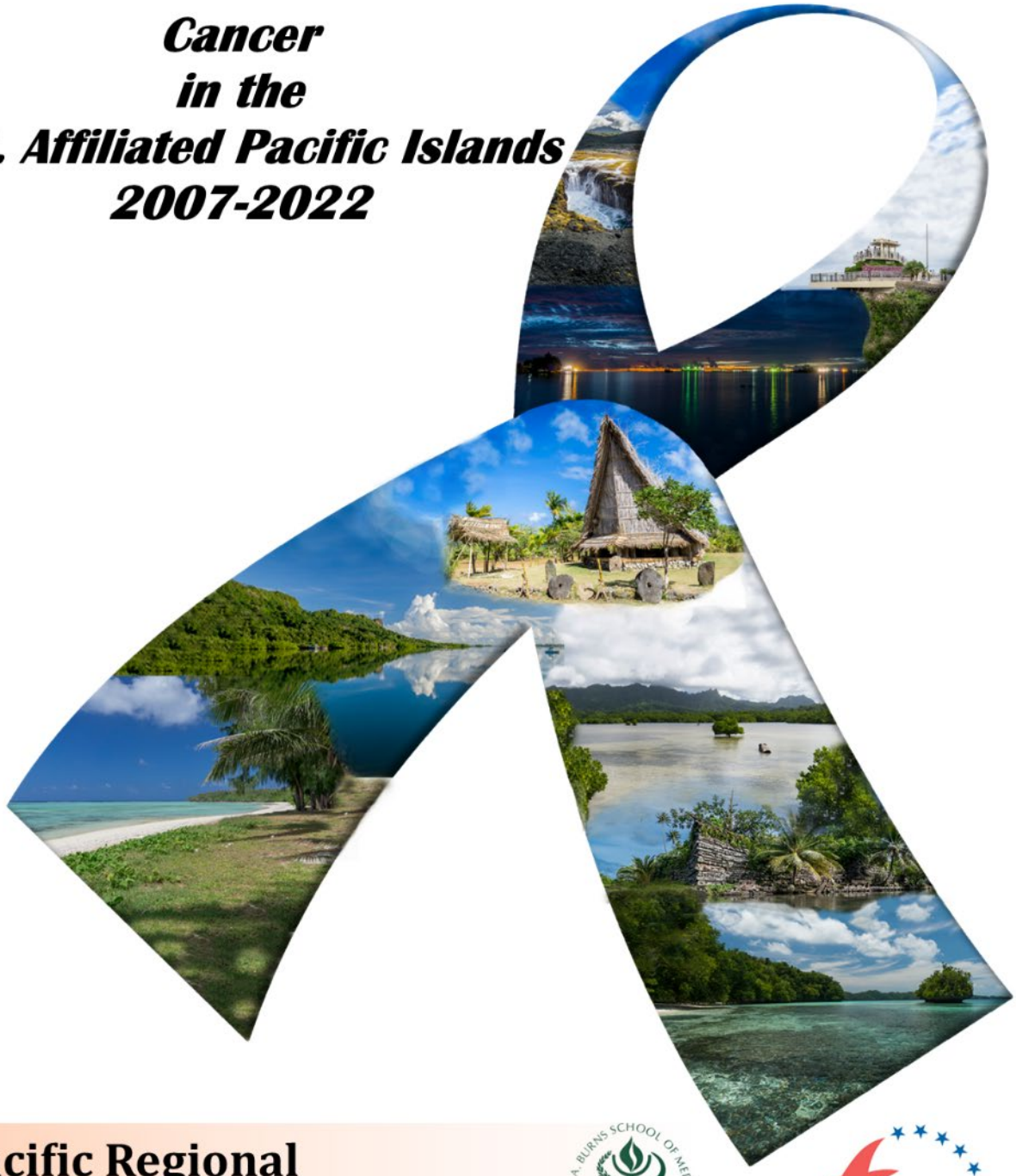
Cancer in the U.S. Affiliated Pacific Islands 2007-2022



Pacific Regional Central Cancer Registry

April, 2025

Acknowledgments

The Pacific Regional Central Cancer Registry (PRCCR) is grateful to the authors of this April 2025 update: University of Hawaii (UH), John A. Burns School of Medicine (JABSOM), Department of Family Medicine and Community Health (DFMCH)

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A special thanks goes to all of the U.S. Affiliated Pacific Island Jurisdiction (USAPIJ) Cancer Registrars & Staff for a job well done!

American Samoa – Pine Semisi; Commonwealth of the Northern Mariana Islands - Joanne Ogo; Federated States of Micronesia National; Kosrae and Chuuk - Mary Rose Johnny; Chuuk – David Welle; Pohnpei – Swinglen Nelper; Yap – Kassandra Lelman; Guam - Maria Snively ODS-C; Shirday Nagata; Guam and PRCCR – Lymona Refugia, ODS-C; Naomi del Mundo, ODS-C; Palau – Adeline Santos;

This report could not have been possible without the collaboration of our partners:

- Neal A. Palafox, MD, MPH – who has spearheaded the Pacific Cancer Initiative from its inception in 2002
- American Samoa Department of Health
- Commonwealth of the Northern Mariana Islands Commonwealth Healthcare Corporation / NCD Bureau
- FSM National Government Department of Health & Social Affairs
- Chuuk State Department of Health Services
- Kosrae State Department of Health Services
- Pohnpei State Department of Health Services
- Wa'ab Community Health Center / Yap State Department of Health Services
- University of Guam (UOG), College of Natural & Applied Sciences, Cancer Research Center
- Guam Department of Public Health and Social Services
- Republic of Palau Ministry of Health and Human Services
- Republic of the Marshall Islands Ministry of Health and Human Services

Funding Agency and Technical Assistance:

Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion, Cancer Prevention and Control Programs for State, Territorial, and Tribal Organizations, National Program of Cancer Registries (NPCR), Paran Pordell, PhD, CHES; Joseph Rogers, MS

Hawaii Technical Assistance Team:

University of Hawaii Cancer Center (UHCC), Hawaii Tumor Registry (HTR) Brenda Y. Hernandez, PhD, MPH

PRCCR Advisory Board:

Cancer Council of the Pacific Islands (CCPI)

Photos: courtesy of Janos Baksa

Foreword

Hafa Adai, Alii, Talofa, Kaselehlie, Ran annim, Lenwo, Mogethin, Iakwe, and Aloha!

In response to the lack of systematic and accurate collection of cancer data in the region, the U.S. Affiliated Pacific Island (USAPI) Pacific Regional Central Cancer Registry (PRCCR) was conceived and initiated through the Cancer Council of the Pacific Islands (CCPI) in 2003.

The primary tasks and responsibilities of the Pacific Regional Central Cancer Registry are:

- To develop cancer registries where the data is controlled and owned by each jurisdiction and to ensure the data are useful for local program planning and evaluation, as well as monitoring local cancer trends over time
- To develop the systems and policies that ensure proper identification, reporting, and recording of all cancers in each USAPI jurisdiction
- To develop the capacity and infrastructure for each of the USAPI jurisdictions to manage the rigorous data collection and entry required of a cancer registry
- To develop a cancer registration system that is sophisticated, yet flexible and sustainable, i.e., take into account the relative case load of cancers in each USAPI, the availability of trained personnel, and the local ability to support such a system
- To link the individual USAPI cancer registries, comprehensive cancer control efforts, related non-communicable disease (NCD) efforts and public health system strengthening efforts in a manner that allows for economies of scale, standardized reporting, and "speaking with one voice" for the USAPI

Specific goals of the PRCCR for the 2022 - 2027 5-year program cycle are:

- Improve timely collection and dissemination of high-quality data on all reportable incidence cancer cases, utilizing improved data linkages to support data-driven decisions for the spectrum of cancer prevention and control.
- Improve each jurisdiction's ability to meet National Program for Cancer Registries (NPCR) National Data Quality and Advanced National Data Quality standards for completeness.
- Increase data use and dissemination to support jurisdiction and regional chronic disease and other public health programs and maintain the current level of data use to implement collaborative, evidence-based interventions (EBIs) for cancer prevention, tobacco control, cervical cancer screening, colorectal cancer screening, and survivorship strategies. This includes targeted cancer screening for populations at increased risk.
- Improve use of the data, as well as quality control findings (especially related to timeliness and case completion), that support improvement efforts in health information management/health system changes and vital statistics (mortality reporting and coding).
- Increase availability of culturally- and resource-appropriate training and educational resources to build a more agile workforce and processes to implement changing data items, schema, and standards.
- Partner and assist in cancer-related data modernization activities, and promote interoperability to increase timeliness and complete data reporting to selected jurisdiction(s) and the regional registry.

A regional cancer registry assessment was completed in 2005-2006, funded through the USAPI Regional Comprehensive Cancer Control planning cooperative agreement. The recommendations were vetted through the CCPI and ultimately approved by the Pacific Island Health Officers Association (PIHOA), the USAPI regional health policy body comprised of the Senior Health Official in each USAPI jurisdiction. The University of Hawaii, John A. Burns School of Medicine (JABSOM), Department of Family Medicine and Community Health was designated the bonafide agent on behalf of the ten USAPI jurisdictions to plan and implement the Centers for Disease Control and Prevention (CDC) National Program of Cancer Registries (NPCR) in the USAPI starting in July 2007. The majority of USAPI jurisdictions began reporting 2007 data to the CDC NPCR in December 2009 via the PRCCR. The CCPI, as the Advisory Board to the PRCCR, has included data items within the cancer registry database to capture additional information on prevention, screening, and other NCD risk factors. By doing so, the USAPI will be able to better monitor the cancer burden and some health system responses to the current epidemic of NCDs that plague the USAPI.

On behalf of the CCPI and the Pacific Cancer Programs team and partners, I hope the information presented is useful to enhance understanding of the cancer burden in the USAPI and opportunities for partnering toward sustained improvements.

Lee Buenconsejo-Lum, MD, FAAFP, Associate Dean for Academic Affairs, UH JABSOM & PRCCR Principal Investigator

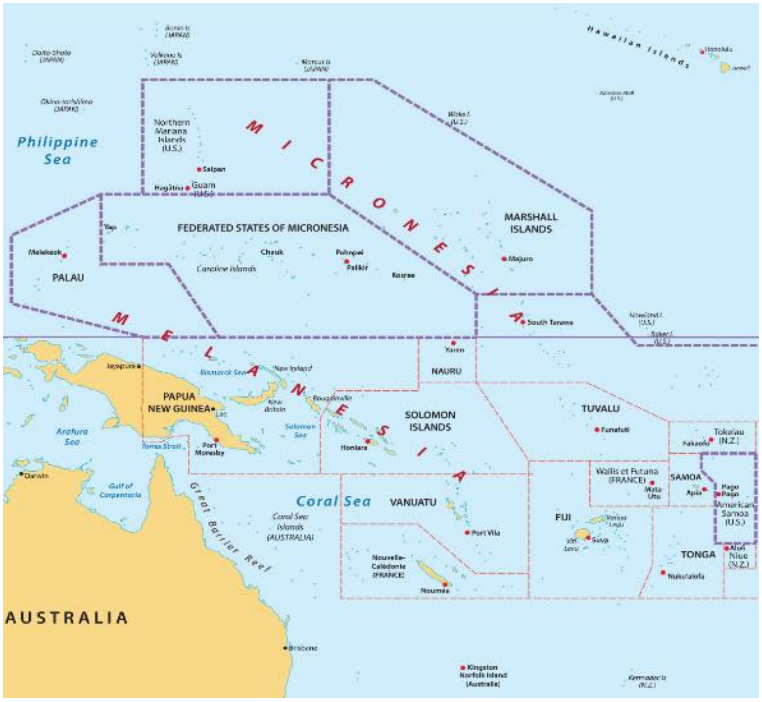
Cancer Council of the Pacific Islands, 2024 December

Background - USAPI

The U.S.-Affiliated Pacific Islands (USAPI) consists of three Flag Territories, and three Freely Associated States (FAS). The Flag Territories are the Territories of American Samoa (AS) and Guam (GU) and the Commonwealth of the Northern Mariana Islands (CNMI or MP). The Freely Associated States include the Federated States of Micronesia (FSM or FM), which consists of Yap, Pohnpei, Kosrae, Chuuk; the Republic of the Marshall Islands (RMI or MH), and the Republic of Belau (also known as Palau or PW). The population of the USAPI is approximately 400,000 people, with 142,000 of the inhabitants living in the FAS[1]. Each of the USAPIs has unique cultures, histories, and languages. The economic, health and political development of each jurisdiction of the USAPI is not similar. The expanse of the entire region is almost twice that of the continental United States (U.S.) and crosses five time zones.

Significant health disparities exist between the populations of the U.S. mainland and the USAPI jurisdictions due to multiple complex factors, including historical, social, cultural, environmental, and economic. Health disparities also exist within the Pacific Islands themselves, most notably between populations living on the 'main' or central island and those living in the 'outer' islands far from any 'urban' area. Rapid westernization has adversely affected many of the social, cultural, and environmental structures and practices that traditionally protected and supported good health in the USAPI. One of the most significant areas of impact due to the westernization of the Pacific cultures is the rapid adoption of unhealthy practices and behaviors such as tobacco and alcohol use, reduction in daily physical activity, and an increase in the consumption of non-local foods with little nutritional value. As a result, the incidence and prevalence of all non-communicable diseases (NCDs) have risen exponentially in the Pacific in just fifteen years. Cancer mortality is now the second most common cause of death in nearly all USAPI jurisdictions. Due to constrained economic conditions in the FAS, increasing numbers of FAS citizens are out-migrating to Hawaii, Guam, and throughout the U.S. This adds to the complexity of cancer registration.

Image 1 Map of the U.S. Affiliated Pacific Islands[2]



[1] Please note that this number might be drastically different, depending on the results of the in-state census results done in 2020, to which, at the time of publishing, the writers don't have access.

[2] COPYRIGHT: HTTPS://WWW.123RF.COM/PROFILE_LESNIEWSKI

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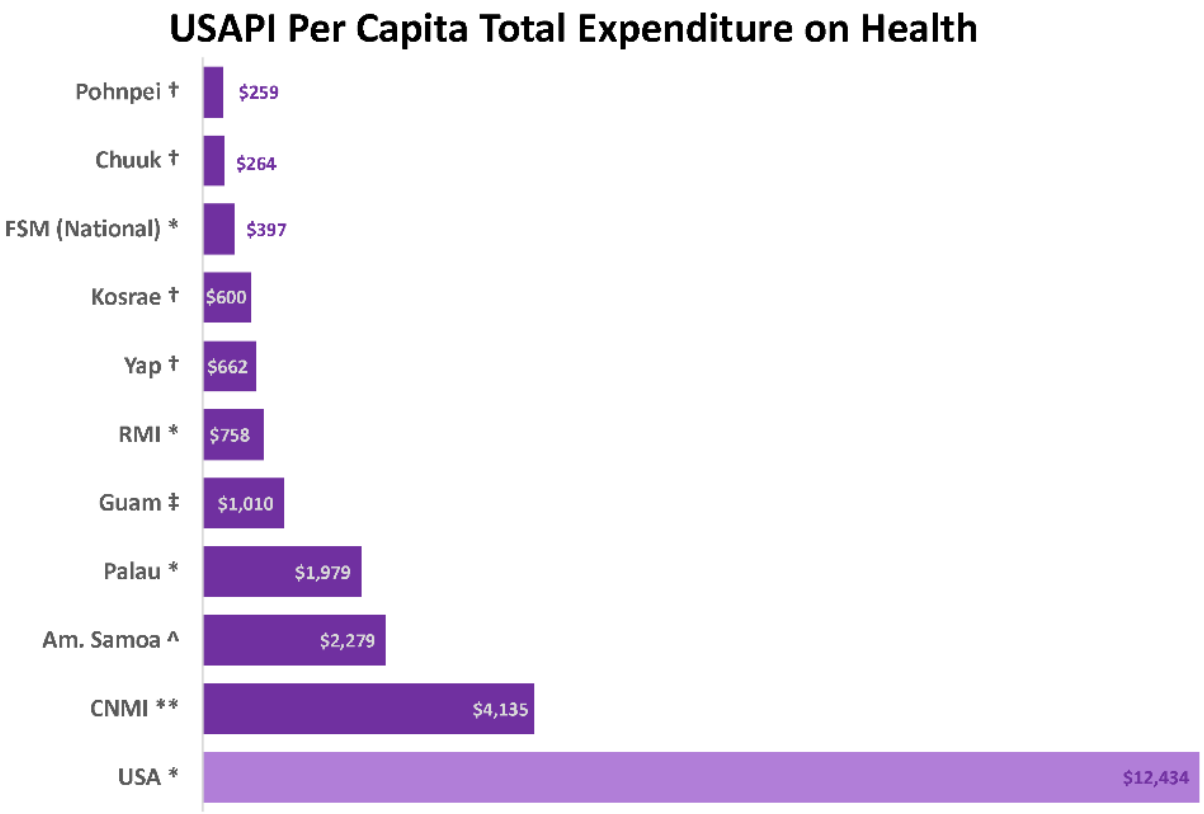
Health System Capacity to prevent, screen, diagnose, or treat cancer in the USAPI

Health systems vary widely throughout the USAPI. In the RMI, FSM, Palau), and CNMI, one organization manages both the preventive (public health) and curative (acute care / hospital) care, including care provided in the remote outer islands. CNMI also has increasing privatization, with several health insurers and private providers. American Samoa (AS) has a separate Department of Health and hospital, as does Guam (GU). Guam is the most similar to the U.S., with most of the population receiving care in the private sector. There is also a second hospital in Guam and several outpatient radiation oncology centers (and Guam also hosts one U.S. Naval Hospital). In the USAPIJs, the U.S. Federal funding comprises the bulk of dedicated funds for health services. These are augmented by local funds and, in the FAS, by aid from other donor countries. The per capita health expenditures in the USAPI range from around $4,135 to about $259 per person per year for all preventive and curative health services. In contrast, the U.S. per capita health expenditures exceed $12,434.

Figure 1 USAPI per Capita total expenditure on health for different USAPI states (estimated) in 2022



*apps.who.int online WHO Database 2022 (FM, MH, PW, US);
** Source: WHO's Healthy Islands Monitoring Framework (HIMF) Report 2022
^ Source: American Samoa 2022 Statistical Yearbook;
†Audit Report in accordance with the uniform guidance 2022 (FSM States);
‡Institute for Health Metrics and Evaluation online database 2022;

WHO – World Health Organization; WHO-WPRO: World Health Organization Western Pacific Region

The disparity in monetary resources is not the only driver of generally poor rates of screening, limited diagnostic, and treatment capability. Geography and cultural factors also play a tremendous role. With limited health workforce capacity and limited health budgets, cancer patients fortunate enough to be diagnosed in earlier stages may be referred off-island for more definitive treatment. Too often, however, cancer is diagnosed late. While there are no limitations by cancer type in off-island referrals, several jurisdictions must disallow off-island referrals if the predicted 5-year survival for cancer is less than 50%. Other jurisdictions do not have off-island referral budgets, leaving patients to scrape together resources for treatment elsewhere, away from family and the familiarity of home. Others simply accept the "death sentence" and remain on their home islands to die.

Collaborative efforts through multiple regional, U.S. Federal, and International partnerships have been working closely with the USAPI to strengthen their health systems since 2002. CDC-funded Comprehensive Cancer Control (CCC) programs – partnerships between community, health and other sectors – have been in existence since 2004. These partnerships have resulted in some improvements in community awareness and screening. Much more work remains to close the tremendous cancer health disparities gaps in these USAPI communities and populations.

What is Cancer?

Cancer is a group of diseases characterized by uncontrolled growth and the spread of abnormal cells. If the spread is not controlled, it can result in death. Although the reason for many cancers, particularly those that occur during childhood, remains unknown, established cancer causes include lifestyle (external) factors, such as tobacco use and excess body weight, and non-modifiable (internal) factors, such as inherited genetic mutations, hormones, and immune conditions. These risk factors may act simultaneously or in sequence to initiate and/or promote cancer growth. Ten or more years often pass between exposure to external factors and detectable cancer. Certain types of cancer can be prevented by reducing exposure to tobacco and other factors that promote this process. Cervical cancer can be prevented through vaccination and screening. Other potential cancers can be detected before cells turn into full-blown cancer or at an early stage when the disease is most treatable. Cancer is treated by surgery, radiation, chemotherapy, hormones, and immunotherapy, but only if those resources are available to the patient[4]. For more information on what cancer is, please visit the American Cancer Society's (ACS) relevant website page[5].

Can Cancer Be Prevented?

A large proportion of cancers could be prevented, including all cancers caused by tobacco use and heavy alcohol consumption. The ACS states that - excluding non-melanoma skin cancer - at least 40% of newly diagnosed cancers in the U.S. – about 811,000 cases in 2025 – are potentially avoidable, including the 19% of cancers caused by cigarette smoking. The ACS also estimates that 8% of cancer cases are attributable to excess body weight, and 5% to alcohol consumption, and thus could also be prevented[6].

Screening can help prevent colorectal and cervical cancers by detecting precancerous lesions that can be removed, and can help reduce the risk of death from these cancers, as well as cancers of the breast, lung, and prostate, by detecting cancer early when treatment is usually more successful. Cancer is quite common. In the U.S., it is estimated that 40% of men and 39% of women are at risk for developing cancer in their lifetimes. In resource-limited settings, such as the

[4] Adapted from: "Global Cancer Facts & Figures 2007 and 2013" acc: 04/21/25
[5] ACS's 'what is cancer' webpage address is: https://www.cancer.org/cancer/understanding-cancer/what-is-cancer.html
[6] Adapted from: American Cancer Society "Cancer Facts & Figures 2025"

USAPI, these risks may be higher, and cancer is less likely to be detected early[7].

What is Cancer Stage or Staging?

Staging describes the extent or spread of cancer at the time of diagnosis, but also sometimes after treatment has begun. Proper staging is essential for optimizing therapy and assessing prognosis. For most cancers, stage is based on the size or extent of the primary tumor and whether the cancer has spread to nearby lymph nodes or other areas of the body. Several staging systems are used to classify cancer. This report uses a system of summary staging that is standard for descriptive and statistical analyses of population-based tumor registry data and is particularly useful for tracking trends over time. According to this system, if cancer is confined to the layer of cells where it began growing and has not spread, the stage is in situ. If cancer cells have penetrated beyond the original layer of tissue, the cancer has become invasive and is categorized as local, regional, or distant based on the extent of spread. For more details on cancer staging, please visit ACS's relevant webpage[8].

Another staging system that is used more often by clinicians is called TNM (tumor size, nodes involved, and presence of metastasis). TNM similarly assesses cancer growth and spread and assigns a stage from 0 (in situ) for the earliest stage up to I, II, III, or IV for more advanced disease. However, some cancers do not have a stage IV (e.g., testis) and others (e.g., lymphoma) have alternative staging systems. As the biology of cancer has become better understood, additional tumor-specific features have been incorporated into staging for some cancers. Patients with advanced-stage cancers (III or IV, regional or metastatic) generally have a poor chance of cure and die early.

In situ indicates a tumor that is an early or "non-invasive" cancer present only in the layer of cells in which it began. An in-situ lesion can only be diagnosed by microscopic examination. This is the "best" stage of cancer to have.

Localized indicates a cancer that is limited to the organ in which it began, without evidence of spread. It can still be considered "localized" as long as there is no extension beyond the outer limits of the primary organ with no evidence of metastasis elsewhere within the body. Even with the limited resources in the USAPI, many localized cancers could be treated in-country.

Regional indicates a cancer that has spread beyond the original (primary) site to nearby lymph nodes or organs and tissues.

Distant indicates a cancer that has spread from the primary site to distant organs or distant lymph nodes or by implantation metastasis.

Unstaged or Unknown indicates there is a cancer, but insufficient information exists to determine the stage or extent of the disease at diagnosis[9].

