

## Suicide in Guam, 2020

### INTRODUCTION

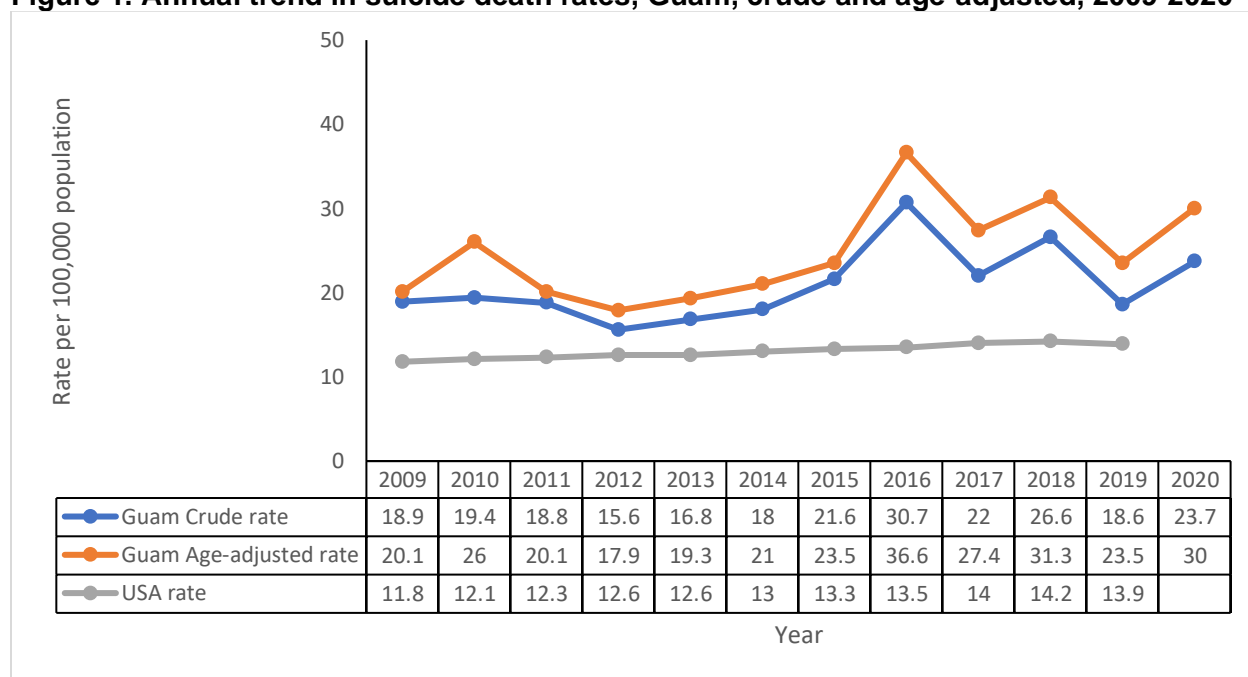
In March, the advent of COVID-19 in Guam promoted the declaration of a state of emergency and the prohibition of all social gatherings and non-essential business. The COVID-19 pandemic proved to be a persistent public health challenge, requiring the island community to shut down a second time in August 2020. The health and socio-economic pressures on Guam’s residents brought about by uncertainties in job security, its financial impacts on families, and the pervasive health vulnerabilities by a constantly evolving virus will have profound effects on our population.

Working with the GBHWC Prevention and Training branch, the SEOW has utilized this challenging year as a “teachable opportunity,” adding new information and outreach products that frame our tobacco, alcohol and mental health data within the perspective of the COVID19 pandemic. This data brief summarizes the analysis of suicide data for 2020.

### TREND and PREVALENCE

In 2020, there were 40 suicide deaths in Guam, resulting in a crude suicide rate of 23.7 per 100,000. Age-adjustment to the US 2000 standard population raised the suicide rate to 30.0 per 100,000. This represents an increase from 2019 (Figure 1).

**Figure 1. Annual trend in suicide death rates, Guam, crude and age-adjusted, 2009-2020**



Source: Calculated based on data taken from the Office of the Chief Medical Examiner, DPHSS Office of Vital Statistics and Bureau of Statistics and Plans, 2009-2020; US age-adjusted rates from data provided by the Centers for Disease Control and Prevention (CDC) Data & Statistics Fatal Injury Report for 2019, as reported in <https://afsp.org/suicide-statistics/>

Note: Guam crude data was age-adjusted using direct standardization against the 2000 US Standard Population

Guam’s suicide mortality remains significantly higher than the US (Figure 1, Table 1), and the gap has increased compared to 2019. Initial reports indicate that the total number of suicides decreased in the US in 2020.<sup>1</sup> This trend was not seen in Guam, and the suicide rate increased significantly for the island.

**Table 1. Suicide death rate, Guam vs. US, 2018-2019**

	Guam 2019	Guam 2020	US 2019	US 2020*
Deaths (number)	31	40	48,344	44,834
Crude suicide death rate per 100,000	18.6	23.7	14.2	13.5
Age-adjusted suicide death rate per 100,000	23.5	30.0	13.9	n/a

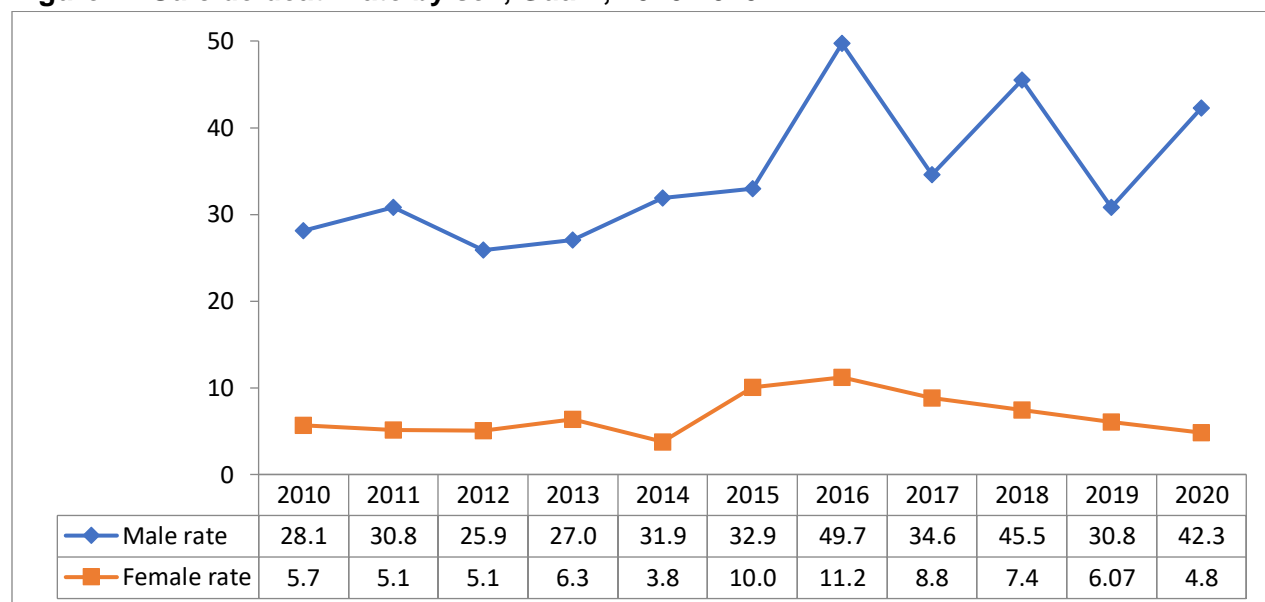
Source: Guam rates calculated based on data taken from the Office of the Chief Medical Examiner, DPHSS Office of Vital Statistics and Bureau of Statistics and Plans; US statistics from US Centers for Disease Control and Prevention (CDC), **Data & Statistics Fatal Injury Report for 2019**, as reported in <https://afsp.org/about-suicide/suicide-statistics/>  
 \*Note: 2020 US suicide data is still preliminary; crude rate calculated using US 2020 mid-year population projection of 332.6 million; age-adjusted rate not yet available

