



Children and Diabetes

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

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Executive Summary¹

- Less than one percent of the children in the Yuma HealthQuery (YHQ) data set are treated for diabetes in a typical year (Figure 1).
- The number and percentage of children with diabetes increased over time (Figures 2 and 3).
- Type I diabetes was the most prevalent form of diabetes in 1999 and 2000 (Figure 3).
- Type II diabetes became the most prevalent form of diabetes in 2001 (Figure 3).
- The majority of children with diabetes are Hispanic (Figure 4).
- The number and percentage of diabetes cases increased in all age groups from 1999 to 2001. The only exception occurred for children under five between 1999 and 2000 (Figures 5 and 6).
- In 2001 the percentage of Type II cases increased substantially for both boys and girls with diabetes (Figure 7).
- The percentage of diabetic girls who had Type II diabetes was nearly double that of diabetic boys with Type II diabetes in 2001 (Figure 7).
- Diabetes prevalence increased for females between 2000 and 2001 and for males between 1999 and 2000 (Figure 8).
- The majority of children with diabetes in Yuma County were insured by AHCCCS followed by private insurance (Figure 9).

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

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 HealthQuery Advisory Committee	Steve Bell, Board Chair
Yuma Pediatrics, Ltd. *	Daniel Crawford, MD

Organization

Yuma Regional Medical Center*

Yuma School District One*

Yuma Union High School District 70*

*YHQ Data Partner

Representative

Bob Olsen, President/CEO
Cheryl Bell, Director, Volunteer Services
Todd Hirte, Director, Contracts

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

Tim Foist, Superintendent
Toni Badone, Assistant Superintendent,
Curriculum

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 data 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.

There are two types of diabetes referred to as Type I diabetes and Type II diabetes. Both are associated with abnormal sugar metabolism resulting in high blood sugar. Typical symptoms of either type of diabetes include excessive thirst (polydipsia), excessive appetite (polyphagia), and excessive urination (polyuria). However, many children have no symptoms in the early stages of the disease. Type I is sometimes referred to as insulin dependent diabetes because daily injections of insulin are usually required to control the disease. In contrast, Type II is often called non-insulin dependent diabetes because it usually is treated, at least initially, with oral medications, diet, and exercise. In the past, Type I was also called juvenile onset because most cases of Type I diabetes start in childhood and in the past Type II diabetes rarely was diagnosed in children. However, we now know that both Type I and Type II diabetes can begin in childhood. Sometimes it is difficult for physicians to distinguish between Type I and Type II diabetes because of the similar symptoms and laboratory findings. If it is not possible to distinguish between the types of diabetes it is listed as "diabetes unspecified."

The YHQ data show that the number of Yuma children who have diabetes has doubled from 1999 to 2001. The increase is a result of the increase in the number and percentage of children who have Type II diabetes. Indeed, the number of children with Type II diabetes tripled from 1999 to 2001. The prevalence of diabetes has increased in all age groups but children over age 12 are more likely to have diabetes than are younger children. In 1999 and 2000 the number of boys and girls who had diabetes (all types) was similar, but by 2001 the number of girls with Type II diabetes was almost double the number of boys with Type II diabetes. Overall, the prevalence of diabetes in YHQ children ranges from 0.22 percent in 1999 to 0.32 percent in 2001.

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 Diabetes (actual count)</i>	49	65	100
<i>YHQ Children with Diabetes (weighted count)</i>	115	142	162

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. Weighted counts in some years exceed census counts in the same year because weights are based on underlying population distributions in 2000.

