



# Children and Thyroid Disease

A Report to the Yuma Community from  
the Yuma HealthQuery  
a Community-University Partnership

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## Executive Summary<sup>1</sup>

- The percentage of children in the Yuma HealthQuery (YHQ) data set treated for thyroid disease has varied from 0.39 percent to 0.45 percent between 1999 and 2001 (Figure 1).
- The number and percentage of children with hyperthyroidism increased between 1999 and 2001 (Figure 2 and 3).
- Acquired hypothyroid disease was the most prevalent form of thyroid disease in 1999 and 2000 (Figure 3).
- Hyperthyroidism was most prevalent in 2001 (Figure 3).
- Because of their majority status Hispanic children made up the largest percentage of thyroid disease cases in Yuma County (Figure 4).
- The frequency of thyroid disease increased in the 5 to 12 and over 12 age groups between 1999 and 2000 (Figure 5).
- The increase for 5 to 12 year olds was a result of increasing group size; however, a larger proportion of children over 12 years of age had thyroid disease in 2000 and 2001 than in 1999 (Figure 6).
- Of those females with thyroid disease the overall percentage that had hyperthyroidism increased between 1999 and 2001 (Figure 7).
- Thyroid disease was more prevalent among females than males (Figure 8).

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<sup>1</sup> Figures 1 through 9 are based on YHQ children who had a health care encounter in 1999, 2000, or 2001.

- The majority of children with thyroid disease in Yuma county were covered by AHCCCS followed by private insurance (Figure 9).

## **Community Partners**

The YHQ is made possible by the cooperation of the following members of the Yuma Community.

### ***Yuma Advisory Committee List***

#### **Organization**

#### **Representative**

Arizona Department of Health Services*	Cathy Eden, Director
Arizona Health Care Cost Containment System*	Anthony Rodgers, Director
Arizona Public Service	Donna Phipps, Community Development
Arizona Senate	Robert Cannell, MD
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Yuma County Department of Public Health*	David Brooks, Director of Health Becky Brooks, Deputy Director Hugo Aguirre, MD, Program Coordinator
Yuma HealthQuery Advisory Committee	Steve Bell, Board Chair

Yuma Pediatrics, Ltd. \*

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Yuma School District One\*

Peggy Lund, Director of Family and  
Community Services  
Shirley Rodriguez, RN, Coordinator of  
Nurses

Yuma Union High School District 70\*

Tim Foist, Superintendent  
Toni Badone, Assistant Superintendent,  
Curriculum

\*YHQ Data Partners

## **Background**

The Yuma HealthQuery (YHQ) data system is a county-wide, multi-year database created and maintained by the voluntary cooperation of private and public health insurers, health care providers, schools and health related community agencies, with technical support from Arizona State University. The YHQ includes demographic, diagnostic, insurance coverage, immunization and health care utilization data, and an annual door-to-door survey of low-income neighborhoods by a local community agency. It includes every child who used the emergency department or inpatient care and every child seen by a YHQ data partner, and/or who was insured by AHCCCS or SCHIP, and/or was immunized (Table 1).

Comparisons between the YHQ 2000 data and the Census 2000 show that YHQ includes all of Yuma's children ages 0 to 4 years; 57 percent of children ages 5 to 9 years; 47 percent of children ages 10 to 14 years; and 41 percent of children ages 15 to 19. Overall, approximately 63 percent of all children in Yuma in 2000 are included in the data set.

The major types of thyroid disorders in children are hypothyroidism, hyperthyroidism, and goiter. Hypothyroidism is caused by deficient production of thyroid hormone. When hypothyroidism is noted at birth it is referred to as "congenital hypothyroidism" whereas hypothyroidism that begins later in infancy or childhood is referred to as "acquired hypothyroidism." Because thyroid hormone plays a critical role in mental and physical development, newborns that have hypothyroidism must be started on thyroid hormone replacement immediately after birth to prevent severe and irreversible brain damage. Fortunately, in Arizona, all newborns are tested for hypothyroidism as part of the newborn screening program so most infants are now diagnosed early in life and brain damage is thus minimized. These infants will require life-long thyroid hormone replacement. Congenital hypothyroidism occurs in one of every 4,000 newborns worldwide, but the disorder is more common in Hispanic and Native American children with a prevalence of one in every 2,000 newborns (LaFranchi, 2004). Twice as many girls as boys are affected.

