



Kosrae Rapid Youth Survey

2019 Report

Prepared by: Haley Cash, PIHOA

Table of Contents

Summary.....	4
Youth Surveillance in Kosrae.....	5-6
Background.....	7
Methodology.....	8
Sample Summary.....	9
Tobacco Smoking.....	10
Tobacco Chewing.....	11
Betel Nut Chewing.....	12
E-Cigarette Use.....	13
Alcohol Use.....	14
Overweight/Obesity.....	15
Discussion/Recommendations.....	16
Acknowledgements.....	17
Annex.....	18

Summary

The aim of this report is to present current prevalence of certain risk factors for developing non-communicable disease (NCD) among high school youth in Kosrae. These data can be used to better understand the burden of these risk factors, monitor trends, and determine who is at greatest risk for poor health in order to improve health among Kosrae youth through the development of targeted evidence-based interventions. The table below compares selected comparable indicators in Kosrae to Guam, Commonwealth of the Northern Mariana Islands (CNMI), and the United States (US). Green shading represents the location with the “best” prevalence, followed by orange shading, and red shading.

	Kosrae	Guam*	CNMI*	US*
Substance Use	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Smoking (within past 30 days)	25.9 (21.9-29.7)	13.2 (10.5-16.6)	12.4 (11.0-13.9)	8.8 (7.2-10.7)
Tobacco chewing (within past 30 days)	27.5 (23.7-31.7)	13.5 (10.6-16.9)	15.2 (13.7-16.9)	5.5 (4.4-6.7)
E-cigarette use (within past 30 days)	7.7 (5.7-10.5)	26.5 (22.2-31.2)	13.7 (12.1-15.4)	13.2 (11.4-15.2)
Alcohol use (within past 30 days)	13.5 (10.8-16.9)	18.2 (15.1-21.8)	23.3 (21.4-25.3)	29.8 (27.3-32.4)
Overweight/obesity				
Had obesity	16.3 (13.2-19.9)	23.0 (19.8-26.5)	16.4 (14.8-18.1)	14.8 (13.8-15.8)
Were overweight	20.0 (16.7-23.9)	19.3 (16.8-22.1)	18.2 (16.6-20.0)	15.6 (14.7-16.6)

*Guam, CNMI, and US data are from the 2017 YRBS because 2019 data were not available when this report was developed.

Youth Surveillance in Kosrae

The Rapid Youth High School Survey in Kosrae can inform us about the current prevalence of key NCD risk factors, as well as tell us about trends. These trends are important because they tell us whether or not our current efforts are effective at improving risk factor indicators among youth.

When we compare the 2017 Kosrae Rapid High School Survey data to the current 2019 data, we see that alcohol use prevalence has significantly improved among Kosraean youth. Although smoking and tobacco chewing prevalence both increased, this change was not quite statistically significant, though this change is still concerning. Although there was a slight decrease in overweight/obesity prevalence, this change was not statistically significant but still encouraging. This suggests that current efforts around youth alcohol use in Kosrae appear to making a positive impact and should be continued and scaled up if possible. However, efforts to reduce tobacco and betel nut use do not appear to working and should therefore be reexamined. It is possible that overweight/obesity strategies may be starting to make an impact, but strategic, evidence-based interventions should be considered to move all risk factors in the right direction.

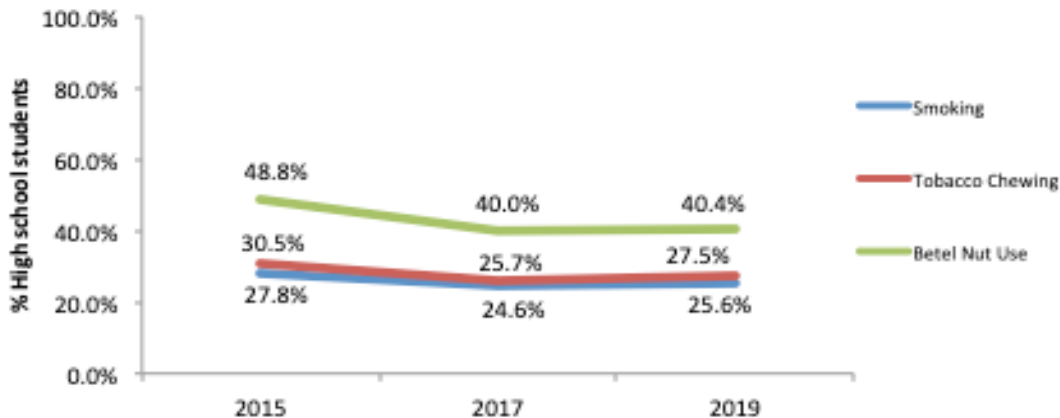
	2017%	2019%	Comparison*
Smoking (within past 30 days)	24.6	25.6	○
Tobacco chewing (within past 30 days)	25.7	27.6	○
Betel nut chewing (within past 30 days)	40.0	40.4	○
Alcohol use (within past 30 days)	18.2	13.2	↓
Overweight/obesity	38.1	36.3	○

