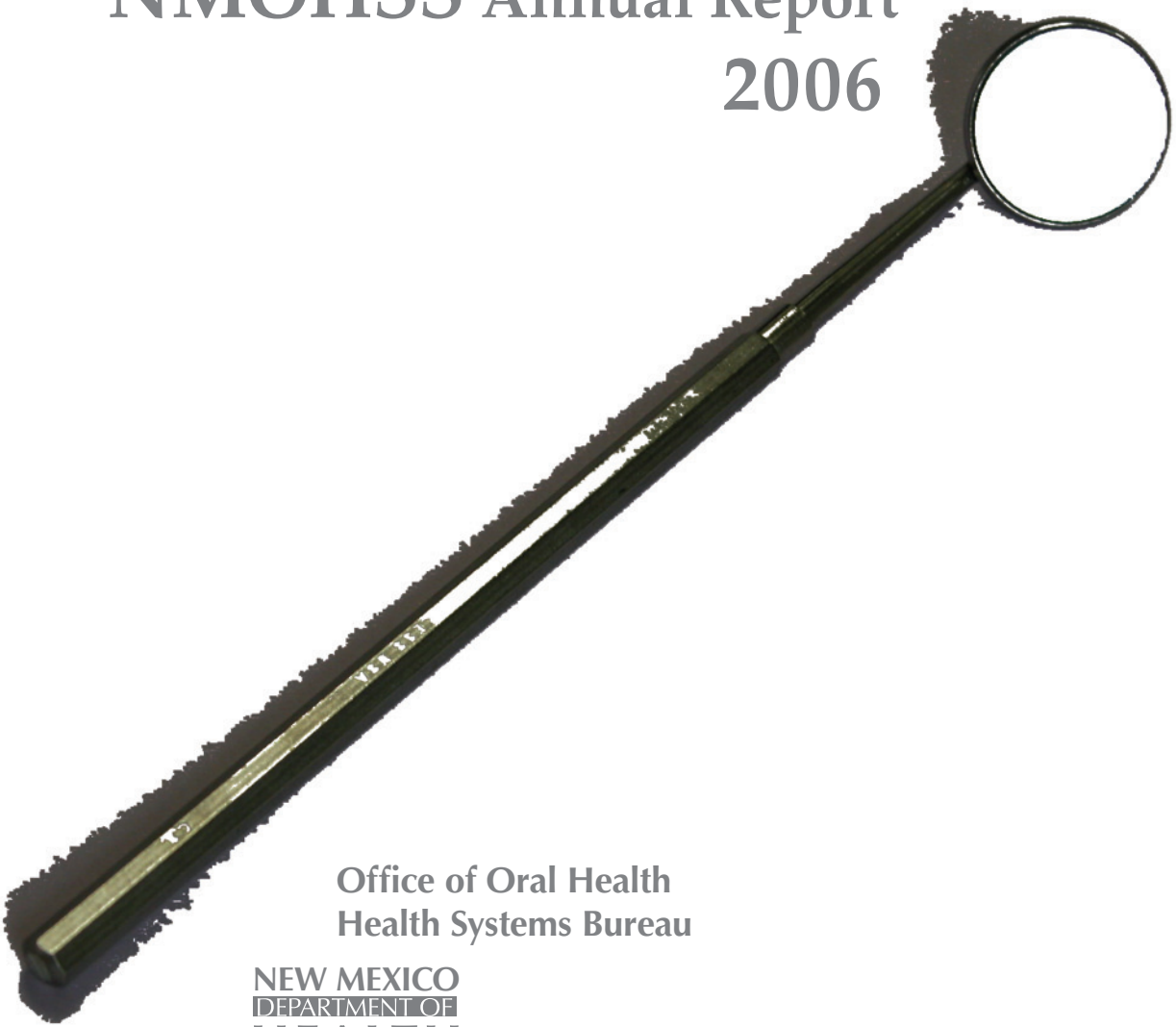
New Mexico Oral Health Surveillance System

NMOHSS Annual Report 2006



Office of Oral Health
Health Systems Bureau

NEW MEXICO
DEPARTMENT OF
HEALTH

State of New Mexico

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Executive Summary

Oral health means much more than healthy teeth and is integral to general health.[1] The New Mexico Oral Health Surveillance System (NMOHSS) collects aggregate data about oral and craniofacial diseases and services. The information can be used to improve New Mexicans' oral health and access to related services. The NMOHSS is led by the Health Systems Bureau of the Department of Health in collaboration with entities who contribute data and guidance.

Data in the NMOHSS

The NMOHSS Annual Report 2006 is the first of these reports and provides data for NM on the eight basic indicators of the National Oral Health Surveillance System (NOHSS):[2]

For adults

1) Dental visits
2) Teeth cleaning
3) Tooth loss

For third-graders

4) Caries experience
5) Sealants
6) Untreated decay

7) Incidence of cancer of the oral cavity and pharynx

8) State-level data on water fluoridation

In addition to the data in this report, the NMOHSS can provide much more information on request. The NMOHSS encourages other entities with oral health care data to consider joining this collaborative effort.

Oral health surveillance indicators in New Mexico[3]

Adults

Among NM adults surveyed in 2004,[4]

- 66.4% visited a dentist during the past twelve months, an increase since 1999. This exceeded the Healthy People 2010 target of 56%,[5] but was below the national median of 71%.
- 66.3% had their teeth cleaned within the past year, an increase since 1999.
- 43.0% had lost six or more teeth from tooth decay or gum disease, a decrease since 1999.

Children[6]

In 1999-2000, by screening of a sample of NM third graders, the NM Department of Health Office of Oral Health estimated that

- 43.2% had one or more sealants on their permanent first molar teeth,
- 64.6% had caries experience,
- 37.0% had untreated decay.

Cancer[7]

In 2003, among New Mexicans, the proportion of oral or pharyngeal cancers detected at the earliest stage was 50%, which met the Healthy People 2010 target of 50%.

Among the population served by public water systems[8]

- 18.0% of this population received water with fluoride levels adequate for preventing dental caries
- 53.6% had levels that were low or adequate
- 23.3% had levels that were low
- 5.0% had levels that were high, or had at least one result that was high.

Adequate levels are desired, "low" means too low to prevent dental caries, and "high" means that there is a risk of fluorosis.

The above indicators show that New Mexico does relatively well in the proportion of oral or pharyngeal cancers detected at the earliest stage. However, although more than half of all adult New Mexicans utilize preventive dental services (had their teeth cleaned in the past year), close to one-half of them lost six or more teeth from tooth decay or gum disease. Moreover, a large proportion of New Mexican children experience caries or untreated tooth decay; yet only 18% of

the NM population served by public water systems receive water with fluoride levels adequate for preventing caries. In addition, the accompanying report documents disparities among residents of different demographic groups or residing in different areas. We hope that the information will help program planners and policy makers to improve awareness about oral health and services, leading to better overall health for all New Mexicans.

References

1 U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research; 2000. NIH Publication No. 00-4713. Accessed 8/24/2006 at http://www.cdhp.org/Resources/USSurgeonGeneralPublicationsonOralHealth.asp

2 NOHSS information was accessed 8/10/2006 at http://www.cdc.gov/nohss.

3 For surveys, this document gives the 95% confidence interval 95% CI, (a margin of error) the interval spans more than ten percentage points The Annual Report provides 95% CIs for all survey estimates and its introduction discusses interpretation of 95% CIs.

4 Data from the NM Behavioral Risk Factor and Surveillance System (BRFSS), Office of Epidemiology of the NMDOH in New Mexico.

5 U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health. 2nd ed., vol. II.* Washington, DC: U.S. Government Printing Office, November 2000. Accessed Aug. 27, 2006 at http://www.healthypeople.gov/document/tableofcontents.htm

6 43.2% (34.6% to 51.8%) had one or more sealants on their permanent first molar teeth, 64.6% (59.5% to 69.7%) had caries experience, and 37.0% (32.3% to 41.6%) had untreated decay. Source: NMDOH, Office of OralHealth. Open-Mouth Survey of NM Third Graders, 1999-2000,

7 Data from the New Mexico Tumor Registry, University of New Mexico.

8 Data from NM Environment Department, Drinking Water Bureau. Fluoride tests conducted 2002 through mid-March 2006 provided this information.
Fluoride categories are defined in section 1D. of this report, Drinking Water Bureau: Fluoridation.

Based on their relevance to caries prevention, these fluoride categories were defined:

- "High" exceeds the current SMCL (2 mg/L) and is also higher than needed for caries prevention; the two largest values recorded in the data are 8.95 and 6.8 mg/L.
- "Adequate for dental caries prevention" includes values from 0.7 up to 2.0, wider than the optimal range of 0.7 to 1.2 mg/L.
- "Low" includes values less than 0.7 mg/L and is lower than recommended for caries prevention.

Because a system may obtain water from more than one system, resulting in more than one fluoride level, these categories were added:

- "Low / Adequate" means all results are below 2.0 mg/L, with at least one below and one above 0.7 mg/L
- "Low / High" means at least one result below 0.7 mg/L and one above 2.0 mg/L
- "Adequate / High" means all results are above 0.7 mg/L with at least one above 2.0 mg/L

The fluoride level in water from any single source will vary over time; data are based on a single test of each water source, not an average reading over a time period.

1. Introduction: public health importance

Oral health means much more than healthy teeth and is integral to general health. "Oral" refers to the teeth, gums, hard and soft palate, linings of the mouth and throat, tongue, lips, salivary glands, chewing muscles, and upper and lower jaws. Not only does good oral health mean being free of tooth decay and gum disease, but it also means being free of chronic oral pain conditions, oral cancer, birth defects such as cleft lip and palate, and other conditions that affect the mouth and throat. Good oral health also includes the ability to carry on the most basic human functions such as chewing, swallowing, speaking, smiling, kissing, and singing.[1]

Oral health is intimately related to the health of the rest of the body. Evidence suggests that infections in the mouth, such as periodontal (gum) diseases, may increase the risk of heart disease and premature birth, and complicate control of blood sugar for diabetics. Conversely, changes in the mouth often signal problems elsewhere in the body, such as infectious diseases, immune disorders, nutritional deficiencies, and cancer.

