



Commonwealth Healthcare Corporation

Improving CNMI health and wellbeing through excellence and innovation in service.

Community Health Assessment 2024

Commonwealth of the Northern Mariana Islands

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Acknowledgments

Many partners, both internal and external, of the Commonwealth Healthcare Corporation (CHCC) have contributed to developing the 2024 Community Health Assessment. We are grateful to CHCC leadership, management, and individual staff who have supported and led this process and to community partners for supporting this effort. (See Appendix D for the CHA Community Partner List.) We would also like to thank community health partners who provided input and context for the health issues of concern for the people of the Commonwealth of the Northern Mariana Islands. **We are grateful to the Steering Committee and Data Workgroup for their efforts and service to the CNMI Community Health Assessment:**

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September 3, 2024

Hafa Adai yan Tirow!

The CHCC is delighted to share the results of the 2024 CNMI Community Health Assessment with community members and stakeholders.

Community Health Assessments are essential tools that public health uses to evaluate and diagnose the well-being of our entire community. We extend our heartfelt gratitude to the dedicated individuals and partners throughout the CNMI who have engaged in this thorough process. It is crucial for us to collaborate in investing in the health and well-being of our community. The recent COVID-19 pandemic has shown the significant role each of us plays in maintaining community health, from preventing the spread of communicable diseases to advancing health through education and communication.

The determinants of health are deeply interconnected with community health outcomes. We have learned that the environments in which we live, learn, work, play, pray, and connect greatly affect our health. Aspects such as education, childcare services, economic development, food security, and access to affordable, high-quality housing are as vital to our well-being as access to medical care.

Public health, economic development, and education are all interlinked. We cannot enhance one without addressing the others. Public health benefits everyone, not just those who seek services directly. By working together, we can make a significant positive impact on the health and well-being of all CNMI residents.

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Introduction

This Community Health Assessment (CHA) provides a snapshot of the community's strengths, needs, and priorities. It is the result of collaborating with community stakeholders to assess the CNMI's community health utilizing a process called Mobilizing for Action through Planning and Partnerships (MAPP). This CHA report will serve as a foundation to develop a community health improvement plan to identify evidence-based interventions and where resources should be allocated to best meet the community's priority needs.

Commonwealth Healthcare Corporation

The CNMI government is committed to improving the quality of population health for the people of the Northern Mariana Islands. In 2009, Public Law 16-51 established a public corporation for healthcare and related public health and behavioral health services, the Commonwealth Healthcare Corporation (CHCC). CHCC encompasses the sole hospital, public health, behavioral health programs for the islands of Saipan, Tinian, and Rota.

The CHCC services include Administration, the Hospital Services, Outpatient Services, the Division of Public Health Services, Community Guidance Center, two health centers on the islands of Tinian and Rota, and the Dr. Jose T. Villagomez Center for Dialysis. The Hospital Services include the Commonwealth Health Center, an 86-bed, Medicare-certified hospital that provides comprehensive clinical care, including, but not limited to, emergency medicine, obstetrics, nursery, adult and neonatal intensive care, pediatrics, nursing, physical therapy, radiology, and a newly established oncology unit. The health centers located on the islands of Tinian and Rota provide an array of clinical services, including primary and preventive care, out-patient care, nursing, pharmacy, emergency services, and laboratory services.

Public Health in the CNMI

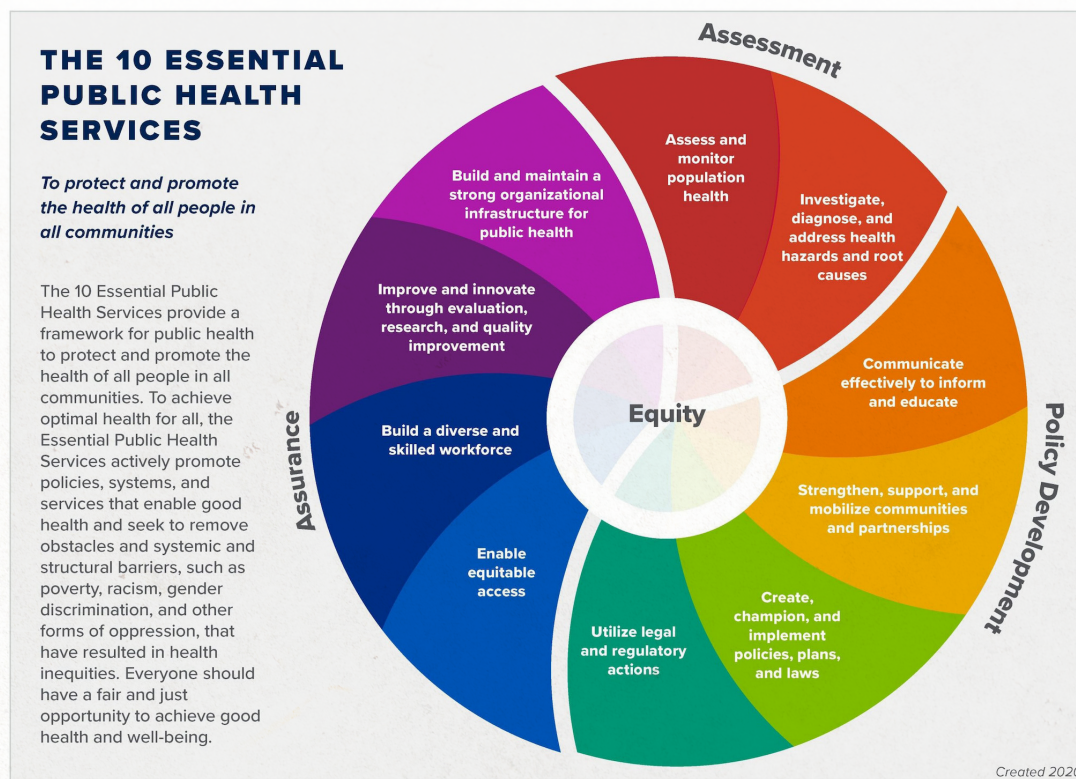
The Division of Public Health Services (DPHS) includes the Maternal, Infant, Child and Adolescent Health (MICA) Programs, Non-Communicable Disease Programs, Communicable Disease Programs, and Environmental and Disease Prevention Programs. These sections include public health programs such as Immunization and Vaccines for Children TB/Hansen's Disease Program, HIV/STD/VH Prevention, WIC, Home Visiting, Family Planning, Nicotine Cessation, Diabetes Prevention, and others. Approximately 130 DPHS employees deliver the majority of public health services to the people of the CNMI. DPHS programs and personnel are almost exclusively funded by federal grants from the U.S. Department of Health & Human Services (DHHS). In order to improve the health of all people in the Commonwealth, the Division strives to empower families and communities to "choose health" and make healthy choices towards a healthier lifestyle.

“ In partnership with the community, provide quality services to promote and improve the health and well-being for the people of the CNMI. ”

Division of Public Health Services Mission Statement

DPHS is taking steps to improve its quality, accountability, and efficiency. DPHS programs seeks to demonstrate progress toward these improvements by pursuing public health accreditation. Public health accreditation is a voluntary process that seeks to advance performance and improve quality within health departments. It is a process by which a public health department can measure its performance in delivering the 10 Essential Public Health Services (Figure 1) against a set of national standards.

Figure 1. The 10 Essential Public Health Services



Source:
CDC – Public Health System and the 10 Essential Public Health Services (<https://www.cdc.gov/public-health-gateway/php/about/index.html>)

In addition to accreditation readiness efforts, the Division has key initiatives to build public health infrastructure and systemic capacity:

1. Improve DPHS financial sustainability by identifying appropriate revenue generating and cost-cutting measures and continually submitting applications for new funding opportunities as appropriate.
2. Improve the DPHS Health Information Management System in order to improve health data collection, surveillance, and reporting.
3. Establish a Public Health Quality Assurance and Performance Improvement System to systematically address inefficiencies and waste in our operations.
4. Align the Division's efforts to better support the goal to prevent and control the burden of non-communicable diseases in the CNMI.
5. Continue outreach Events CNMI-wide: Saipan, Rota and Tinian.
6. Improve DPHS workforce capacity by collaborating with partners such as NMC, WHO, and SPC for specialized training in the field of public health.
7. Continue DPHS' work with partners and community members on working on strategies to address the health issues that have impacted the community.



CNMI Community Health Assessment

A community health assessment (CHA) is a systematic process that engages community partners to gather data and information from multiple sources to better understand the health of a community. The overarching model DPHS used to guide the CHA planning process is called Mobilizing for Action through Planning and Partnerships (MAPP). The MAPP model is used to lead a community-driven strategic planning process for improving community health and was developed by the National Association of County and City Health Officials.

The MAPP model is comprised of three individual assessments that aim to answer the following questions:

Community Partner Assessment

“What is a healthy community?” “What are the community’s strengths and assets?” “What are some of the greatest health issues or challenges?” and “What are the community’s health priorities?”

Community Context Assessment

“What are the factors that are, or will be, influencing the community’s health and quality of life?”

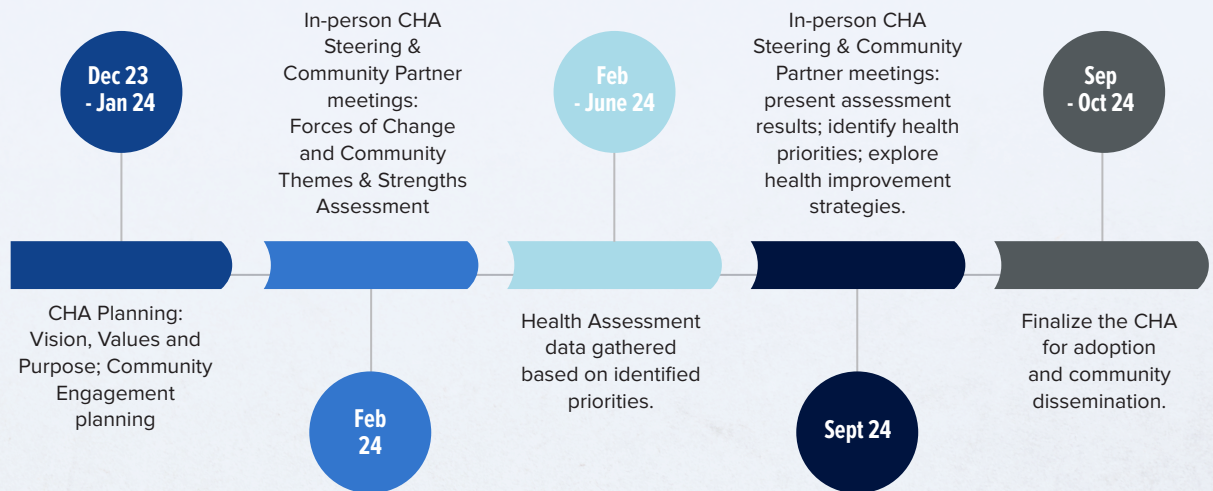
Community Health Status Assessment

“What are the health concerns in a community?” “Why do these health issues exist?” and “What factors contribute to and hinder positive health outcomes?”

DPHS established an organizational structure to lead and guide the CHA process, which included 1) a CHA Core Committee that led, organized, and facilitated the MAPP process, 2) a CHA Steering Committee that guided and advised the process, 3) a Data Workgroup that led data collection, analysis, and reporting, and 4) Community Partners who helped identify community health strengths, challenges, and priorities. With support from Red Star International, Inc., a non-profit public health organization, the MAPP model was adapted to a territorial context and implemented over a nine-month period. To the right is the timeline of activities that took place between January and October 2024.



Figure 2. CNMI 2024 Community Health Assessment Timeline



CHA Community, Purpose and Vision

The CHA Core Team, Steering Committee, and Data Workgroup worked together to define the ‘community’ to be included in the CHA and the purpose and overall vision for the CHA and health improvement planning process. The CHA vision continues to serve as the north star, guiding everyone toward a shared purpose and collective future.

CHA Community

Communities and families residing in the CNMI.

Purpose

Work in partnership to provide a centralized source of data to better understand the community’s overall quality of life, and to inform health priority setting and action planning.

Vision

Working in partnership to ensure communities and families residing in the CNMI have the resources they need to improve quality of life and wellbeing.

This CHA report summarizes the outcomes of the CHA process based on the three assessments described in the previous section. It includes data and information about the CNMI, including demographics, community health status, access and linkages to care, and community perspectives on health, among others. This report will be used as a tool for DPHS to develop a Community Health Improvement Plan to strengthen collaboration and partnerships with private and governmental agencies and work together to eliminate health disparities and improve community health outcomes for our CNMI community.



Community Partner and Context Assessments

The Community Partner and Context Assessments are designed to gather insights, expertise, and perspectives from people working and living in the community. By learning about community perceptions regarding the needs, strengths, assets, and culture, DPHS aims to foster collaboration and use this information to inform health improvement planning. These assessments are intended to help us understand the strengths and resources that support community health and well-being, identify the political, economic, and social forces and conditions impacting the community, and determine what assets exist to improve health outcomes.

To achieve these aims, DPHS held a Community Partner Meeting with over 60 people representing diverse sectors across the CNMI, including CHCC leadership and staff, governmental agencies, non-profit organizations, mental health and faith-based partners, coalitions, and consortiums, as well as private businesses, and healthcare providers. (See Appendix D for a List of Community Partners).

To gather community input, the CHA Steering Committee determined that a community survey would be an effective tool for better understanding community perceptions about health in the CNMI. (Appendix E Community Input Survey) From May 15 – 20, 2024, the CHCC implemented a Community Input Survey to obtain community input from adult residents from the islands of Saipan, Tinian, and Rota. A total of 477 survey respondents completed the survey. The survey was available online and in paper format and was administered utilizing a convenience sampling methodology. Surveys were made available at community events, such as the Marianas March Against Cancer, and at CHCC and private clinic locations, such as Kagman Community Health Clinic (KCHC), KCHC Southern Clinic, CHCC public health clinics such as Tinian Health Center, Rota Health Center, Immunization Clinic, Behavioral Health Services Community Guidance Center, and CNMI Women, Infant, and Children program. The survey consisted of 22 questions, including demographic information, community perspectives on what a “healthy community” is, and risk factors and behaviors that affect health.

The following section summarizes what we learned from the community and our partners:

What is a Healthy Community?

A day-long Community Partner Meeting was held to seek perspectives on what defines a “healthy community” and identify community strengths, partner organizational capacities, and factors contributing to health equity in the CNMI. Red Star International, Inc. facilitated group introductions and asked each person to complete the sentence, “To me, a healthy community is...” The Word Cloud below reflects the responses given. The words mentioned the most were collaboration, access to care, services, and resources, equity, and supporting one another.

When community members were asked to define a healthy community, the top 3 factors identified were access to healthcare (51%), a clean environment (45%), and a good place to raise children (44%).

Figure 3. Community Partner Definitions of a Healthy Community



Table 1: Factors that Define a Healthy Community, 2024 Community Survey

Factor	Number (n=477)
Access to healthcare	242
Clean environment	214
Good place to raise children	212
Healthy behaviors and lifestyles	197
Good jobs and healthy economy	157





Community Partner and Context Assessments

Health Priorities

Community partners and survey participants were then asked to identify the health priorities they see and experience in the community. Facilitators gave a brief presentation on various health categories, focusing on the social, structural, and environmental factors affecting health. Community Partners were asked to work individually, brainstorm, and note their responses on small Post-It notes. Community partners were reminded to consider the social determinants of health and any risk and protective factors. Individual responses were then placed into health categories, and they worked together to identify themes, which are summarized below:

Community Priorities	Examples
Access to Care/Services	• Specialized care (oncology, cardiologist, MRI, referral, physician retention, provider shortage) • Health insurance (cost and accessibility) • Accessibility in the villages; Tinian and Rota
Food Security	• Specialized care (oncology, cardiologist, MRI, referral, physician retention, provider shortage) • Health insurance (cost and accessibility) • Accessibility in the villages; Tinian and Rota
Healthy Lifestyles	• Nutrition/diet • Smoking, chewing, betel nut, alcohol
Non-communicable Diseases	• Diabetes • Heart disease • Cancer (screening; diagnosis, late-stage diagnosis) • Obesity
Mental Health	• Depression, anxiety, stress • Substance abuse • Community perception – stigma, awareness, access, conversations about needs and availability • Service accessibility – limited number of providers, counseling backlog • Trauma – trauma informed care, intergenerational, grief
Additional Priorities	• Maternal and Child Health • Transportation • Housing, homelessness • Violence (domestic, sexual)

Community members who completed the survey gave similar responses when asked to identify the most significant health issues in the community. Respondents identified diabetes (75%), high blood pressure (51%), and cancers (45%) as the top three issues in the community. Many respondents also identified heart disease and stroke (22%), mental health problems (20%), and child abuse and neglect (12%) as top health issues.

Table 2: Health Issues in the Community, CNMI Community Survey 2024

Community Health Problem	Number (n=477)
Diabetes	359
High blood pressure	242
Cancers	217
Heart disease and stroke	105
Mental health problems	94
Child abuse/neglect	59





Community Partner and Context Assessments

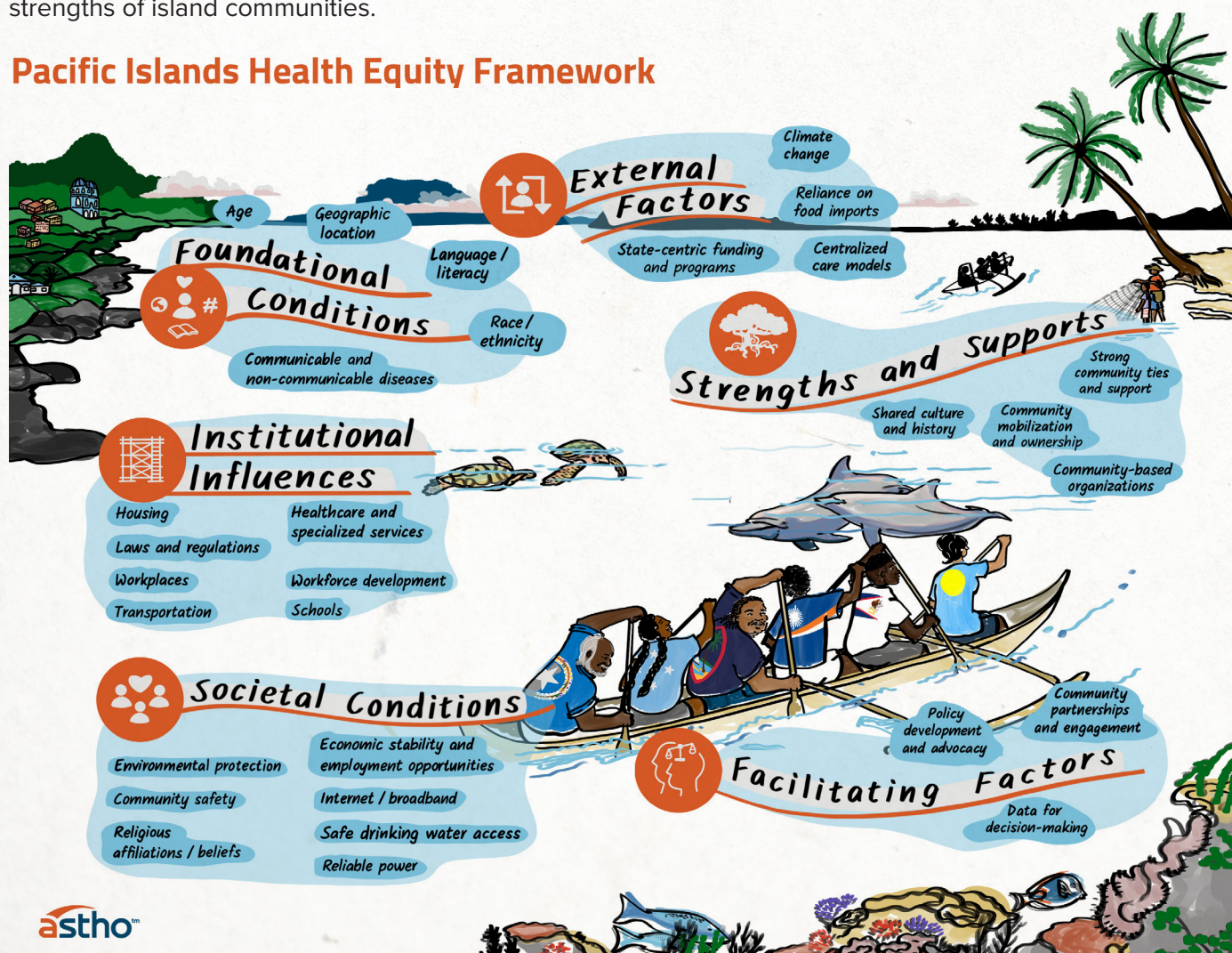
Community Health Strengths and Challenges

Many factors contribute to health and health equity, including the conditions in which people are born, grow, live, work, play, and age. Genetic and biological factors also contribute. According to the Centers for Disease Control and Prevention, health equity is the state where everyone has a fair and just opportunity to attain their highest level of health.

“Achieving health equity requires ongoing societal efforts to address historical and contemporary injustices; overcome economic, social, and other obstacles to health and healthcare; and to eliminate preventable health disparities.” (CDC Health Equity)

Utilizing the Association of State and Territorial Health Officials (ASTHO) Pacific Islands Health Equity Framework, Community Partners worked in small groups to discuss and provide input about the factors contributing to or hindering the well-being of CNMI's population. ASTHO's Islands Health Equity Framework aims to create a shared understanding of how to advance health equity within an island context. The starting point of this framework—illustrated in this graphic—is to help explore health equity by reflecting on the culture, experiences, context, and strengths of island communities.

Pacific Islands Health Equity Framework



Facilitators structured the conversation by creating “stations” for small group discussions regarding the strengths, challenges, and priorities identified in the previous section. Each small group rotated stations, allowing each group to contribute to the lists made by previous groups. After each group visited all six stations, there was a large group discussion about the factors and conditions influencing health in the CNMI. The outcomes of the discussion are summarized in the table below.

Factors/Conditions	How it looks for CNMI	
External Factors Factors that are outside of the control of the community; factors that are strongly influenced by institutions and governments off island.	• Geographical Location • Federal/State Policies • Workforce	• Cost of Living • Climate Change
Facilitating Factors Factors that support organizations and services to address community needs.	• Strong partnerships • Community Values and Respect • Diversify data sources	• Policy and enforcement for data sharing • Data analysis/reporting – community friendly, easy to understand
Societal Conditions Characteristics shaped by society and our ability to access opportunities and services.	• Resilience • Cultural Beliefs & health practices • Non potable water • Food security	• Homelessness • Employment Opportunities • Safer neighborhoods (built environment)
Foundational Conditions Demographic considerations and the presence or absence of disease.	• Religious & Cultural beliefs • Geographical location • Generational trauma	• Stigma (fear of shaming) • Language barriers • Limited resources for all
Strengths & Supports Community characteristics and factors that can support wellbeing.	• Faith-based • Traditions • Family	• Nonprofits and businesses • Community groups • Partnerships
Institutional Influences Institutions and conditions that influence our ability to be well, such as social determinants of health.	• Funding • Policies • Workforce development	• High cost of living • Transportation access • Lack of specialized services on island (doctors)



Community Partner and Context Assessments

The top five risks to health in the CNMI identified by community survey respondents included drug abuse (69%), alcohol abuse (62%), overweight (39%), tobacco use (38%), and poor eating habits (26%).

Table 3: Risk Factors to Health in the Community, CNMI Community Survey 2024

Risk Factor	Number (n=477)
Drug abuse	330
Alcohol abuse	294
Being overweight	184
Tobacco use	180
Poor eating habits	123
Lack of exercise	99



Community Strengths & Assets

For the last activity of the day, community partners shared what they see as the strengths and assets of the community. (Large group share-out)

Strengths & Assets

- Community Partners (advocates)
- Community engagement
- Leadership and staff at CHCC
- More resources now - we have come a long way
- Nonprofits here in CNMI
- Post disaster charities & business
- As a commonwealth, community is our strength and our attitude!
- Proactive community partners
- Indigenous traditions
- Working with college to get CNA (workforce development)
- Community, CCHI, expanding and growing, technology and capacity, all the workforce
- CNMI Judiciary, services for people in the court system

Early in the CHA planning, the CHA Core Team and the CHA Steering Committee identified partner and community engagement as a top priority. They identified an engagement strategy to ensure the CHA process was meaningful and allowed the community to make the greatest contribution. As summarized above, the Community Partner Meeting and Community Survey outcomes were used to plan and complete the third assessment—the Community Health Status Assessment.

Following the community partner meeting, a Data Team worked together from March to July 2024 to determine data availability, review its accuracy, and submit it for inclusion in the report. Data indicators were then prioritized based on their availability, relevance to understanding health, and importance to the community.

The next section contains a data profile compiled for the Health Status Assessment.



Community Health Status - Demographics

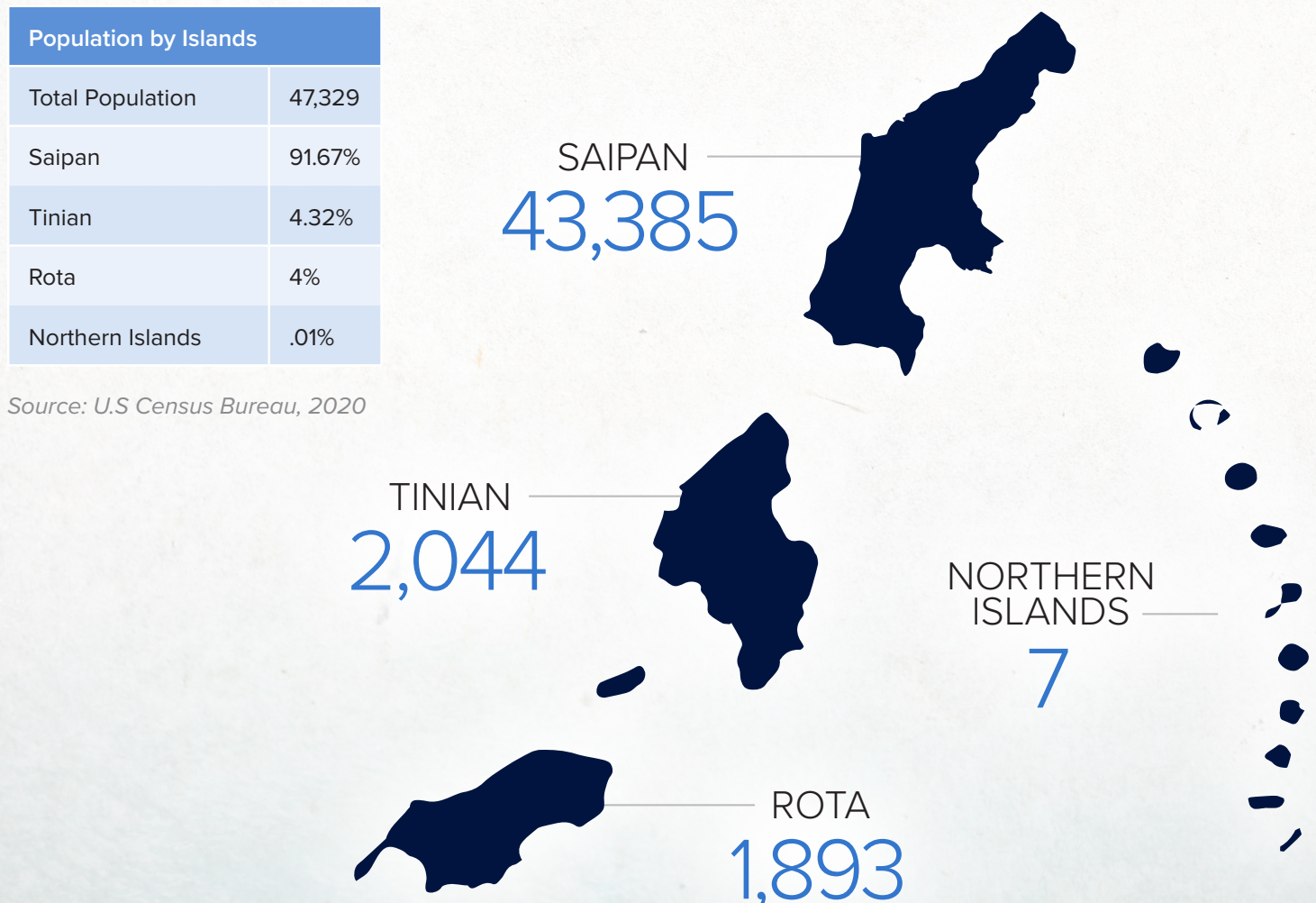
The Health Status Assessment focuses on quantitative data that describes the people, places, and circumstances of health and illness in the CNMI. This assessment pulls on public health surveillance, vital statistics, healthcare, and environmental data to paint a picture of our health status.

Demographic data describes a population's size, status, and characteristics, such as age, sex, race and ethnicity, language, and economic status. A community's demographic profile describes how many people live in the community and helps to identify groups whose health may be more affected by social and economic factors. CNMI demographic information includes total population and median age, age and sex structure, racial and ethnic origins by island, and language spoken.

Population

The CNMI's land base is 179 square miles. Most people live on the three southern islands of Saipan, Tinian, and Rota. According to the most recent U.S. Census Bureau estimates in 2020, the CNMI population is estimated at 47,329. Approximately 92% of the population resides on the island of Saipan, 4% on Tinian, and 4% on Rota.

