

County Oral health Wisconsin Surveillance System (COWSS)

Technical Notes

Demographics

Population

Population counts are from the U.S. Census 2010.

Poverty

The state and county level poverty estimates are from the U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) program. The SAIPE program models income and poverty estimates by combining survey data with population estimates and administrative records. The dependent variable for the model is number of people in poverty and the predictive variables are the log of the:

- Number of tax return exemptions (all ages) on returns whose adjusted gross income falls below the official poverty threshold for a family of the size implied by the number of exemptions on the form;
- Number of SNAP benefits recipients in July of the previous year;
- Estimated total resident population as of July 1;
- Total number of tax return exemptions; and
- Census 2000 estimate of the total number of people in poverty.

In addition to counts and percents, SAIPE provides the 90 percent confidence interval. Additional information on [SAIPE methodology](#) is available on the U.S. Census Bureau's web site.

The poverty estimates for the City of Milwaukee are from the U.S. Census Bureau's American Community Survey (ACS) because they were not available from SAIPE.

Education

The percent of the population with a bachelor's degree or higher are estimates from the U.S. Census Bureau's ACS for the combined years of 2006 to 2010. ACS is an ongoing survey conducted annually nationwide and collects the detailed information that used to be collected through the long form of the decennial census. The denominator and numerator for the percent of the population with a bachelor's degree or higher were restricted to those ages 25 and over. Five year estimates were used in order to provide more reliable estimates for small counties. The degree of uncertainty for the estimates is represented through the 90 percent confidence interval.

Unemployment

The unemployment rates are the final rates for June 2011. The rates are compiled and released monthly through the Wisconsin Department of Workforce Development. The county and City of Milwaukee rates, provided in the monthly report, are not seasonally adjusted and are expected to grow between May and June as students finish school and enter the job market for summer employment. Statewide rates are available both as adjusted and unadjusted, but for consistency the unadjusted rate was reported.

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Medicaid – Ever Enrolled

Ever enrolled Medicaid members are unduplicated members who were enrolled in Medicaid with any of the full dental benefits, regardless of the length of enrollment in State Fiscal Year (SFY) 2010. The full dental benefits are identified by the following benefit plans: BC, BCSP, BCBPD, BCHKP, FSTMA, MAP, MAPW, MCD, MCDW, SSIMA, and WWMA for Fee-For-Service Medicaid, Fee-For-Service BadgerCare Plus, HMO Medicaid, HMO BadgerCare Plus. Members are not required to be enrolled on the last day of SFY2010 (June 30th, 2010) to be included in the analysis. The county level summary for the ever enrolled members includes both tribal and non-tribal members who were identified by their certifying agency code.

Medicaid – Continuously Enrolled

Continuously enrolled Medicaid members are unduplicated members who were enrolled in Medicaid with any of the full dental benefits for the period of at least for 11 months in State Fiscal Year 2010. The full dental benefits are identified by the following benefit plans: BC, BCSP, BCBPD, BCHKP, FSTMA, MAP, MAPW, MCD, MCDW, SSIMA, and WWMA for Fee-For-Service Medicaid, Fee-For-Service BadgerCare Plus, HMO Medicaid, HMO BadgerCare Plus. Members who switched amongst the programs are included in the analysis as long as the length of their total enrollment is greater than or equal to eleven months during SFY2010. The members are not required to be enrolled on the last day of SFY2010 (June 30th, 2010) to be included in the analysis. The county level summary for the eleven month continuously enrolled members includes both tribal and non-tribal members who were identified by their certifying agency code.

Medicaid – Utilization Rates

Dental services are identified by CPT (70300, 70310, 70320, 70350, 70355), HCPCS/CDT (D0120-D0999, D1110-D2999, D3110-D3999, D4210-D4999, D5110-D5899, D6010-D6205, D7111-D7999, D8010-D8999, D9110-D9999) and ICD-9-CM Procedure (23, 24, 87.11, 87.12, 89.31, 93.55, 96.54, 97.22, 97.33-97.35, 99.97) codes. This is comparable to the 2011 (i.e., 2010 Measurement Year) HEDIS specifications for the Annual Dental Visit (ADV) quality measure.

Utilization rates were calculated for both ever enrolled and continuously enrolled members by dividing the number of enrolled members by the number with at least one dental service.

Prevention

Public Water Supply Data

The percent of the total population (state, city or county) on a Public Water Supply (PWS) is from the Centers for Disease Control and Prevention's Water Fluoridation Reporting System (WFRS), which is a tool that helps states to manage the quality of their water fluoridation programs. The numerator was the number on a PWS and the denominator was the estimated total population from WFRS for 2011.

The percent of the population on a PWS with access to optimally fluoridated water was calculated for 2011 using the estimated population on a PWS as the denominator and the numerator was the estimated number of people on PWSs that has the optimal level of fluoride in the water (adjusted, natural, and consecutive).

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The percent of the total population with access to optimally fluoridated water also came from WFRS, 2011 and was calculated by taking the estimated number of people on PWSs that has the optimal level of fluoride in the water (adjusted, natural, and consecutive) and dividing it by the estimated total population of the state/county/city.