[7] Adapted from: American Cancer Society "Cancer Facts & Figures 2025"
[8] ASC's cancer staging webpage: https://www.cancer.org/cancer/diagnosis-staging/staging.html
[9] Adapted From: American Cancer Society "Cancer Facts & Figures 2025" and "Hawaii Cancer Facts & Figures 2010" acc: 04/21/25

Table 1 Annual Adult Invasive Cancer Incidence Rates 2007-2022[10]

All Sites 2007-2022 over age 20	# of cases (all USAPI)	Incidence rate USAPI	Incidence Rate USAPI Adult Male	Incidence Rate USAPI Adult Female	Incidence rate (2021) U.S.	Incidence Rate (2021) U.S. Adult Male	Incidence Rate (2021) U.S. Adult Female	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis
All Sites	**9079**	**217.3**	**234.3**	**207.8**	**439.0**	**470.0**	**421.0**	**3761**	**41%**	**59%**
Breast	1364	-	-	59.0	-	-	133.8	219	16%	84%
Lung & Bronchus	1292	35.3	50.3	22.4	49.1	54.1	45.5	928	72%	28%
Prostate	856	-	56.0	-	-	114.7	-	149	17%	83%
Colon & Rectum	847	21.4	26.0	17.4	36.0	40.7	32.0	293	35%	65%
Uterus	649	-	-	26.1	-	-	28.3	136	21%	79%
Tobacco-related Oral Cavity & Pharynx (OC&P)	507	10.1	14.2	6.0	11.9	17.9	6.6	207	41%	59%
Liver	494	10.9	16.1	5.7	8.4	12.3	5.0	404	82%	18%
Cervical Cancer, Invasive	484	-	-	17.2	-	-	7.5	195	40%	60%
Leukemia	259	6.8	8.1	5.7	13.6	17.1	10.7	125	48%	52%
Thyroid	252	4.8	2.1	7.7	12.6	6.6	18.5	28	11%	89%
Stomach	213	5.5	6.6	4.5	6.7	8.5	5.2	131	62%	38%
Ill-defined & unspecified (unknown+misc)	179	4.4	4.8	4.1	-	-	-	122	68%	32%

[10] Full Title: Annual Adult Invasive Cancer Incidence Rates per 100,000 population: 2007-2022 USAPI in comparison to U.S.; USAPI Incidence Rates are per 100,000 and age-adjusted to the 2000 U.S. standard population; Chuuk data incomplete; -- No Cases; Incidence Rates are suppressed if fewer than 16 cases were reported in a specific category, per CDC Suppression Rules; Source for USAPI data: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2021 submission data (1999-2019): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in November 2022.

CONTINUED All Sites 2007-2022 over age 20	# of cases (all USAPI)	Incidence rate USAPI	Incidence Rate USAPI Adult Male	Incidence Rate USAPI Adult Female	Incidence rate (2021) U.S.	Incidence Rate (2021) U.S. Adult Male	Incidence Rate (2021) U.S. Adult Female	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis
Nasopharynx	167	3.3	4.8	2.0	0.5	0.7	0.3	68	41%	59%
Pancreas	161	4.4	4.4	4.2	13.4	15.2	11.8	135	84%	16%
Ovary	158	-	-	6.3	-	-	9.9	81	51%	49%
Non-Hodgkin Lymphoma	135	3.1	3.2	2.9	17.8	21.5	14.8	62	46%	54%
Kidney & Renal Pelvis	125	3.2	4.2	2.3	17.0	22.9	11.8	41	33%	67%
Skin excl Basal & Squamous & Melanoma	111	3.2	4.9	1.7	24.5	30.9	20.0	26	23%	77%
Urinary Bladder	109	3.3	5.0	1.8	18.1	31.2	7.8	54	50%	50%
HPV-associated OC&P	91	2.0	3.5	0.6	-	-	-	37	41%	59%
Esophagus	84	1.9	3.7	0.3	4.4	7.5	1.7	58	69%	31%
Larynx	80	1.9	3.4	0.4	2.7	4.6	1.1	41	51%	49%
Soft Tissue including Heart	74	1.7	2.3	1.3	3.2	3.8	2.7	25	34%	66%
Brain & Other Nervous System	59	1.2	1.3	1.1	-	-	-	35	59%	41%
Gallbladder	45	1.2	0.8	1.5	1.0	0.8	1.3	37	82%	18%
Other Digestive	44	1.0	1.1	0.9	-	-	-	31	70%	30%
Testis	42	-	1.4	-	-	5.7	-	9	21%	79%
Other Respiratory	35	0.7	0.9	0.5	-	-	-	13	37%	63%
Bones & Joints	34	0.7	0.8	0.6	-	-	-	15	44%	56%

Table 2 Top 13 Cancer Cases 2007-2022[11]

Sites	Male Cases - USAPI	Male Crude Rate	Male ASR to U.S. Std	Male ASR to World Std	Female Cases - USAPI	Female Crude Rate	Female ASR to U.S. Std	Female ASR to World Std	Total Cases- USAPI	Total Crude Rate	Total ASR to U.S. Std	Total ASR to World Std
All Sites	**4374**	**205.0**	**234.3**	**169.5**	**4705**	**228.6**	**207.8**	**161.5**	**9079**	**216.6**	**217.3**	**163.4**
Breast	17	0.8	-	-	1347	65.4	59.0	45.9	1364	-	-	-
Lung & Bronchus	866	40.6	50.3	35.5	426	20.7	22.4	16.2	1292	30.8	35.3	25.4
Prostate	856	40.1	56.0	37.8	-	-	-	-	856	40.1	56.0	37.8
Colon & Rectum	495	23.2	26.0	19.0	352	17.1	17.4	12.7	847	20.2	21.4	15.7
Uterus	-	-	-	-	649	31.5	26.1	21.5	649	31.5	26.1	21.5
Tobacco-related Oral Cavity & Pharynx	359	16.8	14.2	11.6	148	7.2	6.0	4.9	507	12.1	10.1	8.2
Liver	376	17.6	16.1	12.8	118	5.7	5.7	4.2	494	11.8	10.9	8.5
Cervical Cancer, Invasive		-	-	-	484	23.5	17.2	15.0	484	23.5	17.2	15.0
Leukemia	141	6.6	8.1	5.6	118	5.7	5.7	4.2	259	6.1	6.8	4.8
Thyroid	44	2.1	2.1	1.6	208	10.1	7.7	6.7	252	6.0	4.8	4.1
Stomach	125	5.9	6.6	4.7	88	4.3	4.5	3.2	213	5.1	5.5	3.9
Ill-defined & unspecified (unknown+misc)	95	4.5	4.8	3.5	84	4.1	4.1	3.1	179	4.3	4.4	3.3
Nasopharynx	119	5.6	4.8	3.8	48	2.3	2.0	1.6	167	4.0	3.3	2.7

[11] Full title: Top 13 Cancer Cases & Crude and age-standardized rates for age over 20 – USAPI 2007-2022 ; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; All Adult USAPI 2007-2022; Top 13 Invasive Cancers- Crude and age-standardized rates (ASR), adjusted to both U.S. Standard Population and World Standard Population

What are Cancer Incidence & Mortality Rates?

Cancer incidence rates are measures of the risk of being diagnosed with cancer among the general population, while mortality rates are measures of the risk of dying among the general population. Cancer rates in this document represent the number of new cases of cancer per 100,000 population (incidence). For example, if the state's average annual lung and bronchus cancer incidence rate among males is 70.0; that means for every 100,000 men in a given population approximately 70 new cases of lung and bronchus cancer are diagnosed each year. If the adult male population numbers 500,000, then approximately 350 new cases of lung and bronchus cancer are diagnosed among men each year (five times the number of cases diagnosed in a 100,000 population):

70 new cases diagnosed in one year for a population of *100,000*
IS THE SAME AS
350 new cases diagnosed in one year for a population of *500,000*

A similar example can be used for an area smaller than the state or for specific race/ethnic groups. For example, if a county's adult male population numbers 50,000, then approximately 35 new cases of lung and bronchus cancer are diagnosed among men in the county each year (one-half the number of cases diagnosed in 100,000 population):

70 new cases diagnosed in one year for a population of *100,000*
IS THE SAME AS
35 new cases diagnosed in one year for a population of *50,000*

Rates provide a useful way to compare the cancer burden irrespective of the actual population size. Rates can be used to compare demographic groups (males have higher lung cancer rates than females), racial/ethnic groups (Native Hawaiian females have higher breast cancer rates than other racial/ethnic groups), or geographic areas (the USAPI has higher cervical cancer rates than the U.S.).

Note that because of the small population size in most USAPI jurisdictions, as well as challenges with diagnosing cancer, some cancer types might only have a few cases reported in a 5-year period. To discourage misinterpretation of rates or counts that are unreliable because of the small number, incidence rates and counts are not shown in tables if the case counts are below 16. Crude rates are presented here and can be used internally by the jurisdiction to trend certain cancers over time.

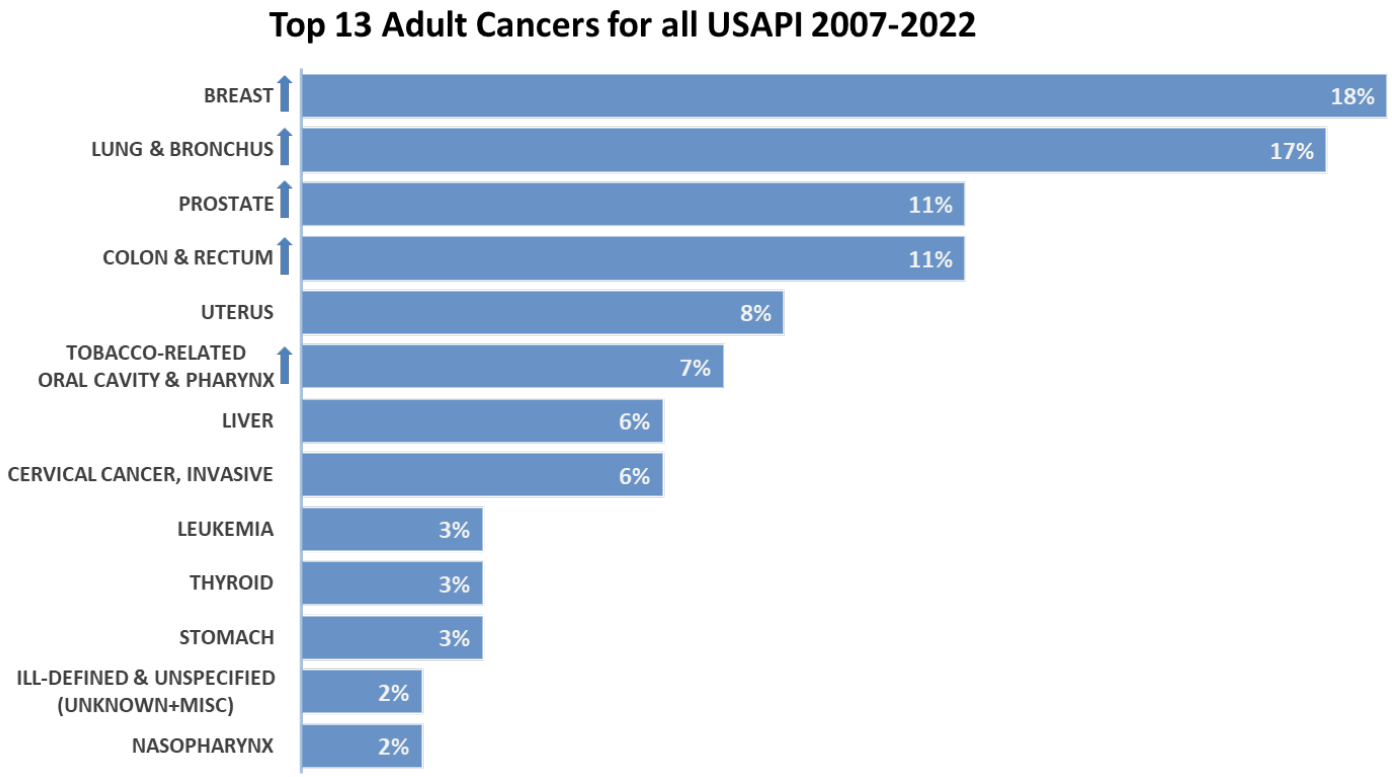
Mortality rates depend on the incidence of the cancer, as well as the stage at diagnosis, survival, and treatment for the cancer type. Survival estimates reflect the risk of death among newly diagnosed cancer cases, while mortality rates reflect the risk of death among the general population. New screening programs, aimed at early detection and increased survival, tend to result in a greater number of new cancers being diagnosed (i.e., higher incidence rates) with little delay. However, as most people dying of cancer today were diagnosed several years ago, mortality rates and survival estimates take time to show the influence of new programs. **Because of present challenges with reporting and recording of deaths in the USAPI, mortality rates are not presented in this document[12].**

[12] Adapted from: "Hawaii Cancer Facts & Figures 2010" acc: 04/21/25 and Suppression for Reliability (CDC National Program of Cancer Registries) https://www.cdc.gov/united-states-cancer-statistics/technical-notes/suppression.html

Table 3 Top 13 Adult Incidence Cancer Counts 2007-2022[13]

Top 13 Cancers for all USAPI	Cases	%	rank
Breast	1364	18%	1
Lung & Bronchus	1292	17%	2
Prostate	856	11%	3
Colon & Rectum	847	11%	4
Uterus	649	8%	5
Tobacco-related Oral Cavity & Pharynx	507	7%	6
Liver	494	6%	7
Cervical Cancer, Invasive	484	6%	8
Leukemia	259	3%	9
Thyroid	252	3%	10
Stomach	213	3%	11
Ill-defined & unspecified (unknown+misc)	179	2%	12
Nasopharynx	167	2%	13

Figure 2 Top 13 Adult Cancers for the USAPI 2007-2022[14]



[13] Full Title: Top 13 Adult Incidence Cancer Counts, Proportional Distribution and Rank, all USAPI 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; Breast cancer case numbers are based on female population only. Reported male breast cases: 1 American Samoa, 3 CNMI, 6 Guam, 2 Pohnpei-FSM, 2 RMI, 2 Yap-FSM

[14] Full title: Proportional Distribution of Top 13 Incidence Cancers, all USAPI 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

Table 4 Top Ten Leading Cancer Sites for all USAPI 2007-2022 cases by Sex & Percentages[15]

Male	Cases	%		Female	Cases	%
All Sites	**4374**	**100%**		**All Sites**	**4705**	**100%**
Lung & Bronchus	866	20%		**Breast**	1347	29%
Prostate	856	20%		**Uterus**	649	14%
Colon & Rectum	495	11%		**Cervical Cancer, Invasive**	484	10%
Liver	376	9%		**Lung & Bronchus**	426	9%
Tobacco-related Oral Cavity & Pharynx	359	8%		**Colon & Rectum**	352	7%
Leukemia	141	3%		**Thyroid**	208	4%
Stomach	125	3%		**Ovary**	158	3%
Nasopharynx	119	3%		**Tobacco-related Oral Cavity & Pharynx**	148	3%
Ill-defined & unspecified (unknown+misc)	95	2%		**Liver**	118	3%
Pancreas	88	2%		**Leukemia**	118	3%

[15] Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022;

Summary Information about Major Cancer Sites adapted from Hawaii Cancer Facts & Figures 2010						
CANCER SITES	**NON-MODIFIABLE RISK FACTORS**	**MODIFIABLE RISK FACTORS**	**RISK REDUCTION**	**EARLY DETECTION**	**SYMPTOMS**	**TREATMENT**
Breast	Age (risk increases as one gets older); Sex (risk is higher in women); Race (risk slightly higher in Whites); Genetic risk factors; Family history; Personal history of breast cancer; Previous breast biopsy; previous breast radiation; Early menstruation; Late menopause	First child born after age 30; Oral contraceptive use; Hormone replacement therapy use; Alcohol consumption; Obesity; Physical activity	Having a first child before age 30; Breast feeding child; Limit alcohol consumption; Maintain a healthy weight; Be physically active; Chemoprevention if women are considered high risk (tamoxifen and possibly raloxifene. Raloxifene is not approved for risk reduction and should not be recommended outside of a clinical trial.)	Mammograms; Clinical breast examinations; Breast self-examinations (optional)	New lump or mass; Swelling; Skin irritation or dimpling; Nipple pain or the nipple turning inward; Redness or scaling of the nipple or breast skin; Breast discharge; Lump in the underarm area	Surgery (breast-conserving therapy with radiation, or mastectomy with or without radiation); Plus chemotherapy and/or hormone therapy, depending on tumor size, spread to lymph nodes, and/or prognostic features Immunotherapy may be appropriate in some cases.
Cervix	Age (average age at diagnosis in the U.S. is 50 to 55); Family history	Human papillomavirus (HPV) infection from intercourse at an early age, unprotected sex, and many sexual partners; Cigarette smoking; Human immunodeficiency virus (HIV) infection; Chlamydia infection	Avoid early onset of sexual activity; Limit the number of sexual partners; Avoid intercourse with individuals who have had multiple partners; Avoid cigarette smoking; Use condoms (to prevent HIV and chlamydia infection; condom use does not reliably prevent HPV infection)	Pap test (smear), visual inspection with acetic acid (VIA,) or HPV DNA testing, and pelvic examination	Unusual discharge from the vagina other than a monthly menstrual period; Bleeding after intercourse; Pain during intercourse	Surgery and/or radiation therapy; Plus chemotherapy for later stages
Colon and Rectum	Age (risk increases as one gets older); Family history; Ethnicity, namely Ashkenazi Jews; Race (highest incidence in African Americans); Personal history of colon cancer, intestinal polyps, or chronic inflammatory bowel disease	Diet from animal sources; Physical inactivity; Obesity; Smoking; Alcohol consumption; low vegetable and/or fruit consumption; Type II Diabetes	Maintain ideal body weight; Multivitamin with folate intake; Calcium supplement intake; Nonsteroidal anti-inflammatory drugs, like aspirin; Hormone replacement therapy (but the side effect may outweigh benefit)	Stool-Based Tests: high-sensitivity guaiac-based fecal occult blood test (HSgFOBT); fecal immunochemical test (FIT); stool DNA test (sDNA-FIT); Flexible sigmoidoscopy; Colonoscopy; CT colonography	Change in bowel habits; Feeling that bowel movement is necessary but no relief after doing so; Rectal bleeding or blood in stool; Cramping or abdominal pain; weakness or fatigue	Surgery; Plus radiation therapy and/or chemotherapy for later stages

Summary Information about Major Cancer Sites adapted from Hawaii Cancer Facts & Figures 2010						
Uterus (Corpus Uteri)	Age (risk increases as one gets older); Total length of menstrual span; History if infertility; Ovarian disease; Diabetes; Family history; Presence or personal history of breast or ovarian cancer; Early menstruation; Late menopause	History of having never given birth; Obesity; Tamoxifen use; Estrogen (but not combined hormone) replacement therapy; Diet high in animal fat	Having one or more children; Use of oral contraceptives; Maintain a healthy weight; Control diabetes	No screening examinations available for women without symptoms who are at average risk for endometrial cancer; Women should report warning signs to health care professional	Unusual bleeding, spotting, or abnormal discharge, especially if after menopause; Pelvic pain or mass; Unexplained weight loss	Surgery; Plus radiation therapy, chemotherapy or hormone therapy for later stages
Thyroid	Age (80% of newly diagnosed thyroid cancer patients are under 65 years of age); Sex (risk is higher in females); Having a history of goiter (enlarged thyroid) or thyroid nodules; Family history of thyroid cancer; Genetics (people who test positive for an abnormal gene that causes a hereditary form of thyroid cancer)	Radiation exposure related to medical treatment during childhood; Radiation exposure as a result of radioactive fallout from atomic weapons testing and nuclear power plant accidents	Avoid unnecessary exposure to ionizing radiation, for children; Ensure adequate iodine intake; Be aware of your family history; Choose a healthy diet to achieve and maintain a healthy weight; Eat more vegetables, fruits and whole grains and eat less red and processed (e.g., bacon, sausage, luncheon meats, hot dogs) meats; Exercise regularly; Avoid smoking cigarettes; Avoid exposure to secondhand smoke.	No screening test for the early detection of thyroid cancer in people without symptoms. If signs and symptoms are present, tests used in the evaluation of thyroid nodules include: blood tests to determine levels of hormones related to normal functions of the thyroid gland; Medical imaging techniques to determine the size and characteristics of the nodule and nearby lymph nodes; Biopsy to determine if the cells in the nodule are benign or malignant	Lump in the neck; Tight or full feeling in the neck; Difficulty breathing or swallowing; Hoarseness or swollen lymph nodes; Pain in the throat or neck that does not go away	Surgical removal of the thyroid gland (for people who test positive of an abnormal gene that causes a hereditary form of thyroid cancer); Radiation; sometimes Hormone therapy, depending on the cell type, tumor size and/or extent of the disease
Oral	Age (risk increases as one gets older);	Cigarette smoking; Smokeless or chewing tobacco; Cigars; **chewing betel nut**, Alcohol consumption; UV exposure for cancer of the lip; Vitamin A deficiency; Obesity; Human papilloma virus (HPV) infection	Avoid cigarette smoking; avoid betel nut chewing, Limit intake of alcoholic beverages; Avoid exposure to ultraviolet radiation for cancer of the lip; Eat five or more servings of fruits and vegetables per day; Avoid obesity	Regular dental checkups that include an examination of the entire mouth; A cancer-related checkup where primary care physicians examine mouth and throat; Self-examinations and report signs and symptoms of diseases to a healthcare professional, if present	Sore in the mouth that does not heal; Pain in the mouth that doesn't go away; A persistent lump or thickening in the cheek; Persistent white or red patch on the gums, tongue, tonsil or lining of the mouth; Sore throat or feeling that something is caught in the throat; Difficulty chewing or swallowing; Difficulty moving the jaw or tongue; Numbness of the tongue; Swelling of the jaw; Loosening of the teeth or	Surgery and/or radiation therapy; Plus chemotherapy for later stages

Summary Information about Major Cancer Sites adapted from Hawaii Cancer Facts & Figures 2010						
					pain around the teeth or jaw; Voice changes; A lump or mass in the neck; Unexplained weight loss	
Leukemia	Infection with Human T-cell lymphotropic virus type 1 (HLTV-1); Family history	Cigarette smoking; Exposure to benzene; High-dose radiation exposure; Inherited rare genetic diseases	Avoid cigarette smoking; Reduce exposure to benzene and radiation	No screening examinations available other than reporting signs and symptoms of disease to a healthcare professional	Weakness; Fatigue; Reduced exercise tolerance; Weight loss; Fever; Bone pain; Sense of fullness in the abdomen	Chemotherapy; Plus stem cell transplant depending on prognostic factors; Gleevec (imatinib mesylate) for treatment of chronic myeloid leukemia Immunotherapy may be appropriate in some cases.
Liver	People born between 1945-1965; Chronic infections with hepatitis B virus (HBV) and hepatitis C virus (HCV)	Obesity; Alcohol; Parasitic infections (schistosomiasis and liver flukes); Consumption of food contaminated with aflatoxin, a toxin produced by mold during the storage of agricultural products in a warm, humid environment	Screen high-risk persons (e.g., HCV-infected persons with cirrhosis) with ultrasound or blood tests; pregnant women are also recommended to be tested for HBV; Screening of donated blood, organs, and tissues; Adherence to infection control practices during medical, surgical, and dental procedures; Avoid Obesity; Limit alcohol consumption	No vaccine available against HCV, but treatments that can clear infection and halt liver disease progression are available; one- time HCV testing for all persons born from 1945 to 1965 in addition to routine testing for individuals at high risk (e.g., injection drug users); HBV vaccinations for all infants at birth, for all children under 18 years of age who were not vaccinated at birth and for adults in high-risk groups (e.g., health care workers and those younger than 60 years who have been diagnosed with diabetes)	Abdominal pain and/or swelling; Weight loss; Weakness; Loss of appetite; Jaundice (a yellowish discoloration of the skin and eyes); Fever; Enlargement of the liver	Surgery (for patients with sufficient healthy liver tissue); Liver transplantation; Patients whose tumors cannot be surgically removed may choose Ablation (tumor destruction) or embolization, a procedure that cuts off blood flow to the tumor; Drug or immunotherapy for patients who are not candidates for surgery
Lung and Bronchus	Personal and family history; air pollution	Cigarette smoking; Secondhand smoke exposure; Asbestos exposure; Occupational exposure to some chemicals; Diet; Radon exposure	Avoid smoking; Avoid secondhand smoke; Avoid occupational exposure to asbestos and other chemicals by using workplace safety precautions; Eat five or more servings of fruits and vegetables per day; Get home checked for radon	No widespread screening recommendations for low-risk patients. The USPSTF recommends annual screening for lung cancer with low-dose computed tomography in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years.	A cough that does not go away; Chest pain often aggravated by deep breathing; Hoarseness; Weight loss and loss of appetite; Bloody or rust-colored sputum; Shortness of breath; Recurring infections such as bronchitis and pneumonia; New onset of wheezing	**Non-small cell:** Surgery; Plus radiation therapy and/or chemotherapy; targeted therapy or immunotherapy **Small cell:** Chemotherapy; Plus radiation therapy and sometimes surgery, depending on prognostic factors

Cancer in the USAPI: Major Sites

Breast (female) Cancer

Signs and symptoms: The most common signs/symptoms of breast cancer are a lump or mass in the breast; persistent changes to the breast, including skin thickening, breast swelling, or skin redness, and nipple abnormalities such as spontaneous discharge (especially if bloody), scaliness, or retraction (drawing back within itself). Early-stage breast cancer often causes no signs or symptoms, which is why screening is important.

