#### Figure 10. Public School System Suspension/Infraction Related to Betelnut, Tobacco, Drug/Marijuana and Alcohol



Source: CNMI Public School System, 2008.

Young adults are very susceptible to alcohol abuse due to its easy accessibility in the home, the community, and during family and public activities. Data from the Public School System on suspension and infractions revealed that 1% of suspensions were related to alcohol (Figure 10). Alcohol is sometimes mixed with betelnut to increase its potency. While the suspension/infraction rate is low for alcohol, a more in-depth survey of youth consumption of alcohol during non-school hours and days would be more revealing.

| Table 20. Suicides by Age-Interval and Gender |       |        |      |        |      |        |      |  |  |  |
|-----------------------------------------------|-------|--------|------|--------|------|--------|------|--|--|--|
|                                               | 3 Yrs | 20     | 000  | 20     | 01   | 2002   |      |  |  |  |
| Age-Interval                                  | Total | Female | Male | Female | Male | Female | Male |  |  |  |
| 0-14                                          | 0     | 0      | 0    | 0      | 0    | 0      | 0    |  |  |  |
| 15-19                                         | 6     | 2      | 0    | 1      | 1    | 1      | 1    |  |  |  |
| 20-24                                         | 7     | 6      | 1    | 0      | 0    | 0      | 0    |  |  |  |
| 25-29                                         | 4     | 2      | 0    | 0      | 1    | 0      | 1    |  |  |  |
| 30-39                                         | 3     | 0      | 1    | 0      | 1    | 0      | 1    |  |  |  |
| 40 and over                                   | 1     | 0      | 1    | 0      | 0    | 0      | 0    |  |  |  |
| 45 and over                                   |       | 0      | 0    | 0      | 0    |        |      |  |  |  |
| Total                                         | 21    | 10     | 3    | 1      | 3    | 1      | 3    |  |  |  |

Source: CNMI DPH, 2008.

Table 20 depicts the total number of suicides by age interval and gender for three years. According to a DPH document (Youth Suicide Prevention Plan for the CNMI, October 3, 2003), there were 57 suicides in the CNMI from 1992 to 2001, of which 23 were youth suicides, and 41 were suicides among Chamorros, Carolinians, other Micronesians, and mixed Chamorros and Carolinians. The rate per 100,000 for this period was 10.13.

According to the author of the report, the rate among age groups 24 or younger is between three to four times the rate stateside (p.4). Substance abuse related to alcohol and, occasionally, butane, was associated with attempts and was some of the several contributing factors to suicide among older teens and young males (p.6).

### **Alcohol: Consumption Indicators**

The quantity, value and tax collected for alcohol and cigarettes is available at the Division of Alcohol and Tabacco Control under the Department of Commerce. This information will be available in the near future.

YRBS is conducted every two years by the Public School System to students in the public schools. Private schools do not participate in this survey. It has been recommended that private school students be included in the next administration in 2010. The information provided on YRBS by PSS are described below.

Figure 11 and Table 21 below depict the following:

<u>Age of initiation</u> depicts the percentage of students in the survey group who tried alcohol, tobacco and marijuana before age 13. Between 2003 and 2007, the percentage of students who tried alcohol before age 13 appeared to decrease only slightly. In 2001, the age of initiation was 31% (Maui, Tudela & Cabrera, CNMI Epidemiological Survey, 2002). Other information on the number of students and methodology involved in each of these years (2003 to 2007) are not available to determine whether the slight difference in percentage is of any significance. The 2002 survey report presents a very comprehensive description and analysis of substance abuse in the CNMI based on a student population of 3,886 from grades 6 to college level.

<u>Binge drinking</u> reveals that the percentage of students who had five or more drinks in a row within a couple of hours, on one or more days during the past 30 days declined by about 5% from 2003 to 2007.

<u>Current use</u> depicts that the percentage of students using alcohol during the past 30 days decreased by about 5% from 2003 to 2005, and about 8% between 2003 and 2007.

<u>Lifetime use</u> shows a decreasing prevalence among high school students over the three years and a lower rate for the CNMI in 2005 compared with the U.S. for the same year.

Drinking and driving reveals that less students reported riding in a car when the driver had been drinking and driving in 2005 and 2007 than in 2003. Compared with 2005 U.S. data, CNMI's rate is almost twice as high. This trend seems to be reflected in the percent of those who reported drinking and driving. Between 2003 and 2005, there was a reduction of about 5% of students who reported drinking and driving. Between 2003 and 2005, there was a 2007, the percent showed a slight increase. Compared with the U.S. in 2005, 10% of high school students reported drinking and driving compared with 49% in the CNMI for the same year.