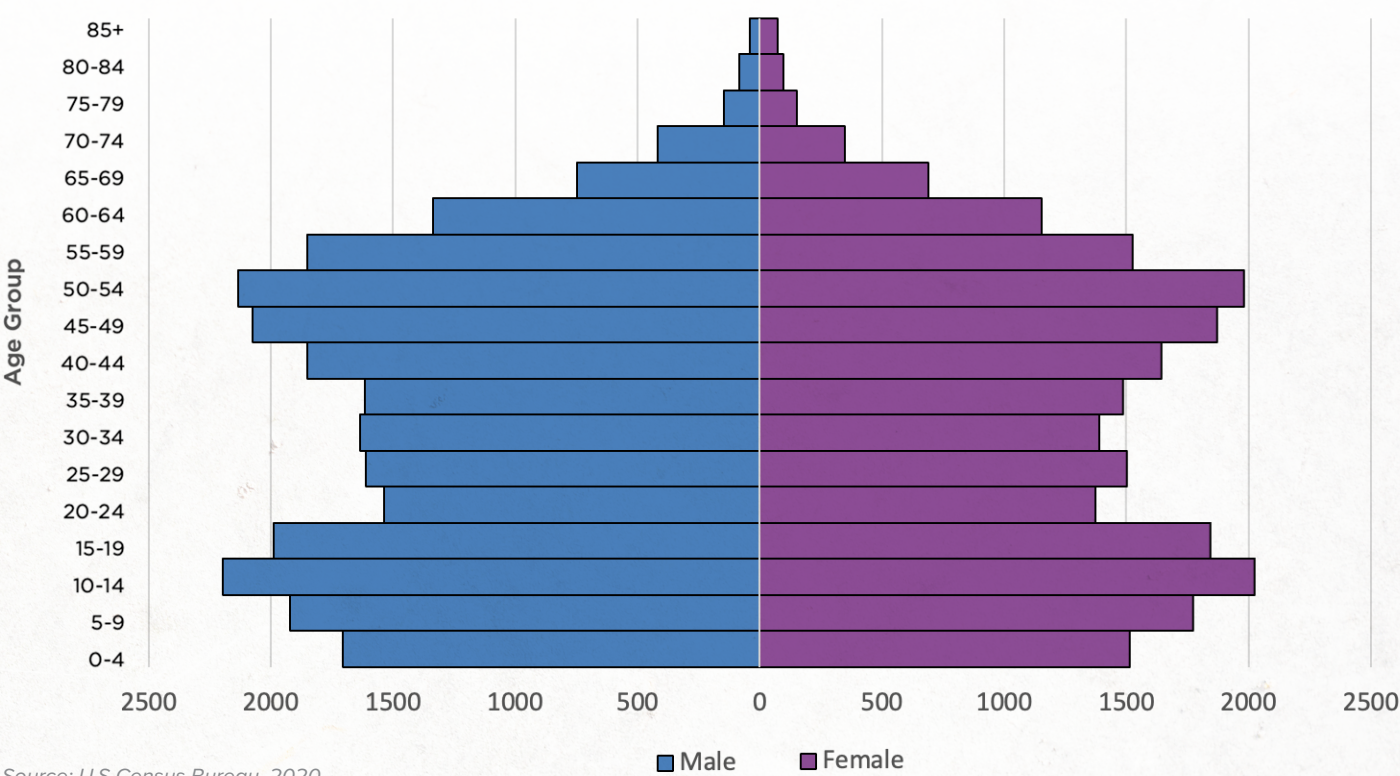
Figure 4. Population Percentage and Numbers by Island, CNMI 2020



Source: U.S. Census Bureau, 2020

According to the 2020 U.S. Census, males comprise approximately 53% of the population and females 47%, as seen in Figure 5. CNMI Population by Age and Gender, 2020. The median age of both males and females is around 34 years. The age groups with the largest populations are those 10-14 years (8.9%) and 50-54 years (8.6%).

Figure 5. CNMI Population by Age Group and Gender, 2020



Source: U.S. Census Bureau, 2020



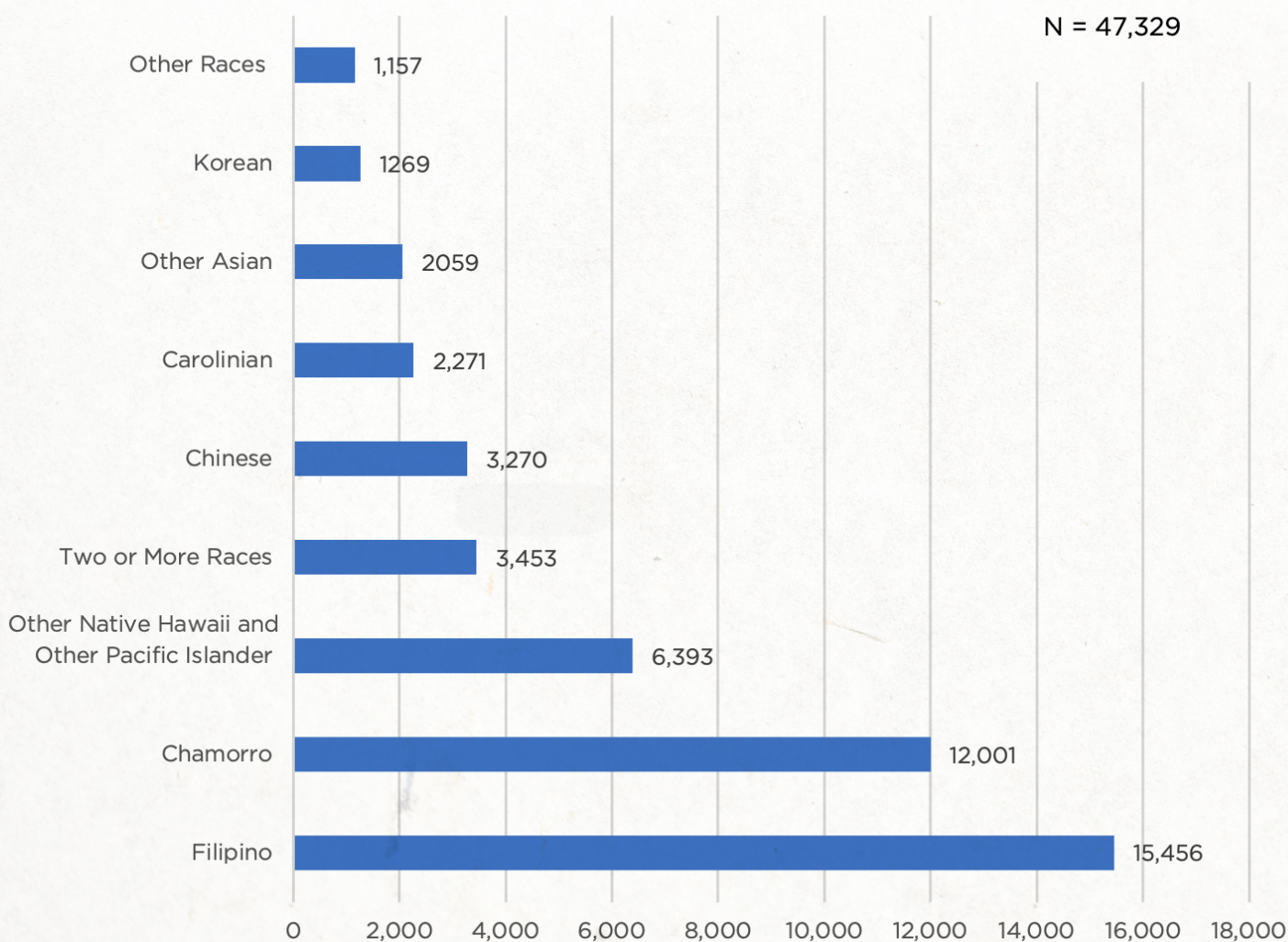


Community Health Status - Demographics

Race & Ethnicity

The single ethnic groups that account for the majority population in the CNMI are people who identified as Filipino (33%), followed by Chamorro (25%) and Chinese-except Taiwanese (7%). Carolinians make up about 5% of the total population. Asians are the largest group, representing nearly half of the total population. Other Asians make up 7% of the total population. Native Hawaiians and other Pacific Islanders comprise about 14% and Caucasians less than 2%. About 7% of CNMI's population were of two or more ethnicities or races and All Others. In the CNMI, the Chamorro and Carolinian groups are Indigenous to the territory.

Figure 6. CNMI Population by Race/Ethnicity, 2020



Source: U.S Census Bureau, 2020

Language

According to US Census conducted in 2020, it is estimated that of the population age 5 and over in households, 74.0% spoke a language other than English. Among those speaking a language other than English, 39.0% spoke a Philippine language and 52.5% indicated that they spoke English “very well.”

Nearly 60% (57.7%) of 5- to 17-year-olds spoke English only. Of those in this age group who spoke a language other than English, 33.6% spoke a Philippine language, and 72.7% spoke English “very well.” Among the population ages 65 and older, 88.2% spoke a language other than English. Of that group, 44.5% spoke English “very well” and 44.1% spoke Chamorro.





Social Determinants of Health

Health is more than the presence or absence of disease. There are many factors that can contribute to or hinder a person's ability to be well. Those factors are often called the social determinants of health, which are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. ([Healthy People 2030](#)). Examples of social determinants include social and community context (as discussed in the previous section), educational access and quality, economic stability, health access and quality, and neighborhoods and built environment.

Figure 7. Healthy People 2030 Social Determinants of Health



Source:
Healthy People 2030,
U.S. Department of
Health and Human
Services, Office of
Disease Prevention
and Health Promotion.
Retrieved July 12, 2024
from <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

Educational Attainment

Educational attainment is an important determinant of health because poverty, unemployment, and underemployment rates are highest among those with lower levels of educational attainment. In addition, rates of self-reported poor health, infant mortality, and chronic disease are often higher among individuals with lower levels of educational attainment.

Among the population ages 25 years and older, 14% have less than a high school diploma, 40% identified as high school graduates or equivalent, 24% completed some college or an associate's degree, and 21% have a bachelor's degree or higher.

Table 4. Educational Attainment – Population 25 Years and Over, CNMI, 2020

Educational Attainment - Population 25 years and over (n = 29,449)	
Less than High School graduate	4,325 or 14.4%
High school graduate (includes equivalency)	11,851 or 40.2%
Some college or associate's degree	7,169 or 24.3%
Bachelor's degree or higher	6,194 or 21.0 %
Percent high school graduate or higher	85.60%
Percent Bachelor's degree or higher	21.00%

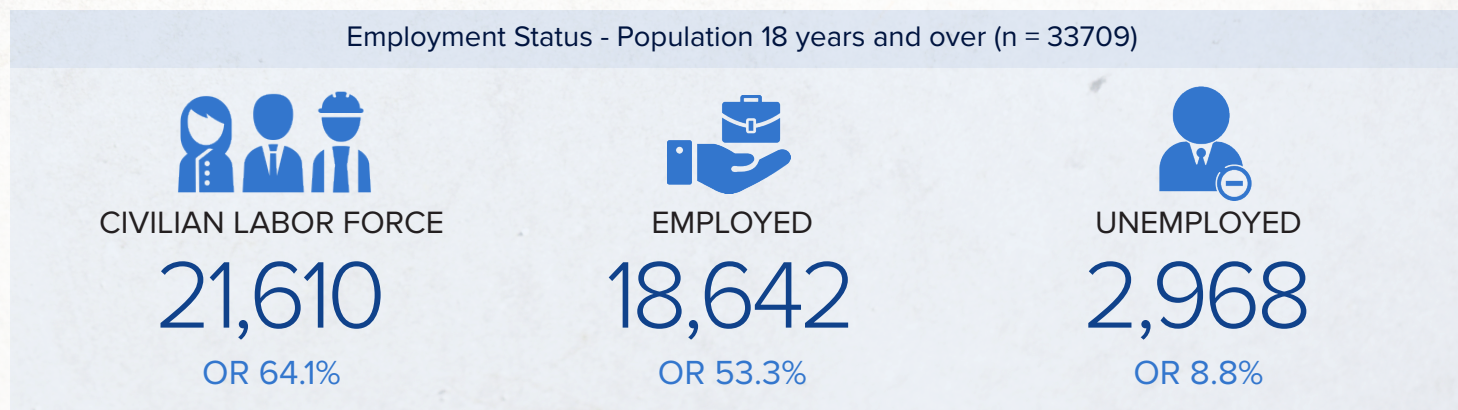
Source: U.S Census Bureau, 2020

Economic Stability

Unemployment and underemployment can create economic instability, which can influence access to healthcare services, insurance, healthy foods, stable quality housing, and other basic needs. Currently, the CNMI experiences a low unemployment rate of approximately 8.8 percent. Of that percentage, people 25 to 44 years of age experience a higher number of unemployment cases, and within the same age category, females have a higher number of cases than males.

Civilian Labor Force is the sum of civilian employment and civilian unemployment. These individuals are civilians (not members of the Armed Services) who are age 16 years or older and are not in institutions, such as prisons, mental hospitals, or nursing homes

Table 5. Employment Status, U.S. Census 2020



Source: U.S Census Bureau, 2020



Social Determinants of Health

Poverty

Economic inequality, including higher levels of poverty and unemployment compared to the U.S., creates barriers to accessing healthcare and resources to maintain good health. Poverty has been linked with worse health outcomes, increased risk of chronic conditions, mortality, and lower life expectancy. In addition, poverty strongly influences housing stability, educational opportunities, living environment, and health behaviors. The Federal Poverty Guidelines for 2024 define poverty based on household size, ranging from \$15,060 for a one-person household to \$31,200 for a four-person household.

According to U.S. Census 2020 data, 38 percent of people in the CNMI lived below the poverty rate. This is 14 percentage points lower than in 2010 and 8 percentage points lower than in 2000. In 2020, the poverty rate for the Asian population for whom poverty status is determined was 42%, while the poverty rate for the Native Hawaiian and Other Pacific Islander population for whom poverty status is determined was the lowest at 36%. The median household income in 2020 was \$31,362, an increase from \$23,839 in 2010.

Table 6. Poverty Rate and Median Household Income in the CNMI, 2000-2020

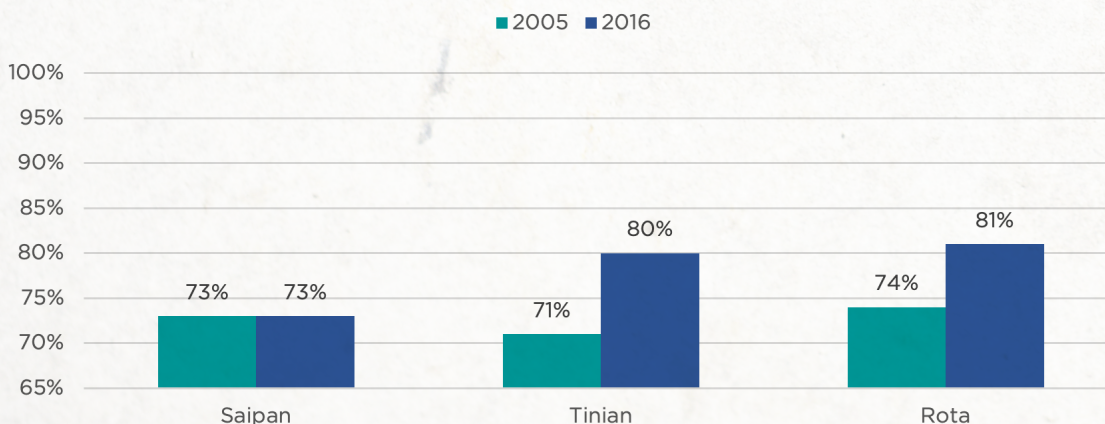
Year	2000	2010	2020
Percentage of Individuals living in poverty	46%	52%	38%
Median Household Income (\$)	\$22,898	\$23,839	\$31,362

Source: U.S. Census Bureau, 2020

Transportation

Transportation provides access to jobs, education, services, and recreational activities – critical social determinants of health. Many vulnerable groups, such as women, children and youth, disabled persons, low-income groups, and the elderly, have less access to personal vehicles; they rely on walking, cycling, and public transport.

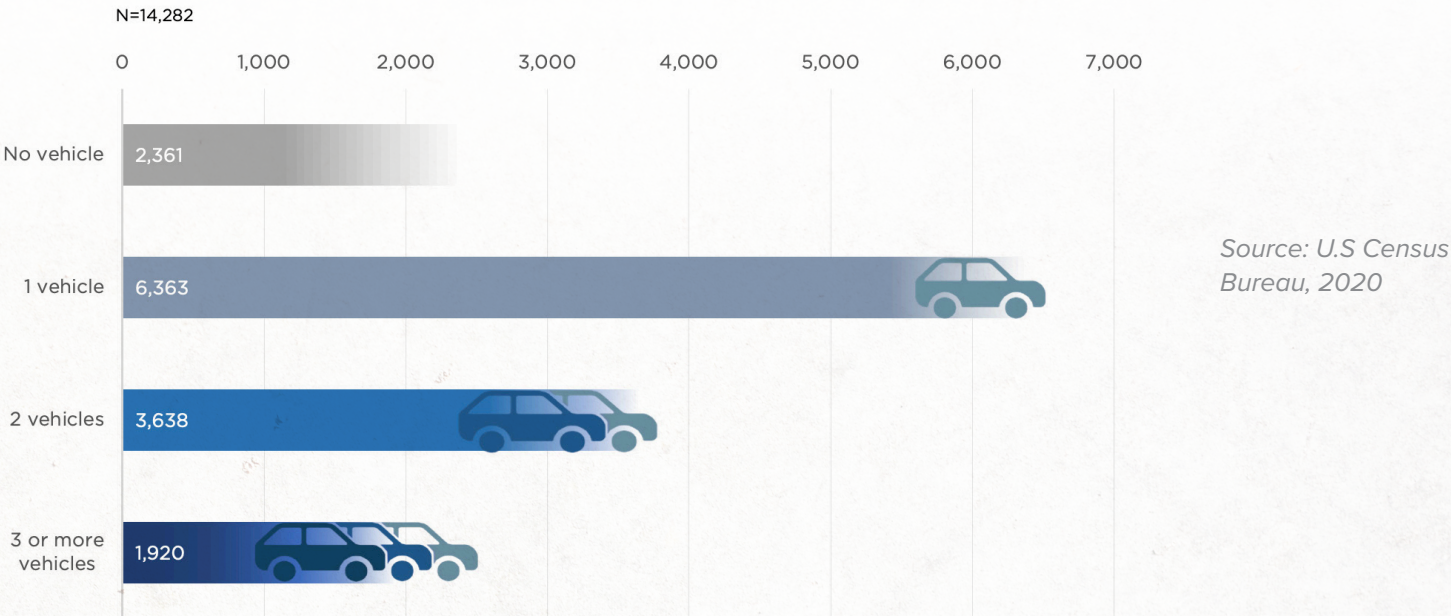
Figure 8: Percentage of CNMI Households with at Least One (1) Vehicle, 2005 and 2016



Source: CNMI Department of Commerce, Household Income and Expenditure Survey, 2016

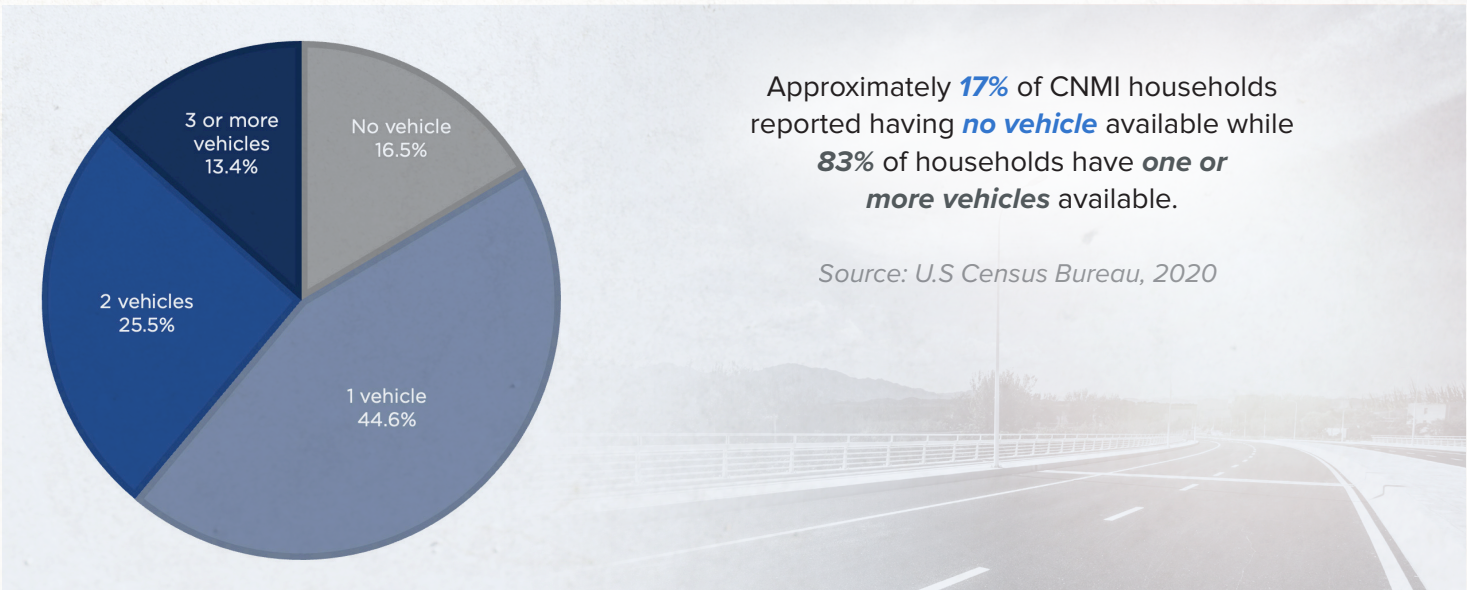
Between 2005 and 2016, the percentage of households with at least one vehicle remained steady on Saipan at 73%. However, there were notable increases on both Tinian and Rota. Tinian saw an increase from 71% to 80%, and Rota experienced a rise from 74% to 81%. This indicates improved vehicle accessibility on Tinian and Rota over the 11-year period.

Figure 9: Number of CNMI Households with at Least One (1) Vehicle, 2020



According to the 2020 Census data for the CNMI, most households possess at least one vehicle, indicating a relatively high level of mobility among residents.

Figure 10: Percentage of CNMI Households by Number of Vehicles Owned, CNMI, 2020





Social Determinants of Health

This high rate of vehicle availability represents the capacity for residents to travel independently, which can positively impact their ability to access health services, maintain employment, and engage in community activities. However, the 16.5% of households without a vehicle might face challenges in accessing critical services. Similarly, single-vehicle households may face constraints in coordinating family members' schedules and transportation needs, impacting their ability to efficiently access healthcare and other essential services. These findings underscore the importance of public transportation options or community support services to address potential mobility barriers.

Access & Linkages to Care

Access to healthcare is often defined as the timely use of personal health services to achieve the best possible health outcomes. The availability of providers, location, affordability, hours, and cultural and linguistic appropriateness of healthcare services influences access. Accessible healthcare can prevent disease and disability, detect and treat illnesses, maintain quality of life, and extend life expectancy. From a population health perspective, regular access to quality healthcare and primary care services also reduces the number of unnecessary emergency room visits and hospitalizations and can save public and private dollars.

Everyone should have equitable access to quality care; however, disparities can occur across multiple factors, including race and ethnicity, socioeconomic status, age, geography, language, gender, disability status, citizenship status, and sexual identity and orientation.² Increased cultural competence requires structural and systematic improvements and can be linked to improvements in healthcare access, participation, and patient satisfaction.³

Insurance Status

Healthcare costs are rising and are expected to continue to increase due to expensive medical services. Health insurance is an assurance that the cost of some or all medical services, and sometimes dental services, incurred by an individual or family that is insured will be covered. Types of health insurance available in the CNMI include Medicare and Medicaid, and Children's Health Insurance Program (CHIP), private insurance, and Tricare for military members and their families.

Medicare is federal healthcare coverage for people aged 65 years or older, people with disabilities, and dialysis patients. Medicaid and the CHIP program are cooperative federal and state healthcare coverage programs for pregnant women, families, and children who qualify based on resources and income. Individuals receiving Supplemental Security Income (SSI) are automatically eligible for Medicaid (Centers for Medicare and Medicaid Services, 2018). According to the U.S. Census 2020, nearly 44% of residents of the CNMI, ages 19 to 64, do not have health insurance.

2. Ndugga, N., Pillai, D., & Artiga, S. (2024). Disparities in health and health care: 5 key questions and answers. *KFF*, August 14, 2024. <https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-5-key-question-and-answers/>. Accessed August 15, 2024.

3. Office of Statewide Health Planning and Development, Patient Discharge Dataset, 2016.

Mancoske, R; Lewis, M; Bowers-Stephens, C; et al. (2012) Cultural competence and children's mental health service outcomes. *Journal of Ethnic & Cultural Diversity In Social Work*. 21 (3): 195-211.

Table 7. Health Insurance Status of Residents in the CNMI, 2020

Label	Commonwealth of the Northern Mariana Islands	Percentage
Total	47,128	
Under 19 Years:	14,350	52%
With health insurance coverage	11,361	79.2%
No health insurance coverage	2,989	20.8%
19 to 64 Years:	29,990	52%
With health insurance coverage	16,953	56.5%
No health insurance coverage	13,037	43.5%
65 Years and over:	2,788	52%
With health insurance coverage	2,215	79.4%
No health insurance coverage	573	20.6%

Source: U.S Census Bureau, 2020





Social Determinants of Health

Preventative Care Services

According to the Centers for Disease Control and Prevention, preventive care services include annual health screenings, medical check-ups, and patient counseling. These services are used to prevent illnesses, diseases, and other health problems. Benefits of preventive care include identifying disease at an early stage when it is easier to treat than when the disease has progressed, saving time and money by reducing the number of hospital visits and cost of medications, and receiving information on healthy choices to reduce the risk for disease.

According to the CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023, 64% of CNMI adults reported completing an annual preventive visit. This is an increase from the same survey conducted in 2016 when just 36% of adults reported completing an annual preventive visit.

Figure 11. (%) Frequency of Annual Checkups Among Adults in the CNMI, 2016

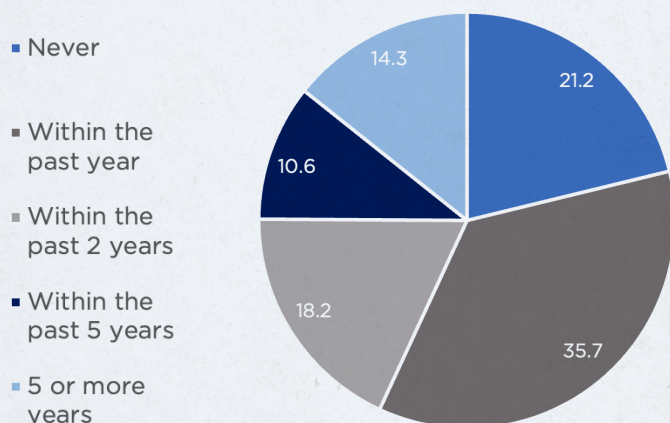
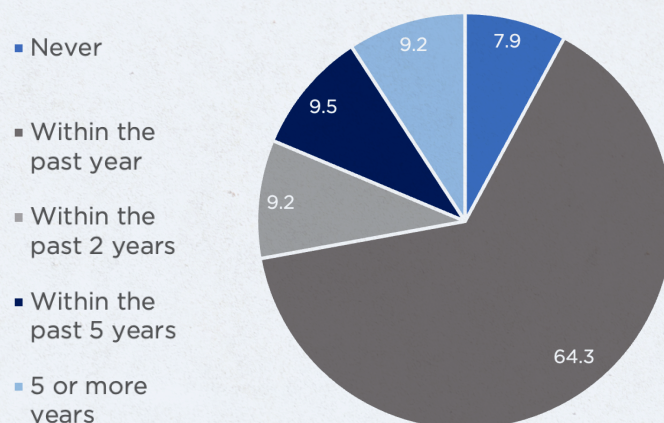


Figure 12. Frequency of Annual Exams Among Adults in the CNMI, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Surveys 2016 and 2023

Among island communities in the CNMI, a majority (61%) of adult residents from Rota reported not completing an annual exam. On the island of Tinian, about half of the adult population (51%) did not have an annual preventive check-up. On Saipan, one-third of the adult population did not get an annual preventive check-up. More men (38%) than women (33%) in the CNMI did not have an annual preventive check-up.

Figure 13. Percentage of CNMI Residents with No Annual Exam in the Past Year by Island, 2023

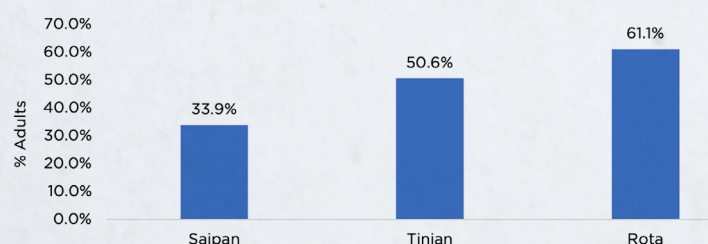
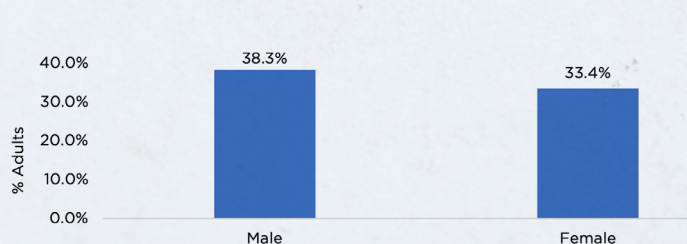


Figure 14. Percentage of CNMI Residents with No Annual Exam in the Past Year by Gender, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023

Housing and Homelessness

Insufficient housing quality is associated with stress and mental health impacts. Crowding, pollution, noise, inadequate lighting, and other environmental factors associated with types of housing in the CNMI can aggravate mental health, including depression, anxiety, violence, and other forms of social dysfunction.

According to a WHO study in low-income countries, domestic environments are linked to many childhood burns, falls, drowning, and poisonings. Children living in poor housing conditions are more at risk of diarrheal disease due to their exposure to contaminated water and improper sanitation. Crowding aggravates risks of airborne disease transmission, particularly tuberculosis. Additionally, poor household design and maintenance is a major contributor to domestic injury.

Access to structurally sound dwellings, safe drinking water, improved sanitation, and affordable, secure energy can promote health equity, particularly in poorer households. Cleaner and more efficient home cooking, cooling (air conditioning), and lighting systems can yield the largest health benefits to the poorest and most vulnerable areas of society, including children, women, and the elderly. According to NMHC's Five Year Consolidated Plan and PY 2020 Annual Action Plan, housing characteristics from 2018 to 2020 that were linked with instability and increased risk of homelessness include:



Housing Cost Burdens:

Housing cost burdens placed on the extremely low-income households are more likely to experience instability and at risk of being homeless.

