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Dental utilization for adult Medicaid enrollees having intellectual and developmental disabilities (IDD)

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Abstract

Purpose—To determine dental utilization and type of dental services for Medicaid enrolled adults identified as having intellectual and developmental disabilities (IDD).

Methods—Using Iowa claims data, identified adults who met any of five IDD criteria for inclusion during calendar year 2005. Service utilization rates, including use of preventive dental, routine restorative, and complex restorative services, were determined.

Results—Approximately 60% of adults with IDD had at least one dental visit in 2005. Of adults with at least one dental visit, 83% received a preventive service, 31% a routine restorative service, and 16% a complex dental service. Those age 65 and older had fewer preventive dental services than other age groups.

Conclusion—In Iowa, dental utilization for adults 22–64 years of age with IDD was reasonably high (64%) in 2005, but individuals over age 65 had lower utilization (45%).

Keywords

Medicaid; dental; adult; mental retardation; intellectual and developmental disabilities

As more people with disabilities live longer and develop age-related morbidities similar to those of their typical age peers,^{1–2} it is increasingly important that they continue to use preventive and therapeutic health services, including oral health.

There are few reported studies about the epidemiology of oral disease among adults with IDD, a group who appears to have poorer oral health and oral hygiene^{3–5} and may have

increased attrition from grinding their teeth.⁶ Moreover, by the time dental disease is diagnosed, adults with IDD are more likely to have extractions than restorative care.⁷

While there are no statewide dental studies of Medicaid-enrolled adults with IDD, data from the 2005 Medical Expenditure Panel Survey have demonstrated that adult (19-64 years old) Medicaid enrollees (excluding disabled persons receiving Social Security Income (SSI) benefits) have lower dental utilization than those who are privately insured.⁸ A 13-state analysis showed that dental utilization for Medicaid patients was lower than utilization for individuals enrolled in a low-income privately insured program,⁹ while a study comparing dental utilization rates for adults (21-64 years of age) enrolled in Medicaid and Delta Dental of Iowa found that less than 30% of Medicaid enrollees had used dental services in 1998 as compared to 70% of Delta Dental enrollees.¹⁰ Furthermore, although more than 90% of enrollees from both insured groups with a dental visit had at least one preventive dental service, nearly one-third of Medicaid enrollees had a tooth extraction compared to less than 10% of Delta Dental enrollees.¹⁰

The current study was designed to determine the utilization of dental services by Iowa Medicaid-enrolled adults identified as having IDD. This study was conducted in response to House File 841 (Iowa Legislature – May 2005), which directed the Iowa Department of Human Services to work with the University of Iowa “...to determine whether the physical and dental health of recipients of medical assistance who are persons with mental retardation or developmental disabilities are being regularly and fully addressed and to identify barriers to such care.”

Methods

A five-component case-finding protocol using medical and dental Medicaid claims, encounter, and enrollment files identified adults with indicators of IDD. Enrollees who met any of the following criteria and who were enrolled in Medicaid for 11-12 months during 2005 were identified as having a IDD for the purposes of this study: (1) had at least one claim containing an ICD-9 (International Classification of Diseases) diagnosis code on medical claims,¹¹ representing a medical condition considered to identify a person as having an IDD; (2) had at least one claim while residing in a state facility licensed for the care of people with IDD or an intermediate care facility during 2005; (3) the enrollment file for 2005 indicated that a diagnosis of IDD was made by a health care provider; (4) had a claim for targeted case management provided for IDD; or (5) had a Medicaid enrollment code indicating eligibility for the Home and Community-Based Waiver Program for Mental Retardation (HCBS).

Data for this project were extracted from the Iowa Medicaid Enterprise claims, encounter, and enrollment data for 2001 through 2005. Medicaid eligibility and claims data from 2001 through 2005 were reviewed so as to capture individuals who had a qualifying code for IDD but may not have the ICD-9 code recorded for any medical visits in 2005. If either a qualifying medical diagnostic code, a targeted case management code for IDD, or the Medicaid enrollment for HCBS was recorded during this 5-year period, it was appended to the dental claims for calendar year 2005. This project was approved by the University of Iowa Institutional Review Board for the protection of human subjects.

IDD diagnoses were collapsed into five broad categories: autism, mental retardation, central nervous system disorders, spina bifida, and fetal alcohol syndrome (Table 1).¹² For those patients who had multiple IDD diagnoses during this time period, the most recent IDD diagnosis was considered to be the enrollee's primary diagnosis. However, the case-finding

criteria demonstrated that many of the Medicaid recipients included in this study did not have an explicit IDD diagnosis on a service claim during the studied period.