Information on specific water systems in Wisconsin is available by county at the Centers for Disease Control and Prevention's (CDC) [My Water's Fluoride](#).

Schools

The number of schools with students enrolled in grades second through sixth is provided as background information and as a reference to be used with the indicators on school-based prevention programs. The criteria of grades second through sixth were applied to mirror the criteria used for eligibility for Seal-A-Smile (SAS) program funding for the 2010-11 school year. It has since changed to grades first through eighth. The school data comes from the Wisconsin Department of Public Instruction's (DPI) public enrollment file for the 2009-10 school year.

The number of schools eligible for Seal-A-Smile funding comes from the DPI 2009-10 public enrollment file, which was matched to the DPI 2009-10 Free/Reduced Price Meal Eligibility data by school code and district code. For the 2010-11 SAS program year schools with students enrolled in grades second through sixth and had a 2009-10 free/reduced eligibility rate of 35.0 percent or higher were eligible for SAS funding.

Prevention Programs

Information on local prevention programs, which included school-based dental sealants, school-based fluoride varnish, fluoride supplements, and school-based fluoride mouthrinse, was obtained through a Select Survey of local public health departments and tribes during November and December of 2011 for the 2010-11 school year. The survey was emailed to all health officers and tribal health directors, with follow up phone calls. Information provided for counties funded by SAS for dental sealants and fluoride varnish was compared to information reported in the Sealant Efficiency Assessment for Locals and States (SEALS) tool by grantees in order to ensure accuracy. These data may be incomplete if the person completing the survey was unaware of programs in the county, particularly mouthrinse programs in the schools. In the future, a survey of school nurses may provide more accurate data.

Dental Sealants – Third Grade Survey

The percent of third grade students with dental sealants was collected through the Basic Screening Survey, [Make Your Smile Count](#), during the 2007-08 school year. A random sample of public schools with a third grade was selected for each of the five public health regions in the state. The total number of students screened throughout Wisconsin was 4,413. Due to the design of the study, a representative sample was not available at the county level and for this report regional estimates were reported. Students with at least one dental sealant on a permanent molar were coded as having dental sealants.

Fluoride Varnish – Medicaid/BadgerCare+

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Members were counted if they were zero to eight years old on June 30th, 2010 and received at least one fluoride varnish application by dental providers or primary care providers, including local health departments, during SFY2010. Fluoride varnish is identified by procedure code 'D1203' 'D1206'.

Workforce

Licensure Data

Lists of licensed dentists and dental hygienists were received from the Wisconsin Department of Safety and Professional Services with current license status and an address in Wisconsin. While all of the addresses were in state, they are able to provide any address, which means for some, it is their practice address and for others it is their home address. Another limitation of the data was that county was not included as part of the address. In order to get a count by county the addresses were imported into ArcMap10 software and geocoded; they were then spatially joined to a Wisconsin County boundary file to assign a county to each provider.

These counts are time sensitive and may include some providers who maintain a current license, but who are not actively practicing.

Population to Dentist Ratio

The population to dentist ratio was calculated by taking the total county population divided by the number of licensed dentists in the county. The ratios were rounded to the nearest whole number.

Medicaid/BadgerCare+ Population to Dentist Ratio

The ratios were calculated by dividing the count of unduplicated eleven month continuously enrolled members by the number of licensed dentists in the county. The ratios were rounded to the nearest whole number.

Medicaid Dentists' Activity Level

Dental services are identified by CPT (70300, 70310, 70320, 70350, 70355), HCPCS/CDT (D0120-D0999, D1110-D2999, D3110-D3999, D4210-D4999, D5110-D5899, D6010-D6205, D7111-D7999, D8010-D8999, D9110-D9999) and ICD-9-CM Procedure (23, 24, 87.11, 87.12, 89.31, 93.55, 96.54, 97.22, 97.33-97.35, 99.97) codes. This is comparable to the 2011 (i.e., 2010 Measurement Year) HEDIS specifications for the Annual Dental Visit (ADV) quality measure.

The number of Medicaid Certified Dentists with at least one paid claim or encounter is counted by identifying the dental services rendered in both claim and encounter data during SFY2010.

The number of Medicaid Certified Dentists who saw between 1 and 49 members is identified by counting the unduplicated members in both claim and encounter data during SFY2010.

The number of Medicaid Certified Dentists with 50 to 99 members is identified by counting the unduplicated members in both claim and encounter data during SFY2010.

The number of Medicaid Certified Dentists with 100 or more members is identified by counting the unduplicated members in both claim and encounter data during SFY2010.

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Federally Qualified Health Centers (FQHC)

Listings of Federally Qualified Health Centers in Wisconsin were obtained from the [Health Resources and Services Administration](#) and the [Wisconsin Primary Health Care Association](#) web sites. These lists were compared for accuracy and additional information such as confirmation of dental services and location of satellite clinics was obtained from the individual FQHC web sites. Tribal health centers were not included in this count. Clinics were assigned to a county based on the address of the clinic, but serve individuals from surrounding counties.