Housing affordability in the CNMI is dependent on the size of the family, total household income, and property location. The larger the family, or household size, and the lesser of a total income, results in a heavier burden being placed on a family to sustain.



Super Typhoon Yutu:

In 2018, close to 45% of CNMI homes had roofs made of tin or wood, which couldn't withstand the 200+ MPH winds of Super Typhoon Yutu. According to the American Red Cross, about 5,000 homes were damaged or destroyed. As a result, many households lived in tents provided by the Federal Emergency Management Agency (FEMA) or in damaged residences deemed not suitable for habitation.



Social Determinants of Health

In November 2018, FEMA approved the Permanent Housing Construction Program to support the high demand for housing solutions following Super Typhoon Yutu. The program provided two forms of assistance: direct repairs to disaster-damaged homes and new home construction. At the conclusion of FEMA's Permanent Housing Construction Program in July 2023, a total of 101 households (93 on Saipan, 8 on Tinian) received direct repairs, and 179 households (165 on Saipan, 14 on Tinian) received new homes. Additionally, it should be noted that the 2019 survey was conducted after the devastation of Super Typhoon Yutu and before FEMA was able to complete the direct repairs and new home construction for households that qualified for the programs.

Homelessness

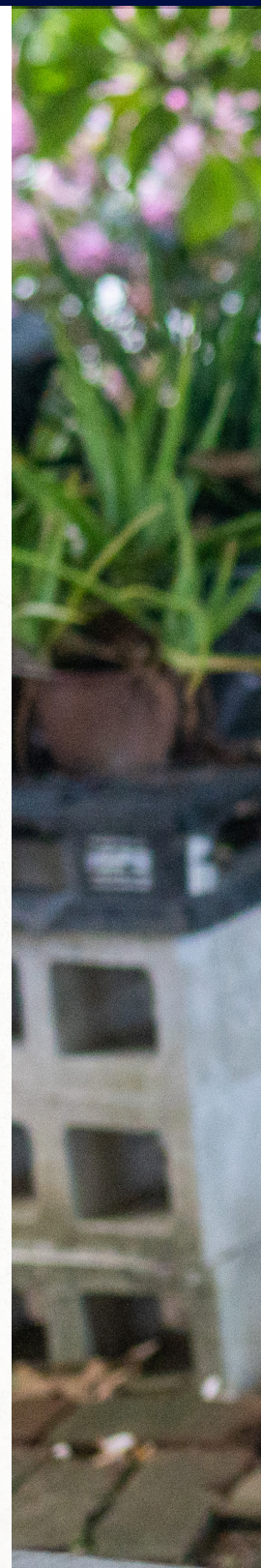
Homelessness includes individuals utilizing residences that do not meet basic habitability standards, which include living at a beach, in a park, in a vehicle, in an abandoned building, or in a tent. Habitability standards include when the structure where one is living does not have a roof, a floor (dirt floor), windows and/or doors, running water, electricity, bathroom facilities (an outhouse is acceptable), or if the house is made of low-quality materials (corrugated metal), is a wooden or tin house (including semi-concrete homes). Homelessness also includes accommodations that are deemed to be scarce for the number of people living there.

The CNMI Homeless Point in Time Count Data Summary below was provided by the Northern Marianas Housing Corporation (NMHC) and the CNMI Homeless Prevention Coalition. The number of homeless individuals in the CNMI from 2017 to 2019 increased drastically. In 2017, there were only 81 homeless individuals, but in 2019, the number escalated to 1,018. This rise is seen in both adults and children, with the number of homeless adults and adult children increasing from 56 in 2017 to 668 in 2019 and the number of homeless children increasing from 25 to 330 over the same period. It is important to note that the count of homelessness in the CNMI in 2017 and 2018 is based on annual surveys collected by NMHC in Saipan. (Tinian and Rota were only included in the 2019 survey).

Table 8: Number of Homeless Individuals in the CNMI, 2017-2019

Number of Homeless Individuals (CNMI), 2017-2019			
Years	2017	2018	2019
Adults & Adult Children (People ages 18 years old, including young adults living at home)	56	99	668
Children (People under 18 years old)	25	39	330
Total	81	128	1018

Source: CNMI Homeless Point in Time Count Data Summary, 2019







Environmental Health

Environmental health is a key part of any comprehensive public health system. The American Public Health Association defines environmental health as a branch of public health that “focuses on the relationships between people and their environment; promotes human health and well-being; and fosters healthy and safe communities.”

How we design and build our communities affects our physical and mental health. Ensuring environmental health requires a focus on the prevention of illness and injury and the promotion of well-being by identifying and evaluating hazardous agents and limiting exposures to hazardous physical, chemical, and biological agents in air, water, soil, food, and other environmental media or settings that may adversely affect human health.⁴

Marine Water Monitoring

Beaches surround the CNMI, and beach use is embedded in all parts of the community. Marine life is an avenue of sustenance for the people, and the shores and waters are often used for recreation. Everyone, from people who call the CNMI home to those who are just visiting, is affected by the water quality of beaches in the CNMI.

Everyone plays a role in protecting the environment, including our ocean. The Water Quality Surveillance and Non-Point Source (WQS/NPS) Program under the Bureau of Environmental and Coastal Quality monitors and evaluates the health of our marine waters and freshwater streams, lakes, and wetlands through regular sampling and analysis and ground-truth assessments.

Marine water samples from Saipan West Beaches are collected weekly and tested by BECQ’s Environmental Surveillance Laboratory to monitor the chemical, physical, and microbial quality of our nearshore waters surrounding our most popular and frequented beaches. Saipan East Beaches, Tinian, Rota, and Managaha are tested on a rotational eight-week schedule.

The microbial fecal indicator bacteria, Enterococci, are used to assess the presence of human or animal waste. Enterococci levels that exceed the CNMI Water Quality Standards may indicate that there is a health risk associated with recreating in marine waters at these sites. When bacteria levels go above the standards, it can be unsafe. If you touch the water, especially if it gets in your nose, mouth, ears, or cuts, it can cause rashes, skin infections, gastrointestinal illness, and respiratory illness.

Should the water quality results from a beach site or other monitored stream site exceed the CNMI Water Quality Microbial Standards, a Public Beach Advisory or “red flag” is posted. It may be unsafe to swim or fish in this area within 300 feet of the posted signs, so the public is advised not to swim or fish in the area for 48 hours at your own risk after posting the red flag.

4. National Environmental Health Association, 2013.



Waters that are frequently “red flagged” or fail to meet other water quality standards like, nutrients, dissolved oxygen, turbidity etc., are considered impaired. In FY2023, there were 1,716 green flag and 122 red flag posting for the Saipan West Beach area and 213 green flag and 24 red flag postings for Saipan East Beach area. Compared to FY2022, there was a decrease in the number of red flags for both the Saipan West and Saipan Each Beach areas. Sample data collected for the Tinian area also indicate a decrease in red flag postings in FY2023 compared to the year prior. For Rota, there was an increase in red flag postings, with 28 reported in FY2023, an increase from the 14 reported in FY2022.

Table 9. CNMI Beach Monitoring, Fiscal Year (FY) 2019-2023

Beach Monitoring Areas (BMA)	Flag	FY'19	FY'20	FY'21	FY'22	FY'23	BMA Flag TTL
Saipan West Beach	Green	1662	1755	1726	1699	1716	8558
	Red	199	108	219	250	122	898
Saipan East Beach	Green	273	332	326	291	213	1435
	Red	22	23	43	35	24	147
Managaha	Green	263	252	328	275	264	1382
	Red	1	1	2	0	0	4
Tinian	Green	224	217	277	273	237	1228
	Red	9	40	10	6	3	68
Rota	Green	282	337	325	261	203	1408
	Red	17	9	32	14	28	100
Fiscal Year Flag TTL	Green	2704	2893	2982	2798	2633	
	Red	248	181	306	305	177	

Source: BECQ, 2019-2023





Environmental Health

Food- and Water-Borne Illnesses

Foodborne and waterborne disease surveillance is critical in the early identification of outbreaks, enabling timely interventions to prevent further cases and control the spread of illness. Data from surveillance can highlight areas where food safety practices need improvement, guiding education and training initiatives for food producers, processors, and handlers.

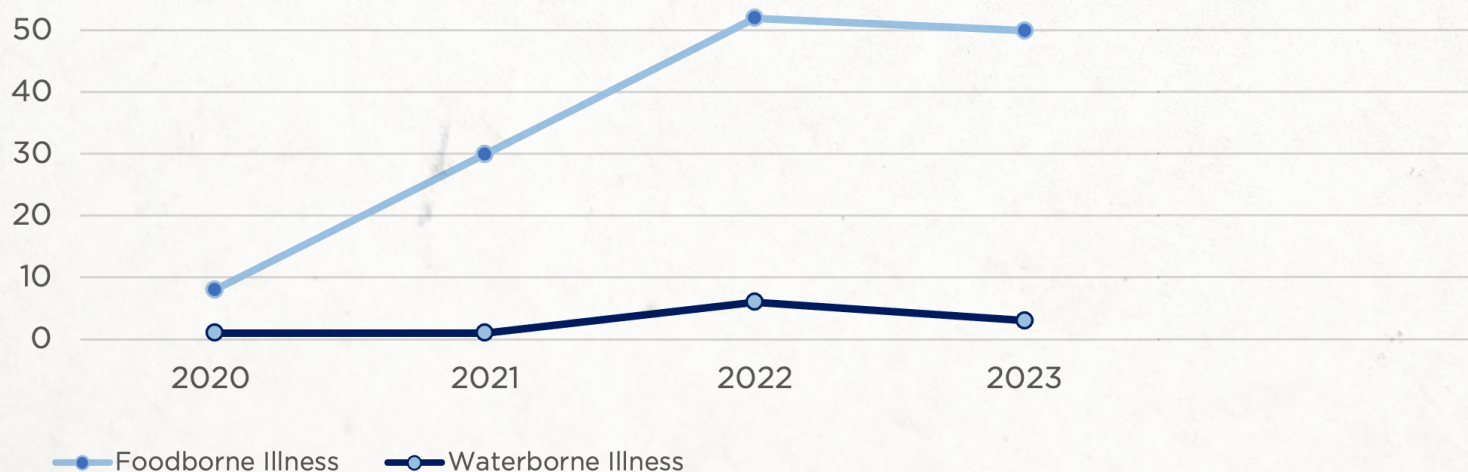
The Environmental Health and Disease Prevention (EHDP), under the CHCC Division of Public Health Services works in partnership with the Epidemiology Laboratory Capacity (ELC) Program through an established Surveillance Unit (SU) to investigate reported cases of enteric, foodborne & waterborne diseases as part of the CNMI's National Notifiable Diseases (NNDs).

Routine surveillance was established in 2020, with the enhancement of CHCC Laboratory's capabilities in testing human samples through culture or PCR identification from stool samples. The laboratory can detect 22 different gastrointestinal pathogens, such as *Campylobacter*, *Salmonella*, and *Shigella*, among others, using the BioFire FilmArray gastrointestinal panel. The Surveillance Unit immediately notifies EHDP of any positive test result, enabling further case investigation, inspection, home assessment, and other necessary surveillance-related activities within 24 hours of testing.

Food and waterborne cases are reported via the ELC Surveillance Unit. The numbers below can be illustrated using a column chart with the year along the bottom and case counts are illustrated in different colors for food and waterborne illnesses.

The new lab machines brought in during the COVID-19 pandemic identified more cases, drastically increasing reporting counts from 2020 to 2021 and onward. Prior to the addition of more diagnostic machines, diagnoses were more likely to be identified and treated based on symptoms. Since they weren't lab-confirmed, the Surveillance Unit in ELC wouldn't have been notified.

Figure 15. Number of Foodborne/Waterborne Cases in the CNMI, 2020-2023



Source: Environmental Health and Disease Prevention, ELC program data, 2020-2023

In 2023, EHDP responded to 50 foodborne and 3 waterborne illnesses. This was a decrease in cases compared to the previous year when 52 foodborne and 6 waterborne illnesses were reported. It is important to note that these figures are significantly higher compared to just three years ago, in 2020, when the number of reported foodborne and waterborne illness cases were just 8 and 1, respectively. Enhanced laboratory testing capabilities among suspected cases have contributed to the rise in cases being reported these past few years.





Key Vital Statistics

Vital Statistics are crucial for planners and decision makers. They are a key component of the health sector and are critical for evaluating health priorities and setting health policies. Birth rates, death rates, and causes of death data are needed to monitor population health, identify health priorities, evaluate programs' impact on health, and guide health research and policy.

Births

The total number of births in the CNMI from 2015 to 2022 was 7,406, with an average of 926 births each year. Table 10 displays these births annually by sex and by residency/visa classification of the mother.⁵ The birth classification by the mother's residency/visa is an important indicator for policy and planning purposes. For example, it is important to monitor birth trends to tourist mothers so that sufficient health facilities and staff are available for their safe delivery. However, these babies will not remain in the CNMI and, therefore, do not need to be included in policy and planning decisions regarding childhood immunization programs or planning for the number of children requiring access to primary school education.

Of the 7,406 births from 2015-2022, there were 3,896 male babies and 3,510 female babies, giving an approximate male-female sex ratio of 111 males for every 100 female babies. During this period, HVSO accounted for 3,802 (51%) resident births, 1,359 (18%) non-resident births, and 2,245 (30%) births to tourist mothers. The number of births to mothers classified as 'Tourist' was higher between the 2015-2018 period (see Figure 3.3 below). The trend in the number of tourist births decreased significantly between 2019-2022 in the aftermath of Super Typhoon Yutu in 2018 and the COVID-19 pandemic.



Table 10: Number of Births Per Year, by Residency/Visa Classification of Mother, by Sex, CNMI, 2015-2022

Residency Status by Sex	Calendar Year									
	2015	2016	2017	2018	2019	2020	2021	2022	Total	Annual Average
Resident	537	518	429	493	515	477	445	388	3,802	475
Male	268	279	216	250	277	254	239	194	1,977	247
Female	269	239	213	243	238	223	206	194	1,825	228
Non-Resident	191	217	218	188	182	154	127	82	1,359	170
Male	97	121	105	93	101	83	66	38	704	88
Female	94	96	113	95	81	71	61	44	655	82
Tourist	379	482	562	581	212	23	3	3	2,245	281
Male	197	272	294	317	120	12	1	2	1,215	152
Female	182	210	268	264	92	11	2	1	1,030	129
Total	1,107	1,217	1,209	1,262	909	654	575	473	7,406	926
Male	562	672	615	660	498	349	306	234	3,896	487
Female	545	545	594	602	411	305	269	239	3,510	439

Source: CHCC, Health and Vital Statistics Office, 2015-2022

5. Mothers classified as 'Resident' are those who permanently reside in the CNMI and are citizens of the U.S. or a Freely Associated State (FAS), or an immediate relative (e.g. husband, wife) of a U.S. or FAS citizen. Mothers classified as 'Non-resident' are non-permanent residents who are not U.S. or FAS citizens but who have been in the CNMI for several months/years on short- or long-term visas, predominantly working visas. Mothers classified as 'Tourist' are from other countries (predominantly Asian) and are only in the CNMI for a short period of time (usually several weeks) to deliver their baby.



Key Vital Statistics (Cont.)

Crude Birth Rates

The crude birth rate (CBR) indicates the number of live births per 1,000 population over a given period of time. The CBR is important because it indicates how much the population is increasing or decreasing. It can also help us plan for the future so we can know how many children will be entering school in the coming years, or how many adults will be entering the workforce.

Table 11 below shows the CBR rate for CNMI from 2015 to 2022: 17.5 for males and 17.9 for females. The increase in tourist birth numbers contributed to the steady increase between 2015 and 2018. The CBR rate then decreased to 17.5 in 2019 and 9.2 by the end of 2022. The decrease was anticipated in light of Super Typhoon Yutu and the COVID-19 pandemic events.

Table 11. Crude Birth Rate (CBR) of Live Births Per 1,000 Population, CNMI, 2015-2022

CBR by sexes	Calendar Year								
	2015	2016	2017	2018	2019	2020	2021	2022	Total
Male	20.0	24.0	22.0	23.8	18.0	12.7	11.2	8.6	17.5
Female	22.1	22.1	24.2	24.6	16.8	12.5	11.1	9.9	17.9
Both Sexes	20.9	23.1	23.1	24.2	17.5	12.6	11.1	9.2	17.7

Source: CHCC, Health and Vital Statistics Office, 2015-2022

Deaths

Mortality is a term used to describe the number of deaths in a given time and place. Mortality rates and causes of death help us understand more about a community's quality of life and how we might improve it. The total number of deaths to CNMI residents from 2015-2022 was 1,846. 1,137 of these deaths were males and 709 females, giving a sex ratio of 160 males dying to 100 females. The highest recorded was in 2021 and 2022 (264), and the lowest in 2019 (199). On average, a total of 231 deaths occurred per year over the past 8 years. It should be noted that these are the only deaths occurring in the CNMI. This report excludes deaths occurring abroad, including those referred for medical reasons.

Table 12. Total Number of Deaths by Gender, CNMI, 2015-2022

Births by sex	Calendar Year									
	2015	2016	2017	2018	2019	2020	2021	2022	Total	Annual Average
Male	134	141	149	128	131	127	165	162	1,137	142
Female	91	81	86	93	68	89	99	102	709	89
Both Sexes	225	222	235	221	199	216	264	264	1,846	231

Source: CHCC, Health and Vital Statistics Office, 2015-2022

Crude Death Rates and Age-Specific Mortality Rates

The crude death rate (CDR) is the rate at which people of all ages are dying in a given population over a given period of time. Table 13 shows that the CDR rate for CNMI from 2015 to 2022 was 4.4. Over the eight years, the CDR rate remained relatively the same between 2015 and 2022, but in 2021 and 2022, it increased to 5.1.

Table 13. Crude Death Rate (CDR) Per 1,000 Population, CNMI, 2015-2022

CDR by sexes	Calendar Year								
	2015	2016	2017	2018	2019	2020	2021	2022	2015 - 2022
Male	4.8	5.0	5.3	4.6	4.7	4.6	6.0	5.9	5.1
Female	3.7	3.3	3.5	3.8	2.8	3.7	4.1	4.2	3.6
Total	4.3	4.2	4.5	4.2	3.8	4.2	5.1	5.1	4.4

Source: CHCC, Health and Vital Statistics Office, 2015-2022



Key Vital Statistics

From 2015-2022, 1,846 deaths occurred in the CNMI. Males accounted for 62% of the deaths compared to 38% of females, as seen in Table 14. Among male deaths, almost half of deaths (46%) occurred before age 60. For females, 40% occurred before age 60.

Table 14 Note: (-) Low numbers suppressed for confidentiality reasons. Source: CHCC, Health and Vital Statistics Office, 2015-2022

Table 14. Number of Deaths by Age and Sex, 2015-2022

Age Group	Number of Deaths		
	Male	Female	Total
<1	30	17	47
1 - 4	6	6	12
5 - 9	-	-	7
10 - 14	-	-	-
15 - 19	-	-	13
20 - 24	18	9	27
25 - 29	22	16	38
30 - 34	21	13	34
35 - 39	34	13	47
40 - 44	50	24	74
45 - 49	78	51	129
50 - 54	118	58	176
55 - 59	129	71	200
60 - 64	148	80	228
65 - 69	139	89	228
70 - 74	125	80	205
75 - 79	89	61	150
80 - 84	67	73	140
≥ 85	46	43	89
Total	1,137	709	1,846



Leading Causes of Death

Causes of death in the CNMI have followed a similar pattern over the last seven years, with rates increasing over time. This is a clear indication that the prevalence of chronic disease is increasing. CHCC tracks the leading causes of death to better direct resources into prevention and treatment. The top 10 leading causes of death in the CNMI between 2015-2018 and 2019-2022 for all ages by sex are shown in Table 15 below.

Table 15. Rates for the Leading 10 Causes of Death by Gender, by 4-year Period, CNMI, 2015-2022

Leading Cause of Death	2015-2018			2019-2022		
	Male	Female	Both	Male	Female	Both
Heart Diseases	127.2	71.3	101.1	143.3	59.8	104.0
Cancer (all sites)	83.3	74.3	79.1	97.6	77.3	88.1
Diabetes Mellitus	31.4	46.8	38.6	41.1	38.1	39.7
Cerebrovascular disease (stroke)	36.7	33.6	35.3	32.9	33.0	32.9
Suicide (self-harm)	23.3	8.1	16.2	20.1	3.1	12.1
Other bacterial diseases	14.3	10.2	12.4	9.1	13.4	11.1
Accidental Drowning	19.7	9.2	14.8	11.9	2.1	7.3
Acute kidney failure and chronic kidney diseases	7.2	11.2	9.1	8.2	12.4	10.2
Chronic lower respiratory diseases	13.4	5.1	9.5	12.8	4.1	8.7
Influenza and pneumonia	11.6	8.1	10.0	5.5	10.3	7.7
Other causes	126.4	79.4	104.4	151.5	115.4	134.5

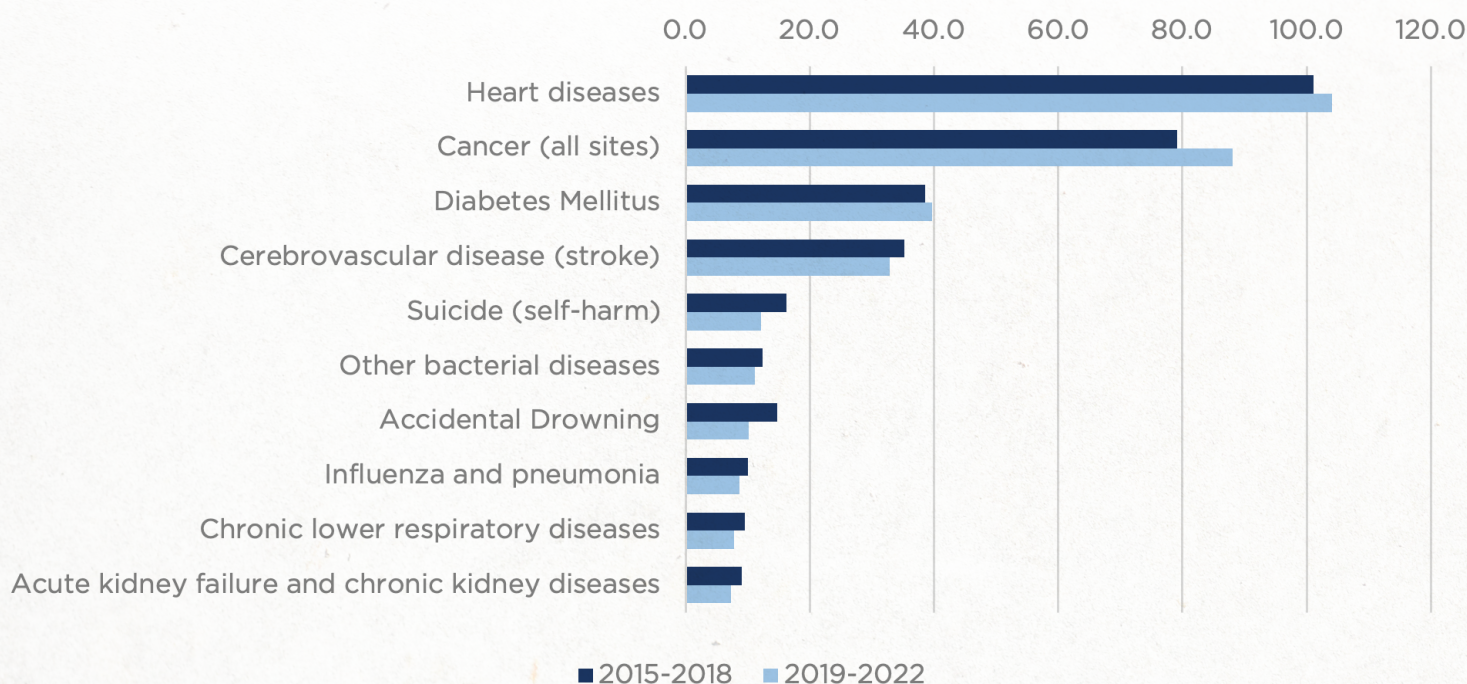
Source: CHCC, Health and Vital Statistics Office, 2015-2022



Key Vital Statistics

Figure 18 below shows the leading causes of death in descending order. The leading causes of death were heart disease, cancer, diabetes, stroke, suicide, bacterial diseases, drowning, kidney diseases, and chronic and respiratory diseases. While the data illustrates that we are seeing increasing rates for death caused by heart disease, cancers, and diabetes, it should be noted that there were decreases in the rates for cerebrovascular disease (stroke), suicide (self-harm), other bacterial diseases, accidental drowning, influenza and pneumonia, chronic lower respiratory disease and acute kidney failure.

Figure 16: Rates for the 10 Leading Causes of Death by 4-Year Period, All Ages, CNMI, 2015-2022



The chart below illustrates the leading causes of death by age group, highlighting the need to focus on various causes of death common among certain age groups. For example, diseases of the circulatory system, such as heart disease, are major causes of death among those 5-44 and the leading causes of death in those 45 and above. This highlights the need for programs targeting the prevention of heart disease in the CNMI. Other causes of death, such as external causes of death (accident, unintentional causes), are high among those 15-44.

Figure 17. CNMI: Leading Causes of Death by Age Group, 2015-2022

	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65=
1	Conditions in Perinatal Period 24	Infectious and Parasitic Diseases	Infectious and Parasitic Diseases	External Causes of Mortality 31	External Causes of Mortality 37	External Causes of Mortality 33	Diseases of the Circulatory System 96	Diseases of the Circulatory System 154	Diseases of the Circulatory System 273
2	Congenital Deformations 11	Congenital Deformations	External Causes of Mortality	Diseases of the Circulatory System	Neoplasms 10	Diseases of the Circulatory System 33	Neoplasms 63	Neoplasms 84	Neoplasms 171
3	Diseases of the Nervous System	Diseases of the Nervous System	Diseases of the Circulatory System	Diseases of the Nervous System	Diseases of the Circulatory System 8	Neoplasms 17	External Causes of Mortality 38	Endocrine, Nutritional, Metabolic Diseases 49	Endocrine, Nutritional, Metabolic Diseases 91
4	Infectious and Parasitic Diseases	Diseases of the Respiratory System	—	Diseases of the Nervous System	Diseases of the Respiratory System	Endocrine, Nutritional, Metabolic Diseases 11	Endocrine, Nutritional, Metabolic Diseases 36	External Causes of Mortality 28	Diseases of the Respiratory System
5	2 Other, Not Classified Elsewhere 3.3	External Causes of Mortality	—	Neoplasms	Endocrine, Nutritional, Metabolic Diseases	Infectious and Parasitic Diseases 7	Diseases of the Digestive System 17	Diseases of the Digestive System 26	Diseases of the Genitourinary System 37
Total	47	12	9	40	72	121	305	448	812



Non-Communicable Diseases

Non-communicable diseases (NCDs), sometimes called chronic diseases, are diseases that are not contagious or transferable. NCDs are developed over time and can result from a combination of genetic, environmental, physiological, and behavioral factors. Risk factors of NCDs include physical inactivity, using tobacco/nicotine, chewing betel nut (with or without tobacco), and eating or drinking foods/liquids with little to no nutritional value. In the CNMI, seven out of every 10 deaths are due to NCD's and related risk factors. The four (4) top NCDs affecting the CNMI community are hypertension, diabetes, cancer, and heart disease.

Table 16. Prevalence of Select NCDs among Adults in the CNMI, 2016 & 2023

Year	Diabetes	Hyper-tension	High Cholesterol	Cardio Vascular Disease	Chronic Obstructive Pulmonary Disease	Overweight/ Obesity
2016	18.70%	56.00%	17.30%	8.10%	0.90%	63.90%
2023	26.80%	47.00%	N/A	8.90%	1.30%	72.00%

Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Surveys 2016 & 2023

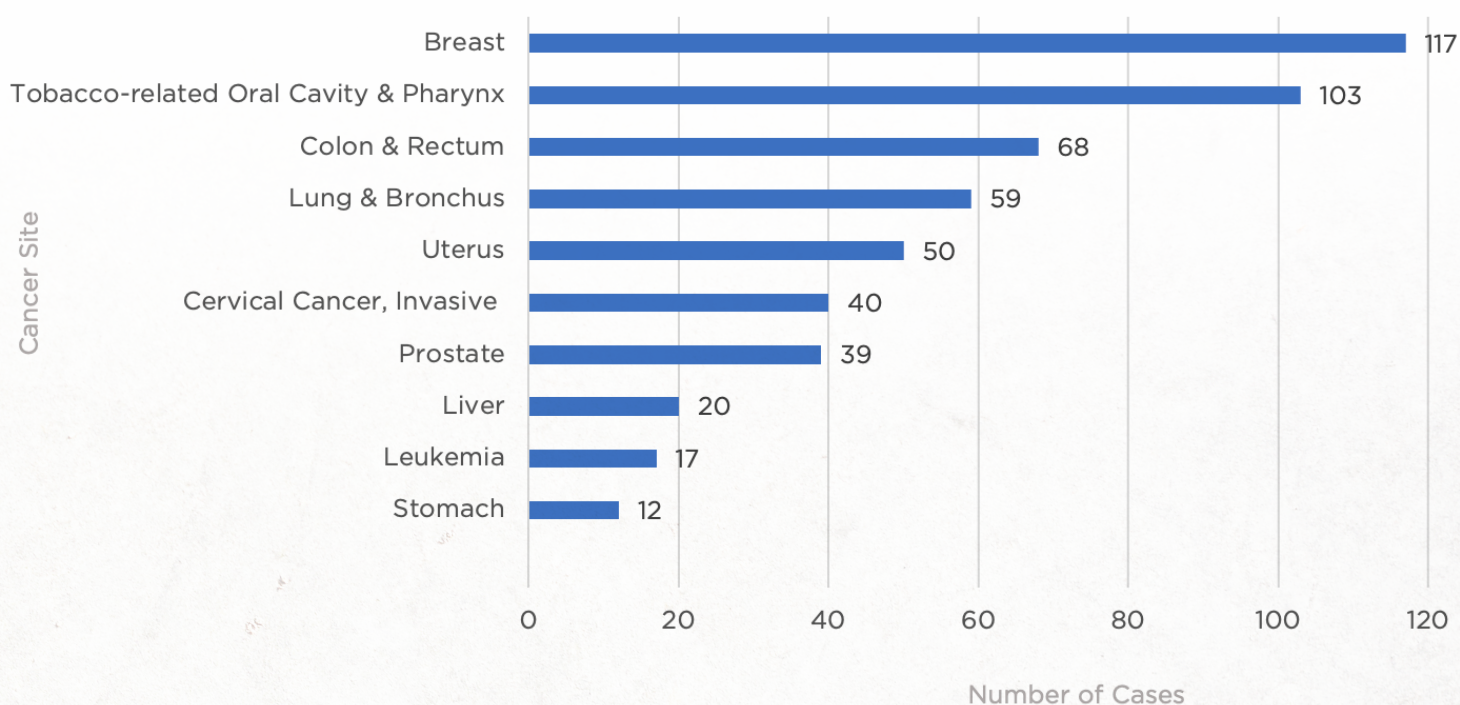
NOTE: There is no data available for high cholesterol in 2023. In 2023, 27% of the adult population in the CNMI was reported to have diabetes, 47% identified with hypertension, and almost 3 out of 4 (72% adults) were overweight or obese.

