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Impact of fee increases on dental utilization rates for children living in Connecticut and enrolled in Medicaid

Tryfon Beazoglou, PhD; Joanna Douglass, BDS, DDS; Veronica Myne-Joslin, BA; Patricia Baker, MS; Howard Bailit, DMD, PhD

The Medicaid program was established in 1965 to provide publicly financed, selected health care services for eligible people with low income. Medicaid dental benefits for children are mandatory, and covered services are provided at no cost to patients. Until 2008, children living in Connecticut and enrolled in Medicaid had a difficult time accessing dental services; reimbursement rates were low, and few dentists participated in the program.^{1,2}

In 2000, Greater Hartford Legal Aid and Connecticut Legal Services brought a federal court class action challenge (Carr versus Wilson-Coker) on behalf of children living in Connecticut and enrolled in the state's Medicaid dental program.² The lawsuit contended that reimbursement levels were too low to enable dentists to participate. Indeed, Medicaid's dental fees for children and adults had not changed since 1993.

Through the policy activities of the Connecticut State Dental Association, the Connecticut Dental Hygienists' Association, the Connecticut Health Foundation, and other community organizations, the lawsuit was settled. In April 2008, children's dental fees, with the exception of fees for orthodontic services, were increased to

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ABSTRACT

Background. In 2008, Connecticut's Medicaid program administration increased children's dental fees to match approximately the 70th percentile of what the market fees were for dental care in 2005. These Medicaid program changes occurred at the same time as a national economic recession, which took place from 2007 through 2009.

Methods. The authors obtained Medicaid eligibility, claims, and provider data before and after the fee increase, in 2006 and 2009 through 2012, respectively. Their analysis examined changes in utilization rates, service mix, expenditures, and dentists' participation. The authors qualitatively assessed the general impact of the recession on utilization rate changes.

Results. The Medicaid fee increase, program improvements, and the recession resulted in a dramatic increase in utilization rates. For children continuously enrolled in Medicaid, utilization rates increased from 45.9% in 2006 to 71.6% in 2012. Rates increased across sex, race, ethnicity, and geographic areas. These increased utilization rates eliminated the disparities in access to dental services between children with private insurance and children receiving Medicaid benefits. Children enrolled in Medicaid now have utilization rates that are similar to or higher than privately insured children. Expenditures increased \$62 million; this represents less than 1% of 2012 State Medicaid expenditures. Dentist participation increased by 72%. These results suggest that dentists will participate in the Medicaid program if adequately compensated, and low-income families will seek dental services.

Conclusion. The Medicaid fee increase, program improvements, and the recession had a dramatic impact on reducing disparities in children's access to dental care in Connecticut.

Practical Implications. One solution to the substantial disparities in access to dental care is to increase Medicaid fees to competitive levels.

Key Words. Delivery of health care; dental care for children; dental care utilization; dental economics; dental health services; dental insurance.

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approximately match the 70th percentile of what the private sector fees were in 2005.³

In addition to increasing fees, the Connecticut Department of Social Services (DSS) simplified the administration of the Medicaid dental program. Instead of 4 companies managing the program and accepting financial risk for expenditures, dental services are managed by a single company that has no financial risk. In an effort to increase utilization rates after the fee increase, the Connecticut State Dental Association and the DSS implemented outreach programs to increase the number of private-sector dentists participating in the Medicaid program and to encourage eligible patients to seek care.

From December 2007 to June 2009, at which time the state's Medicaid dental fees were increased, Connecticut experienced a significant recession. From 2008 to 2010, Connecticut lost 117,667 jobs (approximately 7% of the workforce), and by 2012, the state's employment rate had not fully recovered.⁴ In addition, housing prices declined by approximately 20% in 2012, and total foreclosures surpassed 24,000 in 2009.^{5,6} Increased unemployment and financial losses resulted in an increase in the number of Medicaid enrollees and a reduction in the demand for dental services by people not eligible for Medicaid.⁷⁻⁹

There is considerable national interest in providing children eligible for Medicaid with adequate access to dental care, and some progress has been made. From 2000 to 2009, enrollment in Medicaid and the Child Health Insurance Program increased from 23 million to 33 million children, and utilization rates increased from 27% to 40% for ever-enrolled children (that is, children enrolled for at least 1 day per year).¹⁰ Still, many states (for example, Florida and Wisconsin) continue to have low Medicaid fees and, in turn, low utilization rates.¹¹ Indeed, the disparities in utilization rates between children with private insurance and children receiving publicly funded insurance (that is, Medicaid) are substantial.