Acquired hypothyroidism occurs in approximately 0.08 percent of school-aged children in the U.S. (LaFranchi, 2004). In Yuma, 41 children (0.13%) in the YHQ were treated for acquired hypothyroidism in 2001. Thus, the prevalence of acquired hypothyroidism in Yuma children is similar to other U.S. communities.

**Table 1. Data on Yuma’s Children**

	1999	2000	2001
<i>YHQ Children (actual count)</i>	29,199	32,268	36,075
<i>YHQ Children (weighted count)</i>	51,212	51,128	51,406
<i>Yuma County Children Census Count</i>	46,087	51,002	53,035
<i>YHQ Children with Thyroid Disease (actual count)</i>	87	127	136
<i>YHQ Children with Thyroid Disease (weighted count)</i>	202	267	232

Source: 1999 census numbers are based on projections from the 1990 census; 2000 census numbers are based on the 2000 census data; and 2001 census numbers are projections from the 2000 census. All are extracted from [www.census.gov](http://www.census.gov). Weighted counts in some years exceed census counts because weights are based on underlying population distributions in 2000.

Hyperthyroidism is caused by an overactive thyroid gland, which produces too much thyroid hormone. In childhood, it is usually due to Graves disease or toxic goiter. In Yuma, 42 children (0.16%) in the YHQ were treated for hyperthyroidism in 2001.

A goiter is an enlargement of the thyroid gland. Persons who have a goiter might have normal levels of thyroid hormone (euthyroidism), low levels (hypothyroidism), or high levels (hyperthyroidism). In Yuma, there were 25 children who were treated for goiter in 2001.

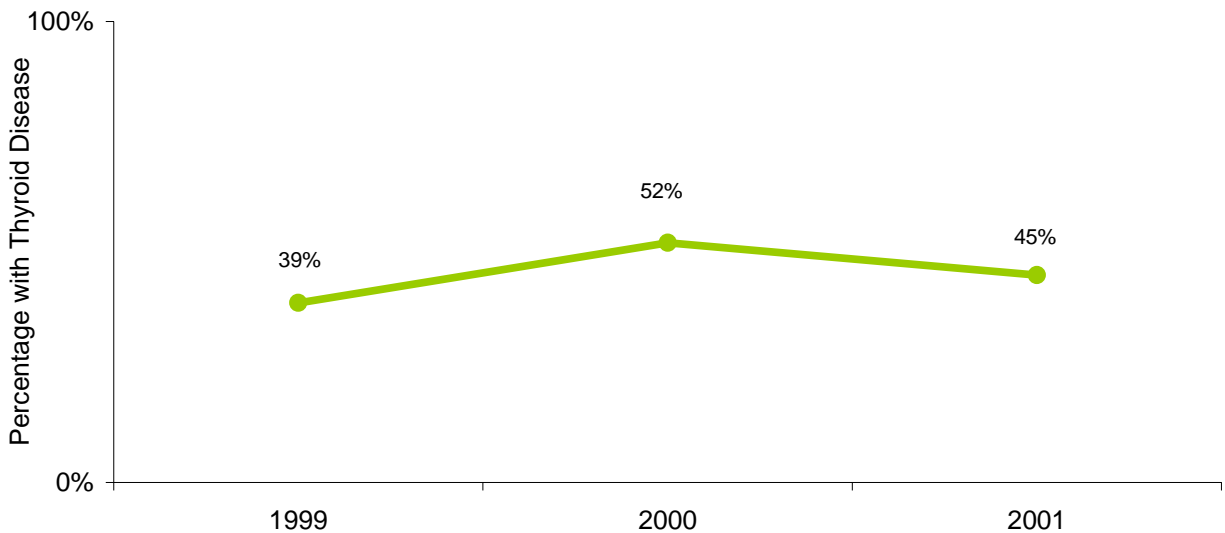
This report was done at the request of the community because there were concerns that the number of Yuma children who had thyroid disease was increasing. The YHQ data show that there has not been a major change in thyroid disease among Yuma children from 1999 to 2001. The data also show that thyroid disease is more prevalent among Hispanic children and among females. It is known from national epidemiological studies that at least congenital hypothyroidism is more common among Hispanics. Females are five times more likely than males to develop Graves disease so a higher prevalence

of thyroid disease among females is an expected finding; and females are also more likely to have congenital hyperthyroidism.

