G11.0	Congenital nonprogressive ataxia	Congenital Malformations and Neonatal Injuries of Nervous System
H55.01	Congenital nystagmus	Congenital Malformations and Neonatal Injuries of Nervous System
E74.03	Cori disease	Metabolic Disorders Presenting with Intellectual Disability
Q00.1	Craniorachischisis	Congenital Malformations and Neonatal Injuries of Nervous System
E72.04	Cystinosis	Metabolic Disorders Presenting with Intellectual Disability
E72.01	Cystinuria	Metabolic Disorders Presenting with Intellectual Disability
E77.1	Defects in glycoprotein degradation	Metabolic Disorders Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E77.0	Defects in post-translational modification of lysosomal enzymes	Metabolic Disorders Presenting with Intellectual Disability
Q93.9	Deletion from autosomes, unspecified	Other Conditions Presenting with Intellectual Disability
Q93.3	Deletion of short arm of chromosome 4	Other Conditions Presenting with Intellectual Disability
Q93.4	Deletion of short arm of chromosome 5	Other Conditions Presenting with Intellectual Disability
Q93.7	Deletions with other complex rearrangements	Other Conditions Presenting with Intellectual Disability
F81.9	Developmental disorder of scholastic skills, unspecified	Learning Disability
F80.9	Developmental disorder of speech and language, unspecified	Learning Disability
Q06.2	Diastematomyelia	Spina Bifida and Other Congenital Anomalies of the Nervous System
E72.9	Disorder of amino-acid metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.9	Disorder of aromatic amino-acid metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E71.2	Disorder of branched-chain amino-acid metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E74.9	Disorder of carbohydrate metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E71.40	Disorder of carnitine metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E71.30	Disorder of fatty-acid metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E74.10	Disorder of fructose metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E72.50	Disorder of glycine metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E77.9	Disorder of glycoprotein metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.20	Disorder of tyrosine metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E72.20	Disorder of urea cycle metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
F81.81	Disorder of written expression	Learning Disability
E72.00	Disorders of amino-acid transport, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E74.20	Disorders of galactose metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E72.81	Disorders of gamma aminobutyric acid metabolism	Metabolic Disorders Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E74.81	Disorders of glucose transport, not elsewhere classified	Metabolic Disorders Presenting with Intellectual Disability
E74.819	Disorders of glucose transport, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.40	Disorders of histidine metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E71.32	Disorders of ketone metabolism	Metabolic Disorders Presenting with Intellectual Disability
E72.3	Disorders of lysine and hydroxylysine metabolism	Metabolic Disorders Presenting with Intellectual Disability
E72.4	Disorders of ornithine metabolism	Metabolic Disorders Presenting with Intellectual Disability
E74.4	Disorders of pyruvate metabolism and gluconeogenesis	Metabolic Disorders Presenting with Intellectual Disability
E72.10	Disorders of sulfur-bearing amino-acid metabolism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.5	Disorders of tryptophan metabolism	Metabolic Disorders Presenting with Intellectual Disability
Q90.9	Down syndrome, unspecified	Other Conditions Presenting with Intellectual Disability
Q92.5	Duplications with other complex rearrangements	Other Conditions Presenting with Intellectual Disability
R48.0	Dyslexia and alexia	Learning Disability
R48	Dyslexia and other symbolic dysfunctions, not elsewhere classified	Learning Disability
Q01.8	Encephalocele of other sites	Congenital Malformations and Neonatal Injuries of Nervous System
Q01.9	Encephalocele, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
E74.11	Essential fructosuria	Metabolic Disorders Presenting with Intellectual Disability
F80.1	Expressive language disorder	Learning Disability
E75.21	Fabry (-Anderson) disease	Metabolic Disorders Presenting with Intellectual Disability
G90.1	Familial dysautonomia [Riley-Day]	Spina Bifida and Other Congenital Anomalies of the Nervous System
Q86.0	Fetal alcohol syndrome (dysmorphic)	Other Conditions Presenting with Intellectual Disability
Q86.1	Fetal hydantoin syndrome	Other Conditions Presenting with Intellectual Disability
Q99.2	Fragile X chromosome	Other Conditions Presenting with Intellectual Disability
Q01.0	Frontal encephalocele	Congenital Malformations and Neonatal Injuries of Nervous System

