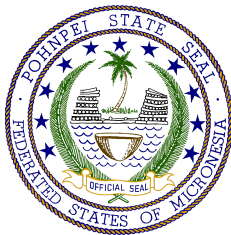




Pohnpei Rapid Youth Survey

2017 Report

Prepared by: Haley Cash, PIHOA



Office of the Director

Department of Health Services Pohnpei State Government

P.O. Box 189, Kolonia, Pohnpei

Federated States of Micronesia 96941

Phone: (691) 320-2214, 2215, 2216 Facsimile: 320-5394

E-mail: KCapelle@fsmhealth.fm

Letter of Endorsement

The Rapid High School Survey is a locally developed surveillance tool to monitor trends of non-communicable disease risk factors among youth in Pohnpei. This report presents findings from the 2017 survey, as well as trends from the 2015 survey. This report should be reviewed and used to guide public health program and policy making in Pohnpei.

Sincerely,

Kapilly Capelle
Director

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Summary

The aim of this report is to present current prevalence of certain risk factors for developing non-communicable disease (NCD), sexually transmitted infections, and teenage pregnancy among high school youth in Pohnpei. 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 Pohnpei youth through the development of targeted evidence-based interventions. The table below compares selected comparable indicators in Pohnpei 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.

	Pohnpei	Guam*	CNMI*	US*
Substance Use	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Smoking (within past 30 days)	30.8 (28.8-32.9)	13.2 (10.5-16.6)	12.4 (11.0-13.9)	8.8 (7.2-10.7)
Tobacco chewing (within past 30 days)	27.1 (25.1-29.1)	13.5 (10.6-16.9)	15.2 (13.7-16.9)	5.5 (4.4-6.7)
Alcohol use (within past 30 days)	35.9 (33.8-38.0)	18.2 (15.1-21.8)	23.3 (21.4-25.3)	29.8 (27.3-32.4)
Sexual Health				
Ever had sexual intercourse	42.8 (40.6-45.0)	33.6 (29.4-38.1)	33.6 (31.5-35.9)	39.5 (36.8-42.4)
Did not use condom at last intercourse (among sexually active youth)	78.0 (75.2-80.8)	64.9 (56.6-72.4)	47.4 (42.5-52.4)	46.2 (43.8-48.6)
Did not use any method to prevent pregnancy at last intercourse (among sexually active youth)	47.7 (44.3-51.1)	33.0 (25.3-41.7)	23.8 (19.9-28.3)	13.8 (12.0-15.9)
Overweight/obesity				
Had obesity	12.7 (11.2-14.2)	23.0 (19.8-26.5)	16.4 (14.8-18.1)	14.8 (13.8-15.8)
Were overweight	20.0 (18.2-21.8)	19.3 (16.8-22.1)	18.2 (16.6-20.0)	15.6 (14.7-16.6)

*Guam, CNMI, and US data from the 2017 YRBS

Youth Surveillance in Pohnpei

The Rapid Youth High School Survey in Pohnpei 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 2015 Pohnpei Rapid High School Survey data to the current 2017 data, we see that all key NCD indicators have gotten worse among youth in Pohnpei except for betel nut chewing which has remained about the same. This suggests that the current efforts to improve these NCD indicators among youth in Pohnpei are not working and should therefore be improved or replaced with more effective, evidence-based strategies.

	2015%	2017%	Comparison*
Smoking (within past 30 days)	21.7	30.8	↑
Tobacco chewing (within past 30 days)	21.2	27.1	↑
Betel nut chewing (within past 30 days)	40.9	43.1	○
Any tobacco use (within past 30 days)	30.9	39.4	↑
Alcohol use (within past 30 days)	30.3	35.9	↑
Overweight/obesity	27.4	32.6	↑

*Chi-square tests were used to test for statistically significant differences between 2015 and 2017; p-values<0.05 were considered statistically significant; ↑ = indicator got significantly worse from 2015 to 2017; ○ = indicator showed no significant change from 2015 to 2017