## Results

This report briefly describes the characteristics and utilization behaviors of children who were treated for thyroid disease in 1999, 2000, and 2001. Less than one percent of the children in the YHQ data set were treated for thyroid disease in a typical year. The overall percentage of children receiving care for thyroid disease varied slightly between 1999 and 2001 (Figure 1).

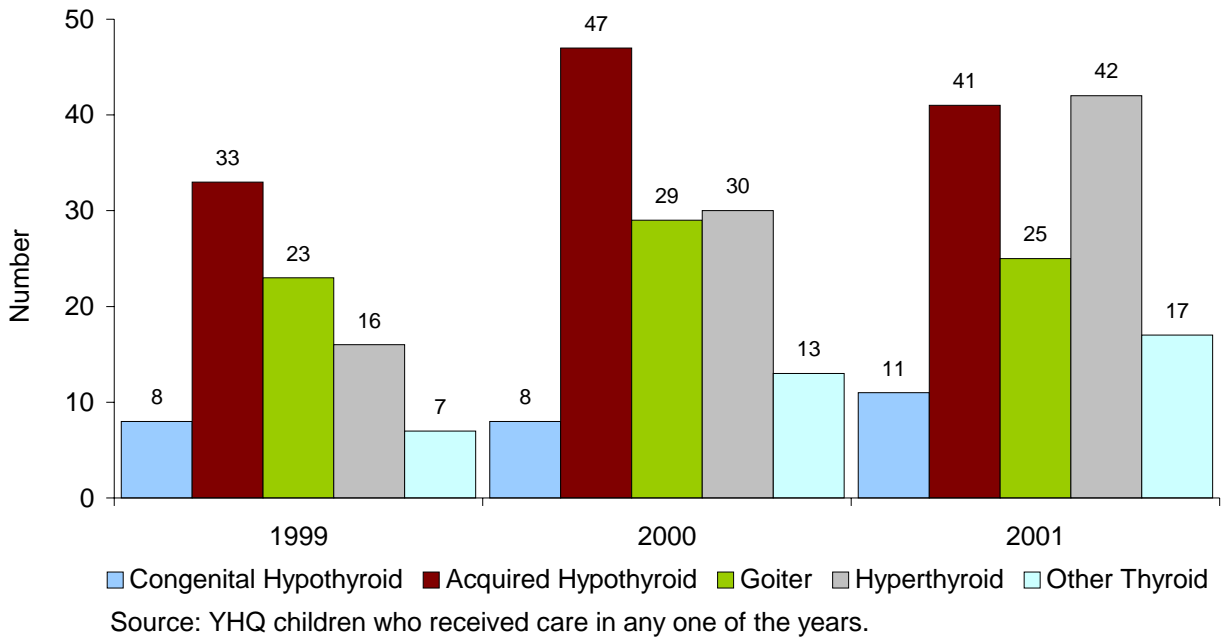
**Figure 1. Children Treated for Thyroid Disease, 1999-2001**