Oral Health in America: A Report of the Surgeon General alerted Americans to the importance of oral health.[1] The report discusses prevention and management of oral diseases. The Surgeon General's Report concluded with a framework for action, calling for a national oral health plan to improve quality of life and eliminate oral health disparities.

One component of an oral health plan is a set of measurable and achievable objectives on key indicators of oral disease burden, oral health promotion, and oral disease prevention. One set of national indicators was developed in November 2000 as part of *Healthy People 2010*[2], a document that presents a comprehensive, nationwide health promotion and disease prevention agenda.

One of the seventeen oral health goals of Healthy People 2010 is for every state to have a functioning oral health surveillance system by 2010. Monitoring oral disease in a state's population is essential for setting achievable objectives, as well as for planning, implementing, and evaluating public health programs. Over the past three years, the NM Oral Health Surveillance System (NMOHSS) has evolved into a collaboration of twenty-two agencies. NMOHSS collects aggregate oral health data, produces periodic reports, and improves oral health program planning efforts.

NMOHSS

NMOHSS does not currently collect original data. The NMOHSS can provide more information upon request. Section Four describes data that the agencies share with the NMOHSS and provides contact information. During the past year, the NMOHSS has also produced four special reports that contain information beyond the eight basic indicators:

- Special Report on Pregnant Women
- Special Report on Children
- Special Report on the Border Counties
- Impact of the NM OHSS

The NMOHSS Annual Report summarizes the most current information available on oral disease in New Mexico. Comparisons are made with national data and Healthy People 2010 goals whenever possible. We hope to raise awareness of the need to monitor the oral health burden in New Mexico and to guide action to improve the quality of life of New Mexicans.

The NMOHSS goals are to:

- Document the extent of public health problem(s) related to oral health and to overall health
- Monitor disease trends over time
- Detect changes in health care practices
- Facilitate planning
- Assess progress towards improving the oral health of New Mexico residents

The annual report may vary from year to year, but we expect at least one report every year.

Interpretation of text and tables:

Comparing groups: significant differences

In the text, terms such as "significant, "associated with," "less than," or "more than" refer to statistically significant differences. Terms such as "similar" or "no difference" mean that differences were not statistically significant. Expressions such as "apparent" or "seemed" mean that we need more statistical tests to draw conclusions about whether differences were statistically significant. In general, lack of significance is due to small sample size (there may be a true difference, but the survey did not include enough respondents to show this).

Confidence intervals

For surveys, special calculations are done to account for the survey design. These calculations usually include weights, allowing each respondent to "speak" for several others. The resulting estimates refer to the entire population of interest (not just the respondents). These estimates must be reported with a margin of error, the 95% confidence interval (95% CI). In this document, if the 95% CIs do not overlap, differences are significant. However, sometimes, differences are significant even if the 95% CIs overlap.

2. National Oral Health Surveillance System (NOHSS) Indicators[3]

The National Oral Health Surveillance System is a collaborative effort between the Division of Oral Health of the Center for Disease Control (CDC) and the Association of State and Territorial Dental Directors (ASTDD). This NMOHSS report addresses eight of nine basic oral health surveillance indicators tracked by NOHSS:

Dental Visits: Adults aged 18+ who have visited a dentist or dental clinic in the past year. Routine dental visits aid in the prevention, early detection, and treatment of tooth decay, oral soft tissue disease, and periodontal diseases.

Teeth Cleaning: Adults aged 18+ who have had their teeth cleaned in the past year (among adults with natural teeth who have ever visited a dentist or dental clinic). Having one's teeth cleaned by a dentist or dental hygienist is indicative of preventive behavior.

Complete Tooth Loss: Adults aged 65+ who have lost all of their natural teeth due to tooth decay or gum disease. Loss of all natural permanent teeth (complete tooth loss) may substantially reduce quality of life, self-image, and daily functioning.

Caries Experience: Percentage of third grade students with caries experience, including treated and untreated tooth decay. Dental caries is the single most common chronic disease of childhood, occurring five to eight times as frequently as asthma, the second most common chronic disease in children.

Untreated Tooth Decay: Percentage of third grade students with untreated tooth decay. To avoid pain and discomfort, decayed teeth need to be restored (filled). To keep as much of the natural tooth as possible, decayed teeth should be discovered early and repaired promptly so that fillings may be kept small.

Dental Sealants: Percentage of third grade students with dental sealants on at least one permanent molar tooth. Plastic coatings applied to decay-susceptible tooth surfaces (the pits and fissures) reduce tooth decay, have been approved for use for many years, and are recommended by professional health associations and public health agencies, particularly for children at high risk for tooth decay.

Cancer of the Oral Cavity and Pharynx: Oral and pharyngeal cancer comprises a diversity of malignant tumors that affect the oral cavity and pharynx (mouth and throat). Each year, some 28,000 new cases of oral and pharyngeal cancer are diagnosed and 7,200 people die from the disease in the US. Detection at the earliest stage increases survival and minimizes the effects of the disease.

Fluoridation Status: Percentage of people served by public water systems who receive fluoridated water. Water fluoridation plays an important role in reducing tooth decay and tooth loss.

3. New Mexico Oral Health Surveillance System (NMOHSS) Basic Indicators

Eight of the NOHSS indicators are collected in NM by four agencies and are considered the basic indicators of the NMOHSS. Data collection and results for recent years are described below.

Behavioral Risk Factor Surveillance System (BRFSS) survey[4]

The three oral health questions described below were included in the NM BRFSS survey in 1999, 2002, and 2004. "

1. Dental Visits

BRFSS asks, "How long has it been since you last visited a dentist or a dental clinic for any reason?" In this report,"had a dental visit" refers to the past twelve months. Healthy People 2010 Objective #21-10 is to increase to 56% the percentage of children and adults who use the oral health care system each year.

The 2004 BRFSS estimate for New Mexican adults was 66.4% (64.9% – 67.9%), exceeding the target, but below the national median of 70.8%. The percentage of adults visiting a dentist increased slightly in 2004 compared with 1999. New Mexicans were less likely to have had a visit if they had lower educational level or annual income less than $19,999, were unemployed, or were Hispanic (compared with non-Hispanic white) in all three years (except that the comparison between employed v. unemployed may not be significant in 1999 and 2002). Utilization of dental care appeared to improve slightly during the middle years (35-64), followed by a decline among older adults. Whether within a given year or over time, this estimate did not appear to differ among men and women. Regional differences may be related to access to care and different demographic characteristics. Table 1 and Figures 1a – 1c show the BRFSS data.

2. Teeth cleaning

The BRFSS also asks, "How long has it been since you had your teeth cleaned by a dentist or dental hygienist?" Possible answers are: "Within the past year," "Within the past 2 years," "Within the past 5 years," "5 or more years ago," "Never," "Don't Know/Not

Figure 1a.
Percentage of New Mexican adults who have visited a dentist or dental clinic for any reason within the past year: year 2004, by educational level.

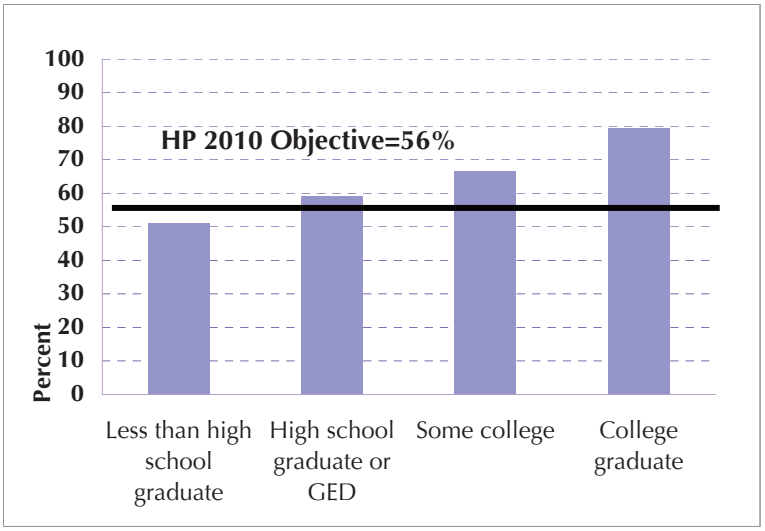
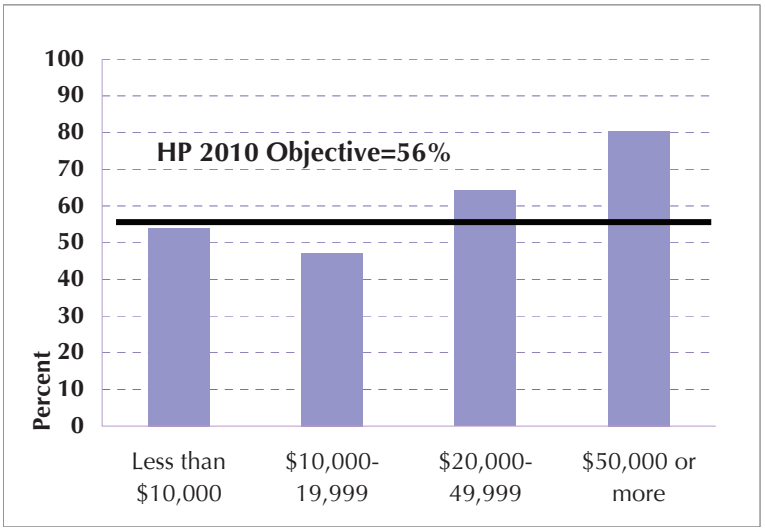


Figure 1b.
Percentage of New Mexican adults who have visited a dentist or dental clinic for any reason within the past year: year 2004, by annual income.



