



Chuuk Rapid Youth Survey

2021 Report

ENDORSEMENT



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Letter of Endorsement

The Rapid High School Survey Results present findings from the 2021 survey. This is the third round we did this survey in Chuuk. And the results give us a clear picture of the trends of Non-communicable Diseases and Sexual health behavior risk factors amongst our youth in Chuuk. For better intervention strategies and policy making on such programs, I strongly encourage public health programs and other stakeholders to use this as a guide.

Sincerely,

Dr Bosco Buliche
Director, DHS

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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 Chuuk. 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 Chuuk youth through the development of targeted evidence-based interventions. The table below compares selected comparable indicators in Chuuk 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

	Chuuk	Guam*	CNMI*	US*
Substance Use	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Smoking (within past 30 days)	23.3 (20.9-26.0)	11.9 (19.5-14.8)	10.8 (9.6-12.0)	6.0 (5.0-7.2)
Tobacco chewing (within past 30 days)	24.5 (22.0-27.2)	11.4 (8.8-14.7)	16.1 (14.7-17.5)	3.8 (3.2-4.6)
Alcohol use (within past 30 days)	12.9 (10.3-15.0)	25.3 (21.3-29.8)	26.1 (24.4-27.9)	29.2 (27.3-31.2)
E-cigarette use	19.1 (16.8-21.6)	35.2 (30.0-40.8)	24.4 (22.6-26.3)	32.7 (30.7-34.8)
Sexual Health				
Ever had sexual intercourse	37.5 (34.6-40.4)	37.0 (32.1-42.2)	35.8 (34.0-37.8)	38.4 (35.4-41.6)
Did not use condom at last intercourse (among sexually active)	77.2 (72.8-81.2)	58.4 (50.5-65.9)	61.0 (56.8-65.2)	45.7 (43.4-48.0)
Did not use any method to prevent pregnancy at last intercourse (among sexually active)	42.7 (37.7-47.8)	35.7 (28.2-43.9)	27.1 (23.4-31.1)	11.9 (10.3-13.9)
Overweight/obesity				
Had obesity	16.6 (14.4-19.0)	23.8 (20.9-26.9)	21.6 (20.1-23.2)	15.5 (13.8-17.3)
Were overweight	20.5 (18.1-23.0)	18.3 (15.7-21.2)	15.9 (14.5-17.3)	16.1 (14.9-17.5)

*Guam, CNMI, and US data from the 2019 Youth Risk Behavior Survey (YRBS) which were the most recent, comparable data available at the time that this report was prepared.