Background

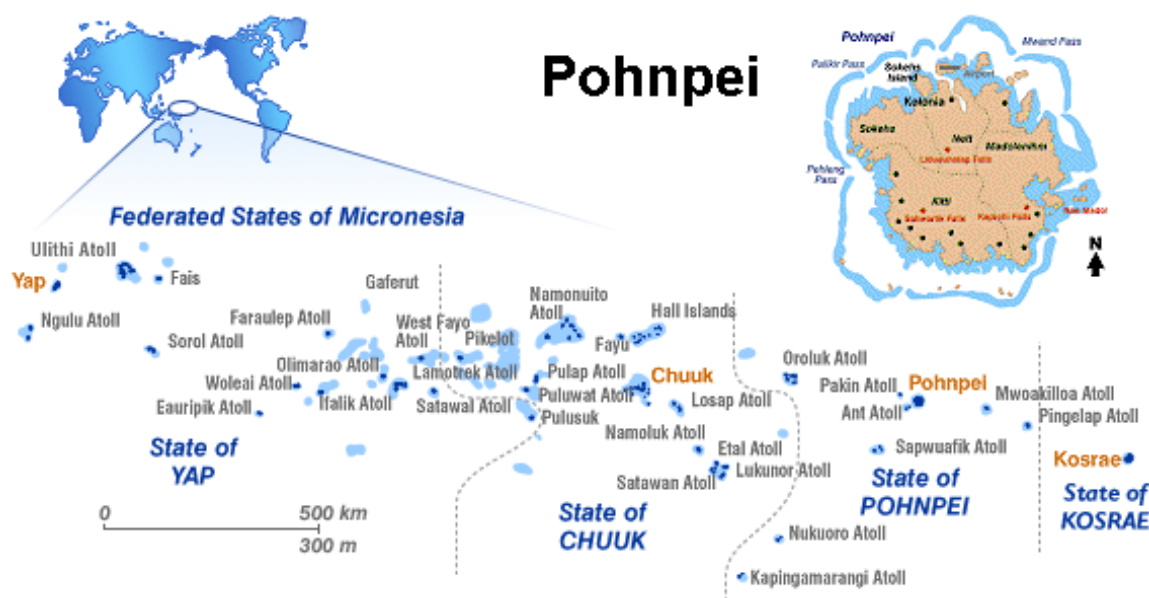


Figure 1. Map of Pohnpei

<https://scubadivineresource.com/destinations/pacific-south-pacific/micronesia/pohnpei/>

Pohnpei is one of the four states of the Federated States of Micronesia (FSM) located in the Pacific Ocean east of the Philippines. Pohnpei is made up of one main island with many small surrounding islets and atolls. The total land area of Pohnpei is 129 square miles. As of 2010, the total population of Pohnpei was 36,196, making it the second most populated state in FSM.

In 2013, Pohnpei 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 Pohnpeians. The majority of the adult population in Pohnpei is now overweight or obese and about one-third of adults smoke tobacco and about one-third of adults chew betel nut.

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, Pohnpei adopted the Pohnpei Rapid Youth High School Survey beginning in 2015 to be implemented biannually.

Methodology

The Pohnpei Rapid Youth High School Survey was developed by the Pohnpei State Department of Health Services with assistance from PIHOA (see Annex for copy of the survey). This survey instrument originally contained only core youth NCD indicators (30-day smoking, tobacco chewing, betel nut chewing, and alcohol use and overweight/obesity) in 2015, but expanded in 2017 to also include blood pressure measurement, additional alcohol questions, and reproductive health indicators. The Pohnpei Rapid High School Youth Survey was conducted in all high schools (both public and private) in Pohnpei. All students in grades 9-12 present on the survey day were eligible to participate in the survey.

The Pohnpei Department of Health Services (Pohnpei DHS) staff conducted this survey at each school between November 6 – December 6, 2017. Prior to data collection, all staff were trained on survey administration to include physical measurements of height, weight, and blood pressure. Pohnpei DHS staff first recorded demographic information of each student in Section 1 of the paper survey form, then took height, weight, and blood pressure measurements of the student 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 and reproductive health behaviors. Afterwards, Pohnpei DHS staff entered the paper surveys into a Microsoft Excel database. It should be noted that the forms from Our Lady of Mercy Catholic School (approximately 130 students) were misplaced and therefore not included. PIHOA provided technical support for cleaning and analyzing these data.