Note: YRBS 2007 was completed by 2,292 students in spring of 2007 in five public high schools. There was a 100% response rate by school and 81% response rate by students. Response rates are representative of all students grades 9 to 12 (MPH Survey Summary data).



Figure 11. CNMI High School Students Alcohol Prevalence Survey Results, 2003, 2005, 2007 (including US results for 2005)

Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Mariana Islands High Schools). 2005 U.S. Data from CDC YRB, Morbidity & Mortality Weekly Report, 2006.

| Table 21. Alcohol Prevalence CNMI High School Students (YRBS 2003,05,07)           |      |      |      |            |  |  |  |  |  |
|------------------------------------------------------------------------------------|------|------|------|------------|--|--|--|--|--|
| Percentage of CNMI High School Students Who                                        | 2003 | 2005 | 2007 | US<br>2005 |  |  |  |  |  |
| Reporting use of alcohol during past 30 days                                       | 49   | 43.6 | 41.1 | 43.3       |  |  |  |  |  |
| Had 5+ drinks in a row, within couple of hours, on one or more during past 30 days | 31   | 27   | 25.5 | 25.5       |  |  |  |  |  |
| had tried alcohol before age 13                                                    | 29.8 | 26.1 | 27.4 | 25.6       |  |  |  |  |  |
| Reported use of alcohol in their lifetime                                          | 79.4 | 73.9 | 69.8 | 74.3       |  |  |  |  |  |
| Reported drinking & driving                                                        | 19.4 | 14.1 | 15   | 9.9        |  |  |  |  |  |
| Rode in a car when the driver had been drinking & driving                          | 53.8 | 49   | 48.1 | 28.5       |  |  |  |  |  |

Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Mariana Islands High Schools).



## Figure 12. Percentage of CNMI Middle School Students who ever had alcohol other than few sips

Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Mariana Islands Middle School Trend Analysis Report).

Figure 12 presents alcohol abuse trends over a four-year period. Percentage of alcohol use declined from 2001 to 2005 but increased in 2007. Complete data sets for the prior years in this chart are not available at this time.

| Table 22. Reported alcohol use during pregnancy among women in CNMI, 2007 |       |      |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------|-------|------|--|--|--|--|--|--|--|
| Reported as                                                               | Ν     | %    |  |  |  |  |  |  |  |
| YES                                                                       | 3     | 0.02 |  |  |  |  |  |  |  |
| NO                                                                        | 1,121 | 81   |  |  |  |  |  |  |  |
| Unknown                                                                   | 261   | 19   |  |  |  |  |  |  |  |
| TOTAL                                                                     | 1,385 | 100  |  |  |  |  |  |  |  |

Source: CNMI Department of Public Health, Health and Vital Statistics Office, p.b. OES, 2008.

Table 22 shows that less than 1% of pregnant women reported using alcohol during their pregnancy while 81% reported they did not use alcohol during pregnancy. The "missing" data of about 19% could include a percentage of pregnant women who may have used alcohol during pregnancy.

The small number of women who reported using alcohol during pregnancy may be somewhat misleading. Data intake procedures and collection forms may need to be reviewed to prevent such a large number of missing information.

Responding women may also be reluctant to reveal use of alcohol during pregnancy indicating various levels of awareness about this risky behavior (Comments by DPH representative, May 2008).

### Consequences

### Tobacco, Marijuana and Other Illicit Drugs

CNMI Department of Public Health reported that from 2003 to 2005, 6 out of 10 deaths in the CNMI were attributed consistently each year to heart disease, cancer and stroke (CNMI DPH, 2007). Heart disease was the leading cause of death in all three years followed by cancer and stroke, not counting accidents. 75% of referral resources in 2005 were in cardiology, radiology, and cancer services. These three areas constitute nearly 60% of the cases. The same report further notes that "many of the cases could be prevented by improved diabetes, obesity and tobacco control measures" (p. 11).

Table 18 and Figures 9 and 10 show the top underlying causes of death in 2003, 2004, and 2005 and the top nine causes of death for the combined three-year period. Figure 9 shows that the proportion of heart disease has increased by about 7% from 2003 to 2005 while cancer and stroke proportions remained about the same and respiratory failure increased from 2004 to 2005.

The highest oral cancer rates per 100,000 recorded between 1993 and 2005 were for Carolinians (43.1), followed by 35.2 for other Pacific Islanders, and 27.9 for Chamorros (Table 23, Figures 13, and 14). The U.S. cancer rate was 10.0 per 100,000. From 1993 to 2004, a high rate of oral cancer was noted out of the 700 cases of malignant tumors in the CNMI (Table 24) (CNMI DPH, 2007).