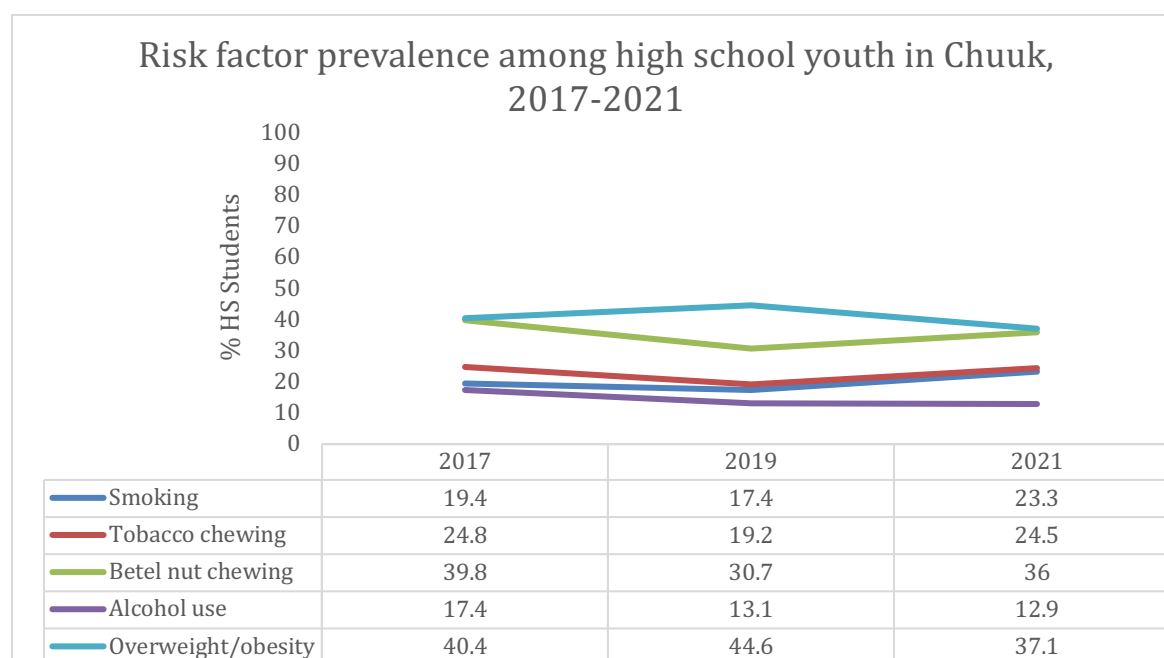
Youth Surveillance in Chuuk

The Rapid Youth High School Survey in Chuuk 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 2019 Chuuk Rapid High School Survey data to the current 2021 data, we see that smoking, tobacco chewing, and betel nut use prevalence all significantly increased. This suggests that the current efforts to reduce substance use among high school youth may need to be evaluated. Although there was a significant decrease in overweight/obesity prevalence from 2019 to 2021, this prevalence remains quite high at 37.1%. Evidence-based strategies should be considered to reduce substance use and overweight/obesity in Chuuk.

	2019%	2021%	Comparison*
Smoking (within past 30 days)	17.4	23.3	↑
Tobacco chewing (within past 30 days)	19.2	24.5	↑
Betel nut chewing (within past 30 days)	30.7	36.0	↑
Alcohol use (within past 30 days)	13.1	12.9	○
Overweight/obesity	44.6	37.1	↓

*Chi-square tests were used to test for statistically significant differences between 2019 and 2021; p-values<0.05 were considered statistically significant; ↑= indicator got significantly worse from 2019 to 2021; ○= indicator showed no significant change from 2019 to 2021; ↓=indicator got significantly better from 2019 to 2021



Background

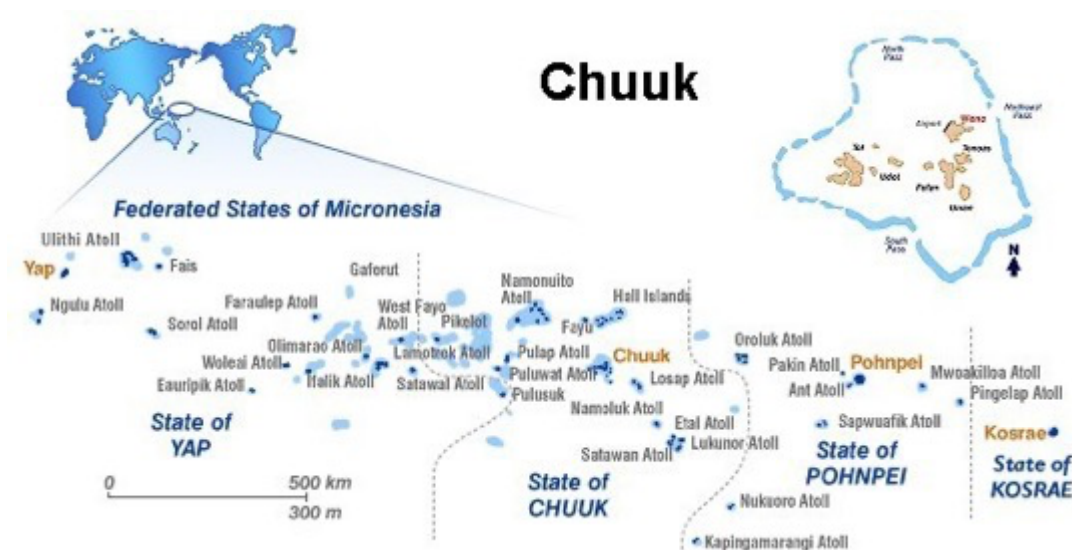


Figure 1. Map of Chuuk

Source: <https://thorfinn.net/diving-chuuk/>

Chuuk is one of the four states of the Federated States of Micronesia (FSM) located in the Pacific Ocean east of the Philippines. Chuuk is made up of several island groups with a total land area of 46 square miles. Most of the population lives within Chuuk Lagoon that contains the State Capitol, Weno. As of 2010, the total population of Chuuk was 48,654, making it the most populated state in FSM.

In 2011, Chuuk 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 Chuukese. The majority of the adult population in Chuuk is now overweight or obese, about one-third of adults smoke tobacco, and use of betel nut (generally with tobacco) has 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, Chuuk adopted the Chuuk Rapid Youth High School Survey beginning in 2017 to be implemented biannually.

Methodology

The Chuuk Rapid Youth High School Survey was developed by the Chuuk State Department of Health Services (Chuuk 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, alcohol use, and overweight/obesity). Additionally, in 2021 Chuuk added additional questions on reproductive health. The Chuuk Rapid High School Youth Survey is conducted at all high schools in Chuuk. All students in grades 9-12 present on the survey day are eligible to participate in the survey.