*Chi-square tests were used to test for statistically significant differences between 2017 and 2019; p-values<0.05 were considered statistically significant; ↓= indicator got significantly better from 2017 to 2019; ○= indicator showed no significant change from 2017 to 2019.

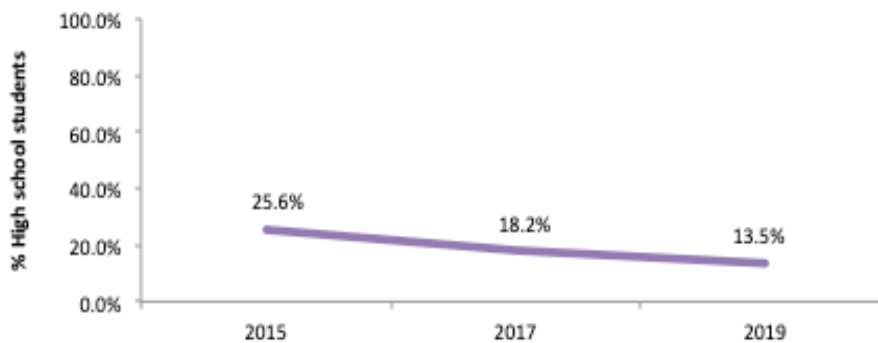
Youth Surveillance in Kosrae

Below you will find three-year trends from 2015-2019. There was a downward trend in smoking, chewing tobacco, and betel nut use from 2015 to 2017, though this progress seems to have stalled from 2017 to 2019. Alcohol use prevalence has continued to decline since 2015. Overweight/obesity prevalence remains fairly stagnant over time.