## CORRELATES OF SUICIDE MORTALITY

### Sex

Suicide deaths in Guam occur predominantly among males, who consistently outnumber female suicide deaths. In 2020, the ratio of the male suicide rate to the female rate was nearly 9:1 (Figure 2), more than double the 2019 US ratio of 3.6:1. The Guam male suicide rate decreased in 2019 from 2018, narrowing the sex gap briefly, but increased markedly in 2020. In contrast, the female suicide rate decreased slightly from 2019 to 2020, with annual declines noted since 2016. This widened the sex gap.

**Figure 2. Suicide death rate by sex, Guam, 2010-2020**



Sources: Calculated from data provided by the Office of the Chief Medical Examiner and Bureau of Statistics and Plans, 2010-2020

<sup>1</sup> Ahmad FB, Anderson RN. The Leading Causes of Death in the US for 2020. JAMA. 2021;325(18):1829–1830. doi:10.1001/jama.2021.5469

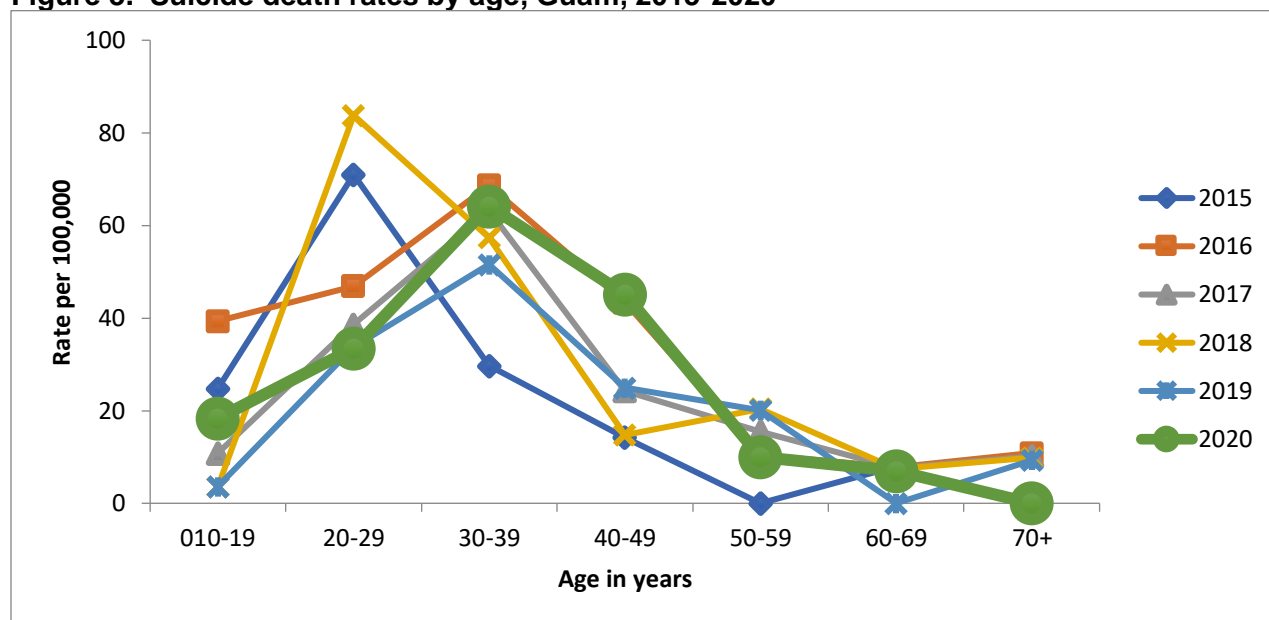
### Age

The epidemiologic pattern is changing in the US, with suicide highest among adults aged 45-54 years (19.6 per 100,000), 55-64 years (19.4 per 100,000) and those 85 and over (20.1 per 100,000). Younger groups have had consistently lower suicide rates than middle-aged and older adults. In 2019, adolescents and young adults aged 15 to 24 years had a suicide rate of 13.95.<sup>2</sup>

In Guam, when suicide deaths are disaggregated by age, the majority are seen to occur in young adults and youth. In 2016 and 2017, the peak rate shifted from those aged 20-29 to those aged 30-39 years. In 2018, the highest rate shifted back to those aged 20-29 years. However, in 2019, the highest rate was recorded for those aged 30-39 years, and this persisted in 2020. (Figure 3). The age range for suicide deaths in 2020 ranged from 14 to 62 years, with a mean age of 34 years and a mode of 33 years.

Collectively, nearly half (49%) of all suicide deaths in Guam from 2010-2020 occurred in those younger than 30 years, and almost a quarter (24%) happened among those aged 30-39 years (Figure 4). Thus, deaths by suicide in Guam occur predominantly among young people, unlike in the US mainland.

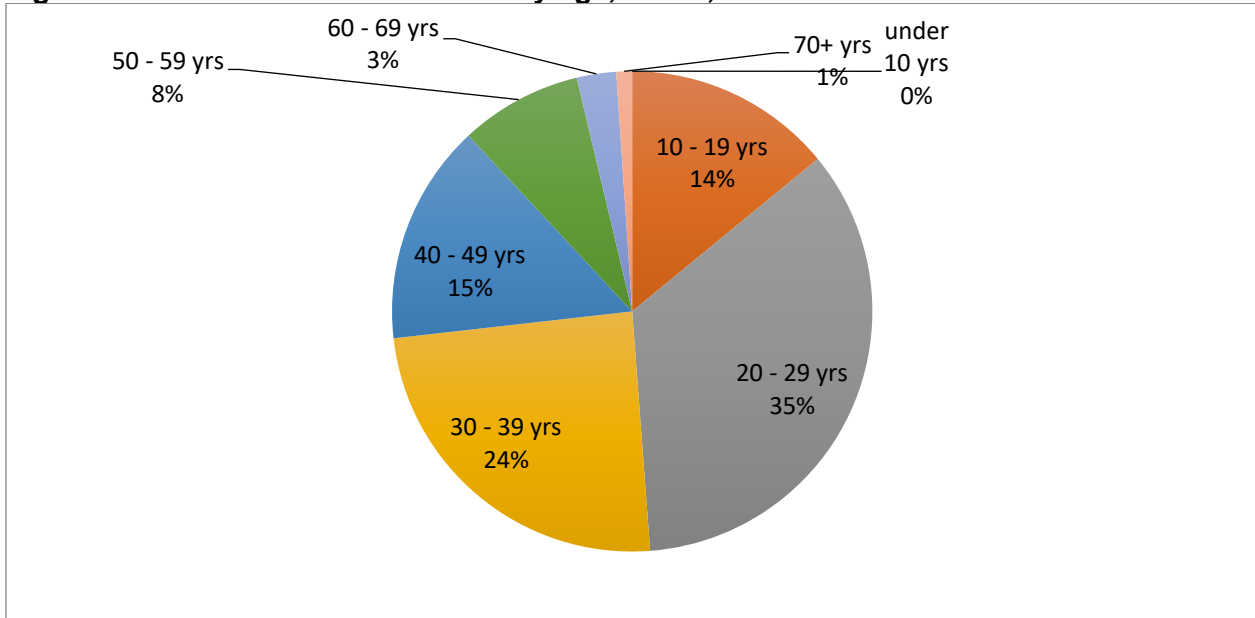
**Figure 3. Suicide death rates by age, Guam, 2015-2020**