At a more basic level, some argue that even with market-competitive fees, not all dentists will participate in the Medicaid dental program.¹² This is because of high rates of missed appointments, low compliance with home care instructions, and the expectation that the Medicaid program will not keep dental fees competitive over the long term. Others posit that many families with low income will not seek dental care even if it is financially available, because of noneconomic social barriers to care that are related to education, language, and transportation.¹³ In sum, some question the value of raising fees in an effort to decrease access disparities.

A number of states have raised Medicaid fees, but few researchers have assessed formally the impact of the fee increases and reported the results in scientific journals.¹⁴⁻¹⁸ Furthermore, none of the authors of the

published studies described the dental services market environment at the time of the fee increases (for example, dentists in markets with substantial demand from patients with private insurance may be less interested in treating children who receive Medicaid benefits).¹¹ For six states (Alabama, Indiana, Michigan, South Carolina, Tennessee, and Virginia), fees were increased to approximately the same level as private insurance fees. Private insurance fees usually are set at the 75th percentile of local market fees. With the exception of Michigan, the analyses were for all enrolled children in the state; the authors of the Michigan study focused on children enrolled continuously for 12 months from 59 (mainly rural) counties.^{16,19-21} With the exception of Michigan (for which utilization increased from 31% to 53% in 5 years), higher fees resulted in limited increases in utilization rates,¹⁹⁻²¹ and in all of these states, children receiving Medicaid benefits had lower utilization rates than children with private insurance.¹¹

We conducted a study to examine the impact of the Medicaid reimbursement rate increase and administrative changes on disparities in access to dental care, taking into consideration the economic environment in Connecticut. Our specific objectives were to assess the impact of the Medicaid fee increase and the recession on changes in Medicaid enrollment, utilization rates, and service mix; document disparities in children's access to dental care across sex, race, ethnicity, age, and geographic areas; and determine the number of dentists treating children eligible for Medicaid benefits.

METHODS

We organized our methodology into the following categories: conceptual framework, data sources, definitions and variables, and data analyses.

Conceptual framework. We used a demand-supply framework for our analysis. For analytical purposes, we divided the local dental market into 2 submarkets: people enrolled in Medicaid and people not enrolled in Medicaid. Accordingly, in 2006 (before the recession and the Medicaid reimbursement rate increase) people not enrolled in Medicaid received the dental services they demanded at prevailing market prices. In contrast, people enrolled in Medicaid were expected to receive dental services that private dentists were willing to supply at Medicaid reimbursement rates, which were below prevailing market prices. As a result, there was excess demand in the submarket of people enrolled in Medicaid. We hypothesized that if Medicaid reimbursement rates were set to be equal to prevailing market prices, both submarkets would be clear of excess demand or supply.

ABBREVIATION KEY. DSS: Department of Social Services. HUSKY A: Healthcare for Uninsured Kids and Youth.

The onset of an economic recession is expected to increase the number of people enrolled in Medicaid. With no increase in Medicaid reimbursement fees, the quantity of services private providers are willing to supply is expected to remain the same, resulting in lower Medicaid utilization rates. In the submarket of people not enrolled in Medicaid, the recession is expected to lower the demand for dental services, leading to lower market prices.

An increase in Medicaid reimbursement rates (in the absence of a recession) is expected to increase the use of dental services by people enrolled in Medicaid, resulting in higher utilization rates. To the extent that Medicaid rates remain below market prices, Medicaid utilization rates are expected to be below those of people who have private insurance.

The situation is more complex with a recession and an increase in Medicaid reimbursement rates taking place at the same time. With an expected decline in demand and falling prices in the submarket of people not enrolled in Medicaid (recession effect) and increased Medicaid fees, private dental providers are expected to provide more services to people enrolled in Medicaid. The net effect on disparities in access to dental care depends on the magnitude of the Medicaid fee increases and the severity of the economic recession.

Data sources. The primary data sources were Medicaid enrollment and encounter data, which were obtained from the Connecticut DSS for the calendar years 2006 (before fee increases) and 2009 through 2012 (after fee increases). We chose 2006 as the baseline because various administrative changes occurred in 2007 and fee increases did not occur until mid-2008.

Definitions and variables. The Medicaid enrollment and encounter variables are listed below. These data were provided by the Connecticut DSS. They include the following:

- patient characteristics
 - Medicaid identification number,
 - date of birth,
 - race, ethnicity, or both,
 - sex,
 - city,
 - ZIP code;
- appointment characteristics
 - date of service,
 - procedure codes and associated teeth and surfaces,
 - dentist submitted fee,
 - Medicaid paid fee;
- provider characteristics
 - provider name,
 - street address, city, and ZIP code,
 - National Provider Identifier (when available),
 - office or business National Provider Identifier (when available),
 - Medicaid provider number.

