

# General Health of Latinos



## **INTRODUCTION**

Assessing the overall health of the Latino population is difficult for several reasons. Latinos are from different countries or regions with different subcultures, which makes it difficult to generalize findings from one group to another. In addition, there is a general lack of health data specific to North Carolina Latinos. In the past, health data were not collected by race/ethnicity. More recently, some agencies and programs have begun to collect this information, but it is difficult to establish baseline data, or to make accurate comparisons across different Latino subcultures. National research that may have collected race and ethnicity data may not always be accurate, as the research instruments have not always been validated for use in the Latino populations. Some survey data are collected only in English, which has the effect of excluding immigrants with limited English proficiency (typically recent immigrants) from the study results. Most research in the past has been concentrated in a couple of states with historically large Latino populations (such as California and Texas), which may or may not reflect the health status of North Carolina Latinos. For these reasons, it is impossible to get a truly accurate understanding of all aspects of Latino health in North Carolina. Because of the lack of comprehensive state-level data that could be used to analyze the health and health risks of North Carolina Latinos, the Task Force recommended that:

- 1. The NC Department of Health and Human Services and other health, behavioral health, dental, and human services providers collect health, behavioral health, dental, and social services related data (including but not limited to utilization and health outcomes) by race and ethnicity, to determine if Latinos are able to access needed health, behavioral health, dental, and social services and whether there are specific health disparities facing the Latino community.**

Though comprehensive, state-level Latino health data are not always available, the Task Force members thought it important to review the data that do exist in order to gain better understanding of the health of North Carolina Latinos.

In general, Latinos in the state are relatively healthy. This may be due, in part, to the fact that Latinos are a younger population than the state as a whole. North Carolina Latinos are also likely to be recent immigrants, and studies have shown that first generation immigrants may be healthier, based in part on some protective factors (such as healthier diets and reduced incidence of smoking), and selection bias; that is, only the healthiest individuals successfully migrate because of the difficulties associated with migration.

Despite their overall positive health status, there are some data that show that Latinos are disproportionately more likely to have certain health problems or to lack access to health services. Furthermore, many health issues disproportionately affecting Latinos are preventable. The following data describe the health status of North Carolina Latinos and highlight differences found among Latino populations versus other North Carolinians in the areas of pregnancies and births, immunizations, general health of children, general health status of adults, oral health, behavioral health (mental health and substance abuse), developmental disabilities, occupational injuries, and violence. National data are presented when North Carolina specific data are not available.

**PREGNANCIES AND BIRTHS<sup>1</sup>**

Latinas of all ages have a higher pregnancy rate<sup>2</sup> than other North Carolina women (Table 4:1). The high pregnancy rate among young Latinas may be partially explained by higher marriage rates. Pregnant Latinas ages 15-17 are 62% more likely to be married than whites (29.7% compared to 18.3% respectively). However, most pregnancies to young women ages 15-19, including Latinas, are to unmarried women. At older ages (20-44), pregnant whites are more likely to be married than Latinas (77.0% compared to 58.8%), but still have lower pregnancy rates than Latinas.

**Table 4:1  
Pregnancy Rates for Women of Different Ages per 1,000 Females  
(2000)**

	15-17 years old	18-19 years old	20-44 years old
Latinas	104.5	216.2	160.8
Whites	36.4	108.6	81.9
African-Americans	68.6	159.5	92.0

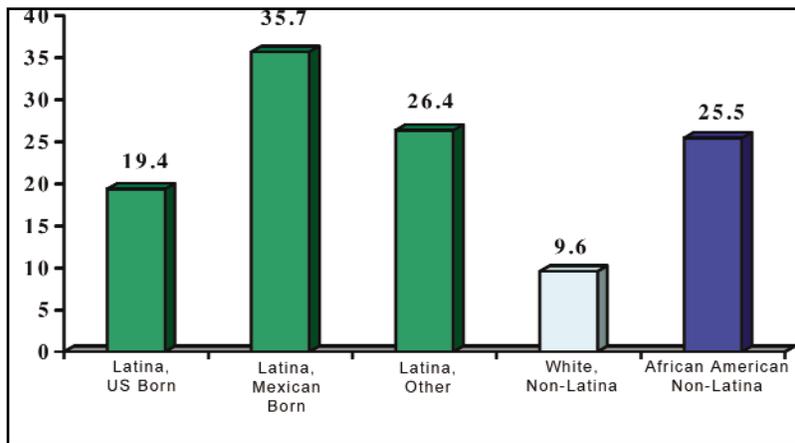
Source: State Center for Health Statistics. Vital Records. (2000).

Latinas are less likely to have prenatal care initiated during the first trimester, as is generally recommended by health experts (Chart 4:1). Paradoxically, having less prenatal care does not translate into poorer birth outcomes for the Latina population. Infants born to Latinas in North Carolina are relatively healthy. Between 1996-2000, the Latino infant mortality rate was approximately 6 deaths per 1,000 live births; a rate comparable to whites (6.6), and much lower than African Americans (15.0). Latinas are less likely to have low birthweight (LBW)

babies (Chart 4:2), which may partially explain why they have these positive birth outcomes. Between 1996-2000, 6.2% of babies born to Latinas in NC were classified as LBW, compared with 7.2% for whites and 13.8% for African Americans. These differences are consistent with national data, which document relatively low use of prenatal care and low incidence of LBW and very low birth weight (VLBW).<sup>3</sup>

**Chart 4:1**

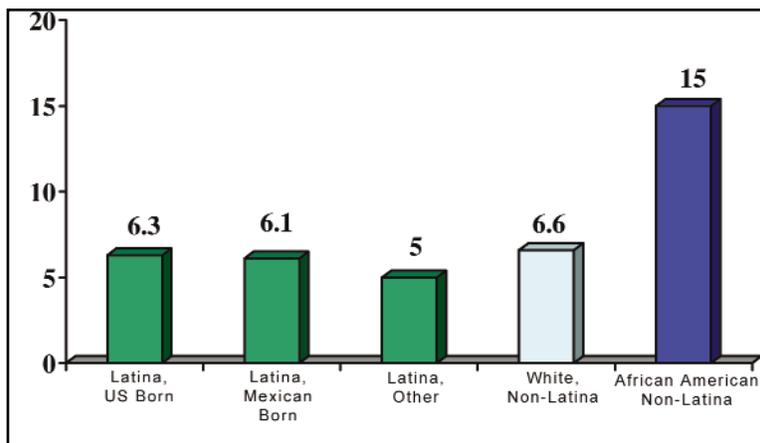
**Percent of North Carolina Women Who Started Prenatal Care After the First**



**Trimester (1996-2000)**

Source: Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002. Analysis of Birth and Infant Death Records (1996-2000).

**Chart 4:2**



**Infant Deaths Per 1,000 Live Births (1996-2000)**

Source: Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002. Analysis of Birth and Infant Death Records (1996-2000).