Risk factors: Increasing age and being born female are the strongest risk factors for breast cancer. Potentially modifiable factors associated with increased risk include having excess body weight or gaining weight during adulthood (postmenopausal breast cancer only); drinking alcohol; and being physically inactive. Breastfeeding for at least one year decreases risk. Non-modifiable factors that increase risk include a personal or family history of breast cancer, especially related to inherited genetic mutations in breast cancer susceptibility genes (e.g., BRCA1 or BRCA2). BRCA1 or BRCA2 mutations are most common among people with a strong family history of breast, ovarian, and/or some other cancers. Additional medical-related risk factors include certain benign breast conditions (e.g., atypical hyperplasia), a history of ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS), high breast tissue density (the amount of glandular and connective tissue relative to fatty tissue measured on a mammogram), and high-dose radiation to the chest before age 30 (e.g., for treatment of lymphoma). Reproductive and hormonal factors that increase risk include using menopausal hormone therapy (combined estrogen and progestin), previously referred to as hormone replacement therapy (HRT); a long menstrual history (menstrual periods that start early and/or end late in life); not having children or having a first child after age 30; high natural levels of estrogen or testosterone; and recent use of hormonal contraceptives. Pilot research data from Pacific Islander women in Guam and the CNMI suggest that current models of breast cancer risk (i.e., the Gail model) may not fully capture other risk contributors in Pacific Island populations. Additional research is ongoing with the University of Hawaii Cancer Center and the University of Guam Cancer Research Center to develop risk-stratification models more relevant to the USAPI.

Early detection: Early diagnosis reduces the risk of death from breast cancer and increases treatment options. Mammography is a low-dose x-ray procedure used to detect breast cancer before it becomes symptomatic and is most effective when done regularly. However, like all screening tests, it is not perfect. Mammography can sometimes miss cancer (a false-negative result) or appear abnormal in the absence of cancer (a false-positive result); about 12% of women who are screened have results that require further evaluation, but only 5% of women with an abnormal mammogram have cancer. Other potential harms of screening include detection and treatment of breast cancers and in situ lesions (e.g., DCIS) that would not have progressed or caused harm over the woman's lifetime (i.e., overdiagnosis resulting in overtreatment). Although radiation exposure from mammograms is cumulative over time, it does not meaningfully increase breast cancer risk or outweigh the benefits of screening. For women at average risk of developing breast cancer, the American Cancer Society recommends that those ages 45 to 54 years undergo annual mammography; those 55 and older either transition to biennial mammography or continue annual exams; and those 40 to 44 years of age have the option to begin annual mammography. In general, mammographic screening should continue while overall health is good and life expectancy is 10 or more years. For some women at high familial risk, annual breast magnetic resonance imaging (MRI) is recommended along with mammography, often starting at a younger age than the general population.

Some USAPI jurisdictions do not have mammography at

all. In all USAPI jurisdictions, mammography is not as accessible as in the U.S. because of funding and personnel issues[16]

Table 5 Mammogram Guidelines for Patients at Average Risk[17]

American Cancer Society	National Comprehensive Cancer Network	U.S. Preventive Services Task Force
Mammography		
Every year (if a women chooses to do so) ages 40-44 Every year ages 45-54 Every 2 years (or every year if a woman chooses to do so) starting at age 55, for as long as a woman is in good health	Every year starting at age 40, for as long as a woman is in good health	Biennial (every 2 years) screening mammography for women aged 40 to 74 years.
Clinical Breast Exam		
Not recommended	Every 1-3 years ages 25-39 Every year starting at age 40	Not enough evidence to recommend for or against

Table 6 World Health Organization Recommendation on Mammography[18]

	Well Resourced Settings	Limited resource settings with strong health systems	Limited resource settings with weak health systems
Ages 40-49	In well-resourced settings, WHO suggests an organized, population-based screening program for women aged 40–49 years only if such program is conducted in the context of rigorous research and monitoring and evaluation, if the conditions for implementing an organized program specified in their guide are met and if shared decision-making strategies are implemented so that women's decisions are consistent with their values and preferences. (Conditional recommendation based on moderate quality evidence)	In limited resource settings with weak or relatively strong health systems, WHO recommends against the implementation of population-based screening program for women aged 40–49 years. (Strong recommendation based on moderate quality evidence)	
Ages 50-69	WHO suggests organized, population-based mammography screening programs for women aged 50–69 years if the conditions for implementing an organized program specified in the WHO guide are met by the health-care system, and if shared decision making strategies are implemented so that women's decisions are consistent with their values and preferences. (Strong recommendation based on moderate quality evidence). WHO suggests a screening interval of two years. (Conditional recommendation based on low quality evidence)	In limited resource settings with relatively strong health systems, WHO suggests considering an organized, population-based mammography screening program for women aged 50–69 years only if the conditions for implementing an organized program specified in the WHO guide are met by the health-care system, and if shared decision-making strategies are implemented so that women's decisions are consistent with their values and preferences. (Conditional recommendation based on moderate quality evidence) WHO suggests a screening interval of two years. (Conditional recommendation based on low quality evidence)	In limited resource settings with weak health systems, where the majority of women with breast cancer are diagnosed in late stages and mammography screening is not cost-effective and feasible, early diagnosis of breast cancer through universal access of women with symptomatic lesions to prompt and effective diagnosis and treatment should be high on the public health agenda (WHO, 2013). Clinical breast examination, a low-cost screening method, seems to be a promising approach for these settings and could be implemented when the necessary evidence from ongoing studies becomes available.
Ages 70+	In well-resourced settings, WHO suggests an organized, population-based screening program for women aged 70–75 years only if such program is conducted in the context of rigorous research, if the conditions for implementing an organized program specified in the WHO guide are met by the health-care system, and shared decision-making strategies are implemented so that women's decisions are consistent with their values and preferences. (Conditional recommendation based on low quality evidence)	In limited resource settings with weak or relatively strong health systems, WHO recommends against the implementation of population-based screening programmes for women aged 70–75 years. (Strong recommendation based on low quality evidence)	

[16] Adapted From: American Cancer Society, Cancer Facts & Figures 2025

[17] Sources: https://www.komen.org/BreastCancer/Mammography.html https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-screening https://www.nccn.org/patients/guidelines/content/PDF/breastcancerscreening-patient.pdf https://www.acog.org/clinical/clinical-guidance/practice-bulletin/articles/2017/07/breast-cancer-risk-assessment-and-screening-in-average-risk-women https://www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html

[18] Sources: https://iris.who.int/bitstream/handle/10665/137339/9789241507936_eng.pd

ON-Island Treatment Options Available in the USAPI jurisdictions[19]			
Site	Surgery	Chemotherapy	Radiation
Breast	100%	66%	Only on Guam

Table 7 Female Breast Cancer 2007-2022[20]

Female Breast Cancer	Cases	Crude	U.S. Std	World Std	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis	% alive after 5 yrs of diagnosis with Stage 3 and higher
USAPI Total**	**1364**	**65.4**	**59.0**	**45.9**	**219**	**16%**	**84%**	**76%**
USAPI except Chuuk	1343	71.2	63.3	49.2	207	15%	85%	77%
Guam	881	108.3	85.6	66.5	89	10%	90%	84%
CNMI	133	48.4	39.9	33.0	10	8%	92%	90%
FSM Total	120	26.9	26.1	20.8	58	48%	52%	37%
American Samoa	115	47.8	40.7	32.7	31	27%	73%	66%
Republic of the Marshall Islands	70	32.6	33.7	28.6	24	34%	66%	58%
Pohnpei State, FSM	63	39.8	44.2	33.8	31	49%	51%	37%
Republic of Palau	45	42.8	32.8	26.3	7	16%	84%	81%
Yap State, FSM	24	40.5	30.1	26.2	6	25%	75%	62%
Chuuk State, FSM	21	10.7	9.5	8.1	12	57%	43%	29%
Kosrae State, FSM	12	43.5	-	-	9	75%	25%	18%
U.S.*	-	-	133.8	-	-	-	-	-

f; Sankaranarayanan R et al. (2011). Clinical breast examination: preliminary results from a randomized controlled trial in India. J Natl Cancer Inst. 103:1476–80.

[19] Source: Cancer Council of the Pacific Islands internal meeting discussions 2013 – 2025

[20] Full Title: Crude and Age-standardized rates of Female Breast Cancer per 100,000 over age 20, ranked by rate adjusted to world standard population 2007-2022
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022 ; (U.S. 2000 Standard Popn, World Standard Popn 2000-2025);
Note: American Samoa, CNMI, Guam, RMI, and Palau have CDC-funded NBCCEDP programs. Note, that FSM has NO MAMMOGRAPHY services available generally, Pohnpei has one private provider.
* Annual Report to the Nation on the Status of Cancer, Part I: National Cancer Statistics https://doi.org/10.1093/jnci/djab131
**Breast cancer rates are based on the female population. Reported male breast cancer cases: American Samoa 1, CNMI 3, Guam 6, Pohnpei-FSM 2, RMI 2, Yap-FSM 2.

Table 8 Breast Cancer Incidence Rates[a] 2007–2022[21]

Female Breast Cancer	Cases	Incidence rate[b] (95% CI)	Incidence rate[c] (95% CI)
USAPI Total	**1364**	**59 (55.6, 62.4)**	**53.94 (50.8, 57)**
Guam	881	85.6 (79.7, 91.5)	78.1 (72.8, 83.5)
CNMI	133	39.9 (31.4, 48.4)	35.9 (28.7, 43.1)
FSM Total	120	26.1 (20.9, 31.3)	23.2 (18.4, 27.9)
American Samoa	115	40.7 (32.4, 49)	38.7 (30.9, 46.4)
Republic of the Marshall Islands	70	33.7 (24.5, 43)	33.2 (24.4, 42)
Republic of Palau	45	32.8 (22.6, 43.1)	33.1 (22.8, 43.4)

[21] Full Title: Age-standardized incidence rates of invasive breast cancer in the US-Affiliated Pacific Islands, 2007–2022
Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., female breast cancer incidence 54-59 per 100,000 versus (comparator rate);
[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;
[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;
[c] 2022 Population estimates from the United Nations Population Division.

Cervical (Uterine, Cervix) Cancer

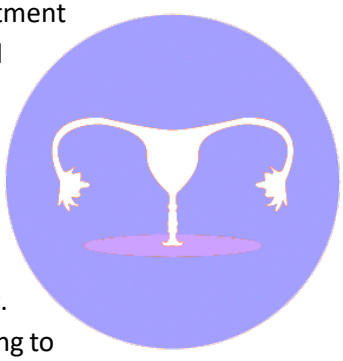
Of all cancers, cervical cancer is the most amenable to prevention and early detection through vaccination and screening. Cervical cancers are caused by certain types of Human papillomaviruses (HPV). HPVs are a group of more than 100 related viruses. Approximately 40 HPV types can be transmitted to the genitals through sexual contact. Cervical HPV infections are very common, and most infections go away on their own after a short time. However, in some women, HPV can develop into a longer-lasting infection. Persistent infection with certain types of HPV increases the risk of cervical cancer. HPV is the primary cause of cervical cancer and also contributes to the development of cancers of the anus, vulva, vagina, penis, oral cavity, and pharynx. HPV also causes genital warts.

In recent years, major advances have been made toward the **prevention** of cervical cancer with the availability of HPV vaccines. Since 2006, two vaccines against HPV have been approved by the U.S. Food and Drug Administration (FDA). However, since 2016, only Gardasil has been available in the U.S. and the USAPI. The Gardasil-9® protects against cervical, vaginal, and vulvar cancers caused by HPV 16, 18, 31, 33, 45, 52, and 58. It also protects against genital warts caused by HPV 6 and 11. Gardasil-9® is approved for use in females and males aged 9 to 45, and recommended to start at age 11 and 12 for boys and girls, but may be given as early as 9 years of age. The Gardasil-9 vaccine can be given in two doses, 6-12 months apart, IF both are completed before age 15. Otherwise, three (3) doses are required for better protection. "The HPV vaccine protects against 90% of cervical cancers, as well as several other cancers and diseases, and evidence of steep reductions in the risk of invasive cervical cancer among vaccinated women is rapidly accumulating"[22].

Cervical cancer can also be prevented or found early through **regular screening**. Although the great majority of cervical cancer screening in the U.S. is done by Pap smears (which can detect cell changes on the cervix that might become cervical cancer), the World Health Organization (WHO) recommends other types of cervical cancer screening methods if Pap smears are not widely available or able to be performed with high quality. Even women who have been vaccinated against HPV need to have regular screening in order to detect precancers caused by HPV types not covered by the vaccine.

Recent studies have demonstrated that visual inspection with acetic acid (VIA) is an alternative, sensitive screening method. It is cheap and non-invasive and can be done in a lower-level health facility like a health center or dispensary, which is common in some USAPI jurisdictions. More importantly, VIA provides instant results, and those eligible for treatment can receive treatment of the precancerous lesions using cryotherapy or thermal ablation on the same day in the same health facility. This "see and treat" method ensures adherence to treatment soon after diagnosis, hence reducing the number of women lost to follow-up. Both the FSM and the RMI have adopted VIA as their core method of cervical cancer screening in remote areas. Pap tests, funded by various U.S. health agencies, are also still done in both countries and the rest of the USAPI.

Primary HPV DNA testing is another method of screening and used in some countries around the world, and is the American Cancer Society's suggested screening method for the U.S. HPV DNA testing combined with VIA to determine eligibility for treatment would be a preferred method of providing cervical cancer screening to the entire population while targeting limited resources to the women at the highest risk of developing cervical cancer. Efforts in the USAPI are ongoing to determine the feasibility, cost-effectiveness, and sustainability of these non-Pap smear based methods of



[22] Adapted from American Cancer Society, Cancer Facts and Figures 2025;

screening[23]. In the U.S. half of those diagnosed with cervical cancer have never been screened. The American Cancer Society guidelines indicate that the preferred method of cervical cancer screening is with a primary HPV test every 5 years for individuals ages 25 through 65 who have a cervix and are at average risk of cervical cancer; only certain HPV tests are approved by the FDA for use as a primary test. If a primary HPV test is unavailable, co-testing (HPV testing in combination with a Pap test) every 5 years or screening with a Pap test alone every 3 years is acceptable[24].

Table 9 Cervical Cancer Screening Guidelines[25]

	Cytology (conventional and liquid-based)	**Co-testing (cytology & HPV testing)**	**Primary hrHPV testing**	
	Ages 21-65	**Ages 30-65**	**Ages 30-65**	**Aged >65**
U.S. Preventive Services Task Force (2018) – being updated	Every 3 years	Every 5 years	Every 5 years	Discontinue screening if no history of cervical change and negative prior screening within the past 10 years
American College of Obstetricians and Gynecologists (2018)	Pap test alone every 3 years. HPV testing alone can be considered for women aged 25 to 29, but Pap tests are preferred.	Pap test and an HPV test (co-testing) every 5 years.	HPV testing alone every 5 years.	Discontinue screening if no history of cervical change and negative prior screening within the past 10 years
American Cancer Society (2020) *As the US makes the transition to primary HPV testing, the use of cotesting or cytology alone for cervical cancer screening will not be included in future guidelines*	**Ages 25-65**	**Ages 25-65**	**Ages 25-65**	Discontinue screening if adequate negative prior screening within the past 10 years
	Every 3 years	Every 5 years	Every 5 years (preferred method)	

ON-Island Treatment Options Available in the USAPI jurisdictions[26]			
Site	Surgery	Chemotherapy	Radiation
Cervix	100%	66%	Only on Guam

[23] Adapted from American Cancer Society, Cancer Facts and Figures 2021; WHO Prevention of cervical cancer through screening using visual inspection with acetic acid (VIA) and treatment with cryotherapy, and 2020 WHO technical guidance and specifications of medical devices for screening and treatment of precancerous lesions in the prevention of cervical cancer

[24] Adapted from American Cancer Society, Cancer Facts and Figures 2025;

[25] Sources: https://apps.who.int/iris/bitstream/handle/10665/144785/9789241548953_eng.pdf?sequence=1 World Health Organization. Comprehensive Cervical Cancer Control: A guide to essential practice (2nd edition). Geneva, Switzerland: World Health Organization; 2014. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening https://www.acog.org/womens-health/faqs/cervical-cancer-screening https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21628

[26] Source: Cancer Council of the Pacific Islands internal meeting discussions 2013 – 2025

Table 10 Invasive Cervical Cancer (over the age of 20) 2007-2022[27]

Cervical Cancer	Cases	Crude	U.S. Std	World Std	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis	% alive after 5 yrs of diagnosis with Stage 3 and higher
USAPI - Total	**484**	**23.5**	**17.2**	**15.0**	**195**	**40%**	**60%**	**50%**
USAPI - Excludes Chuuk	462	24.8	17.9	15.6	183	40%	60%	50%
Republic of the Marshall Islands	170	81.6	68.9	59.5	80	47%	53%	37%
FSM Total	121	28.0	22.6	19.5	62	51%	49%	42%
Guam	106	13.1	9.5	8.2	31	29%	71%	61%
Pohnpei State, FSM	72	47.0	37.4	32.7	33	46%	54%	45%
CNMI	43	16.0	11.8	10.1	7	16%	84%	79%
American Samoa	25	10.5	8.4	7	5	20%	80%	73%
Chuuk State, FSM	22	11.2	10.2	8.4	12	55%	45%	43%
Republic of Palau	19	18.5	12.8	11	10	53%	47%	44%
Yap State, FSM	16	29.5	19.6	17.2	11	69%	31%	30%
Kosrae State, FSM	11	39.9	-	-	6	55%	45%	38%
Hawaii**	-	-	6.6	-	-	-	-	-
U.S.**	-	-	7.5	-	-	-	-	-

Table 11 Age-standardized[a] Incidence Rates of Invasive Cervical Cancer 2007–2022[28]

Cervical Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**484**	**17.2 (15.6, 18.8)**	**16.7 (15.1, 18.2)**
Republic of the Marshall Islands	170	68.9 (57.3, 80.5)	69.4 (58, 80.7)
FSM Total	121	22.6	20.5
Guam	106	9.5 (7.6, 11.3)	9.2 (7.4, 10.9)
CNMI	43	11.8 (7.4, 16.2)	11.1 (7.2, 14.9)
American Samoa	25	8.4 (4.9, 12)	8 (4.6, 11.4)
Republic of Palau	19	12.8 (6.9, 18.8)	13.6 (7.3, 19.8)

With the advent of the CDC Comprehensive Cancer Control funding in 2004, significant increases in public

[27] Full title: Crude and age-standardized rates of invasive Cervical Cancer psite (C530-C539), behavior code 3 per 100,000 over age 20 for all USAPI and percent alive after 5 years of diagnosis 2007-2022; Source: Pacific Regional Central Cancer Registry data 2007-2022
Incidence rates calculated using U.S. 2000 standard population and world standard population 2000-2025; incidence rates suppressed for N<16
**Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
[28] Full Title: Age-standardized incidence rates of invasive Cervical cancer in the US-Affiliated Pacific Islands, 2007–2022;
Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., female cervical cancer incidence 16.7-17.2 per 100,000 versus (comparator rate)
[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;
[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;
[c] 2022 Population estimates from the United Nations Population Division.

health awareness, health promotion, and outreach have occurred throughout the USAPI. Additional CDC funding to the University of Hawaii, through the Racial and Ethnic Approaches to Community Health U.S. Pacific Center of Excellence in the Elimination of Disparities in breast and cervical cancer in the USAPI (2007-2012) also contributed to capacity building for cervical cancer screening. The current economic, societal, and emotional costs of so many women dying from cervical cancer are tremendous. Whereas all USAPI jurisdictions have the capacity to treat pre-cancer and Stage 1A cancer of the cervix, only a third have the capacity to treat Stage 2 or higher in their own country. In the RMI, more than 60% of women were diagnosed at late stages. Over 75% of cervical cancers in the FSM as a whole were diagnosed at a late stage. Only 50% of these women in Micronesia are alive within 5 years of the diagnosis. All USAPI jurisdictions have prioritized improving cervical cancer screening rates and are approaching this issue through health provider training, community outreach, adoption of more resource-appropriate screening methods (VIA in FSM and RMI) and strengthening of monitoring and quality assurance programs.

Table 12 Crude and Age-standardized Incidence Rates Cervical Cancer adjusted to World standard population 2007-2022[29]

Cervical Cancer	Crude	U.S. Std	World Std
Republic of the Marshall Islands*	81.6	68.9	59.5
WHO Southern Africa^	-	-	36.4
Pohnpei, FSM*	47.0	37.4	32.7
WHO Melanesia^	-	-	28.3
WHO World^	-	-	13.0
USAPI*	23.5	17.2	15.0
WHO Southeastern Asia^	-	-	17.1
Guam*	13.1	9.5	8.2
WHO North America^	-	-	6.2
U.S. - Hispanic women**	-	9.6	-
U.S.**	-	7.5	-
Hawaii	-	6.6	-

The global burden of cervical cancer[30]:

Cervical cancer is the fourth most common cancer among women globally, with an estimated 662,301 new cases in 2022[31]. All countries are affected, but the incidence is higher in low- and middle-income countries. Age-standardized incidence rates vary from 95.9 per 100,000 women in the highest-risk countries to fewer than 3 per 100,000 women in the lowest-risk countries[32]. Note that the RMI incidence rate, adjusted to the World standard population, is higher than in the Southern Africa Region.

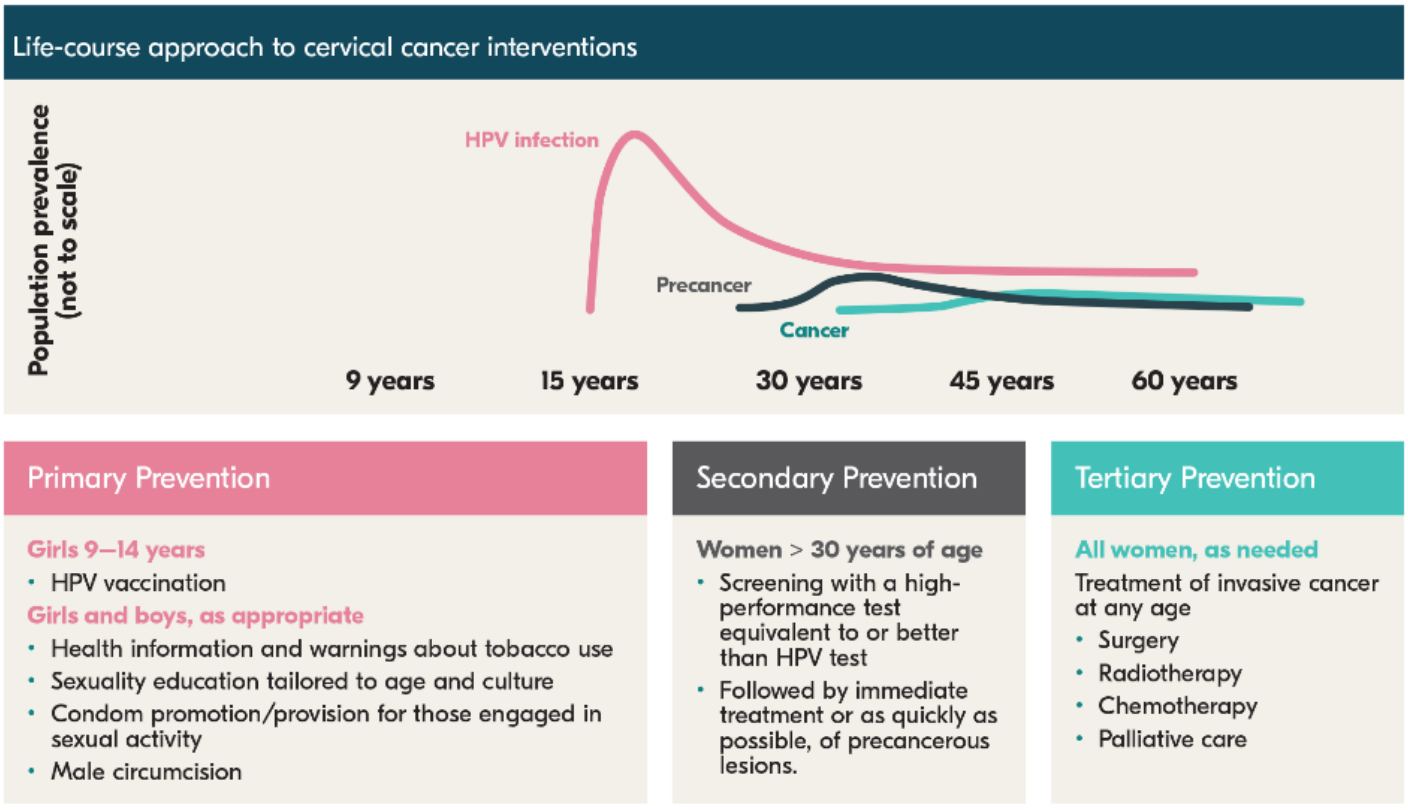
[29] Full Title: Crude and Age-standardized Incidence Rates of Female Cervical Cancer per 100,000, ranked by rate adjusted to World Standard population 2007-2022; (U.S. 2000 Standard Population, World Standard Population 2000-2025)
^Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC - 2.27.2023
*Pacific Regional Central Cancer Registry data 2007-2022
** U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
[30] Source: WHO Global Strategy to accelerate the elimination of cervical cancer as a public health problem https://apps.who.int/iris/bitstream/handle/10665/336583/9789240014107-eng.pdf
[31] Global Cancer Observatory. Estimated cancer incidence, mortality and prevalence worldwide in 2022: cervical cancer. International Agency for Research on Cancer, World Health Organization; 2022 (https://gco.iarc.who.int/media/globocan/factsheets/cancers/23-cervix-uteri-fact-sheet.pdf, acc: 04/21/25).
[32] Global Cancer Observatory. Estimated cancer incidence, mortality and prevalence worldwide in 2022: cervical cancer. International Agency for Research on Cancer, World Health Organization; 2022 (https://gco.iarc.who.int/media/globocan/factsheets/cancers/23-cervix-uteri-fact-sheet.pdf, acc: 04/21/25).