The enrollment and encounter data included all people who were ever enrolled in Medicaid. From these data, we identified people younger than 21 years who were enrolled in Healthcare for Uninsured Kids and Youth (HUSKY A) (a category of Medicaid coverage) and analyzed the data. The HUSKY A program is Connecticut's Medicaid program for children and families with low income. HUSKY A provides free health insurance to children, pregnant women, parents and caretaker relatives of children eligible for the HUSKY A program, and dental services are provided at no cost (that is, no premiums, no copayments).²²

From 2006 to 2012, between 31% and 43% of all people enrolled in the HUSKY A program who were younger than 21 years had been enrolled for less than a full calendar year in this Medicaid program, and as a result, these children, adolescents, and young adults had less time to access services. In contrast, children covered under private insurance typically retained coverage for a full year. Utilization rates of people younger than 21 years who were enrolled continuously in the HUSKY A program for a year are more relevant for comparison with the utilization rates of children with private insurance. For this reason, we primarily conducted our analysis by using children continuously enrolled in Medicaid for at least 11 months and 1 day within a calendar year.

Data analyses. We used a longitudinal before-and-after model using measurement statistics to assess the impact of a fee increase and a recession on Connecticut Medicaid dental utilization rates. We made comparisons before and after the fee increase, in 2006 and 2009 through 2012, respectively. We also examined the effects of other variables on utilization (for example, patient characteristics). Because the entire Connecticut Medicaid dental population was available for study, we did not need to conduct statistical tests to assess the before-and-after differences in utilization and expenditures. Our analyses were restricted to data from the state of Connecticut.

To determine the overall Medicaid reimbursement rate increase in April 2008, we used the frequency of 2006 dental procedures as weights. The formula for this calculation is as follows:

$$\% \text{ Medicaid fee rate increase} = \left[\sum Q_{2006i} \times F_{2008i} / Q_{2006i} \times F_{2006i} - 1 \right] \times 100,$$

in which \sum stands for sum, Q_{2006i} stands for the number of 2006 dental procedure i , F_{2008i} stands for 2008 fee of dental procedure i , F_{2006i} stands for 2006 fee of dental procedure i .

To determine the overall increase of fees charged by private dentists participating in the Medicaid program from 2009 to 2012, we used the frequency of 2009 dental

procedures as weight. The formula for this calculation is as follows:

$$\% \text{ Increase in submitted fees 2009-12} = \left[\sum Q_{2009i} \times F_{2012i} / Q_{2009i} \times F_{2009i} - 1 \right] \times 100,$$

in which \sum stands for sum, Q_{2009i} stands for the number of 2009 dental procedure i , F_{2012i} stands for 2012 dentist submitted fee of dental procedure i , F_{2009i} stands for 2009 dentists submitted fee of dental procedure i .

In other words, this is an estimate of the market fee increase from 2009 and 2012 for dentists who participated in the Medicaid program. In addition, we used the dental component of the Consumer Price Index to assess changes in dental prices from 1993 to 2012.²³

We could not quantify the individual effects of the Medicaid fee increase, administrative improvements, and recession on utilization rates separately. This is because the fee increase, administrative improvements, and recession occurred almost at the same time. We present plausible qualitative evidence to explain the effects of the recession on the increase in Medicaid enrollment and utilization rates.

RESULTS

Medicaid reimbursement rates and market prices.

Dental Medicaid reimbursement rates had not been raised since 1993. As a result, the increase in April 2008 was substantial. The overall Medicaid reimbursement rate increase in April 2008 compared with 2006 was estimated to be 83%. The new Medicaid reimbursement rates remained unchanged to the end of 2012.

In Connecticut, submitted fees by private dentists for services provided to people younger than 21 years who were continuously enrolled in the HUSKY A program were 62% higher than the Medicaid reimbursement rates in 2006. After the Medicaid reimbursement rate increase in April 2008, submitted fees were higher than Medicaid reimbursement rates by 20% in 2009 and 2010, by 19% in 2011, and by 25% in 2012. In addition, submitted fees by private dentists increased by less than 3% from 2009 through 2012.

National prices for dental services, as measured by means of the dental component of the Consumer Price Index, increased by 106% from 1993 to 2009 and 11% from 2009 to 2012.²³ Thus, the new Medicaid reimbursement rates, though more competitive than before, have remained below prevailing market prices.