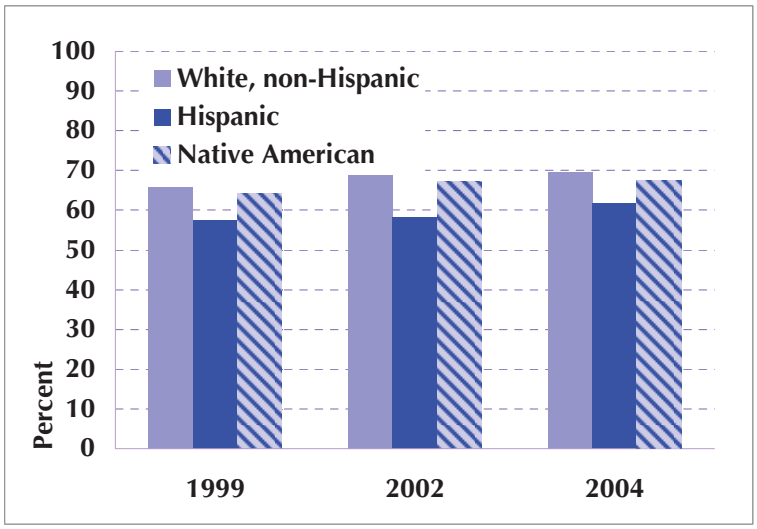


Figure 1c.
Percentage of New Mexican adults who have visited a dentist or dental clinic for any reason within the past year: 1999-2004, for each ethnicity-race group.

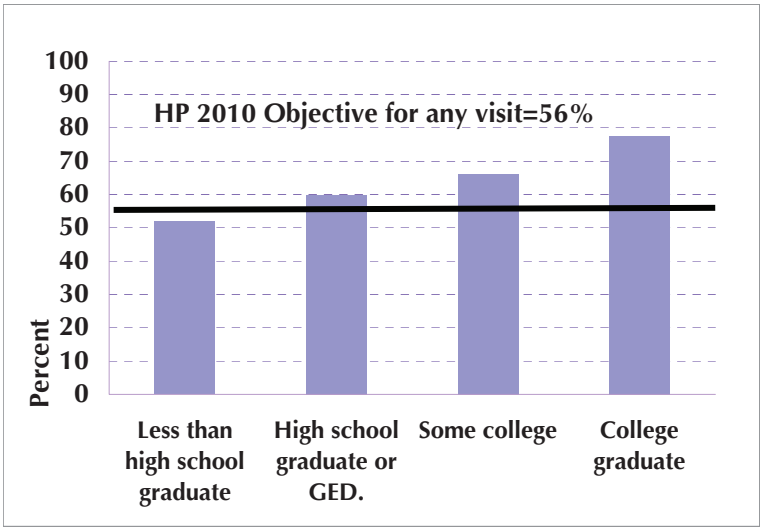


Figure 2a.
Percentage of New Mexican adults who have had their teeth cleaned within the past year, year 2004, by educational level.

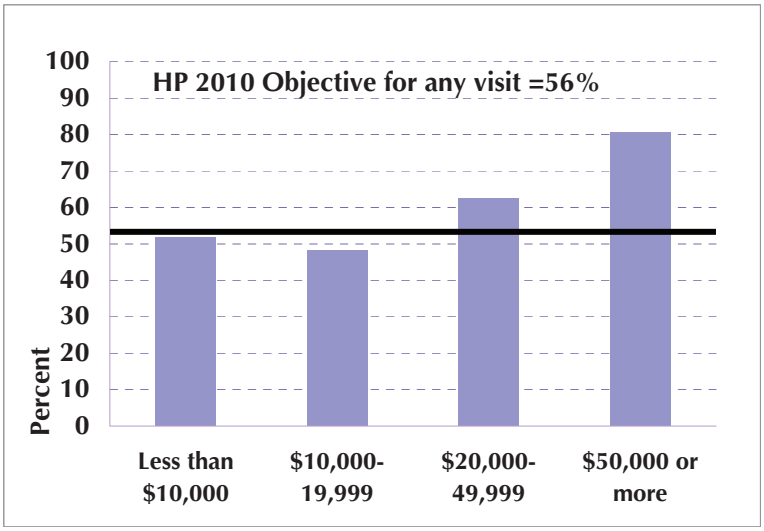
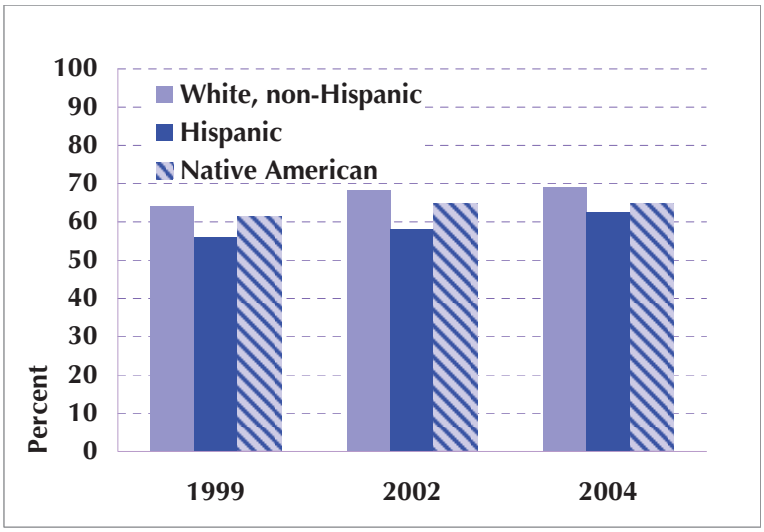


Figure 2b.
Percentage of New Mexican adults who have had their teeth cleaned within the past year, year 2004, by annual income.

Figure 2c.
Percentage of New Mexican adults who have had their teeth cleaned within the past year: 1999, 2002, 2004, 2004, for three ethnicity-race groups.

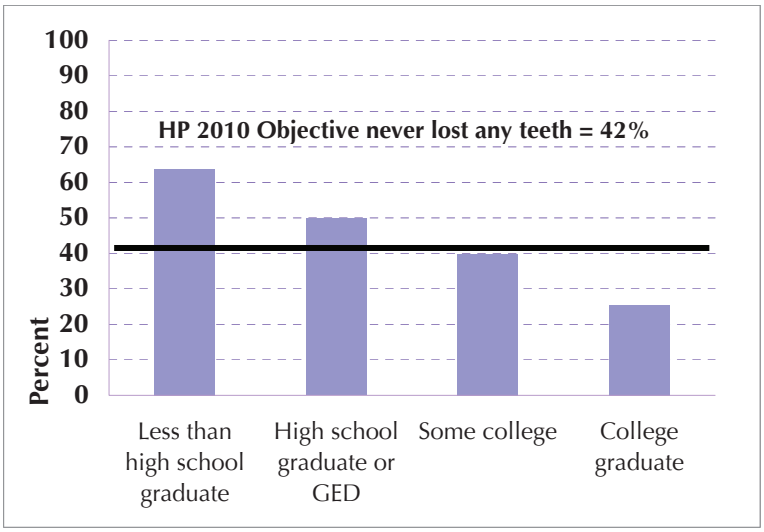


Sure," or "Refused." In this report "teeth cleaned" means cleaning by a professional within the past twelve months.

In 2004, the percentage of all adults who had their teeth cleaned exceeded the Healthy People 2010 target for any dental visit (56% of all adults), regardless of age, ethnicity, or gender. If there were a HP 2010 target for cleaning teeth, it would be lower than the target for any visit. Between 1999 and 2004, there was a slight increase in the percentage of all adults having had their teeth cleaned (Table 2).

However, adults who had lower educational levels or annual income below $19,999 consistently lagged behind. In 2004, the unemployed were less likely to have had their teeth cleaned (in 1999 and 2002 as well, there was an apparent disparity). Women were slightly more likely than men to have had their teeth cleaned in both 1999 and 2002, but in 2004, this difference was not apparent. Having the teeth cleaned seemed to decrease with younger age in all three years. Differences among the regions (residents of the northeast region were usually most likely, and residents of the southeast were least likely to have had their teeth cleaned), perhaps because of differences in access to care and demographics. Figures 2a–2c (Table 2) highlight some disparities.

Figure 3a.
Percentage of New Mexican adults aged 65+ who have lost six or more teeth because of tooth decay or gum disease: year 2004, by educational level



3. Loss of teeth

The BRFSS asks, "How many of your permanent teeth have been removed because of tooth decay or gum disease? Do not include teeth lost for other reasons, such as injury or orthodontics. " Possible answers are: "1 to 5," "6 or more but not all," "All," "None," "Don't know/not sure," or "Refused." Data available for this report estimated the loss of six or more teeth ("loss of 6+ teeth").[5]

Healthy People 2010 Objective 21-3 is to increase to 42% the percentage of adults aged 35 to 44 years who have *never* had a permanent tooth extracted because of dental caries or periodontal disease. The NOHSS indicator on this topic tracks *complete* tooth loss in those aged 65 and older ("older adults").

Table 3 and Figures 3a – 3c show data for loss of 6+ teeth among adults aged 65 or older. Comparing years 1999 and 2004, the percentage of older adults reporting the removal or loss of 6+ teeth decreased. As educational level and income increased, loss of 6+ teeth was usually much less likely. Regional disparities may reflect access to care and demographic differences: adults in the northeast region seemed least likely, and those in the southeast seemed most likely to have lost 6+ teeth. In 1999, Hispanics were more likely to have lost 6+ teeth than non-Hispanic whites. However, these ethnic-racial groups did not appear different from 2002 to 2004. Loss of teeth did not appear to differ among men and women. The above findings are consistent with the lower likelihood of losing teeth among groups who were more likely to have had their teeth cleaned.