Cancer

Cancer has more than a hundred different diagnoses that affect different parts of the body. Most cancers are preventable. Figure 20 reflects the top 10 cancers diagnosed in the CNMI from 2007 – 2021. Breast cancer is the most diagnosed cancer in the CNMI, followed by tobacco-related oral, colorectal, lung, and uterine cancers. Three out of four adult cancers diagnosed in the CNMI are related to tobacco use, and 36% are related to obesity.

Diagnosing cancer at earlier stages is critical for ensuring the best chances of treatment outcomes and survival. According to data from the CNMI Cancer Registry, 78% of all cancers diagnosed between 2007 and 2021 were diagnosed at stage 3 or higher. A lower chance of survival, greater challenges with treatment, and higher costs are associated with delayed cancer treatment.

Figure 18. Top 10 Cancers in the CNMI, 2007-2021



Source: CNMI Cancer Registry, 2007-2021

Prevention: Cancer Screening

Prevention and early detection have been at the forefront of the Division of Public Health Services' NCD Programs through grant-funded breast and cervical screening activities. NCD Programs assists women ages 21 to 74 years old to access breast and cervical cancer screening exams such as:

- Clinical breast exam for all women ages 21 to 74, and Mammograms for women 40-74 years old
- Assists with airfare to Saipan for women 21 to 74 years old who live on Rota or Tinian and need breast cancer or cervical cancer follow-up services



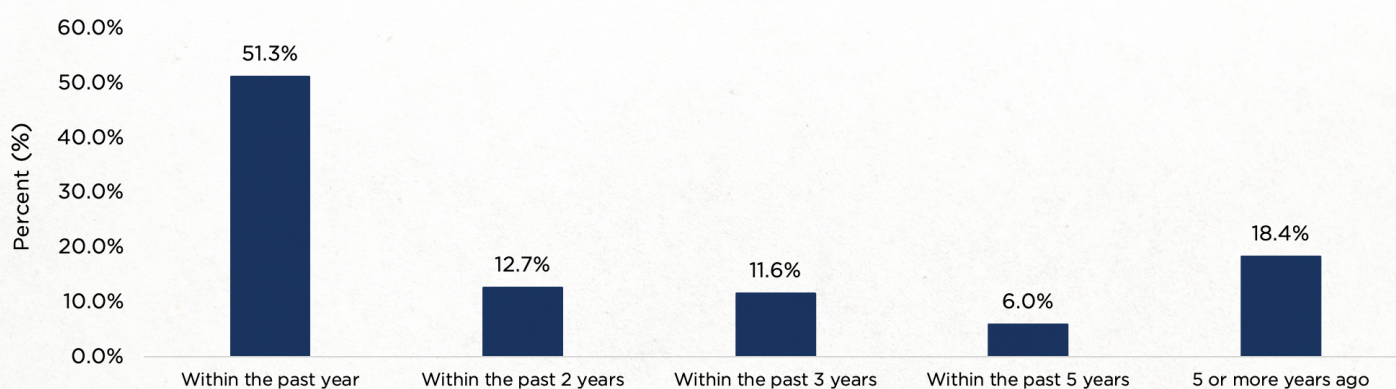


Non-Communicable Diseases

Mammogram

In April of 2024, the U.S. Preventive Services Task Force (USPSTF) updated its recommendation that women aged 40 to 74 years old be screened for breast cancer with a mammogram every two (2) years. Prior to the recent change, breast cancer screening guidelines recommend that women aged 50 to 74 get a screening mammogram every two (2) years. Among women aged 50 to 74 years old in the CNMI, two out of three women reported ever having a mammogram, leaving a third of women never having received a mammogram.

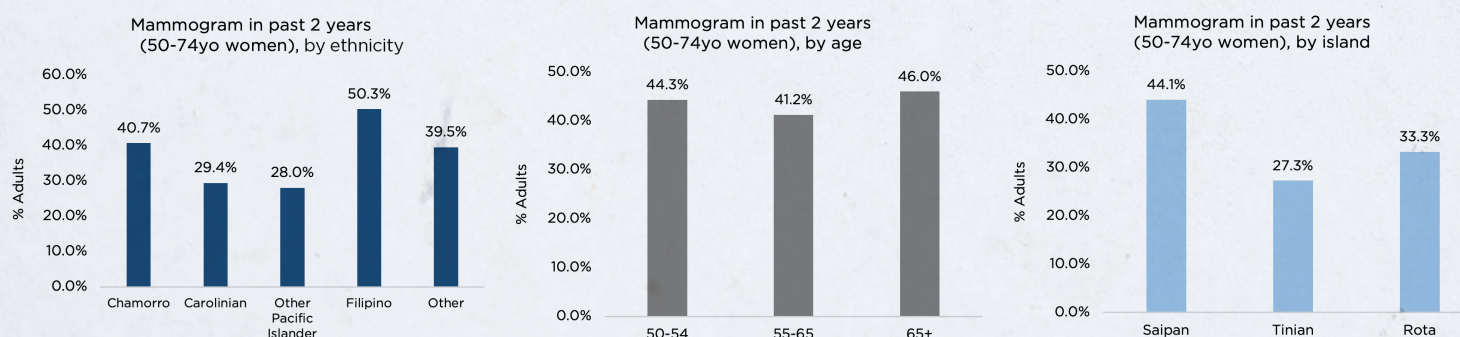
Figure 19. Percentage of Mammogram Frequency in the CNMI, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023

According to the CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey conducted in 2023, among women in the CNMI ages 50 to 74 years of age, 64% received a mammogram in the past two years. Data collected from the same survey also reports that 32.6% of the same population have never had a mammogram. Having an up-to-date mammogram was significantly higher among Filipino women. More women on the island of Saipan reported completing a mammogram in the past 2 years compared to women who resided on the islands of Tinian and Rota.

Figure 20. Frequency of Female Cancer Prevention Screenings (Mammograms) in the CNMI, 2023

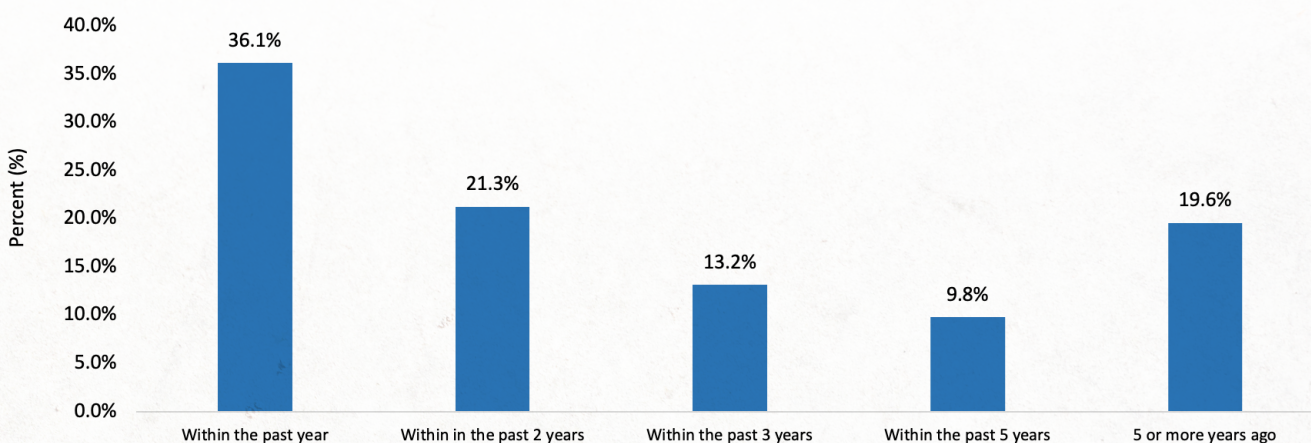


Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023

Pap Test

The USPSTF recommends screening for cervical cancer every 3 years with a Pap test for women between the ages of 21 to 29 years old. For women ages 30 to 65, the USPSTF recommends screening every 3 years with a Pap test alone, every 5 years with a high-risk HPV test alone, or every 5 years with a Pap and HPV test (co-testing). Among all CNMI women between the ages of 21 to 65 years old, the majority had received at least one pap test in her life. However, 21.6% reported never receiving a pap test.

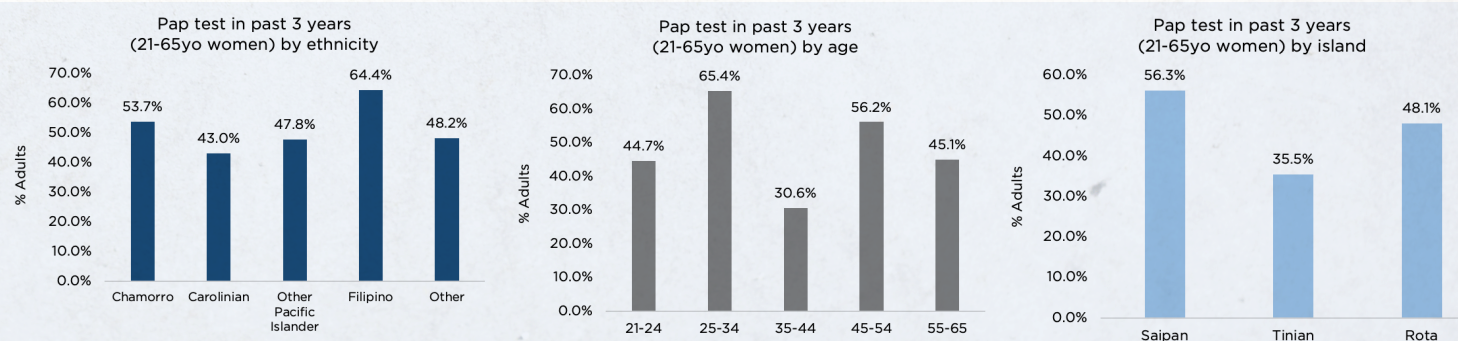
Figure 21. Frequency of Cervical Cancer Screenings in the CNMI, 2023



CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023

Of the women in the CNMI aged 21 to 65 who have ever had a Pap test, majority (80.4%) had a pap test within the past 3 to 5 years. Data reported from the 2023 CNMI Non-Communicable Diseases and Risk Factor Hybrid Survey identifies that 21.6% of women aged 21 to 65 have never had a pap test. Having an up-to-date pap test was significantly higher among women 25-44 years old and among Filipino women. More women on the island of Saipan reported having a pap test in the past 3 years compared to those on Tinian and Rota.

Figure 22. Frequency of Female Cancer Prevention Screenings (Pap Tests) in the CNMI, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023

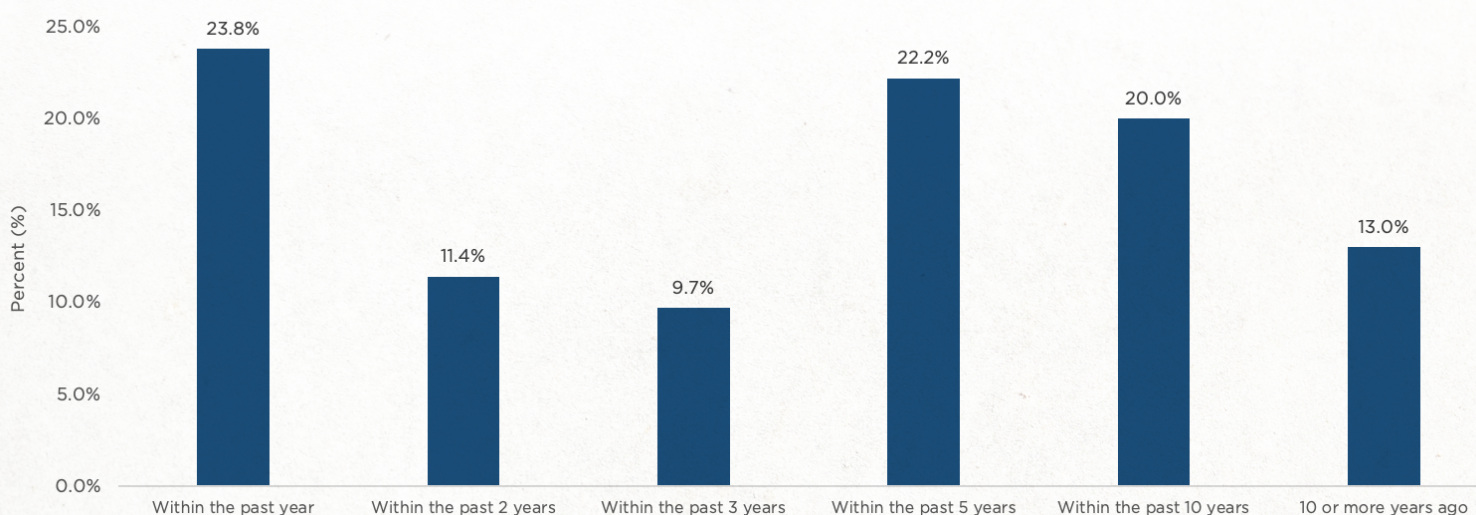


Non-Communicable Diseases

Colonoscopy

Following USPSTF guidelines, the CDC recommends colorectal cancer screening for all adults aged 50 to 75 years old. Among adults aged 50 to 70 years old in the CNMI, 76.0% reported never having received a colonoscopy. Among those that did receive a colonoscopy, 87% received it within the past 10 years.

Figure 23. Frequency of Colorectal Cancer Screenings in the CNMI, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023





Health Behaviors

Health risk behaviors are activities, actions, or beliefs contributing to illness, death, and disability. For example, people who smoke have an increased risk of heart disease, stroke, and cancer; overweight and obese adults have an increased risk of hypertension, coronary heart disease, and some forms of cancer. The negative health consequences of risky behaviors are often preventable. Primary disease prevention strategies are actions that decrease a person's risk of getting a health condition. Avoiding risky behaviors (like smoking and poor nutrition) is one example of a primary prevention strategy. Practicing healthy behaviors, such as getting vaccinations to avoid infectious diseases, cancer screenings for early detection, and using a condom during sex to prevent sexually transmitted infections, are other examples of prevention strategies that can protect one's health. This section covers five types of common risk behaviors (tobacco, betel nut, alcohol, illicit drugs, and obesity) among people living in the CNMI.

Oral Health

Oral health is a large disparity in the CNMI compared to the United States. Dental caries in the CNMI is the most common chronic disease of children ages six to eleven years, which results in chronic pain, infection, and eventually tooth loss. The CHCC Oral Health Program (OHP) focuses on implementing preventative programs that target most of the CNMI youth population. According to data obtained from the CHCC Oral Health sealant program, the average percentage of children with decayed teeth in the CNMI in 2022 was 78.3%, with children on the island of Saipan having a higher percentage.

The OHP has expanded the school sealant program, which targets second and sixth graders, to include first graders on Tinian and Rota. The Tinian and Rota Health Centers provides a "wrap around program", where fluoride varnish is applied during the well-baby visits to increase fluoride uptake. Additional preventatives such as silver diamine fluoride (SDF) are being applied on young children with decay to arrest the decay until the primary teeth exfoliate. Also geared to combat the disease is the new Prenatal Dental Program. This program, targeting pregnant women, focuses on educating the mother on the oral care and health of her child(ren).

Oral cancer, mainly caused by chewing betel nut, is of significant concern in the CNMI. It is the 2nd leading cause of cancer in the CNMI. Free oral cancer screening among the dental clinics was agreed upon to help combat this deadly and aggressive disease. The OHP Dental Referral Policy for newly diagnosed oral cancer/head/neck cancer patients was developed to create a better oral health outcome for patients getting treated for their cancer.

Betel Nut Chewing

Betel nut chewing is prevalent in the CNMI, with about one out of five adults (22.5%) reporting they have chewed betel nut in the last 30 days. Among those who chew betel nut, the majority (72.4%) do so every day. Additionally, an alarming 93.1% of these chewers add tobacco to their betel nut, increasing the health risks associated with the habit.

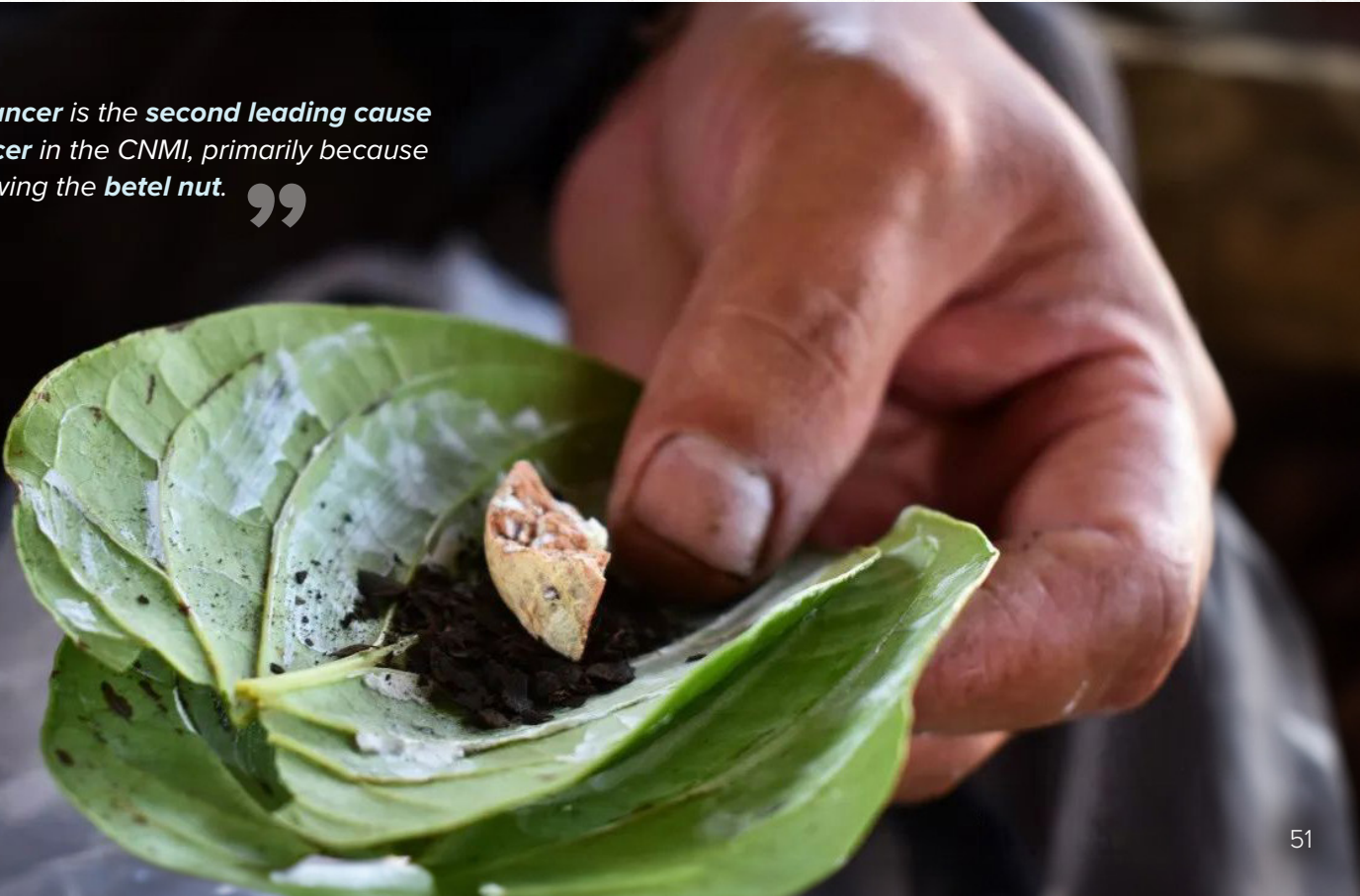
Table 17. Betel Nut Chewing Frequency and Characteristics Among Adults in CNMI, 2023

Current betel nut chewing prevalence (chewed in past 30 days)	22.5%
Percentage of current betel nut chewers who chew every day	72.4%
Percentage of current betel nut chewers who add tobacco to their chew	93.1%
Average age of initiation among current every-day chewers	17
Percentage of current chewers who want to quit	68.5%
Percentage of current chewers who have tried to quit in the past year	56.8%

Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023

The average age when people start chewing betel nut daily is 17 years old, highlighting the need for prevention efforts targeted toward young people. On a positive note, many betel nut chewers want to quit—68.5% expressed a desire to stop chewing, and 56.8% have tried to quit at least once in the past year by abstaining for one day or more.

“ **Oral cancer is the second leading cause of cancer in the CNMI, primarily because of chewing the betel nut.** ”





Health Behaviors

Figure 24. Frequency of Betel Nut Chewing in the CNMI by Ethnicity, 2023

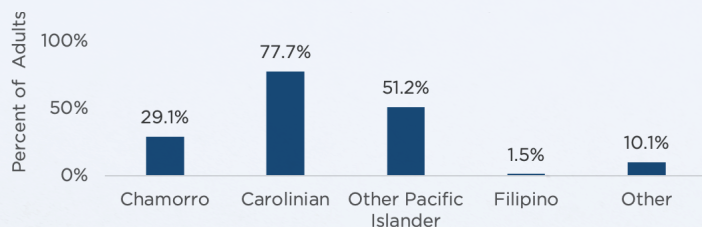


Figure 25. Frequency of Betel Nut Chewing in the CNMI by Education Level, 2023

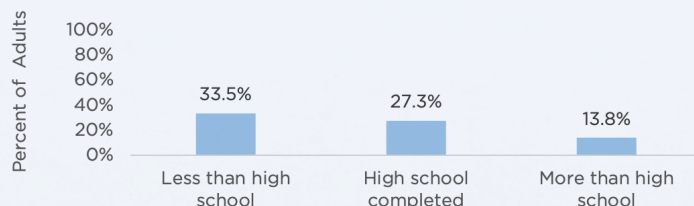


Figure 26. Frequency of Betel Nut Chewing in the CNMI by Island, 2023

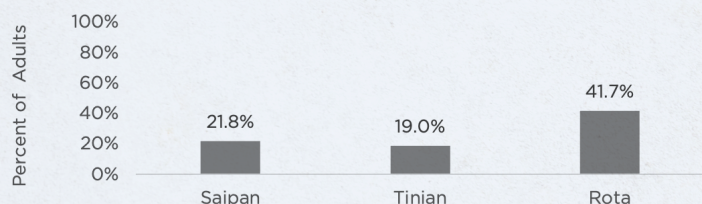
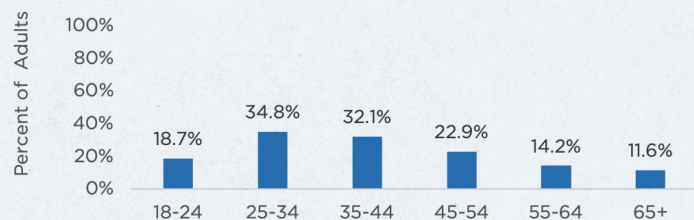


Figure 27. Frequency of Betel Nut Chewing in the CNMI by Age, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023

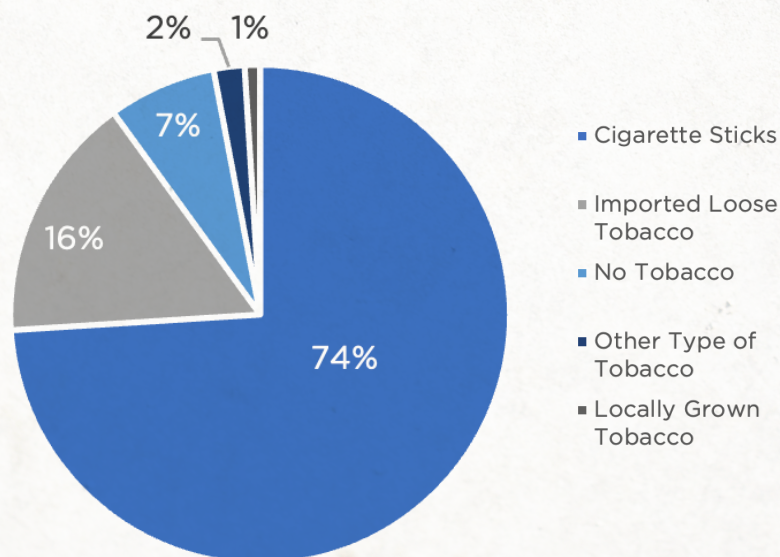
The prevalence of betel nut chewing in the CNMI is higher among adults 25-44 years old, individuals with less than a high school education, and those who live on Rota, Carolinian, Chamorro, and Other Pacific Islander populations. These figures emphasize the importance of providing support and resources to help people quit chewing betel nut and implementing public health strategies to prevent young people from starting this negative health behavior.

Type of Tobacco Consumed with Betel Nut

Among current chewers, 74% reported adding cigarette sticks to their chew, followed by imported loose tobacco, other types of tobacco, and locally grown tobacco. Only 7% did not add any tobacco to their chew. Among chewers who add sticks of cigarettes to their chew, the average number of cigarettes chewed per day is 3 sticks.

Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023

Figure 28. Percentage of Tobacco Types Added to Betel Nut



Addressing the combined use of betel nut and tobacco in public health initiatives could significantly improve health outcomes in the CNMI. Providing education on betel nut and tobacco health risks, promoting cessation programs, and offering support for quitting can help reduce the prevalence of this harmful habit.

Youth Tobacco Use

The percentage of students in CNMI who have smoked cigarettes in the last 30 days has shown a notable decline from 10.8% in 2019 to 6.9% in 2021, representing a significant decrease of 36.1%. Despite this positive trend, the 2021 figure remains higher than the U.S. national average of 3.8%. This indicates that while progress is being made, smoking among youth in CNMI is still more prevalent than among their peers in the wider U.S. Efforts to reduce smoking rates should focus on comprehensive anti-smoking campaigns, stricter enforcement of tobacco regulations, and education programs targeted towards preventing the initiation of smoking in young people.

Figure 29. Percentage of High School Students Who Currently Smoked Cigarettes in the CNMI, 2019 & 2021



Source: Centers for Disease Control and Prevention, Youth Risk Behavior Survey - CNMI, 2019, 2021





Health Behaviors

Electronic Cigarettes

The use of electronic cigarettes, or vapor products, is on the rise, especially among youth. Although the use of electronic cigarettes has become a national health concern, the concept is still new to the CNMI. However, to address the use of electronic cigarettes, the CHCC Public Health is taking the initiative in planning and implementing prevention efforts in the CNMI.

The CHCC Public Health Services is focused on the following activities as part of strategies to address the use of E-Cigarettes among CNMI youth:

1. Conduct a Community Readiness Assessment to assess the CNMI's readiness to address the issues of e-cigarette's or vaping.
2. Conduct a Knowledge and Attitudes Survey of the middle and high school population on E-Cigarettes on Saipan, Tinian, and Rota.
3. Develop educational materials on electronic cigarettes for the following populations: youths, parents, retailers, and the general public.
4. Implement Health and Wellness activities targeting CNMI youth

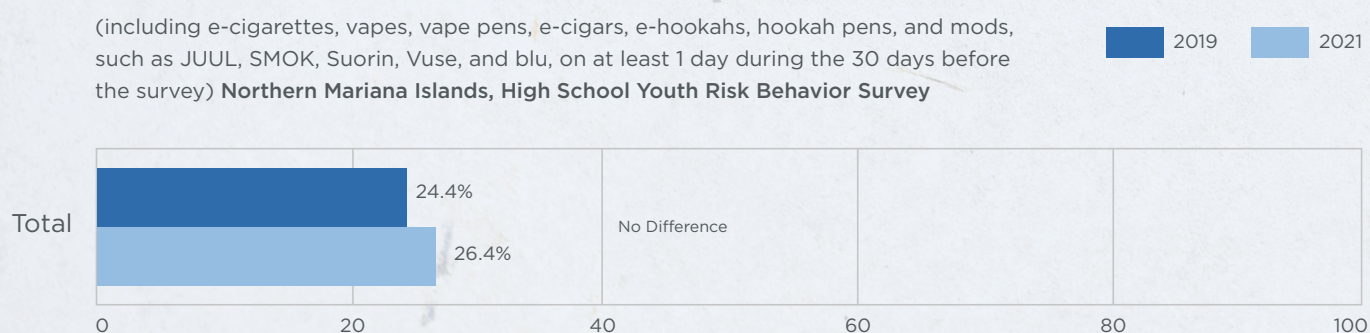
As of now, the current policies implemented in the CNMI for electronic cigarettes are:

1. Smoke-Free Air Act (PL 16-46)

It is illegal to smoke in government buildings & vehicles, public places, places of employment, school and college campuses, outdoor sports fields, and within 25ft of an enclosed smoke-free area and outdoor places of employment with 25ft of a nonsmoking person.