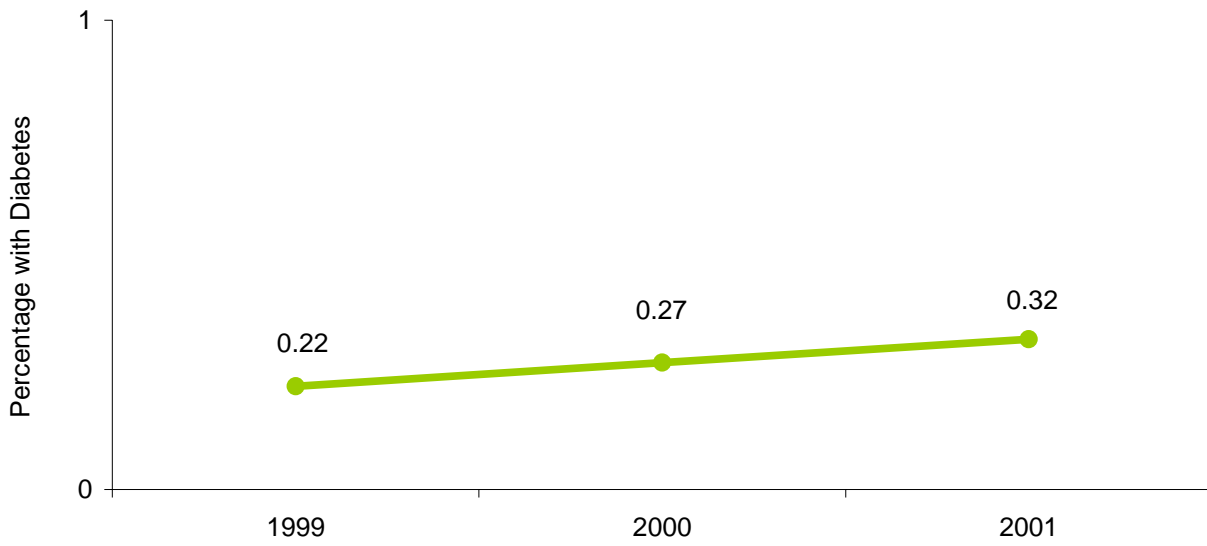
National public health experts have stated that we are in the midst of a diabetes epidemic among young people (Bloomgarden, 2004). The striking increase in the prevalence of diabetes among children in Yuma County is similar to the increase throughout the U.S. (Bobo *et al.*, 2004). Obesity and lack of exercise increase the risk of developing diabetes in all age groups. Indeed, the increasing prevalence of obesity among U.S. children closely parallels the increasing prevalence of diabetes. The prevalence of obesity among U.S. adolescents tripled since 1985 (Bobo *et al.*, 2004). In 1999 to 2000, over 15 percent of U.S. children were obese compared to four percent in

1970. The prevalence of obesity among Hispanic children is nearly one and one-half times greater than prevalence among White, non-Hispanic children. Familial and genetic factors play an important role in the development of diabetes. Having at least one parent with diabetes increases the risk of developing diabetes in childhood. In addition, some populations, including Mexican American, Native American, and Black ethnic groups are at increased risk for diabetes.

The increasing prevalence of diabetes among Yuma children is of great concern. These data suggest that the community consider taking steps to prevent diabetes among the community's children by reducing the controllable risk factors, including lack of exercise and overnutrition. In addition, the increasing prevalence of diabetes in Yuma suggests that the medical community take steps to increase their patient's awareness of the signs and symptoms of diabetes and encourage weight loss and increased physical activity for children in their care. Finally, because early diabetes may be asymptomatic, increased screening for diabetes among children at high risk for the disease should be considered.²

