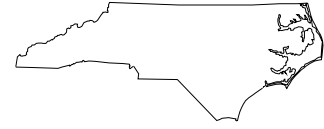


# Statistical Brief



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## Lead Screening Coverage for North Carolina's Medicaid Children, 1998-1999

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### Introduction

Lead poisoning is detrimental to the mental and physical development of children. At extremely high levels, lead can cause coma, convulsions, and death. At lower levels, it can cause reductions in attention span, reading and learning disabilities, hyperactivity, and behavioral problems.<sup>1,2</sup> Children under the age of six are particularly vulnerable since their nervous systems are still under development. Young children are often engaged in play activities that expose them to lead-contaminated dust and soil. Sources of lead in the child's home most often include contaminated dust from deteriorating or peeling lead-based house paint. One- and two-year olds are at greatest risk of lead poisoning because they ingest contaminated house dust via normal hand-to-mouth activity.<sup>3,4</sup> Symptoms of lead poisoning may not be obvious. Thus, it is necessary to check blood lead levels (BLLs) with a blood lead test.<sup>5</sup> Detection of elevated BLLs through screening can lead to treatment that will reduce negative health and developmental consequences.

The CDC's National Health and Nutrition Examination Surveys (NHANES) have been the primary source for monitoring BLLs for the U.S. population.<sup>6</sup> Analyses of the NHANES III 1991-1994 data showed that approximately 4.4 percent of the children ages one through five years had harmful BLLs. Moreover, children receiving medical care under Medicaid were three times as likely to have high BLLs compared with children not receiving care under Medicaid. "Specifically, about 9 percent of Medicaid children ages one through five had BLLs at 10 ug/dL [micrograms per deciliter] or greater compared to about 3 percent of the non-Medicaid population."<sup>7</sup> Disparities between the

Medicaid and non-Medicaid population are not surprising, given that children at the greatest risk of exposure to lead are those of lower-income families that live in older houses with deteriorating lead-based paint.<sup>5</sup> Results from the survey indicated that despite the Health Care Financing Administration's (HCFA) screening requirements, approximately 65 percent of the Medicaid children ages one through five with elevated BLLs had not been screened for blood lead prior to receiving the screening as part of the survey.<sup>7</sup>

To further assess the extent of screening for lead poisoning among children on Medicaid, the General Accounting Office (GAO) analyzed 1994 and 1995 Medicaid data files for fifteen states. These files were used to determine the percentage of children who had received a blood lead test within six months on either side of their first or second birthday. Findings showed that the average screening rate for one-year-old children for the fifteen states was 22 percent. The screening rate for two-year-old children was 19 percent, and the overall rate for both one- and two-year-olds was 21 percent.<sup>5</sup>

An underlying reason for low screening rates is the widespread belief among providers that lead exposure is no longer a problem in their communities. Most state officials contacted by the GAO lacked reliable, representative data on the prevalence of elevated levels and did not know the extent to which children were being screened in their states.<sup>5</sup>

Given high rates of lead poisoning and low screening rates among the Medicaid population, HCFA tightened its policy on lead screening of Medicaid children. As of October 26, 1998, all states were required to comply with the following requirement: "All children are considered at risk and must be screened for lead poisoning. HCFA requires that all children receive a screening blood lead test at 12 months and 24 months of age..."<sup>8</sup>



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An almost identical HCFA screening requirement had been in place since the early 1990s, but lead screening enforcement and priority increased after the GAO report found that states were failing to comply with the earlier policy. One reason why states failed to comply was that states did not implement policies that were consistent with federal policy. In a survey of all state programs, the GAO found that only about half of all state programs had screening policies in line with federal policy. Moreover, many states did not monitor providers' lead screening activities.<sup>5</sup>

In North Carolina, screening for childhood lead poisoning has historically occurred at local health departments. In October of 1992, North Carolina implemented new lead screening recommendations calling for the screening of all children seen through local health departments for preventive health visits, and all children receiving Medicaid services through private providers.

Approximately 10 percent of all children in North Carolina, under the age of six, were screened between November 1992 and October 1993.<sup>9</sup> In January of 1994, the lead surveillance program was given a boost as the State Laboratory offered blood lead analysis for all children less than six years of age at no charge. As a result, the screening rate more than doubled within one year. Moreover, North Carolina screening rates have continued to increase and have quadrupled since the early 1990s. Now about 20 percent of all North Carolina children under age 6 years are screened annually. North Carolina has maintained a policy consistent with recommendations from the CDC. The North Carolina Medicaid program's lead screening policy has been consistent with the HCFA policy. The October 1998 federal mandate is stated in North Carolina's Health Check Billing Guide.<sup>10, 11, 12</sup>

The purpose of this study is to provide a complete count of Medicaid children who had an opportunity to receive a blood lead test through a Health Check visit (well-child care) in 1998 and 1999 and to calculate the percentage of those children who received a blood lead test in 1998 and 1999. Information is also provided about how screening rates differ by demographic group and provider type.