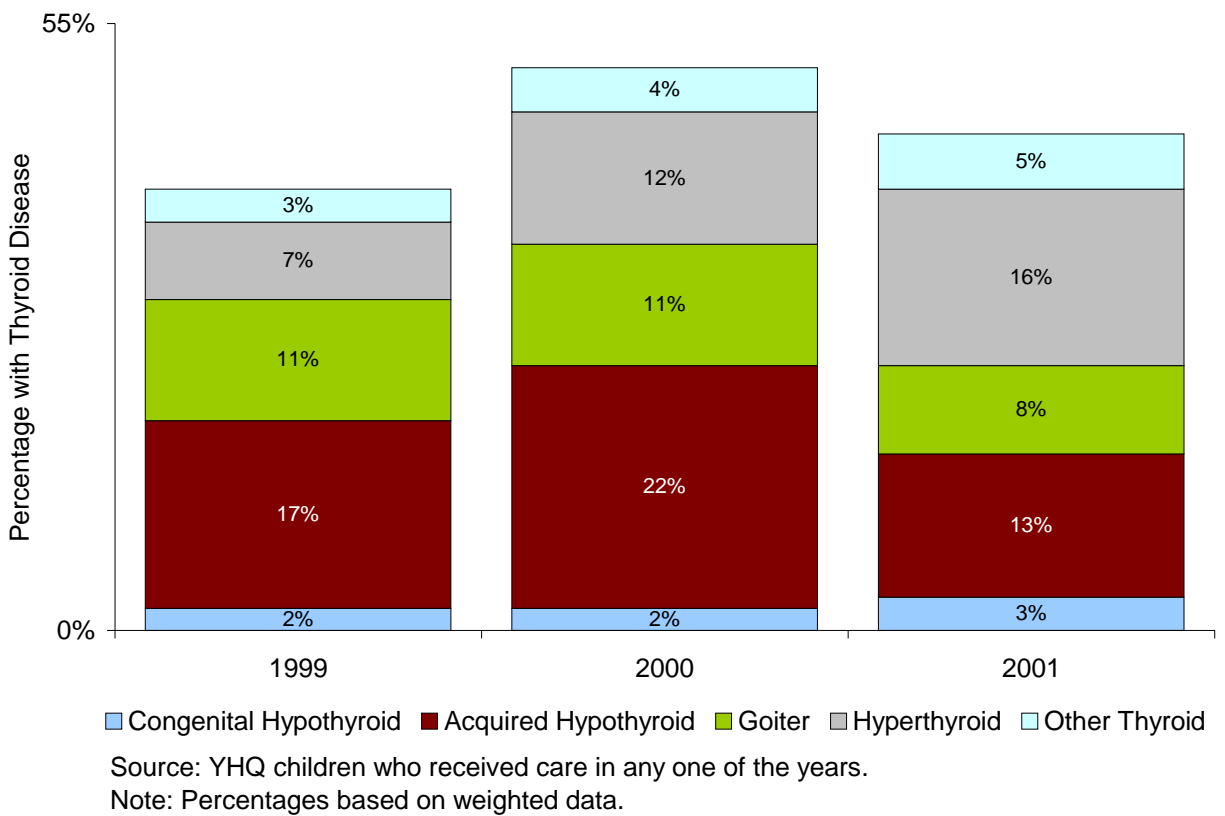
Source: YHQ children who received care in any one of the years.

Note: Percentages based on weighted data.