No one fully understands why Latina immigrants have such positive birth outcomes (often called "the Mexican Paradox"). Latinas, especially recent immigrants and those coming from Mexico, are less likely to have prenatal care, more likely to live in poverty, and less likely to report using a multivitamin with folic acid every day before pregnancy, but they are also less likely to engage in the

unhealthy behaviors that are associated with low birthweight babies, such as smoking or drinking during pregnancy (Table 4:2). Unfortunately, these desirable birth outcomes do not persist as the Latinas acculturate to the United States, possibly because of changes in smoking and dietary intake.<sup>4</sup>

**Table 4:2  
Pregnancy Data (1996-2000)**

	Latina, US Born	Latina, Mexican Born	Latina, Born Elsewhere	Latina, Total	White, Non-Latina	African-American Non-Latina
<b>Live Birth Certificates by Place of Birth of Mother (1996-2000)<sup>41</sup></b>						
Started prenatal care after 1st trimester	19.4	35.7	26.4	31.9	9.6	25.5
Percent low birthweight (less than 2,500 grams)	7.1	6.0	6.1	6.2	7.2	13.8
Percent who smoked during pregnancy	7.8	0.6	1.7	1.9	17.8	11.1
Infant deaths per 1,000 live births	6.3	6.1	5.0	6.0	6.6	15
Number of live births	6,395	28,029	8,358	42,782	354,130	139,944
<b>Pregnancy Risk Assessment Monitoring System (July 1997-December 2000)<sup>42</sup></b>						
Unintended pregnancy				37.5	37.1	67.5
Breastfed				82.9	62.8	38.0
Smoked last three months of pregnancy				2.3	18.2	8.0
Tested for HIV				87.1	75.0	88.5
Income less than \$14,000				63.1	18.5	45.1
Using birth control when got pregnant				46.6	43.2	40.8
Took multivitamin/ folic acid every day before pregnancy				17.2	29.4	15.5

Source: Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002. Analysis of Birth and Infant Death Records (1996-2000).

Currently, pregnancy outcomes among Latinas in the state are positive, but the state cannot afford to be complacent. Puerto Rican women have been shown to have poor birth outcomes, so the paradox may not apply generally to all Latinas. As Latinas acculturate, the infant mortality rate is likely to increase. In addition, Latino children are more likely to be born with certain birth defects (as discussed later in the section on developmental disabilities).

Further, we know very little about the birth outcomes of migrant farmworkers in North Carolina. Nationally, studies suggest that migrant farmworker women have poorer birth outcomes: the infant mortality rate for farmworkers is 25-30% higher than the national average.<sup>7</sup> This has been attributed to hazardous working and living conditions, and frequent mobility that makes it difficult to access

prenatal care. Pregnant women who work in the field may be exposed to pesticides as well as other hazardous conditions.

**IMMUNIZATIONS<sup>8</sup>**

Immunizations have long been recognized as one of the greatest public health successes of our lifetime. Yet there are still pockets of the North Carolina population that are under-immunized, leading to preventable illnesses, disabilities, and deaths. The Immunization Branch of the Department of Health and Human Services recently completed a study to look at the immunization rates among different racial and ethnic groups in different geographic areas of the state. The state surveyed kindergarten students in 81 schools across North Carolina, obtaining data from the student's health records to determine the percentage of students who had up-to-date immunizations for the 4-3-1 series by 24 months of age (4 DTaP,<sup>9</sup> 3 Polio, 1 MMR<sup>10</sup>)(Table 4:3). Prior to this, the state had little information to determine whether there were racial or ethnic disparities in immunization status.<sup>11</sup>

The Immunization Branch found that Latino children were less likely to have had their 4-3-1 immunization series at 24 months (Table 4:3).

**Table 4:3**  
**Point Estimates of 4-3-1 Coverage Rates by Race and Ethnicity**

Race or Ethnicity	Percent With Up-To-Date Immunizations at 24 Months	Confidence Intervals $\alpha = .01$
White	80%	77%-83%
African American	71%	66%-76%
American Indian	73%	60%-86%
Asian	69%	54%-84%
Latino/Latino	64%	55%-73%

Source: Saldana K. Immunization Branch. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002.

There was little difference in immunization rates in different geographic areas of the state. Private providers had slightly higher immunization rates (78%) than public clinics (70%).

While the data show that Latinos have the lowest immunization rates among different racial and ethnic groups, there is no information to know whether the Latino children in the survey arrived in the United States before or after turning 24 months of age. Also, the kindergarten survey was conducted in 2001, which means that it was approximately 1997 at the time that this cohort of students was 24 months old. Since that time, the state has initiated special outreach efforts to immunize Latino children (See Chapter 5).

Providing immunizations to adults, especially those who immigrated from other countries, is equally important. Outbreaks of preventable, communicable diseases have occurred in North Carolina when children and adults were not fully immunized. The 1996 rubella outbreak among Latinos that included Chatham County is a case in point. Rubella immunization programs are in their infancy or not fully accessible to everyone in many foreign countries, and there-

fore many immigrants are inadequately protected when they arrive in the United States. From 1996 to 2000, 24% (293) of all reported rubella cases nationally were from North Carolina. In 2000 alone, North Carolina had 51% of all cases.<sup>12</sup> Although most young children and adults suffer few problems when they contract rubella, a pregnant woman who is non-immune and contracts the disease can create significant health problems for the fetus. Congenital rubella syndrome (CRS) can result in miscarriage, stillbirth, cataracts, hearing impairment, cardiac anomalies, and developmental delay. Nationally, more than three quarters of rubella cases were among Latinos.<sup>13</sup>

The state has initiated an immunization outreach campaign to target Latino children, but more may be needed to ensure that both children and adults receive their necessary immunizations. Without these immunizations, the health of both the Latinos and the general population is at risk.

#### **GENERAL HEALTH STATUS OF CHILDREN**

There are few data available to determine the overall health status of North Carolina Latino youth. Nationally, Latino children are more likely to be obese, have diabetes mellitus and asthma, and live in areas with environmental hazards.<sup>14</sup> However, comparable data are not collected in North Carolina. The only data available that can give a glimpse into the health status of North Carolina Latino youth are from the Youth Risk Behavior Survey, a survey that was last conducted in a representative sample of high schools and middle schools in 2001. The data are self-reported, thus some negative health behaviors may be under-reported. In addition, the data for Latino youth reflected in the survey may not represent all Latino youth because Latinos are more likely to drop out of school, and the students who drop out may be more likely to be at risk.<sup>15</sup> We expect that out-of-school youth will be more at risk than in-school youth for many health problems. Thus, school-based studies may significantly underestimate the need for health prevention, education, and treatment among Latino youth.

According to the Youth Risk Behavior Survey, Latino high school students are more likely to rate their health status and quality of life as poor than either whites or African American high school students. Middle school Latinos are also more likely to rate their quality of life as poor, but not as likely to rank their health status as poor (Table 4:4). Both Latino high school and middle school students are less likely to report going to a doctor for regular preventive services.

Latino youth demonstrate some unhealthy lifestyle habits, but do not appear to be at consistently greater risk than white or African-American youth. Latino youth in middle school are less likely to report using tobacco and more likely to report being threatened and being in fear of going to school than whites (See Appendix B for more complete Youth Risk Behavior Survey findings). They are also less likely to report engaging in vigorous physical activity. About one quarter of Latino children in middle school report themselves as slightly or very overweight.