Three demographic variables were included for descriptive analysis: gender, age, and county of residence. Age was defined as the Medicaid recipient's age in years as of December 31, 2005. Operationally, any Medicaid enrollee 18 years of age or older was considered an adult. Four age categories were established (18–21, 22–44, 45–64, 65 or older). Using the most recent residence, individuals were placed in one of four county categories: metro, urban adjacent to metro, urban nonadjacent to metro, and rural.¹³

An additional residence variable differentiated between those who were institutionalized and non-institutionalized during this study period. Individuals were considered to be institutionalized if they spent at least six months during 2005 in any of the following mutually exclusive institutional settings: intermediate care facility (ICF), intermediate care facility for people with mental retardation (ICFMR), state facility for people with mental retardation (SMR), or residential care facility (RCF). If enrollees were institutionalized in more than one setting type, they were categorized based on the setting type in which they spent the highest number of months. In cases of a tie, institutions where individuals were more likely to reside with severe disabilities took precedence (i.e., SMR>ICFMR>ICF>RCF).

Medicaid reimburses agencies for the provision of case management services that aid people with IDD in coordinating their health care. Thus, a variable that indicated whether or not the enrollee had at least one Medicaid claim for case management during 2005 was included. In addition, individuals were classified by their specific Medicaid-enrollment category: Temporary Assistance to Needy Families (TANF), based on family income; Supplemental Security Income (SSI), based on severity of disability and income; Foster Care; Institution-eligible, with the overwhelming number being Home and Community-Based Services (HCBS) waiver-eligible; and Other. HCBS, also known as 1915(c) waiver, “allows states the flexibility to develop and implement creative alternatives to placing Medicaid-eligible individuals in hospitals, nursing facilities, or intermediate care facilities for persons with mental retardation.” The preponderance of institution-eligible individuals received the HCBS waiver, which hereafter is designated as HCBS+. Individuals who are eligible for Medicaid in the ‘Other’ category include those who do not fit any of the above program definitions (i.e., those whose medical expenses reduce their income below Medicaid income levels, thereby making them medically needy).

The Iowa dental Medicaid program is a fee-for-service model. Although comprehensive dental services are provided for children, a more limited range of services is available for adults. For purposes of these analyses a dental visit occurred when the dentist submitted a claim to the Medicaid program using Current Dental Terminology (CDT) codes and tooth-related data. Procedures were categorized into broad dental service categories based on CDT codes: preventive (e.g., tooth prophylaxis, topical fluoride, scaling), routine restorative (e.g., amalgam or composite fillings), and complex dental services (e.g., stainless steel crown, root canal, tooth extraction).

An overall dental utilization rate was calculated as the proportion of the study population with at least one paid Medicaid dental claim in 2005. Service-specific utilization rates for preventive, routine restorative, and complex dental services were calculated as the percentage of those with at least one paid Medicaid dental claim who had received the type of service defined for each service category in 2005. Service-specific utilization rates were also calculated for each selected variable (e.g., IDD diagnostic group, age category, county type, institutional setting, case management, Medicaid eligibility group).

Since the entire adult population who met the criteria for IDD was included in the report, no inferential tests were performed in determining statistical differences among categories.

Results

There were 14,213 adults with IDD who had at least 11 months of Medicaid eligibility in 2005 and met the criteria for inclusion (Table 2). Approximately 50% were 22–44 years old and 7% were over 65 years old. There were a higher percentage of males (53.5%) than females. The three most common medical diagnostic categories among adults with IDD were mental retardation (43%), central nervous system (CNS) disorder (10%), and autism (3%). However, approximately 45% of adults who met the inclusion criteria had no explicit medical IDD diagnosis documented in claims data that was submitted from 2001 through 2005. Mental retardation was the most common diagnosis for all age categories, while autism was rare in older populations. The percentage of people with a central nervous system (CNS) diagnosis ranged from 14% for the 18–21 year olds to 8% for the 45–64 year olds. The percentage of people with spina bifida or fetal alcohol syndrome (FAS) was small (<2%).