Sources: Calculated from data provided by the Office of the Chief Medical Examiner and Bureau of Statistics and Plans, 2015-2020

<sup>2</sup> American Foundation for Suicide Prevention. Suicide Statistics. (data taken from *Centers for Disease Control and Prevention (CDC) Data & Statistics Fatal Injury Report for 2017*). <https://afsp.org/about-suicide/suicide-statistics/>

**Figure 4. Cumulative suicide deaths by age, Guam, 2010-2020**

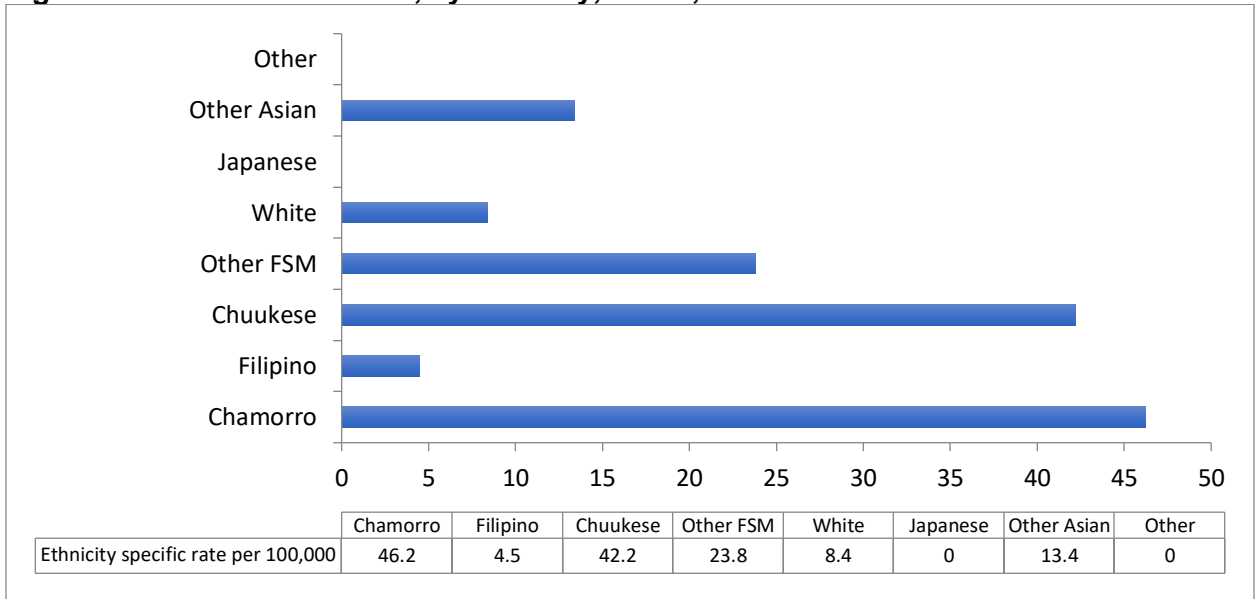


Sources: Calculated from data provided by the Office of the Chief Medical Examiner, 2010-2020

**Ethnicity**

In 2020, the greatest number of suicide deaths occur among CHamorus, followed by Chuukese. When these are corrected for the relative contribution of each ethnic group to the total population (Figure 5), CHamorus have the highest suicide death rates per 100,000, followed by Chuukese and other Micronesians. In contrast, in the US mainland, Pacific Islanders have the lowest suicide rates. In previous years, Chuukese had higher rates of suicide than CHamorus.

**Figure 5. Suicide death rates, by ethnicity, Guam, 2020**

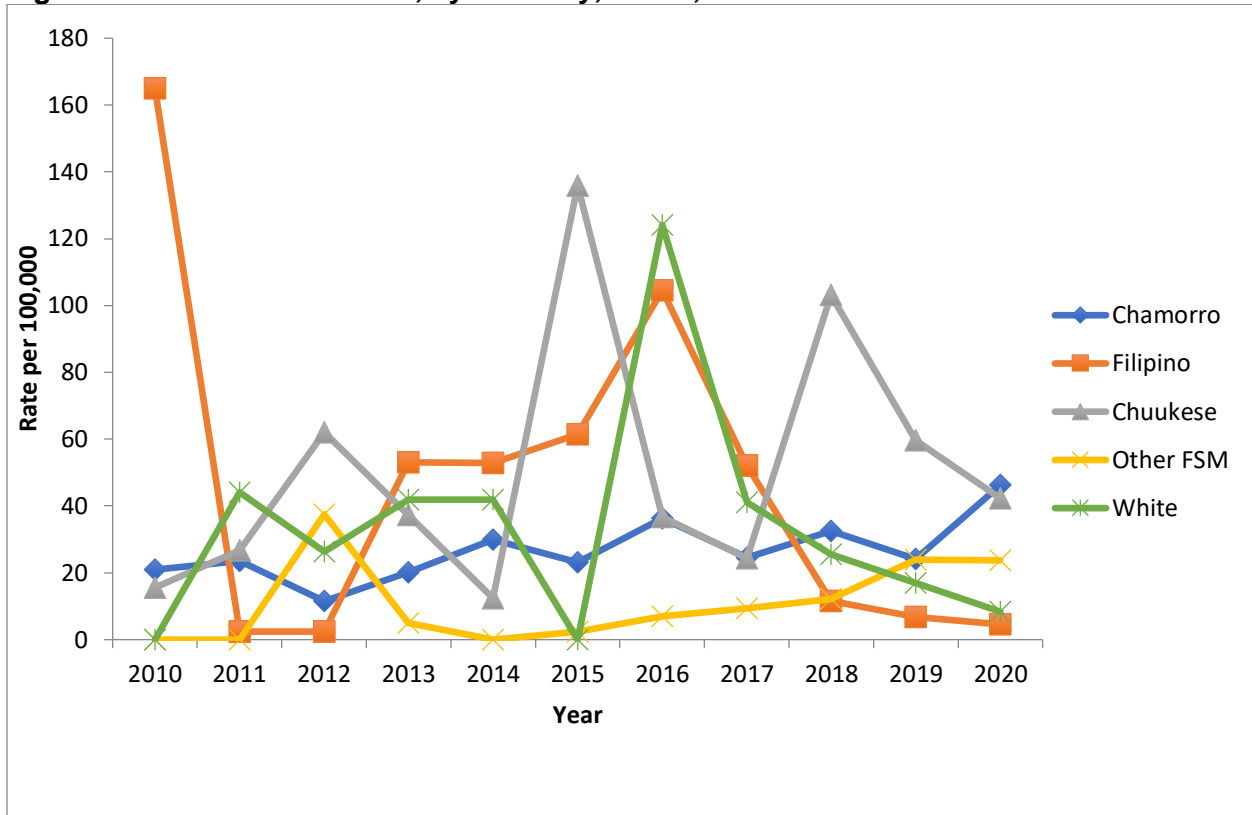


Source: Calculated from data provided by the Office of the Chief Medical Examiner, 2020, and population projections published in the 2018 Guam Statistical Handbook