The Chuuk DHS staff conducted the 2021 survey from February-May, 2022 (2021-2022 school year). Prior to data collection, all staff were trained on survey administration to include physical measurements of height and weight. Chuuk DHS staff first recorded demographic information of each student in Section 1 of the paper survey form, then took height and weight and 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. Afterwards, Chuuk 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 18 years old. Adult BMI calculations were used for those students 18 and older. Overall, all students were classified as underweight, healthy, overweight, or obese.

Sample Characteristics (N=1,076)

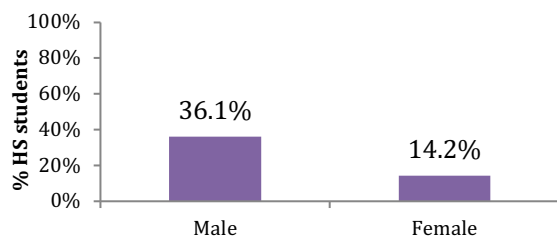
<u>Demographic Characteristics</u>	N	%
Gender*		
Male	453	42.2%
Female	620	57.8%
Age*		
14 or younger	112	10.5%
15-16	507	47.6%
17-18	387	36.3%
19+	59	5.5%
Grade		
9	310	28.8%
10	287	26.7%
11	186	17.3%
12	293	27.2%
School		
Chuuk High School	443	41.2%
Mortlocks High School	55	5.1%
Nomusofo Junior High School	7	0.7%
Pollap Junior High School	19	1.8%
PPO Junior High School	2	0.2%
SCA High School	182	16.9%
SDA High School	6	0.6%
SNHS Tonoas	64	5.9%
SNHS Fefen	49	4.6%
Faichuuk High School	8	0.7%
Moch Community High School	48	4.5%
Nema Community High School	13	1.2%
Pattiw Junior High School	6	0.6%
Weipat High School	77	7.2%
Xavier High School	97	9.0%
Total	1076	100.0%

*3 missing gender, 11 missing age

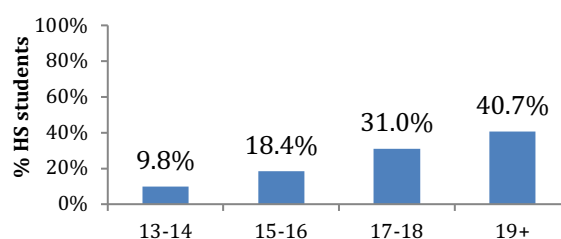
Smoking

23.3% of high school students in Chuuk are current smokers (smoked in the past 30 days). Male students have a higher smoking prevalence than female students (36.1% vs. 14.2%). Additionally, smoking prevalence increases with age, with the prevalence increasing from ages 13-14 (9.8%) to ages 19+ (40.7%). There also appears to be a lot of variation in smoking prevalence between schools ranging from 2.1% (Xavier High School) to 68.8% (Weipat High School).

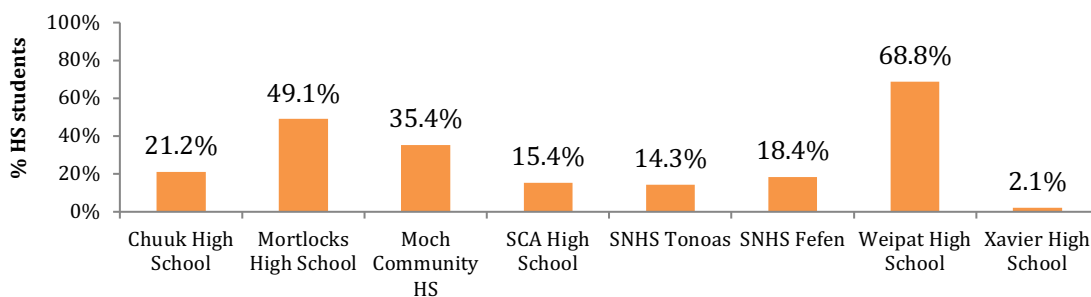
Smoking in the past 30 days among Chuuk HS students, by gender, 2021