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E74.21	Galactosemia	Metabolic Disorders Presenting with Intellectual Disability
E75.22	Gaucher disease	Metabolic Disorders Presenting with Intellectual Disability
E74.810	Glucose transporter protein type 1 deficiency	Metabolic Disorders Presenting with Intellectual Disability
E71.313	Glutaric aciduria type II	Metabolic Disorders Presenting with Intellectual Disability
E74.00	Glycogen storage disease, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E76.9	Glycosaminoglycan metabolism disorder, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E75.00	GM2 gangliosidosis, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E72.02	Hartnup's disease	Metabolic Disorders Presenting with Intellectual Disability
E74.12	Hereditary fructose intolerance	Metabolic Disorders Presenting with Intellectual Disability
E70.331	Hermansky-Pudlak syndrome	Metabolic Disorders Presenting with Intellectual Disability
E70.41	Histidinemia	Metabolic Disorders Presenting with Intellectual Disability
Q04.2	Holoprosencephaly	Congenital Malformations and Neonatal Injuries of Nervous System
E72.11	Homocystinuria	Metabolic Disorders Presenting with Intellectual Disability
E76.01	Hurler syndrome	Metabolic Disorders Presenting with Intellectual Disability
E76.02	Hurler-Scheie syndrome	Metabolic Disorders Presenting with Intellectual Disability
Q06.4	Hydromyelia	Spina Bifida and Other Congenital Anomalies of the Nervous System
Q06.1	Hypoplasia and dysplasia of spinal cord	Spina Bifida and Other Congenital Anomalies of the Nervous System
P91.60	Hypoxic ischemic encephalopathy [HIE], unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
E71.43	Iatrogenic carnitine deficiency	Metabolic Disorders Presenting with Intellectual Disability
Q00.2	Iniencephaly	Congenital Malformations and Neonatal Injuries of Nervous System
P10.2	Intraventricular hemorrhage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
E71.110	Isovaleric acidemia	Metabolic Disorders Presenting with Intellectual Disability
Q87.86	Kleefstra syndrome	Other Conditions Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
Q98.0	Klinefelter syndrome karyotype 47, XXY	Other Conditions Presenting with Intellectual Disability
Q98.1	Klinefelter syndrome, male with more than two X chromosomes	Other Conditions Presenting with Intellectual Disability
Q98.4	Klinefelter syndrome, unspecified	Other Conditions Presenting with Intellectual Disability
E75.23	Krabbe disease	Metabolic Disorders Presenting with Intellectual Disability
Q87.84	Laurence-Moon syndrome	Other Conditions Presenting with Intellectual Disability
E75.6	Lipid storage disorder, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E71.310	Long chain/very long chain acyl CoA dehydrogenase deficiency	Metabolic Disorders Presenting with Intellectual Disability
E72.03	Lowe syndrome	Metabolic Disorders Presenting with Intellectual Disability
Q05.2	Lumbar spina bifida with hydrocephalus	Spina Bifida
Q05.7	Lumbar spina bifida without hydrocephalus	Spina Bifida
Q03.0	Malformations of aqueduct of Sylvius	Congenital Malformations and Neonatal Injuries of Nervous System
E71.0	Maple-syrup-urine disease	Metabolic Disorders Presenting with Intellectual Disability
Q92.62	Marker chromosomes in abnormal individual	Other Conditions Presenting with Intellectual Disability
Q92.61	Marker chromosomes in normal individual	Other Conditions Presenting with Intellectual Disability
F81.2	Mathematics disorder	Learning Disability
E74.04	McArdle disease	Metabolic Disorders Presenting with Intellectual Disability
Q87.85	MED13L syndrome	Other Conditions Presenting with Intellectual Disability
E71.311	Medium chain acyl CoA dehydrogenase deficiency	Metabolic Disorders Presenting with Intellectual Disability
Q04.5	Megalencephaly	Congenital Malformations and Neonatal Injuries of Nervous System
E75.25	Metachromatic leukodystrophy	Metabolic Disorders Presenting with Intellectual Disability
E72.12	Methylenetetrahydrofolate reductase deficiency	Metabolic Disorders Presenting with Intellectual Disability
E71.120	Methylmalonic acidemia	Metabolic Disorders Presenting with Intellectual Disability
Q02	Microcephaly	Congenital Malformations and Neonatal Injuries of Nervous System
P91.61	Mild hypoxic ischemic encephalopathy [HIE]	Congenital Malformations and Neonatal Injuries of Nervous System