**Figure 2. Number of Children Treated for Thyroid Disease, 1999-2001**

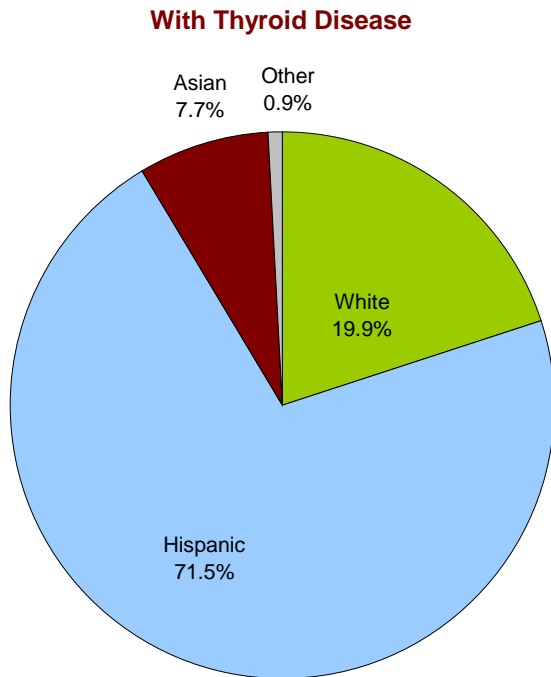


**Figure 3. Children with Thyroid Disease by Type, 1999-2001**

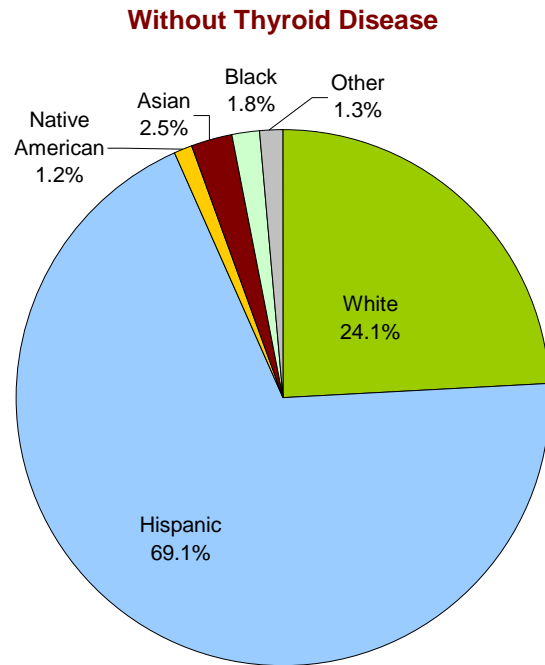




**Figure 4. Children in Yuma County by Race/Ethnicity, 2001**

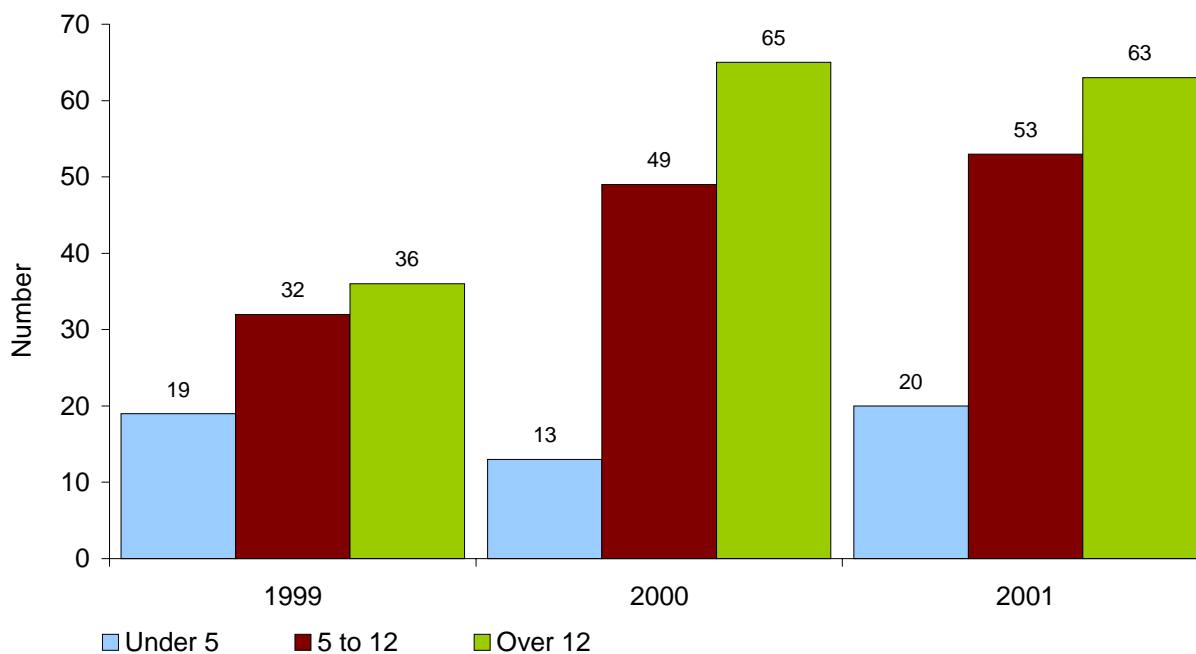


Source: YHQ children who received care in 2001 (N = 221).  
 Note: Percentages based on weighted data.