**Table 4:4**  
**North Carolina Middle School Survey (2001)**

	Latino	White	African American
<b>Diet and Physical Fitness</b>			
Describe self as slightly or very overweight	25.7	26.4	24.0
Trying to lose weight	45.6	41.2	39.6
Exercised or participated in physical activities for at least 20 minutes that made them sweat and breathe hard on three or more of the past seven days	67.2	79.5	67.9
<b>Self-Perceived Health Status and Use of Health Services</b>			
Rate health status as poor	2.2	1.7	2.6
Rate quality of life as poor	6.9	2.6	3.0
Consider themselves to have a disability	15.3	11.4	10.2
Limited activities in any way because of impairment or health problem	11.0	11.6	13.9
Saw a doctor or health care provider for a check-up or physical exam when not sick or injured in last 12 months	48.3	61.4	51.8
<b>Violence</b>			
Carried a weapon on school property in past 30 days	8.3	3.8	6.4
Did not go to school because felt unsafe at school or on way to or from school in past 30 days	11.2	6.6	11.0
<b>Use of Tobacco</b>			
Smoked cigarettes on one or more days in past 30 days	9.7	12.9	9.4

Source: NC Department of Public Instruction. 2001 Youth Risk Behavior Survey. North Carolina Middle School Survey. Summary Tables.

Latino high school students are less likely to report being overweight and more likely to eat five or more fruits and vegetables than either African-American or white high school students (Table 4:5). However, they are more likely to report their health status and quality of life as poor. They are more likely than whites, but less likely than African Americans, to report a sedentary lifestyle, but are less likely than whites to have smoked a cigarette in the last 30 days. Self-reported data show 26.5% of Latino high school students reported smoking cigarettes on one or more days in the past 30 days, compared to 19.2% of African-American students and 31.9% of white students. Nationally, tobacco use increases the longer a Latino youth lives in the United States and becomes "acculturated."<sup>16</sup>

**Table 4:5**  
**North Carolina High School Survey (2001)**

	Latino	White	African American
<b>Diet and Physical Fitness</b>			
At risk of overweight*	14.4	12.6	17.8
Overweight**	9.1	11.9	15.5
Ate five or more servings of fruits and vegetables per day during past seven days	20.5	17.2	18.9
No vigorous or moderate physical activity during the past seven days	9.6	8.4	15.4
<b>Self-Perceived Health Status and Use of Health Services</b>			
Rate health status as poor	10.4	3.1	4.4
Rate quality of life as poor	10.2	3.3	5.2
Consider themselves to have a disability	17.4	15.0	11.2
Limited activities in any way because of impairment or health problem	8.2	8.3	6.7
Saw a doctor or health care provider for a check-up or physical exam when not sick or injured in last 12 months	53.8	60.2	62.4
<b>Violence</b>			
Carried a weapon such as gun, knife, club on one or more of past 30 days	20.6	20.2	13.4
Hurt in physical fight and had to be treated by nurse or doctor	8.4	10.4	10.1
<b>Use of Tobacco</b>			
Smoked cigarettes on one or more days in past 30 days	26.5	31.9	19.2

Source: NC Department of Public Instruction. 2001 Youth Risk Behavior Survey. North Carolina High School Survey. Summary Tables. \*Students who were at or above the 85th percentile but below the 95th percentile for body mass index by age and sex based on reference data from the National Health and Nutrition Examination Survey. \*\* Students who were at or above the 95th percentile for body mass index by age and sex based on reference data from the National Health and Nutrition Examination Survey.

Unlike most recent adult immigrants, who generally have a better health status than their American counterparts, Latino youth appear to have adopted many of the same health behaviors as other white and/or African-American youth. This may lead to higher morbidity and chronic illnesses as these children age.

Migrant children may have particular health problems that are not reflected in these statewide data. Nationally, data suggest that children of migrant farmworkers harbor infectious diseases such as malaria, amebiasis, and other parasitic diseases, congenital syphilis, and leprosy.<sup>17</sup> The rate of tuberculosis (TB) among children of migrant workers is not known, but many experts think it is likely to be 20-25 times higher than the national average because children may be infected by an adult in the household who has a higher incidence of TB. Because migrant farmworkers are considered to be at increased risk, the

American Academy of Pediatrics recommends skin testing for this group at the time of immigration, and every two to three years thereafter.<sup>18</sup> The diets of migrant preschool children in North Carolina have also been found to be deficient.<sup>19</sup> Comparisons of the health status of migrant children and children from the general population on the east coast showed that migrant children are almost three times more likely to be reported in fair or poor health.<sup>20</sup>

#### **GENERAL HEALTH STATUS OF ADULTS<sup>21</sup>**

Overall, Latino adults appear to be relatively healthy in North Carolina. For example, Latino adults are less likely to report being in fair or poor health (11.3%), as compared to non-Latino whites (15.8%) or non-Latino African Americans (20.9%).<sup>22</sup> Latinos also have lower age-adjusted death rates than whites or African Americans (Table 4:6). They are less likely to die from cancer, diabetes, heart disease, stroke, pneumonia and influenza, chronic lung or liver disease, septicemia, nephritis, suicide, or other injuries than either whites or African Americans, but are more likely to die from motor vehicle crashes (See Appendix A, Table A:2). Latinos are also more likely to die from AIDS and homicides than whites, although less likely than African Americans. (See Appendix A, Table A:2).

**Table 4:6**  
**Number of Deaths and Age-adjusted Death Rates by Ethnicity and Race**  
**Among North Carolina Residents, 1999-2000**  
**(Deaths per 100,000 Population)<sup>23</sup>**

	Latino		White		African American	
	Number	Rate	Number	Rate	Number	Rate
All causes (per 1,000)	1,089	5.9	108,392	8.9	30,980	11.9
Cancer	112	76.3	24,682	197.0	6,494	250.8
Diabetes	23	17.5	2,596	20.9	1,458	57.0
Heart disease	125	99.4	30,494	251.6	7,887	312.5
Stroke	37	31.0	8,684	72.8	2,509	101.3
Pneumonia & Influenza	12	9.9	3,115	26.4	658	26.5
Chronic lung disease	10	7.2	6,392	51.5	833	33.3
Chronic liver disease	9	4.6	1,157	9.2	329	11.3
Septicemia	8	5.5	1,391	11.5	640	25.5
Nephritis	7	4.8	1,537	12.7	877	34.9
Suicide	29	4.1	1,612	13.4	189	5.4
AIDS	18	3.7	201	1.7	716	21.6
Homicides	122	17	564	4.8	669	18.7
Motor vehicle injuries	242	30.7	2,338	19.9	713	21.4
Other injuries	84	12.6	2,700	22.7	763	26.2

Source: Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002. Analysis of Death Certificate Data (1999-2000).

While Latinos are generally less likely to have the chronic conditions that lead to premature deaths, they are more likely than whites but less likely than African Americans to have certain sexually transmitted diseases (STDs) (Table 4:7).

**Table 4:7**  
**Rate of Sexually Transmitted Diseases Per 100,000 (2001)**

	Latino	White	African American	American Indian	Asian
Primary & Secondary Syphilis	3.7	1.2	18.1	60.8	0.9
Early Syphilis	13.2	2.7	37.4	101.7	0.9
Congenital Syphilis	NA	36.8	52.6	NA	NA
Gonorrhea	90.8	38.0	804.9	110.1	192.9
Chlamydia	389.2	99.7	837.2	261.2	185.2
HIV/AIDS	16.4	6.3	66.5	17.8	8.7

Source: HIV/STD Prevention and Care Branch. North Carolina: 2001 STD Surveillance Report. NC Department of Health and Human Services, Division of Public Health. NA: Because of the small number of cases with congenital syphilis, the state only reports data for "other," which includes American Indians, Asian and Hispanic/Latino. In 2001, the rate of congenital syphilis for the "other" category was 10.5.