Enrollment, utilization, service mix, and expenses. Table 1 presents the number of HUSKY A enrollees and their utilization rates before and after the recession, as well as the reimbursement rate increase for those who were ever enrolled and continuously enrolled in HUSKY A.²⁴⁻²⁸ As expected, the number of children ever

enrolled in the Medicaid program grew from 267,888 in 2006 to 333,846 in 2012, a 24.6% increase. The number of continuously enrolled children increased from 161,130 in 2006 to 214,680 in 2012, a 33.2% increase. Table 1 shows that the dental utilization rate for continuously enrolled children grew from 45.9% in 2006 to 71.6% in 2012, an increase of 56%. Table 1 also shows that the number of HUSKY A enrollees with at least a dental visit (that is, ever enrolled or continuously enrolled) increased at least 3 times faster than the number of enrollees.

Table 2 gives the percentage distribution of service category for continuously enrolled HUSKY A enrollees according to year. The percentage of diagnostic and preventive services stayed relatively constant.²⁹⁻³³ The percentage of restorative and endodontic services peaked in 2009 and then slowly declined. There was no clear trend for oral surgery services. The share of orthodontic services dropped from 18.5 in 2006 to 7.2 in 2009 but increased in 2010, 2011, and 2012. As mentioned previously, Medicaid reimbursement rates for orthodontic services were not increased in April 2008 and remained unchanged thereafter.

Table 3 presents expenditures per enrollee, per patient, per visit, and total for children continuously enrolled in the HUSKY A program before and after the reimbursement rate increase.²⁹⁻³³ From 2006 to 2009, all categories of expenditure increased substantially after the fee adjustment. From 2009 to 2012, expenses per enrollee increased by 17.9%, whereas expenses per patient increased by 5.6% and per visit decreased by 4.1%.

Total expenditures increased from \$18.2 million in 2006 to \$80.7 million in 2012. This increase (343%) resulted from more enrolled children (33%), higher utilization rates (56%), and higher fees (83%). Total expenditures remained steady between 2011 and 2012.

Total Medicaid expenditures for dental services provided to children and adults in Connecticut increased from \$42 million in 2006 to \$193 million in 2012. The total for all payers' expenditures for dental services in Connecticut was estimated to be \$1,575 million in 2009.⁷

Patient demographics. Figure 1 shows utilization rates for children continuously enrolled in the HUSKY A program according to age.^{24,25,28-30,33} Few children visited a dentist before they were 1 year old. When a child reached age 1 year, utilization increased markedly after the fee increase, and it stabilized at about 26% in 2012. Among children aged 2 years, 57% of children had a dental visit in 2012. For children and adolescents aged 4 to 15 years, utilization rates ranged from 70% to 80% in 2012. For adolescents and young adults aged 16 to 20 years, utilization declined to a low of 48 percent in 2012.

Table 4 presents utilization rates for children continuously enrolled in the HUSKY A program according to sex and race and ethnicity.²⁴⁻³³ Girls visited dentists slightly more frequently than boys. Black

TABLE 1

Number of children ever enrolled and continuously enrolled in Healthcare for Uninsured Kids and Youth A and their utilization rates, 2006-2012.*

YEAR	EVER ENROLLED			CONTINUOUSLY ENROLLED		
	Enrollees	Enrollees With at Least 1 Visit	Percentage With Any Visit	Enrollees	Enrollees With at Least 1 Visit	Percentage With Any Visit
2006 ^{24†}	267,888	95,864	35.8	161,130	73,930	45.9
2009 ²⁵	290,507	151,875	52.3	166,787	106,954	64.1
2010 ²⁶	307,395	179,196	58.3	204,550	140,984	68.9
2011 ²⁷	311,098	187,749	60.4	215,377	150,155	69.7
2012 ²⁸	333,846	201,169	60.2	214,680	154,560	71.6

* Enrollment and patient visit sources: Connecticut Department of Social Services Enrollment/Eligibility Files for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁴⁻²⁸
† Before reimbursement rate increase.

TABLE 2

Percentage distribution of service category of children continuously enrolled in Healthcare for Uninsured Kids and Youth A before and after the reimbursement rate increase.*

SERVICE CATEGORY	YEAR, %				
	2006 ^{29†}	2009 ³⁰	2010 ³¹	2011 ³²	2012 ³³
Diagnostic	20.6	21.3	21.4	21.1	21.2
Preventive	24.1	22.7	23.1	23.3	24.4
Restorative	24.3	33.1	31.7	29.7	29.3
Endodontic	4.8	5.0	4.0	3.3	2.8
Oral Surgery	6.1	8.2	7.7	8.2	7.2
Orthodontic	18.5	7.2	9.7	11.3	12.5
Adjunct	1.1	2.0	1.9	2.2	2.2

* Encounter sources: Connecticut Department of Social Services Encounter Data for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁹⁻³³
† Before reimbursement rate increase.