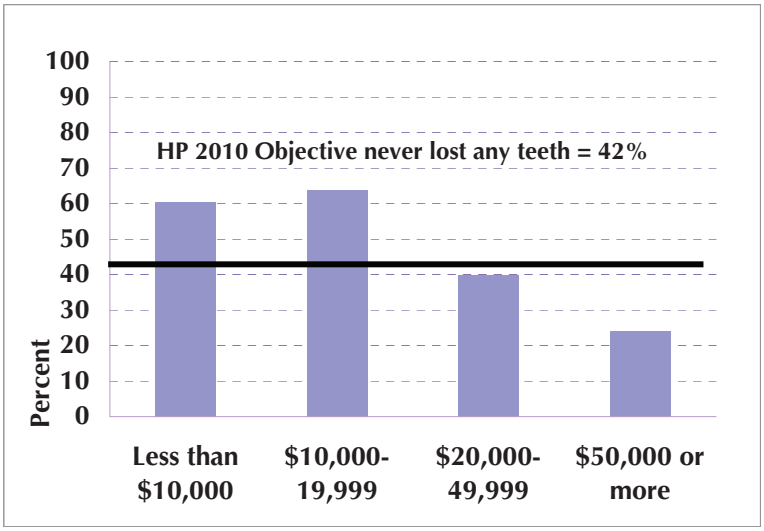


Figure 3b.
Percentage of New Mexican adults aged 65+ who have lost six or more teeth because of tooth decay or gum disease: year 2004, by annual income.

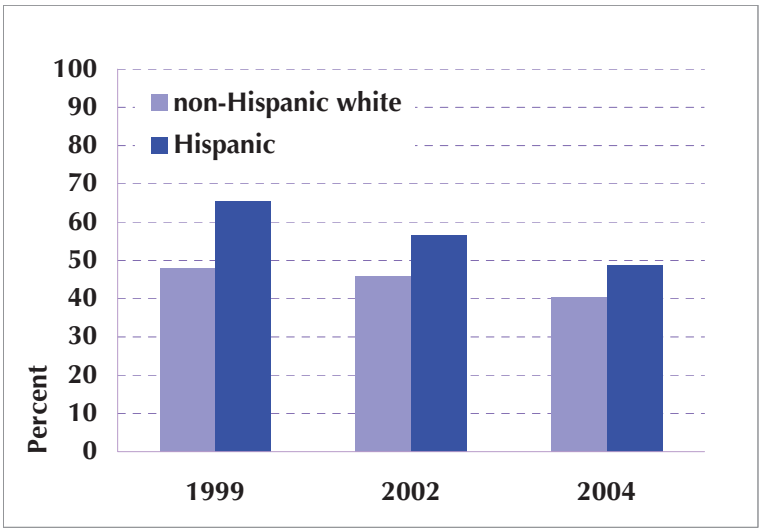


Figure 3c.
Percentage of New Mexican adults aged 65+ who have lost six or more teeth because of tooth decay or gum disease: year 2004, for two ethnicity-race groups.

Table 1. Percentage of New Mexican adults who have visited a dentist or dental clinic for any reason within the past year, 1999, 2002, and 2004.

Demographic characteristic	1999 n = 3,462		2002 n = 4,660		2004 n = 6,359	
	%	*95% CI*	%	*95% CI*	%	*95% CI*
All	**62.5**	*60.6 - 64.3*	**65.3**	*63.6 – 67.0*	**66.4**	*64.9 – 67.9*
Gender						
Male	**60.1**	*57.3 – 62.8*	**63.2**	*60.5 – 65.8*	**65.0**	*62.6 – 67.3*
Female	**64.7**	*62.3 – 67.1*	**67.3**	*65.1 – 69.4*	**67.7**	*65.9 – 69.5*
Age (years)						
18-24	**60.0**	*53.8 – 65.9*	**60.2**	*53.9 – 66.1*	**67.2**	*61.6 – 72.4*
25-34	**58.2**	*53.9 – 62.4*	**59.8**	*55.1 – 64.3*	**64.7**	*60.6 – 68.5*
35-44	**63.6**	*59.8 – 67.2*	**68.1**	*64.3 – 71.6*	**67.5**	*64.1 – 70.7*
45-54	**66.3**	*62.3 – 70.1*	**71.4**	*68.1 – 74.6*	**68.2**	*65.0 – 71.2*
55-64	**67.9**	*62.7 – 72.7*	**68.3**	*64.3 – 72.0*	**68.2**	*64.9 – 71.4*
65-74	**64.9**	*59.6 – 69.9*	**63.5**	*59.1 – 67.8*	**64.9**	*61.1 – 68.6*
75+	**52.1**	*44.1 – 59.9*	**60.5**	*54.9 – 65.7*	**59.6**	*55.3 – 63.7*
Ethnicity-race						
White, non-Hispanic	**65.8**	*63.4 – 68.2*	**70.4**	*68.2 – 72.4*	**69.6**	*67.7 – 71.4*
Hispanic	**57.5**	*54.5 – 60.5*	**58.3**	*55.3 – 61.3*	**61.7**	*59.0 – 64.3*
Native American	**64.2**	*53.3 – 73.8*	**67.2**	*58.6 – 74.8*	**67.4**	*59.9 – 74.2*
Educational level						
Less than high school graduate	**40.7**	*36.2 – 45.5*	**40.5**	*35.8 – 45.5*	**51.1**	*46.8 – 55.4*
High school graduate or GED.	**57.3**	*53.6 – 60.9*	**59.1**	*55.7 – 62.4*	**59.3**	*56.4 – 62.3*
Some college	**67.9**	*64.4 – 71.1*	**68.9**	*65.7 – 71.9*	**66.7**	*63.7 – 69.6*
College graduate	**75.8**	*72.9 – 78.5*	**80.0**	*77.4 – 82.3*	**79.5**	*77.1 – 81.6*
Annual income						
Less than $10,000	**42.7**	*35.8 – 49.8*	**44.9**	*37.9 – 52.2*	**54.0**	*47.5 – 60.4*
$10,000-19,999	**47.0**	*42.7 – 51.4*	**49.9**	*45.3 – 54.5*	**47.2**	*43.3 – 51.1*
$20,000-49,999	**63.0**	*60.2 – 65.8*	**63.7**	*60.9 – 66.4*	**64.2**	*61.7 – 66.6*
$50,000 or more	**80.8**	*77.3 – 83.8*	**80.5**	*77.8 – 83.0*	**80.4**	*78.0 – 82.6*
Employment ("other" not shown)						
Employed	**63.8**	*61.5 – 66.1*	**67.9**	*65.6 – 70.0*	**69.2**	*67.2 – 71.1*
Unemployed	**59.3**	*49.8 – 68.1*	**61.2**	*52.0 – 69.7*	**57.3**	*49.4 – 64.8*
Residence						
NW (Region 1)	**62.4**	*57.6 – 66.9*	**64.9**	*60.9 – 68.7*	**64.5**	*61.5 – 67.3*
NE (Region 2)	**68.8**	*64.1 – 73.2*	**71.1**	*67.8 – 74.3*	**72.9**	*69.8 – 75.7*
Bernalillo Co. (Region 3)	**67.1**	*63.9 – 70.2*	**70.7**	*66.9 – 74.1*	**67.5**	*64.2 – 70.7*
SE (Region 4)	**48.9**	*44.4 – 53.5*	**52.2**	*48.0 – 56.4*	**58.4**	*54.5 – 62.1*
SW (Region 5)	**61.1**	*57.0 - 65.0*	**61.4**	*58.1 – 64.7*	**66.3**	*63.3 – 69.2*

Table 2. Percentage of New Mexican adults who have had their teeth cleaned by a professional within the past year: 1999, 2002, 2004.

	1999 n = 3,146		2002 n = 4,194		2004 n = 5,790	
Demographic characteristic	**%**	***95% CI***	**%**	***95% CI***	**%**	***95% CI***
All	**61.2**	*59.3 – 63.1*	**64.1**	*62.3 – 65.9*	**66.3**	*64.7 – 67.8*
Gender						
Male	**58.3**	*55.4 – 61.2*	**61.2**	*58.3 – 64.0*	**64.7**	*62.2 – 67.2*
Female	**63.9**	*61.3 – 66.3*	**66.8**	*64.5 – 69.1*	**67.8**	*65.8 – 69.6*
Age (years)						
18-24	**54.1**	*48.4 – 60.8*	**58.7**	*52.3 – 64.8*	**67.4**	*61.7 – 72.5*
25-34	**55.6**	*51.2 – 59.9*	**57.3**	*52.5 – 62.0*	**61.4**	*57.3 – 65.4*
35-44	**60.1**	*56.2 – 63.8*	**63.3**	*59.4 – 67.1*	**64.0**	*60.5 – 67.3*
45-54	**62.1**	*57.9 – 66.2*	**68.6**	*65.0 – 72.0*	**67.4**	*64.2 – 70.5*
55-64	**68.4**	*62.8 – 73.4*	**68.6**	*64.3 – 72.6*	**69.0**	*65.5 – 72.2*
65-74	**74.0**	*68.3 – 79.1*	**67.5**	*62.3 – 72.3*	**71.3**	*67.2 – 75.1*
75+	**66.5**	*57.5 – 74.4*	**72.5**	*66.6 – 77.7*	**70.3**	*65.5 – 74.7*
Ethnicity-race						
White, non-Hispanic	**64.3**	*61.8 – 66.8*	**68.4**	*66.1 – 70.7*	**69.1**	*67.1 – 71.0*
Hispanic	**56.1**	*52.9 – 59.3*	**58.1**	*54.9 – 61.3*	**62.5**	*59.7 – 65.2*
Native American	**61.5**	*51.6 – 70.5*	**64.7**	*55.6 – 72.9*	**64.9**	*57.3 – 71.8*
Other or multi-racial	**68.9**	*59.4 – 77.0*	**64.9**	*55.8 – 73.0*	**65.5**	*56.7 – 73.4*
Educational level						
Less than high school graduate	**40.0**	*34.8 – 45.4*	**40.7**	*35.4 – 46.3*	**51.9**	*47.0 – 56.6*
High school graduate or GED.	**55.2**	*51.4 – 59.0*	**56.9**	*53.2 – 60.5*	**59.8**	*56.6 – 62.9*
Some college	**65.0**	*61.4 – 68.4*	**66.1**	*62.7 – 69.4*	**66.1**	*63.0 – 69.0*
College graduate	**73.7**	*70.7 – 76.5*	**78.4**	*75.7 – 80.9*	**77.6**	*75.1 – 79.8*
Annual income						
Less than $10,000	**45.1**	*37.2 – 53.4*	**47.7**	*39.6 – 56.0*	**51.7**	*44.5 – 58.9*
$10,000-19,999	**45.0**	*40.4 – 49.8*	**47.9**	*42.9 – 52.9*	**48.2**	*44.0 – 52.4*
$20,000-49,999	**59.3**	*56.3 – 62.1*	**61.0**	*58.0 – 63.8*	**62.5**	*59.9 – 65.1*
$50,000 or more	**80.5**	*77.0 – 83.6*	**78.9**	*76.0 – 81.5*	**80.5**	*78.0 – 82.7*
Employment ("other" not shown)						
Employed	**60.5**	*58.1 – 62.9*	**65.7**	*63.3 – 67.9*	**68.4**	*66.3 – 70.3*
Unemployed	**51.2**	*41.7 – 60.5*	**50.7**	*41.1 – 60.3*	**50.0**	*41.9 – 58.0*
Residence						
NW (Region 1)	**60.2**	*55.5 – 64.6*	**63.1**	*58.8 – 67.3*	**63.7**	*60.5 – 66.7*
NE (Region 2)	**66.5**	*61.5 – 71.1*	**68.7**	*65.1 – 72.1*	**74.2**	*71.2 – 77.0*
Bernalillo Co. (Region 3)	**66.5**	*63.2 – 69.7*	**69.2**	*65.3 – 72.9*	**67.7**	*64.3 – 71.0*
SE (Region 4)	**46.5**	*41.6 – 51.5*	**52.2**	*47.7 – 56.7*	**56.1**	*52.0 – 60.1*
SW (Region 5)	**60.1**	*55.9 – 64.2*	**60.3**	*56.7 – 63.7*	**66.2**	*63.0 – 69.3*