Slightly less than three-quarters (72.6%) of this adult Medicaid population was non-institutionalized during 2005. Of adults aged 18–21, 86% were in non-institutional settings; this rate declined as age increased (22–44 = 79%, 45–64 = 65%, and 65+ = 39%). Of the institutionalized adults with IDD, 48% were in an intermediate care facility for the mentally retarded (ICFMR), 35% were in a residential care facility (RCF), 11% were in an intermediate care facility (ICF), and the remaining 6% were in a state facility for the mentally retarded (SMR).

In all age groups, most people (61.9%) were eligible for Medicaid because they met criteria for the HCBS waiver. Nearly 60% of 18–21 year olds and 22–44 year olds had functional disability levels that qualified them for the HCBS waiver, and this percentage increased in the older two age groups. The next largest eligibility grouping included enrollees eligible through the SSI program, due to a combination of income and functional limitation. Foster care eligibility was possible only for the 18–21 year old group; 4% had Medicaid coverage based on being in the foster care system. Income-based eligibility (TANF) only accounted for 4% of 18–21 year olds, 2% of 22–44 year olds, 1% of 45–64 year olds, and 1% of those 65 and over.

In 2005, the percentage of people with a case management claim (67.7%) was highest for adults 18–21 years old (77.6%), declining with age. Only 45% of those 65 and over had a case management claim.

The plurality of adults lived in metro areas (46.2%), ranging from 51% of 18–21 year olds to 36% of those 65 and over. Of those 65 and over, 9% lived in rural areas; this was the largest percentage of rural residence for any age group.

Approximately 60% of adults with IDD ($n = 8876$) had at least one dental visit in 2005, with a higher percentage of women (64.8%) than men (60.4%) receiving some dental care (Table 3). The population using dental services ranged in age from 18 to 89 years, with a mean age of 40 years. About 85% were between the ages of 22 and 64, with only 5% being 65 years of age or older. Approximately 65% of those who had at least one dental claim were participating in the HCBS waiver; whereas, there were lower dental utilization rates for those who were Medicaid-eligible by either TANF (45.2%) or SSI (53.6%). The percentage of adults with IDD using dental services was also higher among those who had case management (64.6%). While the largest percentage of enrollees in each age group lived in a metropolitan area, the highest rate for dental utilization was for the urban adjacent group

(66.5%), followed by the urban non-adjacent (62.6%), metropolitan (61.4%), and rural residents (58.3%).

Table 3 also displays the proportion of adults in each of the four age groups who had at least one dental visit during 2005. For instance, 56% of Medicaid-eligible females ages 18-21 who were Medicaid-enrolled had at least one dental visit. Enrollees at the two age extremes had lower dental utilization rates than those 22-64 years of age. With the exception of the 65 and older age group, adults in urban areas adjacent to a metropolitan area were most likely to have had a dental visit in 2005.

Figure 1 shows the percentage of adults with IDD, by the three dental care categories, who had one or more services. Approximately 60% of all adults enrolled in the Iowa Medicaid program for at least 11 months in 2005 received one or more dental services during that year. Of these, 83% received a preventive dental service, 31% a routine restorative service, and 16% a complex dental service. In addition, 96% received a diagnostic service (not shown). The percentage receiving any preventive services remained above 80% for those 64 years and younger; whereas, this percentage dropped to approximately 60% for those 65 and older (Table 4). Similarly, there is a decline in the percentage of older adults who receive simple restorative care (Table 5). Table 6 shows the utilization of complex dental services, including tooth extractions, which hovers at 20% or less for all four age groups.

Discussion

During 2005, there were 14,213 Iowa adults identified as having an intellectual and developmental disability and who were enrolled in the Medicaid program for at least 11 months during that year. Most of these adults were non-institutionalized, had case management services, and were enrolled through the Home and Community-Based Services (HCBS) waiver-eligibility program. Of this group 62.4% received at least one dental visit during the calendar year. Among those who received dental care, 83% had a preventive dental service, 31% had one or more simple restorative procedures, and 16% had a more complex dental service.