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
F70	Mild intellectual disabilities	Intellectual Disability
F70.0	Mild intellectual disabilities with the statement of no, or minimal, impairment of behavior	Intellectual Disability
F70.8	Mild intellectual disabilities, other impairments of behavior	Intellectual Disability
F70.1	Mild intellectual disabilities, significant impairment of behavior requiring attention or treatment	Intellectual Disability
F70.9	Mild intellectual disabilities, without mention of impairment of behavior	Intellectual Disability
F81.3	Mixed disorder of scholastic skills	Learning Disability
F80.2	Mixed receptive-expressive language disorder	Learning Disability
P91.62	Moderate hypoxic ischemic encephalopathy [HIE]	Congenital Malformations and Neonatal Injuries of Nervous System
F71	Moderate intellectual disabilities	Intellectual Disability
F71.0	Moderate intellectual disabilities with the statement of no, or minimal, impairment of behavior	Intellectual Disability
F71.9	Moderate intellectual disabilities without mention of impairment of behavior	Intellectual Disability
F71.8	Moderate intellectual disabilities, other impairments of behavior	Intellectual Disability
F71.1	Moderate intellectual disabilities, significant impairment of behavior requiring attention or treatment	Intellectual Disability
E76.210	Morquio A mucopolysaccharidoses	Metabolic Disorders Presenting with Intellectual Disability
E76.211	Morquio B mucopolysaccharidoses	Metabolic Disorders Presenting with Intellectual Disability
E76.219	Morquio mucopolysaccharidoses, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E75.11	Mucopolipidosis IV	Metabolic Disorders Presenting with Intellectual Disability
E76.1	Mucopolysaccharidosis, type II	Metabolic Disorders Presenting with Intellectual Disability
E76.3	Mucopolysaccharidosis, unspecified	Metabolic Disorders Presenting with Intellectual Disability
Q89.7	Multiple congenital malformations, not elsewhere classified	Other Conditions Presenting with Intellectual Disability
E71.314	Muscle carnitine palmitoyltransferase deficiency	Metabolic Disorders Presenting with Intellectual Disability
Q01.1	Nasofrontal encephalocele	Congenital Malformations and Neonatal Injuries of Nervous System
E71.511	Neonatal adrenoleukodystrophy	Metabolic Disorders Presenting with Intellectual Disability
P91.823	Neonatal cerebral infarction, bilateral	Congenital Malformations and Neonatal Injuries of Nervous System

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
P91.822	Neonatal cerebral infarction, left side of brain	Congenital Malformations and Neonatal Injuries of Nervous System
P91.821	Neonatal cerebral infarction, right side of brain	Congenital Malformations and Neonatal Injuries of Nervous System
P91.829	Neonatal cerebral infarction, unspecified side	Congenital Malformations and Neonatal Injuries of Nervous System
P91.0	Neonatal cerebral ischemia	Congenital Malformations and Neonatal Injuries of Nervous System
P91.2	Neonatal cerebral leukomalacia	Congenital Malformations and Neonatal Injuries of Nervous System
P91.5	Neonatal coma	Congenital Malformations and Neonatal Injuries of Nervous System
P91.811	Neonatal encephalopathy in diseases classified elsewhere	Congenital Malformations and Neonatal Injuries of Nervous System
P91.819	Neonatal encephalopathy, unspecified	Congenital Malformations and Neonatal Injuries of Nervous System
E75.4	Neuronal ceroid lipofuscinosis	Metabolic Disorders Presenting with Intellectual Disability
P04.3	Newborn affected by maternal use of alcohol	Other Conditions Presenting with Intellectual Disability
E75.240	Niemann-Pick disease type A	Metabolic Disorders Presenting with Intellectual Disability
E75.244	Niemann-Pick disease type A/B	Metabolic Disorders Presenting with Intellectual Disability
E75.241	Niemann-Pick disease type B	Metabolic Disorders Presenting with Intellectual Disability
E75.242	Niemann-Pick disease type C	Metabolic Disorders Presenting with Intellectual Disability
E75.243	Niemann-Pick disease type D	Metabolic Disorders Presenting with Intellectual Disability
E75.249	Niemann-Pick disease, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E72.51	Non-ketotic hyperglycinemia	Metabolic Disorders Presenting with Intellectual Disability
Q01.2	Occipital encephalocele	Congenital Malformations and Neonatal Injuries of Nervous System
E70.319	Ocular albinism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.329	Oculocutaneous albinism, unspecified	Metabolic Disorders Presenting with Intellectual Disability
E70.338	Other albinism with hematologic abnormality	Metabolic Disorders Presenting with Intellectual Disability
E71.118	Other branched-chain organic acidurias	Metabolic Disorders Presenting with Intellectual Disability
G80.8	Other cerebral palsy	Cerebral Palsy
F84.3	Other childhood disintegrative disorder	Autism Spectrum Disorder