Lung cancer, heart disease, emphysema, asthma, effect on non-smokers, and fatal fires are some of the tobacco related causes of death, disability, lost of productivity and medical costs. In one of his regular columns in a local newspaper, Dr. David Khorram, MD, explained that diabetic blindness is also related to tobacco consumption (*Tribune*, Better Living, April 18, 2008).

| Table 23. Top Underlying Causes of Death in the CNMI in 2003, 2004 and 2005 |                               |     |         |      |         |      |         |           |         |
|-----------------------------------------------------------------------------|-------------------------------|-----|---------|------|---------|------|---------|-----------|---------|
|                                                                             | Year                          |     | 2003    | 2004 |         | 2005 |         | 2003-2005 |         |
| <b>Rank</b><br>(2003-<br>05)                                                | *Underlying<br>Cause of Death | N   | Percent | N    | Percent | N    | Percent | N         | Percent |
| 1                                                                           | Heart Disease                 | 19  | 13%     | 27   | 16%     | 36   | 20%     | 82        | 17%     |
| 2                                                                           | Cancer                        | 19  | 13%     | 21   | 13%     | 22   | 12%     | 62        | 13%     |
| 3                                                                           | Accidents                     | 12  | 8%      | 25   | 15%     | 19   | 10%     | 56        | 11%     |
| 4                                                                           | Stroke                        | 17  | 12%     | 15   | 9%      | 23   | 13%     | 55        | 11%     |
| 5                                                                           | Sepsis                        | 13  | 9%      | 18   | 11%     | 12   | 7%      | 43        | 9%      |
| 6                                                                           | Renal Disease                 | 13  | 9%      | 10   | 6%      | 18   | 10%     | 41        | 8%      |
| 7                                                                           | Pneumonia                     | 7   | 5%      | 9    | 5%      | 8    | 4%      | 24        | 5%      |
| 8                                                                           | Respiratory<br>failure        | 4   | 3%      | 5    | 3%      | 11   | 6%      | 20        | 4%      |
| 9                                                                           | Liver failure                 | 5   | 3%      | 6    | 4%      | 4    | 2%      | 15        | 3%      |
| 10                                                                          | Natural causes                |     |         | 5    | 3%      |      |         |           |         |
| 11                                                                          | Homicide                      |     |         |      |         | 5    | 3%      |           |         |
| 12                                                                          | Suicide                       | 4   | 3%      |      |         |      |         |           |         |
|                                                                             | **Total                       | 144 | ***0.78 | 165  | ***0.85 | 183  | ***0.87 | 492       | ***87%  |

Source:Data derived from CNMI Department of Public Health, Health and Vital Statistics Office, p.b. OES, 2008.

Source: CNMI Department of Public Health, Health and Vital Statistics Office, p.b. OES, 2008. (Provided by CGC, May 2008)

\* Includes top underlying causes of death only for each year

\*\* Total = Top ranked deaths + deaths not in the top underlying causes for each year

\*\*\* Total percentage based on:

(numerator/denominator)

numerator = ranked underlying cause of death

denominator = All deaths



Figure 13. Top Nine Underlying Causes of Deaths in the CNMI, 2003-2005

Source: Data derived from CNMI Department of Public Health, Health and Vital Statistics Office, p.b. OES, May 2008.



Figure 14. Three-Year Trend of Top Underlying Causes of Death in CNMI (2003-05)

| Table 24. Oral Cancer Rates in the CNMI: 1993-2004 |                  |  |  |  |  |  |  |
|----------------------------------------------------|------------------|--|--|--|--|--|--|
|                                                    | Oral Cancer Rate |  |  |  |  |  |  |
| Local Ethnicity                                    | (per 100,000/yr) |  |  |  |  |  |  |
| Carolinian                                         | 43.1             |  |  |  |  |  |  |
| Other Pacific Islanders                            | 35.2             |  |  |  |  |  |  |
| Chamorro                                           | 27.9             |  |  |  |  |  |  |
| Filipino                                           | 4.2              |  |  |  |  |  |  |
| Others                                             | 3                |  |  |  |  |  |  |

Source: CNMI DPH Health Services Report, 2007.