2. Electronic Cigarettes (PL 19-32)

Figure 30. Percentage of High School Students Who Currently Use Electronic Vapor Products in the CNMI, 2019 and 2021



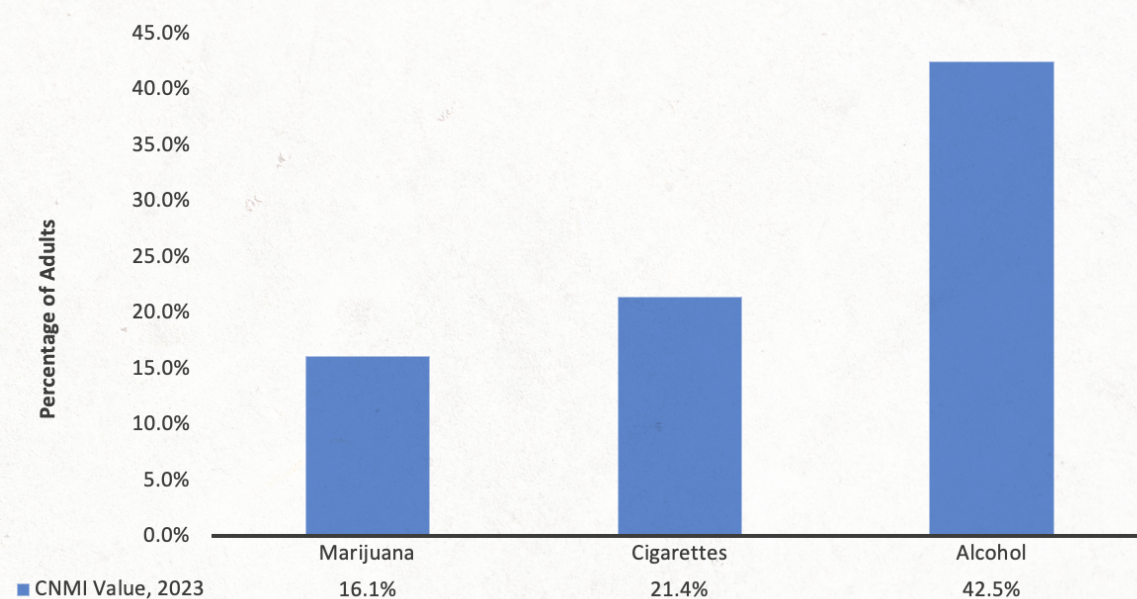
Source: Centers for Disease Control and Prevention, Youth Risk Behavior Survey - CNMI, 2019, 2021

Vaping among high school students in the CNMI is a growing concern. In 2019, 24.4% of students used electronic vapor products; by 2021, this increased to 26.4%. This slight rise highlights an ongoing issue, especially since the U.S. average is lower at 18.0%. This means many young people in CNMI are vaping, underscoring the need for more education and prevention efforts to help reduce the use of these products and protect their health.

Substance Use

Substance use among adults in the CNMI shows concerning trends. On the 2023 NCDs & Risk Factor Survey, 16.1% of CNMI adults reported using marijuana, 21.4% reported smoking cigarettes, and 42.5% reported consuming alcohol in the past 30 days. These high rates of substance use highlight the need for increased public health efforts focused on education, prevention, and support for those seeking to reduce or quit these behaviors. Addressing substance use is crucial for improving the overall health and well-being of the community.

Figure 31. Percentage of Adults Who Use Substances (Marijuana, Cigarettes, Alcohol) in the CNMI, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023.

Protective/Preventive Measures

According to Healthy People 2030, good nutrition, physical activity, and healthy body weight are essential to a person's overall health and well-being. These factors help decrease the risk of developing non-communicable diseases such as diabetes, heart disease, and cancer. Likewise, for those who need to control and manage their chronic diseases, these factors will help prevent further complications from the disease.

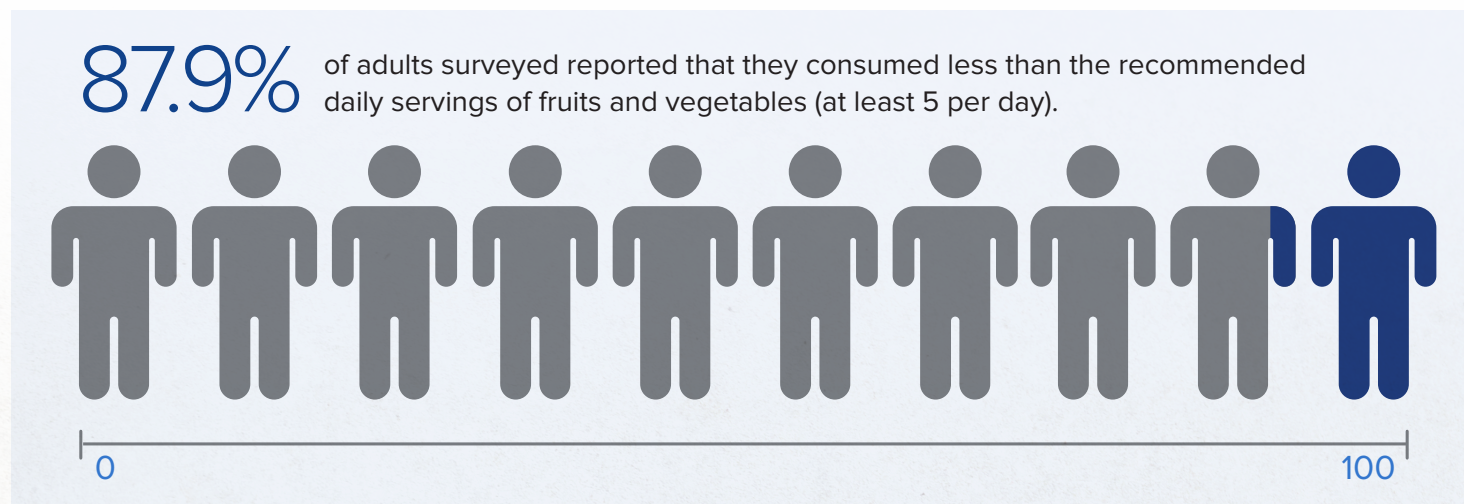
Fruit and Vegetable Intake in Adults

According to the 2023 CNMI Non-Communicable Disease & Risk Factor survey, almost 9 out of 10 adults in the CNMI (87.9%) consumed less than the recommended daily servings of fruits and vegetables (at least 5 per day). Low fruit and vegetable consumption (<5 servings per day) was highest among those less than 45 years old and among Chamorro, Carolinian, other Pacific Islander, and Filipino populations.



Health Behaviors

Figure 32. Percentage of Adults Who Consumed Less Than the Recommended Daily Servings of Fruits and Vegetables (At Least 5 Per Day)



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023

This low consumption of fruits and vegetables is concerning, as it indicates a significant gap in dietary habits that are crucial for maintaining good health. The high prevalence of inadequate fruit and vegetable intake among younger adults and specific ethnic groups suggests potential cultural and socioeconomic barriers to healthy eating. By providing more nutrition education, better access to fresh produce, and health programs that respect cultural differences, we can help improve the eating habits and overall health of the CNMI community.

Figure 33. Frequency of Adults in the CNMI with <5 Servings of Fruits and Vegetables per Day by Ethnicity, 2023

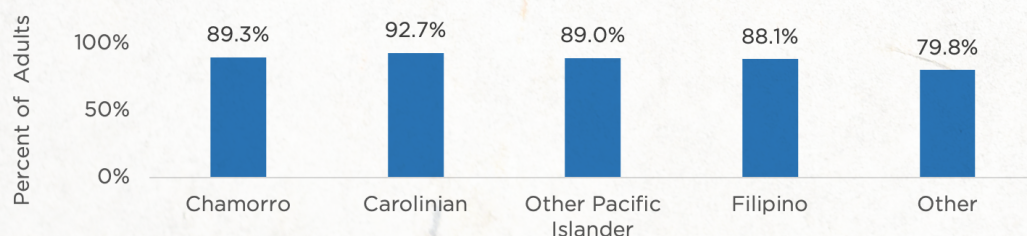
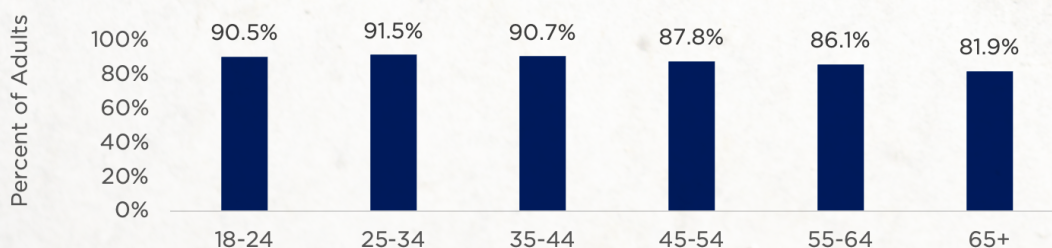


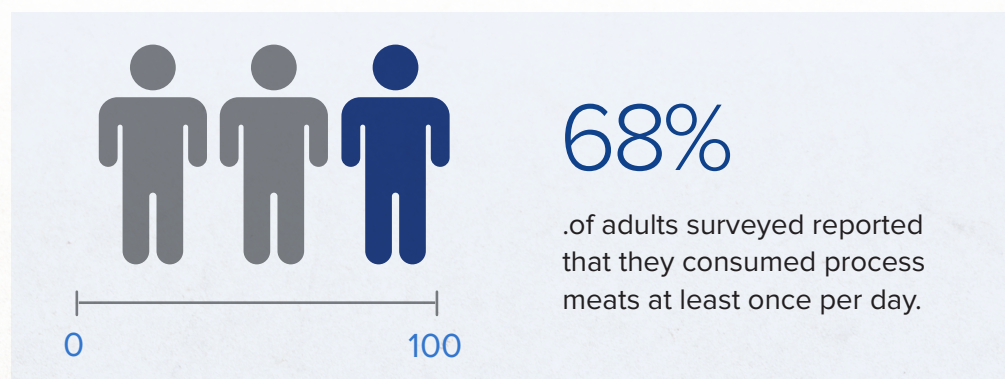
Figure 34. Frequency of Adults in the CNMI with <5 Servings of Fruits and Vegetables per Day by Age, 2023



Processed Meat Consumption in Adults

Consuming a lot of processed meats is linked to various health risks. The data suggests that certain groups may be more at risk due to cultural preferences or limited access to healthy food options. These issues can be addressed with targeted nutrition education, promoting healthier alternatives to processed meats, and improving access to fresh, unprocessed foods.

Figure 35. Percentage of Adults in the CNMI Who Consumed Processed Meats At Least Once Per Day, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023

Two out of three adults in the CNMI (68.9%) consumed processed meats at least once daily. Almost one-third (29.0%) consumed processed meats twice or more daily. Heavy consumption of processed meats (2+ times per day) was more prevalent among those residing on Tinian and Rota, younger adults (especially those 18-24 years old), those with only a high school education, and Chamorro, Carolinian, and other Pacific Islander populations.

Adult Physical Activity

Among adults in the CNMI, over half (53.7%) reported getting the recommended weekly amount of aerobic physical activity (150 minutes a week of moderate-intensity aerobic activity or 75 minutes a week of vigorous-intensity aerobic activity, or a combination of both).

Figure 36. Percentage of Adults in the CNMI Getting the Recommended Amount of Aerobic Physical Activity a Week, 2023



Source: CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023



Social & Mental Health

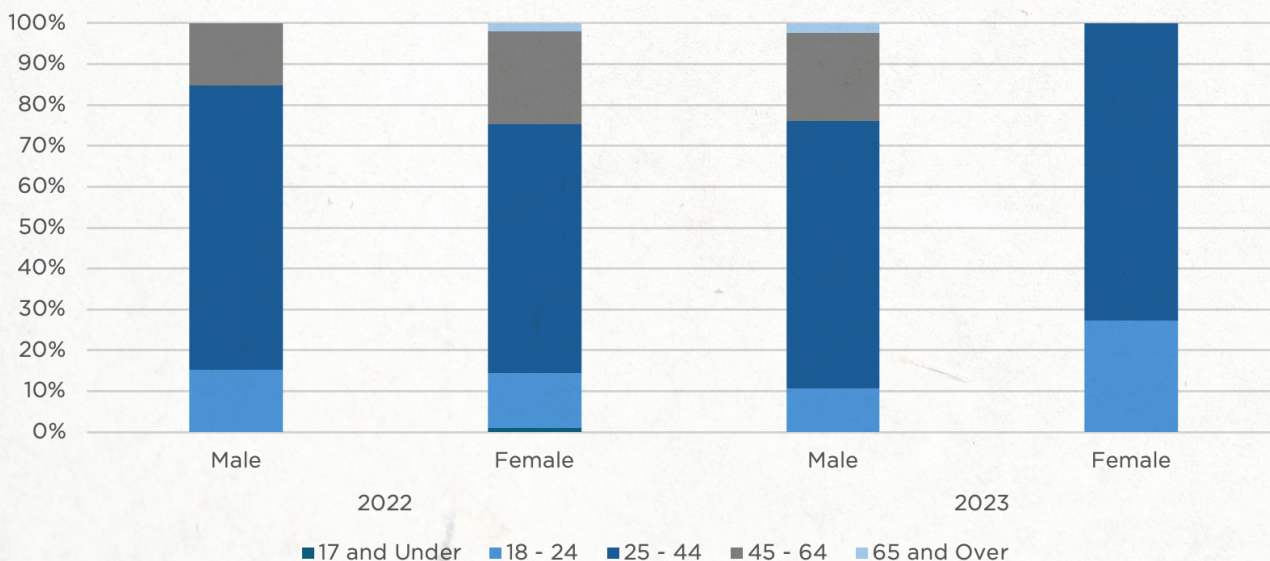
Social and mental health encompasses emotional, psychological, and social well-being. Mental health conditions, also called mental illnesses, are a group of distinctive disorders that affect how a person thinks, feels, and acts. Men, women, adolescents, and children of all races, ethnicities, and life circumstances can be diagnosed with mental illnesses. Just like other diseases, like diabetes and heart disease, mental illness can be treated and managed. Without treatment, mental illness can interfere with a person's major life activities like work, social relationships, and day-to-day decisions and choices.⁶

Since each mental illness is distinct, each has its own risk factors. Potential risk factors include a family history of mental illness, substance abuse, chronic diseases, family and workplace stresses, and major life or traumatic event stresses.

Substance Use

Figure 37 displays data on the number of individuals served by the CHCC Community Guidance Center (CGC) for alcohol and drug issues by age group and gender for 2022 and 2023. The total number of persons served decreased, with a notable increase in males and a significant decrease in females served. The 25-44 age group remains the most served. Served means individuals who received mental health services.

Figure 37. Percentage of Cases Treated for Alcohol and Drugs by Age Group And Gender, CNMI 2022-2023



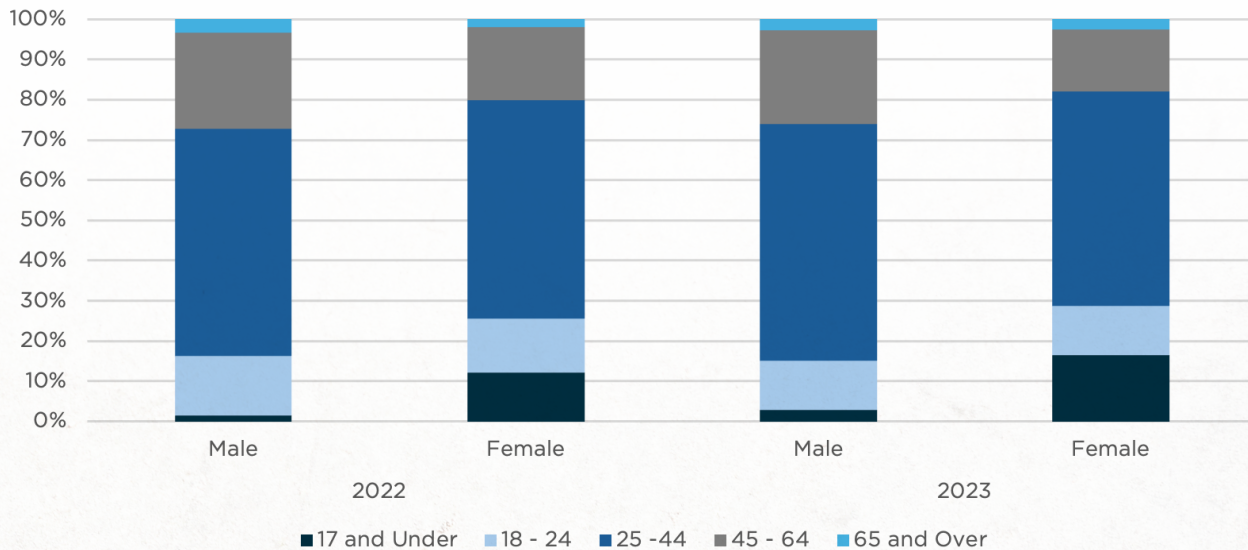
Source: CHCC Community Guidance Center, 2022-2023

Treatment

There was an overall increase in individuals who received treatment mental health services between 2022 and 2023, with a more significant increase among males. The 25-44 age group saw the most substantial increase and remains the largest group served. Figure 40 shows the number of people receiving behavioral health services from the Community Guidance Center by age group and gender in 2022 and 2023.

6. World Health Organization. Risks to mental health: an overview of vulnerabilities and risk factors. http://www.who.int/mental_health/mhgap/risks_to_mental_health_EN_27_08_12.pdf

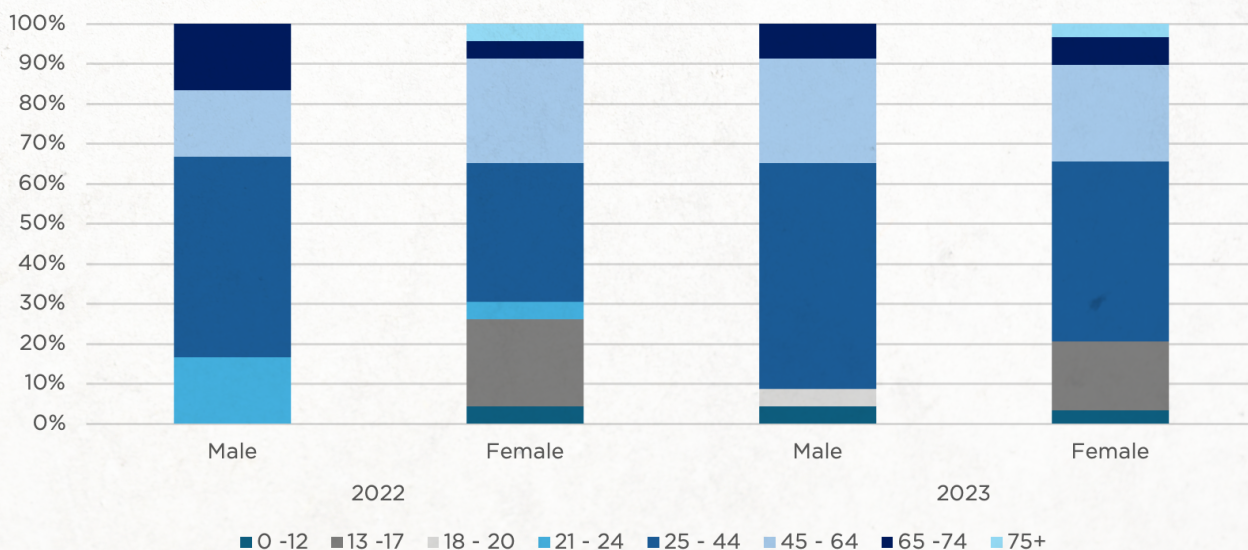
Figure 38. Percentage of Cases Treated for Behavioral Health Needs by Age Group And Gender, CNMI, 2022-2023



Source: CHCC Community Guidance Center, 2022-2023

There is a rise in the number of individuals served by the CGC with Serious Mental Illness (SMI) and Severe Emotional Disturbance (SED) from 2022 to 2023, particularly among females. This emphasizes the increasing need for mental health services for SMI and SED across all age groups.

Figure 39. Percentage of Cases Treated for SMI/SED by age Group and Gender, CNMI, 2022-2023



Source: CHCC Community Guidance Center, 2022-2023

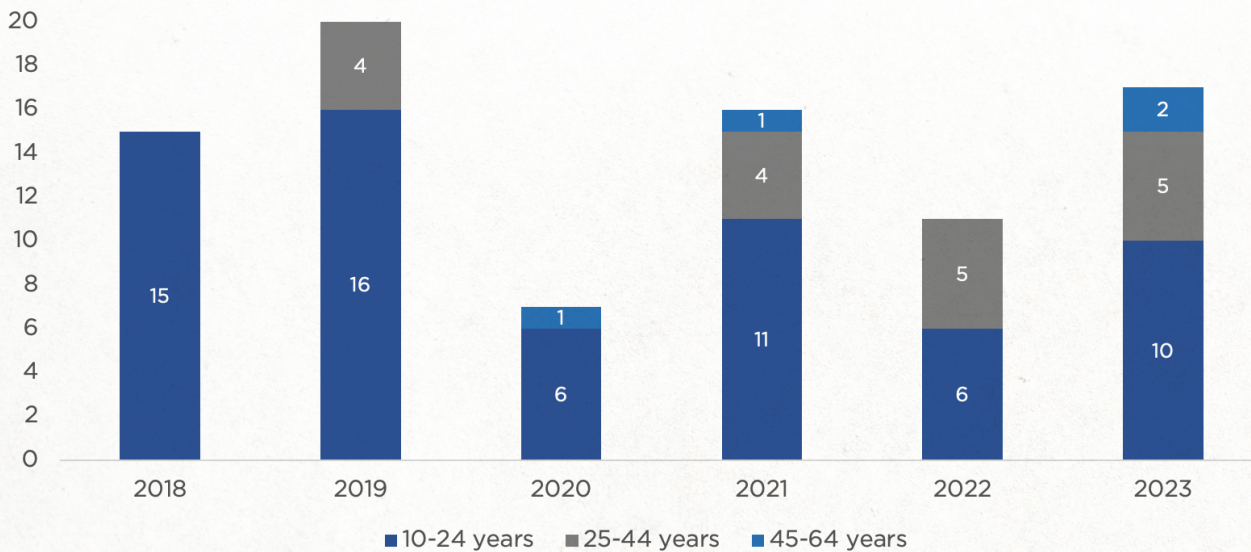


Social & Mental Health

Suicide

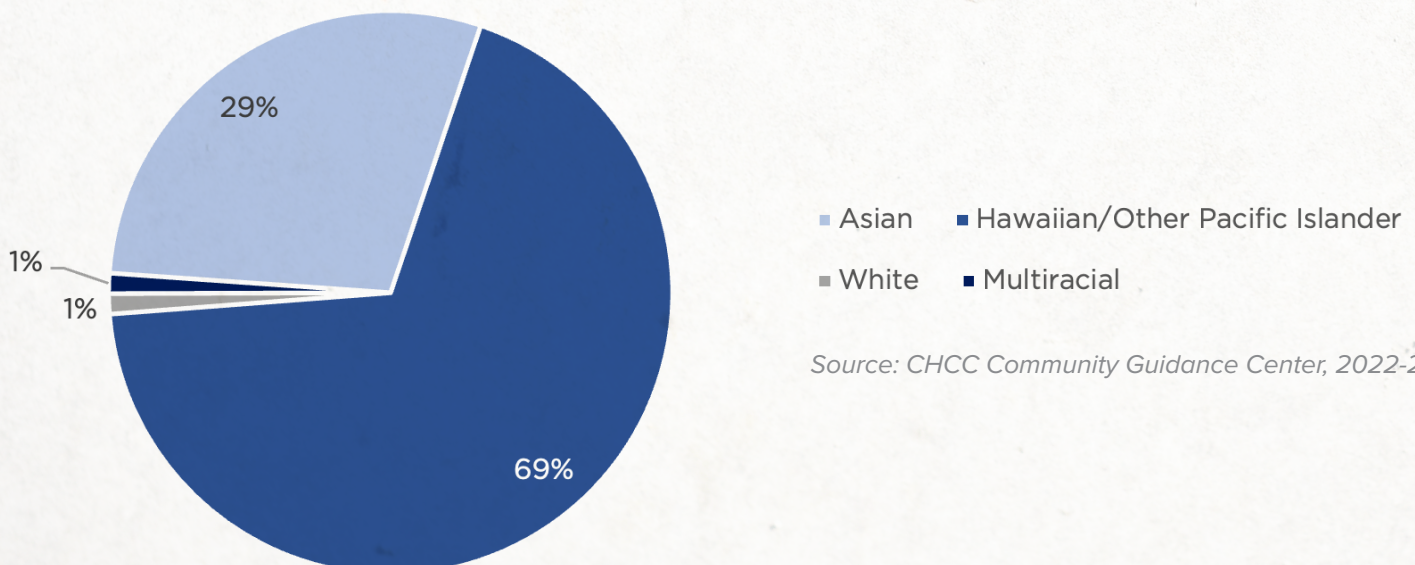
Suicide is a serious public health problem that is on the rise. Feelings of belonging, dignity and hope can support resilient individuals and communities and protect them against suicide. The number of suicide attempts in the CNMI has fluctuated between 2018 and 2023, with an overall increase in 2023, as seen in the chart below. Females had higher numbers of attempts than males, with most suicide attempts occurring among Native Hawaiian or Other Pacific Islander individuals. The age group 10-24 years had the highest number of attempts.

Figure 40. Number of Suicide Attempts by Age, CNMI, 2018-2022



Source: CHCC Community Guidance Center, 2022-2023

Figure 41. Percentage of Suicide Attempts by Race, CNMI, 2018-2022



Source: CHCC Community Guidance Center, 2022-2023





Maternal & Child Health

Improving the health and well-being of mothers, infants, and children is a critical public health goal for the CNMI. The well-being of women and children helps us to predict the health of the next generation and allows us to determine future public health challenges for families, communities, and the healthcare system.

Pregnancy is a critical time for identifying existing health risks in women and to prevent future health risks for their children. These health risks include hypertension, diabetes, depression, intimate partner violence, genetic conditions, sexually transmitted diseases, tobacco, alcohol, and substance use, inadequate nutrition, and unhealthy weight.

The risk for maternal and infant mortality and pregnancy-related complications can be reduced by increasing access to quality reproductive healthcare. Healthy birth outcomes and early identification and treatment of developmental delays, disabilities, and other health conditions among infants can prevent death or disability and enable children to reach their full potential.

Barriers to accessing healthcare and early intervention services, educational, employment, and economic opportunities, social support, and availability of resources to meet daily needs influence maternal health behaviors and health status. These factors also affect pregnancy, infant, and child health outcomes. Therefore, in addition to ensuring direct care, improving and strengthening enabling services and public health systems in the CNMI are critical for moving the needle toward improved maternal and child health outcomes.

Infant & Child Mortality Rates

Neonatal, infant, and child mortality are important measures of a population's health and development. The reduction of child mortality is an important measure to collect and report. Table 18 shows the mortality rate from 2015 to 2022 for infants under 1 year and children aged 1 to 4 years old, which amounted to 7.2 and 0.5 per 1000 live births, respectively. Neonatal mortality (deaths under 28 days) recorded its highest count at 10.4 deaths per 1000 in 2021, and Infant mortality (less than 1 year old) registered 12.7 deaths per 1000 in 2022. Post-neonatal mortality (28 days to less than 1 year old) was recorded at 8.5 deaths per 1000 in 2022, and the highest mortality rate for children under 5 years old was recorded in the year 2016 at 2.7 per 1000 live births.



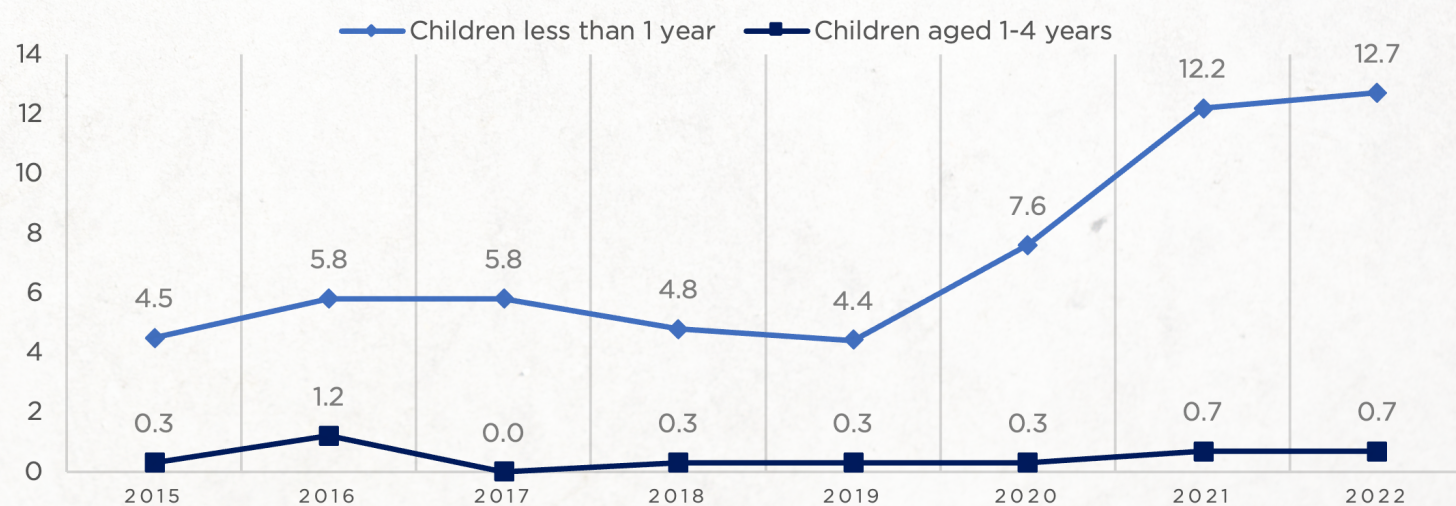
**Table 18. Mortality Rates among Neonatal, Infants, and Children Under 5 Years
Per 1,000 Live Births*, CNMI, 2015-2022**

Year	Infants under age 1			Children aged 1-4 years	Total children under age 5 years
	Under 28 days	28 days to <1 year	Total <1 year		
2015	3.6	0.9	4.5	0.3	1.4
2016	3.3	2.5	5.8	1.2	2.7
2017	5.0	0.8	5.8	0.0	1.8
2018	2.4	2.4	4.8	0.3	1.8
2019	4.4	0.0	4.4	0.3	1.3
2020	7.6	0.0	7.6	0.3	1.6
2021	10.4	1.7	12.2	0.7	2.4
2022	4.2	8.5	12.7	0.7	2.1
2015-2022	5.1	2.1	7.2	0.5	1.9

*Rates calculated with counts less than 20 are considered unstable.