TABLE 3

Expenditures per enrollee, per patient, per visit and total for children continuously enrolled in Healthcare for Uninsured Kids and Youth A before and after the reimbursement rate increase.*

EXPENDITURE	YEAR, \$				
	2006 ^{29†}	2009 ³⁰	2010 ³¹	2011 ³²	2012 ³³
Per Enrollee	113	319	369	374	376
Per Patient	246	498	535	536	526
Per Visit	108	193	192	187	185
Total	18.2 million	53.3 million	75.5 million	80.6 million	80.7 million

* Encounter Sources: Connecticut Department of Social Services Encounter Data for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁹⁻³³
† Before reimbursement rate increase.

children had modestly lower utilization rates, and Hispanic children had higher rates than children from other racial groups.

Utilization rate variation among townships. Table 5 shows the change in the distribution of utilization rates among 169 Connecticut townships for children continuously enrolled in the HUSKY A program.²⁴⁻³³ Utilization rates increased dramatically after the fee increase. By 2009, 126 of the 169 townships had utilization rates of at least 60%. By 2012, 156 townships had utilization rates of at least 60%, and only 1 had a utilization rate less than 50%.

Figure 2 displays the utilization rates for children continuously enrolled in the HUSKY A program who were living in the 10 townships with the highest concentration of children eligible for Medicaid.²⁴⁻³⁴ These towns are considered to be the poorest of the 169 Connecticut townships, and presumably the people in these communities have the greatest need for dental services. We ranked the townships on the basis of

the percentage of children enrolled in the Medicaid program: Hartford had the highest (71%), and Windham had the lowest (49%). Utilization rates rose after the fee increase and continued to increase in most townships in subsequent years. The ranking of towns by percentage of children eligible for Medicaid and the utilization rates followed the same pattern in 2006 and 2012.

Dentist participation. Dentist participation improved by almost 72% after the fee increase. A total of 773 dental providers submitted at least 1 Medicaid claim in 2006, 822 did so in 2009, and 1,326 did so in 2012. We estimated that in 2010 there were 2,015 practicing dentists in Connecticut, of whom 1,567 were general practitioners and 91 were pediatric dentists.