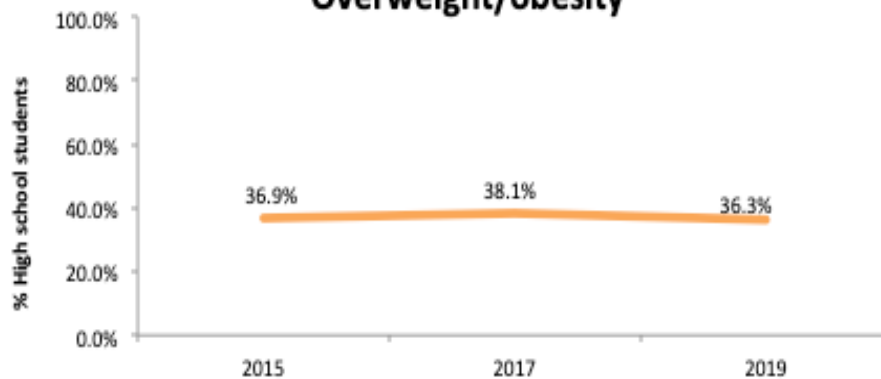
Tobacco and Betel Nut use



Alcohol use



Overweight/obesity



Background

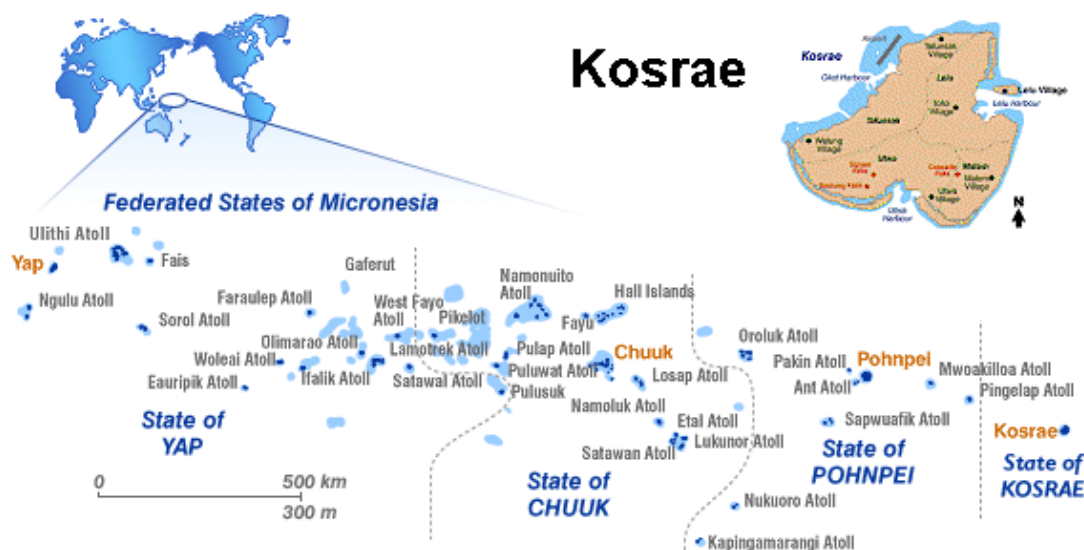


Figure 1. Map of Kosrae

Source: <https://scubadivingresource.com/destinations/pacific-south-pacific/micronesia/kosrae/>

Kosrae is one of the four states of the Federated States of Micronesia (FSM) located in the Pacific Ocean east of the Philippines. Kosrae is made up of one single island with a total land area of 42 square miles. As of 2010, the total population of Kosrae was 6,616, making it the least populated state in FSM.

In 2012, Kosrae State declared a State of Health Emergency due to the epidemic of non-communicable diseases (NCDs). This is largely due to loss of longevity, quality of life, and loss of workforce productivity due to NCDs. There has been a shift away from traditional lifestyle and foods that negatively impacts the culture and health of Kosraeans. The majority of the adult population in Kosrae is now overweight or obese and use of betel nut (generally with tobacco) has recently become common.

In 2010, the Pacific Island Health Officers' Association (PIHOA) declared a regional health emergency due to the epidemic of NCDs in the US-Affiliated Pacific Islands (USAPIs). The USAPIs include American Samoa, Commonwealth of the Mariana Islands (CNMI), Guam, Federated States of Micronesia (FSM), Republic of Palau, and Republic of the Marshall Islands. Stemming from this regional declaration of emergency, all six of these USAPIs agreed upon a regional NCD surveillance framework that includes core NCD and risk factor indicators that need to be routinely and consistently collected across the region in order to monitor the progress of local and regional NCD responses. This includes the following core youth indicators to be measured among high school youth every two years: 30-day tobacco smoking, 30-day tobacco chewing, 30-day alcohol use, and overweight/obesity (by physical measurement of height and weight). Therefore, Kosrae adopted the Kosrae Rapid Youth High School Survey beginning in 2015 to be implemented biannually.

Methodology

The Kosrae Rapid Youth High School Survey was developed by the Kosrae State Department of Health Services (Kosrae DHS) with assistance from PIHOA (see Annex for copy of the survey). This survey instrument collects data on core youth NCD indicators (30-day smoking, tobacco chewing, betel nut chewing, e-cigarette use, and alcohol use and overweight/obesity). The Kosrae Rapid High School Youth Survey is conducted at the only high school in Kosrae. All students in grades 9-12 present on the survey day are eligible to participate in the survey.

The Kosrae DHS staff conducted the 2019 survey at Kosrae High School from September 23-26, 2019. Prior to data collection, all staff were trained on survey administration to include physical measurements of height and weight. Kosrae DHS staff first recorded demographic information of each student in Section 1 of the paper survey form, then took height and weight and also recorded these in Section 1. Section 2 of the paper survey form was then completed by students confidentially and turned in anonymously to collect information on substance use. Afterwards, Kosrae DHS staff entered the paper surveys into a Microsoft Excel database. PIHOA provided technical support for cleaning and analyzing these data.

Data on substance use are all based on self-report. Measured height and weight were used to calculate Body Mass Index (BMI). BMI percentiles were used to determine BMI categories for those students under 17 years old. Adult BMI calculations were used for those students 18 and older. Overall, all students were classified as underweight, healthy, overweight, or obese.