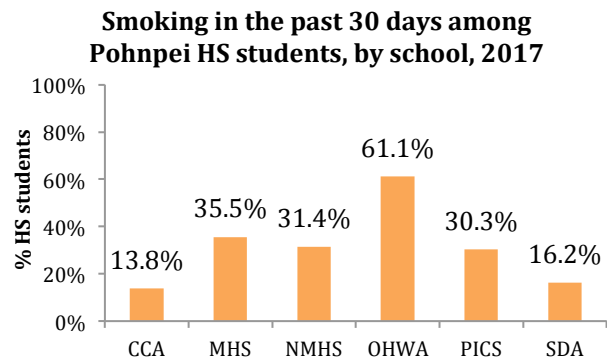
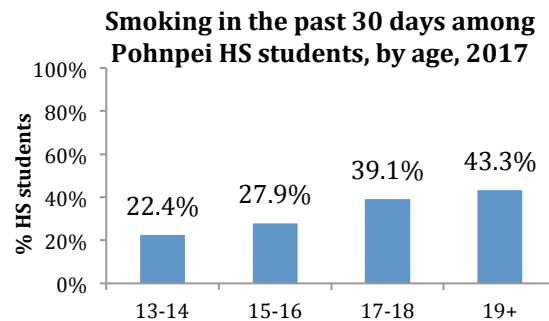
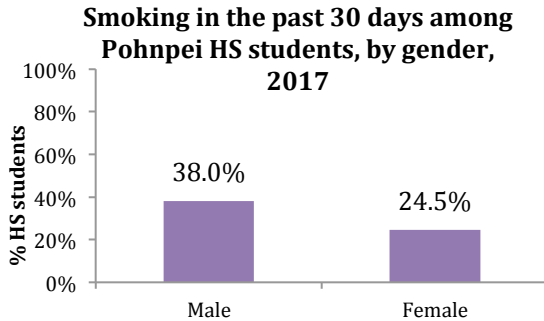
Data on substance use and reproductive health behaviors are all based on self-report. Measured height and weight were used to calculate Body Mass Index (BMI). BMI percentiles were used to determine BMI categories for those students under 17 years old. Adult BMI calculations were used for those students 18 and older. Overall, all students were classified as underweight, healthy, overweight, or obese. Two blood pressure measurements were conducted on each student, and the average of these two measurements were used to classify each student as normal (<120/80), prehypertensive (120/80-139/89), or hypertensive (140/90 or higher).

Sample Characteristics (N=1947)

<u>Demographic Characteristics</u>	N	%
Gender		
Male	913	46.9%
Female	1034	53.1%
Age		
13-14	406	20.9%
15-16	874	44.9%
17-18	562	28.9%
19+	105	5.4%
Grade		
9	556	28.6%
10	511	26.2%
11	480	24.7%
12	400	20.5%
School		
CCA	80	4.1%
MHS	355	18.2%
NMHS	427	21.9%
OHWA	54	2.8%
PICS	920	47.3%
SDA	111	5.7%
Total	1947	100.0%

Smoking

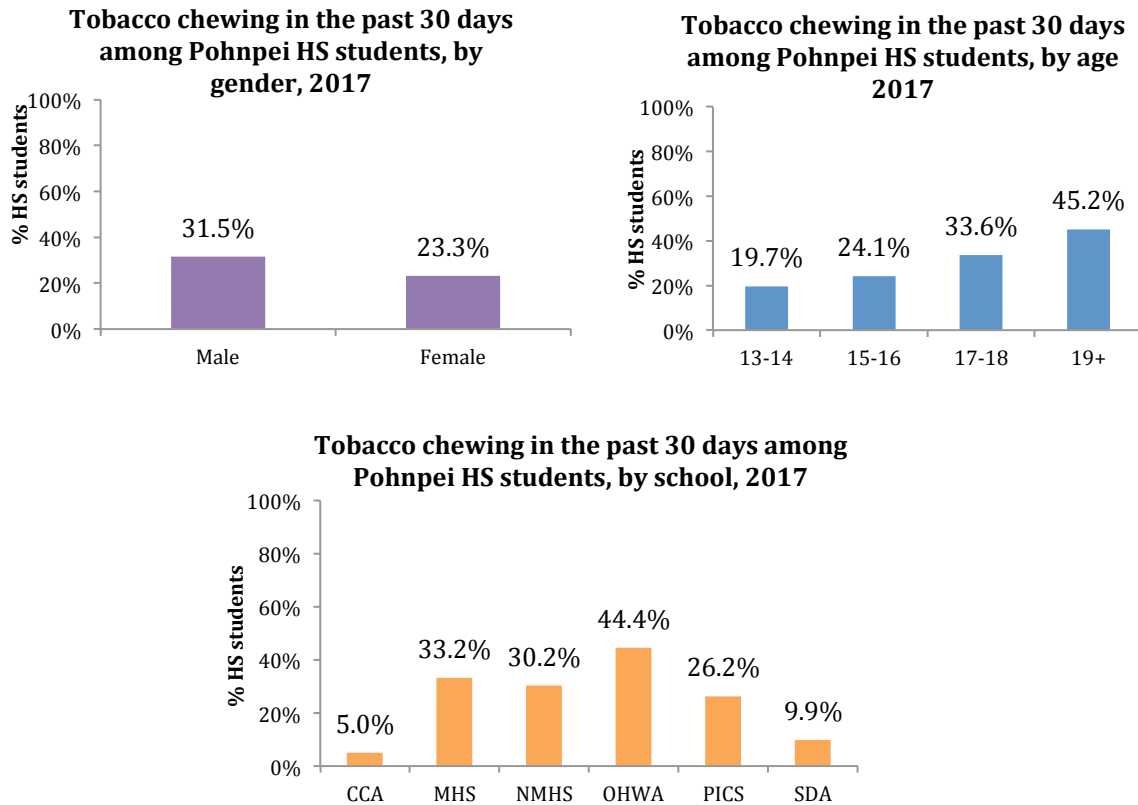
30.8% of high school students in Pohnpei are current smokers (smoked in the past 30 days).