Nearly 90% of the 311,000 deaths worldwide in 2022 occurred in low- and middle-income countries (Figure 4). Further, the proportion of women with cervical cancer who die from the disease is greater than 60% in many low- and middle-income countries, which is more than twice the proportion in many high-income countries, where it is as low as 30%[33].

The global burden of cervical cancer is projected to continue to increase, rising to 700,000 cases and 400,000 deaths in 2030, with analogous increases expected in future years[34]. The vast majority of these increases will be in women in low- and middle-income countries, reflecting the severity of the global divide in cervical cancer morbidity and mortality.

WHO's global elimination strategy calls for governments to work with key partners, including the private sector and civil society, and for meaningful engagement with and empowerment of affected populations. Private sector efficiencies in management can be leveraged to improve workflow and output in the public sector. Civil society can advocate for accessible, affordable, acceptable health products and services and can increase awareness of cervical cancer prevention and control within their communities, especially those at high risk for the disease. Cervical cancer survivors can serve as advocates for educating women and girls about the benefits of vaccination, screening and treatment, and for overcoming stigmatization. WHO recommends a life-course approach to a comprehensive strategy for cervical cancer elimination to ensure that lifetime benefits are maintained (Table 13).

Table 13 Life-course Approach to Cervical Cancer Interventions[35]



[33] Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians.2018;68(6):394–424. doi:10.3322/caac.21492. acc: 04/21/25

[34] Global Cancer Observatory. Cancer tomorrow: a tool that predicts the future cancer incidence and mortality burden worldwide from the current estimates in 2018 up until 2040. International Agency for Research on Cancer, World Health Organization; 2018 (http://gco.iarc.fr/tomorrow, accessed 04/23/25).

[35] Source: WHO Global Strategy to accelerate the elimination of cervical cancer as a public health problem https://apps.who.int/iris/bitstream/handle/10665/336583/9789240014107-eng.pdf

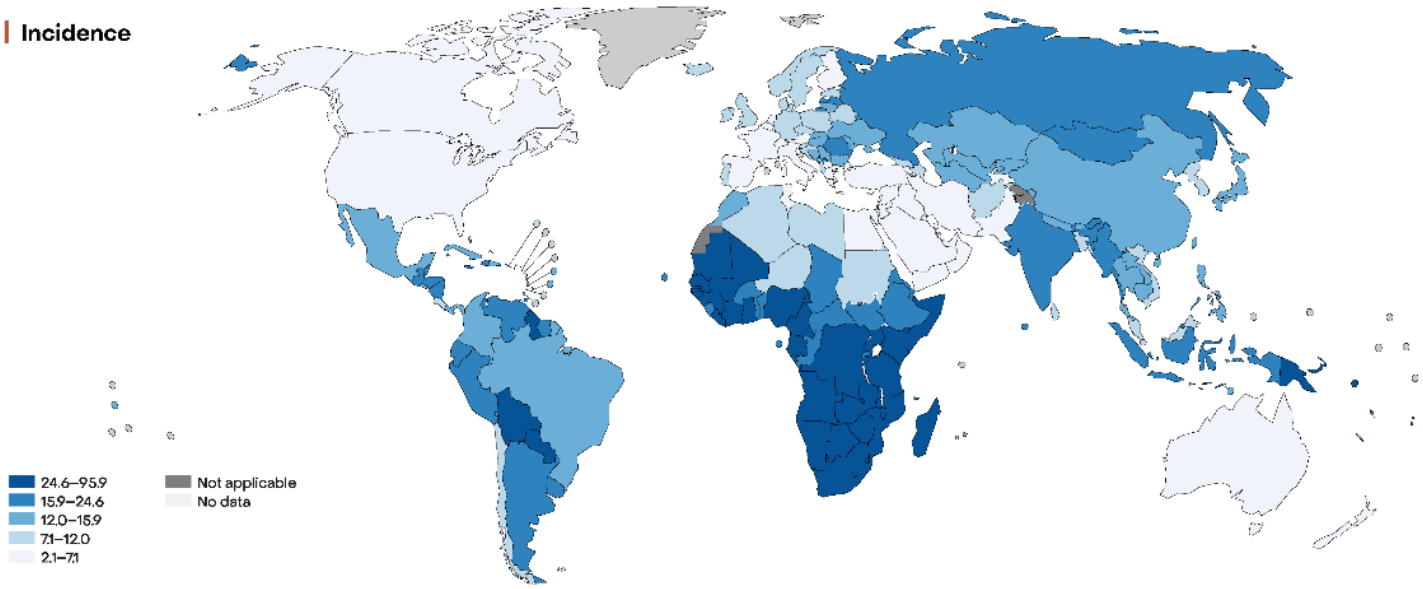


Figure 3 (World) incidence rates, Cervix Uteri, WHO 2022[36]

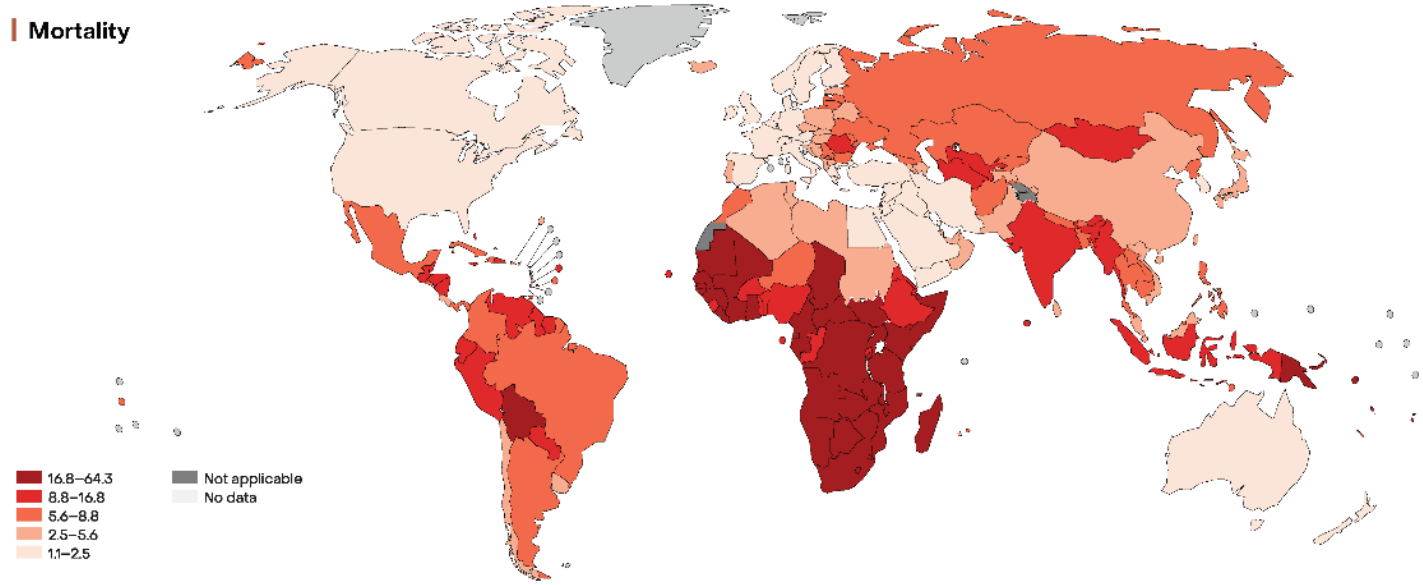


Figure 4 (World) mortality rates, Cervix Uteri, WHO 2022[37]

[36] Full Title: Age standardized (World) incidence rates, Cervix Uteri, females, all ages, WHO GLOBOCAN 2022; Global Cancer Observatory. Estimated cancer incidence, mortality and prevalence worldwide in 2022: cervical cancer. International Agency for Research on Cancer, World Health Organization; 2022 (https://gco.iarc.who.int/media/globocan/factsheets/cancers/23-cervix-uteri-fact-sheet.pdf, acc: 04/21/25).

[37] Full Title: Age standardized (World) mortality rates, Cervix Uteri, females, all ages, WHO GLOBOCAN 2022; Global Cancer Observatory. Estimated cancer incidence, mortality and prevalence worldwide in 2022: cervical cancer. International Agency for Research on Cancer, World Health Organization; 2022 (https://gco.iarc.who.int/media/globocan/factsheets/cancers/23-cervix-uteri-fact-sheet.pdf, acc: 04/21/25).

Colon & Rectum Cancer

Signs and symptoms: The most common signs and symptoms are rectal bleeding, blood in the stool, changes in bowel habits (e.g., constipation or diarrhea) or stool shape (e.g., narrower than usual), the feeling that the bowel is not completely empty, abdominal cramping or pain, decreased appetite, and weight loss. In some cases, the cancer causes blood loss that is not noticeable but results in anemia (low red blood cell count) that may be detected on a blood test and/or symptoms such as weakness, fatigue, or shortness of breath. Increasing incidence of colorectal cancer in young individuals, who are often diagnosed with advanced disease, reinforces the need for timely evaluation of persistent symptoms in patients of all ages. Early-stage colorectal cancer typically does not cause symptoms, which is why screening according to patient risk is so important.

Risk factors: More than 54% of the colorectal cancers in the U.S. are attributable to potentially modifiable risk factors, including excess body weight, physical inactivity, long-term smoking, high consumption of red or processed meat, low calcium intake, heavy alcohol consumption, and very low intake of fruits and vegetables and whole-grain fiber. Hereditary/genetic and medical factors that increase risk include a personal or family history of colorectal cancer or adenomatous polyps, certain inherited genetic syndromes (e.g., Lynch syndrome), a personal history of chronic inflammatory bowel disease (ulcerative colitis or Crohn's disease), and type 2 diabetes. Regular long-term use of nonsteroidal anti-inflammatory drugs, such as aspirin, reduces risk, but these drugs can have serious adverse health effects, such as stomach bleeding. Decision-making about aspirin use should involve a conversation with your health care provider.

Early detection: Screening can prevent colorectal cancer through the detection and removal of precancerous growths (polyps), as well as detect cancer at an early stage, when treatment is usually less intensive and more successful. Regular adherence to screening with either stool testing (fecal immunochemical tests, highly sensitive guaiac-based tests, or a multi-target stool DNA test) or structural exams (e.g., colonoscopy or computed tomography colonography) results in a similar reduction in premature colorectal cancer death over a lifetime. Any non-colonoscopy test with a positive finding must be followed up with a colonoscopy. The American Cancer Society and the U.S. Preventive Services Task Force recommend that individuals at average risk for colorectal cancer begin screening at age 45 years and continue through age 75 years, with more individualized decision making from ages 76 to 85 years based on health status/life expectancy, patient preferences, and prior screening history. People at increased risk because of family history or other reasons should talk to their doctor about screening before age 45.

There are a number of recommended screening options in the U.S. In contrast, in the USAPI, screening with fecal occult blood testing is the most used (although extremely low numbers of patients are screened), because equipment, trained health providers and/or capacity to analyze colon polyps are severely limited in most USAPIs. Almost all USAPI jurisdictions have colonoscopy[38], which is used primarily for diagnosis.

[38] Adapted From: American Cancer Society, Cancer Facts & Figures 2025

Table 14 Colorectal Cancer Screening Guidelines[39]

	Ages 45-49	Ages 50-75	Ages 76-85	Aged >85
U.S. Preventive Services Task Force	Recommends screening	Recommends screening	The USPSTF recommends that clinicians selectively offer screening	Should no longer get screened
American Cancer Society (2020)	**Age 45** People at average risk* of colorectal cancer start regular screening.	**Ages 50-75** Recommends screening	**Ages 76-85** The decision to be screened should be based on a person's preferences, life expectancy, overall health, and prior screening history.	

Table 15 Colon and Rectum Cancer (over the age of 20) 2007-2022[40]

Colon and Rectum Cancer	Cases	Crude	U.S. Std	World Std	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis	% alive after 5 yrs of diagnosis with Stage 3 and higher[41]
USAPI Total	**847**	**20.2**	**21.4**	**15.7**	**293**	**35%**	**65%**	**59%**
Guam	615	37.4	32.6	24.1	197	32%	68%	63%
CNMI	79	14.2	14.6	11.6	23	29%	71%	58%
American Samoa*	56	10.1	10.2	7.5	13	23%	77%	73%
Republic of the Marshall Islands	27	6.4	9.4	6.6	16	59%	41%	37%
Republic of Palau	26	11.5	11.5	8.5	14	54%	46%	35%
Pohnpei State, FSM	24	7.8	10.6	7.4	16	67%	33%	27%
Yap State, FSM	9	8.7	-	-	5	56%	44%	43%
U.S. - USCS**	-	-	36.0	-	-	-	-	-
World^	-	-	-	15.6	-	-	-	-

[39] For more information, and the definition of 'average risk' please visit: https://www.cancer.org/cancer/colon-rectal-cancer/detection-diagnosis-staging/acs-recommendations.html; https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening

[40] Full Title: Crude and age-standardized rates of Colon & Rectum Cancer per 100,000 over age 20, ranked by rate adjusted to World standard pop 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

** Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.

^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023

[41] Based on SEERSumStg2000 Code Definition for Stage: 0 In situ; 1 Localized only; 2 Regional by direct extension only; 3 Regional lymph nodes involved only; 4 Regional by BOTH direct extension AND lymph node involvement; 5 Regional, NOS (Not Otherwise Specified); 7 Distant site(s)/node(s) involved; 9 Unknown if extension or metastasis (unstaged, unknown, or unspecified) Death certificate only case

Table 16 Age-standardized[a] Incidence Rates of Colon and Rectum Cancer 2007–2022[42]

Colon and Rectum Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**847**	**21.4 (19.8, 23)**	**19.3 (17.8, 20.8)**
Guam	615	32.6 (29.8, 35.3)	29.2 (26.7, 31.6)
FSM Total	136	32.6 (26.7, 38.5)	34.6 (28.2, 40.9)
CNMI	79	14.6 (10.4, 18.8)	12.5 (9.1, 16)
American Samoa	56	10.2 (6.9, 13.6)	11.1 (7.8, 14.5)
Republic of the Marshall Islands	27	9.4 (4.3, 14.4)	8.9 (4.3, 13.5)
Republic of Palau	26	11.5 (6.6, 16.4)	11.3 (6.4, 16.1)

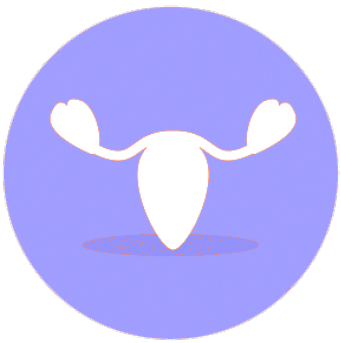
[42] Full Title: Age-standardized incidence rates of invasive Colon and Rectum cancer in the US-Affiliated Pacific Islands, 2007–2022
Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., colon and rectum cancer incidence 19-21 per 100,000 versus (comparator rate)
[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;
[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;
[c] 2022 Population estimates from the United Nations Population Division.

Human Papillomavirus (HPV) Associated Cancers

Although the total number of non-cervical HPV-associated cancers is small, the PRCCR is tracking HPV-related disease in relation to the implementation of the HPV vaccination programs. The Flag Territories are able to purchase vaccines through both the Vaccines for Children (VFC), as well as the 317 programs (U.S. Section 317 of the Public Health Service Act). The FAS are only eligible to purchase through the 317 programs. HPV vaccination started in 2008 in the CNMI and in most of the other jurisdictions in 2009. Chuuk started in 2010, and American Samoa in 2012. As the vaccine costs remain quite high, only limited amounts can be ordered. Target age ranges for vaccination of girls vary between the 9–18-year-old range, with decisions based on many factors, including teen pregnancy rate (suggesting higher rates of early initiation of sexual activity and HPV risk), accessibility to the target population (high school vs. middle school vs. elementary schools), geography & timing of the boat trips to the outer islands, and cooperation with the Departments or Ministries of Education. HPV vaccination is primarily school-based, but public health clinics and community health centers also offer the vaccine. Some jurisdictions have been able to achieve more than 90%[43] coverage of their target populations. Given the current inability to provide cervical cancer screening to more than 80% of their population (most are under 60%), HPV vaccination is a critical prevention measure. The numerous improvements in health systems and health workforce needed to provide cervical cancer screening to >80% of the population will take time.

Table 17 HPV-associated Anal and Oral Cavity and Pharynx Cancer (over the age of 20) 2007-2022[44]

All USAPI	Cases	Crude	U.S. std	World std
USAPI Total	**628**	**15**	**11.9**	**9.9**
Cervical Cancer	484	23.5	17.2	15.0
OC&P	91	2.2	2.0	1.6
Vagina & Vulva	24	1.2	1.3	0.9
Anus /Rectum	16	0.4	-	-
Penis	13	0.6	-	-



[43] Tippins, A., Mutamba, G., Boyd, E. M., Coy, K. C., & Kriss, J. L. (2024). Human Papillomavirus Vaccination Coverage Among Adolescent Girls Aged 13-17 Years - U.S.-Affiliated Pacific Islands, 2013-2023. *MMWR. Morbidity and mortality weekly report*, *73*(33), 715–721. https://doi.org/10.15585/mmwr.mm7333a2

[44] Full title: Crude rates of HPV - associated Anal and Oral Cavity and Pharynx (OC&P) Cancer per 100,000 over age 20, ranked by rate adjusted to World standard population 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; (U.S. 2000 Standard Population, World Standard Population 2000-2025)

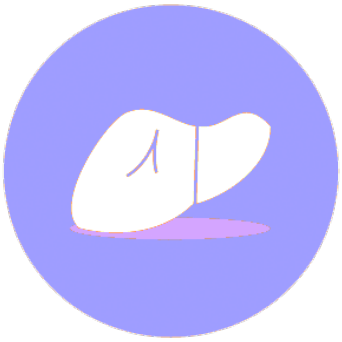
Liver Cancer

Signs and symptoms: Symptoms, which do not usually appear until the cancer is advanced, can include abdominal pain and/or swelling, weight loss, weakness, loss of appetite, jaundice (a yellowish discoloration of the skin and eyes), and fever. Enlargement of the liver is the most common physical sign.

Risk factors: Approximately 75% of liver cancer cases in the U.S. could potentially be prevented through the elimination of risk factors, the most important being excess body weight, type 2 diabetes, chronic infection with hepatitis B virus (HBV) and/or hepatitis C virus (HCV), heavy alcohol consumption (3 or more drinks per day), and tobacco smoking. Risk is also increased by eating food contaminated with aflatoxin (poison from a fungus that can grow on improperly stored foods, such as nuts and grains).

Although the USAPI population is comparatively small in the U.S., HBV is considered endemic in the USAPI. A vaccine that protects against HBV has been available since 1982. There is no vaccine available to prevent HCV infection, although new combination antiviral therapies can often clear the infection and substantially reduce cancer risk among those already infected. The Centers for Disease Control and Prevention (CDC) recommends one-time HCV testing for everyone born from 1945 to 1965 because people born in these years account for about three-fourths of HCV-infected individuals in the U.S. Preventive measures for HCV infection include screening of donated blood, organs, and tissues; adherence to infection control practices during medical and dental procedures; needle-exchange programs for injection drug users and practicing safe sex. However, the medication is not widely available throughout the USAPI.

Early detection: Although screening for liver cancer has not been shown to reduce mortality, many health care providers in the U.S. test individuals at high risk (e.g., those with cirrhosis) with ultrasound, computerized tomography (CT), and/or blood tests[45].



[45] Adapted from: American Cancer Society, Cancer Facts and Figures 2025

ON-Island Treatment Options Available in the USAPI jurisdictions[46]			
Site	Surgery	Chemotherapy	Radiation
Liver	0.00%	66%	Only on Guam

Table 18 Liver Cancer (over the age of 20) 2007-2022[47]

Liver Cancer	Cases	Crude	U.S. Std	World Std	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis
USAPI Total	**494**	**11.8**	**10.9**	**8.5**	**404**	**82%**
Guam	267	16.2	13.2	10.3	210	79%
Republic of Palau	58	25.6	22.4	17.1	54	93%
Republic of the Marshall Islands	42	9.9	11.7	9.4	40	95%
Pohnpei State, FSM	39	12.7	12.2	10.0	29	74%
Yap State, FSM	28	26.9	19.8	17.5	28	100%
Chuuk State, FSM	27	6.8	7	5.6	23	85%
CNMI	25	4.5	4.8	3.9	14	56%
American Samoa	5	0.9	-	-	3	60%
Kosrae State, FSM	3	5.4	-	-	3	100%
U.S. - USCS*	-	-	9.0	-	-	-
World^	-	9.4	-	8.2	-	-

Table 19 Age-standardized[a] Incidence Rates of Liver Cancer 2007–2022[48]

Liver Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**494**	**10.9 (9.8, 11.9)**	**9.9 (8.9, 10.9)**
Guam	267	13.2 (11.5, 14.8)	11.9 (10.4, 13.4)
FSM Total	97	10.4 (8.1, 12.7)	9.3 (7.2, 11.5)
Republic of Palau	58	22.4 (15.9, 28.8)	22.8 (16.3, 29.4)
Republic of the Marshall Islands	42	11.7 (7.3, 16)	11.1 (7.1, 15.1)
CNMI	25	4.8 (2.4, 7.2)	4.0 (2, 5.9)
American Samoa	5	0.6 (0.1, 1.2)	0.8 (0.1, 1.4)

[46] Source: Cancer Council of the Pacific Islands internal meeting discussions 2013 - 2025

[47] Full title: Crude and age-standardized rates of Liver Cancer per 100,000 over age 20, ranked by rate adjusted to World standard pop 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

* U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.

^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023

[48] Full Title: Age-standardized incidence rates of Liver cancer in the US-Affiliated Pacific Islands, 2007–2022;

Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., livercancer incidence 10-11 per 100,000 versus (comparator rate)

[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;

[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;

[c] 2022 Population estimates from the United Nations Population Division.

Lung & Bronchus Cancer

Signs and symptoms: Symptoms do not usually occur until the cancer is advanced and may include persistent cough, sputum streaked with blood, chest pain, voice change, worsening shortness of breath, and recurrent pneumonia or bronchitis.

Risk factors: Cigarette smoking is by far the most important risk factor for lung cancer; risk increases with both quantity and duration of smoking. In most USAPI jurisdictions, 23-26% of youth report any tobacco use or are current users. In the FSM, 41.8% of high school students are current tobacco users. In Palau, 47.6% of youth report any tobacco use. Adult current smokers are reported to be 20.4% of their population[49]. Cigar and pipe smoking also increase risk. Exposure to radon gas released from soil and building materials is estimated to be the second leading cause of lung cancer in Europe and North America.

Other risk factors include occupational or environmental exposure to secondhand smoke, asbestos (particularly among smokers), certain metals (chromium, cadmium, arsenic), some organic chemicals, radiation, air pollution, and diesel exhaust. Additional occupational exposures that increase risk include rubber manufacturing, paving, roofing, painting, and chimney sweeping. Risk is also probably increased among people with a history of tuberculosis. Genetic susceptibility plays a role in the development of lung cancer, especially in those who develop the disease at a young age.

Early detection: Lung cancer screening with low-dose spiral computed tomography (LDCT) has been shown to reduce lung cancer mortality. ACS recommends annual LDCT for generally healthy adults ages 50 to 80 years with a minimum 20 pack-year smoking history, regardless of number of years since quitting for people who no longer smoke. For more information on lung cancer screening, see the American Cancer Society's website[50].

Of note, there is very limited CT capability in any of the FSM States (Pohnpei, FSM has one CT accessible via private hospital services). Chest x-rays are widely available but are not effective screening methods. If patients have symptoms, chest x-rays are the mainstay of diagnosis. Bronchoscopy is only available in a few jurisdictions[51].