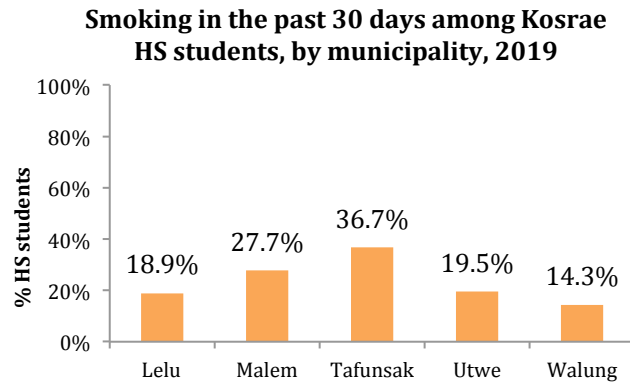
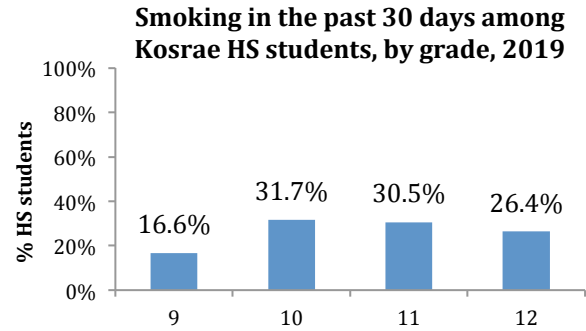
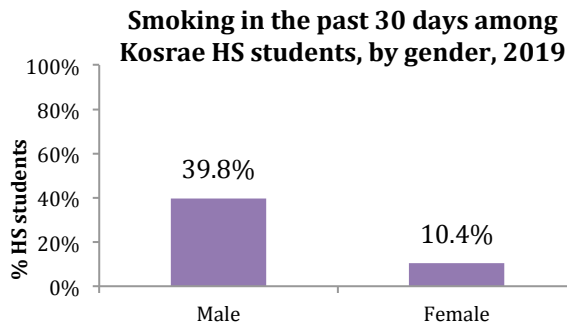
There were a total of 540 students on the on the KHS roster for the 2019-2020 school year. A total of 480 complete surveys, the response rate was 89%.

Sample Characteristics (N=560)

<u>Demographic Characteristics</u>	N	%
Gender		
Male	263	47.0%
Female	297	53.0%
Age		
13-14	132	23.6%
15-16	251	44.8%
17-18	155	27.7%
19+	22	3.9%
Grade		
9	163	29.1%
10	132	23.6%
11	123	22.0%
12	142	25.4%
Municipality		
Lelu	174	31.1%
Malem	114	20.4%
Tafunsak	171	30.5%
Utwe	85	15.2%
Walung	16	2.9%
Total	560	100.0%

Smoking

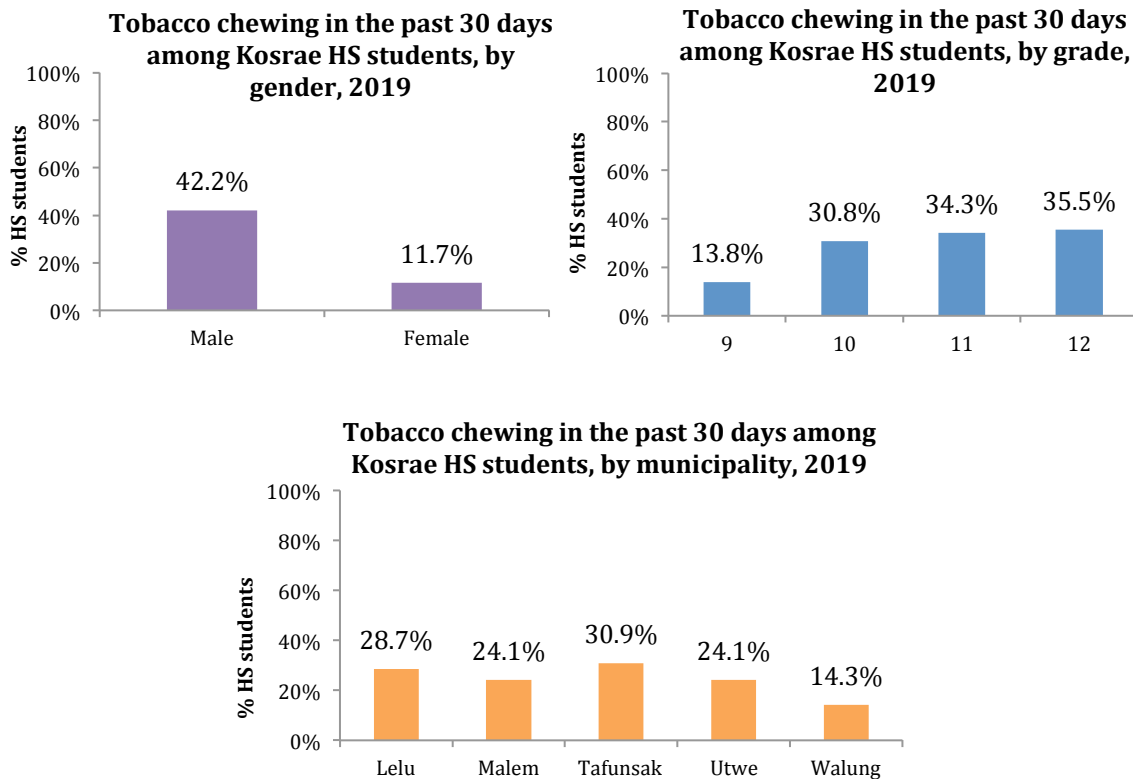
25.6% of high school students in Kosrae are current smokers (smoked in the past 30 days).