Male students have a higher smoking prevalence than female students (38.0% vs. 24.5%). Additionally, smoking prevalence increases with age, with the prevalence doubling from ages 13-14 (22.4%) to ages 19+ (43.3%). There also appears to be a lot of variation in smoking prevalence between schools ranging from 13.8% (CCA) to 61.1% (OHWA).

Tobacco Chewing

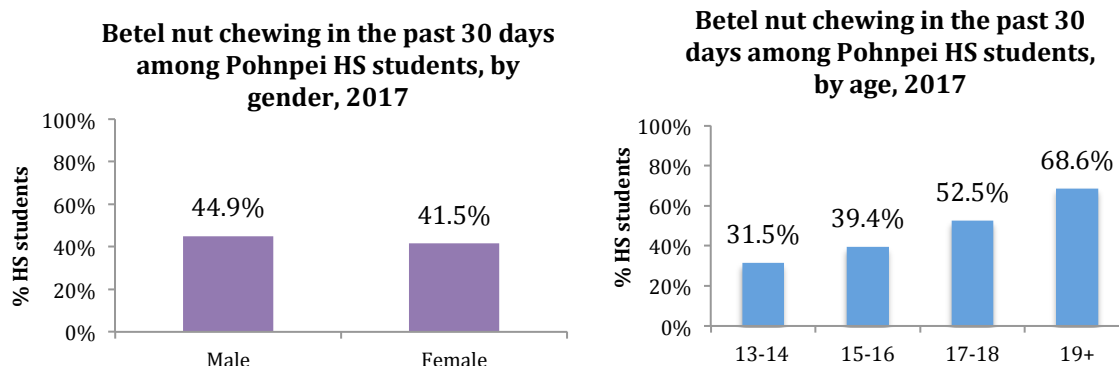
27.1% of high school students in Pohnpei are current tobacco chewers (chewed tobacco in the past 30 days). This includes chewing tobacco with or without betel nut.



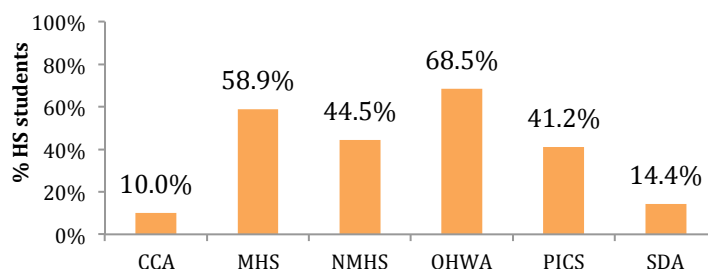
Male students have a higher tobacco chewing prevalence than female students (31.5% vs. 23.3%). Tobacco chewing prevalence increases with age, more than doubling from ages 13-14 (19.7%) to ages 19+ (45.2%). Tobacco chewing prevalence varies by school with similar trends to smoking with the lowest prevalence at CCA (5.0%) and the highest prevalence at OHWA (44.4%).

Betel Nut Chewing

Almost half (43.1%) of high school students in Pohnpei are current betel nut chewers (chewed betel nut in the past 30 days).