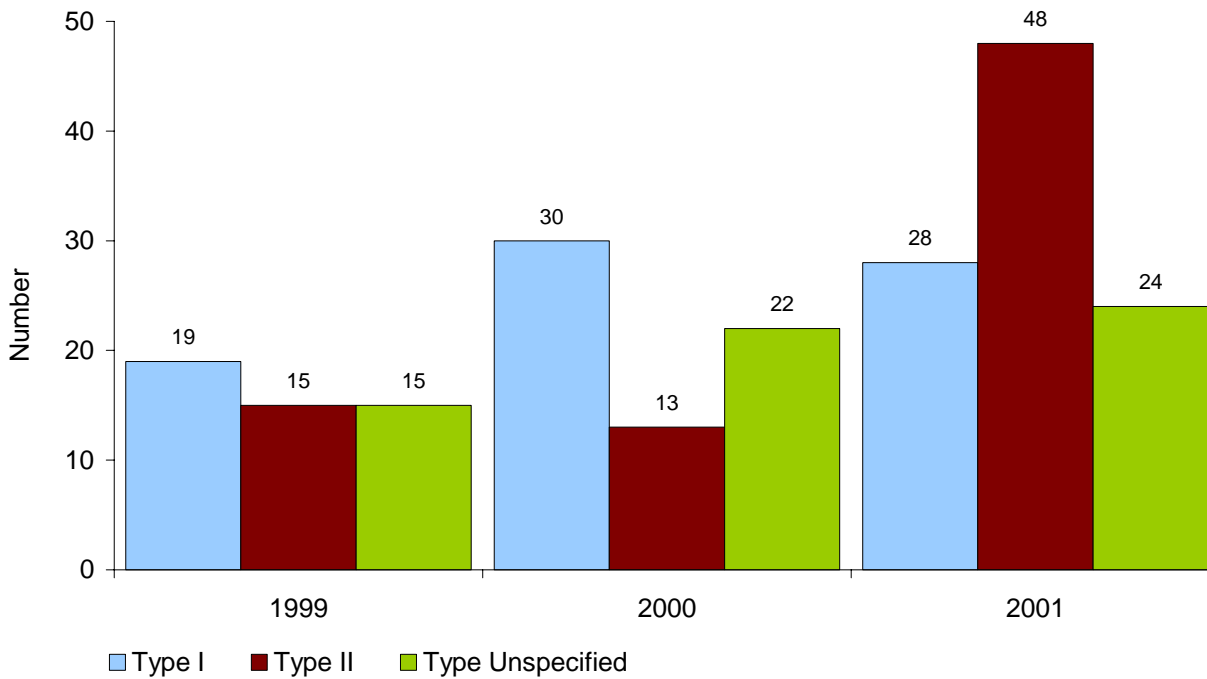
² Criteria for screening: Overweight (BMI >85th percentile for age and gender, weight for height >85th percentile, or weight >120% of ideal for height), and any two of the following risk factors: family history of Type II diabetes in first or second-degree relative; race/ethnicity of Native American, Black, Hispanic/Latino, Asian American, or Pacific Islander; and/or signs of insulin resistance or conditions associated with insulin resistance (acanthosis nigricans, hypertension, dyslipidemia, polycystic ovarian syndrome). Screening should begin at age 10 and repeated every two years.