There are a number of factors that may explain why Latino adults are generally healthier than other groups. First-generation immigrants may have better health habits than do other people who have lived in the United States for longer periods of time.<sup>24</sup> In addition, people may return to their families and natural support systems in their countries of origin when they become seriously ill, leaving healthier Latinos in the United States.<sup>25</sup> Data from the Behavioral Risk Factor Surveillance System (BRFSS) show that North Carolina Latino adults are more likely to smoke than either non-Latino whites or African Americans, and are more likely to be overweight than non-Latino whites (but less likely than African Americans).<sup>26</sup> If the data are accurate, and Latinos have a higher incidence of obesity and smoking, they may develop more severe chronic conditions over time.

Although not reflected in the mortality statistics, the health of migrant and seasonal farmworkers is generally thought to be worse than the general Latino population. Migrant and seasonal farmworkers and their families have different and more complex problems, many of which can be attributed to a mobile lifestyle and the environmental and occupational hazards of farm work. Migrants and seasonal farmworkers in North Carolina, like elsewhere, are more likely to have HIV infections than other groups.<sup>27</sup> A national study suggests that up to 20% of Latino migrant farmworkers have self-injected medicines, often using shared needles.<sup>28</sup> Migrants also have a 20-25 times higher rate of tuberculosis and communicable diseases than the national average.<sup>29</sup> Prevalence rates for parasites among farmworker populations range from 20-80% in North Carolina migrant farmworkers.<sup>30</sup>

**ORAL HEALTH<sup>31</sup>**

Dental disease is the most common chronic childhood disease, occurring five to eight times more often than asthma.<sup>32</sup> It is very concentrated, typically in low-income populations, with about 25% of children having about 80% of dental disease in permanent teeth. Every 10-15 years, North Carolina conducts statewide

oral health surveys on a representative sample of schoolchildren across the state. In past surveys, it was not possible to collect data specific to the oral health of Latino children. However, national data suggest that Latino children, particularly Mexican Americans, have a greater rate of dental caries (cavities) than children of other races, or ethnic groups.<sup>33</sup> More than two of every five Latino children (43%) aged six to eight have untreated dental caries, compared to 36% of African-American and 26% of white children. Mexican-American children aged two through four and six through eight are more likely to have a history of dental caries than are whites or African Americans, but they are slightly less likely than whites once they reach adolescence (age 15) (Table 4:8). Migrant children are also more likely to have dental decay than other children.<sup>34</sup>

**Table 4:8**  
**Percent with Dental Caries**

	<b>Mexican American</b>	<b>Non-Latino White</b>	<b>Non-Latino Black</b>
Age 2 to 4	27%	13%	24%
Age 6 to 8	68%	49%	49%
Age 15	57%	61%	69%

Source: Healthy People 2010. Oral Health. Recommendation 21-1c

Not only does a greater percentage of Mexican-American youth have dental disease, they are also less likely to have their caries treated than are non-Latino whites or African Americans (Table 4:9). As they get older, Mexican Americans are slightly more likely to have their dental caries treated than are non-Latino African Americans, although still not as likely as non-Latino whites.

**Table 4:9**  
**Percent with Untreated Dental Decay**

	<b>Mexican American</b>	<b>Non-Latino White</b>	<b>Non-Latino Black</b>
Age 2 to 4	24%	11%	22%
Age 6 to 8	43%	22%	35%
Age 15	27%	18%	28%
Age 35 to 44	34%	23%	47%

Source: Healthy People 2010. Oral Health. Recommendation 21-2d.

Part of the reason for the oral health disparities between Mexican Americans and non-Latino whites may be differences in socio-economic status.<sup>35</sup> Dental disease is more concentrated in low-income populations and among people with less education. Latinos tend to have lower incomes, higher poverty rates, and less education than non-Latino whites. After adjusting for age, sex, educa-

tion and income, Mexican-American adults are similar to non-Latino whites on most oral health indicators. However, lower income Mexican Americans are less likely to have a full set of teeth (intact dentition), more likely to have untreated decay, and more likely to have severely decayed teeth than non-Latino whites.

Latinos are also less likely to visit a dentist, which may also help explain the higher rates of untreated decay (Table 4:10). Nationally, 13.1% of Mexican Americans reported never visiting a dentist, compared to 5.1% of other Latinos, 4.4% of whites, and 5.8% of African Americans. Further, Mexican Americans are less likely to have had a dental visit in the last year (40.5% had a visit) compared to 53.2% of other Latinos, 59.5% of whites, and 43.2% of African Americans.

**Table 4:10**  
**Age-adjusted Percentage Distribution of Persons 2 Years and Older Interval Since Last Dental Visit (1989, US)**

	<b>Mexican American</b>	<b>Other Latino</b>	<b>White</b>	<b>Black</b>
Less than 1 year	40.5%	53.2%	59.5%	43.2%
1 year to < 2 years	8.9%	12.3%	9.1%	12.3%
2 years to < than 5 years	15.3%	13.7%	11.6%	16.9%
5 years or more	15.8%	9.9%	10.5%	15.1%
Never	13.1%	5.1%	4.4%	5.8%

Source: United States Surgeon General. Oral Health in America: A Report of the Surgeon General. US Department of Health and Human Services 2000. Table 4.4.

North Carolina high school and middle school surveys (Youth Risk Behavior Survey) show that North Carolina Latino youth are generally less likely to have visited a dentist in the last year than white youth; Latino middle school students were less likely to visit a dentist than either white or African-American students (Table 4:11).

**Table 4:11**  
**North Carolina High School and Middle School Surveys (2001)**

	<b>Latino</b>	<b>White</b>	<b>African American</b>
High school: saw dentist for check-up, exam, teeth cleaning or other dental work in past 12 months	51.9	74.3	51.2
Middle school: saw dentist for check-up, exam, teeth cleaning or other dental work in past 12 months	42.6	73.0	50.0

Source: NC Department of Public Instruction. 2001 Youth Risk Behavior Survey. North Carolina High School and Middle School Surveys.

Financial barriers as well as non-financial barriers, such as language problems or not understanding the importance of preventive dental care, can deter Latinos from seeking care. Latinos are less likely to have dental insurance coverage (29.0% have insurance) compared to non-Latino whites (41.8%) or non-Latino African Americans (32.4%).<sup>36</sup> In a 1989 study, Latinos (56.1%) were more likely than whites (44.3%), but slightly less likely than African Americans (58.5%), to report that they did not have a dental problem as the primary reason they did not visit the dentist in the last year.<sup>37</sup> This suggests that Latinos do not fully understand the importance of obtaining regular, preventive dental services, as well as that they may not have the coverage needed to obtain such services.

### **MENTAL HEALTH, DEVELOPMENTAL DISABILITIES AND SUBSTANCE ABUSE SERVICES**

The state does not have comprehensive data to identify the number of people who have mental health, developmental disabilities, or substance abuse problems. On a national level, the US Surgeon General studied the effects of culture, race, and ethnicity on mental health and use of mental health care services.<sup>38, 39</sup> Similar North Carolina data are not available, aside from the Youth Risk Behavior Surveys. However, the state does have some data on the incidence of children born with birth defects and some information on the use of alcohol among Latinos.