Smoking in the past 30 days among Chuuk HS students, by age, 2021

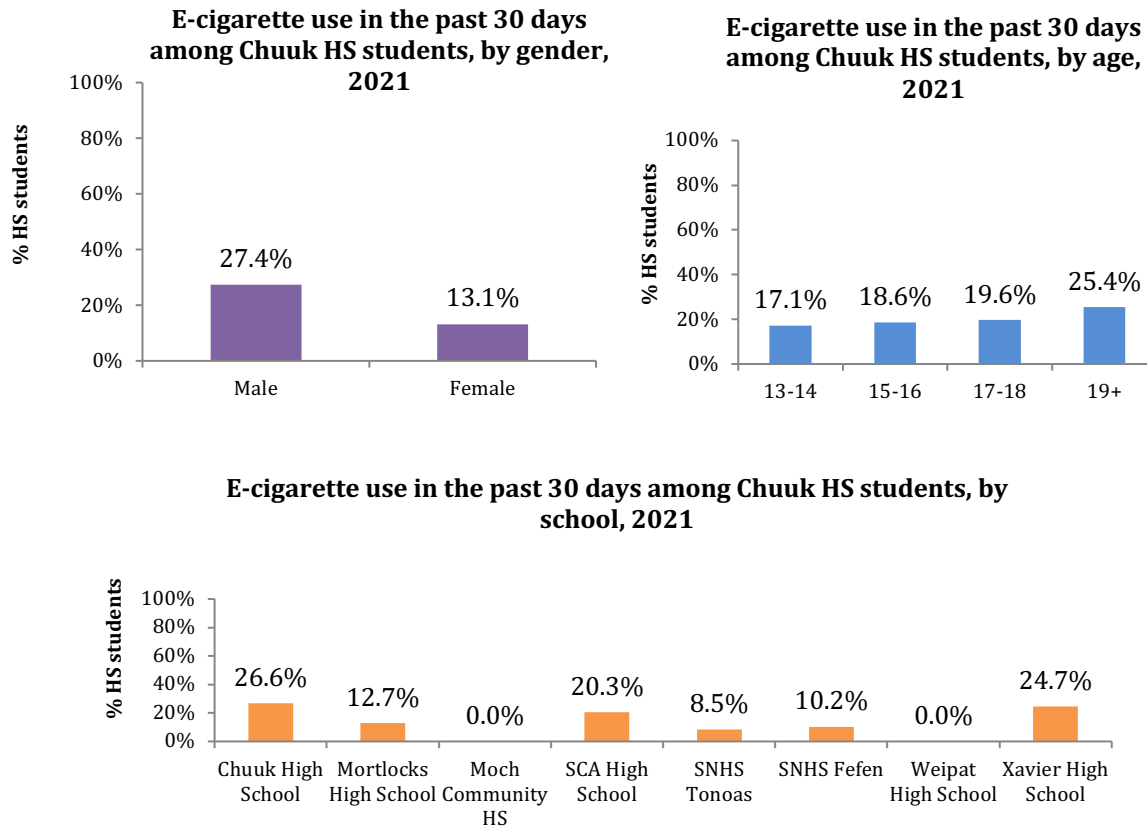


Smoking in the past 30 days among Chuuk HS students, by school, 2021



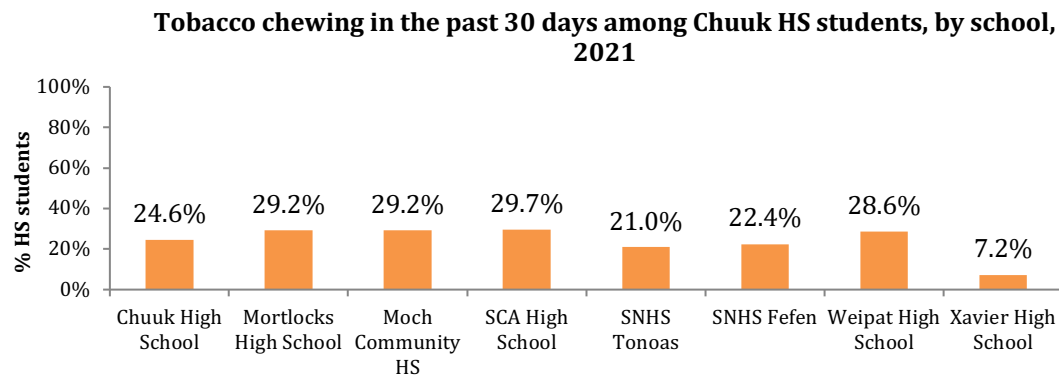
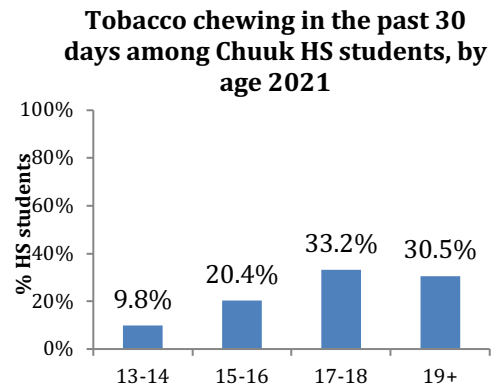
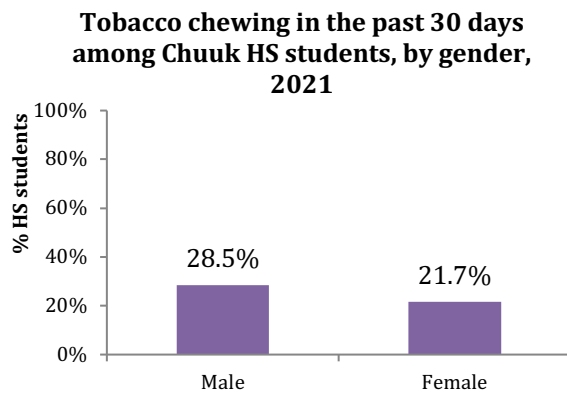
E-Cigarette Use