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
Q06.3	Other congenital cauda equina malformations	Congenital Malformations and Neonatal Injuries of Nervous System
Q03.8	Other congenital hydrocephalus	Congenital Malformations and Neonatal Injuries of Nervous System
Q87.19	Other congenital malformation syndromes predominantly associated with short stature	Other Conditions Presenting with Intellectual Disability
Q87.5	Other congenital malformation syndromes with other skeletal changes	Other Conditions Presenting with Intellectual Disability
G71.29	Other congenital myopathy	Congenital Malformations and Neonatal Injuries of Nervous System
Q93.5	Other deletion of part of a chromosome	Other Conditions Presenting with Intellectual Disability
Q93.89	Other deletions from the autosomes	Other Conditions Presenting with Intellectual Disability
Q93.59	Other deletions of part of a chromosome	Other Conditions Presenting with Intellectual Disability
F81.89	Other developmental disorders of scholastic skills	Learning Disability
F80.89	Other developmental disorders of speech and language	Learning Disability
E72.09	Other disorders of amino-acid transport	Metabolic Disorders Presenting with Intellectual Disability
E70.8	Other disorders of aromatic amino-acid metabolism	Metabolic Disorders Presenting with Intellectual Disability
E70.89	Other disorders of aromatic amino-acid metabolism	Metabolic Disorders Presenting with Intellectual Disability
E71.19	Other disorders of branched-chain amino-acid metabolism	Metabolic Disorders Presenting with Intellectual Disability
E71.39	Other disorders of fatty-acid metabolism	Metabolic Disorders Presenting with Intellectual Disability
E71.318	Other disorders of fatty-acid oxidation	Metabolic Disorders Presenting with Intellectual Disability
E74.19	Other disorders of fructose metabolism	Metabolic Disorders Presenting with Intellectual Disability
E74.29	Other disorders of galactose metabolism	Metabolic Disorders Presenting with Intellectual Disability
E74.818	Other disorders of glucose transport	Metabolic Disorders Presenting with Intellectual Disability
E72.59	Other disorders of glycine metabolism	Metabolic Disorders Presenting with Intellectual Disability
E77.8	Other disorders of glycoprotein metabolism	Metabolic Disorders Presenting with Intellectual Disability
E76.8	Other disorders of glycosaminoglycan metabolism	Metabolic Disorders Presenting with Intellectual Disability
E70.49	Other disorders of histidine metabolism	Metabolic Disorders Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E74.39	Other disorders of intestinal carbohydrate absorption	Metabolic Disorders Presenting with Intellectual Disability
E71.518	Other disorders of peroxisome biogenesis	Metabolic Disorders Presenting with Intellectual Disability
E71.128	Other disorders of propionate metabolism	Metabolic Disorders Presenting with Intellectual Disability
F88	Other disorders of psychological development	Other Conditions Presenting with Intellectual Disability
E72.19	Other disorders of sulfur-bearing amino-acid metabolism	Metabolic Disorders Presenting with Intellectual Disability
E70.29	Other disorders of tyrosine metabolism	Metabolic Disorders Presenting with Intellectual Disability
E72.29	Other disorders of urea cycle metabolism	Metabolic Disorders Presenting with Intellectual Disability
E75.19	Other gangliosidosis	Metabolic Disorders Presenting with Intellectual Disability
F78.A	Other genetic related intellectual disabilities	Intellectual Disability
F78.A9	Other genetic related intellectual disability	Intellectual Disability
E74.09	Other glycogen storage disease	Metabolic Disorders Presenting with Intellectual Disability
E75.09	Other GM2 gangliosidosis	Metabolic Disorders Presenting with Intellectual Disability
E71.53	Other group 2 peroxisomal disorders	Metabolic Disorders Presenting with Intellectual Disability
E71.542	Other group 3 peroxisomal disorders	Metabolic Disorders Presenting with Intellectual Disability
E70.1	Other hyperphenylalaninemias	Metabolic Disorders Presenting with Intellectual Disability
F78	Other intellectual disabilities	Intellectual Disability
P10.8	Other intracranial lacerations and hemorrhages due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
E75.5	Other lipid storage disorders	Metabolic Disorders Presenting with Intellectual Disability
Q93.88	Other microdeletions	Other Conditions Presenting with Intellectual Disability
E76.29	Other mucopolysaccharidoses	Metabolic Disorders Presenting with Intellectual Disability
E75.248	Other Niemann-Pick disease	Metabolic Disorders Presenting with Intellectual Disability
E70.318	Other ocular albinism	Metabolic Disorders Presenting with Intellectual Disability
E70.328	Other oculocutaneous albinism	Metabolic Disorders Presenting with Intellectual Disability
E71.548	Other peroxisomal disorders	Metabolic Disorders Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
F84.8	Other pervasive developmental disorders	Autism Spectrum Disorder
Q04.3	Other reduction deformities of brain	Congenital Malformations and Neonatal Injuries of Nervous System
E71.448	Other secondary carnitine deficiency	Metabolic Disorders Presenting with Intellectual Disability
E70.39	Other specified albinism	Metabolic Disorders Presenting with Intellectual Disability
P11.1	Other specified brain damage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
Q99.8	Other specified chromosome abnormalities	Other Conditions Presenting with Intellectual Disability
Q87.89	Other specified congenital malformation syndromes not elsewhere classified	Other Conditions Presenting with Intellectual Disability
Q89.8	Other specified congenital malformations	Other Conditions Presenting with Intellectual Disability