#### ***Mental health***<sup>40</sup>

The US Surgeon General's report reviewed all pertinent literature to date studying mental health care and mental illness for Latinos.<sup>41</sup> These studies show a higher incidence of mental illness (roughly 20% of adults in one year) in Latinos who were either born in the United States or have resided in the United States for more than 13 years, than in recent immigrants (less than 10% of adults in one year). This body of research has been conducted in the Mexican-American and Puerto Rican populations. These findings are similar to other studies that suggest that as immigrants live in this country for longer periods of time, their health status more closely matches that of other Americans. The US Surgeon General report hypothesized that some of the reasons for the different prevalence rates of mental illness among recent immigrants and those who have lived in the United States for longer periods of time include "changing cultural values and practices, the stressors associated with such changes, or negative encounters with American institutions (e.g. schools or employers)."<sup>42</sup> Loss of family and the broader social support may also be a factor. The usual social mechanisms are broken down with increasing distance from one's home culture.

While the studies reported by the US Surgeon General suggest that recent immigrants may have a lower incidence of mental illness, the mental health professionals among the Task Force members questioned whether these national studies accurately reflect the mental health status of North Carolina Latinos. In their experience, recent immigrants are frequently observed with symptoms of depression, posttraumatic stress syndrome, and feelings of isolation. This is a particularly acute problem in the migrant community. The pressures of a migrant lifestyle impose both physical and mental stresses on children and fam-

ilies because of frequent relocation in search of work, work and housing insecurity, geographic and linguistic isolation, unreliable transportation, difficult physical labor, health-related concerns, lack of awareness of available services, unsanitary and overcrowded living conditions, and lack of control of these living conditions.<sup>43</sup>

Anxiety, depression, and disruptive behaviors were found to be significant in a survey of North Carolina seasonal and migrant farmworker families, predominantly Latino and African American, with children 8-11 years old.<sup>44</sup> Fifty-nine percent of the children revealed one or more psychiatric disorders. The most common, experienced by 50%, were anxiety-related, including phobias, separation anxiety, overanxiety, and avoidance. Seventeen percent displayed disruptive behaviors and 8% were depressed.

Nationally, there have been few diagnostic studies that have assessed the rate of mental illness in Latino children.<sup>45</sup> North Carolina Youth Risk Behavior Survey data suggest that North Carolina Latino high school students are less likely to consider suicide (14.4%) than whites (20.1%), but more likely than African Americans (13.4%)(Table 4:12). However, they are more likely to report feelings of isolation (18.4%), compared to whites (14.8%) or African Americans (14.6%). Middle school students were not asked about feelings of suicide, but Latino middle school students were more likely than either whites or African Americans to feel so sad or hopeless that they stopped doing some of their usual activities. While not conclusive, the data suggest that there may be some untreated mental health problems—depression, feelings of isolation—among North Carolina Latino youth.

**Table 4:12**  
**Youth Risk Behavior Surveys High School and Middle School (2001)**

<b>Mental Health and Feelings of Self Worth</b>	<b>Latino</b>	<b>White</b>	<b>African American</b>
<b>High School</b>			
Seriously considered suicide during past 12 months	17.4	20.1	13.4
Felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing some usual activities	27.5	28.8	30.3
Agree or strongly agree that they feel alone in their life	18.4	14.8	14.6
Agree or strongly agree that they feel good about themselves	75.6	76.8	76.9
<b>Middle School</b>			
Felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing some usual activities	45.8	22.6	30.6
Agree or strongly agree that they feel good about themselves	20.2	9.4	11.0

Source: NC Department of Public Instruction. 2001 Youth Risk Behavior Survey. North Carolina High School Survey. Summary Tables. North Carolina Middle School Survey. Summary Tables.

Latinos may present with culture-bound mental health syndromes not found in other cultures, such as *susto* (fright), *nervios* (nerves), *mal de ojo* (evil eye), and *ataques de nervios* (nerve attacks). (These are explained in greater detail in Chapter 3.) As a result, health professionals unfamiliar with these symptoms may under diagnose the presence of mental illness.<sup>46</sup>

### **Developmental disabilities**

While the state lacks information on the overall number of Latinos with developmental disabilities, the state does have information showing that Latino children are more likely to be born with certain birth defects than other children (Table 4:13). Latino children have higher rates of neural tube defects, anotia/microtia, and Down syndrome; they have lower rates of hydrocephalus, conotruncal defect and hypospadias/epispadias.

**Table 4:13**  
**Birth Defects per 10,000 Live Births by Ethnicity and Race**  
**(1995-1999)**

Birth Defect	Latino	White, Non-Latino	African American, Non-Latino
Neural Tube Defects, All	18.4	8.8	7.2
Anencephalus	6.1	1.9	2.0
Spina Bifida	10.0	5.7	3.6
Encephalocele	2.3	1.3	1.6
Hydrocephalus	8.5	8.8	13.6
Microcephalus	8.8	4.5	8.6
Anotia/Microtia	11.7	5.2	8.2
Conotruncal Defect	9.7	11.2	10.4
Orofacial Cleft	16.4	16.8	11.0
Pyloric Stenosis	14.3	27.4	12.4
Down Syndrome	18.7	11.7	11.9
Hypospadias/Epispadias	24.9	49.4	44.3
Intestinal Stenosis	5.6	5.2	6.2
Obstruction of Genitourinary Tract	15.8	19.0	15.6
Total Live Births	34,159	347,573	137,606

Source: Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002. Analysis of Birth Defects Registry (1995-1999).

Although Latinos are more likely to be born with certain developmental disabilities, it is unclear whether these higher rates are due to a higher incidence of these congenital defects, or lower abortion rates. Latinos are less likely to have abortions than either whites or African Americans.

### **Substance Abuse<sup>47</sup>**

The exact prevalence of alcohol and drug disorders among North Carolina Latinos is unknown, however there are several sources of data that give some indication about the extent of the issue and indicate it is a problem. The Behavioral Risk Factor Surveillance System collects information about alcohol use among adults.<sup>48</sup> In 2001, the frequency of drinking five or more drinks per month was generally higher for Latinos than whites or African Americans (Table 4:14). Latino adults in North Carolina were less likely to report never

#### Innovative Practices

#### **Nuestra Seguridad Campaign Addressing Driving Safety and Alcohol Use**

El Pueblo, a statewide advocacy and public policy organization that works to strengthen the Latino community, has created a public safety campaign funded by the Governor's Highway Safety Program. The Campaign produced a Spanish-language video about driving safety as one of its initiatives. The 18-minute drama depicts the story of young Miguel, an immigrant who learns valuable lessons about getting a license in North Carolina, the use of child safety seats, and the importance of staying sober on the road. This script was developed with input from a community advisory committee, and community members volunteered to be the actors of the video. This is an excellent example of informing the community in a culturally appropriate manner. The format of the video is that of a telenovela, the Spanish-language equivalent of a soap opera. This video is free to government and nonprofit agencies, and should be available in early 2003.