The social and economic impacts on families, communities, and the entity as a whole are not easily measured. Furthermore, most of the research conducted on social impacts done elsewhere may be difficult to generalize to island conditions particularly in the context of unstable demographic and economic conditions. Regardless, growing concerns about tobacco and its direct and indirect impacts on health and welfare of the CNMI are reflected in various community and school anti-smoking campaigns, media ads, and efforts to enforce smoking prohibition in public facilities.

A different set of priorities exists with regard to the economic implications associated with tobacco particularly during economic crises. Whereas tobacco is viewed as a health concern, a conflicting economic interest on the banning of tobacco is still evident. Policy makers continue to vacillate whether to ban tobacco completely in all private establishments due to the CNMI's desire to accommodate tourists. Regardless, several establishments, particularly restaurants, have joined the campaign to ban smoking in their respective businesses or to designate a non-smoking section. The U.S. Surgeon General has determined that the simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, the exposure of nonsmokers to secondhand smoke (DHHS, 1986).

Surveys on tobacco use among adults have not been conducted in the CNMI. Surveys need to be conducted on the prevalence of adult tobacco use in the CNMI to further determine the extent of its relationship with the three leading causes of deaths—heart disease, cancer and stroke—as well as the effects of second-hand smoke in the workplace and other public establishments. Data on the level of awareness among adults related to tobacco-related diseases and associated health costs would be necessary to plan future tobacco prevention and control programs.

#### Betelnut Chewing and Tobacco (smoking/smokeless)

Another form of tobacco is the chewing of betelnut. Betelnut chewing in the CNMI is a health concern particularly due to its association with oral cancer, gum disease and tooth decay. Some habitual chewers of betelnut among Chamorros and Carolinians as well as other Pacific Islanders mostly from Micronesia, mix tobacco and lime or with ingredients such as chewing and twist tobacco, ginger and other spices.

Betelnut is considered a narcotic and has been part of the cultural practices among Chamorros, Carolinians, and other Pacific Islanders from Palau and Yap in Micronesia. Public outcry on the negative and visible effect of betelnut and spitting has appeared in the media on several occasions.

To effectively control and prevent the abuse of betelnut chewing particularly among the youth, cultural issues associated with its proper use and the important role of parents and guidance of elders in the community must be taken into consideration (Table 25). For these reasons, the CNMI SEOW decided to target betelnut chewing as part of the CNMI's substance abuse prevention programs.

| Table 25. CNMI Public School System Suspension and Infraction Report SY2006-07 (Grades 7-12) |              |  |  |  |  |  |
|----------------------------------------------------------------------------------------------|--------------|--|--|--|--|--|
| Type of Offense                                                                              | # Suspension |  |  |  |  |  |
| Alcohol                                                                                      | 3            |  |  |  |  |  |
| Tobacco                                                                                      | 116          |  |  |  |  |  |
| Drug/Marijuana                                                                               | 70           |  |  |  |  |  |
| Betel Nut                                                                                    | 347          |  |  |  |  |  |
| Total                                                                                        | 536          |  |  |  |  |  |

Source: CNMI Public School System, November 2007.



Figure 15. Public School System Suspension/Infraction Related to Betelnut, Tobacco, Drug/Marijuana and Alcohol

Source: CNMI Public School System, 2008.

Betelnut chewing among the youth is a health concern and schools have traditionally been implementing bans on betelnut chewing on campus. However, the level of success is yet to be determined and it has proven very difficult to enforce for various reasons.

The Division of Youth Services Juvenile Detention Program reported that for academic year 2006-2007, the highest rate of suspension/infraction was related to betelnut chewing (64%), followed by tobacco (22%), drugs (13%), and alcohol (1%) (Table 25 and Figure 15).

Betelnut is frequently mixed with tobacco to increase its potency. More detailed data on suspension rates related to tobacco, alcohol, betelnut and drugs and their effect on school performance would be of significant interest for parents, school officials, and policy makers.

The International Agency for Research on Cancer has recently classified regular use of areca nut (betelnut) as being carcinogenic to humans. A 2004 study (Oakley, et al, 2005) conducted on three high schools in Saipan revealed 63.4% of the 309 (total student population, 2,415) surveyed claimed regular use of betelnut. Significant oral diseases detected were oral leukoplakia in 13% and oral submucous fibrosis in 8.8% of children. A quarter of the sample surveyed reported smoking tobacco, 17.5% reported tobacco chewing and/or snuff dipping, and 26% reported drinking alcohol. Tobacco use prevalence was higher among males (37%) than females (15%).

#### Marijuana and Methamphetamines

Accurate mortality and morbidity information from drug related behavior is not available at this time. This is a data gap and will be addressed in future updates of the Epidemiological Profile for the CNMI. Data on offenses associated with drug-related behavior are available from the Department of Public Safety (DPS).