Source: CHCC, Health and Vital Statistics Office, 2015-2022

Figure 42. Mortality Rates among Infants Less Than 1 Year And 1-4 Years, by Year, CNMI, 2015-2022



Source: CHCC, Health and Vital Statistics Office, 2015-2022

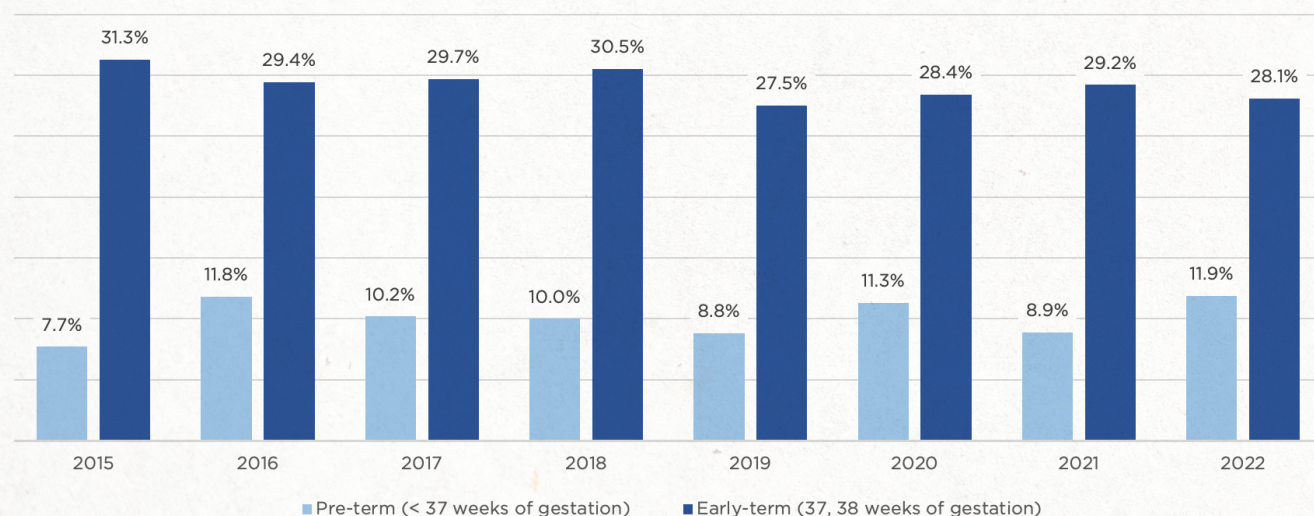


Maternal & Child Health

The Centers for Disease Control and Prevention indicated in its April 29, 2022, Morbidity and Mortality Weekly Report (MMWR) that “Hypertensive disorders in pregnancy (HDPs) are common pregnancy complications and leading causes of pregnancy-related death in the United States.” In recent years, the territory has seen an increase in the number of tourist visitors with live births occurring in the CNMI. Where appropriate, this report includes select indicators where live births among tourist mothers are excluded. For policy and planning purposes, select indicators focus on non-tourist mothers and live births as these visitors only remain in the CNMI for a limited time before and after birth.

However, in the CNMI, cases of hypertension eclampsia have been very low, amounting to less than 1% (0.12%) from 2015 through 2022. The peak was in 2018, with only 3 cases (0.24%), and no cases were reported in 2021 and 2022.

Figure 43. Percentage of Pre-Term and Early-Term Live Births among non-tourist Women by Year, CNMI, 2015-2022



Source: CHCC, Health and Vital Statistics Office, 2015-2022

Rates of pre-term births showed minimal declines between 2016 and 2019 and then slightly increased to 11.9% in 2020. In 2021 the rate decreased to 8.9% and then increased to 11.9% in 2022.

In 2015, cases of early-term births by non-tourist women affected about 1 of every 3 infants born in the CNMI. Rates of early-term births declined by 10.2% between 2015 and 2022.

Maternal Health

Overall, the number of prenatal care (PNC) visits by non-tourist women during the first trimester of pregnancy shows increasing trends from 2015 to 2022. In 2017, the percentage of mothers who had their first prenatal checkup during their first trimester increased to 51.9 % from 35.6 % in 2015 and 44.4% in 2016. Furthermore, PNC visits during the first trimester continue to increase in 2020 and 2021 to 55.6% and 66.8%, respectively. In 2022, the number of PNC visits during the first trimester dropped slightly to 61.7%, which is equivalent to 3 in 5 births to non-tourist women in the CNMI.

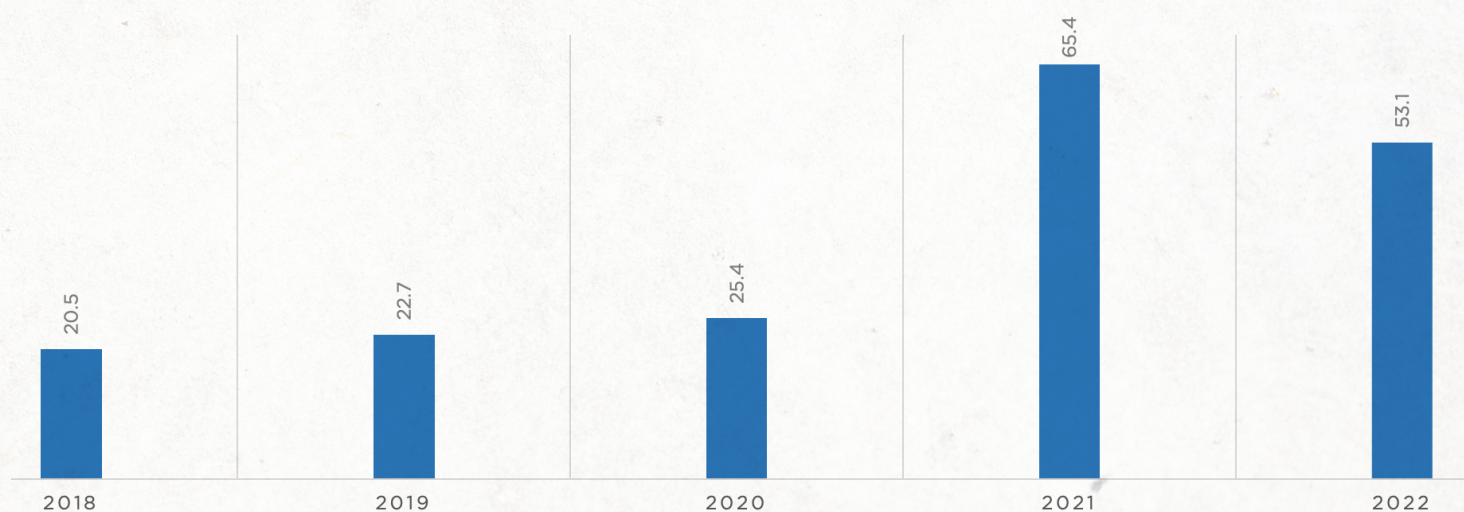
Table 19. Number and Percentage of Live Births among Non-tourist Women Who Receive Prenatal Care During the First Trimester, CNMI, 2015-2022

Years	2015	2016	2017	2018	2019	2020	2021	2022	Grand Total
1st Trimester PNC	259	326	336	329	340	351	382	290	2613
Total Births	728	735	647	681	697	631	572	470	5161
% of 1st Tri-mester PNC	35.6	44.4	51.9	48.3	48.8	55.6	66.8	61.7	50.6

Source: CNMI Maternal & Child Health Block Grant Annual Report, 2018-2022

The percentage of women ages 18 through 44 who had a preventive medical visit in the past year increased from 20.5 percent in 2018 to 65.4 percent in 2021. Access to Medicaid via Presumed Eligibility during the COVID-19 pandemic could have contributed to this increase. In 2022, the percentage of preventive medical visits decreased to 53.1 percent.

Figure 44. Percent of Women 18-44 with a Preventative Care Visit, CNMI, 2018-2022



Source: CNMI Maternal & Child Health Block Grant Annual Report, 2018-2022

Data from the CNMI Health & Vital Statistics identifies that the percentage of women who drink alcohol during the last three months of pregnancy remained the same at 11 percent in 2020 and 2022. Data for this measure was not collected in 2018 and 2019. There were no reported cases of alcohol usage during the last three months of pregnancy in 2021.



Maternal & Child Health

Teen Births

In 2016, the teen birth rate decreased to 28.8 per 1000. Teen birth rates in the CNMI continued to decline through 2022, where the rate was 9.9 per 1000, which is reported to be lower than the US national rate of 13.6 per 1000 in 2022, according to the CDC.

Table 20. Teen Birth Rate, Ages 15 Through 19, Per 1,000 Females, CNMI, 2015-2022

	2015	2016	2017	2018	2019	2020	2021	2022
Female Population U.S. Census. Int'l Database) Aged 15-19 Years	1993	2050	2062	2060	2091	2126	2147	2224
Teen birth rate per 1000 women aged 15 - 19 years	32.1	28.8	18.9	28.2	21.0	17.9	14.0	9.9

Source: Health and Vital Statistics Office

According to the CDC, low birthweight is described as babies being born weighing less than 2,500 grams or 5 pounds 8 ounces. Premature birth (before 37 weeks of pregnancy) and fetal growth restriction are the most common causes of low birth weight. Babies who weigh less than they should at birth are more likely than babies whose weight is normal to have health problems. In the past five years, the highest percentage of low-birth-weight deliveries in the CNMI, 10.8 percent, occurred in 2022, and the second-highest was recorded in 2020, at 10.4%. The lowest birth-weight delivery occurred in 2019, at 6.2 percent. In comparison, 8.6% of babies born in the US are identified as low birthweight.

Table 21. Percentage of CNMI Infants Born with Low Birth Weight (<2,500 grams), 2018-2022

Year	Number of Infants with LBW	CNMI Live Births	CNMI Percentage
2018	85	1262	6.7
2019	56	909	6.2
2020	68	654	10.4
2021	47	575	8.2
2022	51	473	10.8

Source: CNMI Health & Vital Statistics Office

Infants and Children

Breastfeeding supports a healthy early start for infants and young children. Evidence shows that breastfeeding strengthens infants' immune system development and prevents childhood obesity.⁷ The percentage of infants who were ever breastfed in the CNMI averaged 95 percent from 2018 to 2022. The highest reported percentage was 96.5 percent in 2019, and the lowest was 93.3 percent in 2020.

Table 22. Percentage of CNMI Infants Who Are Ever Breastfed, CNMI, 2015-2022

Year	Number ever Breastfed	Number of Live Births	Percentage
2018	1209	1262	95.8
2019	877	909	96.5
2020	610	654	93.3
2021	539	575	93.7
2022	449	473	94.9

Source: CNMI Health & Vital Statistics Office

According to the CNMI Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the percentage of program infants breastfed exclusively experienced a decline between the period of 2018 through 2022, where less than 1% of infants were exclusively breastfed at 6 months. However, in 2023, there was a significant increase in this rate with WIC reporting 11.1% infants in the program breastfed exclusively at 6 months, indicating that recent interventions and breastfeeding strategies are making positive impact.

Table 23. Percentage of CNMI Infants Breastfed Exclusively Through 6 Months, 2018-2022

Year	Number exclusively Breastfed	Number of 6 Month Old Enrolled	Percentage
2018	12	486	2.5
2019	5	470	1.1
2020	2	544	0.4
2021	0	419	0.0
2022	2	411	0.5
2023	47	424	11.1

Source: CNMI WIC

7. Jackson and Nazar (2006). [Breast feeding, Immune Response, Long term health](#). Accessed July 3, 2020.



Maternal & Child Health

The MCH-Jurisdictional Survey is administered by the US Health Resources and Services Administration (HRSA) every other year beginning in 2019. According to the survey, the percentage of children ages 0 through 17 who reported having decayed teeth or cavities in 2019 and 2021 amounted to 13.0 and 17.0 percent, respectively, a 30.8 percent increase.

Table 24. Percentage of Dental Caries (Cavities) among Children, Ages 1 Through 17, in the CNMI, 2019 and 2021

Year	Numerator	Denominator MCH-JS	Percentage
2019	2138	16434	13.0
2021	2728	16051	17.0

Source: MCH Jurisdictional Survey

The percentage of children ages 0 through 17 who reported having special healthcare needs in 2019 and 2021 amounted to 6.2 and 7.3 percent, respectively, a 17.7 percent increase.

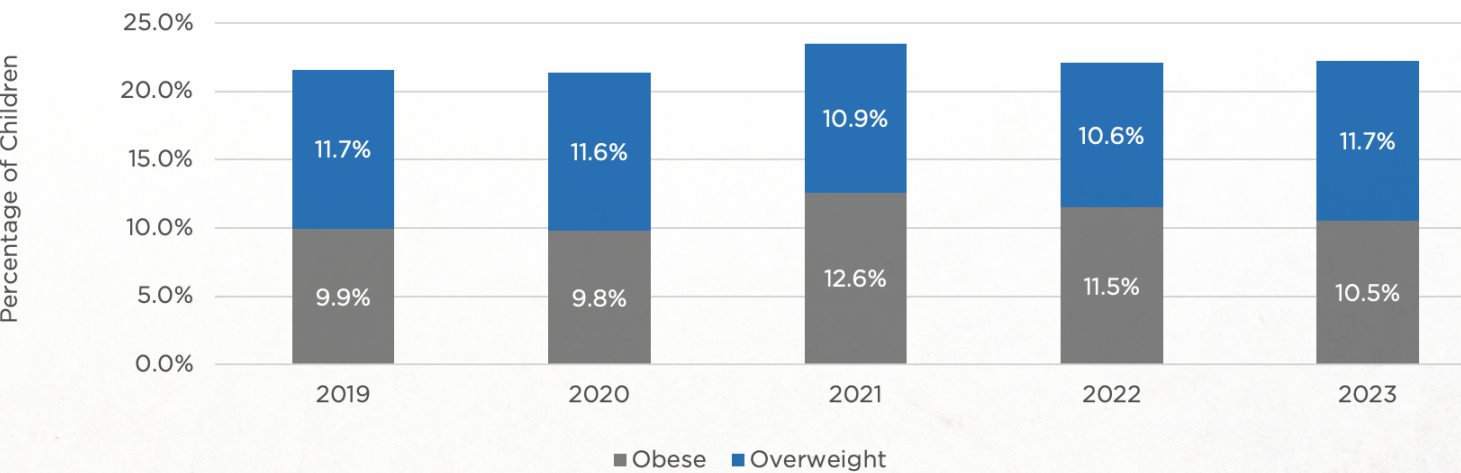
Table 25. Percentage of Children with Special Care Needs, Ages 0 Through 17, in the CNMI from 2019 and 2021

Year	Numerator	Denominator MCH-JS	Percentage
2019	1059	17149	6.2
2021	1252	17149	7.3

Source: MCH Jurisdictional Survey

Among children ages 2 to 5 years enrolled in WIC in the CNMI in 2023, 22% were identified as overweight or obese. These rates were the same in the year prior, 2022; however, slightly decreased from 2021, when 24% of children in this age group were identified as overweight or obese.

Figure 45. Percentage of Children with Special Care Needs, Ages 0 Through 17, in the CNMI from 2019-2023



Source: CNMI WIC





Vaccine-Preventable Diseases

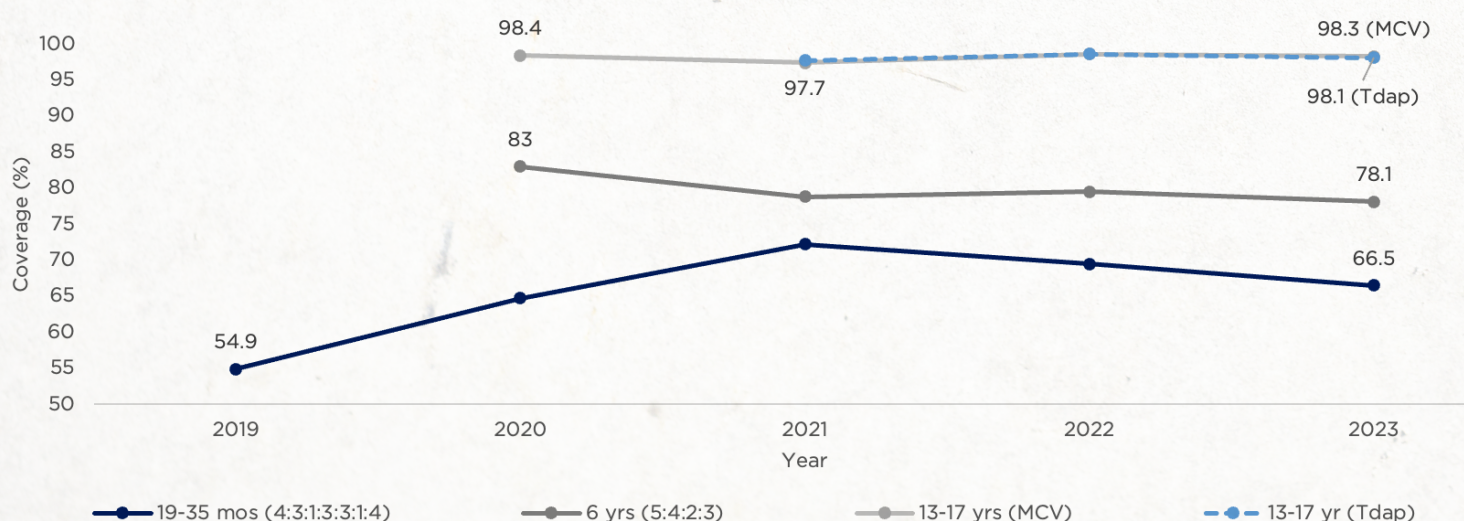
Many infectious diseases, such as influenza (flu), viral hepatitis, and human papillomavirus (HPV) are vaccine-preventable. The CHCC recommends and offers immunizations to people of all ages, including infants, children, adolescents, and adults. The CHCC Immunization Program maintains the Web IZ Immunization Registry (IR) system to monitor the level of the population that is up-to-date on immunizations. The information contained in this section is focused on routine childhood immunizations, flu vaccines among youth and adults, and HPV vaccinations among adolescents.

CNMI Public Law 6-10, which describes Student Health, requires parents to provide proof their child has received all the required immunizations upon school enrollment or within 2 weeks of being notified about the deficiency if the child is already enrolled in a public or non-public school. Routine childhood immunizations prevent infection from various serious diseases such as chicken pox, diphtheria, hepatitis A and B, measles, mumps, and pneumonia, among others.

The figure below indicates the state of immunization coverage for newborns through age 18 on Saipan, Tinian, and Rota combined. The age groups identified in the figure 46 below are based on recommended vaccination scheduling by the Centers for Disease Control and Prevention (CDC), which mirrors the CNMI vaccination schedule.

Vaccination coverage for children aged 19-35 months (4:3:1:3:3:1:4 series) increased from 54.9% in 2019 to 72.2% in 2021, then decreased to 66.5% in 2023. This series is measured to ensure young children receive the full set of recommended vaccines early in life. For 6-year-olds (5:4:2:3 series), coverage peaked at 83% in 2020 and slightly decreased to 78.1% in 2023. This series is important to confirm that children have completed critical vaccinations before starting school.

Figure 46. Vaccination Coverage by Series and Age Group in the CNMI, 2019-2023



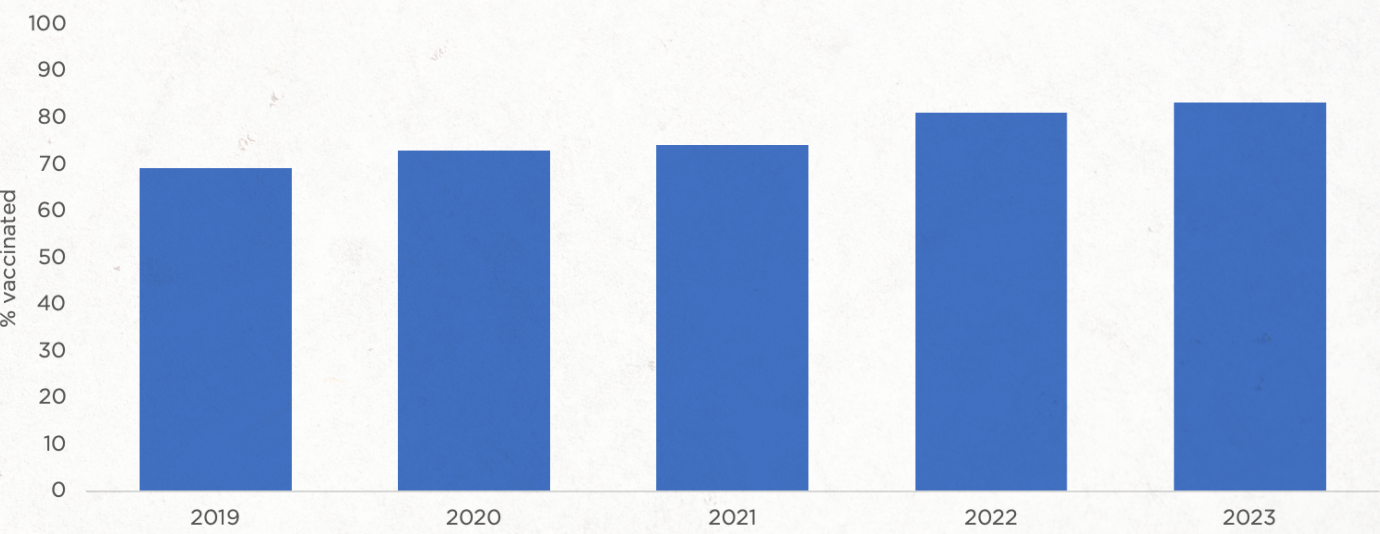
Source: CNMI Immunization Information System Registry (WebIZ)

Among teenagers aged 13-17, MCV coverage remained consistently high, around 98%, from 2020 to 2023, and Tdap coverage peaked at 98.6% in 2022, slightly decreasing to 98.1% in 2023. Measuring these vaccines ensures that adolescents maintain protection against meningitis and pertussis as they approach adulthood. This data highlights strong vaccination rates among teenagers and the need for ongoing efforts to maintain and improve coverage for younger children.

Measles Vaccine Coverage

There have been multiple global outbreaks of measles in recent years and the Measles, Mumps, and Rubella (MMR) vaccine protects against Measles in addition to Mumps and Rubella. Measles is a highly contagious disease that can lead to serious and life-threatening complications. All members of the community born after 1956 are recommended to get two doses of the MMR vaccine to protect themselves and the community from the threat of measles.

Figure 47. MMR Vaccination Coverage Among Individuals 1-18 Years with At Least 2 Doses, CNMI, 2019-2023



Source: CNMI Immunization Information System Registry (WebIZ)

Abbreviations DTaP=Diphtheria and tetanus toxoids and acellular pertussis vaccine; IPV=Inactivated poliovirus vaccine; MMR=Measles, mumps, rubella vaccine; Hib=Haemophilus influenzae type b vaccine; HepB=Hepatitis B vaccine; Var=Varicella vaccine; PCV=Pneumococcal conjugate vaccine; HepA=Hepatitis A vaccine; Rota=Rotavirus vaccine; Tdap=Tetanus, diphtheria, and acellular pertussis vaccine; MCV=Meningococcal conjugate vaccine. 4:3:1:3:3:1:4 Series includes ≥4 DTaP, ≥3 IPV, ≥1 MMR, ≥3 Hib, ≥3 HepB, ≥1 Var, and ≥4 PCV. 5:4:2:3 Series includes ≥5 DTaP, ≥4 IPV, ≥2 MMR, and ≥3 Hib



Vaccine-Preventable Diseases

Table 26, below, displays the MMR vaccination coverage percentages for individuals aged 1-18 years who have received at least two doses in the CNMI from 2019 to 2023. It shows a clear upward trend in vaccination coverage over the five-year period, with the lowest coverage in 2019 at just over 60% and the highest in 2023, nearing 85%.

Table 26. MMR/Measles Vaccination Coverage Among Individuals 1-18 Years with At Least 2 Dose*- CNMI, 2019-2023

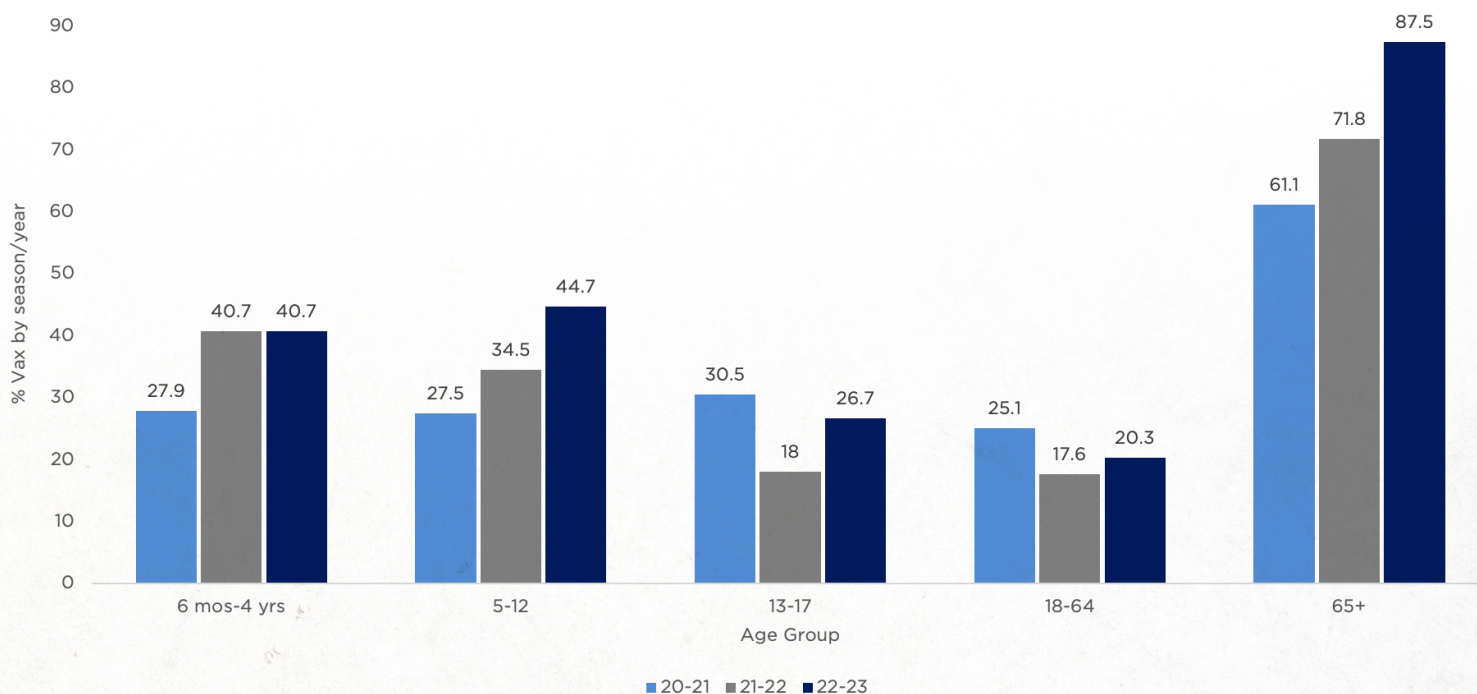
Year	Total Population	Vaccinated	Percentage
2019	21,658	14,978	69.9%
2020	19,622	14,304	72.9%
2021	18,901	14,009	74.12%
2022	15,734	12,765	81.13%
2023	14,851	12,355	83.19%

* Source: CNMI Immunization Information System Registry (WebIZ)

Influenza

Figure 50 illustrates the percentage of the CNMI population vaccinated against influenza across three flu seasons (2020-2021, 2021-2022, and 2022-2023) by age group (6 months-4 years, 5-12 years, 13-17 years, 18-64 years, and 65+ years). The data shows that vaccination rates have generally increased over the three seasons for most age groups. For the 6 months-4 years group, coverage improved from 27.9% in 2020-2021 to 40.7% in the subsequent seasons. The 5-12 years group also saw a steady rise, reaching 44.7% in 2022-2023. The 13-17 years group experienced a fluctuation but ended with an increase to 26.7%. The 18-64 years group had the lowest increase, peaking at 20.3% in 2022-2023. The 65+ years group showed the highest vaccination rates, dramatically increasing from 61.1% in 2020-2021 to 87.5% in 2022-2023. This trend reflects a successful vaccination campaign, particularly among the elderly at higher risk.

Figure 48. Percent of CNMI Population Vaccinated Against Influenza by Age Group, 2020-2023



Source: CNMI Immunization Information System Registry (WebIZ)





Communicable Diseases

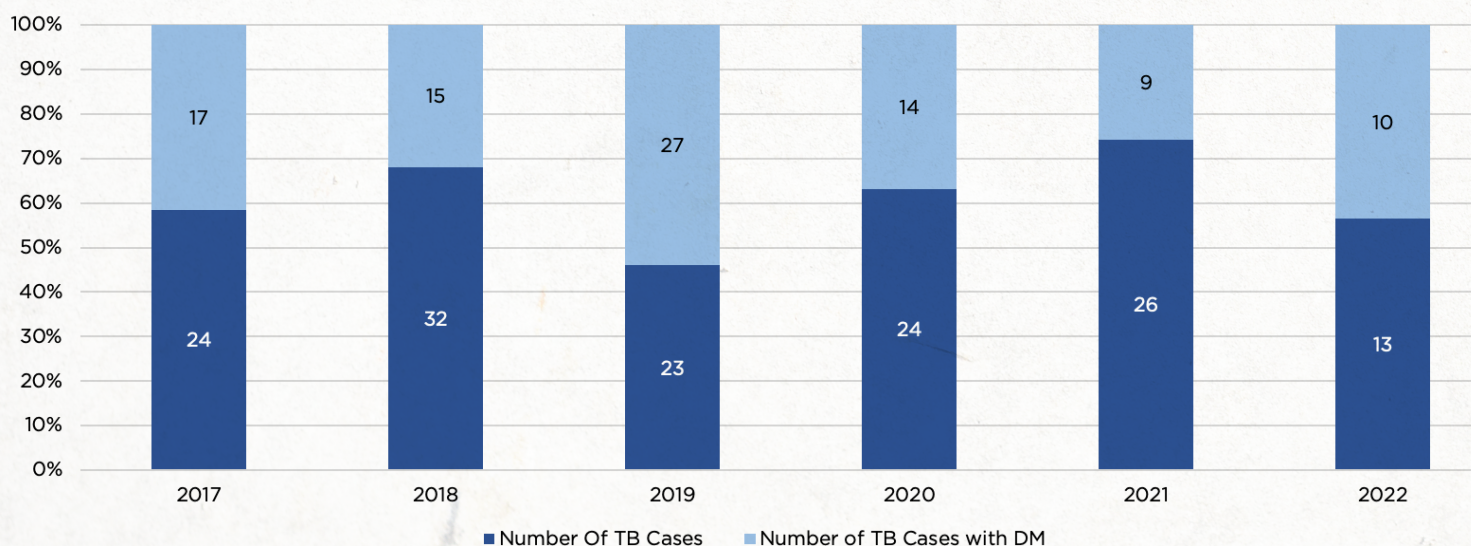
Communicable diseases can be passed from one person to another or from an animal to a person. They are also called infectious diseases. Communicable diseases are often spread through contact with viruses, bacteria or bodily fluids, like blood. This community health assessment focused on the following infectious diseases in the CNMI: tuberculosis, human immunodeficiency virus, and sexually transmitted infections (chlamydia and gonorrhea).