Innovative Practices

**Aprendelas Ahora, O Le Costara Mas Tarde**

The North Carolina Department of Labor (DOL) have developed a Spanish/English brochure with information about drinking and driving that has been distributed to Department of Motor Vehicle centers throughout the state. In addition, DOL helped train approximately 3,000 H-2A workers through a culturally appropriate skit about the problems of drinking and driving.<sup>50</sup>

drinking five or more drinks at once and were more likely to report binge drinking three to seven times a month. Overall, Latinos were also more likely to report binge drinking (12.5%), compared to whites (10.4%) or African Americans (6.4%).<sup>49</sup>

**Table 4:14**  
**North Carolina Alcohol Consumption (2001)**  
**by Race and Latino Ethnicity<sup>51</sup>**

Times	Latino	White	African American
None	74.1%	76.3%	78.3%
1 Time	11.1%	7.0%	8.4%
2 times	3.1%	4.4%	5.0%
3-7 times	11.1%	9.4%	5.8%

Source: CDC. Behavioral Risk Factor Surveillance System. 2001. The survey asked, "Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks on an occasion?"

Not only does BRFSS data suggest that adult Latinos are drinking more heavily than other groups, they are also more likely to be injured or die while drinking. Data from the Medical Examiner's Office shows that Latinos age 15 years or older are far more likely to die from non-natural causes with elevated blood-alcohol levels. For example, 45.7% of Latinos who died in motor vehicle or other unintentional injury deaths died with a blood alcohol level of .08 or higher, as compared to 26.3% of non-Latino whites or 29.9% of non-Latino African Americans.<sup>52</sup> Similarly, 45.3% of Latinos who died as a result of homicide had an elevated blood alcohol level, compared to 29.2% of non-Latino whites and 26.3% of non-Latino African Americans. This suggests that at least a portion of North Carolina Latinos, particularly men, may have a higher risk of alcohol abuse than either whites or African Americans. National studies have documented larger differences in substance use by gender among Latinos compared to whites, with Latino females having very low rates of alcohol or drug use disorders.<sup>53</sup>

The Youth Risk Behavior Surveillance System collects data about alcohol and other drug use among high school and middle school students.<sup>54</sup> In general, Latino middle school students are more likely to report drinking in the past 30 days, and are more likely to ride in a car with someone who has been drinking (Table 4:15). Latino youth are less likely to report using marijuana than whites or African Americans, but more likely to report using cocaine or sniffing glue. Latino youth are most likely to report that drugs are a problem at their schools.

**Table 4:15**  
**North Carolina Middle School Survey**  
**2001 Youth Risk Behavior Survey Results**

	<b>Latino</b>	<b>White</b>	<b>African American</b>
At least one drink in past 30 days	17.4	12.8	11.3
Ever rode in car with driver who had been drinking alcohol	29.5	25.2	24.3
Used marijuana one or more times in past 30 days	4.1	5.6	7.6
Ever used any form of cocaine	7.3	4.9	3.9
Sniffed glue, breathed contents of aerosol spray cans, or inhaled paints or sprays to get high once or more in life	17.2	15.2	12.1
Students offered, sold or given an illegal drug on school property in past 12 months	10.1	10.0	10.0
Think drugs are a problem at their schools	17.5	16.5	13.6

Source: Department of Public Instruction. 2001 Youth Risk Behavior Survey. North Carolina High School Survey. Summary Tables.

By the time the children reach high school, Latinos are no longer the most likely to report drinking. Latino high school students are more likely to report drinking or binge drinking than African Americans, but less likely than whites (Table 4:16). However, Latino high school students are still far more likely to report drinking and driving, or riding in a car with a driver who has been drinking. Latino high school students are more likely to have used cocaine or methamphetamines than whites or African Americans, but about equally likely to report using marijuana. Like their middle-school counterparts, Latino high school students are most likely to report that drugs are a problem at their schools.

**Table 4:16**  
**Data on Use of Alcohol and Drug Use Among North Carolina High School Students (2001 Youth Risk Behavior Survey)**

	Latino	White	African American
At least one drink in past 30 days	35.8	42.5	28.7
Five or more drinks within a couple of hours in the past 30 days	19.1	24.6	12.2
Drove in car in past 30 days with driver who had been drinking alcohol	34.8	24.2	22.9
Drove car after drinking alcohol	12.8	10.7	5.5
Used marijuana one or more times in past 30 days	20.2	21.0	20.3
Used any form of cocaine one or more times in the past year	7.7	3.1	1.2
Sniffed glue, breathed contents of aerosol spray cans, or inhaled paints or sprays to get high once or more in life	16.0	16.5	7.6
Used methamphetamines one or more times in life	13.5	10.0	2.1
Students offered, sold or given an illegal drug on school property in past 12 months	41.5	32.6	33.1
Think drugs are a problem at their schools	53.3	46.8	39.6

Source: Department of Public Instruction. 2001 Youth Risk Behavior Survey. North Carolina High School Survey. Summary Tables.

*Innovative Practices*

**Pesticide Environmental Risk Reduction in Farmworkers**

Since 2001, the North Carolina Farmworker Health Program (NCFHP), in collaboration with Americorps, the Pesticide Environmental Trust Fund, and participating health centers, has coordinated an Americorps program in North Carolina that is dedicated to reducing the risk of pesticide exposure among farmworkers and their families. In 2002, four health centers located in Greene, Jackson, Henderson and Columbus counties, recruited seven bilingual, bicultural Americorps members. The projects are incorporated into established migrant outreach programs. All members receive training in health education and become Designated Trainers of the Worker Protection Standards (WPS). This project helps farmworkers increase their knowledge and reduce pesticide risks.

Substance abuse appears to be a bigger problem for Latinos living in the United States than Latinos living in Mexico.<sup>55</sup> Mexico-born Mexican immigrants have much lower rates of substance abuse than Mexican Americans born in the United States, and those living in the United States for shorter periods of time (less than 13 years) had lower rates than those living in the United States for longer periods of time.<sup>56</sup> Similarly, Puerto Ricans living in Puerto Rico have much lower rates than those living in the continental United States.<sup>57</sup>

In a series of focus groups, North Carolina farmworkers reported that alcohol was used as a coping mechanism for emotional problems.<sup>58</sup> Isolation, lack of community contact, and few recreational opportunities, combined with increased access to alcohol, have been suggested as possible reasons for the increased alcohol abuse once Latinos move to the United States.<sup>59</sup>

**OCCUPATIONAL INJURIES<sup>60</sup>**

Employment opportunity is the primary reason for the recent growth of the Latino population in North Carolina.<sup>61</sup> These same opportunities can also create new health risks for Latino workers as they are more likely to work in dangerous industries such as construction, agriculture, and manufacturing, which have the highest rates of occupational fatalities and injuries. Further, not all Latinos receive safety instructions in Spanish.<sup>62</sup> According to the North

Carolina Department of Labor's (DOL) statistics (2001), 25.1% of occupational fatalities were in the construction industry, 15.7% in transportation and public utilities, 11.8% in manufacturing and 8.5% in agriculture, forestry, and fishing. Latinos represent a disproportionate percentage of all fatal occupational injuries—9.8% of occupational deaths were among Latino workers, although they only represent 4.7% of the state's population.<sup>63</sup>

Certain illnesses may also be caused by working conditions. For example, Green Tobacco Sickness (GTS) is one of the many occupational hazards of working in the agricultural industry. GTS can occur when tobacco is harvested by hand exposing the skin to tobacco, especially wet tobacco. Nicotine poisoning can occur from the nicotine found in tobacco leaves, the part of the plant that is harvested. The more of a farmworker's skin that is exposed to the tobacco, the more likely the poisoning is to occur. The symptoms include dizziness, headaches, nausea or vomiting, abdominal cramps, diarrhea, difficulty in breathing, and prostration.<sup>64, 65</sup> Duration of the illness is usually two or three days, but it may lead to higher morbidity and mortality from cardiovascular or cerebrovascular disease.<sup>66</sup> In a recent study in North Carolina, 24% of farmworkers experienced at least one episode of GTS during a growing season.<sup>67</sup> GTS may also be a concern to children who work in agriculture.