Figure 1. Children Treated for Diabetes Mellitus, 1999-2001



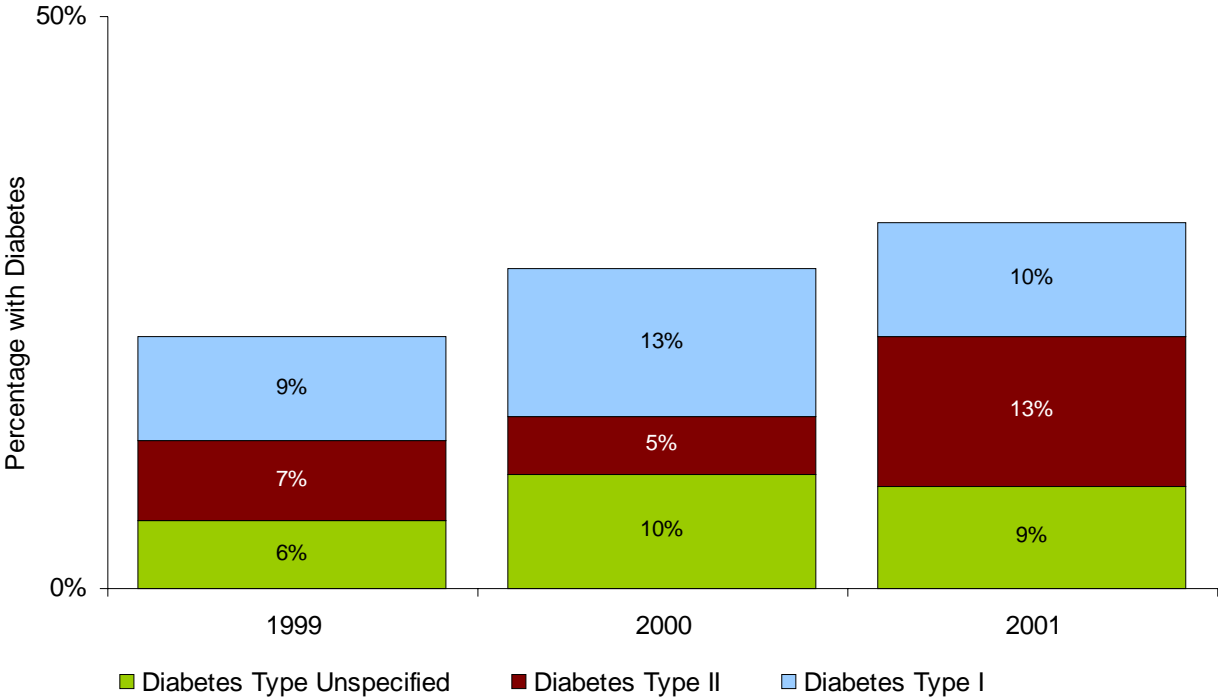
Source: YHQ children who received care in any one of the years.
Note: Percentages based on weighted data.

Figure 2. Number of Children Treated for Diabetes Mellitus, 1999-2001



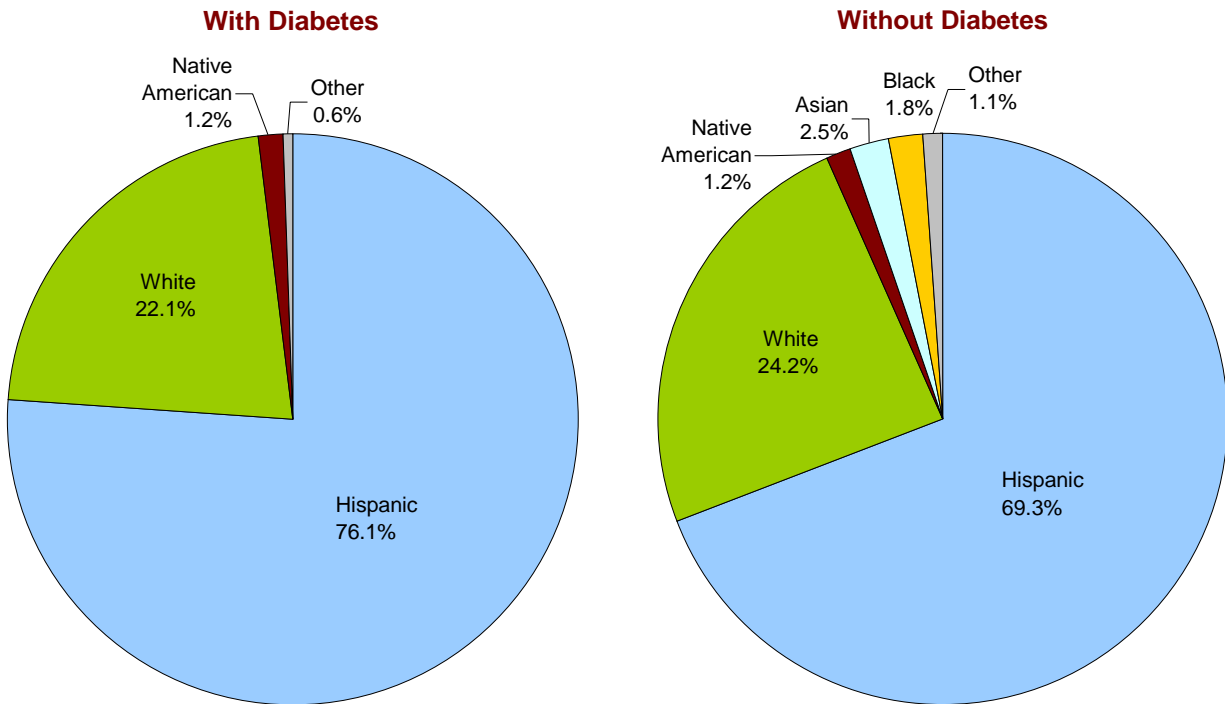
Source: YHQ children who received care in any one of the years.