Q04.8	Other specified congenital malformations of brain	Congenital Malformations and Neonatal Injuries of Nervous System
Q07.8	Other specified congenital malformations of nervous system	Congenital Malformations and Neonatal Injuries of Nervous System
Q06.8	Other specified congenital malformations of spinal cord	Congenital Malformations and Neonatal Injuries of Nervous System
E72.89	Other specified disorders of amino-acid metabolism	Metabolic Disorders Presenting with Intellectual Disability
E74.89	Other specified disorders of carbohydrate metabolism	Metabolic Disorders Presenting with Intellectual Disability
Q92.8	Other specified trisomies and partial trisomies of autosomes	Other Conditions Presenting with Intellectual Disability
E75.29	Other sphingolipidosis	Metabolic Disorders Presenting with Intellectual Disability
E71.528	Other X-linked adrenoleukodystrophy	Metabolic Disorders Presenting with Intellectual Disability
F84.4	Overactive disorder associated with intellectual disability and stereotyped movements	Autism Spectrum Disorder
Q92.2	Partial trisomy	Other Conditions Presenting with Intellectual Disability
E71.50	Peroxisomal disorder, unspecified	Metabolic Disorders Presenting with Intellectual Disability
F84.9	Pervasive developmental disorder, unspecified	Autism Spectrum Disorder
Q93.52	Phelan-McDermid syndrome	Other Conditions Presenting with Intellectual Disability
F80.0	Phonological disorder	Learning Disability
E74.02	Pompe disease	Metabolic Disorders Presenting with Intellectual Disability
Q87.11	Prader-Willi syndrome	Other Conditions Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
E71.41	Primary carnitine deficiency	Metabolic Disorders Presenting with Intellectual Disability
E72.53	Primary hyperoxaluria	Metabolic Disorders Presenting with Intellectual Disability
F73	Profound intellectual disabilities	Intellectual Disability
E71.121	Propionic acidemia	Metabolic Disorders Presenting with Intellectual Disability
F84.2	Rett's syndrome	Autism Spectrum Disorder
E71.540	Rhizomelic chondrodysplasia punctata	Metabolic Disorders Presenting with Intellectual Disability
Q87.23	Rubinstein-Taybi syndrome	Other Conditions Presenting with Intellectual Disability
E71.440	Ruvalcaba-Myhre-Smith syndrome	Metabolic Disorders Presenting with Intellectual Disability
Q05.3	Sacral spina bifida with hydrocephalus	Spina Bifida
Q05.8	Sacral spina bifida without hydrocephalus	Spina Bifida
E75.01	Sandhoff disease	Metabolic Disorders Presenting with Intellectual Disability
E76.22	Sanfilippo mucopolysaccharidoses	Metabolic Disorders Presenting with Intellectual Disability
E76.03	Scheie syndrome	Metabolic Disorders Presenting with Intellectual Disability
Q04.4	Septo-optic dysplasia of brain	Congenital Malformations and Neonatal Injuries of Nervous System
P91.63	Severe hypoxic ischemic encephalopathy [HIE]	Congenital Malformations and Neonatal Injuries of Nervous System
F72	Severe intellectual disabilities	Intellectual Disability
E71.312	Short chain acyl CoA dehydrogenase deficiency	Metabolic Disorders Presenting with Intellectual Disability
E78.72	Smith-Lemli-Opitz syndrome	Other Conditions Presenting with Intellectual Disability
F80.82	Social pragmatic communication disorder	Learning Disability
G80.1	Spastic diplegic cerebral palsy	Cerebral Palsy
G80.2	Spastic hemiplegic cerebral palsy	Cerebral Palsy
G80.0	Spastic quadriplegic cerebral palsy	Cerebral Palsy
F82	Specific developmental disorder of motor function	Developmental Delay Disability
F81.0	Specific reading disorder	Learning Disability
F81.1	Specific spelling disorder	Learning Disability
F80.4	Speech and language development delay due to hearing loss	Learning Disability
E75.3	Sphingolipidosis, unspecified	Metabolic Disorders Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
Q05.9	Spina bifida, unspecified	Spina Bifida
P10.3	Subarachnoid hemorrhage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
P10.0	Subdural hemorrhage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
E74.31	Sucrase-isomaltase deficiency	Metabolic Disorders Presenting with Intellectual Disability
E75.26	Sulfatase deficiency	Metabolic Disorders Presenting with Intellectual Disability
F78.A1	SYNGAP1-related intellectual disability	Intellectual Disability
E75.02	Tay-Sachs disease	Metabolic Disorders Presenting with Intellectual Disability
P10.4	Tentorial tear due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
Q05.1	Thoracic spina bifida with hydrocephalus	Spina Bifida
Q05.6	Thoracic spina bifida without hydrocephalus	Spina Bifida
E72.52	Trimethylaminuria	Metabolic Disorders Presenting with Intellectual Disability
Q92.7	Triploidy and polyploidy	Other Conditions Presenting with Intellectual Disability
Q91.5	Trisomy 13, mosaicism (mitotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q91.4	Trisomy 13, nonmosaicism (meiotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q91.6	Trisomy 13, translocation	Other Conditions Presenting with Intellectual Disability
Q91.7	Trisomy 13, unspecified	Other Conditions Presenting with Intellectual Disability
Q91.1	Trisomy 18, mosaicism (mitotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q91.0	Trisomy 18, nonmosaicism (meiotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q91.2	Trisomy 18, translocation	Other Conditions Presenting with Intellectual Disability
Q91.3	Trisomy 18, unspecified	Other Conditions Presenting with Intellectual Disability
Q90.1	Trisomy 21, mosaicism (mitotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q90.0	Trisomy 21, nonmosaicism (meiotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q90.2	Trisomy 21, translocation	Other Conditions Presenting with Intellectual Disability
Q92.9	Trisomy and partial trisomy of autosomes, unspecified	Other Conditions Presenting with Intellectual Disability