Farmworkers are also exposed to pesticides, and may experience heat-related illnesses, dermatitis, respiratory illnesses, or musculoskeletal problems. Nationally, the Environmental Protection Agency estimates that pesticide exposure causes up to 300,000 acute illnesses and injuries to farmworkers each year.<sup>68</sup> While pesticide exposure results in both acute and chronic health problems, little is understood about the long-term effects of repeated low-level exposure. In an exploratory study of occupational health among NC migrant and seasonal farmworkers, 55% reported ever receiving pesticide safety training and 45% reported receiving safety training in the past year. The results of the study show that NC farmworkers are not fully benefiting from current safety and sanitation regulations.<sup>69</sup> Further, pesticide poisoning often goes unreported, because there is no effective testing method to verify or rule out exposure as the cause of a symptom that may resemble viral infection, heat illness, or green tobacco sickness. Heat stress/heat stroke also present a workplace hazard for farmworkers, as the heat index within a row crop is commonly 8-10° F greater than that reported by the National Weather Service.<sup>70</sup> Lack of safe drinking water contributes to dehydration or heat stroke.

Nationally, Latinos miss more days from work due to occupational injury and illness. In 1999, the median work days that Latinos missed due to occupational injuries and illnesses was seven, as compared to five for non-Latino whites and six for non-Latino blacks.<sup>71</sup> In addition, Latino employees were more likely than other employees to have longer absences from work due to injuries (in the 11-31 days or more category). One possible explanation among many is that the injuries and illnesses received by Latinos are more serious than those experienced by other workers.

#### Innovative Practices

### Promoting Health & Safety Among H-2A Workers—A Collaboration with the NC Growers Association

Each agricultural season, nearly 30,000 foreign guestworkers—also referred to as H-2A workers—enter the United States legally with H-2A visas to work in agriculture. Between April and August, the North Carolina Growers Association (NCGA) imports over 10,000 predominantly male, unaccompanied, young Mexican laborers to the state, making NC growers the leading employers of H-2A workers in the US. Since 1997, in collaboration with the North Carolina Growers Association, several NC agencies including the North Carolina Primary Health Care Association, NC Farmworker Health Program, NC AgrAbility Program, NC Department of Agriculture, NC Migrant Education Program and the NC Department of Labor conduct outreach to provide information in Spanish about existing health, education, housing and other resources and assistance available to farmworkers across the state.

#### Innovative Practices

### “Labor One” Mobile Training Unit

The State of North Carolina has taken some steps to improve the working conditions for Latino workers in dangerous industries. The Department of Labor created a Hispanic Task Force to focus attention on the issue of Latino construction workers. Additionally, the Department of Labor has funded a mobile training unit that can deliver free safety education in English and Spanish to agricultural, construction, and manufacturing sites. Called Labor One, the training unit is the first bilingual mobile classroom in the South.

**VIOLENCE<sup>72</sup>**

Crime, particularly violent crime, is a concern for the North Carolina Latino community. North Carolina Latinos have a higher age-adjusted death rate per 100,000 from homicides (17.0) than whites (4.8), but less than African Americans (18.7).<sup>73</sup> Unfortunately, data regarding the race/ethnicity of victims of all crimes are limited, but in a survey conducted in eighteen law enforcement agencies by the Governor's Crime Commission in the fall of 1998, a third of the respondents reported a perception that crimes against members of the Latino population had increased within their respective jurisdictions.<sup>74</sup> Aggravated assault, robbery, and burglary were the three most commonly reported offenses perpetrated against Latinos. Among Latinos, particularly newly arrived immigrants, there is more of a tendency to carry large sums of money and/or retain large amounts within their home due to a lack of understanding of or confidence in the banking system. This can make them more susceptible to robbery and burglary. The Commission recommended the provision of qualified interpreters in criminal justice agencies, education among the Latino population about how the criminal justice system works to increase overall trust and confidence in the system, and cultural training among criminal justice agencies' employees.

Domestic violence is also of concern for Latinos, as it is among all racial and ethnic groups. There is no comprehensive surveillance system that monitors domestic violence on a national or state level, but there are some studies regarding its prevalence. The vast majority of domestic violence victims are women. According to a large national survey of women of all races and ethnicities, Latina and non-Latina women are about equally vulnerable to violence by an intimate partner.<sup>75</sup>

While no North Carolina data are available to document the overall number of victims of domestic violence, there are state level data about the number of women served by domestic violence programs.<sup>76</sup> The overall number of new domestic violence victims served by domestic violence programs increased 117% during the last decade, from 18,494 in 1990 to 40,124 in 2000.<sup>77</sup> The number of new primary victims who are Latinas has likewise increased nine-fold, from 190 (1990) to 1,720 (2000) (Table 4:17). The increase may be due to the increase in the Latino population and/or to the increased number of domestic violence programs and services available to victims.<sup>78</sup>

**Table 4:17**  
**Number of Primary Victims Served by North Carolina Domestic Violence Programs**

Year	Number of Domestic Violence Programs	Number of New Primary Victims (all)	Number of New Primary Victims Who are Latino	Percent of Victims Who are Latino	Percent of North Carolina Population Who are Latino
1990	62	18,494	190	1.03%	1.0%
2000	765	40,214	1,720	4.28%	4.7%

Source: North Carolina Council for Women (2001)

The proportion of primary victims served by domestic violence programs who are Latino has increased over the past decade from 1.03% in 1990 to 4.28% in 2000. This increase closely matches the percentage of Latinos in the state.<sup>79</sup>

Some studies show that the prevalence of abuse among farmworker women and children may be greater than the rest of the population.<sup>80</sup> A survey of North Carolina seasonal and migrant farmworker families with 8-11 year old children found that 46% of these children had been witnesses to violence, including 20% being witnesses to a shooting and 11% being witness to a murder.<sup>81</sup> One in five children of this age group were victims of violence. A 1997 study conducted in ten states nationwide revealed that 20% of migrant farmworker women had experienced either physical or sexual abuse within a year of being interviewed.<sup>82</sup> More than 80% of the women experiencing abuse were in their childbearing years, and 50% of the battered women were pregnant. Ninety-one percent of the respondents were Latina. Drug and alcohol abuse was significantly correlated with fear of partner and physical and sexual abuse.