Male students have a smoking prevalence almost four times higher than female students (39.8% vs. 10.4%). Smoking prevalence almost doubles from 9th graders and 10th graders. There also appears to be some variation by municipality.

Tobacco Chewing

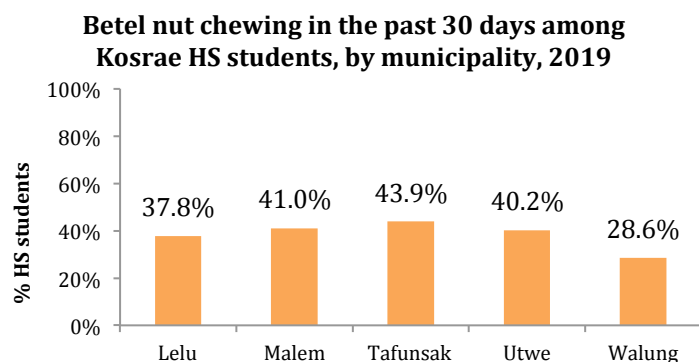
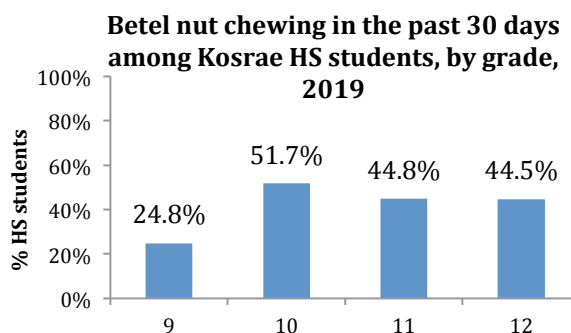
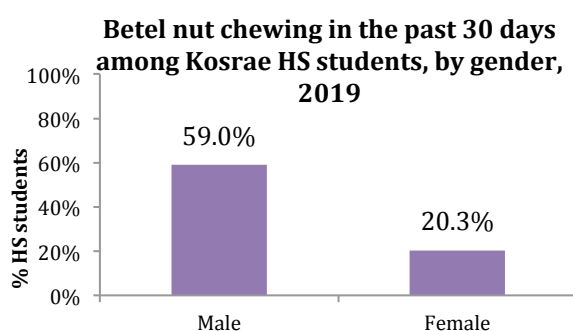
27.5% of high school students in Kosrae are current tobacco chewers (chewed tobacco in the past 30 days). This includes chewing tobacco with or without betel nut.



Male students have a tobacco chewing prevalence almost four times as high as the female prevalence (42.2% vs. 11.7%). Tobacco chewing doubles from 9th graders to 10th graders, then continues to rise with grade. Tobacco chewing prevalence is lowest in Walung at 14.3% and highest in Tafunsak at 30.9%.