Figure 3. Children with Diabetes Mellitus by Type, 1999-2001



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

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



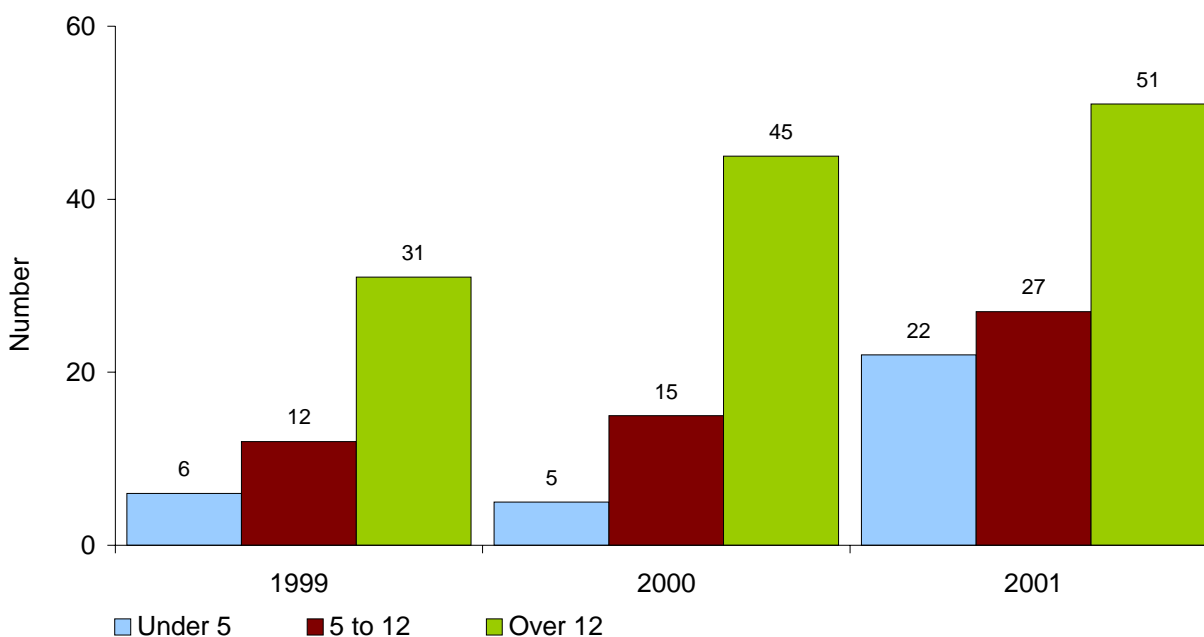
Source: N = 162. YHQ children who received care in 2001.

Note: Percentages based on weighted data.

Source: N = 45,469. YHQ non-diabetic children who received care in 2001.