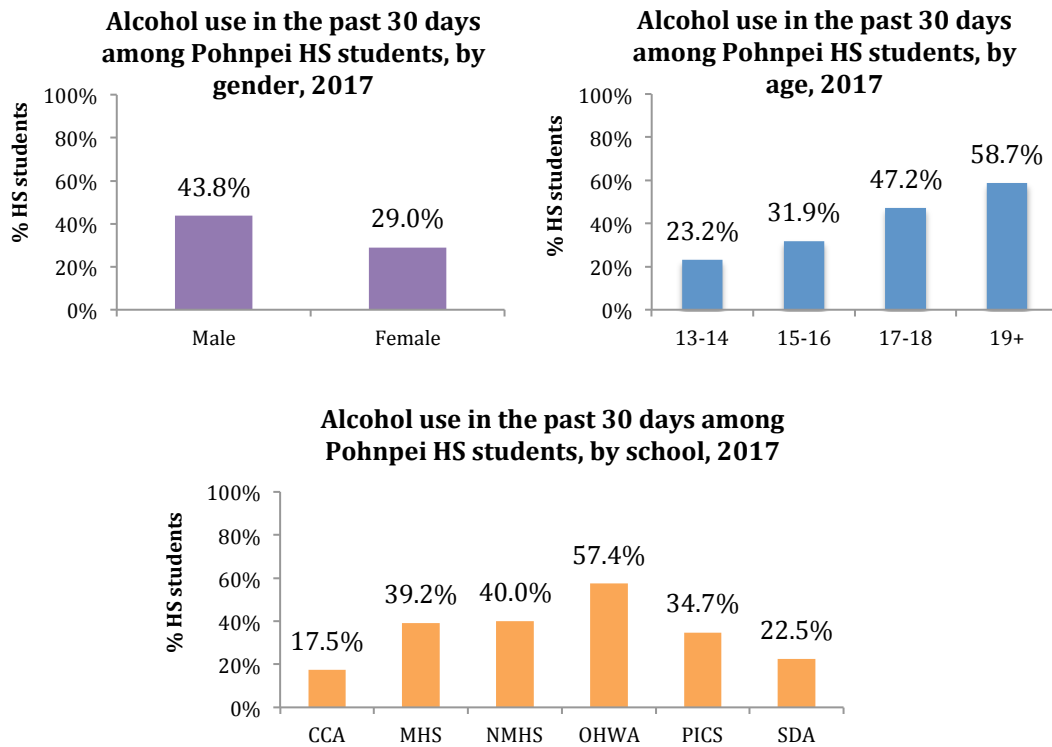
Betel nut chewing in the past 30 days among Pohnpei HS students, by school, 2017



Betel nut chewing prevalence is similar amongst male (44.9%) and female (41.5%) high school students in Pohnpei. Betel nut chewing prevalence also increases with age like tobacco use, also doubling from ages 13-14 to ages 19+. However, it should be noted that almost one-third (31.5%) of 13-14 year olds are already using betel nut, and by ages 19+, over two-thirds (68.6%) of high school youth are using betel nut. Variation between schools is similar to that observed with tobacco use, ranging from 10.0% at CCA to 68.5% at OHWA.

Alcohol Use

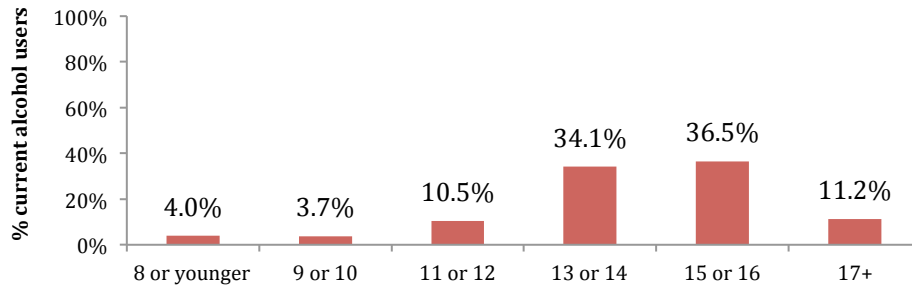
Over one-third (35.9%) of high school students in Pohnpei have used alcohol in the past 30 days.



Alcohol use prevalence is higher among male students (43.8%) compared to female students (29.0%). Like other substances, prevalence increases with age, almost tripling from ages 13-14 (23.2%) to ages 19+ (58.7%). Patterns of alcohol use by school are similar to tobacco and betel nut use. Alcohol use prevalence is lowest at CCA (17.5%) and highest at OHWA (57.4%).

Alcohol Use

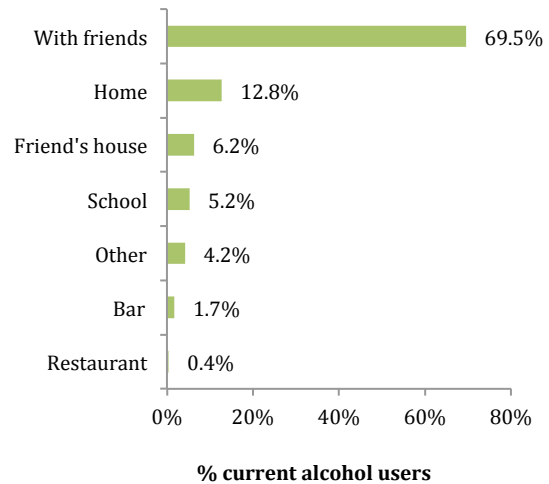
Age first tried alcohol among Pohnpei HS current alcohol users, 2017