Note: \* = actual numbers for each of these ethnicity categories are small; caution needed in interpretation; the CME database still uses the old spelling “Chamorro”

Trends in ethnicity-specific suicide rates from 2010 to 2020 indicate that the prevalence of suicide deaths among Chuukese, Filipinos and Whites appear to be decreasing while the rates among CHamorris and other Micronesians are rising (Figure 6).

**Figure 6. Suicide death rates, by ethnicity, Guam, 2010-2020**



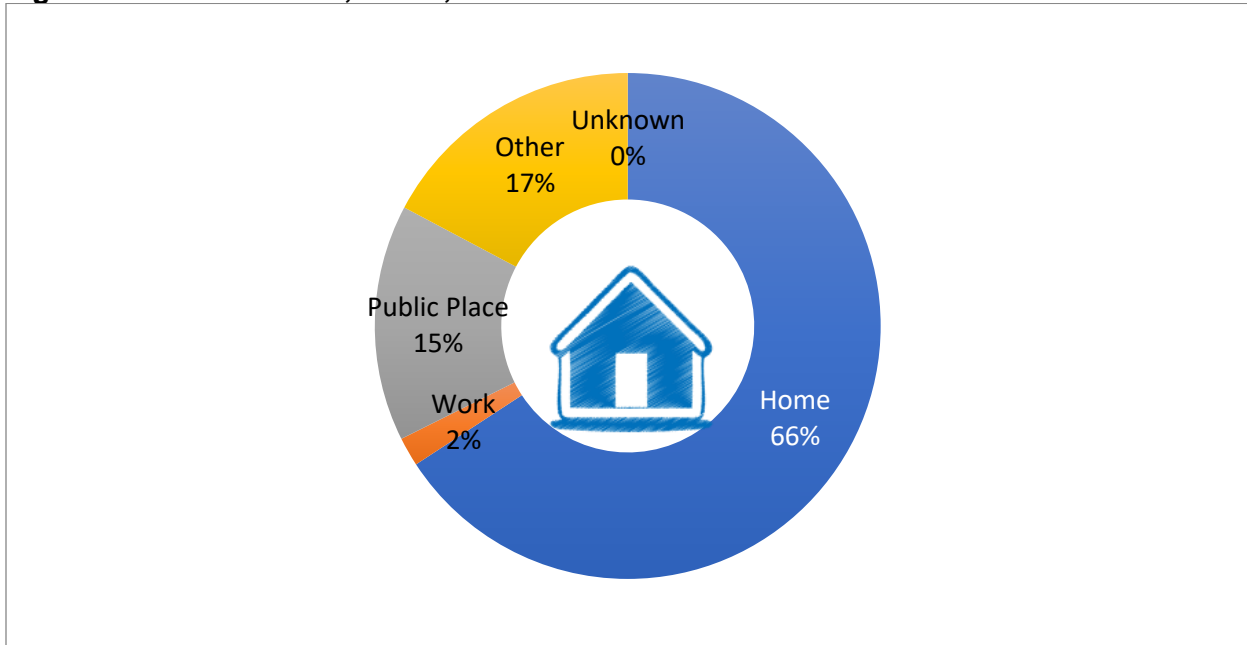
Source: Calculated from data provided by the Office of the Chief Medical Examiner, 2020, and population projections published in the 2018 Guam Statistical Handbook

Note: \* = actual numbers for each of these ethnicity categories are small; caution needed in interpretation; the CME database still uses the old spelling “Chamorro”

### Site of suicide

Cumulative 10-year data show that majority (66%) of suicides occurred in the home. Only 15% occurred in a public place, and only 2% happened at the workplace (Figure 7). Suicide prevention outreach needs to involve families, to equip them to recognize suicide risk among family members and to intervene early to prevent suicide death.

**Figure 7. Site of suicide, Guam, 2010-2020**

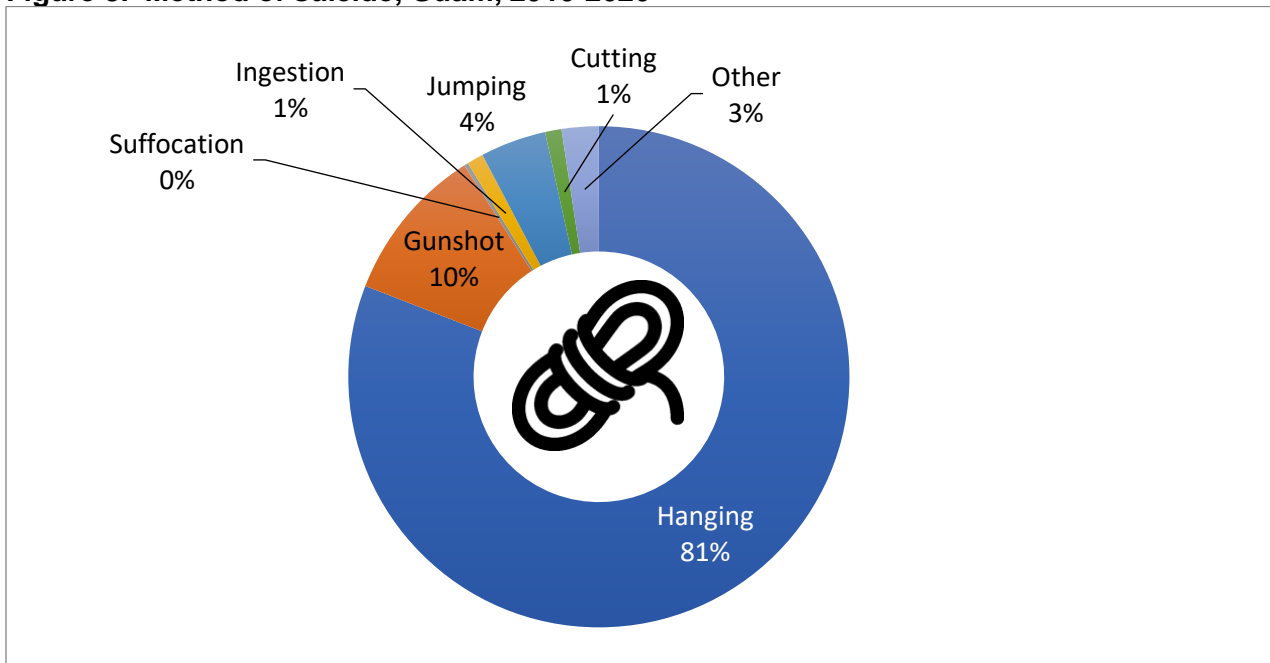


Source: Office of the Chief Medical Examiner, suicide data 2010-2020

**Method of suicide**

From 2010 to 2020, 81% of suicides were by hanging, and 10% were through the use of guns (Figure 8). This contrasts markedly from the pattern in the US mainland, where suicide by firearms was the predominant method. From a prevention policy perspective, interventions that reduce access to lethal means other than firearms may have a limited impact in Guam. Gun control may help avert about a tenth of suicides.