Appendix A, continued. ICD-10 Codes

ICD-10 Code	Disability Category	ICD-10 Description
Q85.1	Tuberous sclerosis	Other Conditions Presenting with Intellectual Disability
E70.320	Tyrosinase negative oculocutaneous albinism	Metabolic Disorders Presenting with Intellectual Disability
E70.321	Tyrosinase positive oculocutaneous albinism	Metabolic Disorders Presenting with Intellectual Disability
E70.21	Tyrosinemia	Metabolic Disorders Presenting with Intellectual Disability
P11.2	Unspecified brain damage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
F89	Unspecified disorder of psychological development	Other Conditions Presenting with Intellectual Disability
E75.10	Unspecified gangliosidosis	Metabolic Disorders Presenting with Intellectual Disability
F79	Unspecified intellectual disabilities	Intellectual Disability
P10.9	Unspecified intracranial laceration and hemorrhage due to birth injury	Congenital Malformations and Neonatal Injuries of Nervous System
Q05.4	Unspecified spina bifida with hydrocephalus	Spina Bifida
Q93.81	Velo-cardio-facial syndrome	Other Conditions Presenting with Intellectual Disability
E74.01	von Gierke disease	Metabolic Disorders Presenting with Intellectual Disability
Q93.1	Whole chromosome monosomy, mosaicism (mitotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q93.0	Whole chromosome monosomy, nonmosaicism (meiotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q92.1	Whole chromosome trisomy, mosaicism (mitotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q92.0	Whole chromosome trisomy, nonmosaicism (meiotic nondisjunction)	Other Conditions Presenting with Intellectual Disability
Q93.82	Williams syndrome	Other Conditions Presenting with Intellectual Disability
E71.529	X-linked adrenoleukodystrophy, unspecified type	Metabolic Disorders Presenting with Intellectual Disability
E70.310	X-linked ocular albinism	Metabolic Disorders Presenting with Intellectual Disability
E71.510	Zellweger syndrome	Metabolic Disorders Presenting with Intellectual Disability
E71.541	Zellweger-like syndrome	Metabolic Disorders Presenting with Intellectual Disability

Appendix B. Logistic Regression Analyses Predicting Fair/Poor Oral Health — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
Cognitive disability	1.95	1.51, 2.52	<0.001
Age in years			
18–29	ref	ref	ref
30–44	1.07	0.84, 1.37	0.6
45–59	1.36	1.06, 1.73	0.015
60+	1.03	0.81, 1.30	0.8
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	1.40	0.95, 2.05	0.087
Black, non-Hispanic	1.21	0.97, 1.50	0.088
Hispanic	0.82	0.66, 1.03	0.10
Other, non-Hispanic or 2+ races	1.33	0.95, 1.87	0.10
Gender			
Male	ref	ref	ref
Female	0.85	0.74, 0.98	0.022
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	0.91	0.67, 1.26	0.6
Some college/associate's degree	0.80	0.59, 1.09	0.2
Bachelor's degree	0.51	0.36, 0.71	<0.001
Graduate degree	0.39	0.27, 0.57	<0.001
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	0.78	0.65, 0.94	0.008
\$60,000 to <\$100,000	0.56	0.46, 0.68	<0.001
\$100,000 or more	0.38	0.30, 0.47	<0.001
Dental insurance			
No dental insurance	ref	ref	ref
Dental insurance	0.59	0.51, 0.68	<0.001
Residential location			
Nonmetropolitan	ref	ref	ref
Metropolitan	1.07	0.89, 1.28	0.5

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, race/ethnicity, gender, education, income, dental insurance, and residential location.

Appendix C. Logistic Regression Analyses Predicting No Planned Dental Visit in the Coming Year — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
Cognitive disability	1.15	0.76, 1.76	0.5
Age in years			
18–29	ref	ref	ref
30–44	1.03	0.70, 1.52	0.9
45–59	0.86	0.59, 1.27	0.5
60+	0.62	0.43, 0.89	0.009
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	2.00	1.11, 3.60	0.020
Black, non-Hispanic	0.47	0.30, 0.74	0.001
Hispanic	0.73	0.50, 1.07	0.11
Other, non-Hispanic or 2+ races	0.75	0.42, 1.32	0.3
Gender			
Male	ref	ref	ref
Female	0.54	0.42, 0.68	<0.001
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	0.77	0.50, 1.18	0.2
Some college/associate's degree	0.50	0.33, 0.78	0.002
Bachelor's degree	0.33	0.20, 0.54	<0.001
Graduate degree	0.19	0.10, 0.36	<0.001
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	0.69	0.51, 0.93	0.013
\$60,000 to <\$100,000	0.48	0.34, 0.69	<0.001
\$100,000 or more	0.28	0.19, 0.43	<0.001
Dental insurance			
No dental insurance	ref	ref	ref
Dental insurance	0.21	0.16, 0.26	<0.001
Residential location			
Nonmetropolitan	ref	ref	ref
Metropolitan	0.74	0.55, 0.99	0.041

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for age, race/ethnicity, gender, education, income, dental insurance, and residential location.