Table 3.
Percentage of New Mexican adults aged 65+ who have lost six or more teeth because of tooth decay or gum disease: 1999, 2002, and 2004.

Data for employment status are not shown because number of unemployed was small.
Because there were few male respondents age 65+, the ten-percentage point decline for these males may or may not have been a true change.
Estimates for Native Americans are not reported because of small numbers.

	1999 n = 627		2002 n = 1,025		2004 n = 1,534	
Demographic characteristic	**%**	*95% CI*	**%**	*95% CI*	**%**	*95% CI*
All	**53.6**	*49.2 – 58.0*	**48.0**	*44.4 – 51.7*	**43.0**	*40.2 – 45.9*
Gender						
Male	**53.4**	*46.7 – 60.0*	**50.0**	*44.3 – 55.7*	**43.9**	*39.3 – 48.6*
Female	**53.8**	*47.8 – 59.7*	**46.5**	*41.8 – 51.2*	**42.3**	*38.7 – 45.9*
Age						
65-74	**48.8**	*43.4 – 54.1*	**45.2**	*40.5 – 50.0*	**38.6**	*34.8 – 42.5*
75+	**62.4**	*54.8 – 69.4*	**52.4**	*46.8 – 57.9*	**48.3**	*44.0 – 52.5*
Ethnicity-race						
White, non-Hispanic	**48.0**	*42.8 – 53.2*	**45.8**	*41.5 – 50.1*	**40.5**	*37.2 – 43.9*
Hispanic	**65.6**	*57.3 – 73.0*	**56.5**	*49.1 – 63.7*	**48.8**	*42.6 – 55.0*
Educational level						
Less than high school graduate	**75.5**	*67.6 – 82.0*	**64.6**	*56.8 – 71.6*	**63.8**	*56.8 – 70.3*
High school graduate or GED	**61.6**	*52.3 – 70.1*	**62.5**	*55.8 – 68.7*	**49.8**	*44.5 – 55.1*
Some college	**44.0**	*35.4 – 52.9*	**43.0**	*35.6 – 50.8*	**39.8**	*34.0 – 46.0*
College graduate	**30.4**	*23.4 – 38.5*	**25.2**	*19.7 – 31.6*	**25.5**	*21.2 – 30.4*
Annual income						
Less than $10,000	**71.6**	*59.0 – 81.6*	**72.1**	*58.5 – 82.5*	**60.5**	*50.0 – 70.1*
$10,000-19,999	**69.0**	*59.6 – 77.0*	**57.6**	*49.8 – 65.0*	**63.8**	*57.4 – 69.7*
$20,000-49,999	**47.2**	*40.4 – 54.1*	**46.7**	*41.1 – 52.4*	**39.8**	*35.3 – 44.4*
$50,000 or more	**25.7**	*16.6 – 37.5*	**30.0**	*21.7 – 39.9*	**24.1**	*18.4 – 30.8*
Residence						
NW (Region 1)	**61.9**	*47.9 – 74.1*	**53.2**	*45.0 – 61.3*	**47.3**	*41.1 – 53.5*
NE (Region 2)	**47.5**	*36.8 – 58.4*	**45.5**	*38.1 – 53.0*	**40.0**	*34.0 – 46.4*
Bernalillo Co. (Region 3)	**48.5**	*40.6 – 56.5*	**42.4**	*34.4 – 50.8*	**36.2**	*30.2 – 42.6*
SE (Region 4)	**63.4**	*53.5 – 72.3*	**56.4**	*49.0 – 63.6*	**46.8**	*40.7 – 53.0*
SW (Region 5)	**51.7**	*43.3 – 60.1*	**47.7**	*40.7 – 54.8*	**48.4**	*42.6 – 54.3*

Office of Oral Health:

Third Grade Oral Health Survey

Healthy People Objective #21-8a is to increase the percentage of eight-year-olds who have received dental sealants on their molar teeth to 50%; the 1999-2000 estimate for the state's third graders was only 43.2% (34.6%to 51.8%).

The Basic Screening Survey of third graders provides data for the three NOHSS indicators for children. The NMDOH Office of Oral Health last conducted this survey in the 1999-2000 school years and does not expect to repeat it until 2007.

Among third graders, 64.6% had caries experience and 37.0% had untreated decay. However, only 43.2% of third graders received sealants, which can prevent decay and caries (Table 4).

Table 4.
Results from Open-Mouth Survey of New Mexican Third Graders, 1999-2000: percentage with sealants, caries experience, or untreated decay.

N=2136 third graders. Sealants: one or more sealants on the permanent first molars. Caries experience: treated or untreated tooth decay.

Indicator	%	*95% CI*
Sealants	**43.2**	*34.6–51.8*
Caries Experience	**64.6**	*59.5–69.7*
Untreated Decay	**37.0**	*32.3–41.6*

New Mexico Tumor Registry:

Cancer Registry and Vital Statistics[6]

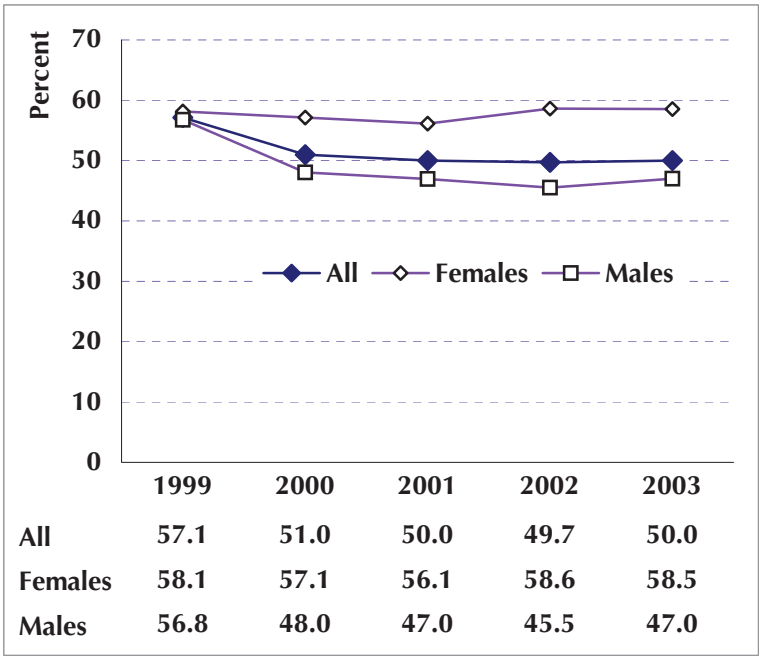
Oral and pharyngeal cancer comprises a diversity of malignant tumors that affect the oral cavity and pharynx (mouth and throat). The Healthy People 2010 Objective 21-6 is to increase the percentage of oral and pharyngeal cancers detected at the earliest stage, with a national target of 50%, from a baseline of 35% at Stage 1 (localized) detected in 1990-1995. Visual examination during regular preventive dental visits can detect lesions of oral cancer. This provides another incentive for promoting annual dental visits.

Increasing early detection of lesions improves the five-year survival rate and helps to reduce illness and death. National survival rates for oral cancer have not improved substantially over the past 25 years. The national five-year relative survival rate for persons with oral cancer diagnosed at a localized stage is 81 percent. In contrast, the five-year survival rate is only 51 percent if the cancer has spread to regional lymph nodes at the time of diagnosis, and is only 29 percent for persons with distant metastases.[7]

Known risk factors include use of tobacco products and alcohol. The risk of oral cancer is increased six to 28 times in current smokers. Alcohol consumption is an independent risk factor and, when combined with the use of tobacco products, accounts for most cases of oral cancer in the United States and elsewhere.[1] People should also avoid other potential carcinogens, such as unprotected sun exposure (a risk factor for lip cancer), and to use lip sunscreen and hats.