**Figure 8. Method of suicide, Guam, 2010-2020**



Source: Office of the Chief Medical Examiner, suicide data 2010-2020

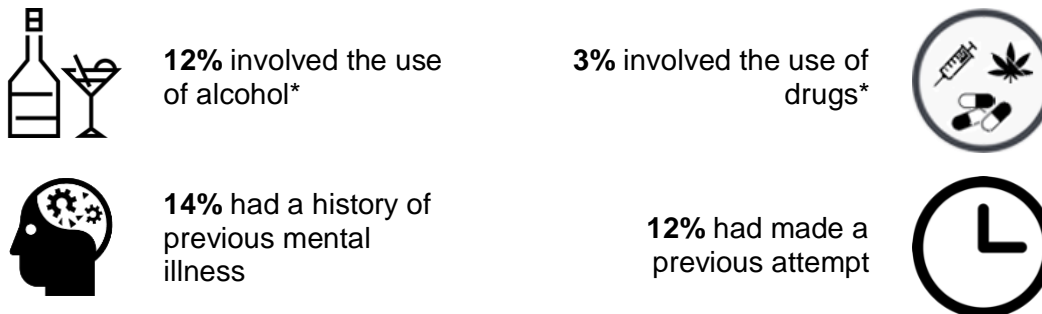
### Evidence of intention to die

In 2020, 15% of suicides left direct evidence of their suicide intent, and nearly one in four (22.5%) had made previous attempts. A history of prior mental illness was noted for 27.5%. Data on alcohol and/or drug use was unknown for all 2020 suicide deaths.

Cumulatively from 2010-2020, 13% of those who died of suicide left direct evidence (e.g., suicide note) of an intention to die by suicide. An additional 5% left indirect evidence of their intent. This highlights the need for community members to be better trained to pick up on suicide intentions and intervene early to reduce the risk of attempts.

### Other correlates of suicide mortality

In Guam for the years 2010- 2020:



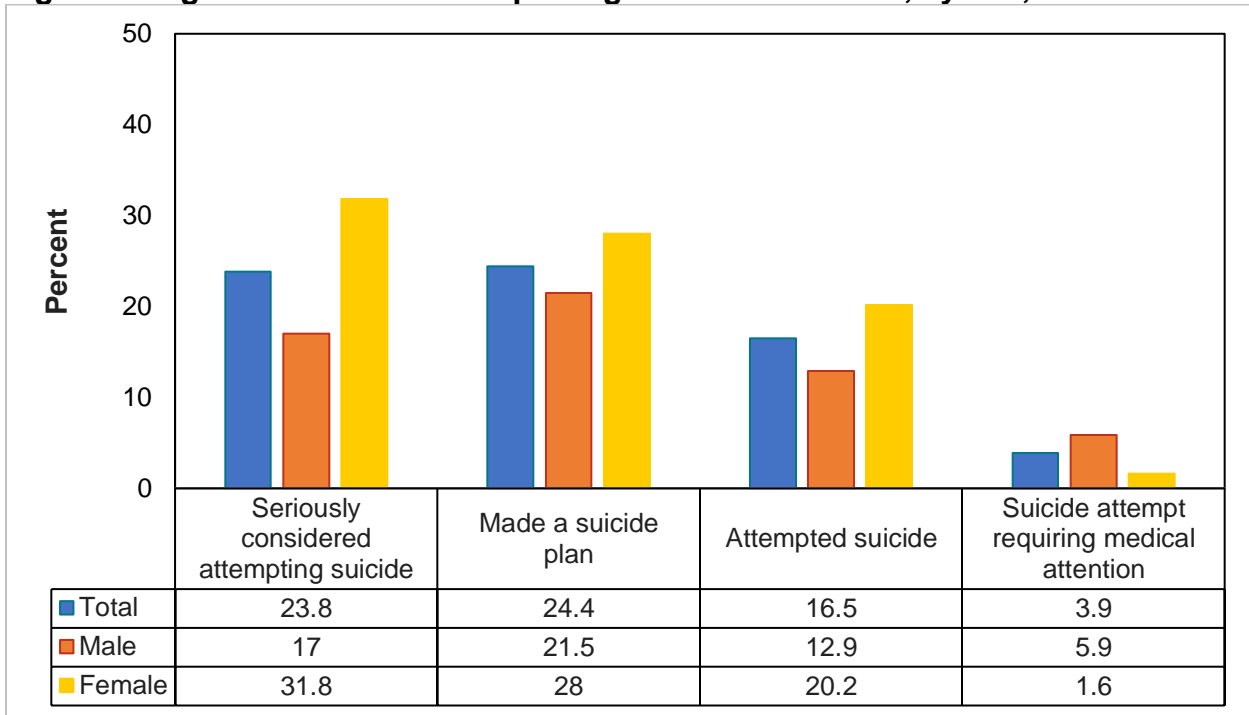
(\*Note: These data were obtained by interviewing family and friends of the deceased, without toxicologic confirmation. Thus, these may under-estimate the true prevalence of these correlates.)

### SUICIDE IDEATION AND ATTEMPTS AMONG GUAM HIGH SCHOOL YOUTH

The Youth Risk Behavior Surveillance System (YRBSS) released its 2019 data during late 2020. This population survey of Guam high school students enrolled in Guam Department of Education (GDOE) schools reveals the following:

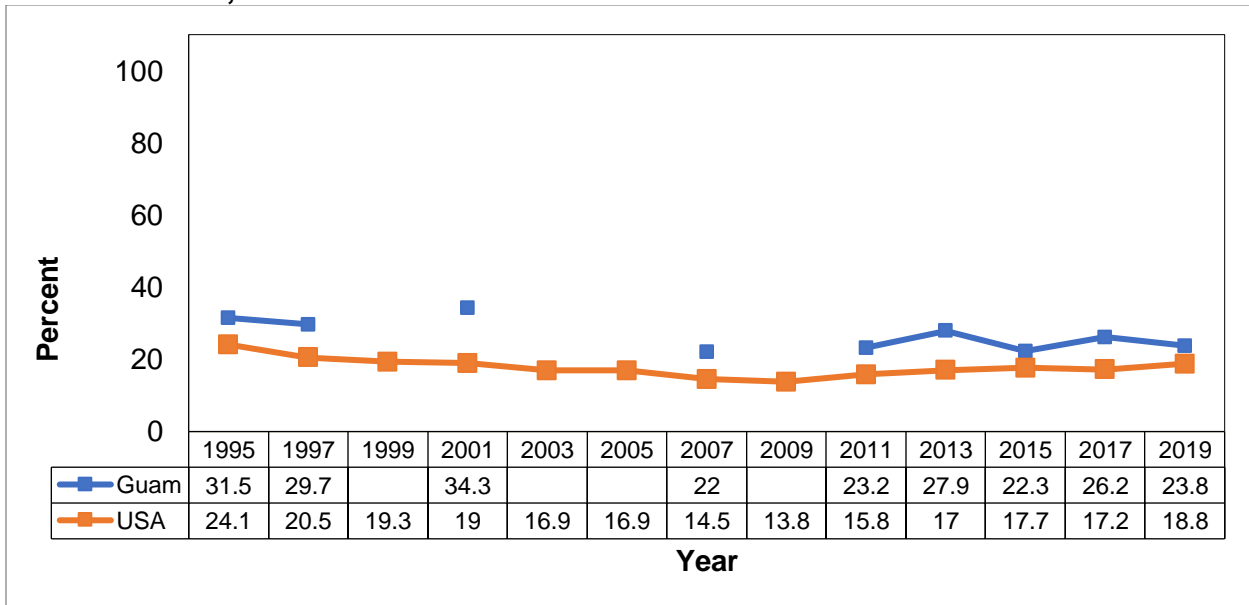
- Nearly one in four of high school students reported seriously considering attempting suicide (23.8%) and making a suicide plan (24.4%).
- One in six students (16.5%) attempted suicide. Four percent of students who attempted suicide required medical attention.
- Female students are more likely to report thinking about suicide, making a suicide plan and attempting suicide, but males are more likely to make a serious suicide attempt that requires medical attention (Figure 9).
- Both suicidal ideation and attempts are higher among Guam high school students, compared to their counterparts in the US (Figures 10 and 11).
- CHamoru youth report the highest rates of suicidal ideation and attempts but the ethnic differences are less marked than for adults (Figure 12).
- Sexual identity is associated with disparities in suicide risk. Students who identify as gay, lesbian or bisexual, or who are unsure of their sexual identity, report higher rates of suicidal ideation and attempts (Figure 13).

**Figure 9. High school students reporting suicide indicators, by sex, 2019**



Source: GDOE Youth Risk Behavior Survey 2019

**Figure 10. High school students who seriously considered attempting suicide,\* Guam vs. USA, 1995-2019†**



\*Ever during the 12 months before the survey

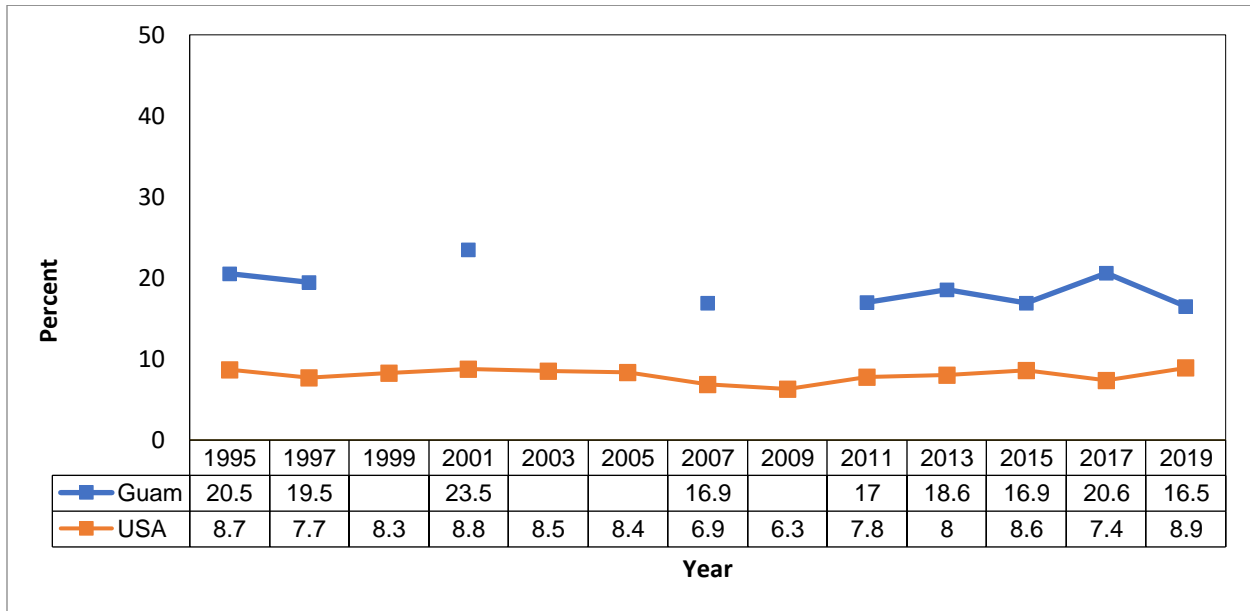
†Decreased 1995-2019 [Based on linear and quadratic trend analyses using logistic regression models controlling for sex, race/ethnicity, and grade ( $p < 0.05$ ). Significant linear trends (if present) across all available years are described first followed by linear changes in each segment of significant quadratic trends (if present).]

Data not available for 1999, 2003, 2005, 2009 for Guam. This graph contains weighted results.

Source: CDC Youth Risk Behavior Surveys 1995-2019



**Figure 11. High school students who attempted suicide,\* Guam vs. USA, 1995-2019†**



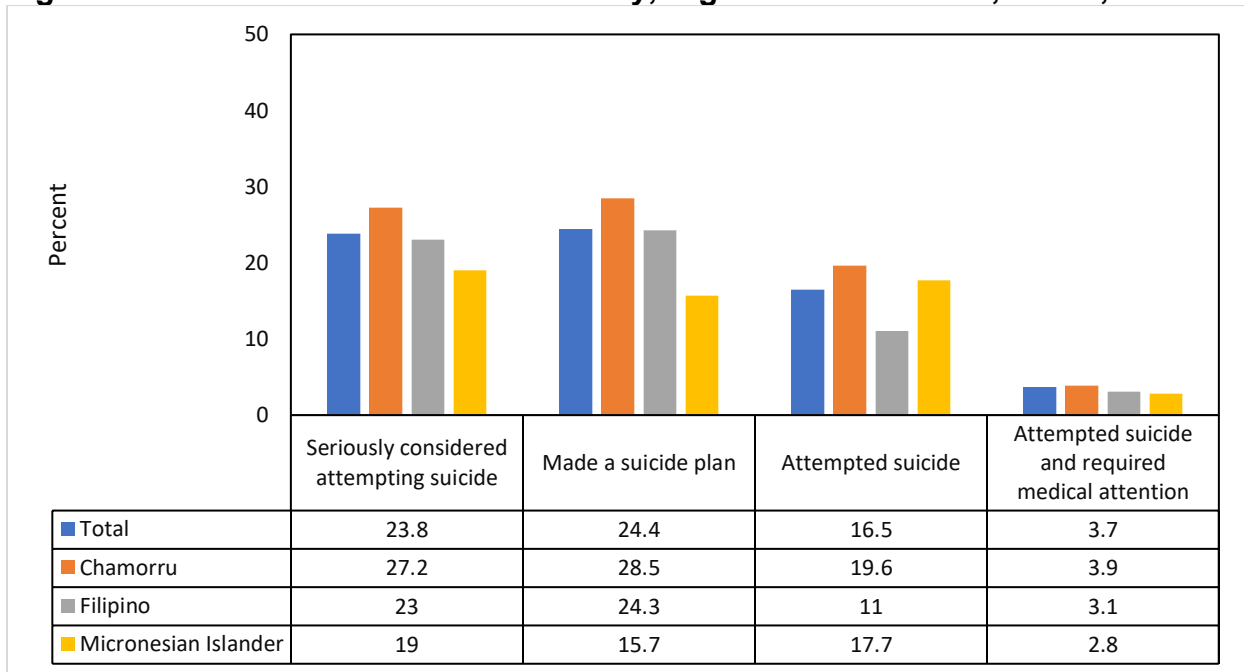
\*Ever during the 12 months before the survey