[49] FSM Youth NCD Risk Factors Report, 2017, available at: https://www.pihoa.org/regional-initiatives/health-information-management-systems-surveillance-2/usapi-ncd-surveillance-data/

[50] If the link does not work, copy-paste the following address into your web browsers address bar: https://www.cancer.org/cancer/lung-cancer.html

[51] Adapted from: American Cancer Society, Cancer Facts, and Figures 2025

Table 20 Recommended Lung Cancer Screening Guidelines[52]

	American Cancer Society	USPSTF
	Aged 50 to 80 years old, fairly good health	Aged 50 to 80 years old
	At least 20 pack-year smoking history (current smoking status is non-relevant)	A 20 pack-year smoking history and currently smoke or have quit within the past 15 years
	Low-dose chest CT scan annually	Low dose chest CT scan annually

Available Screening Method ON-island in the USAPI jurisdictions[53]			
Type of Cancer	Modality	Yes	No
Lung & Bronchus	16-slice CT Scanner	American Samoa CNMI FSM-Pohnpei (Private clinic) Guam RMI Palau	FSM (most states)
	Chest X-ray	All	N/R
ON-Island Treatment Options Available in the USAPI jurisdictions			
Site	Surgery	Chemotherapy	Radiation
Lung & Bronchus	0.00%	66%	only on Guam

[52] https://www.cancer.org/health-care-professionals/american-cancer-society-prevention-early-detection-guidelines/lung-cancer-screening-guidelines.html https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/lung-cancer-screening

[53] Source: Cancer Council of the Pacific Islands internal meeting discussions 2013 - 2025

Table 21 Lung & Bronchus Cancer 2007-2022[54]

Lung and Bronchus	Cases	Crude	U.S. Std	World Std	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis	% alive after 5 yrs of diagnosis with Stage 3 and higher
USAPI Total	**1292**	**30.8**	**35.3**	**25.4**	**928**	**72%**	**28%**	**24%**
Guam	913	55.5	50.8	36.4	612	67%	33%	28%
Republic of the Marshall Islands	72	17.0	28.4	20.7	68	94%	6%	3%
CNMI	70	12.6	19.9	14.0	56	84%	16%	26%
Republic of Palau	67	29.5	29.7	22.2	45	64%	36%	14%
Pohnpei State, FSM	58	18.9	23.3	18.6	51	88%	12%	11%
Chuuk State, FSM	48	12	14.6	11.9	41	85%	15%	16%
Yap State, FSM	38	36.5	39.7	30.8	33	87%	13%	15%
American Samoa	13	2.3	-	-	11	85%	15%	18%
Kosrae State, FSM	13	23.3	-	-	11	85%	15%	18%
U.S. - USCS*	-	-	49.0	-	-	-	-	-
World^	-	21.1	-	18.2	-	-	-	-

Table 22 Age-standardized[a] Incidence Rates of Lung and Bronchus Cancer 2007–2022[55]

Lung and Bronchus Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**1292**	**35.3 (33.2, 37.5)**	**31.3 (29.4, 33.2)**
Guam	913	50.8 (47.3, 54.4)	44.9 (41.8, 48)
FSM Total	157	22 (18.2, 25.8)	18.2 (14.9, 21.6)
Republic of the Marshall Islands	72	28.4 (19.8, 37)	26.3 (18.5, 34.1)
CNMI	70	19.9 (13.9, 26)	16.4 (11.5, 21.3)
Republic of Palau	67	29.7 (21.9, 37.6)	28.9 (21.2, 36.6)
American Samoa	13	2.5 (0.8, 4.2)	2.7 (1, 4.4)

[54] Full title: Crude and age-standardized rates of Lung & Bronchus Cancer 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; Rates per 100,000 over age 20, ranked by rate adj to World Std pop (U.S. 2000 Standard Popn, World Standard Popn 2000-2025)
* U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023
[55] Full Title: Age-standardized incidence rates of Lung and Bronchus cancer in the US-Affiliated Pacific Islands, 2007–2022
Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e.,lung and bronchus cancer incidence 31-35 per 100,000 versus (comparator rate)
[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;
[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;
[c] 2022 Population estimates from the United Nations Population Division.

Leukemia

Signs and symptoms: Symptoms of leukemia, which can appear suddenly for acute subtypes, can include fatigue, paleness, weight loss, repeated infections, fever, bleeding or bruising easily, bone or joint pain, and swelling in the lymph nodes or abdomen. Chronic leukemia typically progresses slowly with few symptoms during early stages, but sometimes with signs of abnormal blood cell counts.

Risk factors: The risk of most types of leukemia is increased among individuals exposed to high-level ionizing radiation, most commonly from prior cancer treatment. Some types of chemotherapy also increase risk. In addition, risk is increased in people with certain genetic abnormalities and in workers exposed to certain chemicals, such as benzene (e.g., during oil refining or rubber manufacturing). Cigarette smoking increases the risk for Acute Myeloid Leukemia (AML) in adults, and there is accumulating evidence that parental smoking before and after childbirth may increase the risk of acute leukemia in children.

Treatment: Chemotherapy, sometimes in combination with targeted drugs, is used to treat most acute leukemias. Several targeted drugs are effective for treating chronic myelogenous leukemia (CML) because they attack cells with the Philadelphia chromosome, the acquired genetic abnormality that is the hallmark of the disease. Some of these drugs are also used to treat a type of Acute Lymphocytic Leukemia (ALL) with a similar genetic defect. Chronic lymphocytic leukemia (CLL) that is not progressing or causing symptoms may not require treatment right away, but these patients need to be closely monitored. More aggressive CLL is treated with targeted drugs and/or chemotherapy. Certain types of leukemia may be treated with high-dose chemotherapy followed by stem cell transplantation under appropriate conditions. Newer treatments that boost the body's immune system, such as CAR T-cell therapy, have shown much promise, even against some hard-to-treat leukemias. With the exception of Guam, the USAPI does not have the capacity to initiate chemotherapy. In some areas, patients who receive their first course of treatment elsewhere can then return to their home jurisdiction to receive maintenance chemotherapy.

Survival: Five-year relative survival is 67% for leukemia overall, but ranges among youth (ages 0 to 19 years) from 70% for AML to 90% for ALL among adults (20 years and older) from 29% for AML and 47% for ALL to 70% for CML and 89% for CLL. Age-related differences partly reflect the wide variation in cancer biology in children versus adults[56]. Notably, there are no clinical trials available in the USAPI. Work is ongoing to gain this capacity in Guam.

[56] Adapted from: American Cancer Society, Cancer Facts and Figures 2025

ON-Island Treatment Options Available in the USAPI jurisdictions[57]			
Site	Surgery	Chemotherapy	Radiation
Leukemia	N/A	66.00%	only on Guam

Table 23 Leukemia (over the age of 20) 2007-2022[58]

Leukemia	Cases	Crude	U.S. std	World std
USAPI Total	**259**	**6.2**	**6.8**	**4.8**
Guam	176	10.7	10.3	7.1
CNMI	19	3.4	3.9	3.0
Republic of the Marshall Islands	18	4.3	3.3	2.9
Pohnpei State, FSM	18	5.9	5.4	4.6
Republic of Palau	9	4.0	-	-
Kosrae State, FSM	6	10.8	-	-
U.S. - USCS*	-	-	14.0	-
World^	-	5	-	4.7

Table 24 Age-standardized[a] Incidence Rates of Leukemia 2007–2022[59]

Leukemia Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**259**	**6.8 (5.8, 7.7)**	**6.2 (5.3, 7)**
Guam	176	10.3 (8.7, 11.9)	9.2 (7.7, 10.6)
FSM Total	34	3.4 (2.1, 4.7)	3.1 (1.9, 4.3)
CNMI	19	3.9 (1.6, 6.3)	3.3 (1.4, 5.3)
Republic of the Marshall Islands	18	3.3 (1.7, 4.9)	3.3 (1.7, 5)
Republic of Palau	9	2.9 (1, 4.8)	3.0 (1, 4.9)
American Samoa	3	0.3 (0, 0.7)	0.4 (-0.1, 0.8)

[57] Source: Cancer Council of the Pacific Islands internal meeting discussions 2013 - 2025

[58] Full title: Crude rates of Leukemia per 100,000 over age 20 ranked by rate adjusted to World standard population 2007-2022;Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; (U.S. 2000 Standard population, World Standard population 2000-2025);

* U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.

^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023

[59] Full Title: Age-standardized incidence rates of Leukemia cancer in the US-Affiliated Pacific Islands, 2007–2022

Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., leukemia cancer incidence 6-7 per 100,000 versus (comparator rate)

[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;

[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;

[c] 2022 Population estimates from the United Nations Population Division.

Oral Cavity and Pharyngeal Cancer

Signs and symptoms: Symptoms may include a sore in the throat or mouth that bleeds easily and does not heal; a persistent red or white patch, lump, or thickening in the throat or mouth; ear pain; a neck mass; or coughing up blood. Difficulty chewing, swallowing, or moving the tongue or jaw are often late symptoms.

Risk factors: Known risk factors include tobacco use in any form (smoked and smokeless), chewing *areca catechu* (betel nut) with or without tobacco, and excessive consumption of alcohol. Betel nut is the fourth most common habit worldwide (after tobacco, alcohol, and caffeine) and chewing is practiced by many children and adults in Palau and Yap and by many adults in Guam, CNMI, Chuuk, and Pohnpei. Betel nut use is increasing in the RMI. Many studies have reported synergism between smoking and alcohol use, resulting in a more than 30-fold increased risk for individuals who both smoke and drink heavily. HPV infection of the mouth and throat, believed to be transmitted through sexual contact, also increases risk.

Early detection: Cancer can affect any part of the oral cavity, including the lip, tongue, mouth, and throat. Through visual inspection, dentists and primary care physicians can often detect premalignant abnormalities and cancer at an early stage, when treatment is both less extensive and more successful. Some of the USAPIs with high utilization of betel nut use are considering screening programs. Table 19 denotes the very high age-adjusted incidence in Yap, Pohnpei, and Palau. Yap has among the highest rates of oral cancer in the world.

Treatment: Treatment is based largely on the stage and location of the tumor and whether it tests positive for HPV (oropharyngeal cancer), but other factors can also be important. Surgery and/or radiation therapy are standard treatments; chemotherapy is often added for high-risk or advanced disease. Chemotherapy or targeted therapy may be combined with radiation as initial treatment in some cases. Immunotherapy with or without chemotherapy is a newer option for advanced or recurrent cancer. Few USAPI jurisdictions have the surgical capacity to treat advanced stages of head and neck cancers.

Survival: The 5-year relative survival rate for cancers of the oral cavity and pharynx overall is 69% but is much lower in Black people (57%) than in White people (71%). Although this may partly reflect more HPV-associated cancers (which have better outcomes) in White people, the survival disparity persists regardless of tumor HPV status[60].

[60] Adapted from: American Cancer Society, Cancer Facts and Figures 2025 and Paulino, Y., Areca (Betel) Nut Chewing Practices in Micronesian Populations. Hawaii Journal of Public Health, 2011. 3(1): p. 19-29

Color variation of the betel nut fruit[2].

Unripe and ripe nuts[13].

Components of a betel quid including *Piper betle* (leaf), tobacco, and slaked lime[14].

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Table 25 Oral Cavity and Pharyngeal Cancer 2007-2022[62]

Oral Cavity and Pharyngeal Cancer	Cases	Crude	U.S. std	World std
USAPI Total	**507**	**12.1**	**10.1**	**8.2**
Guam	122	7.4	6.1	4.8
CNMI	109	19.6	16.6	13.2
Pohnpei State, FSM	105	34.3	27.1	24.0
Yap State, FSM	83	79.8	70.2	59.8
Republic of Palau	44	19.4	15.3	12.4
Republic of the Marshall Islands	23	5.4	7.0	5.6
American Samoa	7	1.2	-	-
Kosrae State, FSM	7	12.6	-	-
Chuuk State, FSM	7	1.8	-	-
U.S. – USCS*	-	-	12.0	-
World^	-	4.2	-	3.7

[61] Photos from a May 2012 presentation to the CCPI by Dr. Yvette Paulino, University of Guam

[62] Full title: Crude rates of Oral Cavity and Pharyngeal Cancer per 100,000 over age 20 ranked by rate adjusted to World standard population 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; * U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024; ^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023; (U.S. 2000 Standard Population, World Standard Population 2000-2025); ~ per 100,000 over age 20 ranked by rate adj to World Std population

Table 26 Age-standardized[a] Incidence Rates of Oral Cavity and Pharyngeal Cancer 2007–2022[63]

Oral Cavity and Pharyngeal Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**507**	**10.1 (9.1, 11)**	**9.5 (8.6, 10.4)**
FSM Total	202	21.0 (17.9, 24.1)	18.2 (15.5, 20.9)
Guam	122	6.1 (5, 7.3)	5.7 (4.7, 6.8)
CNMI	109	16.6 (12.1, 21.1)	15.7 (11.8, 19.5)
Republic of Palau	44	15.3 (10.3, 20.3)	15.7 (10.6, 20.7)
Republic of the Marshall Islands	23	7.0 (3.4, 10.6)	6.6 (3.3, 9.9)
American Samoa	7	1.8 (0.1, 3.4)	1.8 (0.3, 3.4)

[63] Full Title: Age-standardized incidence rates of Oral Cavity and Pharyngeal cancer in the US-Affiliated Pacific Islands, 2007–2022
Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., oral cavity and pharyngeal cancer incidence 9.5-10.1 per 100,000 versus (comparator rate)
[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;
[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;
[c] 2022 Population estimates from the United Nations Population Division.

Thyroid Cancer

Signs and symptoms: The most common symptom of thyroid cancer is a lump in the neck that is noticed by a patient or felt by a clinician during an exam. Other symptoms can include a tight or full feeling in the neck, difficulty breathing or swallowing, hoarseness, swollen lymph nodes, and pain in the throat or neck that does not go away. Many thyroid cancers are diagnosed incidentally in people without symptoms when an abnormality is seen on an imaging test done for another reason.

Risk factors: Risk factors for thyroid cancer include being female, having a history of goiter (enlarged thyroid) or thyroid nodules, a family history of thyroid cancer, radiation exposure early in life (e.g., during cancer treatment), excess body weight, and certain rare genetic syndromes, such as familial adenomatous polyposis (FAP). People who test positive for a mutation in the RET gene, which causes a hereditary form of thyroid cancer (familial medullary thyroid carcinoma), can lower their risk of developing the disease by having the thyroid gland surgically removed.

Early detection [64] : Screening for thyroid cancer isn't recommended for most people. Still, most thyroid cancers are found early, when people see their doctors because they notice a lump or swelling in their neck. Some thyroid cancers are found by health care professionals when a person has a routine health checkup. Early thyroid cancers are also sometimes found during imaging tests (such as ultrasounds or CT scans) for other health problems.

Treatment: Most thyroid cancers are highly curable, but about 3% (medullary and anaplastic thyroid cancers) are more aggressive and likely to spread to other organs. Treatment depends on patient age, tumor size and cell type, and the extent of the disease. If the cancer has not spread to other parts of the body, surgery is usually offered, such as thyroid lobectomy (partial removal of thyroid or total thyroidectomy, sometimes with removal of nearby lymph nodes. Treatment with radioactive iodine (I-131) after complete thyroidectomy (to destroy any remaining thyroid tissue) may be recommended for large tumors or when cancer has spread outside the thyroid. Thyroid hormone replacement therapy is given after thyroidectomy to replace hormones normally made by the thyroid gland and to prevent the pituitary gland from producing thyroid-stimulating hormone, decreasing the likelihood of recurrence. For some types of advanced thyroid cancer, targeted drugs can be used to help shrink or slow tumor growth.

Survival: The 5-year relative survival rate for thyroid cancer overall is 98%, because two-thirds of cases are diagnosed at a local stage, and treatment is usually successful for most tumor types; survival drops to 93% for medullary thyroid cancer and 10% for anaplastic cancer, a rare but highly aggressive subtype[65].

[64] Adapted from: American Cancer Society website, thyroid cancer subpage. Accessed on 04/2025.

[65] Adapted from: American Cancer Society, Cancer Facts, and Figures 2025

ON-Island Treatment Options Available in the USAPI jurisdictions[66]			
Site	Surgery	Chemotherapy	Radiation
Thyroid	100%	66%	only on Guam

Table 27 Thyroid Cancer 2007-2022[67]

Thyroid Cancer	Cases	Crude	U.S. std	World std
USAPI Total	**252**	**6.0**	**4.8**	**4.1**
Guam	179	10.9	8.0	6.9
Republic of the Marshall Islands	20	4.7	6.4	4.6
Republic of Palau	13	5.7	-	-
Pohnpei State, FSM	13	4.2	-	-
CNMI	9	1.6	-	-
American Samoa	8	1.4	-	-
Yap State, FSM	6	5.8	-	-
U.S. - USCS*	-	-	13.0	-
World^	-	7.3	-	6.5

Table 28 Age-standardized[a] Incidence Rates of Thyroid Cancer 2007–2022[68]

Thyroid Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**252**	**4.8 (4.2, 5.5)**	**4.6 (4, 5.2)**
Guam	179	8.0 (6.8, 9.2)	7.6 (6.4, 8.7)
FSM Total	23	2.3 (1.3, 3.3)	2.0 (1.1, 2.8)
Republic of the Marshall Islands	20	6.4 (2.3, 10.5)	6.1 (2.4, 9.8)
Republic of Palau	13	4.7 (1.9, 7.6)	4.7 (1.9, 7.5)
CNMI	9	1.3 (0.3, 2.3)	1.2 (0.3, 2.1)
American Samoa	8	1.3 (0.1, 2.6)	1.4 (0.2, 2.6)

[66] Source: Cancer Council of the Pacific Islands internal meeting discussions 2013 – 2025

[67] Full title: Crude and age-standardized rates of Thyroid Cancer 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

* U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.

^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023

[68] Full Title: Age-standardized incidence rates of Thyroid cancer in the US-Affiliated Pacific Islands, 2007–2022

Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., thyroid Cancer incidence 4.6-4.8 per 100,000 versus (comparator rate)

[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;

[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;

[c] 2022 Population estimates from the United Nations Population Division.

Prostate Cancer

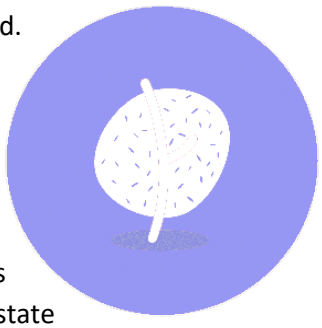
Signs and symptoms: Early prostate cancer usually has no symptoms. More advanced disease shares symptoms with benign prostate conditions, including weak or interrupted urine flow, difficulty starting or stopping urine flow, the need to urinate frequently, especially at night, blood in the urine, or pain or burning with urination. Late-stage prostate cancer commonly spreads to the bones, which can cause pain in the hips, spine, ribs, or other areas.

Risk factors: Well-established risk factors for prostate cancer are increasing age, African ancestry, a family history of the disease, and certain inherited genetic conditions (e.g., Lynch syndrome and BRCA1 and BRCA2 mutations). Black men in the U.S. and Caribbean have the highest documented prostate cancer incidence rates in the world. The only modifiable risk factors are smoking and excess body weight, which may increase the risk of aggressive and/or fatal disease.

Early detection: No major medical organization presently endorses routine screening for men at average risk because of concerns about the high rate of overdiagnosis (detecting disease that would never have caused symptoms or harm), along with the high potential for serious side effects associated with prostate cancer treatment. However, newer biomarkers and imaging tests increasingly limit unnecessary biopsies and reduce overdiagnosis and overtreatment. The American Cancer Society and now the U.S. Preventive Services Task Force recommend "shared decision-making," whereby health care providers educate men about the benefits and harms of prostate-specific antigen (PSA) screening and encourage personal choice. The American Cancer Society recommends that beginning at age 50 for men at average risk of prostate cancer, 45 for Black men and those with a close relative diagnosed with prostate cancer before the age of 65, and at age 40 for men at even higher risk because of stronger family history (several close relatives diagnosed at an early age) or BRCA mutation.

Treatment: Recent changes in the grading system for prostate cancer have improved tumor characterization and disease management. Careful monitoring of disease (called active surveillance) instead of immediate treatment is appropriate for many patients, particularly men who are diagnosed at an early stage, have less aggressive tumors, and are older. The main treatment options for early-stage disease include surgery, external beam radiation, or radioactive seed implants (brachytherapy). Focal therapies, in which only part of the prostate is treated, are being studied as well. Hormone therapy may be used along with surgery or radiation in locally advanced cases. Treatment often impacts a man's quality of life due to temporary or long-term side effects or complications, such as urinary and erectile difficulties.

Late-stage prostate cancer treatment options include hormonal therapy, chemotherapy, and/or radiation therapy. Hormone treatment may control advanced prostate cancer for long periods of time by shrinking the size or limiting the growth of the cancer, thus helping to relieve pain and other symptoms. In cases where the prostate cancer is growing rapidly or is no longer responding to hormone therapy, chemotherapy may be used. If the prostate cancer cells have spread to the bones and are causing pain, a therapy called Radium-223 may be offered. Targeted drugs (PARP inhibitors) can be used along with hormone therapy for men whose cancer have BRACA or other DNA repair gene mutations, and other types of drugs can be used to treat prostate cancer that has spread to the bones.



Survival: The 5-year relative survival rate approaches 100% for the vast majority (83%) of men diagnosed with local- or regional-stage prostate cancer, but drops to 37% for those diagnosed with distant-stage disease. The 10-year survival rate for all stages combined is 98%.[69]

[69] Adapted from: American Cancer Society, Cancer Facts, and Figures 2025

Table 29 Prostate Cancer 2007-2022[70]

Prostate Cancer	Cases	Crude	U.S. Std	World Std	# dead within 5 yrs of diagnosis	% dead within 5 yrs of diagnosis	% alive after 5 yrs of diagnosis	% alive after 5 yrs of diagnosis with Stage 3 and higher
USAPI Total	**856**	**40.1**	**56.0**	**37.8**	**149**	**17%**	**83%**	**67%**
Guam	683	81.7	84.9	58.4	87	13%	87%	74%
CNMI	52	18.1	29.4	20.7	5	10%	90%	78%
Republic of Palau	40	32.3	38.9	29.0	11	28%	73%	58%
Yap State, FSM	20	40.1	65.8	47.8	9	45%	55%	50%
Republic of the Marshall Islands	17	7.9	11.9	9.7	8	47%	53%	30%
Pohnpei State, FSM	15	9.8	-	-	7	47%	53%	45%
Chuuk State, FSM	14	6.9	-	-	13	93%	7%	7%
American Samoa	11	4.6	-	-	5	45%	55%	55%
U.S. - USCS*	-	-	113.0	-	-	-	-	-
World^	-	25.9	-	23.6	-	-	-	-

Table 30 Age-standardized[a] Incidence Rates of Prostate Cancer[71]

Prostate Cancer	Cases	Incidence rate [b] (95% CI)	Incidence rate [c] (95% CI)
USAPI Total	**856**	**56 (51.7, 60.3)**	**49.5 (45.7, 53.4)**
Guam	683	84.9 (77.9, 91.8)	74.3 (68.2, 80.4)
FSM Total	53	26.2 (18.3, 34.1)	25.8 (17.3, 34.4)
CNMI	52	29.4 (18.9, 39.8)	24.2 (15.8, 32.7)
Republic of Palau	40	38.9 (25, 52.8)	37.5 (23.6, 51.4)
Republic of the Marshall Islands	17	11.9 (5.4, 18.4)	10.5 (5, 15.9)
American Samoa	11	9.7 (3.3, 16)	8.7 (3, 14.4)

[70] Full title: Crude and age-standardized rates of Prostate Cancer per 100,000 over age 20, ranked by rate adjusted to World standard population 2007-2022; Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022; (U.S. 2000 Standard population, World Standard population 2000-2025); *Source for US data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
^ Crude and age-standardised rates per 100,000. Cumulative risk [0-74], percent GLOBOCAN 2020, IARC 2.27.2023
[71] Full Title: Age-standardized incidence rates of Prostate cancer in the US-Affiliated Pacific Islands, 2007–2022
Two incidence rates are presented to account for rapid shifts in some jurisdictions' population distribution. When using data for educational or programmatic purposes, it is best to convey a range (i.e., prostate Cancer incidence 50-56 per 100,000 versus (comparator rate)
[a] Rates were age-standardized to 2000 US standard population and expressed per 100,000;
[b] 2020 Population estimates from the PRCCR Database from each jurisdiction;
[c] 2022 Population estimates from the United Nations Population Division.