19.1% of high school students in Chuuk are current e-cigarette users (used e-cigarettes in the past 30 days). Male students have a higher e-cigarette use prevalence than female students (27.4% vs. 13.1%). E-cigarette use prevalence is highest among those 19 and older at 25.4%. E-cigarette use prevalence varies by school with highest prevalence at Chuuk High School (26.6%) and Xavier High School (24.7%).



Tobacco Chewing

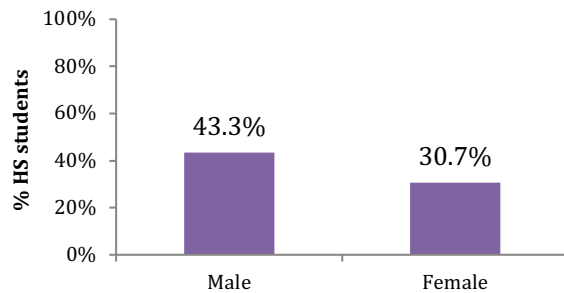
24.5% of high school students in Chuuk are current tobacco chewers (chewed tobacco in the past 30 days). This includes chewing tobacco with or without betel nut. Male students have a higher tobacco chewing prevalence than female students (28.5% vs. 21.7%). Tobacco chewing prevalence increases with age, tripling from ages 13-14 (9.8%) to ages 19+ (30.5%). Tobacco chewing prevalence is over 20% in all schools except for Xavier high school at 7.2%.



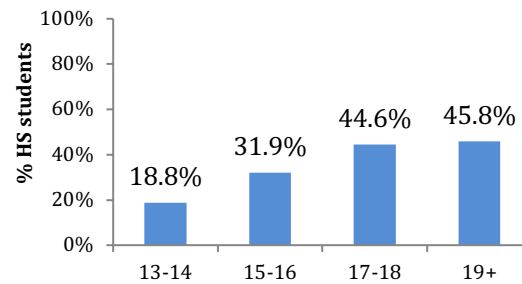
Betel Nut Chewing

Over one-third (36.0%) of high school students in Chuuk are current betel nut chewers (chewed betel nut in the past 30 days). Betel nut chewing prevalence is higher among male students (43.3%) compared to female students (30.7%). Betel nut chewing prevalence also increases with age, more than doubling from ages 13-14 (18.8%) to ages 19+ (45.8%). Variation between schools is similar to that observed with tobacco chewing, with the lowest prevalence at Xavier High School (7.2%).

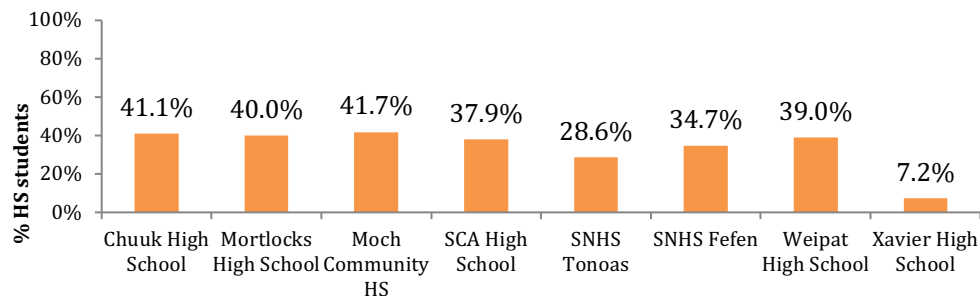
Betel nut chewing in the past 30 days among Chuuk HS students, by gender, 2021



Betel nut chewing in the past 30 days among Chuuk HS students, by age, 2021



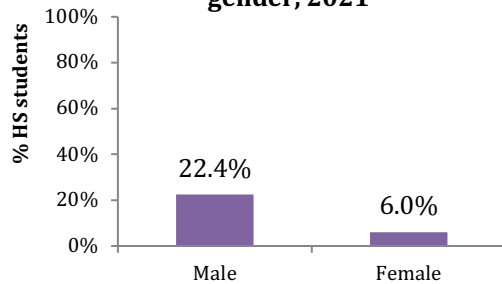
Betel nut chewing in the past 30 days among Chuuk HS students, by school, 2021



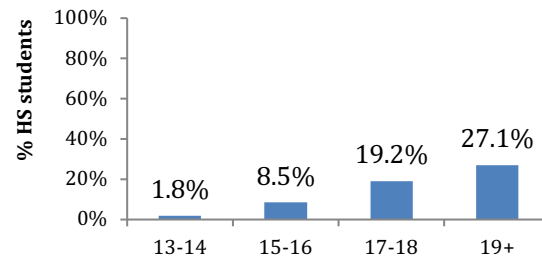
Alcohol Use

12.9% of high school students in Chuuk have used alcohol in the past 30 days. Alcohol use prevalence is higher among male students (22.4%) compared to female students (6.0%). Like other substances, prevalence increases with age, from ages 13-14 (1.8%) to ages 19+ (27.1%). Alcohol use prevalence varied by school, with prevalence highest at Moch Community High School (27.1%) and lowest at Weipat High School (2.6%).