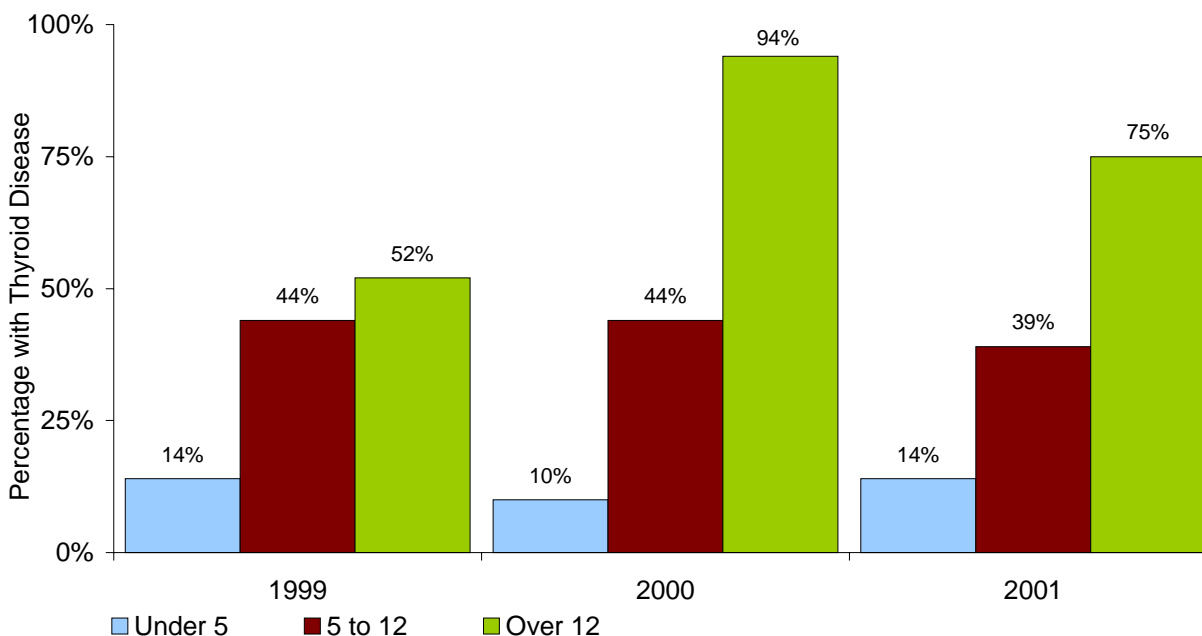
Source: YHQ non-diabetic children who received care in 2001 (N = 45,460).  
 Note: Those missing race/ethnicity were excluded from the analysis. Percentages based on weighted data.

**Figure 5. Number of Children with Thyroid Disease by Age, 1999-2001**



Source: YHQ children who received care in any one of the years.