Top 10 Cancer Sites by Jurisdiction

American Samoa

AMERICAN SAMOA FACTS AND DEMOGRAPHICS[72]	
Political status with U.S.A.	Territory
Total Population	49,710
Land surface area (sq. km)	199
Coastline (sq. km)	116
Public transportation	Yes
4-year University or College	None
2-year College	X
Hospitals	1
Regularly occurring continuing education program for physicians or nurses	Physicians, Nurses, Pacific Telehealth
Health expenditures per capita	$2,279
Age Structure	0-14 years: 30% (male 7,577/female 7,332) 15-24 years: 16.6% (male 4,259/female 3,973) 25-54 years: 37.9% (male 9,585/female 9,183) 55-64 years: 9.3% (male 2,337/female 2,317) 65 years and over: 4.5% (male 1,496/female 1,651)
Birth Rate	17.19 births/1,000 population (2021 Est)
Death Rate	6 deaths/1,000 population (2021 Est.)
Life Expectancy	total population: 76 years
Source of health expenditure $ value:	American Samoa's 2022 statistical yearbook
Birth rate source:	2010 Census data
Death rate source:	2010 Census data
Life expectancy source:	2010 Census data

AMERICAN SAMOA PROGRAM OR SERVICE	
CANCER SCREENING AND EARLY DETECTION	
CDC Breast and Cervical Cancer Early Detection Program	X
Mammography	X
Specialty that performs the breast biopsies	OB, Surgery, Family Planning, BCCEDP(DOH)
Pap smears	X
Time it takes for Pap smears to return to the clinician and/or program staff	3-4 weeks
Cervical cancer screening using VIA	No
Prostate cancer screening (PSA)	X
Transrectal ultrasound	No
CT on-island	X
Colorectal cancer screening (FOBT or FIT)	X
Colonoscopy	X

[72] Source: U.S. Census data, 2010; WHO Health Information and Intelligence Platform 2015; CIA – The World Factbook

CANCER DIAGNOSIS AND TREATMENT	
Pathologist	X
Fine needle aspiration is available on-island	Yes - Surgery
Core or open biopsies are available on-island	N/A
On-island histopathology	X - some
Refer patients off-island for diagnostic workup	N/A
On-island cytopathology	N/A
Lab that the BCCEDP or Cancer Program sends the Pap smears to	N/A
Time it takes for biopsies to return from off-island	2-3 weeks
General Radiologist on-island	X
Interventional Radiologist on-island	N/A
Tele-radiology	X - National Diagnostic Imaging main office – Ohio
Time it takes to get the radiology readings back to the clinicians	On island-1 day, teleradiology-1 to 2 days
MRI on-island	N/A
PET scan on-island	N/A
Bronchoscopy (Lung Mass/Cancer)	N/A
Patients are referred off-island for staging	N/A
General surgeon	X
ENT	N/A
Orthopedics	N/A
Surgical oncologist	N/A
Urologist	N/A
OB-GYN	X
Other Surgical subspecialists	X
Medical Oncologist	N/A
Hematologist	N/A
On-island chemotherapy	X (Maintenance)
On-island radiation therapy	N/A
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT	
Off-island referral to the **Philippines** for diagnosis / treatment	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to New Zealand or Taiwan for diagnosis / treatment	New Zealand
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Hawaii** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A

Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **U.S. Continent** for diagnosis / treatment (not Hawaii)	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Other countries** for diagnosis / treatment	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A

Table 31 American Samoa: Cancer Cases 2007-2022[73]

Top 10 Cancers for American Samoa 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**522**	**92.8**	**85.1**	**65.5**	**470.0**	**29%**	**22%**	**71%**
Uterus	172	72.1	58.0	49.1	28.3	16%	28%	64%
Breast	115	47.8	40.7	32.7	133.8	27%	25%	69%
Colon & Rectum	56	10.0	10.2	7.5	36.0	23%	25%	71%
Stomach	31	5.5	5.5	4.0	6.7	65%	10%	77%
Cervical Cancer, Invasive	25	10.5	8.4	7.0	7.5	20%	20%	60%
Ovary	15	6.3	4.8	4.1	9.9	33%	20%	67%
Lung & Bronchus	13	2.3	2.5	1.8	49.1	85%	15%	85%
Prostate	11	4.6	9.7	5.6	114.7	45%	0%	100%
Ill-defined & unspecified (unknown+misc)	10	1.8	1.2	1.1	-	40%	0%	100%
Thyroid	8	1.4	1.3	1.0	12.6	25%	50%	50%

Cancer cases reported to PRCCR and CDC diagnosed in 2007-2022 are shown in the table above. Breast and Uterine cancer are the top two cancers diagnosed in American Samoa. Because of some limitations in screening and diagnosis, other cancers may be underreported. We have included crude incidence rates for the top 10 cancers in American Samoa. This number can be used by health officials to look at trends in cancer diagnosis over time. This number can be used as one measure of health system improvements in detecting cancer cases.

Treatment options vary by cancer, but in general, are limited to early-stage cancers. Surgeons are available on-island to manage most early cancers requiring resection. As there is almost none to very limited budget for off-island referral (for

[73] Full title: American Samoa: Incidence Cancer Cases 2007-2022; *Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.; Breast cancer rate is based on female population only. 1 Male breast cancer case(s) reported Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

diagnostic confirmation, advanced staging techniques, or advanced treatment), the clinicians must decide on how much treatment can be safely provided on the island. The availability of maintenance chemotherapy is limited. No radiation therapy, brachytherapy, or hormonal therapy options exist. Patients who are able to go off-island for care usually do so at their own expense (some patients have Medicare) and seek care in Honolulu, the U.S. continent, or New Zealand.

The provision of hospital-based and home-based palliative care services is in the early stages of development. Efforts to train staff and family caregivers are ongoing. There have been increased efforts over the past 6 years to increase provider awareness and education and improve the system's capacity to provide palliative care to those patients with advanced cancers.

The American Samoa Cancer Registry serves an important public health function. Data on cancers in American Samoa residents are collected so that the Territory's health system can make informed decisions about areas to focus precious resources. Certain types of cancers are able to be detected earlier than others (screened), so information on those types of cancers can be used to help improve resources to screening programs, guide outreach activities, and policy change. The American Samoa Cancer Registry responds to data requests from local high school and college students, NCD Coalition members, Cancer Coalition, Breast and Cervical Cancer Early Detection Program , Department of Health Quality Assurance officer, and local physicians. The most common types of data requests include types of cancers, what proportion of cancers contribute to death in American Samoa, survival rates for specific cancers, and percent of patients who seek treatment off-island. Cancer registry data is used by policymakers, public health programs, community coalitions, and local researchers. The cancer data has influenced decision-making in screening recommendations and awareness efforts and has lent support for significant Territory-wide policy changes related to tobacco, breast cancer screening, and support for patients with cancer.

The American Samoa Cancer Registry works with the American Samoa Comprehensive Cancer Control Program and Community Cancer Coalition to create fact sheets that are available for public distribution and can be downloaded online. Data includes incidence and mortality counts and trends in the years covered in the registry database. Other data for the fact sheets are gathered from NCD partners within the Department of Health and the Department of Education.

Commonwealth of the Northern Mariana Islands (CNMI)

CNMI FACTS AND DEMOGRAPHICS[74]	
Political status with U.S.A.	Commonwealth
Total Population	47,329
Land surface area (sq. km)	475
Coastline (sq. km)	1,482
Public transportation	Yes
4-year University or College	X
2-year College	X
Hospitals	1
Regularly occurring continuing education program for physicians or nurses	Yes, Pacific Telehealth
Health expenditures per capita	$4,135
Age Structure	0-14 years: 23.5% (m 5,823 / f 5,315) 15-24 years: 14.2% (m 3,526 / f 3,216) 25-54 years: 43.9% (m 10,922 / f 9,872) 55-64 years: 12.4% (m 3,184 / f 2,679) 65 years and over: 5.9% (m 1,437 / f 1,355)
Birth Rate	11.1 births/1,000 population (2017 Est)
Death Rate	5.1 deaths/1,000 population (2017 Est)
Life Expectancy	total population: 75.2 years
Source of health expenditure $ value:	WHO's Healthy Islands Monitoring Framework (HIMF) Report 2022
Birth rate source:	2022 Vital Statistics Annual Report, CHCC
Death rate source:	2022 Vital Statistics Annual Report, CHCC
Life expectancy source:	WHO's Healthy Islands Monitoring Framework (HIMF) Report

CNMI PROGRAM OR SERVICE	
CANCER SCREENING AND EARLY DETECTION	
CDC Breast and Cervical Cancer Early Detection Program	X
Mammography	X
Specialty that performs the breast biopsies	Radiologist, Surgeon
Pap smears	X
Time it takes for Pap smears to return to the clinician and/or program staff	2-3 weeks
Cervical cancer screening using VIA	N/A
Prostate cancer screening (PSA)	X
Transrectal ultrasound	N/A
CT on-island	X
Colorectal cancer screening (FOBT or FIT)	X
Colonoscopy	X

[74] Source: U.S. Census data, 2020; 2022 Vital Statistics Annual Report, WHO, CHCC; NOAA – CORIS system

CANCER DIAGNOSIS AND TREATMENT	
Pathologist	X
Fine needle aspiration is available on-island	Yes, Radiologist
Core or open biopsies are available on-island	Yes, ENT
On-island histopathology	X
Refer patients off-island for diagnostic workup	X - Yes
On-island cytopathology	N/A
Lab that the BCCEDP or Cancer Program sends the Pap smears to	Hawaii
Time it takes for biopsies to return from off-island	8-10 days
General Radiologist on-island	X 1 interventional radiologist
Interventional Radiologist on-island	Yes
Tele-radiology	X Apollo Teleradiology (India)
Time it takes to get the radiology readings back to the clinicians	From Guam – within 24 hrs.
MRI on-island	N/A
PET scan on-island	N/A
Bronchoscopy (Lung Mass/Cancer)	N/A
Patients are referred off-island for staging	No, CNMI has a CT Scan
General surgeon	X
ENT	X
Orthopedics	N/A
Surgical oncologist	N/A
Urologist	N/A
OB-GYN	X
Other Surgical subspecialists	X
Medical Oncologist	X
Hematologist	N/A
On-island chemotherapy	X
On-island radiation therapy	N/A
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT	
Off-island referral to **Philippines** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	Personal preference
Main contact person at the institution / organization	CNMI Medical Team communicates with Medical Team in PI
Rationale for choosing this specific institution for your island referrals	Patients preference due to family members and cost efficient
Off-island referral to New Zealand or Taiwan for diagnosis / treatment	No
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	The institutions currently receiving medical referral patients from CNMI were chosen due to their expertise, financial accommodations, and partnerships

Off-island referral to **Hawaii** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	Cancer treatment, Heart Surgery
Main contact person at the institution / organization	CNMI Medical Referral Office
Rationale for choosing this specific institution for your island referrals	Procedure capability, equipped
Off-island referral to **U.S. Continent** for diagnosis / treatment (not Hawaii)	CA
Institution (hospital) or organization (non-local) patients are referred	Cancer treatment, Heart surgery
Main contact person at the institution / organization	CNMI Medical Referral Office
Rationale for choosing this specific institution for your island referrals	Fully equipped and trained in procedures
Off-island referral to **Other countries** for diagnosis / treatment	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A

Table 32 Commonwealth of the Northern Mariana Islands (CNMI): Cancer Cases 2007-2022[75]

Top 10 Cancers for CNMI 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**734**	**132.1**	**138.3**	**107.0**	**470.0**	**33%**	**26%**	**63%**
Breast	133	48.4	39.9	33.0	133.8	8%	33%	58%
Tobacco-related Oral Cavity & Pharynx	109	19.6	16.6	13.2	11.9	39%	30%	59%
Colon & Rectum	79	14.2	14.6	11.6	36.0	29%	24%	61%
Lung & Bronchus	70	12.6	19.9	14.0	49.1	64%	20%	77%
Uterus	58	21.6	18.1	15.5	28.3	26%	40%	48%
Prostate	52	18.1	29.4	20.7	114.7	10%	50%	35%
Cervical Cancer, Invasive	43	16	11.8	10.1	7.5	16%	21%	65%
Liver	25	4.5	4.8	3.9	8.4	56%	4%	80%
Leukemia	19	3.4	3.9	3.0	13.6	58%	0%	100%
Stomach	13	2.3	-	-	6.7	46%	0%	77%

Cancer cases reported to PRCCR, and CDC diagnosed in 2007-2022 are shown in the table above. Breast cancer is currently the most commonly diagnosed cancer in the CNMI. Because of limitations in screening and diagnosis, other cancers may be underreported. We have included crude incidence rates for the top 10 cancers in the CNMI. This number

[75] Full title: Commonwealth of the Northern Mariana Islands (CNMI): Incidence Cancer Cases 2007-2022; *Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Breast cancer rate is based on female population only. 3 Male breast cancer case(s) reported
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

can be used by health officials to look at trends in cancer diagnosis over time. This number can be used as one measure of health system improvements in detecting cancer cases.

Treatment options vary by cancer, but in general, are limited to early-stage cancers. Surgeons are available on-island to manage most early cancers requiring resection. As there is a limited budget for off-island referral (for diagnostic confirmation, advanced staging techniques, or advanced treatment), the clinicians must decide on how much treatment can be safely provided on-island. The availability of chemotherapy on-island is a great advancement. No radiation therapy, brachytherapy or hormonal therapy options exist. Patients who are able to go off-island for care usually do so at their own expense (some patients have Medicare) and seek care in Honolulu, Guam, or the U.S. continent (California).

Provision of hospital-based and home-based palliative care services is in the early to mid-stages of development. Efforts to train staff and family caregivers are ongoing. There have been increased efforts over the past 6 years to increase provider awareness and education and improve the system's capacity to provide palliative care to those patients with advanced cancers.

The CNMI Cancer Registry serves an important public health function. Data on cancers in CNMI residents are collected so that the Territory's health system can make informed decisions about areas to focus precious resources. Certain types of cancers can be detected earlier than others (screened), so information on those types of cancers can be used to help improve resources to screening programs, guide outreach activities, and policy change. The cancer registry responds to data requests from local high school and college students, NCD Coalition members, Cancer Coalition, Breast and Cervical Cancer Early Detection Program, Department of Health Quality Assurance officer, and local physicians. The most common types of data requests include types of cancers, what proportion of cancers contribute to death, survival rates for specific cancers, and the percentage of patients who seek treatment off-island. Cancer registry data is used by policymakers, public health programs, community coalitions, and local researchers. The cancer data has influenced decision-making in screening recommendations and awareness efforts and has lent support for significant policy changes related to palliative care and tobacco control.

Federated States of Micronesia (FSM)

The Federated States of Micronesia is a constitutional federation of four states: Chuuk (TKK), Kosrae (KSA), Pohnpei (PNI) and Yap (YAP), with the capital located in Palikir, Pohnpei.

FSM FACTS AND DEMOGRAPHICS[76]	
Political status with U.S.A.	Freely Associated
Total Population	102,116
Land surface area (sq. km)	702
Coastline (sq. km)	6,112
Public transportation	None
4-year University or College	All none except Chuuk: Chaminade University Hawaii - Caroline College & Pastoral Institute
2-year College	X
Hospitals	5 (1 private in PNI)
Regularly occurring continuing education program for physicians or nurses	Building CE programs, Pacific Telehealth
Health expenditures per capita	$397
Age Structure	0-14 years: 35.7% (male 18,696/female 17,772) 15-24 years: 20.6% (male 10,983/female 10,082) 25-54 years: 34.6% (male 17,695/female 17,636) 55-64 years: 5.7% (male 3,017/female 2,834) 65 years and over: 3.3% (male 1,409/female 1,990)
Birth Rate	2.5 births/1,000 population
Death Rate	0.6 deaths/1,000 population
Life Expectancy	Total population: 70 years
Source of health expenditure $ value:	WHO database 2022
Birth rate source:	2010 Census data
Death rate source:	2010 Census data
Life expectancy source:	2010 Census data

FSM PROGRAM OR SERVICE	
CANCER SCREENING AND EARLY DETECTION	
CDC Breast and Cervical Cancer Early Detection Program	N/A
Mammography	PNI - Breast ultrasound at Genesis (Private provider) TKK - Mammography (CHC)
Specialty that performs the breast biopsies	Surgeons, OB (PNI) Surgeons (TKK, YAP)
Pap smears	X

[76] * Source: U.S. Census 2010, WHO statistical Profile, 2022

Time it takes for Pap smears to return to the clinician and/or program staff	3-4 days (PNI) 2-3 weeks (TKK, KSA, YAP)
Cervical cancer screening using VIA	X
Prostate cancer screening (PSA)	X (PNI,KSA,YAP)
Transrectal ultrasound	(Yap has the equipment but no personnel to perform the screening)
CT on-island	X (PNI – Private provider)
Colorectal cancer screening (FOBT or FIT)	X (KSA,YAP) PNI – currently N/A
Colonoscopy	X (YAP) PNI - has the equipment but no specialist to perform the procedure.
CANCER DIAGNOSIS AND TREATMENT	
Pathologist	N/A in general PNI - Telepathology
Fine needle aspiration is available on-island	X (PNI) X (Yap – Surgeon, OBGYN)
Core or open biopsies are available on-island	N/A
On-island histopathology	N/A in general PNI - Telehistopathology
Refer patients off-island for diagnostic workup	N/A in general Yes – KSA, YAP
On-island cytopathology	PNI - Telecytopathology
Lab that the BCCEDP or Cancer Program sends the Pap smears to	PNI – Telecytopathology partnership with Hokkaido Japan YAP – sends collected Paps to PNI lab for analysis
Time it takes for biopsies to return from off-island	2 weeks average (PNI) 2 - 3 weeks (KSA) 2 weeks minimum (YAP)
General Radiologist on-island	N/A
Interventional Radiologist on-island	N/A
Tele-radiology	PNI State Hospital for Shriners cases uses tele-radiology Yap - Doctors consult with off-island experts
Time it takes to get the radiology readings back to the clinicians	N/A CT scans done on PNI – Readings take 1 to 2 weeks
MRI on-island	N/A
PET scan on-island	N/A
Bronchoscopy (Lung Mass/Cancer)	N/A
Patients are referred off-island for staging	Yes
General surgeon	X
ENT	N/A
Orthopedics	PNI – 1
Surgical oncologist	N/A
Urologist	N/A
OB-GYN	X
Other Surgical subspecialists	X (PNI) - Orthopedics

	X (Chuuk)
Medical Oncologist	N/A
Hematologist	N/A in general YAP - 1
On-island chemotherapy	X (maintenance in PNI, rare)
On-island radiation therapy	N/A
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT	
Off-island referral to **Philippines** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	St. Luke's Hospital / Medical City (KSA, YAP) Undefined (PNI, TKK)
Main contact person at the institution / organization	Glenda Remo (KSA) Undefined (PNI, TKK)
Rationale for choosing this specific institution for your island referrals	Insurance affiliation (KSA, YAP) Undefined (PNI, TKK)
Off-island referral to New Zealand or Taiwan for diagnosis / treatment	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Hawaii** for diagnosis / treatment	X PNI – mostly self-referral (not for Yap)
Institution (hospital) or organization (non-local) patients are referred	Straub Medical Center (KSA) Undefined (PNI,TKK)
Main contact person at the institution / organization	Stephanie Maria PIMS Office (KSA) Undefined (PNI,TKK)
Rationale for choosing this specific institution for your island referrals	Insurance affiliation (KSA) Undefined (PNI,TKK)
Off-island referral to the **U.S. Continent** for diagnosis / treatment (not Hawaii)	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Other countries** for diagnosis / treatment	India (KSA, YAP)
Institution (hospital) or organization (non-local) patients are referred	Artemis Hospital (KSA) Deli Fortis Hospital (YAP)
Main contact person at the institution / organization	Josifini Matakibau (KSA) Berlinda Bay (YAP - Micare)
Rationale for choosing this specific institution for your island referrals	Insurance affiliation (KSA, YAP)

Table 33 Federated States of Micronesia (FSM - all States): Cancer Cases 2007-2022[77]

Top 10 Cancers for Federated States of Micronesia (combined), 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**1210**	**139.8**	**147.0**	**117.1**	**470.0**	**62%**	**16%**	**78%**
Tobacco-related Oral Cavity & Pharynx	202	23.3	21.0	18.0	11.9	45%	28%	63%
Lung & Bronchus	157	18.1	22.0	17.3	49.1	87%	6%	92%
Cervical Cancer, Invasive	121	28.0	22.6	19.5	7.5	50%	11%	65%
Breast	120	26.9	26.1	20.8	133.8	48%	18%	70%
Liver	97	11.2	10.4	8.6	8.4	86%	13%	85%
Uterus	75	17.4	17.8	14.4	28.3	41%	15%	79%
Prostate	53	12.2	26.2	16.9	114.7	62%	25%	72%
Colon & Rectum	44	5.1	6.2	4.4	36.0	68%	9%	91%
Stomach	37	4.3	5.2	3.9	6.7	81%	11%	86%
Ovary	35	8.1	7.4	5.9	9.9	60%	9%	91%

Cancer cases reported to PRCCR and CDC diagnosed in 2007-2022 are shown in the table above and, by State, on the following pages. Tobacco-related oral, lung, and cervical cancer are currently the most commonly diagnosed cancers in the FSM. However, many cancer cases are yet to be entered and reported to the cancer registry from Chuuk State, so the numbers presented here are lower than expected based on prior assessments. Because of limitations in screening and diagnosis, other cancers may be underreported. We have included crude incidence rates for the top 10 cancers. This number can be used by health officials to look at trends in cancer diagnosis over time. This number can be used as one measure of health system improvements in detecting cancer cases. Pohnpei has cervical cancer cases 4 times as high as the U.S. rates, and Yap has the highest rates of oral cancer in the world.

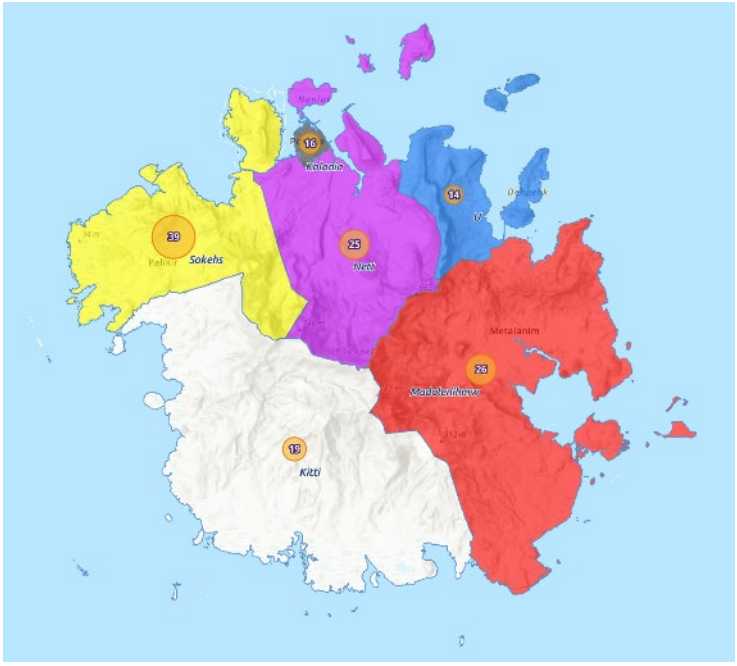
Treatment options vary by cancer, but in general, are limited to early-stage cancers. One or two surgeons are available on-island to manage most early cancers requiring resection. As there is a limited budget for off-island referral (for diagnostic confirmation, advanced staging techniques, or advanced treatment), the clinicians must decide on how much treatment can be safely provided on-island. The availability of maintenance chemotherapy is very limited and is only available on Pohnpei. No radiation therapy, brachytherapy, or hormonal therapy options exist. Off-island referrals to the Philippines are considered only for those patients diagnosed early, when their 5-year survival rate is expected to be more than 50%.

Provision of hospital-based and home-based palliative care services is in the early stages of development. Efforts to train staff and family caregivers are ongoing. There have been increased efforts over the past 6 years to increase provider awareness and education and improve the system's capacity to provide palliative care to those patients with advanced cancers.

The Cancer Registries in the FSM serve an important public health function. Cancer data are collected so that the health system can make informed decisions about areas to focus precious resources. Certain types of cancers are able to be

[77] Full title: Federated States of Micronesia (FSM - all States): Incidence Cancer Cases 2007-2022; * Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Breast cancer rate is based on female population only. 2 Male breast cancer case(s) reported
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022 * Chuuk State data is incomplete.

detected earlier than others (screened), so information on those types of cancers can be used to help improve resources to screening programs, guide outreach activities and policy change. The cancer registry responds to data requests from NCD Coalition members, Cancer Coalition (Steering Committee), Department of Health Quality Assurance officer, and local physicians. The most common types of data requests include types of cancers, what proportion of cancers contribute to death, survival rates for specific cancers, and percent of patients who seek treatment off-island. Cancer registry data is used by policymakers, public health programs, and community coalitions. The cancer data has influenced decision-making in screening recommendations and awareness efforts, and has lent support for significant policy changes related to National Guidelines for Breast and Cervical Cancer, Tobacco and betel nut control.