Currently, there is no clear, universally applied definition of intellectual and developmental disabilities (IDD).¹⁴ Some studies adopt definitions based on specific medical diagnoses associated with disability, while other studies use broader function-based definitions that include individuals without a formal IDD diagnosis. Regardless, perhaps the most significant societal trend for those with IDD has been the change in living arrangements. During the past decade, the numbers of adults with IDD who live alone or with an unrelated person has increased dramatically.¹⁵

Oftentimes, access to dental care for Medicaid recipients, particularly those with IDD, has been problematic. Yet, recent findings have shown this problem not to be universal.¹⁶⁻¹⁷ Moreover, a national sample of 1081 mothers who resided with an adult child with IDD found that 72% of these adult children had some dental service rendered.¹⁸ Yet, the 62% dental utilization rate for the current study is relatively high, especially when compared with either previous annual dental utilization rates for all Iowa adults enrolled in Medicaid¹⁰ or national rates for children (21-53%) enrolled in the federally mandated EPSDT program.¹⁹ This latter rate, however, was computed on all children enrolled regardless of the number of months of enrollment.

Results from this study primarily indicate that younger Iowa adults with IDD had a higher dental utilization rate than older adults with IDD, especially compared with those 65 and older. Specifically, utilization of preventive dental services or corrective dental treatment lags behind that experienced by younger Medicaid enrollees with IDD or a general

population who were privately insured.¹⁰ Although we cannot confirm the findings without clinical examinations, we suspect that a higher rate of edentulism among the oldest group contributed to the lower overall utilization rate and, thus, lower rates for preventive and simple restorative services. Likewise, claims data only count services provided, and thus, may underestimate the number of individuals who had some dental need but did not seek care. Similarly, utilization does not account for the extent of services required (i.e., those individuals who receive limited dental services).

This study adds to the literature concerning the impact of case management in improving dental utilization.²⁰⁻²² However, until there is a more precise and uniform delineation of responsibilities for case managers, it will be quite difficult to draw solid comparisons among these studies.

Currently, there aren't National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS) measures that reflect adult standards for general dental access. Performance targets for this measure are guided by discrepancies among the age groups examined. Utilization rates appear comparable to other populations for most age groups; however, utilization is not necessarily correlated with personal oral hygiene, especially for this collective group of adults. For instance, evidence from Special Olympians indicates that although most of the participants have a regular dentist, the prevalence of gingivitis is much higher than Healthy People objectives.²³ Oral home care, including tooth brushing and flossing, must be performed on a daily basis to minimize oral disease.

There are several limitations to this study. Inclusion criteria assume proper recording of medical diagnosis, case management, and dental treatment codes. These percentages may thus provide faulty estimates of dental care. Moreover, claims data do not allow us to determine which patients are totally edentulous, making it impossible to adjust the rates accordingly for each type of dental service.

Information was from secondary data, and, as such, it neither addresses the appropriateness or quality of the dental services provided. Similarly, claims data do not allow us to address other issues that can influence provision of care, such as the severity of the IDD or the presence of concomitant health or behavioral issues. For instance, greater aggressive behavior by a person with IDD is predictive of fewer dental services received.¹⁸ Likewise, determining comparability with other states is difficult because most states have limited, if any, adult Medicaid dental programs.

Finally, study inclusion criteria incorporated many individuals who did not have a clearly listed medical IDD diagnosis. It is unknown if providers discontinue using IDD specific codes at some point in care. While this produces some uncertainty about the precise diagnoses of each of these individuals, all of them met at least one of stated inclusion criteria.

Summary

In 2005, dental utilization for Iowa adults with IDD was approximately 60%. Although those age 65 and older had a lower percentage of preventive care services, other age groups appeared to be reasonably well served when compared to other adult dental utilization surveys. Clearly, the focus needs to be on the oldest group who may have reduced access to services due to institutionalization, lack of transportation, or lack of understanding regarding the need for routine oral care, even when there may be a reduced number of teeth.

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Figure 1.

Type of dental procedures received by Iowa adults enrolled in Medicaid, identified with IDD and who had at least one dental visit in 2005, by age (N=8876)

Table 1

ICD-9 diagnosis codes used to identify Medicaid enrollees with IDD

Diagnostic category	Diagnosis codes ¹¹
Autism	299, 200.01, 299.8, 299.81
Mental retardation	317, 317.1, 318, 318.2, 319, 758, 758.1, 758.2, 758.3, 758.31, 758.32, 758.33, 758.39, 758.4, 758.5, 758.8, 758.81, 758.83
Central nervous system disorder	337, 343, 343.1, 343.2, 343.4, 343.9
Spina bifida	741 to 741.03
Fetal alcohol syndrome	760.71

Table 2

Demographic characteristics of the Iowa adult Medicaid population identified as having IDD , 2005
(N=14,213)