Marijuana is illegal in the CNMI. Marijuana is associated with long and short term physical, mental, emotional and behavioral consequences, and is generally considered a gateway drug to stronger drugs. Methamphetamine-related crimes and abuse have figured in the news on numerous occasions in the CNMI. Drug trafficking, violent crimes, and damages to property are frequently attributed to the use or dealing in illicit drugs.

From 2005 to 2007, drug related offenses comprise less than 1%. Other drugs involved in criminal and traffic offenses are included but not specifically listed in the data sources. The CNMI Department of Public Safety classifies criminal and traffic offenses for law enforcement management purposes only. According to a DPS source, "police officers are not specifically trained to determine the seriousness of physical injuries resulting from traffic accidents" (Email communication, DPS, May 2, 2008).

DPS uses the National Highway Transportation Safety Administration's (NHTSA) standard injury descriptions that may be different from other data sources, i.e., Emergency Management Services (EMS) or the Commonwealth Heath Center (CHC). NHTSA's 'Death' description refers to incidents where officers find traffic accident victims to be in "no pulse/no breathing condition. Victims are sometimes subsequently revived. Conversely, victims found to be alive at accident scenes can subsequently pass away. DPS Accident Reports are not revised to reflect these changes in victim status. Again, DPS data may differ significantly from EMS and CHC's records" (DPS email, May 2, 2008).

Most of the next tables are similar to the previous section on alcohol consequences.

| Table 26. | Disaggregated | <b>CNMI Alcohol</b> | (Alc) and C | ontrolled Sul | bstances (CS) Relat | ed |
|-----------|---------------|---------------------|-------------|---------------|---------------------|----|
| Offenses, | 2005-2007     |                     |             |               |                     |    |

|                                    | 2005  |          |    | 2006    |      |    | 2007     |        |    |
|------------------------------------|-------|----------|----|---------|------|----|----------|--------|----|
| Offense Class                      | Total | Alc      | CS | Total   | Alc  | CS | Total    | Alc    | CS |
| Arson                              | 4     |          |    | 17      |      |    | 2        |        |    |
| Burglary, Robbery, Theft           | 2260  | 32       |    | 2537    | 43   |    | 2291     | 22     |    |
| Child Neglect/Abuse                | 46    | 1        |    | 33      | 3    |    | 42       | 3      |    |
| Controlled Substance               | 28    | 4        | 28 | 40      | 6    | 40 | 50       | 7      | 50 |
| Disturbance                        | 886   | 181      |    | 964     | 218  | 3  | 780      | 192    | 3  |
| Firearm Offense                    | 2     |          |    | 1       |      |    | 0        | 0      | 0  |
| Fraud                              | 65    |          |    | 60      |      |    | 31       |        |    |
| General Crime                      | 130   | 39       |    | 137     | 46   | 1  | 140      | 36     | 1  |
| Juvenile Crime                     | 177   | 51       | 2  | 152     | 45   |    | 140      | 52     |    |
| Marine Offense                     | 32    |          |    | 28      | 1    |    | 30       | 1      | 1  |
| Police Assistance                  | 151   | 4        | 1  | 141     | 5    | 4  | 124      | 5      | 1  |
| Property Offense                   | 705   | 50       |    | 705     | 66   | 1  | 702      | 57     |    |
| Sex Offense                        | 43    | 3        |    | 34      | 2    | 1  | 33       |        |    |
| Traffic Offense Accident/Reporting | 434   | 21       |    | 336     | 13   |    | 287      | 14     |    |
| Traffic Offense Citation           | 1     |          |    | 2       | 1    |    | 292      | 292    |    |
| Traffic Offense DUI                | 435   | 435      |    | 440     | 440  | 1  | 38       | 22     | 1  |
| Traffic Offense Equipment          | 60    | 41       |    | 68      | 42   | 1  | 5        |        |    |
| Traffic Offense Insurance          | 8     |          |    | 12      | 1    |    | 249      | 132    | 2  |
| Traffic Offense Lic/reg            | 276   | 139      |    | 261     | 127  | 5  | 1        |        |    |
| Traffic Offense                    | 2     |          |    | 1       |      |    | 1250     | 407    | 4  |
| Traffic Offense Mexing             | 2967  | 070      | 2  | 1021    | 520  | 10 | 1352     | 497    | 4  |
| Traffic Offense Other              | 2807  | 8/0      | 3  | 1931    | 338  | 10 | 1        |        |    |
| Traffic Offense Darking            | 16    | 1        |    | 14      |      | 1  | <u> </u> | r      |    |
| Traffic Offense Pedestrian         | 10    | 1        |    | 0       | n    | 1  | 14       |        |    |
| Traffic Offense Vehiele Theft      | 50    | <u> </u> |    | 0<br>70 |      |    | 51       | 1      |    |
| Vagraney Offense                   | 39    | 0        | 0  | 27      | 4    |    | 22       | 3<br>1 |    |
| Viag Offenge                       | 0     | 0        | 0  | 12      |      |    | 22       | 1      |    |
| Violent Crime                      | 1014  | 225      | 2  | 12      | 214  | 1  | /<br>רסד | 100    | 1  |
|                                    | 1014  | 233      | 3  | 804     | 214  | 1  | /8/      | 100    | 1  |
| Grand Total                        | 9723* | 2119     | 37 | 8914*   | 1817 | 69 | 7489*    | 1526   | 63 |