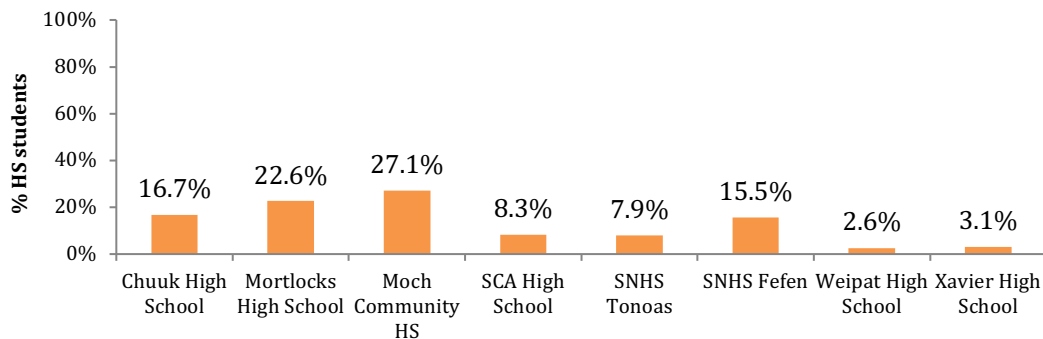
Alcohol use in the past 30 days among Chuuk HS students, by gender, 2021



Alcohol use in the past 30 days among Chuuk HS students, by age, 2021



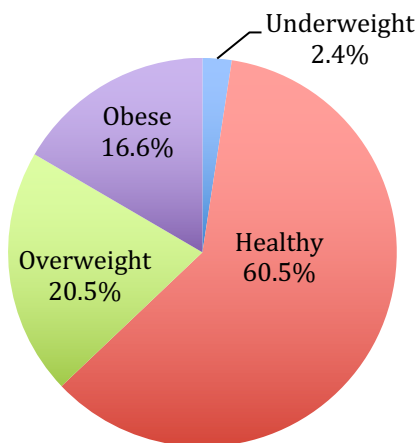
Alcohol use in the past 30 days among Chuuk HS students, by school, 2021



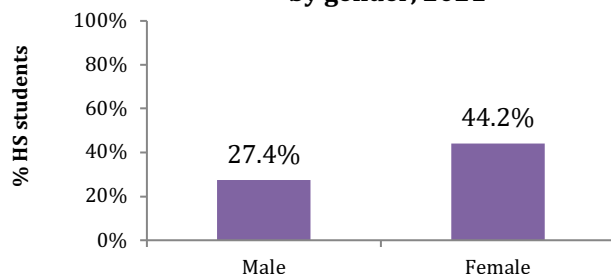
Overweight/Obesity

About 2 out of 5 (37.1%) high school students in Chuuk are overweight or obese. Prevalence of overweight/obesity is higher among female students (44.2%) compared to male students (27.4%). Overweight/obesity is highest among younger high school students aged 13-14 at 49.5%. Xavier High School had the highest prevalence of overweight/obesity at 53.6%.

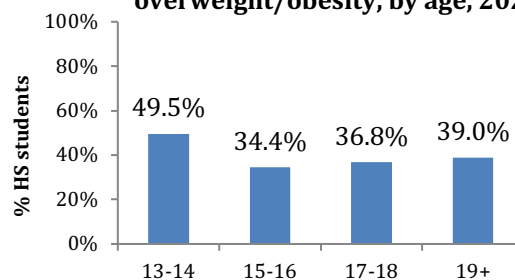
Body Mass Index (BMI) Categories of Chuuk HS students, 2021