	Adult age categories			
	18–21	22–44	45–64	65 and over
Gender				
Female	667 (42.0%)	3240 (45.2%)	2129 (48.4%)	574 (54.7%)
Male	922 (58.0%)	3932 (54.8%)	2274 (51.6%)	475 (45.3%)
Diagnosis				
Autism	149 (9.4%)	277(3.9%)	25 (.6%)	6 (0.6%)
MR	580 (36.5%)	2750(38.%)	1700 (38.6%)	524 (50.0%)
CNS disorder	226 (14.2%)	828 (11.5%)	369 (8.4%)	110 (10.5%)
Spina bifida	22 (1.4%)	104 (1.5%)	23 (0.5%)	1 (0.1%)
FAS	14 (0.9%)	16 (0.2%)	1 (0.0%)	–
No IDD diagnosis	598 (37.6%)	3197 (44.6%)	2118 (48.1%)	408(38.9%)
Setting/living arrangement				
State MR	38 (2.4%)	166 (2.3%)	98 (2.2%)	15 (1.4%)
ICFMR	110 (6.9%)	698 (9.7%)	461 (10.5%)	59 (5.6%)
ICF only	3 (0.2%)	84 (1.2%)	305 (6.9%)	364 (34.7%)
RCF	49 (3.1%)	403 (5.6%)	468 (10.6%)	174 (16.6%)
Non-institutionalized	1369 (86.2%)	5687 (79.3%)	2856 (64.9%)	408 (38.9%)
Aid category				
TANF	69 (4.3%)	112 (1.6%)	39 (.9%)	12 (1.1%)
SSI	465 (29.3%)	2435 (34.0%)	1201 (27.3%)	259 (24.7%)
Foster	64 (4.0%)	–	–	–
Institutional-eligibility				
HCBS +	940 (59.2%)	4248 (59.2%)	2830 (64.3%)	775 (73.9%)
Other	51 (3.2%)	377 (5.3%)	333 (7.6%)	3 (0.3%)
Case management	1233 (77.6%)	5128 (71.5%)	2793 (63.4%)	472 (45.0%)
Urban/rural residence				
Metro	817 (51.4%)	3520 (49.1%)	1846 (41.9%)	381 (36.3%)
Urban adjacent	342 (21.5%)	1573 (21.9%)	912 (20.7%)	254 (24.2%)
Urban nonadj.	334 (21.0%)	1583 (22.1%)	1162 (26.4%)	288 (27.5%)
Rural	88 (5.5%)	395 (5.5%)	283 (6.4%)	99 (9.4%)
Total	1,589	7,172	4,403	1,049

Table 3

Utilization of any dental services among Iowa adults enrolled in Medicaid and who were identified with IDD, 2005

	Adult age categories (N=14,213)			
	18–21 (n=1,589)	22–44 (n=7,172)	45–64 (n=4,403)	65 and over (n=1,049)
Gender				
Female	375 (56%)	2121 (66%)	1537 (64%)	253 (44%)
Male	457 (50%)	2477 (63%)	1437 (63%)	219 (46%)
IDD diagnosis				
Autism	70 (48%)	179 (65%)	15 (60%)	2 (33%)
MR	354 (61%)	1956 (71%)	1086 (64%)	222 (42%)
CNS disorder	110 (50%)	477 (60%)	214 (60%)	41 (39%)
Spina bifida	5 (46%)	28 (47%)	7 (54%)	--
Fetal alcohol syndrome	9 (64%)	10 (63%)	1 (100%)	--
None of the above	284 (46%)	1948 (60%)	1471 (64%)	207(50%)
Institutional setting				
State MR	27 (53%)	123 (49%)	112 (40%)	13 (37%)
ICFMR	116 (90%)	690 (92%)	436 (85%)	49 (73%)
ICF	4 (67%)	51 (51%)	165 (45%)	122 (31%)
RCF	67 (77%)	429 (82%)	411 (77%)	111 (56%)
Non-institutionalized	618 (47%)	3305 (59%)	1670 (44%)	177 (50%)
Medicaid eligibility				
TANF	30 (44%)	53 (47%)	16 (41%)	6 (50%)
SSI	202 (43%)	1309 (54%)	692 (58%)	132 (51%)
Foster care	42 (66%)	--	--	--
HCBS+	538 (57%)	2990 (70%)	1871 (66%)	332 (43%)
Other	20 (39%)	246 (65%)	215 (65%)	2 (67%)
Case management	640 (52%)	3385 (66%)	1926 (69%)	269 (57%)
Residence				
Metro	400 (49%)	2227 (62%)	1216 (62%)	191 (48%)
Urban adjacent	203 (58%)	1092 (68%)	637 (66%)	118 (45%)
Urban not adjacent	183 (55%)	1034 (65%)	766 (65%)	125 (43%)
Rural	46 (52%)	245 (62%)	175 (62%)	38 (37%)
Total	832 (52%)	4598 (64%)	2794 (64%)	472 (45%)

Note: Cell numbers and percents indicate the number and percent with a visit within the cell group.