†Decreased 1995-2019 [Based on linear and quadratic trend analyses using logistic regression models controlling for sex, race/ethnicity, and grade ( $p < 0.05$ ). Significant linear trends (if present) across all available years are described first followed by linear changes in each segment of significant quadratic trends (if present).]

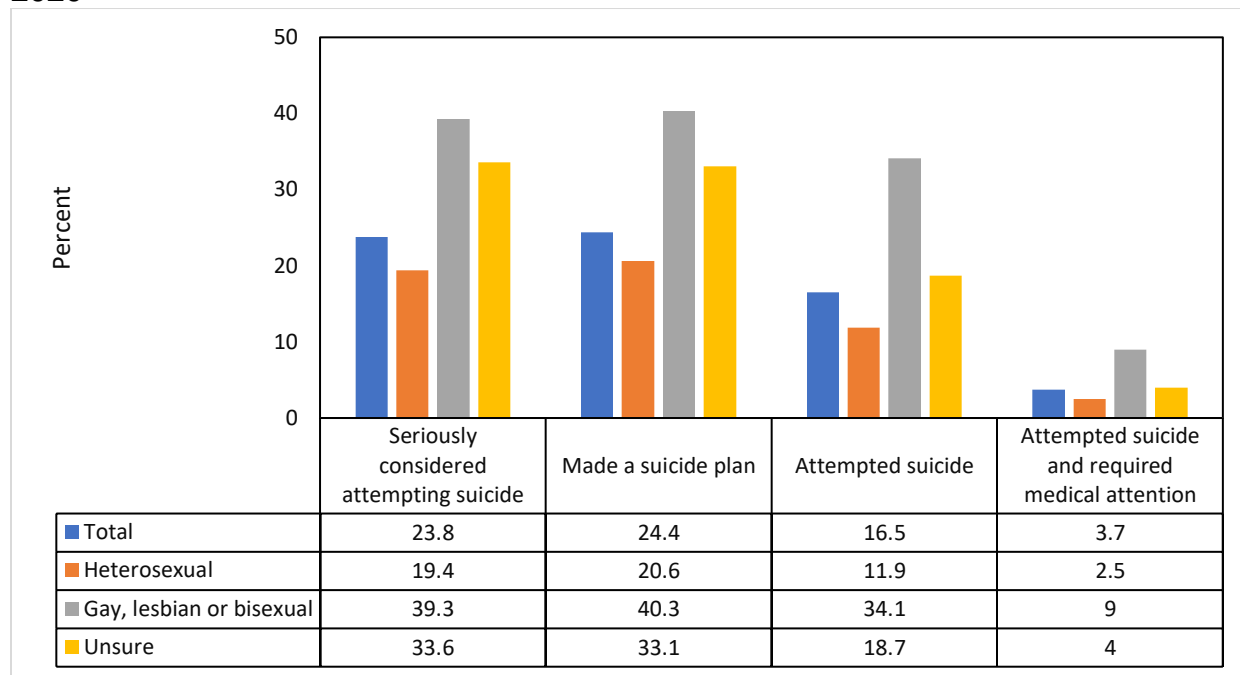
Data not available for 1999, 2003, 2005, 2009 for Guam. This graph contains weighted results.

Source: CDC Youth Risk Behavior Surveys 1995-2019

**Figure 12. Suicide indicators and ethnicity, High school students, Guam, 2020**



**Figure 13. Suicide indicators and sexual identity, High school students, Guam, 2020**



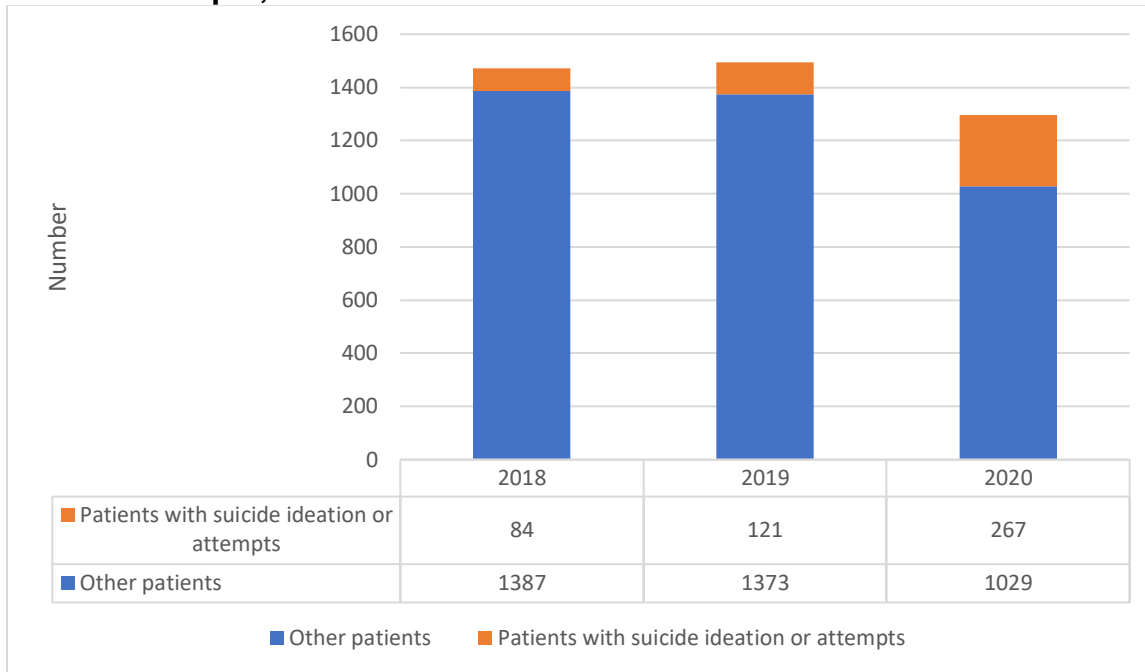
Source: GDOE Youth Risk Behavior Survey 2019

**GBHWC PATIENT ENCOUNTERS INVOLVING SUICIDE IDEATION AND/OR ATTEMPTS**

In 2020, a total of 267 consumers at the GBHWC had suicide attempts or suicide ideation attached to their diagnoses, out of a total of 1,296 admissions (21% of all encounters). This represents an increase over the previous 2 years (Figure 14), both in absolute number and proportion of consumers.