Tuberculosis

Tuberculosis (TB) is a serious illness that mainly affects the lungs. TB is caused by a type of bacteria that can be spread when a person with the illness coughs or sneezes. People with weakened immune systems are at higher risk of becoming infected by TB. TB disease is a serious health threat, especially for persons with diabetes.⁹ In 2022, diabetes mellitus was the most commonly reported medical risk factor among persons with TB disease.

From 2017-2022, 39% (92) of 234 patients with TB also had diabetes, as reported by CNMI Tuberculosis/Hansen's Program. The National TB Surveillance System reported in 2022 that 25% of people in the United States with TB also had diabetes. In the same year, the CNMI Tuberculosis Program reported 43% of persons with TB in the CNMI also had diabetes.¹⁰

Figure 49. Percentage of Tuberculosis Cases with Diabetes in the CNMI, 2017-2022



Source: CHCC, Tuberculosis/Hansen's Program manual database

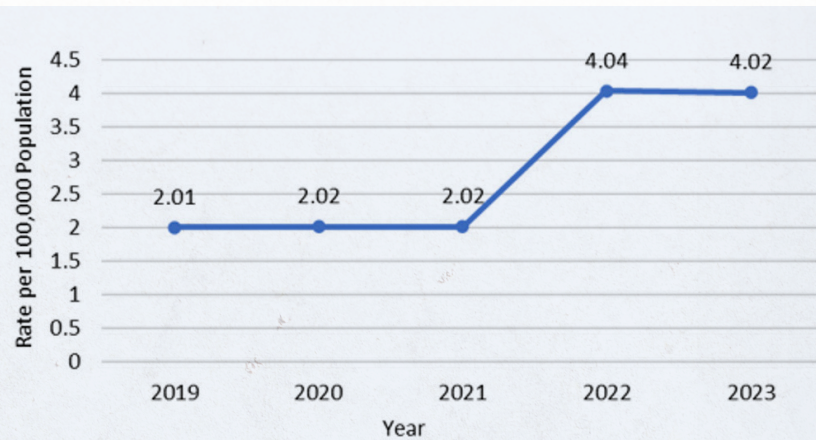
9. <https://www.cdc.gov/tb/topic/basics/tb-and-diabetes.html>

10. https://www.cdc.gov/tb/statistics/reports/2022/risk_factors.htm

Human Immunodeficiency Virus (HIV)

HIV is a virus that attacks cells that help a body fight infection. This makes a person infected with HIV more vulnerable to other types of infections and diseases. HIV is spread from the body fluids of an infected person to another, including blood, breast milk, and unprotected sexual intercourse. According to the latest data available, there were 11.5 HIV cases per 100,000 people in the U.S. as compared to 2.02 cases per 100,000 people in the CNMI. Between 2019 and 2021, cases remained relatively the same but doubled from 2022 onwards. Although the rates are lower in the CNMI, HIV is in our community.

Figure 50. HIV Incidence Rate Per 100,000 Population, CNMI 2019-2023



Source: CHCC, HIV/STD/VH Prevention Program's Manual Data Collection Spreadsheet, 2019-2023





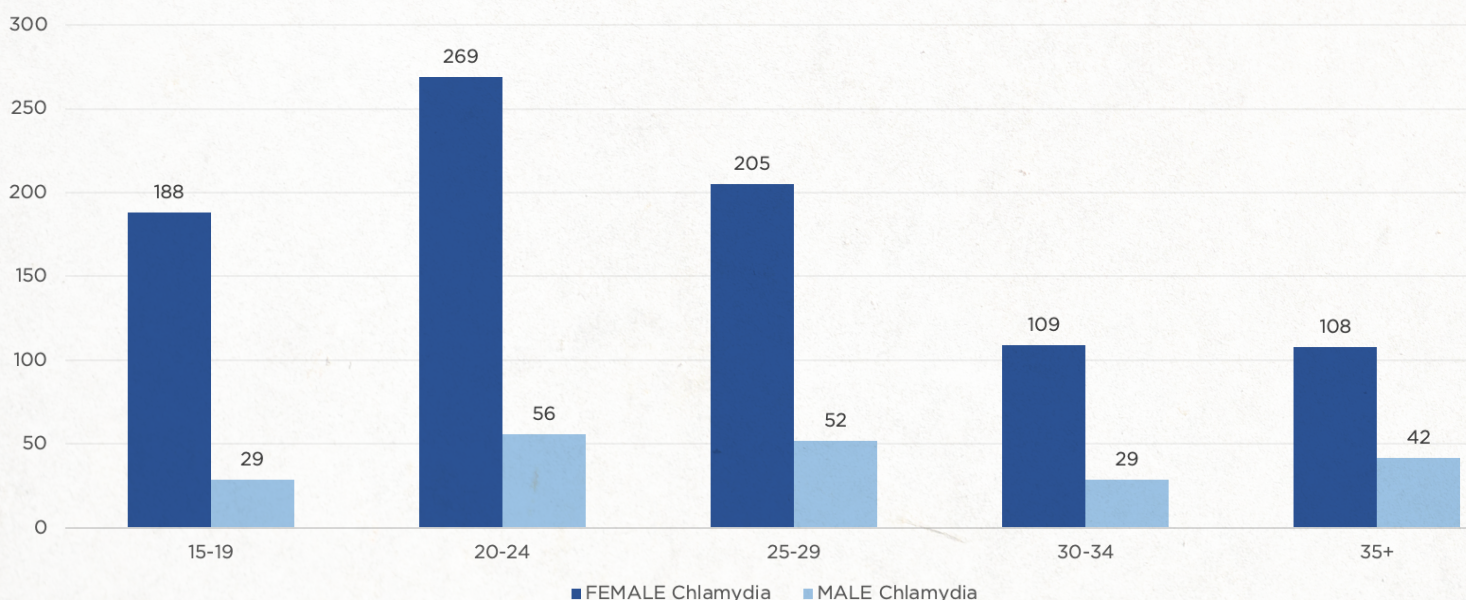
Communicable Diseases

Sexually Transmitted Infections

Sexually transmitted infections (STIs), such as chlamydia, gonorrhea, genital warts, herpes, hepatitis, human immunodeficiency virus (HIV), and syphilis, are infections that are spread from person to person through sexual contact. Chlamydia and gonorrhea, the two STIs covered in this assessment, are among the most common STIs in CNMI and worldwide.

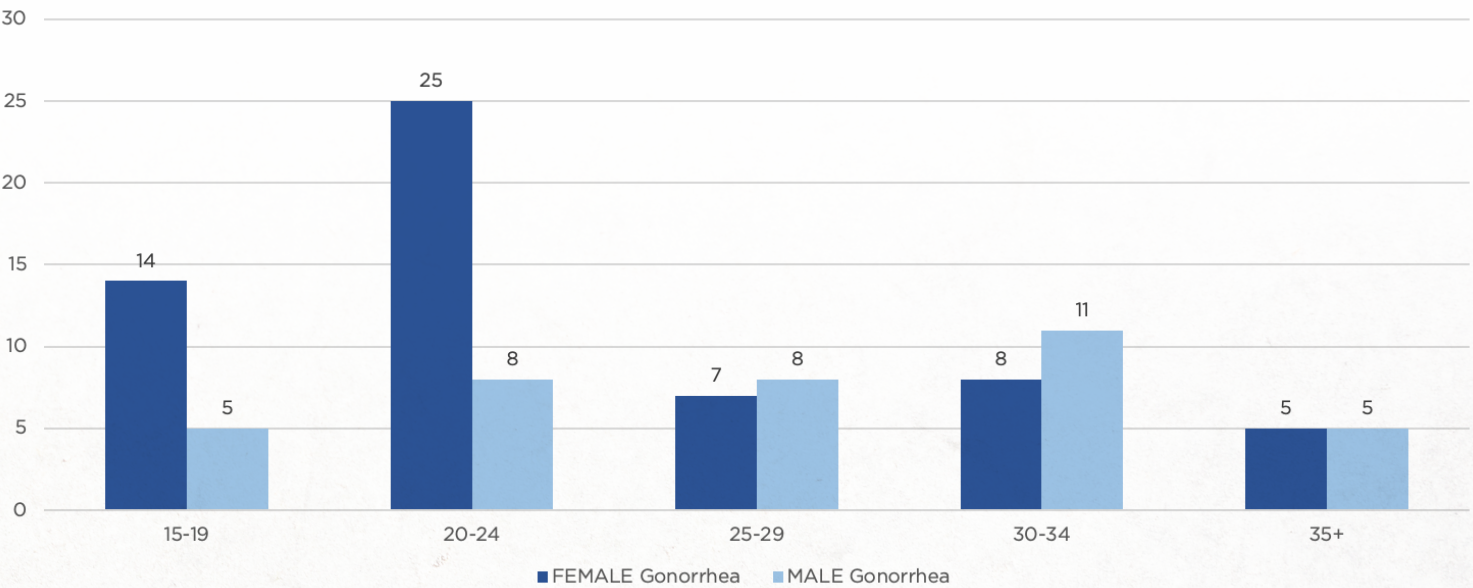
The charts below show that young adults in the CNMI between 15-24 years of age have the highest positivity rate for chlamydia and gonorrhea. The data also illustrates that more females than males are being diagnosed, which may be due to the following: CHCC's prenatal protocol that pregnant women are tested for STIs at prenatal appointments, women accessing Family Planning services are offered STI screening, and women typically tend to seek medical care more than men.

Figure 51. Number of Chlamydia Cases in the CNMI by Age and Gender, 2019-2023



Source: CHCC, HIV/STD/VH Prevention Program's Manual Data Collection Spreadsheet, 2019-2023

Figure 52. Number of Gonorrhea Cases in the CNMI by Age and Gender, 2019-2023



Source: CHCC, HIV/STD/VH Prevention Program’s Manual Data Collection Spreadsheet, 2019-2023





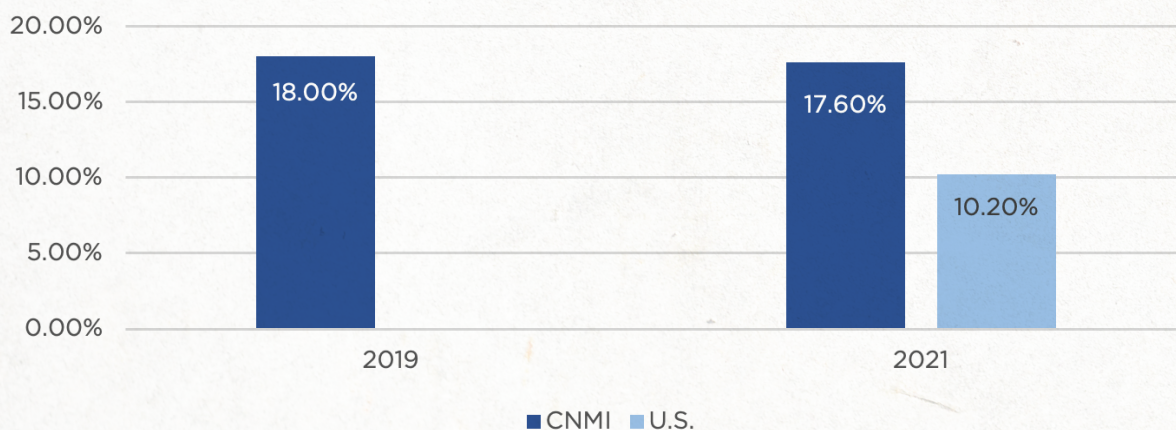
Injury & Violence

Violence not only leads to serious mental, physical, and emotional injuries and potentially death for the victim but also negatively impacts the family and friends of the victim and their community. Community violence decreases the real and perceived safety of a neighborhood, disrupting social networks by inhibiting social interactions, causing chronic stress among residents who are worried about their safety, and acting as a disincentive to engage in physical activity outdoors.¹¹

Violence is rarely caused by a single risk factor. Instead it is often caused by the presence of multiple risk factors. Some risk factors for violence include poverty, poor housing, illiteracy, alcohol and other drugs, mental illness, community deterioration, discrimination and oppression, and experiencing and witnessing violence. Children are particularly vulnerable. Witnessing and experiencing violence disrupts early brain development and causes longer-term behavioral, physical, and emotional problems.

In the CNMI, 18% of high school students surveyed reported attempting suicide in 2019, decreasing slightly to 17.60% in 2021. While there was a 2.20% decrease between 2019 and 2021, the percentages are still much higher than the 10.20% national average.

Figure 53. Percentage of High School Students Who Reported Suicide Attempt, CNMI 2019-2021



Source: YRBS 2019-2021

According to a recent survey among CNMI adults, 16% reported thoughts of suicide, 6.8% made plans for suicide, and 4.7% attempted suicide.

Table 27. Percentage of CNMI Adults Reporting Thoughts, Plans, or Attempts of Suicide, 2023

Ever thought about killing yourself	16.0%
Ever made plans to kill yourself	6.8%
Ever tried to kill yourself	4.7%

Source: 2023 CNMI NCD Hybrid & Risk Factor Surveillance Report

11. Fullilove MT, Heon V, Jimenez W, Parsons C, Green LL, Fullilove RE. 1998. "Injury and anomie: effects of violence on an inner-city community." *American Journal of Public Health*, 88 (6): 924.

CNMI data from the Division of Youth Services (DYS), referenced below, indicates an overall increase in reported cases of abuse, the number of children involved, and specific allegations of abuse from 2016 to 2023. This rise suggests a growing concern for the well-being of children and the need for continued and enhanced support and intervention strategies.

Table 28. Number of Reported Cases of Abuse in the CNMI by Fiscal Year, 2016-2023

Number of Reported Cases Per Fiscal Year								
Fiscal Year by Reported Cases	2016	2017	2018	2019	2020	2021	2022	2023
<i>Source: Division of Youth Services</i>	180	180	184	215	271	278	402	459
Number of Children Involved in the Reported Cases Per Fiscal Year								
Fiscal Year by Reported Cases	2016	2017	2018	2019	2020	2021	2022	2023
<i>Source: Division of Youth Services</i> <i>Note: 2016 reported primary victim only</i>	180	429	479	566	743	863	1076	1214
Number of Allegations Reported Per Fiscal Year								
Fiscal Year by Reported Allegations	2016	2017	2018	2019	2020	2021	2022	2023
Physical Abuse	55	45	60	60	74	50	88	124
Sexual Abuse	41	44	44	63	63	63	88	115
Emotional Abuse	66	81	64	135	129	156	196	261
Neglect	65	68	56	60	89	145	196	205
Other	30	48	55	42	73	72	154	208

Note: "Other" category includes Support services, Referral for services, Wellness check, Drug use, Truancy & Beyond control, Teen pregnancy, Assault & Battery, Runaway, Homeless, Custody, Suicide, Domestic Violence.

Note: A reported case may have more than one allegation.

Source: Division of Youth Services 2016-2023

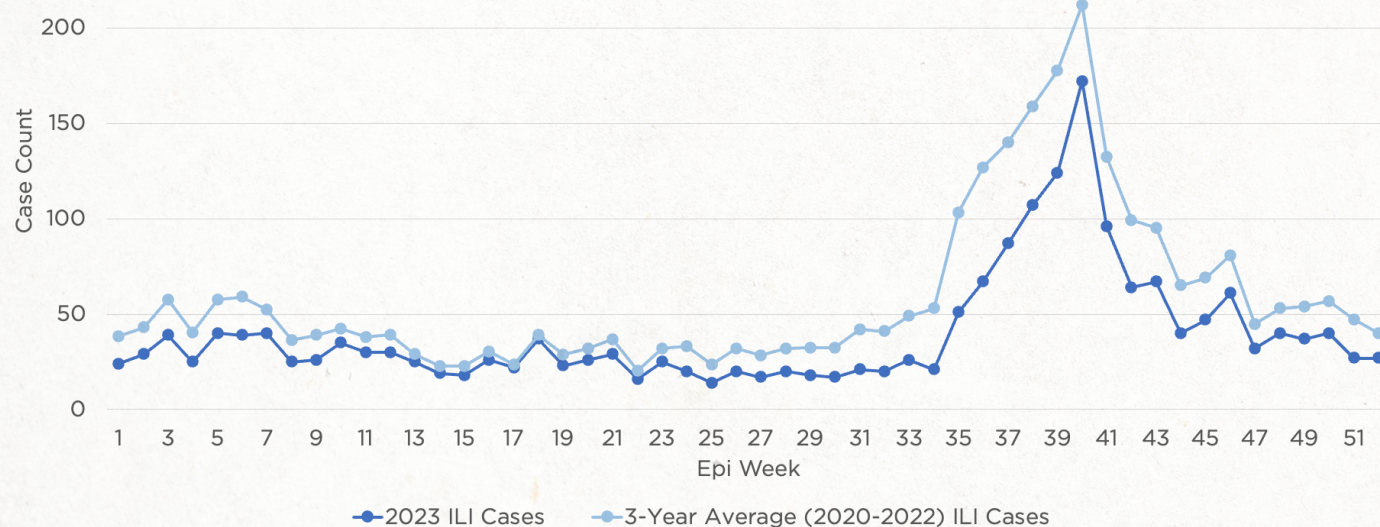


Syndromic Surveillance

CHCC is responsible for the management of the CNMI's Syndromic Surveillance System. The system tracks and monitors syndromic cases across the CHCC's three facilities located on the islands of Saipan, Tinian, and Rota, in addition to syndromic cases collected by the Isla Health Community Center, a private and federally qualified health center that works in collaboration with the CHCC.

Critical to the system's workflow is the creation of epidemic curves, or epi curves, which are graphical representations of the onset of syndromic cases over time. These curves help us understand the dynamics during a potential or confirmed outbreak for syndromic conditions such as influenza-like illnesses (ILI), diarrhea (DIA), prolonged fever (PF), and acute fever and rash (AFR). The curves illustrated here highlight the 3-year pattern of data collected from 2020 to 2022 compared against 2023 data.

Figure 54. Syndromic Case Count For ILI, 2023 Vs 3-Year (2020-2022) Average, CNMI

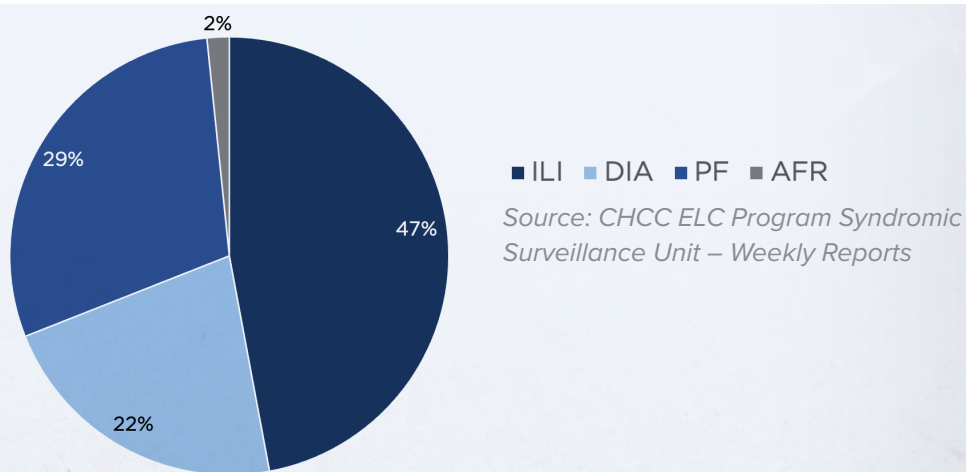


Source: CHCC ELC Program Syndromic Surveillance Unit – Weekly Reports

Syndromic cases refer to instances where patients exhibit a set of symptoms (syndrome) consistent with a particular disease or condition, even if a specific diagnosis has not yet been confirmed. For epidemiologists, tracking these cases is essential for the early detection and response to potential outbreaks, especially when laboratory confirmation is not immediately available. In the CNMI, five syndromes are tracked: influenza-like illnesses (ILI), diarrhea (DIA), prolonged fever (PF), acute fever (AF) and rash (AFR), and dengue-like illness DLI. Most DLI cases are imported and are few in number, so they have been excluded from descriptive analysis.

From 2021 to 2023, there were 9,310 syndromic cases. Of these, 47% were ILI, 29% were PF, 22% were DIA, and 2% were AFR in the CNMI.

Figure 55. Syndromic Surveillance Cases in the CNMI, 2021-2023



The Syndromic Surveillance System is supported by data collected and reported from different locations across the CNMI. They are as follows:

CHCC Locations

- Family Care Clinic (CHCC-FCC)
- Women’s Clinic (CHCC-WC)
- Children’s Clinic (CHCC-CC)
- Emergency Department (CHCC-ED)
- Tinian Health Center (CHCC-THC)
- Rota Health Center (CHCC-RHC)

Island Community Health Locations

- Kagman Isla Community Health (KICH)
- Southern Isla Community Health (SICH)
- Tinian Isla Community Health (TICH)

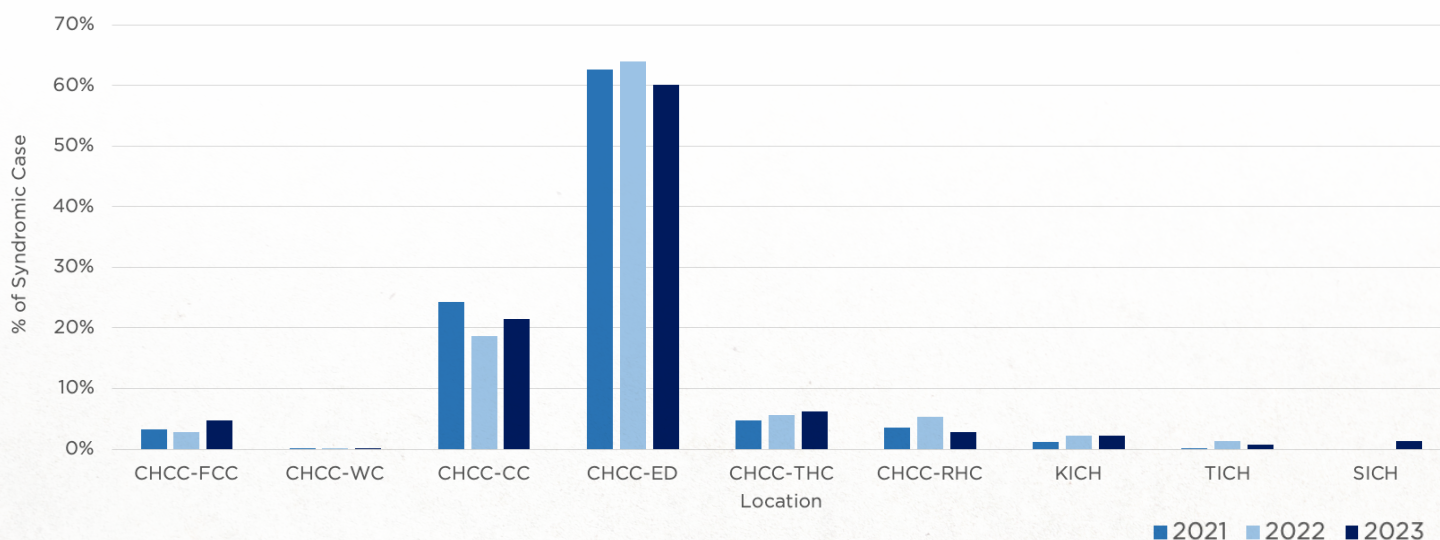
These cases are documented as “encounters” when patients visit any of these locations for symptoms that fit the case definition or have been confirmed through laboratory testing to be considered syndromic.

From 2021 to 2023, the majority of syndromic case encounters were reported by the CHCC-ED, accounting for 60% or more of cases for each reporting year. This underscores the CNMI community’s extensive use of the CHCC-ED. The CHCC-CC also experienced a high volume of syndromic cases, roughly 20% or more, between 2021 to 2023. Additionally, locations such as CCHC-FCC, CHCC-THC, and KICH have steadily increased the number of syndromic case encounters for the specified years.



Syndromic Surveillance

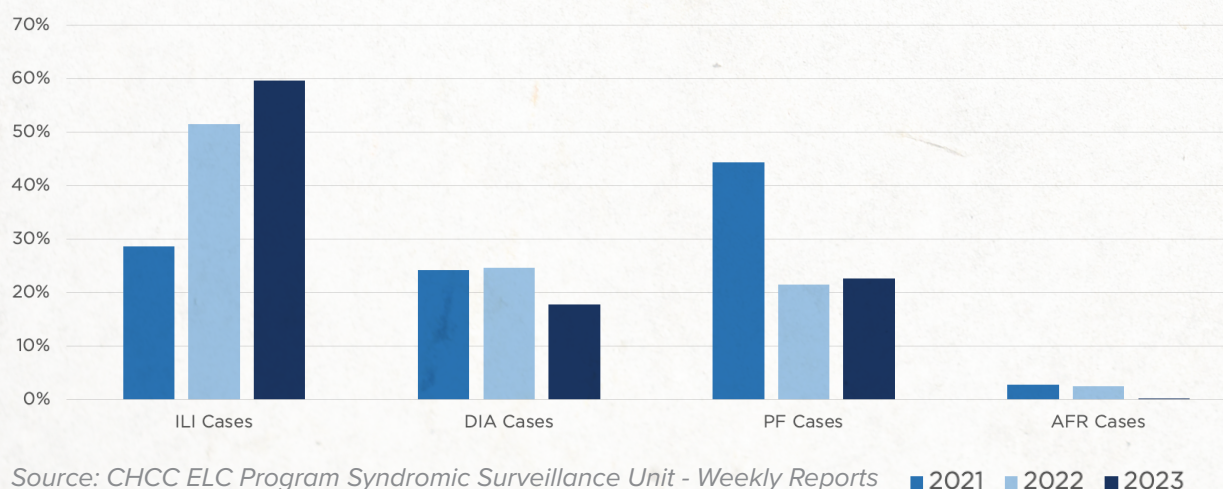
Figure 56. Syndromic Surveillance Cases by CCHC Location and Sentinel Sites, CNMI, 2021-2023



Source: CHCC ELC Program Syndromic Surveillance Unit - Weekly Reports

A review of syndromic cases between 2021 and 2023 revealed the rise in ILI cases. In 2023 alone, 59.6% of all syndromic case encounters were ILI. Fortunately, the percentage of syndromic case encounters related to DIA, PF, and AFR has declined over the same time period. Additionally, improvements to the syndromic surveillance system were made so that they may only account for the improved data capturing in 2023, especially with the onboarding of a new sentinel site, SICH.

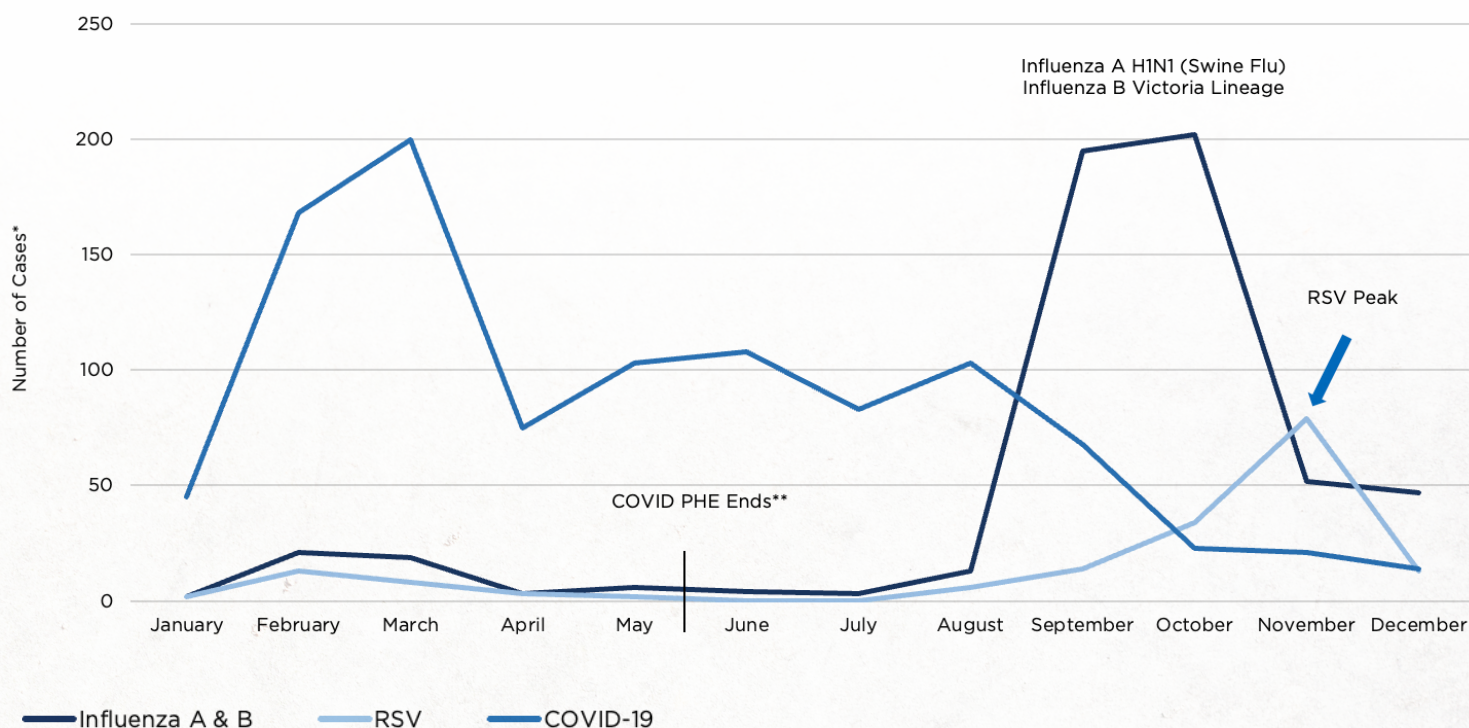
Figure 57. Percentage of Syndromic Surveillance Cases in the CNMI, 2021-2023



Source: CHCC ELC Program Syndromic Surveillance Unit - Weekly Reports

This increase in ILI syndromic cases in 2023 underscored the importance of analyzing the impact of respiratory illnesses for the year in order to strategize, plan, and prepare for 2024. For 2023, the CNMI experienced an increase in the number of respiratory illnesses, including SARS-CoV-2, RSV, influenza A H1N1, and Influenza B Victoria Lineage (combined as “influenza”). Their respective peaks for each respiratory illness occurred in March, October, and November of 2023 for SARS Co V2 influenza and RSV, respectively.