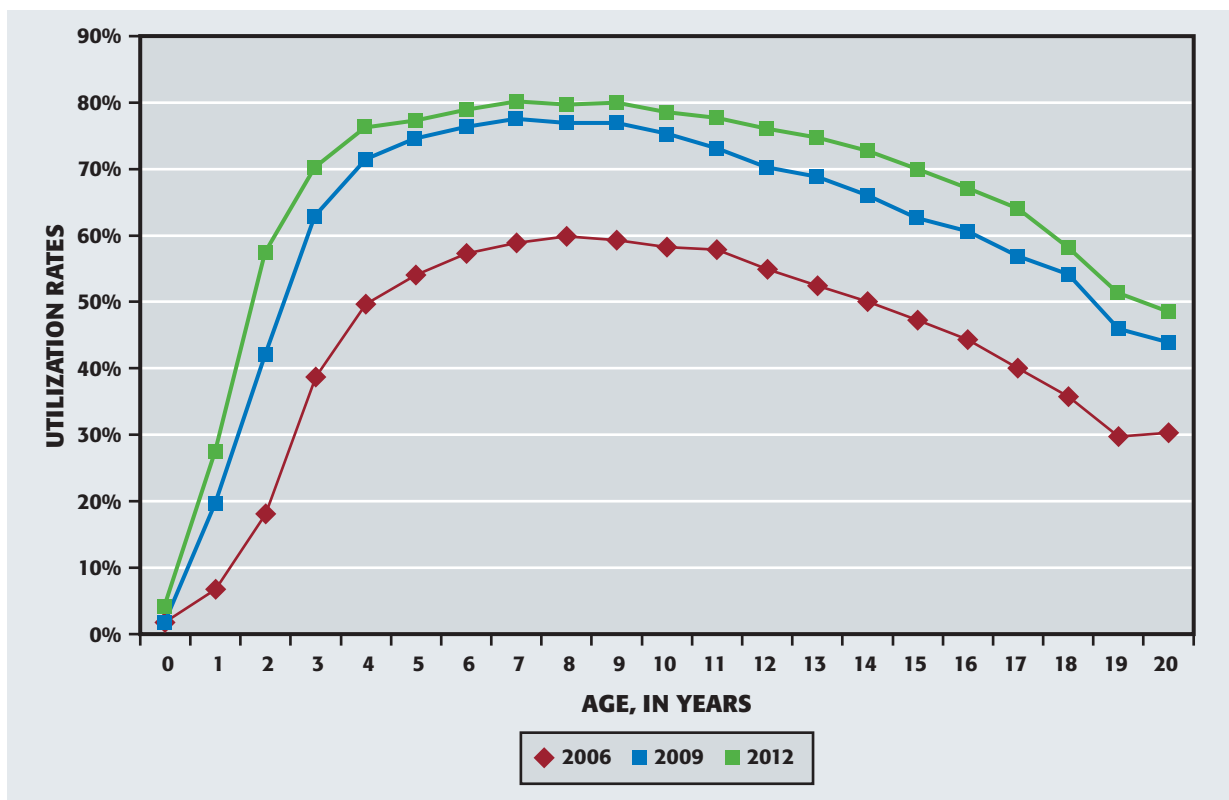


Figure 1. Utilization rates of children continuously enrolled in Healthcare for Uninsured Kids and Youth A, according to age before and after the reimbursement rate increase. (2006 is the year before the reimbursement rate increase.) *Eligibility and Enrollment Sources:* Connecticut Department of Social Services Enrollment/Eligibility Files for 2006, 2009, and 2012.^{24,25,28} *Encounter Sources:* Connecticut Department of Social Services Encounter Data for 2006, 2009 and 2012.^{29,30,33}

DISCUSSION

The combination of increased Medicaid fees, improved program administration, and the recession led to an unprecedented increase in utilization rates. Utilization rates for people continuously enrolled in the HUSKY A program who were younger than 21 years increased from 45.9% in 2006 to 71.6% in 2012. Children enrolled in Connecticut's HUSKY A program had the same or higher utilization rates as did children with private insurance.¹¹ These rates were higher than the national Healthy People 2020 targets set for children enrolled in Medicaid.³⁵ More significantly, these utilization rates were seen in what are considered to be the poorest Connecticut towns and in children of all sexes and races and most ages.

These findings should raise questions about the following two often heard assumptions regarding access disparities:

■ Dentists will not participate in the Medicaid programs even when fees are competitive. This is not the case in Connecticut and several other states.^{20,21} In 2006, 773 dental providers filed 1 or more Medicaid claims, and

in 2012, 1,326 (66% of the practicing dentists in Connecticut) did.

■ Many patients with low income will not seek care even if they have adequate Medicaid coverage. Again, this is not true in Connecticut and several other states.¹¹ In Connecticut, utilization rates grew to the level of private insurance within 2 years of the fee increase and the recession, and utilization rates continued to increase.¹¹ Higher fees also changed the age when children first saw a dentist. Before the fee increase, only 18% of 2-year-olds continuously enrolled in Medicaid had a dental visit. By 2012, 57% of 2 year olds visited a dentist. Furthermore, the increase occurred in most of Connecticut's 169 townships and in all of the 10 cities that had the highest concentration of children enrolled in Medicaid and that were considered to be the poorest in Connecticut. This suggests that families with low income need and want access to dental care for their children when it is available.

The high utilization rates probably were influenced by changes taking place in the larger environment. Specifically, fees were increased at the same time that the United States experienced the worst economic recession since the

TABLE 4

Percentage utilization rates of children continuously enrolled in Healthcare for Uninsured Kids and Youth A according to sex and race or ethnicity before and after the reimbursement rate increase.*†					
CHARACTERISTICS	YEAR, %				
	2006 ^{24,29‡}	2009 ^{25,30}	2010 ^{26,31}	2011 ^{27,32}	2012 ^{28,33}
Sex					
Male	45	63	68	69	70
Female	47	65	70	71	73
Race/Ethnicity					
Caucasian	46	65	70	70	72
Black	44	61	67	67	70
Hispanic	50	68	74	75	76
Asian	50	65	69	71	71

* Enrollment and Patient Visit Sources: Connecticut Department of Social Services Enrollment/Eligibility Files for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁴⁻²⁸

† Encounter Sources: Connecticut Department of Social Services Encounter Data for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁹⁻³³

‡ Before reimbursement rate increase.