**Methods**

All Medicaid children one and two years of age receiving a Medicaid Health Check visit in 1998 or 1999 were identified. Lead screening is a requirement of the Health Check visit. However, since lead screening is not itemized on the Medicaid claim, Medicaid claim records were matched to lead test laboratory records to identify screenings. Medicaid data were obtained from the Division of Medical Assistance claims files and lead test records were obtained from the North Carolina Division of Environmental Health. Records were matched based on the child's name and other unique identifiers. Unduplicated Health Check visit records for one-

and two-year olds were matched to lead test records for service years 1998 and 1999.

To capture most of the children at the time of their one-year and two-year Health Check visit, windows of time for age at service were used. Children who were ages 9-17 and 18-29 months at the time of service were identified. These age categories reflect Health Check visits and lead testing at the one-year visit and the two-year visit. The window for one-year olds was narrower than that for two-year olds since infants are not usually engaged in mobile at-risk behavior prior to 9 months of age. In addition, children ages 9-35 months at the time of service were identified. This larger 9-35 months category reflects Health Check visits and lead testing for children around their first and second birthdays and up to age three.

**Results**

Table 1 shows overall lead screening rates by age group and year. For the 9-17 months age group, 40.9 percent of children who had a Health Check visit in 1998 were screened at that age in 1998 compared to 47.8 percent in 1999, an increase of 16.7 percent. For the 18-29 months age group, 31.1 percent were screened in 1998 compared to 38.9 in 1999, an increase of 25.3 percent over the time period. Results for the age group 9-35 months showed that 41.4 percent were screened in 1998 compared to 49.8 in 1999, reflecting a 20.2 percent increase.

Age In Months	1998		1999		1998-99
	No. Health Check Children	Pct. Screened	No. Health Check Children	Pct. Screened	Pct. Change
9-17	43,261	40.9	44,639	47.8	16.7
18-29	26,415	31.1	26,150	38.9	25.3
9-35	67,248	41.4	67,989	49.8	20.2

Table 2 shows differences in screening rates for health departments compared with other providers. Screening rates were much higher for health departments compared with other providers for both 1998 and 1999. In 1998, for the 9-17 months age group, health departments screened 63.4 percent of the children. Other providers screened 38 percent. In 1999, health departments screened 71.9 percent of the children compared to 45 percent for other providers. For the 18-29 months age group, health departments screened children at almost twice the rate for both 1998 and 1999 compared with other providers. The health department screening rate in 1998 for the 18-29 months age group was 56.4 percent. The screening rate for other providers was

**Table 2**  
**Medicaid Child Lead Screening Rates by Health Check Provider Type**

Age In Months	1998				1999				1998-99	
	Children with HD Provider	Pct. HD Screened	Children w/Other Provider	Pct. Other Screened	Children with HD Provider	Pct. HD Screened	Children w/Other Provider	Pct. Other Screened	Pct. Chg. HD	Pct. Chg. Other
9-17	4,971	63.4	38,290	38.0	4,623	71.9	40,016	45.0	13.3	18.3
18-29	4,513	56.4	21,902	25.9	4,050	64.7	22,100	34.2	14.9	32.3
9-35	9,352	65.9	57,896	37.5	8,574	76.1	59,415	46.0	15.6	22.7

25.9 percent. Likewise, in 1999 the health department screening rate was 64.7 versus 34.2 percent for other providers.

Results also showed higher screening rates in health departments for the 9-35 months age group. In 1998, health departments screened 65.9 percent of children in the 9-35 months age group versus 37.5 percent for other providers. Similarly, in 1999 health departments screened 76.1 of the children compared to 46 percent for other providers.

In general, health departments had higher screening rates than other providers for each time period and age group. However, other providers demonstrated a greater increase in screening rates between 1998 and 1999. The percent increase in rates between 1998 and 1999 for health departments for age groups 9-17, 18-29, and 9-35 months were 13.3, 14.9, and 15.6 percent, respectively. For other providers, the increase in the rates between 1998 and 1999 for the same age groups were 18.3, 32.3, and 22.7 percent, respectively.

Findings were also stratified by sex and race. However there were no significant differences in screening rates between boys and girls. Findings in 1998 (Table 3) by race showed that blacks had the highest screening rates for age groups 9-17 and 9-35 months. Screening rates were highest for "other" races for age group 18-29 months. In 1999, the "other" race group had the highest screening rates across all three age groups. Screening rates for whites were lowest for all three age groups for both 1998 and 1999.

**Table 3**  
**Medicaid Child Lead Screening Rates by Racial Group**

Age In Months	1998			1999		
	White	Black	Other	White	Black	Other
9-17	36.8	45.3	42.8	44.7	50.2	51.2
18-29	28.6	32.3	34.3	34.7	41.8	49.1
9-35	37.8	44.6	43.8	46.1	52.5	53.5

## Conclusions

The increase in lead screening in rates between 1998 and 1999 reflects an increased effort by providers to incorporate this screening procedure into well-child visits. Still, the rates indicate that a significant proportion of children are not being screened. Health departments screened a higher percentage of Medicaid children during Health Check visits during both 1998 and 1999, though other providers showed a larger percentage increase in screening rates from 1998 to 1999. Continued efforts to increase lead screening rates among Medicaid children will improve the health and well-being of this low-income population.

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