As part of a pilot project in 2023, the PRCCR and Pohnpei Cancer Registry, in a joint effort, created a custom GEOMAP displaying Pohnpei's cancer cases for the 2018 - 2020 diagnosis years (soon to be updated to 2018 – 2022) on an interactive map. This map is annually updated as data becomes available.

The map can be accessed via the following LINK[78] .

Table 34 Chuuk State, FSM: Cancer Cases 2007-2022[79]

Top 10 Cancers for Chuuk State, FSM, 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**235**	**58.9**	**69.6**	**53.1**	**470.0**	**73%**	**9%**	**91%**
Lung & Bronchus	48	12.0	14.6	11.9	49.1	85%	6%	94%
Liver	27	6.8	7.0	5.6	8.4	85%	0%	100%
Cervical Cancer, Invasive	22	11.2	10.2	8.4	7.5	55%	5%	95%
Breast	21	10.7	9.5	8.1	133.8	57%	19%	81%
Prostate	14	6.9	-	-	114.7	93%	0%	100%
Stomach	13	3.3	-	-	6.7	85%	8%	92%
Uterus	10	5.1	-	-	28.3	70%	0%	100%
Ill-defined & unspecified (unknown+misc)	10	2.5	-	-	-	90%	0%	100%
Colon & Rectum	8	2.0	-	-	36.0	75%	0%	100%
Ovary	8	4.1	-	-	9.9	63%	0%	100%

[78] Pohnpei cancer GISMAP link: https://arcg.is/1Hmq140

[79] Full title: Chuuk State, FSM: Incidence Cancer Cases 2007-2022; * Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022 * Chuuk State data is incomplete.

Table 35 Kosrae State, FSM: Cancer Cases 2007-2022[80]

Top 10 Cancers for Kosrae State, FSM, 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**97**	**174.2**	**178.5**	**132.3**	**470.0**	**76%**	**19%**	**78%**
Lung & Bronchus	13	23.3	-	-	49.1	85%	15%	85%
Breast	12	43.5	-	-	133.8	75%	8%	92%
Uterus	12	43.5	-	-	28.3	42%	25%	75%
Cervical Cancer, Invasive	11	39.9	-	-	7.5	55%	18%	73%
Tobacco-related Oral Cavity & Pharynx	7	12.6	-	-	11.9	71%	14%	57%
Leukemia	6	10.8	-	-	13.6	100%	0%	100%
Prostate	4	14.2	-	-	114.7	100%	25%	75%
Ovary	4	14.5	-	-	9.9	100%	0%	100%
Soft Tissue including Heart	4	7.2	-	-	3.2	50%	25%	75%
Liver	3	5.4	-	-	8.4	100%	33%	67%

Table 36 Pohnpei State, FSM: Cancer Cases 2007-2022[81]

Top 10 Cancers for Pohnpei State, FSM, 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**561**	**183.1**	**187.4**	**151.3**	**470.0**	**57%**	**14%**	**76%**
Tobacco-related Oral Cavity & Pharynx	105	34.3	27.1	24	11.9	41%	30%	62%
Cervical Cancer, Invasive	72	47.0	37.4	32.7	7.5	46%	10%	56%
Breast	63	39.8	44.2	33.8	133.8	49%	17%	68%
Lung & Bronchus	58	18.9	23.3	18.6	49.1	88%	0%	95%
Liver	39	12.7	12.2	10	8.4	74%	13%	82%
Uterus	34	22.2	26.1	20.3	28.3	44%	12%	76%
Colon & Rectum	24	7.8	10.6	7.4	36.0	67%	8%	92%
Stomach	20	6.5	7.6	6.1	6.7	80%	5%	90%
Leukemia	18	5.9	5.4	4.6	13.6	72%	0%	100%
Prostate	15	9.8	-	-	114.7	47%	20%	73%

[80] Full title: Kosrae State, FSM: Incidence Cancer Cases 2007-2022; *Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

[81] Full title: Pohnpei State, FSM: Incidence Cancer Cases 2007-2022; *Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2021 submission data (1999-2019): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in November 2022.; Breast cancer rate is based on female population only. 1 Male breast cancer case(s) reported
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

Table 37 Yap State, FSM: Cancer Cases 2007-2022[82]

Top 10 Cancers for Yap State, FSM, 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**317**	**304.7**	**277.8**	**229.2**	**470.0**	**59%**	**24%**	**70%**
Tobacco-related Oral Cavity & Pharynx	83	79.8	70.2	59.8	11.9	51%	25%	66%
Lung & Bronchus	38	36.5	39.7	30.8	49.1	87%	13%	87%
Liver	28	26.9	19.8	17.5	8.4	100%	25%	75%
Breast	24	40.5	30.1	26.2	133.8	25%	25%	54%
Prostate	20	40.1	65.8	47.8	114.7	45%	45%	50%
Uterus	19	35.0	28.0	25.3	28.3	21%	21%	74%
Cervical Cancer, Invasive	16	29.5	19.6	17.2	7.5	69%	19%	63%
Ovary	11	20.3	-	-	9.9	45%	27%	73%
Colon & Rectum	9	8.7	-	-	36.0	56%	22%	78%
Larynx	9	8.7	-	-	3.0	100%	22%	78%

[82] Full title: Yap State, FSM: Incidence Cancer Cases 2007-2022; * Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Breast cancer rate is based on female population only. 1 Male breast cancer case(s) reported
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

Guam

GUAM FACTS AND DEMOGRAPHICS[83]	
Political status with U.S.A.	Unincorporated Territory
Total Population	168,322
Land surface area (sq. km)	541
Coastline (sq. km)	125
Public transportation	Yes
4-year University or College	X
2-year College	X
Hospitals	Guam Memorial Hospital (GMHA); Guam Regional Medical City (GRMC - private); US Naval Hospital Guam (USNHG)
Regularly occurring continuing education program for physicians or nurses	Yes for both hospital and Public Health Nurses, Pacific Telehealth
Health expenditures per capita	$1,010
Age Structure	0-14 years: 22.3% (m 17,721 / f 16,576) 15–24 years: 15.4% (m 12,416 / f 11,255) 25–54 years: 39.4% (m 30,935 / f 29,544) 55–64 years: 11.8% (m 9,180 / f 8,969) 65 years and over: 11.1% (m 7,969 / f 9,221)
Birth Rate	15.9 births/1,000 population (2024 Est)
Death Rate	6.55 deaths/1,000 population (2022 Est)
Life Expectancy	total population: 81.1 years
Source of health expenditure $ value:	Institute for Health Metrics and Evaluation online database 2022
Birth rate source:	Macrotrends
Death rate source:	Statista
Life expectancy source:	Macrotrends

GUAM PROGRAM OR SERVICE	
CANCER SCREENING AND EARLY DETECTION	
CDC Breast and Cervical Cancer Early Detection Program	X
Mammography	X
Specialty that performs the breast biopsies	Surgeons, Interventional Radiologist
Pap smears	X
Time it takes for Pap smears to return to the clinician and/or program staff	1-2 weeks
Cervical cancer screening using VIA	N/A
Prostate cancer screening (PSA)	X
Transrectal ultrasound	Guam Radiology Consultants (GRC) & MDX Imaging Center Guam (MDX)
CT on-island	X
Colorectal cancer screening (FOBT or FIT)	X

[83] Source: U.S. Census data, 2020; WHO Country profiles; Macrotrends; Statista

Colonoscopy	X
CANCER DIAGNOSIS AND TREATMENT	
Pathologist	X
Fine needle aspiration is available on-island	Yes – Surgeon , Interventional Radiologist , Endocrinologist for Thyroid
Core or open biopsies are available on-island	Yes – Ultrasound guided LEAP, Colposcopy
On-island histopathology	X
Refer patients off-island for diagnostic workup	Yes
On-island cytopathology	Collection only – Sent to DLS Hawaii
Lab that the BCCEDP or Cancer Program sends the Pap smears to	MDX, GRC, FHP, Northern Region Community Health Center
Time it takes for biopsies to return from off-island	7-10 days
General Radiologist on-island	X
Interventional Radiologist on-island	X
Tele-radiology	GRMC, GRC, MDX,FHP
Time it takes to get the radiology readings back to the clinicians	Immediate for Guam Usually same-day on island reading including teleradiology
MRI on-island	X
PET scan on-island	None
Bronchoscopy (Lung Mass/Cancer)	Yes – Surgeon, Pulmonologist, Critical Care Intensivist Specialist
Patients are referred off-island for staging	Yes
General surgeon	X
ENT	X
Orthopedics	X
Surgical oncologist	X
Urologist	X
OB-GYN	X
Other Surgical subspecialists	X
Medical Oncologist	X
Hematologist	X
On-island chemotherapy	X
On-island radiation therapy	X
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT	
Off-island referral to **Philippines** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	St. Luke's Hospital / Medical City / Makati Medical/Cardinal Santos
Main contact person at the institution / organization	Guam Medical Referral Office/Insurance Companies; PhilMD
Rationale for choosing this specific institution for your island referrals	Patient's preference, affordability, Family support
Off-island referral to New Zealand or Taiwan for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	China Medical/Shin Kong Wu Ho-Su/Taiwan Adventist
Main contact person at the institution / organization	Insurance Companies

	Guam Medical Referral Office
Rationale for choosing this specific institution for your island referrals	Patient's preference, affordability
Off-island referral to **Hawaii** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	Kapiolani Medical/Pali Momi/Straub/Shriner's/ Cancer Center of Hawaii/Tripler (VA)
Main contact person at the institution / organization	Insurance Companies/United Healthcare partners/Referral offices
Rationale for choosing this specific institution for your island referrals	Patient's preference
Off-island referral to the **U.S. Continent** for diagnosis / treatment (not Hawaii)	California / Texas
Institution (hospital) or organization (non-local) patients are referred	Good Samaritan Hospital/Cedars-Sanai/University of Southern California Network/Cambridge Health Alliance/Etc.
Main contact person at the institution / organization	Insurance Companies / Guam Referral Offices
Rationale for choosing this specific institution for your island referrals	Family support/Patient's preference
Off-island referral to **Other countries** for diagnosis / treatment	Japan/Hong Kong/South Korea
Institution (hospital) or organization (non-local) patients are referred	Japan - Kameda Medical/Kameda Kyobashi Hong Kong - Hong Kong Adventist South Korea - Samsung Medical
Main contact person at the institution / organization	Insurance Companies
Rationale for choosing this specific institution for your island referrals	Patient's preference/Family support/Financial

Table 38 Guam: Cancer Cases 2007-2022[84]

Top 10 Cancers for Guam 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**5425**	**329.9**	**286.6**	**213.5**	**470.0**	**36%**	**28%**	**68%**
Lung & Bronchus	913	55.5	50.8	36.4	49.1	67%	12%	85%
Breast	881	108.3	85.6	66.5	133.8	10%	43%	54%
Prostate	683	81.7	84.9	58.4	114.7	13%	57%	41%
Colon & Rectum	615	37.4	32.6	24.1	36.0	32%	22%	69%
Liver	267	16.2	13.2	10.3	8.4	79%	11%	86%
Uterus	248	30.7	23.1	18.9	28.3	16%	38%	50%
Thyroid	179	10.9	8	6.9	12.6	7%	36%	60%
Leukemia	176	10.7	10.3	7.1	13.6	36%	1%	99%
Tobacco-related Oral Cavity & Pharynx	122	7.4	6.1	4.8	11.9	37%	30%	59%
Stomach	109	6.6	6.2	4.4	6.7	54%	11%	87%
Pancreas	107	6.5	6.1	4.3	13.4	83%	9%	86%

Cancer cases reported to PRCCR and CDC diagnosed in 2007-2022 are shown in the table above.

Lung, breast and prostate cancers are most diagnosed in Guam. Due to some limitations in screening, other cancers may be underreported. We have included crude incidence rates for the top 10 cancers. This number can be used by health officials to look at trends in cancer diagnosis over time. This number can be used as one measure of health system improvements in detecting cancer cases.

Guam is the only USAPI jurisdiction with radiation oncology available. Several medical oncologists, obstetrician-gynecologists, and other surgical subspecialists are accessible on-island. Treatment options vary by cancer, but in general, the most common cancers can be treated on Guam. Chemotherapy and radiation therapy are available. Brachytherapy or hormonal therapy options exist in limited amounts. Off-island referrals to the Philippines and other Asian countries do occur commonly.

Provision of hospital-based and home-based palliative care services is in the early stages of development. Efforts to train staff and family caregivers are ongoing. There have been increased efforts over the past 6 years to increase provider awareness and education and improve the system's capacity to provide palliative care to those patients with advanced cancers.

The Guam Cancer Registry serves an important public health function. The University of Guam Cancer Research Center works in partnership with the University of Hawaii Cancer Center. Cancer data are collected so that the health system can make informed decisions about areas to focus precious resources. Certain types of cancers are able to be detected earlier than others (screened), so information on those types of cancers can be used to help improve resources to

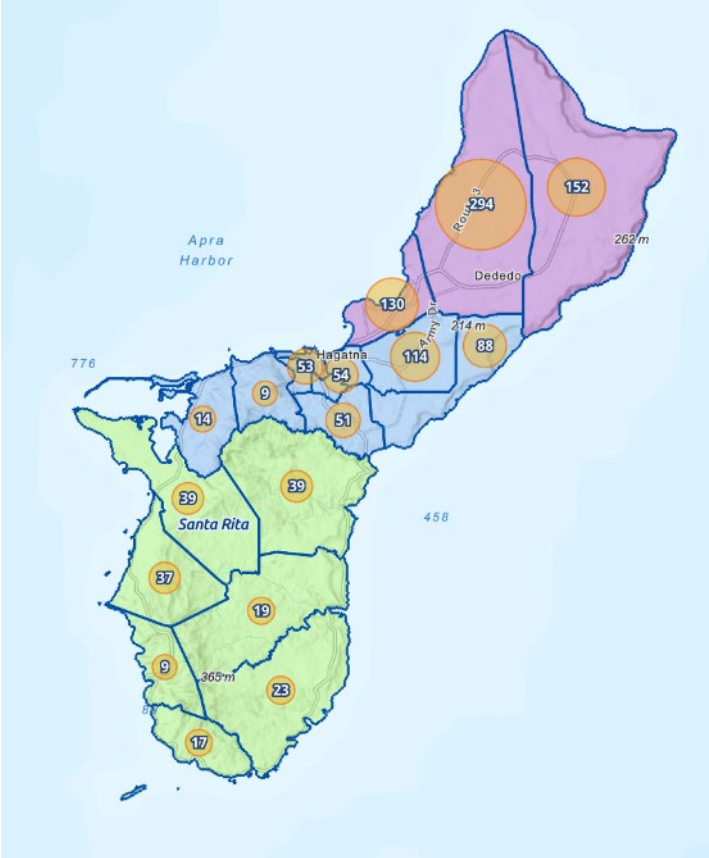
[84] Full title: Guam: Incidence Cancer Cases 2007-2022; * Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Breast cancer rate is based on female population only. 6 Male breast cancer case(s) reported
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

screening programs, guide outreach activities, and policy change. The cancer registry responds to data requests from NCD Coalition members, Cancer Coalition, Department of Public Health and Social Services, local physicians, researchers, and policymakers. The most common types of data requests include types of cancers, what proportion of cancers contribute to death, and survival rates for specific cancers. Cancer registry data is used by policymakers, public health programs, community coalitions, and local researchers. The cancer data has influenced decision-making in numerous policy areas.

Guam Cancer Registry publishes their own cancer reports, that can be accessed via the following LINK[85].

As part of a pilot project in 2023, the PRCCR and GCR, in a joint effort, created a custom GEOMAP displaying Guam's cancer cases for the 2018 - 2022 diagnosis years on an interactive map. This map is annually updated as data becomes available.

The map can be accessed via the following LINK[86].



[85] Website address: https://www.uog.edu/research/guam-cancer-registry.php#Publications
[86] Guam cancer GISMAP link: https://arcg.is/vKWDi

Republic of the Marshall Islands (RMI)

RMI FACTS AND DEMOGRAPHICS[87]	
Political status with U.S.A.	Freely Associated
Total Population	42,418
Land surface area (sq. km)	113
Coastline (sq. km)	376
Public transportation	None
4-year University or College	None
2-year College	X
Hospitals	1
Regularly occurring continuing education program for physicians or nurses	Both, Pacific Telehealth
Health expenditures per capita	$758
Age Structure	0-14 years: 34.1% (m 7,484 / f 6,969) 15-24 years: 20.1% (m 4,415 / f 4,091) 25-54 years: 36.2% (m 7,733 / f 7,605) 55-64 years: 6.0% (m 1,316 / f 1,236) 65 years and over: 3.7% (m 780 / f 789)
Birth Rate (live births)	1.7 births/1,000 population
Death Rate	7 deaths/1,000 population
Life Expectancy	total population: 65 years
Source of health expenditure $ value:	WHO database 2022
Birth rate source:	RMI MOHHS Vital Statistics
Death rate source:	RMI MOHHS Vital Statistics
Life expectancy source:	RMI Population Census 2021

RMI PROGRAM OR SERVICE	
CANCER SCREENING AND EARLY DETECTION	
CDC Breast and Cervical Cancer Early Detection Program	X
Mammography	X (Majuro)
Specialty that performs the breast biopsies	Surgery
Pap smears	X
Time it takes for Pap smears to return to the clinician and/or program staff	2 - 4 weeks
Cervical cancer screening using VIA	X
Prostate cancer screening (PSA)	Screening is done off-island
Transrectal ultrasound	N/A
CT on-island	X (Majuro)
Colorectal cancer screening (FOBT or FIT)	X (FIT is available, but not performed currently)

[87] Source: RMI Census 2021; RMI Vital Statistics; WHO statistical Profile

Colonoscopy	X (Ebeye/Majuro)
CANCER DIAGNOSIS AND TREATMENT	
Pathologist	N/A
Fine needle aspiration is available on-island	Yes – Surgeon, ENT
Core or open biopsies are available on-island	Yes – Surgeon, ENT
On-island histopathology	N/A
Refer patients off-island for diagnostic workup	N/A
On-island cytopathology	N/A
Lab that the BCCEDP or Cancer Program sends the Pap smears to	Diagnostic Lab Services Hawaii
Time it takes for biopsies to return from off-island	2 - 4 weeks
General Radiologist on-island	X (Majuro)
Interventional Radiologist on-island	N/A
Tele-radiology	Yes (Majuro reads both Majuro and Ebeye) Teleradiology is available on Majuro
Time it takes to get the radiology readings back to the clinicians	1 - 2 days
MRI on-island	N/A
PET scan on-island	N/A
Bronchoscopy (Lung Mass/Cancer)	N/A
Patients are referred off-island for staging	Yes, for surgical staging
General surgeon	X
ENT	X
Orthopedics	X
Surgical oncologist	N/A
Urologist	N/A
OB-GYN	X
Other Surgical subspecialists	N/A
Medical Oncologist	N/A
Hematologist	N/A
On-island chemotherapy	N/A
On-island radiation therapy	N/A
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT	
Off-island referral to **Philippines** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	St. Luke's Hospital / Medical City
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to New Zealand or Taiwan for diagnosis / treatment	Taiwan
Institution (hospital) or organization (non-local) patients are referred	Shuang-Ho Hospital
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Hawaii** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	Tripler Army Medical Center

Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to the **U.S. Continent** for diagnosis / treatment (not Hawaii)	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Other countries** for diagnosis / treatment	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A

Table 39 Republic of the Marshall Islands: Cancer Cases 2007-2022[88]

Top 10 Cancers for RMI 2007-2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**740**	**175.1**	**203.1**	**161.3**	**470.0**	**56%**	**16%**	**73%**
Cervical Cancer, Invasive	170	81.6	68.9	59.5	7.5	47%	23%	57%
Lung & Bronchus	72	17	28.4	20.7	49.1	94%	3%	92%
Breast	70	32.6	33.7	28.6	133.8	34%	3%	90%
Uterus	58	27.8	32.9	26.9	28.3	21%	20%	71%
Liver	42	9.9	11.7	9.4	8.4	95%	38%	50%
Ill-defined & unspecified (unknown+misc)	28	6.6	8.5	6.6	-	71%	14%	79%
Colon & Rectum	27	6.4	9.4	6.6	36.0	59%	0%	100%
Ovary	24	11.5	10.0	9.0	9.9	63%	19%	70%
Tobacco-related Oral Cavity & Pharynx	23	5.4	7.0	5.6	11.9	26%	8%	75%
Nasopharynx	21	5.0	4.9	4.1	0.5	67%	9%	87%

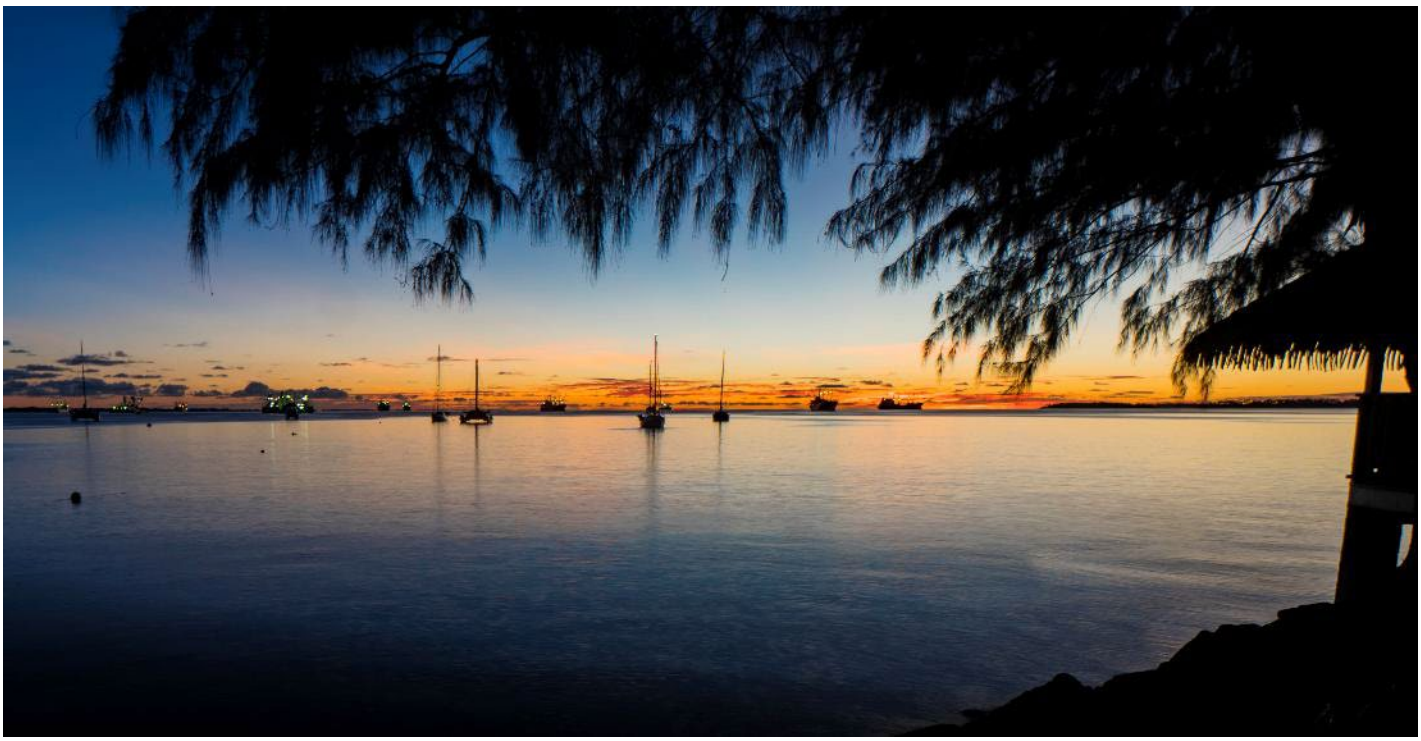
Cancer cases reported to PRCCR and CDC diagnosed in 2007-2022 are shown in the table above. Cervical, lung, and breast cancers are commonly diagnosed in the RMI. Because of limitations in screening and diagnosis, other cancers may be underreported. We have included crude incidence rates for the top 10 cancers. This number can be used by health officials to look at trends in cancer diagnosis over time. This number can be used as one measure of health system improvements in detecting cancer cases. RMI has the highest rates of cervical cancer in the world.

[88] Full title: Republic of the Marshall Islands: Incidence Cancer Cases 2007-2022; * Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Breast cancer rate is based on female population only. 1 Male breast cancer case(s) reported
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

Treatment options vary by cancer, but in general, are limited to early-stage cancers. One or two surgeons are available on-island to manage most early cancers requiring resection. As there is a limited budget for off-island referral (for diagnostic confirmation, advanced staging techniques, or advanced treatment), the clinicians must decide on how much treatment can be safely provided on-island. No chemotherapy, radiation therapy, brachytherapy, or hormonal therapy options exist. Off-island referrals to the Philippines are considered only for those patients diagnosed early, where their 5-year survival rate is expected to be more than 50%.