Betel Nut Chewing

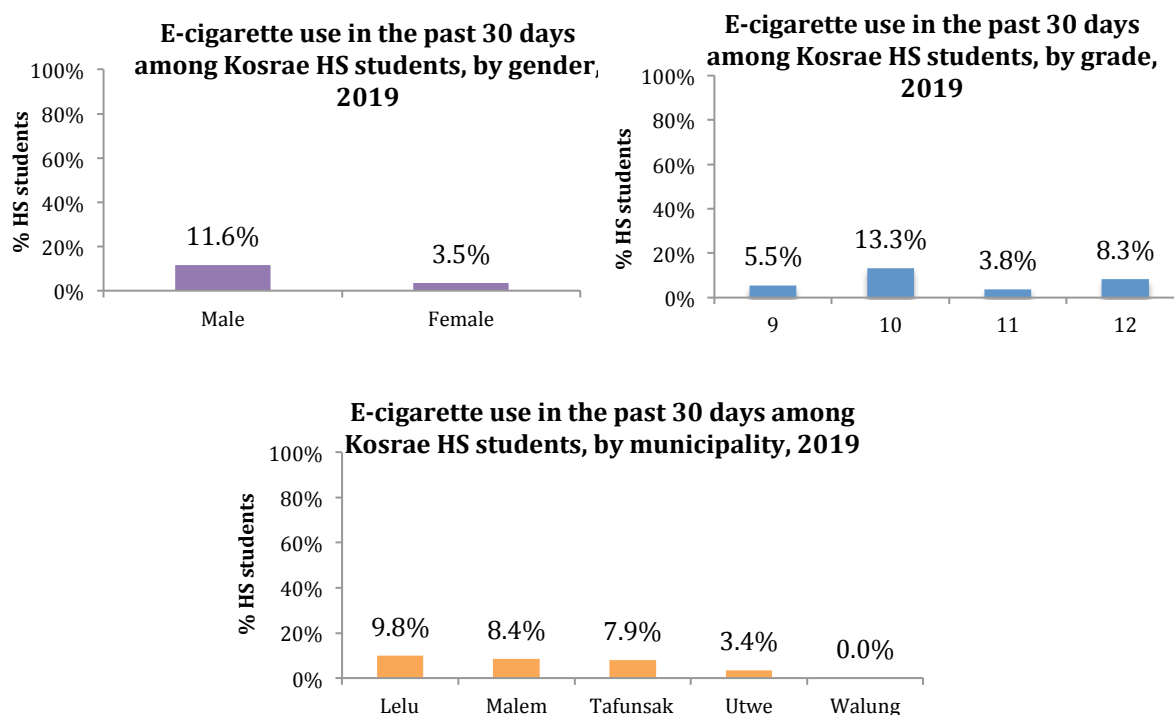
Two out of five (40.4%) high school students in Kosrae are current betel nut chewers (chewed betel nut in the past 30 days).



Betel nut chewing prevalence is about three times higher among male students (59.0%) compared to female students (20.3%). Betel nut chewing prevalence increases two-fold from 9th graders to 10th graders. However, it should be noted that one-quarter (24.8%) of 9th graders are already using betel nut. Betel nut prevalence varies by municipality ranging from 28.6% in Walung to 43.9% in Tafunsak.

E-Cigarette Use

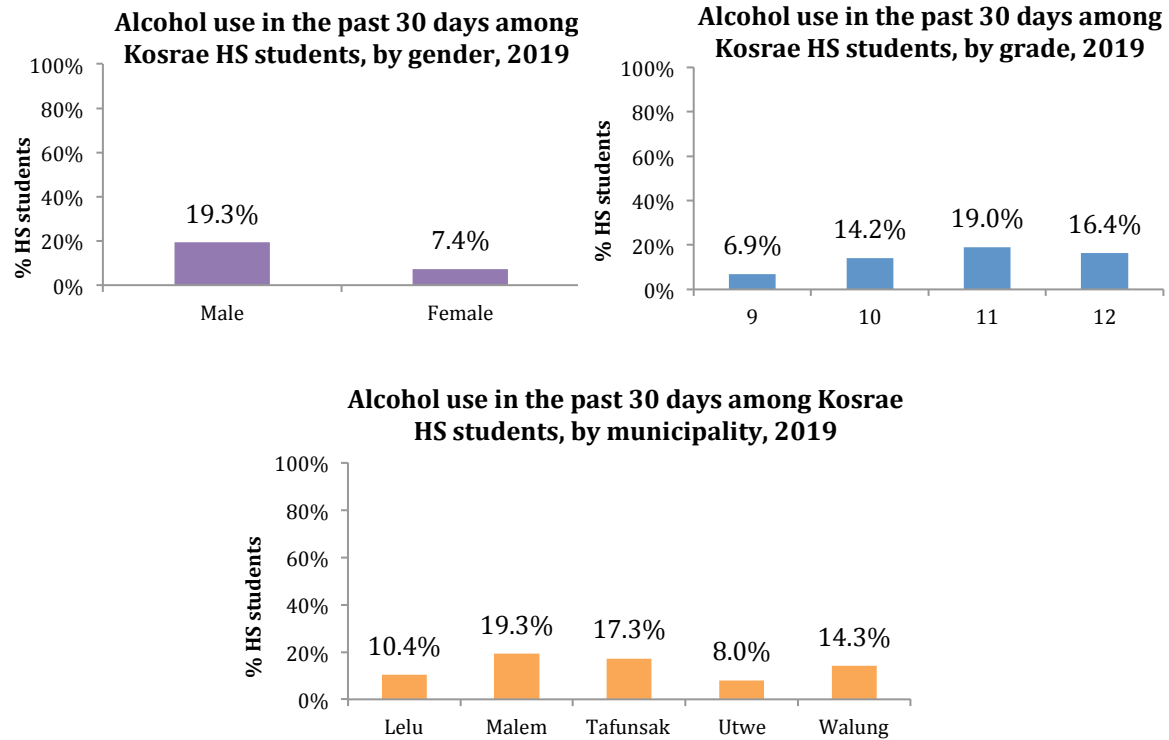
One out of 13 (7.7%) of high school students in Kosrae are current e-cigarette users (used e-cigarettes in the past 30 days).