Where Pohnpei HS current alcohol users usually get their alcohol, 2017



Where Pohnpei HS current alcohol users had their first drink, 2017

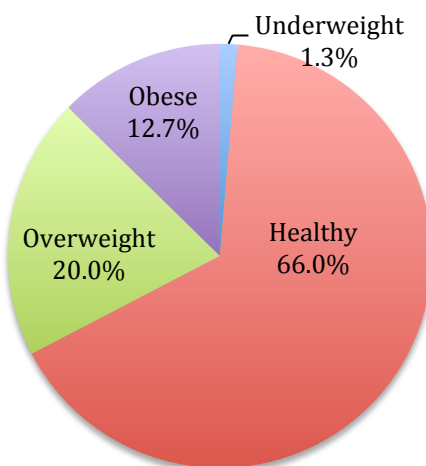


The majority (70.6%) of Pohnpei high school students first tried alcohol between the ages of 13 to 16, although 18.2% first tried alcohol at 12 or younger. Over half (58.3%) of high school students in Pohnpei got their alcohol from someone, and another 19.0% gave someone money to buy it for them. Over two-thirds of Pohnpei high school students (69.5%) had their first drink of alcohol with friends.

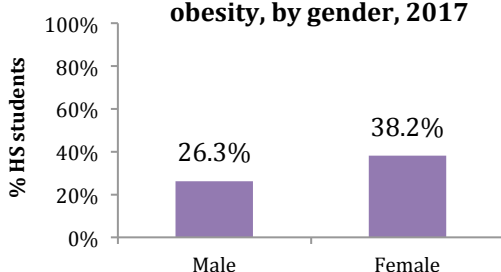
Overweight/Obesity

One-third (32.7%) of high school students in Pohnpei are overweight or obese.

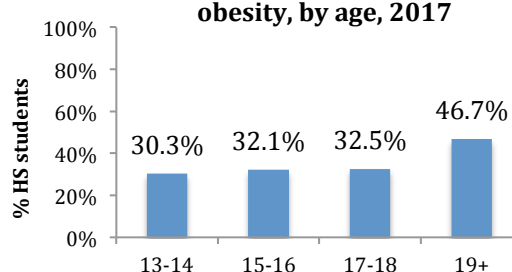
**Body Mass Index (BMI) Categories of Pohnpei HS students,
2017**



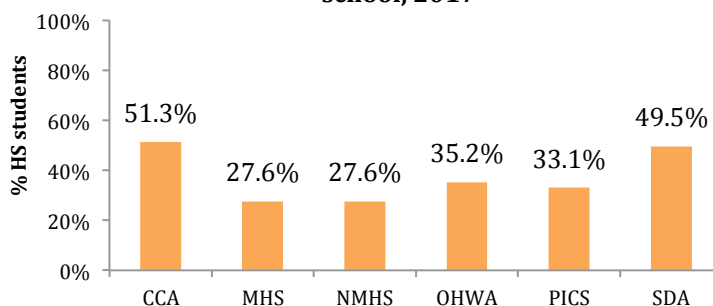
**Pohnpei HS student overweight/
obesity, by gender, 2017**



**Pohnpei HS student overweight/
obesity, by age, 2017**



**Pohnpei HS student overweight/obesity, by
school, 2017**

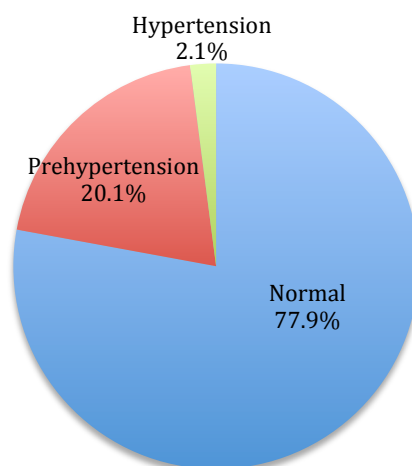


Prevalence of overweight/obesity is higher among female students (38.2%) compared to male students (26.3%). Overweight/obesity is consistent around one-third from ages 13-18, then increase to 46.7% among those aged 19 and older. The schools that had the lowest substance use prevalence had the highest overweight obesity prevalence (CCA=51.3%; SDA= 49.5%)

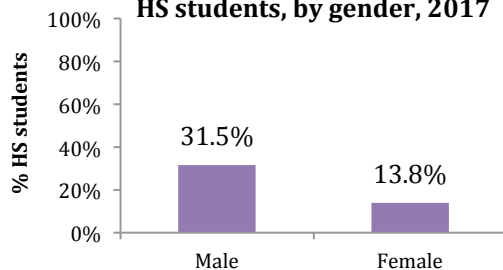
Blood Pressure

2.1% of high school students in Pohnpei had a blood pressure (BP) that indicated hypertension (HTN) (BP=140/90 or higher) and 20.1% had a BP that indicated prehypertension (pre-HTN) (BP=120/80-139/89).