Overall, the number of consumers in 2020 decreased from previous years; however, the number presenting with suicide ideation/attempts increased. The percentage of GBHWC patients with suicide ideation/attempts in their diagnosis list increased from 6% in 2018, to 9% in 2019, and 21% in 2020. This is consistent with the anticipated rise in mental health disturbances accompanying the Covid-19 pandemic and its socio-economic consequences.

**Figure 14. Number and percent of GBHWC admissions with suicide ideation or suicide attempts, 2018-2020.**



## CONCLUSION AND RECOMMENDATIONS

In 2020, the Covid-19 pandemic dominated the political, health socio-economic and psychological landscape. During this time, it was hypothesized that mental health disturbances across the global community would be significant.

Guam's 2020 suicide rate increased from 2019 and remains markedly higher than the US rate. The demographics of suicide in Guam also differ from the US, with higher risk among younger persons, and those of CHamoru, Chuukese or other Micronesian ethnicity. Previous suicide attempts, alcohol and drug use, and/or a history of mental illness confer heightened risk. Hanging is by far the predominant method, and majority of suicides occur at home.

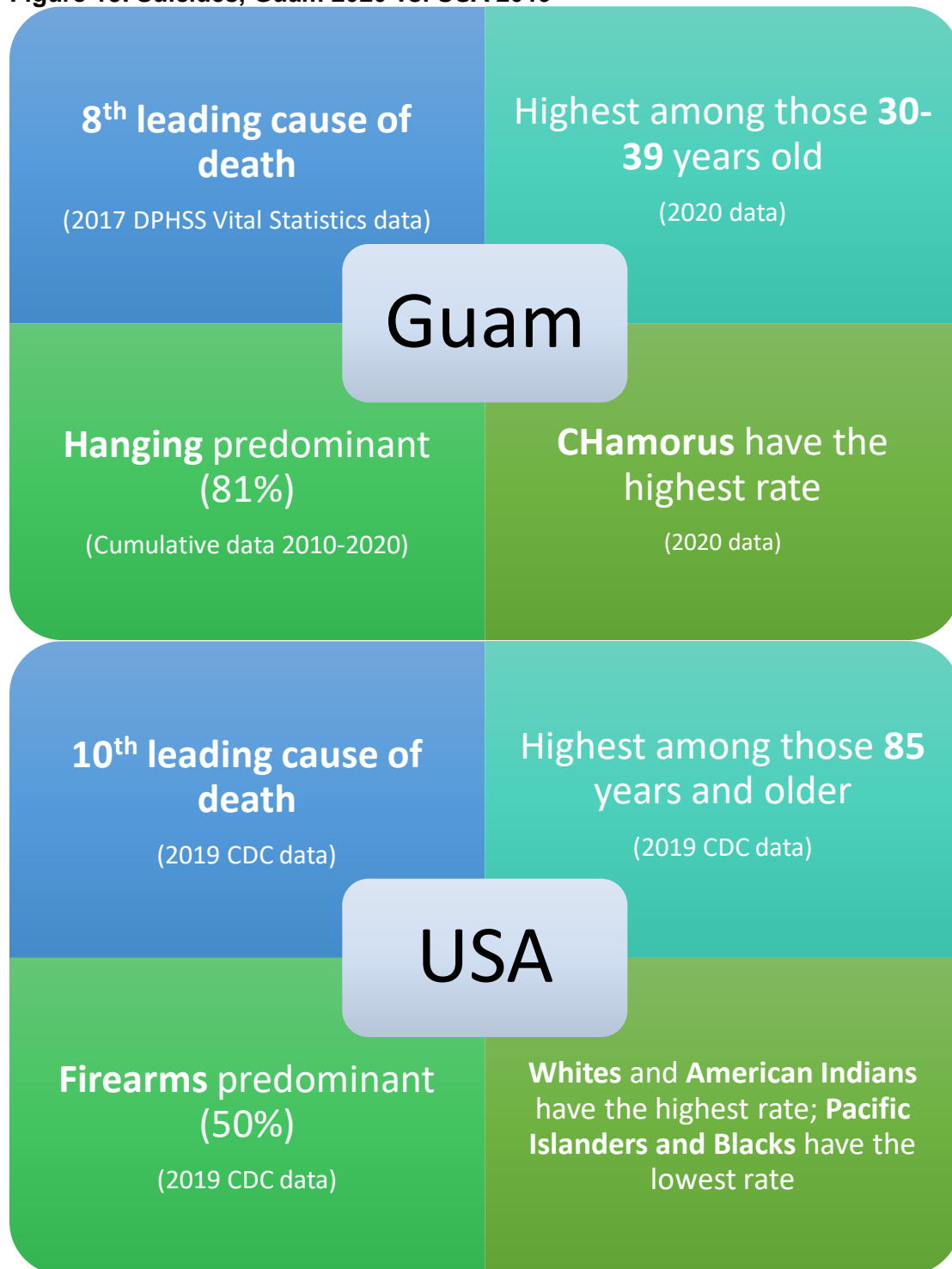
Suicidal ideation and attempts are higher among Guam high school students as compared to their US counterparts. More female students report thinking about suicide, making a suicide plan and attempting suicide but male students are more likely to make a suicide attempt that requires medical attentions. Identifying as gay, lesbian, bisexual or unsure of one's sexual identity is associated with a higher suicide risk.

The number and proportion of consumers presenting to GBHWC with suicidal ideation/attempts increased significantly between 2019 and 2020. One in five persons admitted to the GBHWVC in 2020 had a diagnosis of suicide ideation or attempt.

Suicide prevention remains a key public health priority, and the data point towards specific strategies to reduce suicide in Guam. These strategies include:

- Investing in suicide prevention efforts towards youth and young adults, especially CHamorus, Chuukese and other Micronesians, and those who identify as gay, lesbian or bisexual, or who are unsure of their sexual identity.
- Strengthening community capacity to recognize the signs of impending or possible suicide and training families, community members and first responders to effectively intervene to bring individuals at risk of suicide to professional attention.
- Training emergency room personnel and other hospital personnel to do brief interventions and referral to GBHWC and other mental health treatment providers for all cases of attempted suicide.
- Ensuring access to continuing care and support for those who have made suicide attempts.
- Aggressively screening to recognize and treat mental illness and depression.
- Preventing and controlling alcohol and other drug abuse.
- Building a sustainable suicide prevention and treatment infrastructure.
- Incorporating mental health interventions and suicide prevention into emergency/crisis response and disaster preparedness.

Figure 15. Suicides, Guam 2020 vs. USA 2019



Source: Guam data from Office of the Chief Medical Examiner, suicide data 2010-2020; US data from CDC, 2019 Fatal Injury Reports (accessed from [www.cdc.gov/injury/wisqars/fatal.html](http://www.cdc.gov/injury/wisqars/fatal.html) on 3/1/20) as reported by the American Foundation for Suicide Prevention

Note: US data for 2020 not yet available.