\* Total = Alc + CS + All other offenses not related to Alc and CS Source: CNMI DPS, May 2008. (Provided by CGC, May 2008)

| Table 27. Controlled Substance Related Offenses in CNMI, 2005-2007 |            |         |         |  |  |  |  |  |  |
|--------------------------------------------------------------------|------------|---------|---------|--|--|--|--|--|--|
| Year                                                               | 2005       | 2006    | 2007    |  |  |  |  |  |  |
| Drug Number (%)                                                    | 37 (0.38%) | 69 (1%) | 63 (1%) |  |  |  |  |  |  |
| Total (for all offenses)                                           | 9,723      | 8,914   | 7,489   |  |  |  |  |  |  |

Source: CNMI DPS, May 2008.

Tables 26 and 27 above depict alcohol and controlled substance related involvement in criminal and traffic offenses. During the three-year period, the proportion of offenses in which drug is involved is 1% or less. The severity of drug related offenses, types of drugs used, age, gender and other variables may need to be identified in order to fully understand the social and economic consequences associated with drug abuse.

| Table 28. Alcohol-Controlled Substance Related Traffic Accidents in CNMI 2005-2007 |       |       |       |  |  |  |  |  |
|------------------------------------------------------------------------------------|-------|-------|-------|--|--|--|--|--|
|                                                                                    |       | Year  |       |  |  |  |  |  |
| Alcohol & Controlled Substance Involvement                                         | 2005  | 2006  | 2007  |  |  |  |  |  |
| No                                                                                 | 1160  | 925   | 566   |  |  |  |  |  |
| Unknown                                                                            | 591   | 483   | 242   |  |  |  |  |  |
| Alcohol & Drug                                                                     | 84    | 95    | 84    |  |  |  |  |  |
| Alcohol & Drug Percentage                                                          | 4.58% | 6.32% | 9.42% |  |  |  |  |  |
| Grand Total                                                                        | 1835  | 1503  | 892   |  |  |  |  |  |

Source: CNMI DPS, May 2008.

Table 28 presents the rate of alcohol and drug related traffic accidents in a three-year period. During the three-year period, about 6% of all accidents was alcohol and drug related. Thirty-one percent (31%) of the accidents was attributed to unknown factors; however, it is very likely that some, if not most, could be alcohol or drug related (DPS Email, May 2, 2008)

| Table 29. Alcohol-Drug Related Traffic Injuries in CNMI 2005-2007 |       |       |       |  |  |  |  |  |
|-------------------------------------------------------------------|-------|-------|-------|--|--|--|--|--|
|                                                                   | Year  |       |       |  |  |  |  |  |
| Alcohol & Drug Involvement                                        | 2005  | 2006  | 2007  |  |  |  |  |  |
| Unknown                                                           | 591   | 483   | 242   |  |  |  |  |  |
| Alcohol & Drug                                                    | 29    | 35    | 26    |  |  |  |  |  |
| Alcohol & Drug Percentage                                         | 1.58% | 2.33% | 2.91% |  |  |  |  |  |
| Grand Total                                                       | 1835  | 1503  | 892   |  |  |  |  |  |

Source: CNMI DPS, May 2008.