Table 4

Utilization of preventive dental services among Iowa adults enrolled in Medicaid, identified with IDD and who had at least one dental visit in 2005

	Adult age categories (n=8876)			
	18–21	22–44	45–64	65 and over
Gender				
Female	333 (89%)	1812 (86.2%)	1067 (80.4%)	156 (63.7 %)
Male	391 (86.7%)	2124 (87.4%)	1092 (80%)	115 (54.5%)
IDD diagnosis				
Autism	62 (87.3%)	158 (88.3%)	12 (80%)	0 (0%)
MR	320 (90.4%)	1729 (88.4%)	826 (76.1%)	121 (54.5%)
CNS disorder	103 (90.4%)	419 (85%)	188 (85.8%)	27 (61.4%)
Spina bifida	10 (83.3%)	49 (90.7%)	10 (76.9%)	1 (100%)
Fetal alcohol syndrome	8 (88.9%)	9 (90%)	0 (0%)	--
None of the above	221 (83.4%)	1572 (85.4%)	1123 (82.6%)	122 (65.2%)
Institutional setting				
State MR	19 (95%)	78 (95.1%)	36 (78.3%)	4 (66.7%)
ICFMR	94 (88.7%)	560 (85.5%)	296 (73.8%)	12 (28.6%)
ICF	1 (100%)	24 (60%)	77 (60.2%)	44 (41.1%)
RCF	47 (92.2)	336 (91.1%)	295 (80.2%)	69 (70.4%)
Non-institutionalized	563 (87%)	2938 (87%)	1455 (83%)	142 (70%)
Medicaid eligibility				
TANF	21 (70%)	35 (66%)	13 (81.3%)	5 (83.3%)
SSI	168 (83.6%)	1062 (81.5%)	529 (76.8%)	93 (70.5%)
Foster care	39 (92.9%)	--	--	--
HCBS+	479 (90%)	2627 (89.6%)	1439 (81.1%)	171 (54.1%)
Other	17 (85%)	212 (86.5%)	178 (83.2%)	2 (100%)
Case management	564 (88.1%)	3012 (89.2%)	1605 (83.4%)	178 (66.4%)
Residence				
Metro	349 (87.7%)	1914 (87%)	955 (80.5%)	96 (51.6%)
Urban adjacent	175 (88.4%)	926 (87.3%)	451 (78.3%)	76 (68.5%)
Urban not adjacent	160 (87.4%)	891 (86.7%)	630 (83.1%)	82 (66.1%)
Rural	40 (87%)	205 (84.7%)	123 (70.7%)	17 (48.6%)
Total	724 (87.8%)	3936 (86.8%)	2159 (80.1%)	271 (59.4%)

Note: Cell numbers and percents indicate the number and percent with a preventive dental service within the cell group.

Table 5

Utilization of routine restorative dental services among Iowa adults enrolled in Medicaid, identified with IDD and who had at least one dental visit in 2005