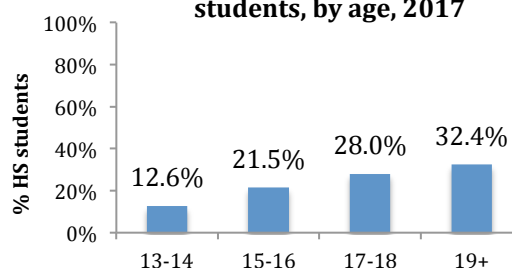
Blood Pressure Categories among Pohnpei HS students, 2017



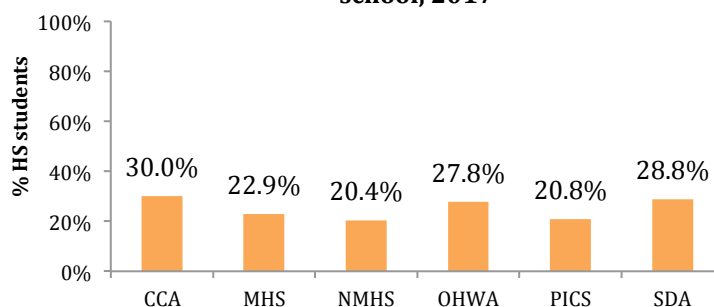
HTN/pre-HTN among Pohnpei HS students, by gender, 2017



HTN/pre-HTN among Pohnpei HS students, by age, 2017



HTN/pre-HTN among Pohnpei HS students, by school, 2017



Prevalence of HTN/pre-HTN is higher among male students (31.5%) compared to female students (13.8%). There is a clear trend of HTN/pre-HTN prevalence with age. Among students 19 years and older, one-third (32.4%) have HTN or pre-HTN. Trends by school are similar to those observed with overweight/obesity in which the schools with the highest prevalence of overweight/obesity (CCA, SDA) have the highest prevalence of HTN/pre-HTN.

Reproductive Health

Reproductive Health Factors	N	%
Ever had sexual intercourse		
Yes	832	42.8%
No	1113	57.2%
Age at first sexual intercourse (among sexually active youth)		
11 years or younger	76	9.1%
12 years	74	8.9%
13 years	122	14.7%
14 years	162	19.5%
15 years	161	19.4%
16 years	144	17.3%
17 years or older	93	11.2%
Number of sexual partners (among sexually active youth)		
1 person	274	33.0%
2 people	145	17.4%
3 people	118	14.2%
4 people	74	8.9%
5 people	44	5.3%
6 or more people	176	21.2%
Condom use during last intercourse (among sexually active)		
Yes	183	22.0%
No	648	78.0%
Method used to prevent pregnancy during last intercourse (among sexually active)		
No method used	397	47.7%
Birth control pills	15	1.8%
Condoms	148	17.8%
IUD or implant	1	0.1%
Shot, patch, or birth control ring	9	1.1%
Withdrawal or some other method	38	4.6%
Not sure	224	26.9%

Almost half (42.8%) of high school students in Pohnpei are sexually active. About one-third (32.7%) of sexually active high school students in Pohnpei first had sex at age 13 or younger. Two-thirds (67.0%) of the sexually active students report two or more lifetime sexual partners. Only 22.0% of sexually active students reported using a condom at last intercourse. Almost half (47.7%) of sexually active students reported using no method to prevent pregnancy at last intercourse, and another 26.9% were not sure if they did. More effective methods to prevent pregnancy (such as birth control pills, IUD/implants, shot/patch/ring) were uncommon.

Discussion

Based on the data presented in this report, it is clear that many risk factors are highly prevalent among youth in Pohnpei and these risk factors are getting worse. This indicates a great need to evaluate current efforts in order to develop more effective, evidence-based school programs.

Tobacco use through smoking and chewing (with betel nut) is a significant concern given that these prevalence rates are much higher than other jurisdictions in the region and **two out of five high school youth are using tobacco**. Additionally, **almost one-third of high school youth in Pohnpei are using alcohol**. There are clear trends in these use patterns, highlighting the need to prioritize certain high schools in Pohnpei for intervention. Additionally, substance use begins early in Pohnpei, so interventions in youth prior to high school should be considered.

One-third of high school youth in Pohnpei are overweight or obese and two out of five already have hypertension or pre-hypertension. Among students 19 and older, almost half are overweight or obese and about one-third have hypertension or pre-hypertension. 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.