TABLE 5

Distribution of Connecticut townships according to utilization rate for children continuously enrolled in Healthcare for Uninsured Kids and Youth A before and after the reimbursement rate increase.*†					
PERCENTAGE UTILIZATION RATES	NUMBER OF CONNECTICUT TOWNSHIPS ACCORDING TO YEAR				
	2006 ^{24,29‡}	2009 ^{25,30}	2010 ^{26,31}	2011 ^{27,32}	2012 ^{28,33}
Less than 30%	6	1	0	0	0
30%-39%	40	1	0	0	0
40%-49%	91	3	2	1	1
50%-59%	28	38	19	20	12
60% or more	4	126	148	148	156
All	169	169	169	169	169

* Enrollment and patient visit sources: Connecticut Department of Social Services Enrollment/Eligibility Files for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁴⁻²⁸

† Encounter sources: Connecticut Department of Social Services Encounter Data for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁹⁻³³

‡ Before reimbursement rate increase.

1929 depression. Although it was impossible to quantify the separate effects of the fee increase from the recession, there is considerable indirect evidence that the recession contributed to the higher utilization rates.

Specifically, 65,958 more Medicaid enrollees between 2006 and 2012 and Medicaid utilization rates (71.6%) greater than those commonly seen for private insurance (67.87%) cannot be accounted for without accepting the

effects of the recession.⁵ With Medicaid reimbursement rates below market prices and constant between 2006 and 2012, a significant increase in Medicaid enrollment would lead to a decline, not an increase, in Medicaid utilization rates.

With large numbers of people out of work and many others experiencing a substantial loss in wealth, dentists nationally and in Connecticut experienced a marked decrease in demand for care and in their incomes.³⁶ With unused capacity in the submarket of people not eligible for Medicaid, many dentists in Connecticut viewed the Medicaid program more positively. This shift of providers from primarily serving people who were not enrolled in Medicaid to include the submarkets of people enrolled in Medicaid enabled more Medicaid enrollees to access dental services.

Empirical support for this suggestion includes the following factors:

- Private sector fees were still below market fees in 2008, and these fees increased less than 3% between 2009 and 2012. The dental component of the Consumer Price Index rose 8% during the same period. In effect, this means a decline in real market fees;
- Private and public expenditures for dental services in Connecticut declined in 2009 in spite of the large increase in Medicaid dental expenditures (more than 10%).⁷ This indicates a significant reduction in market demand for people not enrolled in Medicaid;
- The number of dentists participating in Medicaid continues to increase by a few hundred each year. This suggests that in 2012 the market for people not enrolled in Medicaid was not recovered fully from the recession;
- From 2009 to 2012, utilization of orthodontic services showed a marked increase, even though Medicaid orthodontic fees did not increase in 2008. Presumably, this resulted from a decline in demand from patients not enrolled in Medicaid;
- The results of a regression analysis showed a statistically significant, inverse relationship between the decline in Connecticut housing

prices (a proxy measure for the severity of the recession) and Medicaid dental utilization rates (data not shown). That is, Medicaid utilization rates were higher in townships that were affected more negatively by the recession. Presumably, dentists in the townships most affected by the recession experienced the greatest decline in the market demand for people not enrolled in Medicaid and accepted more patients who were enrolled in Medicaid.