The number of oropharyngeal cancer cases in New Mexico has increased from 1,077 diagnosed in the ten-year period from 1973-1982, to 1,352 diagnosed in 1983-1992, and to 1,628 diagnosed in 1993-2002. From 1973-2003, there were 4,215 cases of these cancers reported in New Mexico. National and New Mexico incidence (new case) rates are higher for males than for females, and also vary by race and ethnicity. Approximately 70% of the cases have been in males. For 1993-2002, the state-wide age-adjusted rates were 18.1 for non-Hispanic white males, 7.1 for non-Hispanic white females, 11.1 for Hispanic males, and 3.4 for Hispanic females. In 2003, 50% of all New Mexico cases diagnosed at the localized stage, meeting the HP2010 target of 50%. However, a lower proportion of cases were detected early in males (48%) than in females (59%). Ten percent of the cases in the last five years have been diagnosed in adults younger than 45, while 44% have occurred in those aged 45-64, 39% in those 65-84, and 7% in those over 85 years of age.

Figure 4/Table 5 show the proportion of cases detected at the earliest stages for each of the last five years. Data are from the New Mexico Tumor Registry (NMTR) at the University of New Mexico Health Sciences Center. NMTR has maintained a population-based cancer registry for the entire state of New Mexico and the American Indian population of Arizona since 1969. NMTR has been a Surveillance, Epidemiology, and End Results (SEER) Program site since 1973.



	1999	2000	2001	2002	2003
All	57.1	51.0	50.0	49.7	50.0
Females	58.1	57.1	56.1	58.6	58.5
Males	56.8	48.0	47.0	45.5	47.0

Figure 4 and Table 5.
Percentage of cases of oral and pharyngeal cancer detected at the earliest stage, New Mexico, 1999-2003.

Water fluoridation

Optimally fluoridated water saves money

Healthy People 2010 Objective 21-9 is for 75% of the U.S. population served by community water systems to have optimally fluoridated water. Public water systems are required to monitor their fluoride levels and correct excessive levels. Since 1962, the federal Public Health Service has recommended that public water supplies contain fluoride at concentrations between 0.7 and 1.2 mg/L in order to prevent dental caries. The EPA-established Maximum Contaminant Level Goal (MCLG) for fluoride is currently 4 mg/L; higher levels increase the risk of severe enamel fluorosis (discoloration, enamel loss, and pitting of the teeth during tooth development in children). If a system exceeds the MCLG, it is required to take corrective action and notify its users. The EPA's secondary maximum contaminant level (SMCL) is 2 mg/L, which is a guideline for reducing the occurrence and severity of (cosmetic) enamel fluorosis. The existing recommendation for optimal fluoride concentration depends on climate and consumption, and is based on the assumption that an adult drinks two liters of water per day.

Recently, the National Research Council of the National Academies recommended lowering the MCLG for fluoride and more study to determine the optimal MCLG. Recent studies show that levels higher than 2 mg/L are linked to severe enamel fluorosis. The NRC also recommended more study of the relationship of fluoride levels to bone fractures and skeletal fluorosis.[8]

Community water fluoridation not only prevents dental caries, but also saves significant costs.[9] Every $1 invested in community water fluoridation is estimated to save $38 in averted costs. The cost of a community water fluoridation program decreases with increasing population size.

Fluoridation in New Mexico

In April 2006 the Drinking Water Bureau (DWB) of the New Mexico Environment Department provided data for fluoride concentrations in the public water supply systems, based on water samples collected at least every three years. The DWB file does not indicate whether the fluoride levels are solely the result of naturally occurring fluoride or include supplemental fluoride. Naturally occurring fluoride levels vary over time. The Methods section provides more information about the testing.

Based on their relevance to caries prevention, these fluoride categories were defined:

- "High" exceeds the current SMCL (2 mg/L) and is also higher than needed for caries prevention; the two largest values recorded in the data are 8.95 and 6.8 mg/L.
- "Adequate for dental caries prevention" includes values from 0.7 up to 2.0, wider than the optimal range of 0.7 to 1.2 mg/L.
- "Low" includes values less than 0.7 mg/L and is lower than recommended for caries prevention.

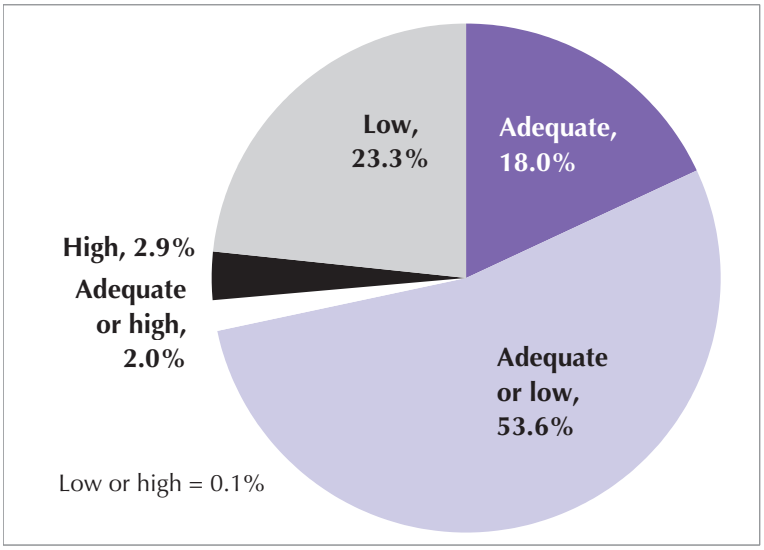
Because a system may obtain water from more than one system, resulting in more than one fluoride level, these categories were added:

- "Low / Adequate" means all results are below 2.0 mg/L, with at least one below and one above 0.7 mg/L
- "Low / High" means at least one result below 0.7 mg/L and one above 2.0 mg/L
- "Adequate / High" means all results are above 0.7 mg/L with at least one above 2.0 mg/L

The fluoride level in water from any single source will vary over time; data are based on a single test of each water source, not an average reading over a time period.

Figure 5 shows for the population served by public water supplies, the percentage supplied by water with various fluoride categories, tested 2002 through mid-March 2006. Only 18% of this population receives their water from systems where all tested sources provide adequate levels of fluoride for caries prevention.

Figure 5.
Of the population served by water systems,
Percentage with certain categories of water fluoridation,
systems tested 2002 through mid-March 2006.



Albuquerque's water system

The largest system in NM, the Albuquerque Bernalillo County Water Utility Authority, serving an estimated 453,000 people (29% of the total served), falls into the Low/Adequate category. Albuquerque had seven wells that tested below 0.7 mg/L and twenty wells that tested between 0.7 and 1.19 mg/L. In their 2005 Water Quality Report, the Authority reported a minimum value of 0.3 mg/L, a maximum value of 1.1 mg/L and an average of 0.7 mg/L at the entry points. They state that fluoride is added at only thirteen of the nineteen entry points, because the other six points have sufficient naturally occurring fluoride. Supplemental information is available on their web site about samples taken from water taps outside select customers' homes; the city-wide fluoride average for 2005 for these homes was 0.8 mg/L, in the adequate range.[10]

Data from NOHSS and CDC

These agencies present a very different picture of water fluoridation for New Mexico. The NOHSS reports that 76.7% of the New Mexico population received fluoridated water in 2000.[3] The CDC reported that at the end of 2004, 77% of the New Mexico population served by public water systems received fluoridated water. The Methods section summarizes the calculations.

The estimate of 77% masks features of New Mexico's water supply that have an impact on public health: systems that exceed the MCLG, or systems with multiple sources, not all of which provide fluoride adequate for caries prevention Approximately 30% of the public water systems in New Mexico have multiple sources of water, but they serve 78% of the population.

The situation in New Mexico is uncommon in the nation as a whole. In NM, single systems have multiple sources of ground water with naturally occurring fluoride, naturally occurring fluoride levels vary over time, there are many very small water systems, and approximately five percent of the population may be exposed to fluoride levels exceeding the MCLG. In states where systems use surface water and each system chooses whether to add fluoride, the CDC's estimate is a much more accurate reflection of the true state of affairs than in New Mexico.

4. Collaborating Agencies of the New Mexico Oral Health Surveillance System (NMOHSS)

The brief listings below provide an overview of the types and sources of data in the "data bank" of oral health data developed by the NMOHSS. Entities in the New Mexico Department of Health are listed first, followed by NM state government agencies outside of the NMDOH, and finally, entities outside of the NM state government. After the NMOHSS, entities are listed alphabetically within each group. Many of these organizations also participate in the Oral Health Advisory Council.

New Mexico Department of Health (NMDOH)

New Mexico Oral Health Surveillance System (NMOHSS)

The NMOHSS is a collaboration based in the Health Systems Bureau of the NM Department of Health (NMDOH). NMOHSS also publishes special reports with information from these programs.

- Mary Altenberg MS, CHES, Bureau Chief, Health Systems Bureau, Public Health Division, NM Department of Health, 1190 South St. Francis Dr, Suite N-1055, Santa Fe, NM 87502. Phone: 505-827-0007, Fax: 505-827-0924. E-Mail: mary.altenberg@state.nm.us

- Rudy F. Blea BA, Program Director, Office of Oral Health, Health Systems Bureau, NM Department of Health, 1190 South St. Francis Dr., N-1054-B, Santa Fe, NM 87502. Phone: 505-827-0837, Fax: 505-827-0924 . E-Mail: rudy.blea@state.nm.us

- Carol Hanson, RDH, BS, Acting Dental Program Manager, Office of Oral Health, Health Systems Bureau, NM Department of Health, 300 San Mateo NE, Suite 900, Albuquerque, NM 87108. Phone: 505-222-8685. E-Mail: carol.hanson@state.nm.us

Birth Defects Prevention and Surveillance System (BDPASS)

The New Mexico BDPASS reports numbers and rates for major birth defects and related prevention information. Orofacial clefts are birth defects that have oral health as well as development effects. Isolated cleft palate is etiologically distinct from cleft lip with or without cleft palate, with more than half of children with isolated cleft palates having other anomalies while only 14 to 35% of children with cleft lip have other anomalies.