Appendix D. Logistic Regression Analyses Predicting Having Lost at Least One Tooth Due to Caries or Periodontal Disease — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
Cognitive disability	1.63	1.26, 2.11	<0.001
Age in years			
18–29	ref	ref	ref
30–44	2.53	1.99, 3.21	<0.001
45–59	4.67	3.66, 5.94	<0.001
60+	9.43	7.43, 12.0	<0.001
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	1.78	1.28, 2.49	<0.001
Black, non-Hispanic	1.75	1.43, 2.14	<0.001
Hispanic	1.14	0.93, 1.39	0.2
Other, non-Hispanic or 2+ races	1.18	0.88, 1.59	0.3
Gender			
Male	ref	ref	ref
Female	0.84	0.75, 0.95	0.004
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	0.88	0.63, 1.22	0.4
Some college/associate's degree	0.72	0.52, 0.99	0.043
Bachelor's degree	0.42	0.30, 0.59	<0.001
Graduate degree	0.39	0.28, 0.55	<0.001
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	0.75	0.62, 0.90	0.002
\$60,000 to <\$100,000	0.63	0.52, 0.76	<0.001
\$100,000 or more	0.42	0.35, 0.51	<0.001
Dental insurance			
No dental insurance	ref	ref	ref
Dental insurance	0.82	0.72, 0.95	0.006
Residential location			
Nonmetropolitan	ref	ref	ref
Metropolitan	0.78	0.67, 0.91	0.002

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for age, race/ethnicity, gender, education, income, dental insurance, and residential location.

Appendix E. Logistic Regression Analyses Predicting Having at Least One Oral Health Problem in the Past Year — State of Oral Health Equity in America Survey, 2024–2025 (N=11,607)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
Cognitive disability	3.81	2.86, 5.06	<0.001
Age in years			
18–29	ref	ref	ref
30–44	1.15	0.94, 1.40	0.2
45–59	1.21	0.99, 1.48	0.068
60+	1.09	0.90, 1.31	0.4
Race/ethnicity			
White, non-Hispanic	ref	ref	ref
Asian, non-Hispanic	1.14	0.84, 1.53	0.4
Black, non-Hispanic	1.22	1.02, 1.47	0.032
Hispanic	1.00	0.84, 1.20	>0.9
Other, non-Hispanic or 2+ races	1.36	1.04, 1.79	0.024
Gender			
Male	ref	ref	ref
Female	1.22	1.09, 1.36	<0.001
Education level			
No degree/less than HS	ref	ref	ref
High school/GED	0.94	0.70, 1.26	0.7
Some college/associate's degree	1.01	0.75, 1.35	>0.9
Bachelor's degree	0.92	0.68, 1.25	0.6
Graduate degree	0.95	0.69, 1.30	0.7
Annual income			
Less than \$30,000	ref	ref	ref
\$30,000 to <\$60,000	0.79	0.67, 0.94	0.007
\$60,000 to <\$100,000	0.73	0.61, 0.87	<0.001
\$100,000 or more	0.61	0.51, 0.73	<0.001
Dental insurance			
No dental insurance	ref	ref	ref
Dental insurance	0.84	0.74, 0.95	0.006
Residential location			
Nonmetropolitan	ref	ref	ref
Metropolitan	0.95	0.82, 1.10	0.5

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for age, race/ethnicity, gender, education, income, dental insurance, and residential location.

Appendix F. Logistic Regression Analyses Predicting Having One or More Dental Anesthesia Claims — Merative Medicaid, 2021–2023 (N=6,365,659)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	<i>ref</i>	<i>ref</i>	<i>ref</i>
ID disability	1.37	1.35, 1.38	<0.001
Age in years			
0–5	<i>ref</i>	<i>ref</i>	<i>ref</i>
6–9	0.92	0.90, 0.94	<0.001
10–14	0.53	0.52, 0.54	<0.001
15–20	1.76	1.73, 1.78	<0.001
21–44	0.54	0.53, 0.55	<0.001
45–64	0.34	0.33, 0.34	<0.001
65+	0.10	0.10, 0.10	<0.001
Gender			
Male	<i>ref</i>	<i>ref</i>	<i>ref</i>
Female	1.13	1.12, 1.15	<0.001
Race/ethnicity			
White	<i>ref</i>	<i>ref</i>	<i>ref</i>
Black	0.73	0.72, 0.74	<0.001
Hispanic	1.53	1.51, 1.55	<0.001
Other	1.55	1.53, 1.58	<0.001

CI = confidence interval; *ref* = reference category; **bolded row** = significant at $p < 0.05$ level. Model controls for disability type, age, gender, and race/ethnicity.