Provision of hospital-based and home-based palliative care services is in the early stages of development. Efforts to train staff and family caregivers are ongoing. There have been increased efforts over the past 6 years to increase provider awareness and education and improve the system's capacity to provide palliative care to those patients with advanced cancers.

The RMI Cancer Registry serves an important public health function. Cancer data are collected so that the health system can make informed decisions about areas to focus precious resources. Certain types of cancers can be detected earlier than others (screened), so information on those types of cancers can be used to help improve resources to screening programs, guide outreach activities, and policy change. The cancer registry responds to data requests from NCD Coalition members, Cancer Coalition, Department of Health Quality Assurance officers, and local physicians. The most common types of data requests include types of cancers, what proportion of cancers contribute to death, survival rates for specific cancers, and percent of patients who seek treatment off-island. Cancer registry data is used by policymakers, public health programs, and community coalitions. The cancer data has influenced decision-making in screening recommendations and awareness efforts, and has lent support for significant policy changes related to National Guidelines for Screening of Breast, Cervical, and Colorectal Cancer. RMI is working towards eliminating its cancer case underreporting for the 2016 – 2019 diagnosis year date range.



Republic of Palau

PALAU FACTS AND DEMOGRAPHICS[89]	
Political status with U.S.A.	Freely Associated
Total Population	17,614
Land surface area (sq. km)	458
Coastline (sq. km)	1,519
Public transportation	None
4-year University or College	None
2-year College	X
Hospitals	1
Regularly occurring continuing education program for physicians or nurses	Both, Pacific Telehealth
Health expenditures per capita	$1,979
Age Structure	0-14 years: 19.2% (m 1,756 / f 1,623) 15-24 years: 11% (m 1,014 / f 926) 25-54 years: 47.2% (m 4,757 / f 3,652) 55-64 years: 13.1% (m 1,211 / f 1,094) 65 yrs and over: 9.5% (m 756 / f 915)
Birth Rate (live births)	8.8 births/1,000 population
Death Rate	11.4 deaths/1,000 population
Life Expectancy	total population: 65 years
Source of health expenditure $ value:	WHO database 2022
Birth rate source:	Palau 2022 statistical yearbook
Death rate source:	Palau 2022 statistical yearbook
Life expectancy source:	Palau 2022 statistical yearbook

PALAU PROGRAM OR SERVICE	
CANCER SCREENING AND EARLY DETECTION	
CDC Breast and Cervical Cancer Early Detection Program	X
Mammography	X
Specialty that performs the breast biopsies	Surgery
Pap smears	X
Time it takes for Pap smears to return to the clinician and/or program staff	2-3 weeks
Cervical cancer screening using VIA	N/A
Prostate cancer screening (PSA)	X
Transrectal ultrasound	N/A
CT on-island	X
Colorectal cancer screening (FOBT or FIT)	X
Colonoscopy	X
CANCER DIAGNOSIS AND TREATMENT	

[89] Source: Palau 2020 Census results; WHO statistical Profile, Palau 2022 statistical yearbook

Pathologist	N/A
Fine needle aspiration is available on-island	Yes available – performed by surgeon
Core or open biopsies are available on-island	Yes available – performed by surgeon
On-island histopathology	N/A
Refer patients off-island for diagnostic workup	LEEP - on-island for all others patients are referred off-island
On-island cytopathology	N/A
Lab that the BCCEDP or Cancer Program sends the Pap smears to	Diagnostic Lab Services in Hawaii
Time it takes for biopsies to return from off-island	3-4 weeks
General Radiologist on-island	N/A
Interventional Radiologist on-island	N/A
Tele-radiology	Yes – Asian Hospitals, Philippines
Time it takes to get the radiology readings back to the clinicians	2 weeks
MRI on-island	X
PET scan on-island	N/A
Bronchoscopy (Lung Mass/Cancer)	N/A
Patients are referred off-island for staging	Yes
General surgeon	X
ENT	X
Orthopedics	X
Surgical oncologist	X
Urologist	N/A
OB-GYN	X
Other Surgical subspecialists	N/A
Medical Oncologist	N/A
Hematologist	N/A
On-island chemotherapy	N/A
On-island radiation therapy	N/A
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT	
Off-island referral to **Philippines** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	St. Luke's Hospital / Medical City
Main contact person at the institution / organization	Palau Medical Coordinator
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to New Zealand or Taiwan for diagnosis / treatment	Taiwan
Institution (hospital) or organization (non-local) patients are referred	Shin Kong Hospital Mc-Kay Memorial
Main contact person at the institution / organization	Palau Medical Coordinator in Taiwan
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Hawaii** for diagnosis / treatment	X
Institution (hospital) or organization (non-local) patients are referred	Tripler Army Medical Center
Main contact person at the institution / organization	HCF/Hawaii Medical Coordinator

Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to the **U.S. Continent** for diagnosis / treatment (not Hawaii)	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A
Off-island referral to **Other countries** for diagnosis / treatment	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A
Main contact person at the institution / organization	N/A
Rationale for choosing this specific institution for your island referrals	N/A

Table 40 Republic of Palau: Incidence Cancer Cases 2007-2022[90]

Top 10 Cancers for Palau 2007 - 2022	Cases	Crude	U.S. std	World std	Incidence rate U.S.*	% dead within 5 yrs of diagnosis	% diagnosed stage 1	% diagnosed stage 3 or higher
All Sites	**448**	**197.5**	**178.7**	**138.1**	**470.0**	**58%**	**18%**	**76%**
Lung & Bronchus	67	29.5	29.7	22.2	49.1	84%	13%	85%
Liver	58	25.6	22.4	17.1	8.4	93%	17%	79%
Breast	45	42.8	32.8	26.3	133.8	16%	29%	71%
Tobacco-related Oral Cavity & Pharynx	44	19.4	15.3	12.4	11.9	48%	25%	70%
Prostate	40	32.3	38.9	29.0	114.7	28%	30%	60%
Uterus	38	36.9	28	22.4	28.3	29%	29%	61%
Colon & Rectum	26	11.5	11.5	8.5	36.0	54%	12%	77%
Cervical Cancer, Invasive	19	18.5	12.8	11.0	7.5	53%	5%	95%
Thyroid	13	5.7	-	-	12.6	31%	15%	77%
Stomach	11	4.8	-	-	6.7	73%	9%	82%

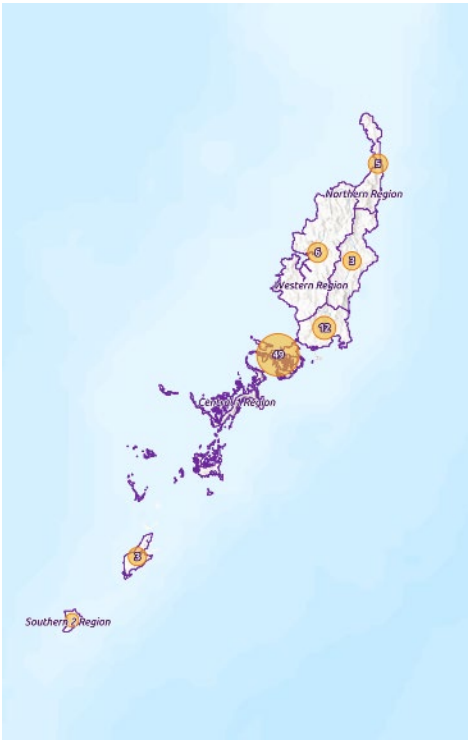
Cancer cases reported to PRCCR and CDC diagnosed in 2007-2022 are shown in the table above. Lung, liver, and breast cancers are most diagnosed in the Republic of Palau, with breast cancer cases outnumbering Oral Cavity and Pharynx, and prostate cancer cases in 2022. Because of limitations in screening and diagnosis, other cancers may be underreported. We have included crude incidence rates for the top 10 cancers. This number can be used by health officials to look at trends in cancer diagnosis over time. This number can be used as one measure of health system improvements in detecting cancer cases. Palau's liver cancer rates are (at least) twice as high as the U.S.

[90] Full title: Republic of Palau: Incidence Cancer Cases 2007-2022; * Source for U.S. data: U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2024.
Source: Pacific Regional Central Cancer Registry (PRCCR), 2007-2022

Treatment options vary by cancer, but in general, are limited to early-stage cancers. A few surgeons and obstetrician-gynecologists are available on-island to manage most early cancers requiring resection. As there is a limited budget for off-island referral (for diagnostic confirmation, advanced staging techniques, or advanced treatment), the clinicians must decide on how much treatment can be safely provided on-island. No chemotherapy, radiation therapy, brachytherapy, or hormonal therapy options exist. Off-island referrals to the Philippines are considered only for those patients diagnosed at early stages.

Provision of hospital-based and home-based palliative care services is in the early stages of development. Efforts to train staff and family caregivers are ongoing, including a Family Caregiver Course developed by the University of Hawaii and now routinely offered through the Palau Community College. There have been increased efforts over the past 6 years to increase provider awareness and education and improve the system's capacity to provide palliative care to those patients with advanced cancers.

The Palau Cancer Registry serves an important public health function. Data on cancers are collected so that the health system can make informed decisions about areas to focus precious resources. Certain types of cancers are able to be detected earlier than others (screened), so information on those types of cancers can be used to help improve resources to screening programs, guide outreach activities and policy change. The cancer registry responds to data requests from NCD Coalition members and partners, Cancer Coalition, Ministry of Health Quality Assurance officer, and local physicians. The most common types of data requests include types of cancers, what proportion of cancer contribute to death, survival rates for specific cancers, and percent of patients who seek treatment off-island. Cancer registry data is used by policymakers, public health programs, and community coalitions. The cancer data has influenced decision-making in screening recommendations and awareness efforts, as well as in major transformations in the Ministry of Health over the past 10 years.



As part of a pilot project in 2023, the PRCCR and Palau Cancer Registry, in a joint effort, created a custom GEOMAP displaying Palau's cancer cases for the 2018 - 2022 diagnosis years on an interactive map. This map is annually updated as data becomes available. The map can be accessed via the following LINK[91].

[91] Palau cancer GISMAP link: https://arcg.is/0XjyqW

Appendix

Table 41 Selected indicators, programs and services impacting Comprehensive Cancer Control efforts in the USAPI

	American Samoa	CNMI	Guam	FSM	Palau	RMI
Political status with U.S.A.	Territory	Commonwealth	Territory	Freely Associated	Freely Associated	Freely Associated
Total Population	49,710	47,329	153,836	102,116	17,614	42,418
Land surface area (sq. km)	199	475	541	702	458	113
Coastline (sq. km)	116	1,482	125	6,112	1,519	376
Public transportation	Yes	Yes	Yes	None	None	None
4-year University or College	None	X	X	Chuuk: Chaminade University Hawaii - Caroline College & Pastoral Institute	None	None
2-year College	X	X	X	X (2 private in Chuuk)	X	X
Hospitals	1	1	U.S. Naval (Mil) Guam Memorial hosp. (Gov) GRMC (Private)	5 (1 private in PNI)	1	1
Health expenditures per capita	$2,279	$4,135	$1,010	$397	$1,979	$758
Age Structure	0-14 years: 30% (m 7,577 / f 7,332) 15-24 years: 16.6% (m 4,259 / f 3,973) 25-54 years: 37.9% (m 9,585 / f 9,183) 55-64 years: 9.3% (m 2,337 / f 2,317) 65 years and over: 4.5% (m 1,496 / f 1,651)	0-14 years: 23.5% (m 5,823 / f 5,315) 15-24 years: 14.2% (m 3,526 / f 3,216) 25-54 years: 43.9% (m 10,922 / f 9,872) 55-64 years: 12.4% (m 3,184 / f 2,679) 65 years and over: 5.9% (m 1,437 / f 1,355)	0 - 14 years: 22.3% (m 17,721 / f 16,576) 15 – 24 years: 15.4% (m 12,416 / f 11,255) 25 – 54 years: 39.4% (m 30,935 / f 29,544) 55 – 64 years: 11.8% (m 9,180 / f 8,969) 65 years and over: 11.1% (m 7,969 / f 9,221)	0-14 years: 35.7% (m 18,696 / f 17,772) 15-24 years: 20.6% (m 10,983 / f 10,082) 25-54 years: 34.6% (m 17,695 / f 17,636) 55-64 years: 5.7% (m 3,017 / f 2,834) 65 years and over: 3.3% (m 1,409 / f 1,990)	0-14 years: 19.2% (m 1,756 / f 1,623) 15-24 years: 11% (m 1,014 / f 926) 25-54 years: 47.2% (m 4,757 / f 3,652) 55-64 years: 13.1% (m 1,211 / f 1,094) 65 years and over: 9.5% (m 756 / f 915)	0-14 years: 34.1% (m 7,484 / f 6,969) 15-24 years: 20.1% (m 4,415 / f 4,091) 25-54 years: 36.2% (m 7,733 / f 7,605) 55-64 years: 6.0% (m 1,316 / f 1,236) 65 years and over: 3.7% (m 780 / f 789)
Birth Rate	17.19 births/1,000 population (2021 Est)	11.1 births/1,000 population (2017 Est)	15.9 births/1,000 population (2024 Est)	2.5 births/1,000 population	8.8 births (crude)/1,000 population	1.7 births/1,000 population
Death Rate	6 deaths/1,000 population (2021 Est.)	5.1 deaths/1,000 population (2017 Est)	6.55 deaths/1,000 population (2022 Est)	0.6 deaths/1,000 population	11.4 deaths (crude)/1,000 population	7 deaths/1,000 population
Life Expectancy	total population: 76 years	total population: 75.2 years	total population:81.1 years	total population: 70 years	total population: 65 years	total population: 65 years
Source of health expenditure $ value:	American Samoa's 2022 statistical yearbook	WHO's Healthy Islands Monitoring Framework (HIMF) Report 2022	Institute for Health Metrics and Evaluation online database 2022	WHO database 2022	WHO database 2022	WHO database 2022
Birth rate source:	2010 Census data	2022 Vital Statistics Annual Report, CHCC	Macrotrends	2010 Census data	Palau 2022 statistical yearbook	RMI MOHHS Vital Statistics
Death rate source:	2010 Census data	2022 Vital Statistics Annual Report, CHCC	Statista	2010 Census data	Palau 2022 statistical yearbook	RMI MOHHS Vital Statistics
Life expectancy source:	2010 Census data	WHO's Healthy Islands Monitoring Framework (HIMF) Report	Macrotrends	2010 Census data	Palau 2022 statistical yearbook	RMI Population Census 2021

	American Samoa	CNMI	Guam	FSM	Palau	RMI
SCREENING AND EARLY DETECTION						
CDC Breast and Cervical Cancer Early Detection Program	X	X	X	N/A	X	X
Mammography	X	X	X	PNI - Breast ultrasound at Genesis (Private provider) TKK - Mammography (CHC)	X	X (Majuro)
Specialty that performs the breast biopsies	OB, Surgery, Family Planning, BCCEDP(DOH)	Radiologist, Surgeon	Surgeons, Interventional Radiologist	Surgeons, OB (PNI) Surgeons (TKK, YAP)	Surgery	Surgery
Pap smear	X	X	X	X	X	X
Time it takes for Pap smears to return to the clinician and/or program staff	3-4 weeks	2-3 weeks	1-2 weeks	3-4 days (PNI) 2-3 weeks (TKK, KSA, YAP)	2-3 weeks	2 - 4 weeks
Cervical cancer screening using VIA	N/A	N/A	N/A	X	N/A	X
Prostate cancer screening (PSA)	X	X	X	X (PNI, KSA, YAP)	X	Screening is done off-island
Transrectal ultrasound	N/A	N/A	Guam Radiology Consultants (GRC) & MDX	(Yap has the equipment but no personnel to perform the screening)	N/A	N/A
CT on-island	X	X	X	X (PNI – Private provider)	X	X (Majuro)
Colorectal cancer screening (FOBT)	X	X	X	X (KSA, YAP) PNI – currently N/A	X	X (FIT is available, but not performed currently)
Colonoscopy	X	X	X	X (YAP) PNI - has the equipment but no specialist to perform the procedure)	X	X (Ebeye/Majuro)
CANCER DIAGNOSIS AND TREATMENT						
Pathologist	X	X	X	N/A in general PNI - Telepathology	N/A	N/A
Fine needle aspiration is available on-island	Yes - Surgery	Yes, Radiologist	Yes – Surgeon , Interventional Radiologist , Endocrinologist for Thyroid	X (PNI) X (Yap – Surgeon, OBGYN)	Yes available – performed by a surgeon	Yes – Surgeon, ENT
Core or open biopsies are available on-island	N/A	Yes, ENT	Yes – Ultrasound guided LEAP, Colposcopy	N/A	Yes available – performed by a surgeon	Yes – Surgeon, ENT
On-island histopathology (i.e., tissue diagnosis)	X - some	X	X	N/A in general PNI - Telehistopathology	N/A	N/A
Refer patients off-island for diagnostic workup	N/A	X - Yes	Yes	N/A in general Yes – KSA, YAP	LEEP - on-island for all other patients are referred off-island	N/A
On-island cytopathology (Paps or fine needle aspiration analysis)	N/A	N/A	Collection only – Sent to DLS Hawaii	PNI - Telecytopathology	N/A	N/A
Lab that the BCCEDP or Cancer Program sends the Pap smears to	N/A	Hawaii	MDX, GRC, FHP, NCHC	PNI – Telecytopathology partnership with Hokkaido Japan YAP – sends collected PAPs to PNI lab for analysis	Diagnostic Labs Services in Hawaii	Diagnostic Labs Services Hawaii

	American Samoa	CNMI	Guam	FSM	Palau	RMI
Time it takes for biopsies to return from off-island	2-3 weeks	8-10 days	7-10 days	2 weeks avg (PNI) 2 - 3 weeks (KSA) 2 weeks minimum (YAP)	3-4 weeks	2 - 4 weeks
General Radiologist ON-island	X	X 1 interventional radiologist	X	N/A	N/A	X (Majuro)
Interventional Radiologist ON-island	N/A	Yes	X	N/A	N/A	N/A
Tele-radiology	X National Diagnostic Imaging main office – Ohio	X Apollo Teleradiology (India)	GRMC, GRC, MDX ,FHP	PNI State Hospital for Shriners cases uses tele-radiology Yap - Doctors consult with off-island experts.	Yes – Asian Hospitals, Philippines	Yes (Majuro reads both Majuro and Ebeye) Teleradiology is available on Majuro
Time it takes to get the radiology readings back to the clinicians	On island-1 day, teleradiology-1 to 2 days	From Guam – within 24 hrs.	Immediate for Guam Usually same-day on island reading including teleradiology	N/A CT scans done on PNI – Readings take 1 to 2 weeks	2 weeks	1 - 2 days
MRI on island	N/A	N/A	X	N/A	X	N/A
PET scan on island	N/A	N/A	N/A	N/A	N/A	N/A
Bronchoscopy (Lung Mass/Cancer)	N/A	N/A	Yes – Surgeon, Pulmonologist, Critical Care Intensivist Specialist	N/A	N/A	N/A
Patients are referred off-island for staging	N/A	No, CNMI has a CT Scan	Yes	Yes	Yes	Yes, for surgical staging
General surgeon	X	X	X	X	X	X
ENT	N/A	X	X	N/A	X	X
Orthopedics	N/A	N/A	X	PNI – 1	X	X
Surgical oncologist	N/A	N/A	X	N/A	X	N/A
Urologist	N/A	N/A	X	N/A	N/A	N/A
OB-GYN	X	X	X	X	X	X
Other Surgical subspecialists	X	X	X	X (PNI) - Orthopedics X (TKK)	N/A	N/A
Medical Oncologist	N/A	X	X	N/A	N/A	N/A
Hematologist	N/A	N/A	X	N/A in general YAP - 1	N/A	N/A
On-island chemotherapy	X	X	X	X (maintenance in PNI, rare)	N/A	N/A
On-island radiation therapy	N/A	N/A	X	N/A	N/A	N/A

	American Samoa	CNMI	Guam	FSM	Palau	RMI
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT						
Off-island referral to **Philippines** for diagnosis / treatment	N/A	X	X	X	X	X
Institution (hospital) or organization (non-local) patients are referred	N/A	Personal preference	St. Luke's Hospital / Medical City / Makati Medical/Cardinal Santos	St. Luke's Hospital / Medical City (KSA, YAP) Undefined (PNI, TKK)	St. Luke's Hospital / Medical City	St. Luke's Hospital / Medical City
Main contact person at the institution / organization	N/A	CNMI Medical Team communicates with Medical Team in PI	Guam Medical Referral Office/Insurance Companies PhilMD	Glenda Remo (KSA) Non-defined (PNI, TKK)	Palau Medical Coordinator	N/A
Rationale for choosing this specific institution for your island referrals	N/A	Patients preference due to family members and cost efficient	Patient's preference, affordability, Family support	Insurance affiliation (KSA, YAP) Undefined (PNI, TKK)	N/A	N/A
Off-island referral to **New Zealand** or **Taiwan** for diagnosis / treatment	Yes	No	Yes	No	Taiwan	Taiwan
Institution (hospital) or organization (non-local) patients are referred	N/A	N/A	China Medical/Shin Kong Wu Ho-Su/Taiwan Adventist	N/A	Shin Kong Hospital Mc-Kay Memorial	Shuang-Ho Hospital
Main contact person at the institution / organization	N/A	N/A	Insurance Companies Guam Medical Referral Office	N/A	Palau Medical Coordinator in Taiwan	N/A
Rationale for choosing this specific institution for your island referrals	N/A	The institutions currently receiving medical referral patients from CNMI were chosen due to their expertise, financial accommodations, and partnerships	Patient's preference, affordability	N/A	N/A	N/A
Off-island referral to **Hawaii** for diagnosis / treatment	X	X	X	X PNI – mostly self-referral (not for Yap)	X	X
Institution (hospital) or organization (non-local) patients are referred	N/A	Cancer treatment, Heart Surgery	Kapiolani Medical/Pali Momi/Straub/Shriner's/ Cancer Center/Tripler (VA)	Straub Medical Center (KSA) Undefined (PNI, TKK)	Tripler Army Medical Center	Tripler Army Medical Center
Main contact person at the institution / organization	N/A	CNMI Medical Referral Office	Insurance Companies/United Healthcare partners/Referral offices	Stephanie Maria PIMS Office (KSA) Undefined (PNI, TKK)	HCF/Hawaii Medical Coordinator	N/A
Rationale for choosing this specific institution for your island referrals	N/A	Procedure capability, equipped	Patient's preference	Insurance affiliation (KSA) Undefined (PNI, TKK)	N/A	N/A
Off-island referral to **U.S. Continent** for diagnosis / treatment	N/A	California	California / Texas	N/A	N/A	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A	Cancer treatment, Heart surgery	Good Samaritan Hospital/Cedars-Sanai/University of Southern California Network/Cambridge Health Alliance/Etc.	N/A	N/A	N/A

	American Samoa	CNMI	Guam	FSM	Palau	RMI
OFF-ISLAND REFERRALS FOR DIAGNOSIS AND TREATMENT						
Main contact person at the institution / organization	N/A	CNMI Medical Referral Office	Insurance Companies / Guam Referral Offices	N/A	N/A	N/A
Rationale for choosing this specific institution for your island referrals	N/A	Fully equipped and trained in procedures	Family support/Patient's preference	N/A	N/A	N/A
Off-island referral to **Other countries** for diagnosis / treatment	N/A	N/A	Japan / Hong Kong / South Korea	India (KSA, YAP)	N/A	N/A
Institution (hospital) or organization (non-local) patients are referred	N/A	N/A	Japan -Kameda Medical/Kameda Kyobashi Hong Kong - Hong Kong Adventist South Korea - Samsung Medical	Artemis Hospital (KSA) Deli Fortis Hospital (YAP)	N/A	N/A
Main contact person at the institution / organization	N/A	N/A	Insurance Companies	Josifini Matakibau (KSA) Berlinda Bay (YAP-Micare)	N/A	N/A
Rationale for choosing this specific institution for your island referrals	N/A	N/A	Patient's preference/Family support/Financial	Insurance affiliation (KSA, YAP)	N/A	N/A

Final Page

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This work was supported in part by:

CDC 6 NU58DP007132 Pacific Regional Central Cancer Registry

CDC 1 NU58DP007091 American Samoa CCC/BCCEDP Programs

CDC 1 NU58DP007094 CNMI CCC/BCCEDP Programs

CDC 1 NU58DP007094 FSM National Comprehensive Cancer Control Program

CDC 1 NU58DP007176 Guam CCC/BCCEDP Programs

CDC 1 NU58DP007127 RMI CCC/BCCEDP Programs

CDC 1 NU58DP007116 Palau CCC/BCCEDP Programs

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