Figure 58. Number of Respiratory Illnesses by Month, CHCC, CNMI, 2023



Note: *Cases are based on positive CHCC Laboratory test data; ** Changes to CHCC COVID testing
Source: CHCC ELC Program Syndromic Surveillance Unit - Weekly Reports

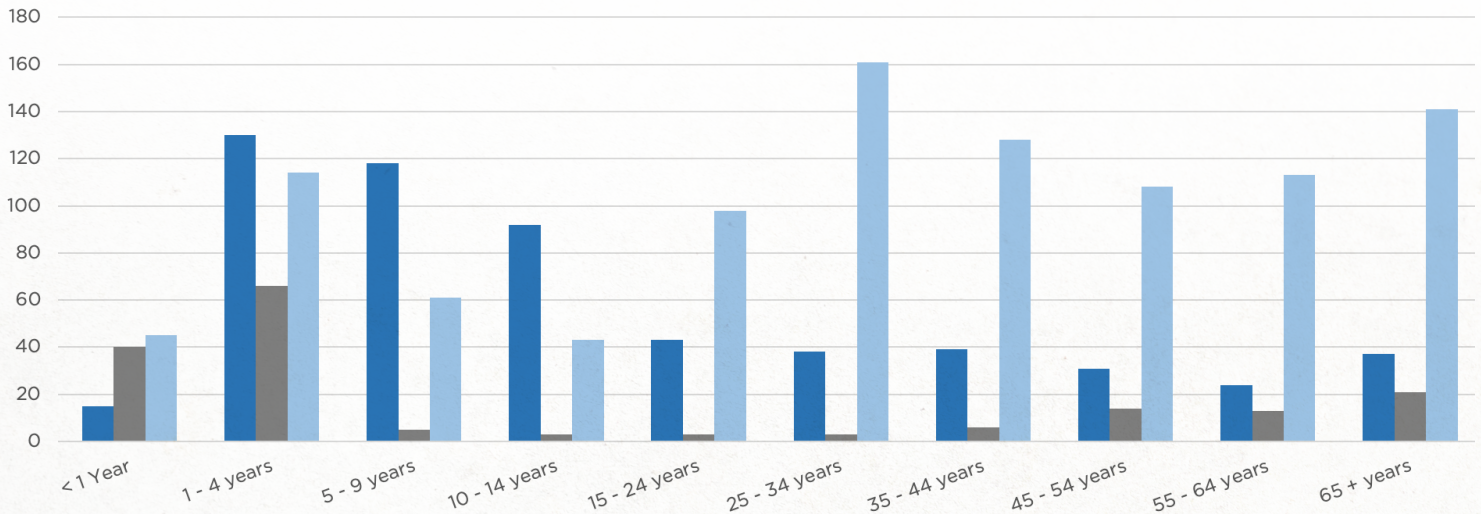




Syndromic Surveillance

The impact of COVID-19 within the CNMI community was particularly felt among individuals between three age groups: 25 to 34 years, 35 to 44 years, and 65 years and older.

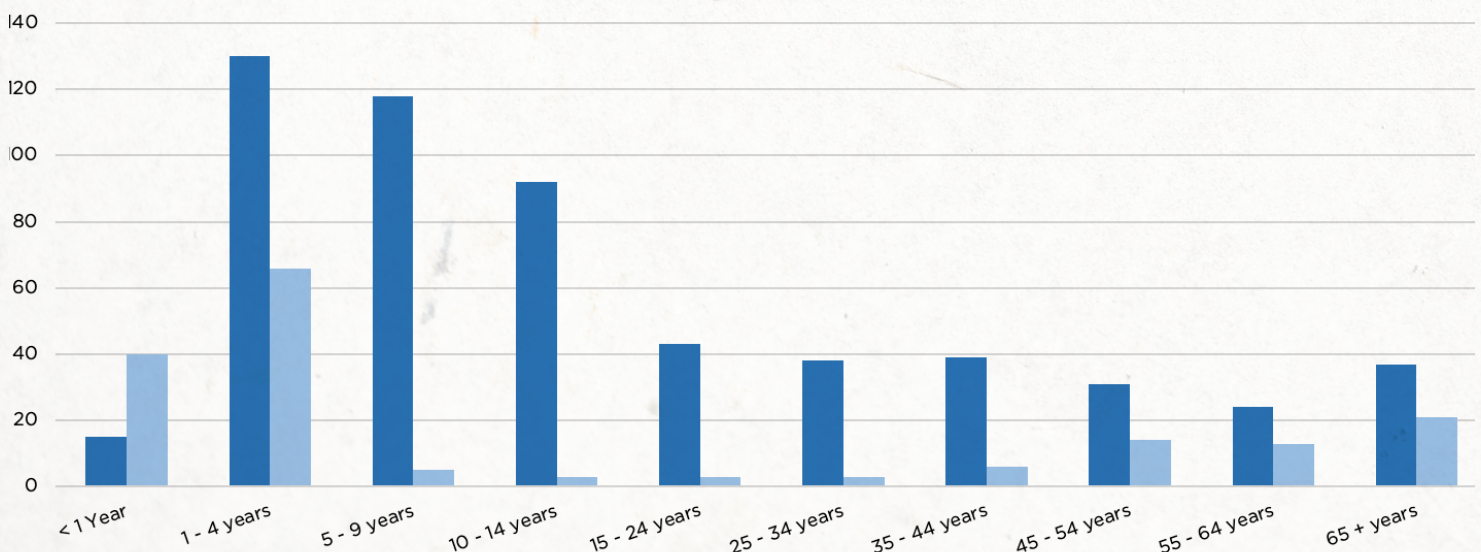
Figure 59. Number of Respiratory Illnesses by Age Group, CHCC, CNMI, 2023



Source: CHCC ELC Program Syndromic Surveillance Unit - Weekly Reports ■ Influenza A & B ■ RSV ■ COVID-19

Influenza and RSV data for 2023 highlighted the impact of both respiratory diseases. Children ages one through 14 experienced the largest impact from influenza in 2023. RSV had the largest impact on children ages four and younger.

Figure 60. Number of Influenza and RSV Cases by Age Group, CHCC, CNMI, 2023



Source: CHCC ELC Program Syndromic Surveillance Unit - Weekly Reports ■ Influenza A & B ■ RSV





Looking to the Future

CHCC is dedicated to promoting optimal health and well-being for the people of the CNMI. Achieving this goal requires careful planning and collaboration to enhance quality, accountability, and efficiency. This community health assessment is part of a larger initiative aimed at using data for planning and decision-making, as well as increasing accountability for achieving measurable improvements in health outcomes.

This assessment serves as a comprehensive report on the health data and statistics of the CNMI, to help us better understand the community's overall health, identify health improvement priorities, and develop an action plan that includes information on partnerships, resources, and timelines. By providing a centralized source of information and data on the health status of the CNMI, we can foster greater collaboration with both internal and external partners, integrate public health data systems to better assess and understand community needs, and take responsive actions based on those needs.

Our next step is to collaborate with our partners and community stakeholders to formulate a "community health improvement plan" that addresses significant health issues in our community. DPHS will continue to work with the community to enhance quality, strengthen our health information management system, improve efficiency, and achieve positive health outcomes in the CNMI.

Enhancing health in the CNMI will require a commitment from all of us. This means working in partnership to promote healthy choices for our communities and families.





Appendix A: Data and Technical Notes

Data Limitations

Due to the CNMI's high-migrant population and the many off-island referrals that residents seek, it is possible that many databases are missing information and do not represent the entire CNMI population. The CHA uses multiple sources, each with its own data collection techniques, surveillance methods, and population subset. For example, the CNMI Health and Vital Statistics Office records live births and deaths in their databases. However, these databases are not linked with those of neighboring countries, where many people travel to receive specialty care. This lack of linkage means that the deaths of CNMI residents that occur off-island are not included in this report.

The CHA includes data that are based on self-reported surveys (e.g., Youth Risk Behavior Survey, CNMI Behavioral Health Survey, CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey). Self-reported information may over- or under-estimate the individual's health behaviors.

Wherever possible, data were included that represent the entire community.

Comparisons to Federal Initiatives or Other Groups

Some indicators had CNMI-specific data available for analysis. Still, the data were not always available or appropriate for direct comparisons to other groups or federal initiatives (such as Healthy People 2030). Illicit drug use among adults is an example of an indicator where CNMI data were available but could not be compared to Healthy People 2030 objectives. The CNMI level data did not have the same categories or definitions of illicit drugs compared to the federal level data.

Small Numbers and Statistical Reliability

There is a wide range of statistical tests that analysts use to infer data. These tests depend on the data structure, distributions, and variable types. According to the CDC, if your data contains a small number of cases, then the results of data analysis tend to have poor reliability.

In a community with a small population, data collected may contain small numbers, which could raise disclosure risk issues. The CDC suggests that the threshold value of fewer than 16 cases should be suppressed to reduce misinterpretation or misuse of rates or counts and to minimize the risk of disclosure of individually identifiable health or confidential information.

Appendix B: Data Indicator List



Topic	Indicator	Source	Page
Demographic	Total Population	U.S Census Bureau, 2020	
	Population by Island, Map	U.S Census Bureau, 2020	
	Population by Gender	U.S Census Bureau, 2020	
	Age Structure and Median Age	U.S Census Bureau, 2020	
	Population by Race/Ethnicity	U.S Census Bureau, 2020	
	Languages Spoken	U.S Census Bureau, 2020	
Social Determinants	Educational Attainment	U.S Census Bureau, 2020	
	Unemployment	No source	
	Poverty Median Income	U.S Census Bureau, 2020	
	Transportation - Percentage of Households by Number of Vehicles Owned	U.S. Census Bureau, 2020 Census	
	Transportation - Percentage of Household With at Least One Vehicle	U.S. Census Bureau, 2020 Census	
	Health Insurance	U.S. Census Bureau, 2020 Census	
	Adults Who Had a Preventive Medical Visit in the Last Year	CNMI Non-Communicable Diseases & Risk Factor Hybrid Surveys 2016 and 2023	
	No Exam in the Past Year (by Island, by Gender)	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023	
	Housing - Homelessness	CNMI Homeless Point in Time Count Data Summary, 2019	
Environmental Health	CNMI Beach Monitoring (Red and Green Flag Data Presented)	BECQ, 2019-2023	
	Food- and Water-Borne Illness	Environmental Health and Disease Prevention, ELC program data, 2020-2023	
Key Vital Statistics	Number of Births (by Gender) Per Year, Residency Classification of Mother	CHCC, Health and Vital Statistics Office, 2015-2022	
	Crude Birth Rate of Live Births Per 1,000 Population	CHCC, Health and Vital Statistics Office, 2015-2022	
	Age at Death by Gender	CHCC, Health and Vital Statistics Office, 2015-2022	
	Crude Death Rate Per 1,000 Population by Gender	CHCC, Health and Vital Statistics Office, 2015-2022	
	Leading Causes of Death by Age Group	CHCC, Health and Vital Statistics Office, 2015-2022	
	Top 10 Leading Causes of Death by Sex and 4 Year Period	CHCC, Health and Vital Statistics Office, 2015-2022	
NCD	Prevalence of DM, Hypertension, High Cholesterol, CVD, COPD, Overweight and Obesity	CNMI Non-Communicable Diseases & Risk Factor Hybrid Surveys 2016 & 2023	
	Top 10 Cancers (Presented Compiled Data From 2007 Through 2020)	CNMI Cancer Registry, 2007-2021	
	Prevention Screening - Cancer (Mammogram, Pap Smear, Colonoscopy)	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023	

Appendix B: Data Indicator List (Cont.)

Topic	Indicator	Source	Page
Health Behavior	Betel Nut Chewing Frequency and Characteristics Among Adults in CNMI	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023	
	Betel Nut Chewing by Ethnicity, Education, Island, and by Age	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023	
	Type of Tobacco Consumed with Betel Nut	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey 2023	
	Percentage of Students Who Have Smoked in the Last 30 Days	Centers for Disease Control and Prevention, Youth Risk Behavior Survey - CNMI, 2019, 2021.	
	Electronic Vapor Product Use in High School Students	Centers for Disease Control and Prevention, Youth Risk Behavior Survey - CNMI, 2019, 2021.	
	Substance Use (Marijuana, Cigarettes and Alcohol), 30-Day Use in Adults	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023	
	Perceived As A "Great Risk" For Substance (Alcohol, Cigarettes, Marijuana, Betel Nut with Tobacco, Methamphetamine, and Opioid in Adults	CNMI Community Behavioral Health Survey, 2016/CNMI Adult Hybrid Survey Report 2023	
	Percent of High School Students Who Ate Fruits and Vegetables Three or More Time Per Day in the Last Week	CNMI Youth Risk Behavior Survey, 2017/YRBS 2021 & Hybrid Survey, 2023	
	Fruit and Vegetable Intake in Adults (by Ethnicity and Age)	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023	
	Processed Meat Consumption in Adults	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023	
Social & Mental Health	Adult Physical Activity - 150 Minutes A Week of Moderate-Intensity Aerobic Activity)	CNMI Non-Communicable Diseases & Risk Factor Hybrid Survey, 2023	
	Persons Served for Alcohol and Other Drug Use	CHCC Community Guidance Center, 2022-2023	
	Persons Served for Behavioral Health Needs by Year, Age Group and Gender	CHCC Community Guidance Center, 2022-2023	
	Persons Served With SMI/SED	CHCC Community Guidance Center, 2022-2023	
MCH	Persons Served for Suicide Attempts (Number and by Race)	CHCC Community Guidance Center, 2022-2023	
	Neonatal, Infant, Under 5 Mortality Rates Per 1,000 Live Births	CHCC, Health and Vital Statistics Office, 2015-2022	
	Percentage of Pre-Term and Early-Term Cases of Resident Women by Year	CHCC, Health and Vital Statistics Office, 2015-2022	
	Number of Pre-Eclampsia Cases Per Year	CHCC, Health and Vital Statistics Office, 2015-2023	
	Number and Percentage of Births to Resident Women Who Received Prenatal Care in the First Trimester of Their Pregnancy	CNMI Maternal & Child Health Block Grant Annual Report, 2018-2022	
	Teen Birth Rate, Ages 15 Through 19, Per 1,000 Females	CHCC, Health and Vital Statistics Office, 2015-2022	
	Percent of Women, Ages 18 Through 44, With A Preventive Medical Visit in the Past Year	CNMI Maternal & Child Health Block Grant Annual Report, 2018-2022	
	Percent of Low Birth Weight Deliveries (<2,500 Grams)	CNMI Maternal & Child Health Block Grant Annual Report, 2018-2022	
	Percent of Women Who Drink Alcohol in the Last 3 Months of Pregnancy	CNMI Maternal & Child Health Block Grant Annual Report, 2018-2022	
	Percent of Infants Who Are Ever Breastfed	CNMI WIC	
	Percent of Infants Breastfed Exclusively Through 6 Months	CNMI WIC	
	Dental Caries (Cavities) Rates Among Children in the CNMI	MCH Jurisdictional Survey	

Topic	Indicator	Source	Page
Health Behavior (cont)	Percent of Children with Special Health Care Needs (CSHCN), Ages 0 Through 17	MCH Jurisdictional Survey	
	Percent of Children, Ages 2 Through 4, Who Are Overweight (BMI at or Above the 85th Percentile), Obese (BMI at or Above the 95th Percentile)	CNMI WIC	
Vaccine-Preventable Diseases	Prevention - % of Children Within a Specific Age Group Who Received All Age-Appropriate Immunizations	CNMI Immunization Information System Registry (WebIZ)	
	Prevention - % of Children 1-18 of Age Who Received 2 Doses of MMR	CNMI Immunization Information System Registry (WebIZ)	
	Prevention - % of Individuals Who Received A Flu Shot, Per Age Group, Per Flu Season	CNMI Immunization Information System Registry (WebIZ)	
Communicable Disease	Number of Persons in the CNMI With TB and Percent with Co-Occurring Diabetes	CHCC, Tuberculosis/Hansen's Program manual database	
	HIV Incidence Rate	CHCC, HIV/STD/VH Prevention Program's Manual Data Collection Spreadsheet, 2019-2023	
	Number of Chlamydia and Gonorrhea Cases in the CNMI by Age Group	CHCC, HIV/STD/VH Prevention Program's Manual Data Collection Spreadsheet, 2019-2023	
	Condom Use Under Family Planning Program (No. of People Accessed Family Planning)	CHCC, HIV/STD/VH Prevention Program's Manual Data Collection Spreadsheet, 2019-2023	
	Prevention - Screening & Condom Use	CHCC, Family Planning Program	
Injury & Violence	Percentage of CNMI High School Students Who Attempted Suicide (With Injury or Without Injury)	YRBS 2019-2021	
	Percentage of CNMI High School Students Bullied Electronically and On School Property	YRBS 2019- 2021	
	Percentage of CNMI High School Students Who Seriously Considered Attempting Suicide (During the 12 Months Before the Survey)	YRBS 2019- 2021	
	Percentage of CNMI High School Students Who Made A Plan About How They Would Attempt Suicide (During the 12 Months Before the Survey)	YRBS 2019- 2021	
	Percentage of CNMI High School Students Who Actually Attempted Suicide (One or More Times During the 12 Months Before the Survey)	YRBS 2019- 2021	
	Percentage of CNMI High School Students with Suicide Attempt Resulted in An Injury, Poisoning, or Overdose That Had to Be Treated by A Doctor or Nurse (During the 12 Months Before the Survey)	YRBS 2019- 2021	
	Percentage of Adults Reported Ever Thinking About Killing Themselves	2023 CNMI NCD Hybrid & Risk Factor Surveillance Report	
	Percentage of Adults Reported Ever Made Plans to Kill Themselves	2023 CNMI NCD Hybrid & Risk Factor Surveillance Report	
	Percentage of Adults Reported Ever Tried to Kill Themselves	2023 CNMI NCD Hybrid & Risk Factor Surveillance Report	
	Number of Reported Cases to Division of Youth Services	Division of Youth Services, 2016-2023	
Sentinel Events	Surveillance - Impact of ILI, PF, AFR, DIA by Locations	CHCC ELC Program Syndromic Surveillance Unit – Weekly Reports	
	CNMI Respiratory Diseases (Flu A, Flu B, Rsv, Covid-19)	CHCC ELC Program Syndromic Surveillance Unit - Weekly Reports	

Appendix C: Common Acronyms

ABTC	Alcohol Beverage and Tobacco Control Unit	HPV	Human Papillomavirus
ADA	Americans with Disabilities Act	HVSO	Health and Vital Statistics Office
ASQ-3	Ages & Stages Questionnaire 3rd Edition	IMR	Infant Mortality Rate
ASTHO	Association of State and Territorial Health Officials	IR	Immediate Relatives
ATOD	Alcohol, Tobacco, and Other Drugs	IR	Immunization Registry
BCSP	Breast and Cervical Screening Program	MAPP	Mobilizing for Action through Planning and Partnerships
BECQ	Bureau of Environmental and Coastal Quality	MICAH	Maternal, Infant, Child & Adolescent Health
BMI	Body Mass Index	MCL	Maximum Contaminant Level
CBHS	Community Behavioral Health Survey	NCD	Non-Communicable Disease
CBR	Crude Birth Rate	NCHS	National Center for Health Statistics
CD	Communicable Diseases	NMC	Northern Marianas College
CDC	Centers for Disease Control and Prevention	NMC-CREES	Northern Marianas College – Cooperative Research Extension & Educational Services
CGC	Community Guidance Center	NMR	Neonatal Mortality Rate
CHA	Community Health Assessment	OHP	Oral Health Program
CHCC	Commonwealth Healthcare Corporation	PDMP	Prescription Drug Monitoring Program
CJPA	Criminal Justice Planning Agency	PL 16-46	Public Law: Smoke-Free Air Act
CNMI	Commonwealth of the Northern Mariana Islands	PL 19-32	Public Law: Electronic Cigarettes
COTA	Commonwealth Office of Transit Authority	RPMS	Resource and Patient Management System
CQPM	Corporate Quality and Performance Management	SDF	Silver Diamine Fluoride
CRA	Community Readiness Assessment	SEW	State Epidemiological Workgroup
DCCA	Department of Community and Cultural Affairs	STD	Sexually Transmitted Disease
DHHS	Department of Health and Human Services	TB	Tuberculosis
DPHS	Division of Public Health Services	TPCP	Tobacco Prevention Control Program
DOC-CSD	Department of Commerce – Central Statistics Division	U5MR	Under-5 Mortality Rate
DOF	Department of Finance – Customs Division	WHO	World Health Organization
DPHP	Division of Public Health Programs	WQS-NPS	Water Quality Surveillance and Non-Point Source
DPS	Department of Public Safety	YRBS	Youth Risk Behavior Survey
EHDP	Environmental Health & Disease Prevention	YRBSS	Youth Risk Behavioral Surveillance System
EPA	Environmental Protection Agency		
EVALI	E-cigarettes or vaping product use with Lung Injury		
FAS	Freely Associated States		
FSM	Federated States of Micronesia		
HIT	Health Information Technology		

Appendix D: CHA Community Partner List

We are grateful to the people who participated in the Community Partner and Stakeholder Meeting on February 6, 2024, and contributed to this community health assessment (listed in alphabetical order).

Name	Agency
Eileen Babauta	Northern Marianas College- University Center for Excellence in Developmental Disabilities
Zarah Bermudes	Northern Marianas College- University Center for Excellence in Developmental Disabilities
John Bigalbal	CHCC DPHS
Daisy Villagomez-Bier	CHCC DPHS
Norma Borja	Isla Community Health (Kagman & Southern)
Frank Cabrera	CNMI Department of Commerce
Linda Cabrera	Commonwealth Women's Association
Sonia Camacho	Northern Mariana Island Supreme Court
Tanya Concepcion	Brabu Pharmacy
Zabrina Cruz	Bureau of Environmental and Coastal Quality
Ignacia Evangelista	Office of the Governor
Christine Fitial	Office of the Governor
Charlotte Flores	Substance Abuse Addiction & Rehabilitation (SAAR)
John Bolis Gonzales	Natibu Lion's Club
Remy Deleon Guerrero	CHCC Oral Health Program
Roberta Guerrero	Mariana Islands Nature Alliance (MINA)
Aubry Hocog	Office of the Mayor (Rota)
Daniel Jack	CHCC DPHS EHDP
Shaun Kileleman	CHCC DPHS CD
Eric Lisua	Department of Fire & Emergency Medical Services
Amalia Magofna	Commonwealth Office Transit Authority (COTA)
Jorald Magohig	CHCC HVSO
Kelly Marie Maligsa	CHCC Ancillary Services
Vanessa Manglona	Office of the Mayor Tinian
Janina Maratita	CNMI Superior Court
Lily Muldoon	CHCC
Keith Nabors	Tinian Health Center (THC)
Lauri Ogumoro	Karidat Catholic Charities
Halina Palacios	CHCC Population Health
Heather Pangelinan	CHCC DPHS
Maxine Pangelinan	CHCC DPHS MICAH
Nela Prado	CHCC DPHS CD
Vanessa Quitugua	Rota Health Center (RHC)
Elsie Tilipao-Rebuenog	Northern Marianas Protection and Advocacy Systems, Inc (NMPASI)
DeShawn Reign	Northern Mariana Islands Housing Corp. (NMHC)

Appendix D: CHA Community Partner List (Cont.)

Name	Agency
Wilbert Rospel	CHCC HVSO
Diego Sablan	SAAR
Evonne Sablan	CHCC DPHS CD
Gizelle Kwon Sablan	Tinian Health Center DPHS
Richard Sablan	CHCC State Systems Development Initiative (SSDI)
Vivian Sablan	Division Youth Services/DCCA
Adrian San Nicolas	CHCC DPHS NCD Programs
Savannah Delos Santos	Northern Marianas Coalition Against Domestic & Sexual Violence (NMCADSV)
Joe Saures	Department of Public Safety (DPS)
Reyna Saures	Community Guidance Center
Jocelyn Songsong	CHCC DPHS NCD Programs
Leila Staffer	Department of Labor (DOL)
Daniel Suel	Department of Fire & Emergency Medical Services
John Tagabuel	CHCC DPHS EDHP
K Cyji Tenorio	CHCC DPHS CD
Lynn Tenorio	Commonwealth Cancer Association (CCA)
Maise Tenorio	NMCADSV
Vicenta Tenorio	CHCC DPHS CD
Maria Terlaje	Diocese of Chalan Kanoa
Natasha Tomokane	Office of the Mayor (Saipan)
Tom Torres	CHCC HIT
Jose Tudela	CHCC PDMP
Fahim Uddin	CHCC HIT
Joshua Wise	PHI Pharmacy/Chamber of Commerce (Saipan)

Appendix E: Community Input Survey Results

Part of the CHA process included obtaining community stakeholder input to inform the CHA and the subsequent selection of priorities to be included in the Community Health Improvement Plan (CHIP). On May 15 - 20 2024, the CHCC implemented a Community Input Survey to obtain community input from adult residents from the islands of Saipan, Tinian, and Rota.

A total of 477 survey respondents completed the survey. The survey was available online and in paper format and was administered utilizing a convenience sampling methodology. Surveys were made available at community events such as the Marianas March Against Cancer (MMAC) and CHCC and private clinic locations, such as Kagman Community Health Clinic (KCHC), KCHC Southern Clinic, CHCC public health clinics such as Tinian Health Center, Rota Health Center, Immunization Clinic, Behavioral Health Services Community Guidance Center, and CNMI Women, Infant, and Children program.

The survey consisted of 22 questions, including demographics, questions focused on gathering community perspective on what a “healthy community” is, and questions about risk factors and behaviors that affect health.

Table 1: Number and percentage of respondents by island, 2024 CNMI Community Input Survey

Island	Number	Percentage
Rota	58	12%
Saipan	313	66%
Tinian	99	21%
Unknown/Not reported	7	1%
Grand Total	477	100%

Approximately 67% of survey respondents were from Saipan, 21% from Tinian, and 12% from Rota. Seven respondents did not indicate which island they resided on.

Table 2: Number and percentage of respondents by gender at Birth

Island	Number	Percentage
Female	353	74%
Male	121	25%
Unknown/Not Reported	3	1%
Grand Total	477	100%

A total of 353 (74%) of survey respondents identified as females while 121 (25%) identified as males. The remaining 2 (1%) of respondents did not respond to this question.

Source: U.S Census Bureau, 2020

Appendix E: Community Input Survey Results (Cont.)

Table 5: Factors that define a healthy community.

Factor	#
Access to health care	242
Clean environment	214
Good place to raise children	212
Healthy behaviors and lifestyles	197
Good jobs and healthy economy	157
Low crime/safe neighborhoods	149
Access to healthy food	118
Good schools	112
Strong family time	90
Affordable housing	76
Low level of child abuse	55
Parks and recreation	54
Low adult death and disease rates	47
Arts and Cultural events	42
Other	9

Respondents were asked to select the top three factors that define a healthy community. The most selected factors were Access to healthcare (242), a Clean Environment (214), and a Good Place to Raise Children (212).

Table 6: Health issues in the community.

Community Health Issue	#	Community Health Issue	#
Diabetes	359	Teenage pregnancy	29
High blood pressure	242	Infectious diseases (e.g. hepatitis, TB, etc.)	14
Cancers	217	Motor vehicle crash injuries	13
Heart disease and stroke	105	Respiratory/lung disease	12
Mental health problems	94	Rape/sexual assault	11
Child abuse/neglect	59	Other	11
Dental problems	59	HIV/AIDS	8
Domestic violence	51	Sexually transmitted diseases (STDs)	6
Aging problems (ie. arthritis, hearing/vision loss, etc.)	45	Homicide	5
Suicide	44	Infant death	3

When asked about top three health problems in the CNMI, respondents identified diabetes (359), high blood pressure (242), and cancers (217). Heart disease and stroke (105), mental health problems (94), and child abuse and neglect (59) were also identified by many respondents as top health issues.

Table 7: Risk Factors

Risk Factor	#	Risk Factor	#
Drug abuse	330	Not getting “shots” to prevent disease	23
Alcohol abuse	294	Unsecured firearms	22
Being overweight	184	Racism	16
Tobacco use	180	Not accessing preventive care	14
Poor eating habits	123	Not using seat belts/child safety seats	13
Lack of exercise	99	Other	9
Unsafe sex	37	Not using a form of birth control	6
Dropping out of school	30		

Among risk factors and risk behaviors, respondents identified drug abuse (330), alcohol abuse (294), overweight (184), tobacco use (180), and poor eating habits (123) as top 5 risks to health in the CNMI.





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