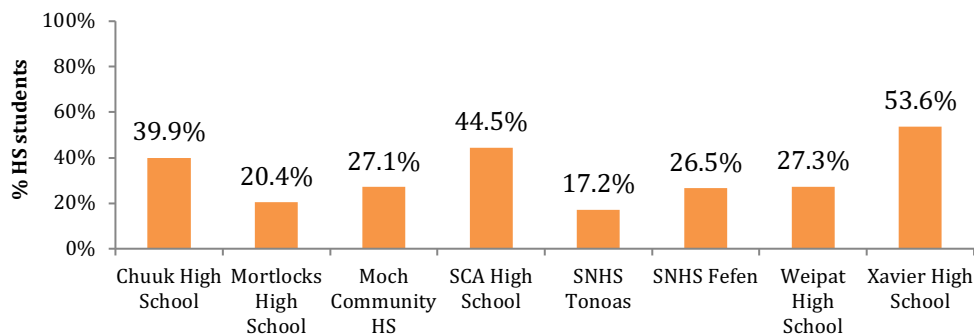
Chuuk HS student overweight/obesity, by gender, 2021



Chuuk HS student overweight/obesity, by age, 2021



Chuuk HS student overweight/obesity, by school, 2021



Reproductive Health

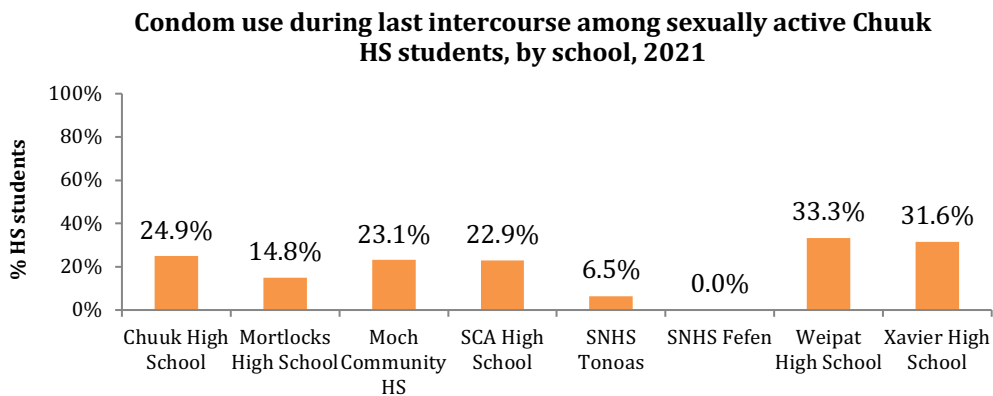
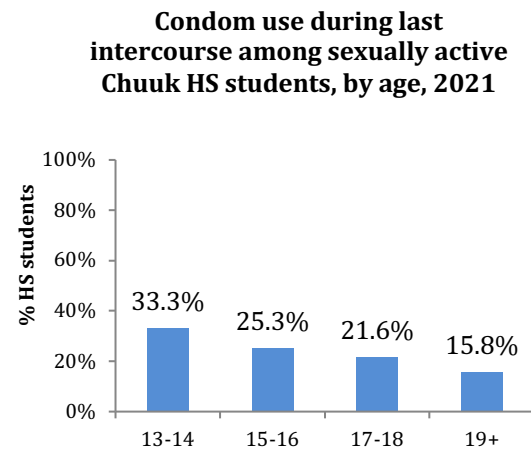
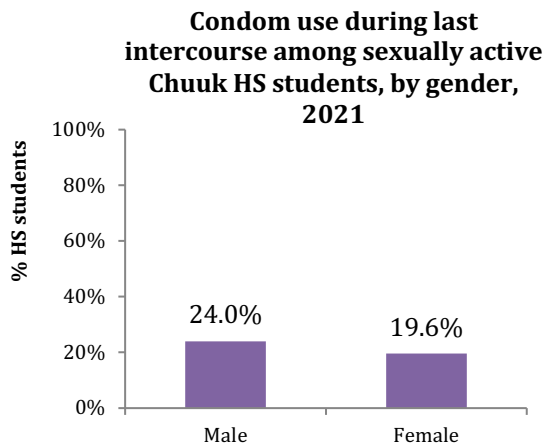
<u>Reproductive Health Factors</u>	N	%
Ever had sexual intercourse		
Yes	403	37.5%
No	673	62.5%
Number of sexual partners*		
1 person	158	39.7%
2 people	68	17.1%
3 people	52	13.1%
4 people	34	8.5%
5 people	29	7.3%
6 or more people	57	14.3%
Age at first intercourse*		
11 years old or younger	16	4.0%
12 years old	39	9.7%
13 years old	38	9.5%
14 years old	60	14.9%
15 years old	99	24.6%
16 years old	74	18.4%
17 years old or older	76	18.9%
Condom use during last intercourse*		
Yes	91	22.8%
No	308	77.2%
Method used to prevent pregnancy during last intercourse*		
No method used	166	48.1%
Birth control pills	12	3.5%
Condoms	83	24.1%
IUD or implant	8	2.3%
Shot, patch, or birth control ring	3	0.9%
Withdrawal	59	17.1%
Not sure	58	16.8%

*5 students missing data on number of partners, 1 missing data on age at first intercourse, 4 missing data on condom use, and 14 missing data on method to prevent pregnancy

Almost two out of five (37.5%) of high school students in Chuuk are sexually active. Among those students who are sexually active, three out of five (60.3%) report two or more lifetime sexual partners. Only 22.8% of sexually active students reported using a condom at last intercourse. Almost half (48.1%) of sexually active students reported using no method to prevent pregnancy at last intercourse, and an additional 16.8% were not sure if they did. More effective methods to prevent pregnancy (such as birth control pills, IUD/implants, shot/patch/ring) were uncommon.