## Table 30. Disaggregated CNMI Alcohol & Controlled Substances Related Injuries, 2005-2007

| Year                            |         | 2005             |          | 2006    |                  |          | 2007    |                  |          |  |
|---------------------------------|---------|------------------|----------|---------|------------------|----------|---------|------------------|----------|--|
| Injury                          | Unknown | None<br>Detected | Detected | Unknown | None<br>Detected | Detected | Unknown | None<br>Detected | Detected |  |
| Death                           | 4       | 1                | 3        | 3       | 2                |          | 2       |                  | 1        |  |
| Internal injuries               |         | 1                | 1        |         |                  | 2        |         | 1                |          |  |
| Lacerations                     | 1       | 4                |          | 1       | 1                | 1        |         | 1                |          |  |
| Major injuries                  | 3       | 7                | 3        | 3       | 9                | 5        | 5       | 4                | 3        |  |
| Minor injuries                  | 32      | 76               | 15       | 26      | 61               | 18       | 15      | 48               | 14       |  |
| Moderate injury                 | 7       | 18               | 10       | 16      | 10               | 7        | 6       | 8                | 9        |  |
| No injuries                     | 326     | 1021             | 45       | 285     | 811              | 57       | 152     | 487              | 48       |  |
| See Vehicle<br>Accident. Report | 1       | 8                | 3        | 1       | 7                | 3        |         | 6                | 9        |  |
| Unconscious                     | 1       |                  |          | 0       | 0                | 0        | 0       | 0                | 0        |  |
| Unknown                         | 216     | 24               | 4        | 148     | 24               | 2        | 62      | 11               |          |  |
|                                 |         |                  | 5%       |         |                  | 6%       |         |                  | 9%       |  |
| Total                           | 591     | 1160             | 84       | 483     | 925              | 95       | 242     | 566              | 84       |  |

Source: CNMI DPS, May 2008.

Tables 29 shows that 2.1% of traffic injuries were alcohol and controlled substance-related in the three-year period from 2005 to 2006. Thirty-one percent of the injuries was attributed to unknown factors. According to DPS, some, if not most, could be alcohol or drug related injuries (DPS Email, May 2, 2008).

Table 30 shows that an estimated 2.4% of all detected injuries was related to alcohol and controlled substances in the three-year period. Percentages of injuries in which alcohol and controlled substances were detected appeared to be increasing from 2005 to 2007 from 2% to 3.2%. Alcohol and controlled-substances related injuries appeared to be increasing from 2% in 2005 to 3.2% in 2007.



Figure 16. Public School System SY 2006-7, Grades 7-12, Suspension/Infraction

Source: CNMI Public School System, 2008.

Figure 16 shows drug/marijuana related suspension/infractions as lower than tobacco and betelnut. Illicit drug use during and after school hours is difficult to detect particularly for marijuana, crack and butane. Yet, over 50% of the YRBS high school responses reported use of marijuana and alcohol in 2003, 2005 and 2007 and about 20% reported using marijuana before they were 13 years old for the same years. About 5% reported using methamphetamines for the same years.

## **Consumptions: Tobacco, Marijuana and Other Illicit Drugs**

The latest sources of data on tobacco use among the youth in the CNMI are from the 2007 Public School System Youth Risk Behavior Survey among high school and middle school students, the Public Health Report 2007, and PSS Suspension/Infraction Report for SY 2006-07 for Grades 7 to 12. Earlier data sources are available but not accessible or in a format that could easily be included in this profile at this time.

## Figure 17. Percentage of students who had tried alcohol, tobacco or marijuana before age 13



Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Mariana Islands High School).

Figure 17 shows that among high school students surveyed, tobacco use before age 13 decreased from 40% in 2003 to 29% in 2007. This may be due to the aggressive antismoking campaigns in the schools, community and the media. Compared with the U.S., the CNMI percentage in 2005 was twice as high for tobacco and marijuana.



Figure 18. Percent of Students who Reported Smoking Cigarettes on 20 or more days within the past 30 days (Daily Use of Tobacco)

Figure18 (Daily use) reveals a 5% reduction from 2003 to 2005 in the number of students who reported smoking on 20 or more days within the past 30 days, and about 3% reduction between 2005 and 2007. The percent of daily use in the CNMI in 2005 was also higher than that of the U.S. In 2000, an estimated 60% of the youth reported using tobacco (GYS, 2000 from Public Health Report, 2007).

Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Mariana Islands High School). (Provided by CGC, April 2008)



# Figure 19 . Percent of students who reported any use of specific classes of illicit drugs in their lifetime (Lifetime Use)

Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Mariana Islands High School). (Provided by CGC, April 2008)

Figure 19 (Lifetime Use) depicts percentage of use of illicit drugs including alcohol among the students surveyed as declining from 2003 to 2007. Compared with other illicit drugs, alcohol and marijuana remain the most prevalent in all the three years while illicit drugs remained about the same during the three years surveyed. This figure shows that young people have easier access to both alcohol and tobacco than to illicit drugs. It could also show that respondents may feel more at ease reporting tobacco and alcohol use than illicit drugs.

| Table 31. YRBS CNMI Middle School Tobacco Prevalence Survey                                          |      |      |      |      |  |  |  |  |
|------------------------------------------------------------------------------------------------------|------|------|------|------|--|--|--|--|
| Percent of students who                                                                              |      | Year |      |      |  |  |  |  |
|                                                                                                      |      | 2003 | 2005 | 2007 |  |  |  |  |
|                                                                                                      | %    | %    | %    | %    |  |  |  |  |
| Tried cigarette smoking, even one or two puffs                                                       | 79.4 | 68.8 | 58.5 | 56.6 |  |  |  |  |
| Smoked cigarettes on one or more of past 30 days                                                     | 41.4 | 32.8 | 21.7 | 20.7 |  |  |  |  |
| Smoked on 20 or more of past 30 days                                                                 | 7.4  | 3.9  | 2.3  | 2.8  |  |  |  |  |
| Smoked more than 10 per day on days smoked during past 30 days                                       | 3.7  | 2.2  | 3.3  | 3.6  |  |  |  |  |
| Usually buy their cigarettes or gas stations during past 30 days                                     | 17   | 7.6  | 12.8 | 12.2 |  |  |  |  |
| Ever smoked daily, at least one cigarette every day for past 30 days                                 | 17.3 | 12.8 | 7.7  | 7.1  |  |  |  |  |
| Used chewing tobacco, snuff, or dip on one or more of past 30 days                                   | 39.6 | 34.1 | 30.2 | 27.7 |  |  |  |  |
| Smoked cigars, cigarillos, or little cigars on one or<br>more of past 30 days                        | 15.2 | 11.7 | 8.5  | 9.4  |  |  |  |  |
| Smoked cigarettes or cigars or used chewing tobacco,<br>snuff, or dip on one or more of past 30 days | 52.9 | 47.2 | 36.5 | 32.8 |  |  |  |  |

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Source: 2007 PSS YRBS Brochure (Survey Results for the Northern Marianas Middle School Survey)

Table 31 shows a declining trend in all types of use prevalence for all the years with the exception of "smoked more than 10 per day on days smoked during past 30 days" (2005, 2007), "buying cigarettes in store or gas stations during past 30 days" (2003), and "smoked cigars, cigarillos, or little cigars on one or more of past 30 days" (2005). These are public middle school students who seem to be picking up the habit early on.

| Table 32. Reported Betel Nut and Tobacco Use During Pregnancy (CNMI, 2007) |       |         |             |    |  |  |  |
|----------------------------------------------------------------------------|-------|---------|-------------|----|--|--|--|
|                                                                            | Betel | Nut Use | Tobacco Use |    |  |  |  |
|                                                                            | N     | %       | N           | %  |  |  |  |
| YES                                                                        | 170   | 12      | 79          | 6  |  |  |  |
| NO                                                                         | 983   | 71      | 1,075       | 78 |  |  |  |
| MISSING                                                                    | 232   | 17      | 231         | 17 |  |  |  |
| TOTAL                                                                      | 1,385 |         | 1,385       |    |  |  |  |

Source: CNMI Department of Public Health, Health and Vital Statistics Office, p.b. OES, 2008.

DPH collected data on the number of reported betelnut and tobacco use during pregnancy in the CNMI in 2007.

Table 32 shows that at least 12% of pregnant women used betelnut and at least 6% used tobacco. Betelnut chew is frequently mixed with tobacco.

The data does not reflect whether betelnut use included tobacco. The missing data is problematic as it could reflect either a yes or no for both betelnut and tobacco use during pregnancy.

Table 33 depicts persons age 12 and older diagnosed with drug abuse or dependence by gender in 2008 at the Community Guidance Center.

Additional information will be needed to determine the trend over the years for both genders. Clearly, males outnumbered females. This is similar to the other data on offenses associated with alcohol and drug related issues.

| Table 33.Persons Age 12 and Older diagnosed with<br>Drug Abuse or Dependence (2008) |       |        |  |  |  |
|-------------------------------------------------------------------------------------|-------|--------|--|--|--|
| Gender                                                                              |       | Total: |  |  |  |
| F                                                                                   | emale | 5      |  |  |  |
|                                                                                     | Male  | 69     |  |  |  |
| Grand Total                                                                         |       | 74     |  |  |  |

Source: CGC, 2009

CNMI Epidemiological Profile, 2009. CNMI SEOW