E-cigarette use is three times higher among male students (11.6%) compared to female students (3.5%). E-cigarette use prevalence is highest amongst 10th graders at 13.3%. E-cigarette use prevalence varies by municipality ranging from 0% in Walung to 9.8% in Lelu.

Alcohol Use

13.5% of high school students in Kosrae have used alcohol in the past 30 days.

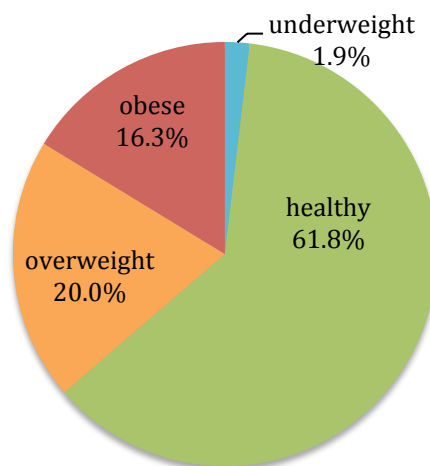


Alcohol use prevalence is over two times higher among male students (19.3%) compared to female students (7.4%). Like other substances, prevalence increases with grade. Alcohol use prevalence varies slightly by municipality ranging from 8.0% in Utwe to 19.3% in Malem.

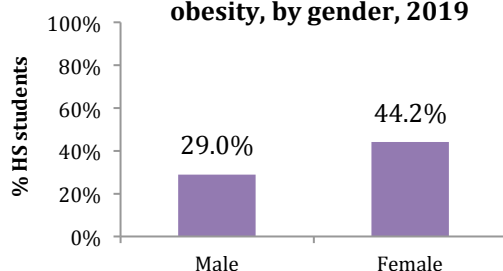
Overweight/Obesity

Over two-thirds (36.3%) of high school students in Kosrae are overweight or obese.

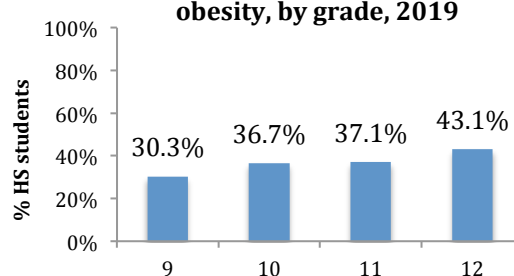
Body Mass Index (BMI) Categories of Kosrae HS students, 2019



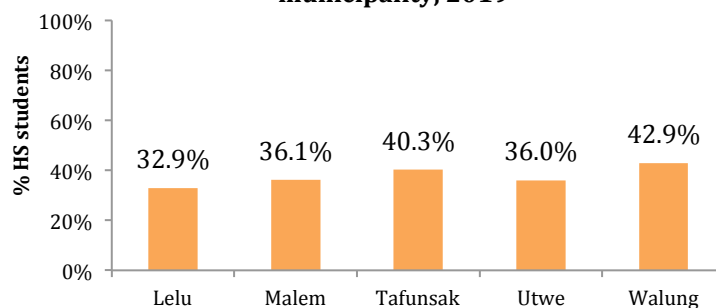
Kosrae HS student overweight/obesity, by gender, 2019



Kosrae HS student overweight/obesity, by grade, 2019



Kosrae HS student overweight/obesity, by municipality, 2019



Prevalence of overweight/obesity is higher among female students (44.2%) compared to male students (29.0%). Overweight/obesity increases with grade, where 43.1% of 12th graders are overweight or obese. Overweight/obesity prevalence ranged by municipality from 32.9% in Lelu to 42.9% in Walung.