	Adult age categories (n=8876)			
	18–21	22–44	45–64	65 and over
Gender				
Female	134 (35.8%)	720 (34.3%)	398 (29.9%)	56 (23%)
Male	124 (27.5%)	763 (31.4%)	388 (28.4%)	46 (21.8%)
IDD diagnosis				
Autism	22 (31%)	50 (27.9%)	7 (46.7%)	0 (0%)
MR	99 (28%)	565 (28.9%)	262 (21.4%)	47 (21.2%)
CNS disorder	29 (25.4%)	129 (26.2%)	56 (25.6%)	11 (25%)
Spina bifida	4 (44.4%)	17 (31.5%)	7 (53.8%)	1 (0%)
Fetal alcohol syndrome	5 (55.6%)	3 (30%)	0 (0%)	0 (0%)
None of the above	99 (37.4%)	719 (39.1%)	454 (33.4%)	44 (23.5%)
Institutional setting				
State MR	1 (5%)	18 (22%)	4 (8.7%)	0 (0%)
ICFMR	15 (14.2%)	108 (16.5%)	48 (12%)	4 (9.5%)
ICF	1 (100%)	11 (27.5%)	28 (21.9%)	22 (20.6%)
RCF	17 (33.3%)	119 (32.2%)	90 (24.5%)	25 (25.5%)
Non-institutionalized	224 (35%)	1227 (36%)	616 (35%)	51 (25%)
Medicaid eligibility				
TANF	15 (50%)	24 (45.3%)	6 (37.5%)	2 (33.3%)
SSI	77 (38.3%)	494 (37.9%)	201 (29.2%)	37 (28%)
Foster care	10 (23.8%)	--	--	--
HCBS+	149 (28%)	872 (29.8%)	483 (27.2%)	63 (19.9 %)
Other	7 (35%)	93 (38%)	96 (44.9%)	0 (0%)
Case management	212 (33.1%)	1167 (34.6%)	606 (31.5%)	61 (22.8%)
Residence				
Metro	116 (29.1%)	693 (31.5%)	339 (28.6%)	37 (19.9%)
Urban adjacent	64 (32.3%)	350 (33%)	170 (29.5%)	23 (20.7%)
Urban not adjacent	63 (34.4%)	351 (34.1%)	234 (30.9%)	31 (25%)
Rural	15 (32.6%)	89 (36.8%)	43 (24.7%)	11 (31.4%)
Total	258 (31.3%)	1483 (32.7%)	786 (29.2%)	102 (22.4%)

Note: Cell numbers and percents indicate the number and percent with a routine restorative dental service within the cell group.

Table 6

Utilization of complex dental services among Iowa adults enrolled in Medicaid, identified with IDD and who had at least one dental visit in 2005

	Adult age categories (n=8876)			
	18–21	22–44	45–64	65 and over
Gender				
Female	84 (22.5 %)	335 (15.9%)	220 (16.6%)	38 (15.5%)
Male	87 (19.3%)	352 (14.5%)	249 (18.2%)	32 (15.2%)
IDD diagnosis				
Autism	11 (15.5%)	12 (6.7%)	2 (13.3%)	0 (0%)
MR	68 (19.2%)	298 (15.2%)	202 (18.6%)	34 (15.3%)
CNS disorder	20 (17.5%)	72 (14.6%)	219 (19.2%)	8 (18.2%)
Spina bifida	2 (16.7%)	6 (11.1%)	2 (15.4%)	0 (0%)
Fetal alcohol syndrome	0 (0%)	3 (30%)	1 (100%)	0 (0%)
None of the above	70 (26.4%)	296 (16.1%)	220 (16.2%)	28 (15%)
Institutional setting				
State MR	1 (5%)	9 (11%)	7 (15.2%)	0 (0%)
ICFMR	7 (6.6%)	68 (10.4%)	52 (13%)	8 (19%)
ICF	1 (100%)	7 (17.5%)	23 (18%)	22 (20.6%)
RCF	10 (19.6%)	57 (15.4%)	53 (14.4%)	9 (9.2%)
Non-institutionalized	152 (20%)	546 (16%)	334 (19%)	31 (15%)
Medicaid eligibility				
TANF	8 (26.7%)	26 (49.1%)	1 (6.3%)	0 (0%)
SSI	51 (25.4%)	238 (18.3%)	148 (21.5%)	20 (15.2%)
Foster care	8 (19%)	--	--	--
HCBS+	102 (19.2%)	379 (12.9%)	284 (16%)	50 (15.8%)
Other	2 (10%)	44 (18%)	36 (16.8%)	0 (0%)
Case management				
	142 (22.2%)	487 (14.4%)	329 (17.1%)	37 (13.8%)
Residence				
Metro	93 (23.4%)	349 (15.9%)	220 (18.5%)	29 (15.6%)
Urban adjacent	38 (19.2%)	142 (13.4%)	97 (16.8%)	111 (14.4%)
Urban not adjacent	30 (16.4%)	157 (15.3%)	118 (15.6%)	18 (14.5%)
Rural	10 (21.7%)	39 (16.1%)	34 (19.5%)	7 (20%)
Total	171 (20.7%)	687 (15.2%)	469 (17.4%)	70 (15.4%)

Note: Cell numbers and percents indicate the number and percent with a complex restorative dental service within the cell group.