A child with a cleft palate might require care from multiple specialists, including a plastic surgeon, an ear/nose/throat physician, a speech therapist, and an orthodontist, and could benefit from the availability of multi-specialty clinics to address the coordination of multiple needs and continuity of ongoing care in one setting.

- Maggi Gallaher, MD, MPH, Medical Director, Family Health Bureau, NM Department of Health. 2040 S. Pacheco, Santa Fe, NM 87505. Phone: (505) 476-8904, Fax: (505) 476-8959. Email: Maggi.Gallaher@state.nm.us

Children's Medical Services (CMS)

In New Mexico, children with orofacial clefts are eligible for services provided by NMDOH through Children's Medical Services Outreach Specialty Clinics for children 0-21 years of age with chronic medical conditions or at risk for developmental delay. CMS can provide a listing of services

CMS also conducts a pilot program providing dental case management, fluoride varnishes for infants and toddlers and sealants for chil-

dren. Information on the caseload is available with limited demographic variables (gender, age, county of residence).

- Michaela Granito-Tibbetts, LMSW, Dental Case Manager, Children's Medical Services, NM Department of Health. Santa Fe County Health Office, 605 Letrado St, Suite C, Santa Fe, NM 87507. Phone: 505-476-2666, Fax: 505-476-2695.

- Yolanda Sisneros, Statewide Clinic Coordinator, Children's Medical Services, Public Health Division, NM Department of Health, 2040 S. Pacheco, Santa Fe, NM 87505.
  Phone: 505-476-8863, Fax: 505-476-8896.

Office of Oral Health (ODH)

Information on dental sealants provided to 2nd and 3rd graders at public schools through the ODH sealant program is available, including numbers of children who were eligible, participated, recommended to receive sealants and received sealants by county, school district, school, and grade.

Veronica Macias, RDH, Office of Oral Health, NM Department of Health, 1190 St Francis Dr., Santa Fe, NM 87505. Phone: 505-476-3028

Office of Epidemiology:

Behavioral Risk Factor Surveillance System (BRFSS) and
Youth Risk and Resiliency Survey (YRRS)

The NMDOH Office of Epidemiology houses both the BRFSS program (see Section IV A) and the YRRS. The YRRS assesses the health and risk behaviors and resiliency factors of youth through a standardized written survey administered to students in odd-numbered years in public high schools that have agreed to participate in the program. Oral-health related questions include those related to the use of tobacco products and methamphetamines and use of the health care system.

- Deborah Klaus, Ph.D., NM BRFSS Coordinator, Office of Epidemiology, NM Department of Health, 1190 St. Francis Drive, Santa Fe, NM 87502. Phone: 505-476-3569.

- Wayne A. Honey, MPH, Survey Epidemiologist, Office of Epidemiology, NM Department of Health, 1190 St. Francis Drive, Santa Fe, NM 87502. Phone: 505-476-3595.

- Dan Green, Social Indicator Epidemiologist, YRRS, Epidemiology and Response Division, NM Department of Health, 1190 St. Francis Drive, N-1320, Santa Fe, NM 87502-6110. Phone: 505-476-1779, Fax: 505-827-0013.

Office of Primary Care and Rural Health

This office administers the Rural Primary Health Care Act (RPHCA) programs. Only 32% of the clinics funded through the RPHCA in New Mexico provide dental care. Data are available on dental workforce, number of dental encounters, the dollar value of dental services provided, Medicaid reimbursement, and sliding fee charges.

- Harvey Licht, Director, Office of Primary Care and Rural Health, Health Systems Bureau, NM Department of Health 300 San Mateo Blvd. NE, Suite 900, Albuquerque, NM 87108. Phone: 505-841-5869, Fax: 505-8415885.

- LeeAnn Roberts, RPHCA Program Manager, Office of Primary Care and Rural Health, Health Systems Bureau, NM Department of Health, 1190 St. Francis Drive, Santa Fe, NM 87502-6110.
  Phone: 505-827-0604, Fax: 505-827-0924.

Pregnancy Risk Assessment and Monitoring System (PRAMS)

Data from PRAMS, a population-based surveillance system, addresses selected maternal behaviors and experiences occurring before, during, and after pregnancy. The survey includes demographic variables and three questions related to oral health:

- Did the respondent recall discussion with a prenatal healthcare worker about how to care for her teeth and gums?
- Did the respondent have a dental problem

during her pregnancy?
- Did the respondent receive dental care during her pregnancy?

PRAMS reports contain a wealth of information on many topics, including the public health importance of each topic, actions addressing the issues, and the methodology of the PRAMS project. The NMOHSS Special Report on Pregnant Women contains analysis of the 1998-2003 PRAMS data. The reader is also referred to the NM PRAMS Surveillance Report, Birth Years 2001-2002, which is available from NM PRAMS or online at www.health.state.nm.us/phd/prams/home.html

- Eirian Coronado, Coordinator, NMPRAMS, Family Health Bureau, NM Department of Health, 2040 South Pacheco St, Santa Fe, NM 87505. Phone: 505-476-8895, Fax: 476-8898.

NMDOH Tobacco Use Prevention & Control (TUPAC) Program

TUPAC conducted the NM Youth Tobacco Survey in 2002 and 2004 and the Adult Tobacco Survey in 2003 and 2006. This program engages in surveillance and evaluation related to tobacco use among youth and adults, prevention of tobacco use among youth, promoting cessation of tobacco use among adults and youth, elimination of secondhand smoke exposure, identifying and eliminating tobacco-related disparities, and also supports the Clinical Prevention Initiative listed below.

- Larry Elmore, Program Manager, Tobacco Use Prevention and Control Program, 5301 Central Ave. NE, # 800, Albuquerque, NM 87108. Phone: (505) 222-8618, Fax: (505) 841-5865.

Women Infants Children Program (WIC)

The WIC program collects information on risk factors for dental health problems, as well as basic demographic data. The first data to be shared with NMOHSS is expected in October of 2006.

- Sid Golden, Director, New Mexico Women Infants Children (NM WIC or Special Supplemental Nutrition Program for Women, Infants, and Children) Program, Family Health Bureau, NM Department of Health, 2040 S. Pacheco, Santa Fe, NM 87505. Phone: 505-476-8801.

NM State Government entities

not in the NMDOH

NM Children, Youth and Families Department, Office of Child Development: Head Start

The twenty-one Early/Head Start programs in New Mexico are responsible for assisting the enrolled children and pregnant mothers with receiving dental screenings. Data on screenings, annual dental examinations, and receipt of needed dental care are reported.

- Carolyn Brownrigg, MA, Head Start Collaborative Coordinator for the State of NM, Office of Child Development, Children, Youth and Families Department, PERA Building, Room 116 B, P.O. Drawer 5160, Santa Fe, NM 87502-5160. Phone: 505-827-8409.

NM Environment Department: Drinking Water Bureau (DWB)

The DWB shares the fluoride test results of the public water systems with NMOHSS. See Section Three and Methods sections for additional information.

- Robert Pine, Drinking Water Bureau, NM Environment Department, 524 Camino de los Marquez, Santa Fe, NM 87505. Phone: 505-476-8642.

NM Health Policy Commission (HPC)

The HPC shares dental workforce data, Health Plan Employer and Data Information Set (HEDIS) data, and other oral-health related data with the NMOHSS.

- Kim Price, IT Leader / Computer Systems Analyst, Health Policy Commission, 2055 South Pacheco Ste 200, Santa Fe, NM 87505. Phone: 505-424-3200 x104, Fax: 505-424-3222.

- Marietta Esquibel, Computer Systems Analyst, Health Policy Commission, 2055 South Pacheco, Suite 200, Santa Fe, NM 87505. Phone: 505-424-3200 x110, Fax: 505-424-3222.

NM Human Services Department – Medical Assistance Division

The Medical Assistance Division is responsible for the administration of the NM Medicaid program and has provided NMOHSS with oral health care utilization reports, including visits, patients, and dollar value of services by County and age group, for selected dental procedures (sealants, prophylaxis, restorative). Information is also available through HEDIS reports and Form CMS-416 reports (screenings, dental services by age group). Medicaid is an important payer of dental services in New Mexico, especially for children. Dental services are a required service for most Medicaid-eligible individuals under the age of 21. A dental screening is a required component of the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit.

- Britt Catron, RDH, MS, CHES, Medical Assistance Division, NM Human Services Department, 2025 S. Pacheco, Santa Fe, NM 87505. Phone 505-827-1349, Fax 505-827-3195.

NM Public Education Department: School and Family Support Bureau

The PED has shared information on the number of students receiving dental services at the health clinics within the public schools.

- Georgia M. Glasgow, RN, School and Family Support Bureau of the NM Public Education Department, 120 S. Federal Place, Room 206, Santa Fe, NM 87501. Phone: 505-827-1807, Fax: 505-827-1826.

University of New Mexico Health Sciences Center: New Mexico Tumor Registry (NMTR)

The New Mexico Tumor Registry operates and maintains a population-based cancer registry for the entire state of New Mexico. Data is submitted to the National Cancer Institute's SEER (Surveillance, Epidemiology and End Results) Program, which allows public analysis of the data through the web-based SEER*Stat program. Cancer site, stage at diagnosis, race, ethnicity, gender, and year, age, and county of residence at diagnosis are among the incidence data available. Survival, mortality, and incidence rates are also available. NMTR staff did additional analysis for NMOHSS.

- Charles Wiggins, PhD, Director and Principal Investigator, New Mexico Tumor Registry, MSC 11 6020, 1 University of New Mexico, Albuquerque, NM 87131-0001. Phone: 505-272-3127, Fax: 505-272-3750.

University of New Mexico Hospital, Emergency Department

The Emergency Department has provided data regarding emergency room visits related to dental services (mouth injuries and disease).

- Cameron Crandall, MD, Associate Professor and Research Director, Department of Emergency Medicine, UNM School of Medicine. MSC10 5560, 1, UNM, Albuquerque, NM 87131-0001. Phone 505-272-5062, fax 505-272-6503.