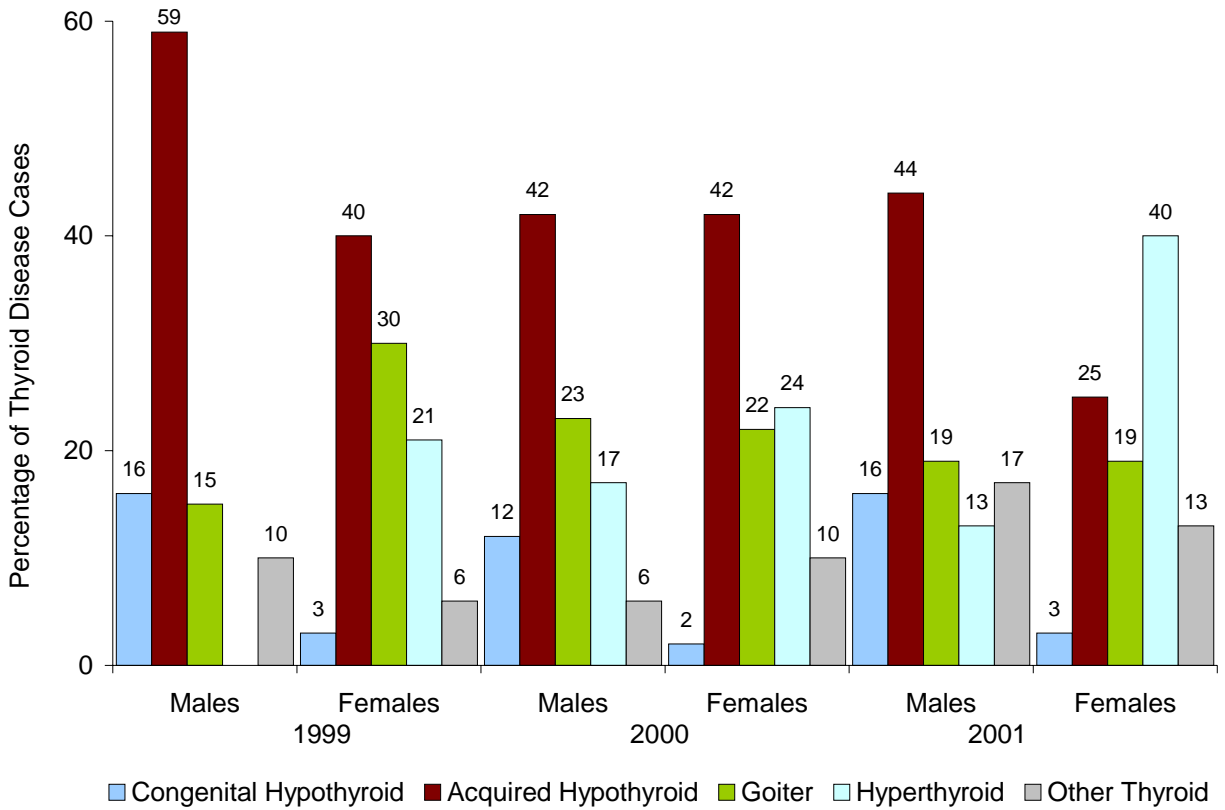
**Figure 6. Children with Thyroid Disease by Age, 1999-2001**



Source: YHQ children who received care in any one of the years.

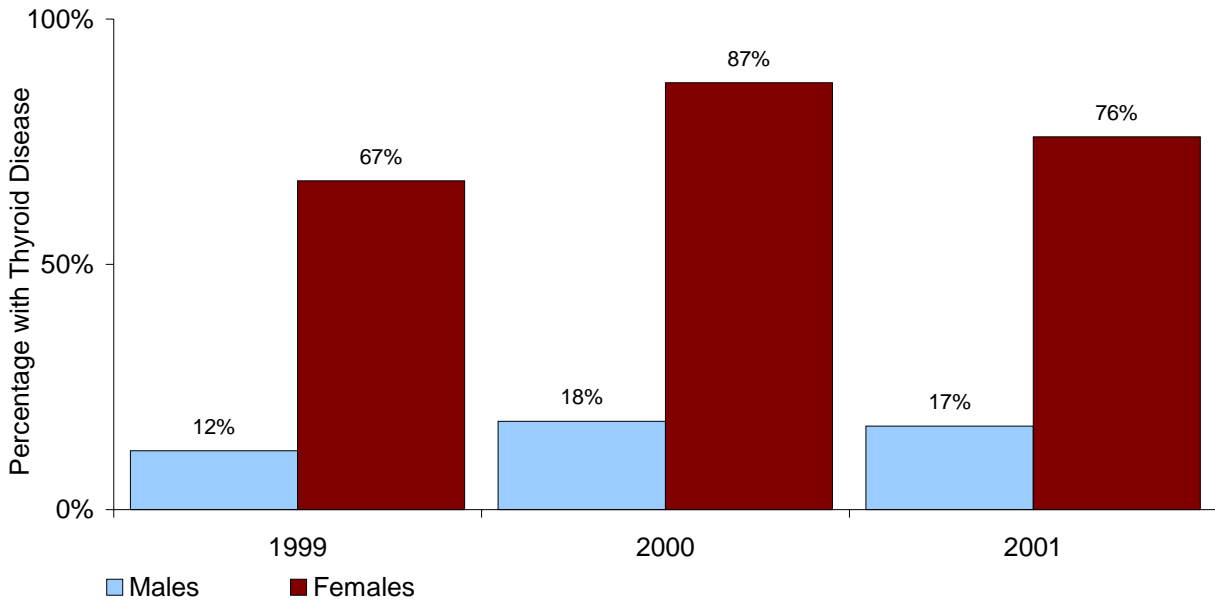
Note: Percentages based on weighted data. Children missing age were excluded from the analysis.