Tribal Health Center Dental Clinics

A brief telephone survey of clinic dental directors was conducted in 2010 as part of the Burden of Oral Disease in Wisconsin report. Dental clinic locations were confirmed as part of the survey and since that time the database has been updated with information on two new clinics. The clinics were assigned to a county based on the address of the clinic, although they may serve individuals from surrounding counties. In addition, some tribal dental clinics serve non-tribal members.

Safety Net Dental Clinics

For this purpose safety net dental clinics did not include FQHCs and Tribal Health Centers since they were reported separately. The [Wisconsin Dental Association](#) (WDA) compiles a list of safety net clinics and programs by county, which is available on the web site and updated annually. Clinics on the WDA list were counted if they provide comprehensive care and if they were not an FQHC or Tribal Health Center. Clinics were assigned to a county based on clinic address, but may serve individuals from other counties. However, many of these clinics have restrictions regarding the populations eligible for services based on factors such as geographic location, age, and insurance status.

Dental Health Professional Shortage Areas (HPSA)

Counties were designated as Partial County, Whole County, or None for dental HPSAs. These dental HPSAs represent service areas, which requested a HPSA in order to be eligible for the HPSA-linked benefits and they meet federal dental low-income population HPSA requirements, including: they have a significant shortage of dentists providing care to the low-income population for their service areas (a low-income population to dentist providing care ratio of 4,000:1 dentist or higher), they are rational service areas, and at least 30 percent of the area's population is below 200 percent of the federal poverty level.

Disease Burden

Oral/Pharyngeal Cancer

Oral/pharyngeal cancer case counts and rates were from the Wisconsin Cancer Reporting System for the combined years of 2004 to 2008 for incidence counts and rates and 2003 to 2007 for mortality counts and rates. Rates are per 100,000 population and were age adjusted to the 2000 United States Standard Population (19 age groups – Census P25-1130). In addition, the 95 percent confidence intervals were reported for the rates. County level incident case counts and mortality counts were suppressed when there were less than six cases in order to protect confidentiality. When this occurred, regional mortality and/or incidence rates were reported for the county.

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Adult Oral Health Status

Adults with a dental visit in the past year and tooth loss due to decay/gum disease are collected through the Wisconsin Behavioral Risk Factor Survey (BRFS) during the even years of the survey. The BRFS is a telephone survey of state residents ages 18 and older carried out in conjunction with the CDC. In order to have sufficient sample sizes at the county level, three years of data (2006, 2008 and 2010) were combined to calculate prevalence estimates and 95 percent confidence intervals. Weighted estimates were calculated using SAS version 9.1.3 Proc Surveyfreq.

Emergency Department Visits

Wisconsin Emergency Department data were analyzed for non-traumatic dental complaint visits. Non-traumatic dental complaints included the following codes: 520.6, 521.00-521.09, 521.9, 522.0, 522.1, 522.4-522.7, 522.9, 523.0, 523.1, 523.3-523.6, 523.9, 525.9, 528.3, and 528.9. In addition, patients with the diagnosis of disturbances in tooth eruption (ICD-9-CM code 520.6) were only included if they fell in the 15 to 30 year age range. Also, any visits with an E code (injury code) were excluded in order to focus on non-traumatic complaints. The number of visits during calendar year 2010 were summed for the state and stratified by county of residence. In addition, the mean charges were calculated by SAS version 9.1.3 Proc Means.

Counties that are on the border with another state may have lower numbers than expected due to residents using out of state emergency departments. This is mainly an issue in Northwestern Wisconsin with the Minnesota border and for a few counties in Northern Wisconsin with the Michigan border. Data were suppressed for two counties when numbers were less than ten to protect confidentiality. In both instances, these are border counties where the closest hospital was out of state.

Third Grade Survey

Data on untreated decay and caries experience among third grade students were collected through the Basic Screening Survey, [*Make Your Smile Count*](#), during the 2007-08 school year. A random sample of public schools with a third grade was selected for each of the five Department of Health Services (DHS) regions in the state. The total number of students screened throughout Wisconsin was 4,413. Due to the design of the study, a representative sample was not available at the county level and for this report regional estimates were reported. Untreated decay was defined as having a one-half millimeter or larger hole in the tooth surface. Caries experience was the presence of untreated decay, a filling or crown (which presumably once was a cavity), or a permanent molar tooth that is missing because it was extracted as a result of caries.

Head Start Survey

Data on untreated decay and caries experience among Head Start children were collected through the Basic Screening Survey, [*Healthy Smiles for a Healthy Head Start*](#), during the 2008-09 school year. Head Start programs in Wisconsin were stratified by the five DHS regions and then probability proportional to size sampling was used to randomly select programs within each region. The total number of children screened was 1,212. Due to the design of the study, a

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representative sample was not available at the county level and for this report regional estimates were reported. Untreated decay was defined as having a one-half millimeter or larger hole in the tooth surface. Caries experience was the presence of untreated decay, a filling or crown (which presumably once was a cavity), or a permanent molar tooth that is missing because it was extracted as a result of caries.