Entities not in NM state government

Clinical Prevention Initiative (CPI)

The CPI Tobacco Use Prevention and Cessation Workgroup trains NM health care professionals, including dentists and dental hygienists. It is funded primarily by the NMDOH Tobacco Use Prevention & Control (TUPAC) Program, and is administered by the New Mexico Medical Society.

- Richard Kozoll, MD, MPH, Chairperson, Tobacco Avoidance and Cessation Workgroup. c/o New Mexico Medical Society, 7770 Jefferson NE, Suite 400, Albuquerque, NM 87109. Phone: 505-828-0237, Fax: 505-828-0336.

Delta Dental of New Mexico

Delta Dental of NM, a not-for-profit provider of dental insurance plans, has shared billing information with NMOHSS that provides information on county of provider and subscriber, age of patient, date, and procedure code of services provided. Delta Dental also supplied information on fee structures.

- Gregory Grannan, Director, Professional Relations, Delta Dental of New Mexico, 2500 Louisiana Blvd NE Suite 600, Albuquerque, NM 87100. Phone: 505-883-4777.

Indian Health Service: Albuquerque Area (AAIHS) and Navajo Area (NAIHS)

The AAIHS has provided information on dental utilization at IHS clinics, including visits, patients, and dollar value of services by age group. The AAIHS is also working to release data on fluoride levels in the public water systems operated by tribal governments. Information has been requested from the NAIHS as well. Albuquerque Area Indian Health Board has submitted a proposal for a Tribal Epidemiology Center. If funded, the prevalence of periodontal disease among American Indian/Alaska Native women in the area will be studied.

- Regina Robertson, Area Informatics Manager, Albuquerque Area Indian Health Service, 5300 Homestead Road NE, Albuquerque, NM 87110. Phone: 505-248-4773, Fax: 505-248-4624.

NM Dental Association (NMDA)

The NMDA, a professional membership organization for dentists, shares information about the Give Kids A Smile campaign (date, location, number of children served, selection criteria, number of participating dentists and staff members, services provided and dollar amount of services provided).

- Elizabeth Price, Assistant Director, New Mexico Dental Association, 9201 Montgomery Blvd NE, Suite 601, Albuquerque, NM 87111. Phone: 505-294-1368, Fax: 505-294-9958.

NM Dental Hygienists' Association (NMDHA)

The NMDHA shares information with NMOHSS about the public service activities of the organization, including oral health screenings, education, referral, and the making of mouth guards for Special Olympic athletes.

- Barbara Posler, RDH, New Mexico Dental Hygienists' Association, 7708 Spring Ave NE, Albuquerque, NM, 87110. Phone: 505-268-1210.

- Lisa Esparza, RDH, BS, New Mexico Dental Hygienists' Association, 7816 RC Gorman NE, Albuquerque, NM. Phone: 505-858-3193.

New Mexico Health Resources, Inc. (NMHR)

The NMHR provides information about the dental work force in New Mexico.

- Jerry N. Harrison, PhD, Executive Director, New Mexico Health Resources, Inc., 300 San Mateo Blvd NE, Suite #905, Albuquerque, NM 87108. Phone: 505-260-0993.

NM Medical Society (NMMS)

The NMMS provides health care professionals, including dentists and dental hygienists, with trainings on tobacco use prevention and cessation through a Clinical Prevention Initiative. Information shared with NMOHSS includes the numbers of participants attending trainings and events and the numbers and types of materials provided.

- Annie Jung, New Mexico Medical Society, 7770 Jefferson NE, Suite 400, Albuquerque, NM 87109. Phone: 505-828-0237, Fax: 505-828-0336.

5. Methods for data analysis and statistical calculations

Limitations of this report

For many of the NMOHSS collaborating agencies, collection of data about oral health is not the agency's primary mission. Data from these sources may differ in the populations served, sample selection, sample size, data items, periodicity, and timing of the release of data.

Data collection and analysis

The end of the Introduction discusses how to interpret text and tables (95% confidence intervals and other survey issues).

BRFSS survey

The BRFSS is an on-going telephone survey of adults ages 18 and above. Households are randomly selected from among all possible landline phone numbers in the state. Then one adult is randomly selected from among all adults in the selected households. Populations excluded from the BRFSS include group-housing units such as dormitories, prisons, military barracks, and nursing care facilities. Cell phones are currently excluded from the BRFSS because this may burden the respondent with charges or expenditure of minutes. A given questionnaire is utilized for one full calendar year with an independent random sample being conducted each month. Beginning in 2001, the BRFSS sample was stratified geographically to better distribute the sample across the state, allowing for improved estimates for rural and frontier areas of the state. A weighting scheme has been applied to the collected data to produce the sample estimates and BRFSS provides 95% confidence intervals (margin of error, which we report in parentheses – see Introduction, Interpretation of Text and Tables). "Don't know/not sure" and refused responses were excluded from the calculations.

Water fluoridation: Drinking Water Bureau of the NM Environment Department

DWB estimates

An estimated population of 1,565,669 was served by 711 active water systems with fluoride levels tested from 2002 through mid-March 2006. A population estimate is given for each system, but is not attributed to individual facilities. The population estimate is based on the number of residential connections to the water system and is a very rough estimate of the number of people served by the system. For the 711 systems, estimates of the population served are 86% of the April 2000 US Census population estimate and 81% of the BBER July 1, 2004 population estimates. The Drinking Water Bureau does not maintain information on private wells, systems contained within Native American sovereign jurisdictions, or systems serving populations smaller than the EPA requirements for monitoring.

Because 229 of these 711 systems have more than one water source, fluoride concentrations are reported for a total of 1,156 sources. The water systems do additional testing that is not included in the DWB data file and also make adjustments to distribution parameters and fluoride additions in response to monitoring. The DWB file does not indicate whether the fluoride levels are solely the result of naturally occurring fluoride or include supplemental fluoride. Naturally occurring fluoride levels vary over time. Of the 482 systems with only one source, there is only a single test result. A meaningful single number for a multi-source system cannot be calculated from the available information.

NOHSS and CDC estimates

The CDC figure is based on fluoride test results available to the DWB. The percentage is based on the estimated population of 1,567,857 served by public water systems, out of the total estimated population for the state of 1,903,006. Systems with average fluoride levels above 0.6 mg/L are considered to be fluoridated. Fluoride test results for multiple-source systems are averaged, irrespective of range of the test results, volume of water distributed by each source, number of connections per source, or mixing of sources. This statistic masks important features of New Mexico's water supply that have an impact on public health: systems that exceed, either for all sources or some sources, the MCLG or SMCL systems that have multiple sources, not all of which provide fluoride adequate for caries prevention Approximately 30% of the public water systems in New Mexico have multiple sources of water and serve 78% of the served population.

Oral Health Survey

Basic Screening Survey of Third Graders

The NMDOH Office of Oral Health (ODH) conducted a survey, "Make Your Smile Count," based on a protocol from the Association of State and Territorial Dental Directors (ASTOD) called *Basic Screening Surveys: an Approach to Monitoring Community Oral Health*.[11] ODH staff (dentists, dental hygienists, and assistants) incorporated the survey activities into their duties. Based on their examinations of children and other activities, they completed the survey, which provided oral health status data and information on access to care.

The sampling frame for the 1999-2000 survey consisted of a list of all public elementary schools provided by the State Department of Education. Enrollment figures were used to define two strata: counties with 3,000 or more elementary school students and counties with fewer than 3,000 students. In counties with 3,000 or more elementary school students, a one in ten random sample of schools was drawn. In counties with fewer than 3,000 students, two schools per county were randomly selected. All third grade students within a school were eligible to participate if they returned a positive consent form. A total of 2,181 questionnaires were returned, and 2,136 third grade children completed the direct observation of oral health examination. The statewide response rate for this survey was 47 percent. The data were weighted to account for the survey design. Estimates were not adjusted for non-response.

6. References

1 U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute of Dental and Craniofacial Research; 2000. NIH Publication No. 00-4713. Accessed 8/24/2006 at http://www.cdhp.org/Resources/USSurgeonGeneralPublicationsonOralHealth.asp

2 U.S. Department of Health and Human Services, *Healthy People 2010, 2nd edition.* Washington, DC; U.S. Government Printing Office; 2000. Oral Health information accessed 8/13/2006 at http://www.healthypeople.gov/Document/tableofcontents.htm#Volume2

3 NOHSS information was accessed 8/10/2006 at http://www.cdc.gov/nohss.

4 National and state-level BRFSS data are available at http://www.cdc.gov/brfss/. New Mexico reports can be accessed at http://www.health.state.nm.us/hdata.html or by contacting the BRFSS program. The BRFSS program is coordinated at the national level by CDC and housed within the Office of Epidemiology of the NMDOH in New Mexico. See section on collaborating agencies for contact information.

5 NMOHSS can provide information about "no tooth loss," "complete tooth loss" or "some tooth loss," and data for subgroups (e.g. specific ages, educational level, income).

6 New Mexico Tumor Registry, University of New Mexico. See section on collaborating agencies for contact information.

7 Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg L, et al. (Eds). *SEER Cancer Statistics Review, 1975-2001.* Bethesda, MD: National Cancer Institute; 2004. Accessed 8/13/2006 at http://seer.cancer.gov/csr/1975_2001/

8 National Research Council of the National Academies. *Fluoride in Drinking Water: A Scientific Review of EPA's Standards.* Washington DC: National Academies Press, 20006. Accessed 8/11/2006 at http://dels.nas.edu/best/

9 Griffin SO, Jones K, Tomar SL. An economic evaluation of community water fluoridation. J Public Health Dent 2001;61(2):78–86.

10 Accessed 8/31/2006 at http://www.abcwua.org/waterquality/results/variation/fluoridevariation.html

11 Association of State and Territorial Dental Directors. ASTDD 2003 Basic Screening Survey. Accessed 8/18/2006 at http://www.astdd.org/