While NC domestic violence shelters serve many Latinas, others may be deterred from seeking services because of language barriers. Surveys of NC domestic violence shelters between 1998-2001 showed that only between 25-35% of local domestic violence shelters have bilingual staff.<sup>83</sup> In addition, Latinas face unique barriers when reporting domestic violence. The perpetrators may threaten to report undocumented victims to the INS to keep them from seeking assistance from domestic violence programs or police. Battered spouses and children may not understand that they are considered "qualified immigrants" and thus, retain certain rights despite their undocumented status. Similarly, there may be a lack of knowledge among service agencies about the requirements and restrictions of immigration status in relation to service provision.

## **CONCLUSION**

North Carolina Latinos are relatively healthy as compared to whites or African-Americans. This is especially true for recent immigrants. Latinos have better birth outcomes and have lower age-adjusted death rates than whites or African-Americans. However, there are some areas of immediate concern. Latinos are more likely to die from alcohol-related motor vehicle crashes and to suffer occupational injuries. Migrant and seasonal farmworkers have greater health problems than Latinos as a whole. Further, if North Carolina Latinos follow national experiences, the health of Latinos is likely to suffer as they acculturate. Already, we are seeing signs that Latino youth are acquiring some of the poor health behaviors that lead to chronic health problems. Latino youth look much like their white and African-American peers in the percentage that report being overweight or at risk of being overweight and leading sedentary lifestyles. One fourth of Latino high school students report smoking; 10% report their health status as poor—a higher percentage than whites or African American high school students. Thus, the state cannot afford to be complacent. Absent culturally appropriate and effective interventions aimed at promoting healthful behaviors among the growing Latino population, Latinos are likely to suffer the same adverse health outcomes as other population groups.

**NOTES**

1. Steve Taylor and Cheryl Lesneski contributed to the research and writing of this section of the chapter.
2. Pregnancy data include live births, induced abortions, and fetal deaths greater than or equal to 20 weeks of gestation per 1,000 females.
3. Moore P, Hepworth JT. Use of perinatal and infant health services by Mexican-American Medicaid enrollees. *JAMA* 1994;272:297-304.
4. Cobas JA, Balcazar H, Benin MB, Keith VM, Chong Y. Acculturation and low-birthweight infants among Latino women: a reanalysis of HHANES data with structural equation models. *Am J Pub Health* 1996;86:394-396.
5. Birth and infant death certificate records were combined for 1996-2000. The birth country of the mother is recorded on the birth certificate.
6. The Pregnancy Risk Assessment Monitoring System (PRAMS) is a survey of new mothers based on a random sample of birth certificates to North Carolina residents. Approximately 1,800 women are interviewed each year. The overall response rate, from mailed and follow-up telephone surveys, is approximately 75%. The surveys are conducted in English and Spanish, between 3 to 5 months postpartum. The survey, which was sponsored by the Centers for Disease Control, has a standardized core set of questions and is administered in about 25 states. There were 374 Latinas, 3,803 non-Latina whites, and 1,870 non-Latina African-Americans interviewed for the survey. Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002.
7. Dever A. Migrant Health Status: Profile of a Population with Complex Health Problems. Austin, TX: National Migrant Resource Program, Inc. 1991. Trotter RT. Orientation to Multicultural Health Care in Migrant Health Programs. Austin, TX: National Migrant Referral Project, Inc. 1988. Watkins EL, Peoples MD, Gates C. Health and Social Services Needs of Women Farmworkers Receiving Maternity Care at a Migrant Health Center. 1983. Presentation to American Public Health Association.
8. Toni Laskey, MD, contributed to the research and writing of the immunization section. Jangho Yoon contributed to the research of the general child health section.
9. The DTaP vaccination protects individuals from contracting diphtheria, tetanus and pertussis. Cases of diphtheria and tetanus are extremely rare in the United States, as a result of wide-spread immunization programs. However, pertussis is still a great threat. Immunity wanes with age. Teenagers and adults may be carriers of this pathogen. Teens and adults who contract this disease may only experience symptoms like a "bad cold;" however, children who are inadequately immunized may contract this disease—commonly known as whooping cough. Whooping cough is potentially fatal for infants or may lead to significant morbidity both with and without underlying lung disease.
10. The MMR vaccination protects individuals from measles, mumps, and rubella.
11. In each school, 30 students were selected at random. Eight percent of the records in the survey were Latino, which approximates the percentage of Latinos in the Kindergarten class (5%).
12. Reef S, Frey T, Theall K, *et. al.* The Changing Epidemiology of Rubella in the 1990s. *JAMA*. January 23/30, 2002;287(4):464-472.
13. *Ibid.*
14. Flores, G., Abreu, M., Olivar, M., and B. Kastner. Access Barriers to Health Care for Latino Children. *JAMA* Vol. 152 No. 11, November 1998.
15. Much of the data for Latino youth in North Carolina and the US are derived from school-based samples. However, school-based sampling excludes those who are not attending school because they have dropped out or never enrolled in school. In North Carolina, the Department of Public Instruction reported 1,042 Latino dropouts (approximately 9% of Latinos enrolled in high school for the 2000-2001 academic year). A comparison of Census data on the number of children age 10-17 with data from the Department of Public Instruction on the number of Latino students enrolled in 5th-12th grade suggests that many Latino youth never enroll in school. There were 31,626 Latino youth enrolled in 5th-12th grades in 2000-2001. However, cen-

sus data indicate that there were 40,987 youth aged 10-17 living in North Carolina during 2000. Thus, school-based samples miss at least 22% of the population age 10-17. Because youth in the 12th grade may be up to age 22, this is a conservative estimate of the number of Latino youth excluded from school-based samples. Sources: The Census data are from P12H. Sex by Age (Hispanic or Latino). Data Set: Census 2000 Summary File 1 (SF 1) 100-Percent Data. The DPI data are from the Beyond 20/20 web data server and can be found at: <http://149.168.35.67/wds/eng/ReportFolders/Rfview/explorer.asp>.

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18. *Ibid.* Ciesielski SD, Seed JR, Esposito DH, Hunter N. The Epidemiology of Tuberculosis Among North Carolina Migrant Farmworkers. *JAMA.* 1991;265:1715-1719. Richard JR. TB in Migrant Farmworkers. *JAMA.* 1994;271:906-906. HIV infection, Syphilis and Tuberculosis Screening Among Migrant Farmworkers—Florida. 1992. *MMWR Morb Mortal Wkly Rep.* 1992;41-723-725. Freudenberg K. The Migrant Farmworkers: Health Care Challenge. *N Jmed.* 1992;89:581-585.
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20. Martin S, Gordon T, Kupersmidt J. Survey of Exposure to Violence Among the Children of Migrant and Seasonal Farmworkers. *Public Health Rep.* 1995;110:268-276.
21. Gregory Louie contributed to the research of this section.
22. Buescher P. State Center for Health Statistics. Presentation to NC Institute of Medicine Latino Health Task Force. June 12, 2002. Data from the Behavioral Risk Factor Surveillance System (BRFSS) between 1997-2001. The BRFSS is a random-digit-dialed telephone survey of the adult population of North Carolina. The survey is sponsored by the Centers for Disease Control (CDC) and has a standardized core set of questions administered in all 50 states. During 1997-2001, the BRFSS surveys were conducted in English. Beginning in 2002, surveys were conducted in Spanish and English—however, the 2002 data were not available to be analyzed at the time of the Task Force's work.
23. Surname matching was used to enhance ascertainment of Latino deaths. 2000 census population was used for the denominators. The US 2000 population was used as the standard for age adjustment.
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