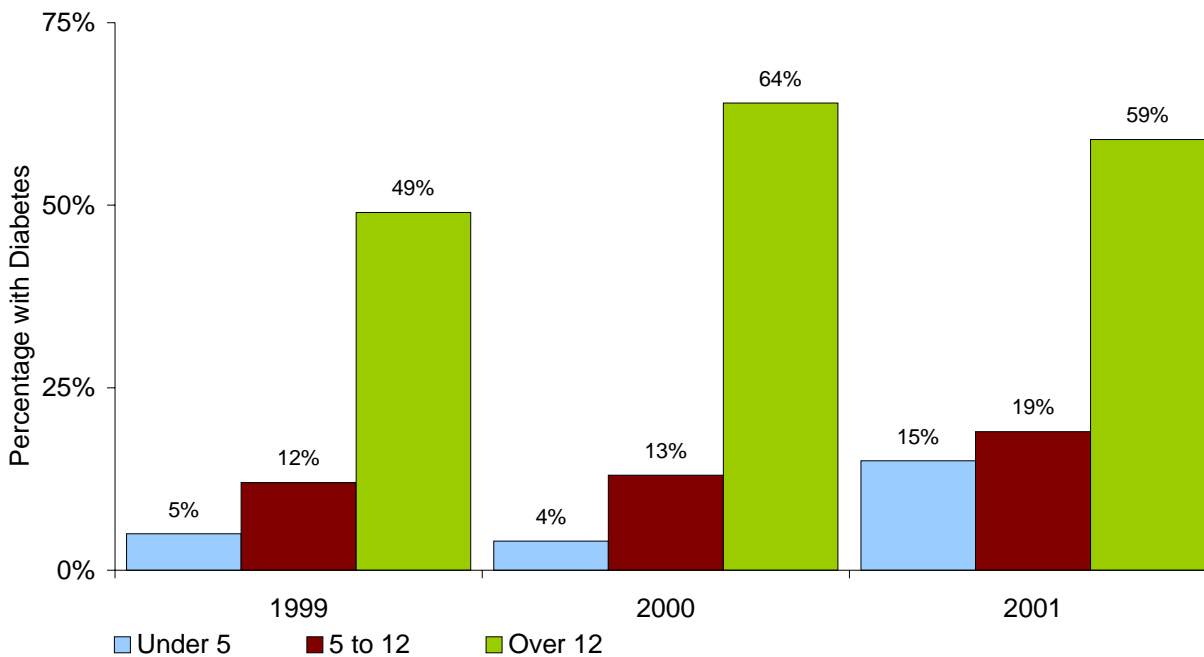
Note: Percentages based on weighted data. Those missing race/ethnicity were excluded from the analysis.