Almost half of high school students in Pohnpei are sexually active. **Few students regularly use condoms, and only about one-quarter are using methods to prevent pregnancy.** Effective modern methods such as birth control pills, implants, IUDs, and Depo are highly under-utilized by students. Education about and access to methods to prevent sexually transmitted infections and teenage pregnancy are greatly needed among high schools in Pohnpei.

Recommendations

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

High school programs around substance use, nutrition, physical activity, and reproductive health should be strategically evaluated. Additionally, Pohnpei 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 potential to greatly reduce risk factor prevalence among youth in Pohnpei. **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 Pohnpei and burden the healthcare system.

Acknowledgements

Pohnpei State Department of Health and Social Services

- Kapilly Capelle, Director of Health Services
- Dr. Eliaser Johnson, Chief of Primary Health Care
- Delpihn Abraham, NCD Coordinator
 - Other support staff

Pohnpei State Department of Education

- Churchill Edward, Director of Education
- Pohnpei Island Central School
 - Principal, staff, and students
- Madolenihmw High School
 - Principal, staff, and students
- Nanpei Memorial High School
 - Principal, staff, and students

Private High Schools

- Seventh Day Adventist
 - Principal, staff, and students
- Calvary Christian Academy
 - Principal, staff, and students
- OHWA International Christian Academy
 - Principal, staff, and students
- Our Lady of Mercy Catholic High School
 - Principal, staff, and students

Pacific Islands Health Officers' Association

- Dr. Haley Cash

Annex

Pohnpei State High School NCD Questionnaire

Students will first be interviewed and measured by trained NCD Survey Staff to complete questions 1-10 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. Blood Pressure

 1st Reading: ____/____
 2nd Reading: ____/____
9. BMI Height: _____ inches

 Weight: _____ pounds
10. 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.

Substance Use

11. During the **past 30 days**, did you chew **at least one betel nut**? **Yes No** (circle one)
12. During the **past 30 days** did you **chew** any tobacco (with or without betelnut)? **Yes No** (circle one)
13. During the **past 30 days**, did you **smoke** any tobacco? **Yes No** (circle one)
14. During the **past 30 days**, did you have **at least one drink of alcohol**? **Yes No** (circle one)
15. **How old** were you when you had your **first drink of alcohol other than a few sips**? (Circle one)
- (a) I have never had a drink of alcohol other than a few sips
- (b) 8 years old or younger
- (c) 9 or 10 years old
- (d) 11 or 12 years old
- (e) 13 or 14 years old
- (f) 15 or 16 years old
- (g) 17 years old or older
16. During the past 30 days, on how many days did you have **4** or more drinks of alcohol in a row (if you are **female**) or **5** or more drinks of alcohol in a row (if you are **male**)? **Yes No** (circle one)
17. **Where** did you have your **first drink of alcohol beverage other than a few sips**? (circle one)
- (a) Restaurant
- (b) Home
- (c) School
- (d) Bar
- (e) With friends
- (f) Friends House
- (g) Other _____
18. During the past 30 days, how did you **usually** get the alcohol you drank?
- (a) I did not drink alcohol during the past 30 days
- (b) I bought it in a store or shop
- (c) I bought it at a restaurant or bar
- (d) I gave someone else money to buy it for me
- (e) Someone gave it to me
- (f) I took it from a store or family member
- (g) I got it some other way

SECTION 2: Continued...

19. Have you ever had sexual intercourse? **Yes** **No** (circle one) **IF NO, STOP HERE!**

20. **How old** were you when you had **sexual intercourse for the first time**?

- (a) I have never had sexual intercourse
- (b) 11 years old or younger
- (c) 12 years old
- (d) 13 years old
- (e) 14 years old
- (f) 15 years old
- (g) 16 years old
- (h) 17 years old or older

21. During your life, with how many people have you had sexual intercourse?

- [a] 1 person
- [b] 2 people
- [c] 3 people
- [d] 4 people
- [e] 5 people
- [f] 6 or more people

22. The last time you had sexual intercourse, did you or your partner use a condom?

- (a) I have never had sexual intercourse**
- (b) Yes**
- (c) No**

23. The last time you had sexual intercourse, what one **method** did you or your partner use **to prevent pregnancy**? (Select only one response.)

- [a] I have never had sexual intercourse
- [b] No method was used to prevent pregnancy
- [c] Birth control pills
- [d] Condoms
- [e] An IUD (such as Mirena or ParaGard) or implant (such as Implanon or Nexplanon)
- [f] A shot (such as Depo-Provera), patch (such as Ortho Evra), or birth control ring (such as NuvaRing)
- [g] Withdrawal or some other method
- [h] Not sure