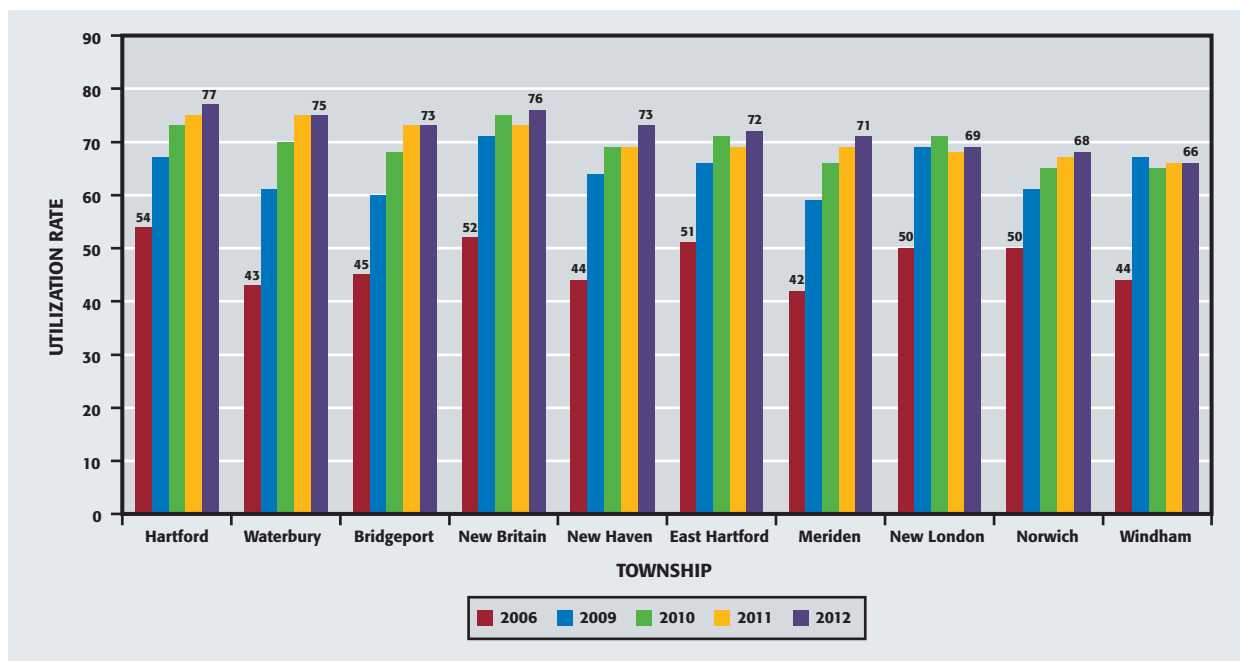


Figure 2. Utilization rates in 10 Connecticut townships with the highest percentage of children continuously enrolled in Healthcare for Uninsured Kids and Youth A before and after the reimbursement rate increase. (2006 is the year before reimbursement rate increase.) Population source: US Census, American Fact Finder.³⁴ Eligibility and enrollment sources: Connecticut Department of Social Services Enrollment/Eligibility Files for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁴⁻²⁸ Encounter sources: Connecticut Department of Social Services Encounter Data for each year respectively, 2006, 2009, 2010, 2011, and 2012.²⁹⁻³³

There is another environmental factor that might explain the high utilization rates. Connecticut is a small, urbanized state with good roads and public transportation. It also has one of the highest dentists-to-population ratios in the nation. Thus, it is relatively easier for patients enrolled in Medicaid to find and get to dentists in Connecticut than it is for patients in many other states.

Increased utilization also affected the mix of services patients received. In terms of the percentage distribution of services, restorative and endodontic services peaked in 2009 and then declined. In contrast, the share of orthodontic services declined sharply in 2009 but increased substantially from 2009 to 2012 (Table 2).

With a large increase in fees and the recession as well as much higher utilization rates and thousands more children enrolled in the Medicaid program, annual expenditures increased substantially. Although the increase was large, it is important to keep these numbers in perspective; total Connecticut Medicaid expenditures were \$6.7 billion in 2012.³⁷ As such, the increase in dental expenditures was less than 1% of total spending (\$62.5 million). By any measure, this is a modest investment by the federal and Connecticut governments to eliminate disparities in children's access to dental care.

Per-patient expenditures also increased but the increase was much less than total expenditures. This is because total expenditures reflect growth in Medicaid enrollment and higher utilization rates. Expenses per visit declined each year from 2009 to 2012, but this was not true for expenses per patient. This finding probably reflects the fact that with more visits per patient per year, each visit becomes less costly.

Future investigators conducting studies about the impact of Medicaid fees on utilization rates need to take into account general dental market conditions. If and when the Connecticut economy fully recovers, Medicaid utilization rates are expected to decline if Medicaid fees are not adjusted to market prices.

This study has several limitations. As we noted previously, it was impossible to quantify the separate effects of the fee increase, economic recession, and Medicaid program administrative changes on utilization rates. Also, all the data came from Medicaid claims, so no information was available from patients, parents, or dentists regarding their perceptions of the Medicaid program before and after the fee increase. A related issue is the lack of any information about the impact of increased access to care on oral health outcomes. State data do indicate that untreated caries in third graders declined from 18% in 2006 to 13% in 2012, but the role

that the Medicaid fee increase played in this reduction is unknown.³⁸ Finally, the study did not have any data on quality of care provided to children enrolled in Medicaid.

CONCLUSIONS

In Connecticut, the Medicaid fee increase, program improvements, and the economic recession had a dramatic impact on reducing access disparities. For people continuously enrolled in the HUSKY A program, utilization rates increased from 45.9% in 2006 to 71.6% in 2012. This occurred across all age, sex, and racial groups and geographic areas. For this same period, the number of dentists participating increased by almost 72 percent. ■

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