Figure 5. Number of Children with Diabetes Mellitus by Age, 1999-2001



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

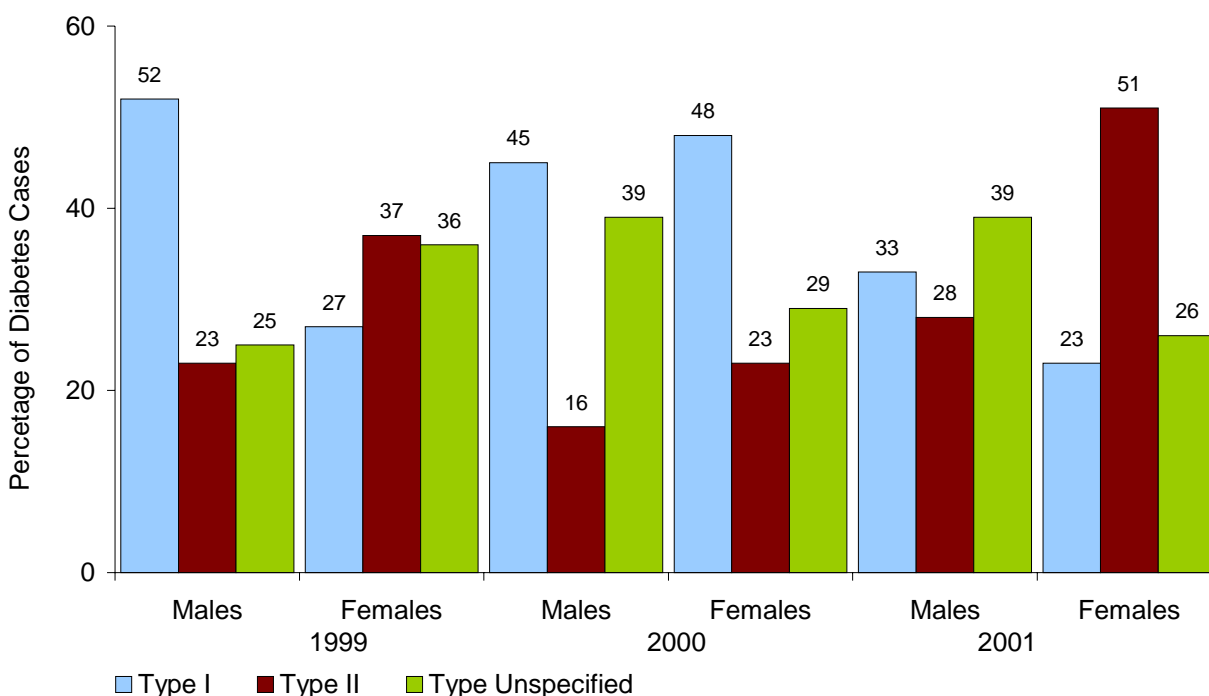
Figure 6. Children with Diabetes Mellitus by Age, 1999-2001



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

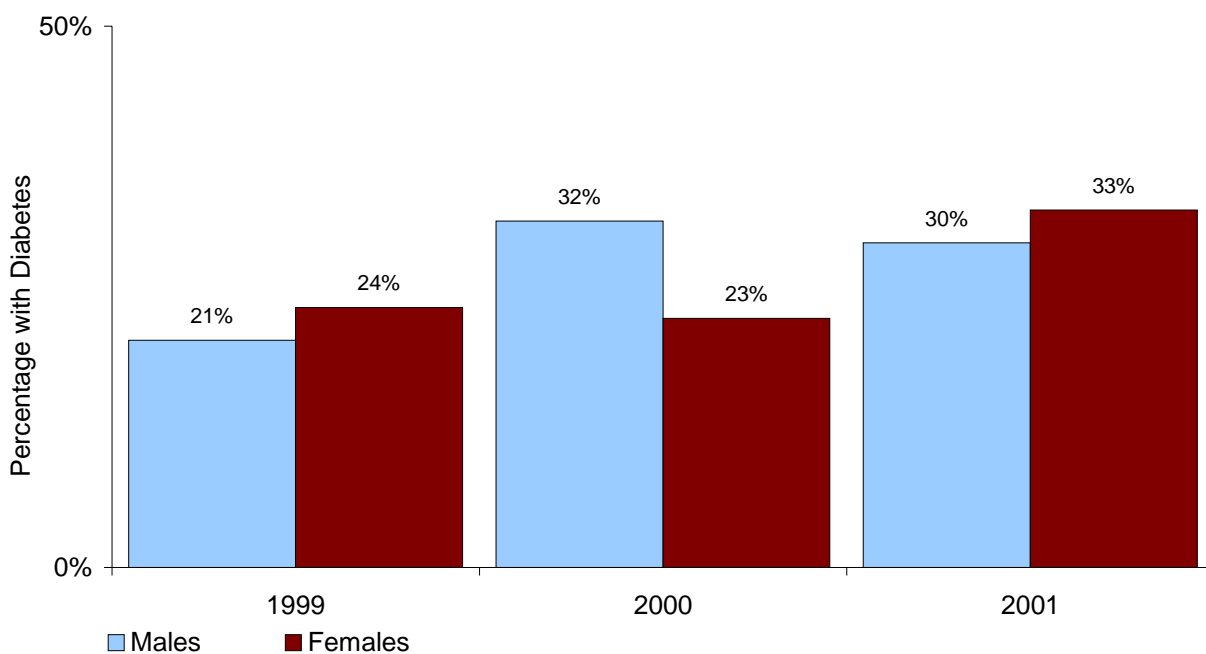
Note: Percentages based on weighted data. Children missing age were excluded from the analysis.