Appendix G. Logistic Regression Analyses Predicting Having One or More Extraction Claims — Merative Medicaid, 2021–2023 (N=6,365,659)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	<i>ref</i>	<i>ref</i>	<i>ref</i>
ID disability	1.11	1.10, 1.11	<0.001
Age in years			
0–5	<i>ref</i>	<i>ref</i>	<i>ref</i>
6–9	3.73	3.69, 3.78	<0.001
10–14	2.26	2.23, 2.28	<0.001
15–20	1.92	1.90, 1.94	<0.001
21–44	2.37	2.35, 2.40	<0.001
45–64	2.21	2.19, 2.24	<0.001
65+	0.71	0.70, 0.72	<0.001
Gender			
Male	<i>ref</i>	<i>ref</i>	<i>ref</i>
Female	1.03	1.02, 1.03	<0.001
Race/ethnicity			
White	<i>ref</i>	<i>ref</i>	<i>ref</i>
Black	0.78	0.77, 0.78	<0.001
Hispanic	1.29	1.28, 1.30	<0.001
Other	1.36	1.35, 1.38	<0.001

CI = confidence interval; *ref* = reference category; **bolded row** = significant at $p < 0.05$ level. Model controls for disability type, age, gender, and race/ethnicity.

Appendix H. Logistic Regression Analyses Predicting Having One or More Inpatient Non-Traumatic Dental Condition Claims — Merative Medicaid, 2021–2023 (N=6,365,659)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.79	1.64, 1.94	<0.001
Age in years			
0–5	ref	ref	ref
6–9	0.35	0.27, 0.46	<0.001
10–14	0.62	0.51, 0.76	<0.001
15–20	1.17	0.98, 1.39	0.079
21–44	3.43	3.02, 3.92	<0.001
45–64	3.43	2.99, 3.94	<0.001
65+	1.66	1.40, 1.96	<0.001
Gender			
Male	ref	ref	ref
Female	0.77	0.72, 0.82	<0.001
Race/ethnicity			
White	ref	ref	ref
Black	1.18	1.09, 1.27	<0.001
Hispanic	0.65	0.57, 0.74	<0.001
Other	0.82	0.71, 0.95	0.007

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age, gender, and race/ethnicity.

Appendix I. Logistic Regression Analyses Predicting Having One or More Dental Anesthesia Claims — Merative Commercial, 2021–2023 (N=5,879,552)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.26	1.24, 1.28	<0.001
Age in years			
0–5	ref	ref	ref
6–9	1.59	1.53, 1.66	<0.001
10–14	2.76	2.67, 2.87	<0.001
15–20	11.7	11.3, 12.1	<0.001
21–44	2.07	2.01, 2.14	<0.001
45–64	1.24	1.20, 1.29	<0.001
65+	0.58	0.56, 0.61	<0.001
Gender			
Male	ref	ref	ref
Female	1.14	1.13, 1.15	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age and gender.

Appendix J. Logistic Regression Analyses Predicting Having One or More Extraction Claims — Merative Commercial, 2021–2023 (N=5,879,552)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	1.12	1.11, 1.14	<0.001
Age in years			
0–5	ref	ref	ref
6–9	4.72	4.63, 4.82	<0.001
10–14	4.32	4.24, 4.41	<0.001
15–20	4.63	4.54, 4.72	<0.001
21–44	1.90	1.87, 1.94	<0.001
45–64	2.79	2.74, 2.84	<0.001
65+	4.11	4.04, 4.19	<0.001
Gender			
Male	ref	ref	ref
Female	0.93	0.93, 0.94	<0.001

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age and gender.

Appendix K. Logistic Regression Analyses Predicting Having One or More Inpatient Non-Traumatic Dental Condition Claims — Merative Commercial, 2021–2023 (N=5,879,552)

Predictor	Odds Ratio	95% CI	p-value
Disability type			
No disability	ref	ref	ref
ID disability	2.56	2.13, 3.05	<0.001
Age in years			
0–5	ref	ref	ref
6–9	0.50	0.30, 0.80	0.005
10–14	0.50	0.32, 0.77	0.002
15–20	1.18	0.85, 1.65	0.3
21–44	0.91	0.68, 1.24	0.5
45–64	1.28	0.96, 1.73	0.10
65+	3.03	2.29, 4.10	<0.001
Gender			
Male	ref	ref	ref
Female	1.12	1.00, 1.24	0.048

CI = confidence interval; ref = reference category; bolded row = significant at p<0.05 level. Model controls for disability type, age and gender.

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