Reproductive Health

Overall, fewer than 1 out of 4 high school students in Chuuk who are sexually active reported using a condom during last intercourse. Male students reported a slightly higher prevalence of condom use compared to female students (24.0% and 19.6%, respectively). Condom use prevalence was highest among younger students, and there was a steady decrease in the older age groups. There was variation in condom use prevalence by school ranging from 0% in SNHS Fefen to 33.% in Weipat High School.



Discussion

Based on the data presented in this report, it is clear that many risk factors are highly prevalent among youth in Chuuk and some of 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 increasing among Chuuk youth, and are much higher than the US, Guam, and CNMI, and **one out of three high school youth are using tobacco**. There are clear trends in these use patterns, highlighting the need to prioritize certain high schools in Chuuk for intervention. Additionally, substance use begins early in Chuuk, so interventions in youth prior to high school should be considered.

Almost two out of five youth in Chuuk are overweight or obese. This is especially concerning among female high school students because almost half are overweight or obese. Additionally, the highest prevalence of overweight/obesity was found among those 14 years old or younger, suggesting that overweight/obesity in children in Chuuk may be increasing and there is a need to intervene early in childhood. 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.

Two out of five high school students in Chuuk is sexually active. **Among these sexually active students, fewer than one out of four use condoms, and half are not 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 Chuuk.

Recommendations

Overall, the Chuuk Rapid High School Survey continues to collect much needed data from Chuuk high school youth. It is highly recommended that **this survey continues 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, Chuuk 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 Chuuk. **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 Chuuk and burden the healthcare system.

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Dr. Haley Cash, PIHOA
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Jason Reiong, Acting Director-Dept. of Education
JR Mesin, NCD Community Worker
Julia William, Principal, SCA
Junior Poch, NCD Surveillance Officer
Kayla Martin, NCD Community Worker
KS Sana, Principal, CHS
Michael Michael, NCD Community Worker
Michael Samuel, NCD Nurse
Moria F. Shomour, NCD Program Manager
Nelynta Aritos, NCD Community Worker
Principal, Faichuuk High School
Principal, Nama Jr High School
Principal, Nomusofo Jr. High School (NJH)
Principal, Pattiw Jr High School
Principal, Pollap Jr High School
Principal, PPO Junior High
Principal, SDA High School
Principal, SNHS-Fefan
Principal, Weipat
Sharry Osi, NCD Community Health Worker
Tommy Ungeni, Principal, SNHS-Tonoas

Annex

Chuuk State High School Core Risks Questionnaire 2021

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.)

12. During the **past 30 days**, did you **smoke** any tobacco? **Yes** **No** (circle one)
13. During the **past 30 days**, did you have **at least one drink of alcohol**? **Yes** **No** (circle one)
14. During the **past 30 days**, did you chew **at least one betel nut**? **Yes** **No** (circle one)
15. During the **past 30 days**, did you **chew** any tobacco (with or without betelnut)? **Yes** **No** (circle one)
16. During the **past 30 days**, did you use any **electronic vapor products including e-cigarettes, vapes, vape pens, e-cigars, ehookahs, hookah pens, and mods.** **Yes** **No** (circle one)

Chuuk State High School Core Risks Questionnaire 2021

17. Have you ever had sexual intercourse? (circle one)

- A. Yes
- B. No **IF NO, STOP HERE!**

18. How old were you when you had sexual intercourse for the first time? (circle one)

- A. 11 years old or younger
- B. 12 years old
- C. 13 years old
- D. 14 years old
- E. 15 years old
- F. 16 years old
- G. 17 years old or older

19. During your life, with how many people have you had sexual intercourse? (circle one)

- A. 1 person
- B. 2 people
- C. 3 people
- D. 4 people
- E. 5 people
- F. 6 or more people

20. The last time you had sexual intercourse, did you or your partner use a condom? (circle one)

- A. Yes
- B. No

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

- A. No method was used to prevent pregnancy
 - B. Birth control pills
 - C. Condoms
 - D. An IUD (such as Mirena or ParaGard) or implant (such as Implanon or Nexplanon)
 - E. A shot (such as Depo-Provera), patch (such as Ortho Evra), or birth control ring (such as NuvaRing)
 - F. Withdrawal or some other method
 - G. Not sure
-