**Figure 7. Children with Thyroid Disease by Gender and Type, 1999-2001**



Source: YHQ children who received care in any one of the years.  
 Note: Percentages based on weighted data.

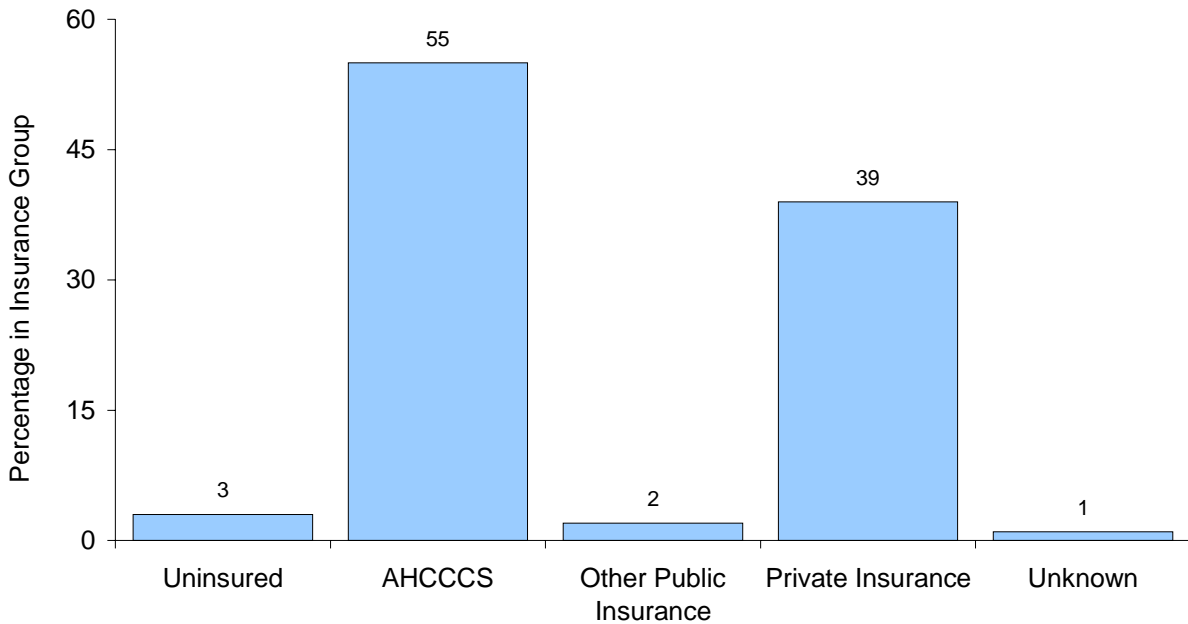
**Figure 8: Children with Thyroid Disease by Gender, 1999-2001**



Source: YHQ children who received care in any one of the years.

Note: Children missing gender were excluded from the analysis. Percentages based on weighted data.

**Figure 9. Children with Thyroid Disease by Insurance Type, 2001**



Source: YHQ children who received care 2001.

Note: Percentages based on weighted data.

## References

LaFranchi, S. (2004). Disorders of the thyroid gland. In R. E. Behrman, R. Kliegman & H. B. Jenson (Eds.), *Nelson textbook of pediatrics* (17th ed., pp. 1870-1889). Philadelphia, PA: Saunders.