Discussion

Based on the data presented in this report, it is clear that many non-communicable disease risk factors are highly prevalent among youth in Kosrae. Although, it appears as if alcohol use prevalence is decreasing among youth in Kosrae. However, smoking, tobacco chewing, betel nut use, and overweight/obesity prevalence remains high. This indicates a need to build upon current efforts regarding alcohol use prevention in youth, while reevaluating efforts regarding tobacco, betel nut, and youth physical activity and nutrition.

Tobacco use through smoking and chewing (with betel nut) is a significant concern given that these prevalence rates are higher than other jurisdictions in the region and **two out of five high school youth are chewing betel nut, mostly with tobacco added**. Although alcohol use is lower than other jurisdictions in the region, prevalence is higher among male students and those in 11th and 12th grade. There is use of all substances as young as 9th grade, indicating a need for early intervention prior to high school.

Over two-thirds of high school youth in Kosrae are overweight or obese and this is not improving. This high prevalence indicates the need for high-impact action through evidence-based policies and interventions. Due to the fact that youth who are overweight or obese in adolescence are more likely to be overweight or obese in adulthood compared to healthy weight adolescents, it is important to prevent overweight/obesity in high school students. Physical activity programs in schools, sports programs, school nutrition, and healthy school food policies are effective ways to prevent overweight/obesity among youth.

Recommendations

Overall, the Kosrae Rapid High School Survey continues to collect much needed data from Kosrae high school youth. It is highly recommended that **this survey continue to be conducted on a regular, biannual basis**.

High school programs around nutrition and physical activity should be strategically evaluated. Additionally, Kosrae State and FSM National policies regarding these topics should also be reviewed. These data can be a powerful asset to motivate higher level change, especially regarding tobacco, alcohol, and unhealthy food legislation that have potential to greatly reduce risk factor prevalence among youth in Kosrae. **Without high-impact action, these risk factors will continue to rise** among youth, and continue into adulthood, resulting in high adult risk factor and disease prevalence that greatly contribute to morbidity and mortality in Kosrae and burden the healthcare system.

Acknowledgements

- **Kosrae Department of Health Services Management and Leadership**
 - Director Livinson Taulung
 - Rhine William
 - Nena Tolenoa
 - Cecilia Sigrah
 - Robina Waguk, Data Support
- **Kosrae High School Staff**
 - Rolinson Neth, KHS Principal 2015
 - Lina George, KHS Principal 2017
 - Juslyn Nena, Support staff
- **Department of Education**
 - Dr. Tulensru Waguk, Director
 - Quartus Esau, Chief of Curriculum and Instruction
- **NCD Core Risk Survey Team (2015 and 2017)**
- **Kosrae High School Students**

Annex

Students will first be interviewed and measured by trained NCD Survey Staff to complete questions 1-11 in the shaded box. Then, students will complete questions independently, and then submit forms into a designated box. **No names are to be collected.**

SECTION 1: To be completed by NCD Survey Staff:

1. Date (M/D/Y):	____/____/____
2. Name of School:	_____
3. Grade:	9 10 11 12 (circle one)
4. Name of Class or Section:	_____
5. Gender:	Male Female (circle one)
6. Age (years)	_____ years
7. Residence (Municipality):	_____
8. Staff Member Initials:	_____

9. Height:	_____ cm
10. Weight:	_____ kg
11. Staff Member Initials:	_____

SECTION 2: To be completed by Student after SECTION 1:

This section is for the student to complete (Do not put your name on this sheet. All information is confidential.)

- | | | | |
|--|-----|----|--------------|
| 1. During the past 30 days , did you <u>smoke</u> any tobacco? | Yes | No | (circle one) |
| 2. During the past 30 days , did you have <u>at least one drink of alcohol</u> ? | Yes | No | (circle one) |
| 3. During the past 30 days , did you chew <u>at least one betel nut</u> ? | Yes | No | (circle one) |
| 4. During the past 30 days , did you <u>chew</u> any tobacco (with or without betelnut)? | Yes | No | (circle one) |
| 5. During the past 30 days , did you <u>use any electronic vapor products including e-cigarettes, vapes, vape pens, e-cigars, ehookahs, hookah pens, and mods.</u> | Yes | No | (circle one) |