Figure 7. Children with Diabetes Mellitus by Gender and Type, 1999-2001



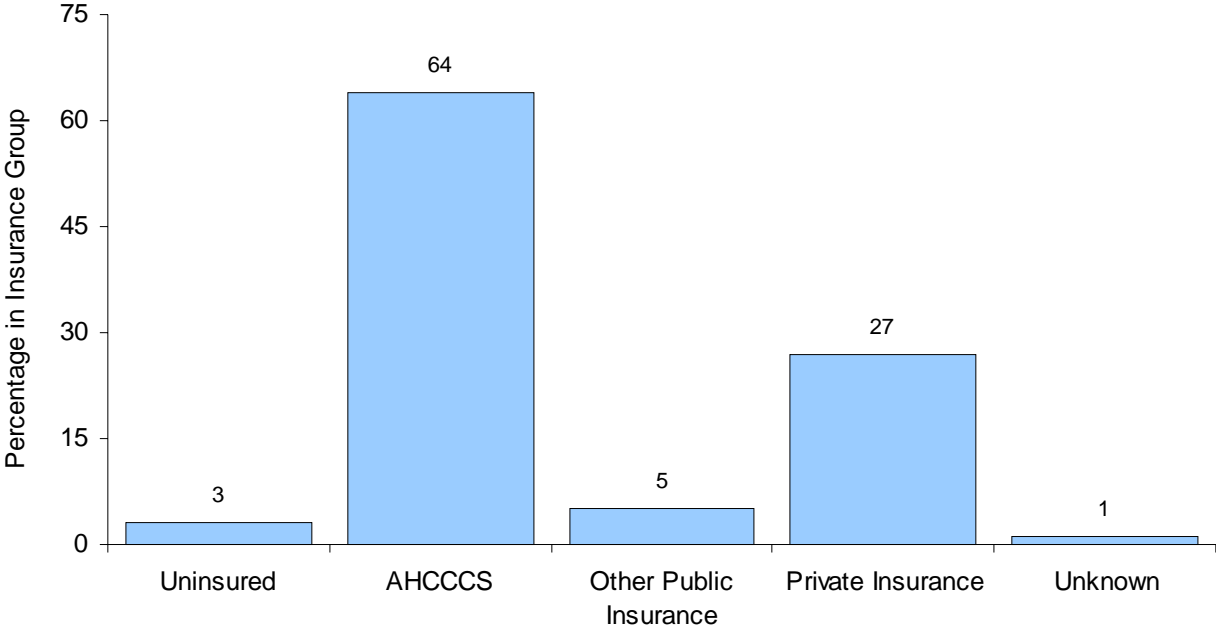
Source: YHQ children who received care in any one of the years.
 Note: Percentages based on weighted data.

Figure 8. Children with Diabetes Mellitus by Gender, 1999-2001



Source: YHQ children who received care in any one of the years.
 Note: Percentage based on weighted data. Children missing gender were excluded from the analysis.

Figure 9. Children with Diabetes Mellitus by Insurance Type, 2001



Source: YHQ children who received care in 2001.

Note: Percentages based on weighted data.

References

Bloomgarden, Z. T. (2004). Type 2 diabetes in the young: The evolving epidemic. *Diabetes Care*, 27(4), 998-1010.

Bobo, N., Evert, A., Gallivan, J., Imperatore, G., Kelly, J., Linder, B., et al. (2004). An update on type 2 diabetes in youth from the national diabetes education program. *Pediatrics*, 114(1), 259-263.