

# Common Determinant and Prevention Strategies of Cancer in the Pacific Countries: A Systematic Review

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## To cite this article:

Masoud Mohammadnezhad, Nasser Salem Alqahtani, Mosese Salusalu, Adam Konrote. Common Determinant and Prevention Strategies of Cancer in the Pacific Countries: A Systematic Review. *European Journal of Preventive Medicine*. Vol. 5, No. 5, 2017, pp. 51-59.

doi: 10.11648/j.ejpm.20170505.11

**Received:** June 26, 2017; **Accepted:** July 13, 2017; **Published:** August 1, 2017

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**Abstract:** Cancer is the second leading cause of death worldwide which accounts for 8.2 million deaths each year. Cancer is also one of the important public health priorities in Pacific. Developing preventive strategies can help people to reduce the burden of this disease. As there is no any systematic review done till now, this syntactic review study is aimed to understand the common determinants of cancer and the preventive strategies in Pacific. This study applied the Cochrane library guideline of conducting systematic review. Five more frequent databases were used to find relevant studies. Using keywords which were developed based on the aim of the study, and also inclusion and exclusion criteria, articles were searched and reviewing the articles was conducted by two independent coders. After removing duplicated studies, three steps were applied to achieve the final studies. A data extension sheet was developed and the data were analyzed using a descriptive statistical analysis. Overall, 36 studies were included in the study. USA Pacific countries such as Hawaii had highest number of studies (44%) which followed by South Pacific (33.4%) and Asia Pacific (16.6%) countries. Majority of studies (86%) were applied the quantitative design and 14% were used the qualitative design. The common determinants for cancer were categorized into three areas including the services factors, detection and treatment factors, and individual factors. The most common prevention strategies for cancer were improving health care system such as screening, intensive follow up and surveillance, health education and awareness, policy implementation, and immunization. The results of this study highlighted the most common determinants of cancer and the preventive strategies in Pacific. Considering the results of this study, the health specialist in PICs needs to address all these identified common determinants of cancer among cancer patients from the pacific in the past in order to come up with new strategies or prevention for cancer in the future.

**Keywords:** Determinants, Preventive Strategies, Cancer, Pacific, Systematic Review

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## 1. Introduction

The World Health Organization (WHO) defines cancer as an uncontrolled growth and spread of cells that can affect almost any part of the body [1]. Cancer is not just one disease but a large group of almost 100 diseases [2]. In addition, there are several types of cancer which include Carcinoma, Sarcoma, Leukaemia, Lymphoma and multiple myeloma, and malignancy [3]. Cancer is not refined and can affect everyone-young and old, rich and poor, men, women and children [1]. Hence it is an issue of grave concern.

Cancer is the second leading cause of death worldwide which accounts for 8.2 million deaths each year [4]. In 2015, 1.69 million deaths accounted for lung cancer, 788,000 deaths for Liver, 774,000 for colorectal, 754,000 for stomach, and 571,000 for breast cancer. Cancer represents a tremendous burden on patients, families, and societies worldwide [5]. Cancer burden worldwide expected to continue to increase in the future. In the Pacific countries, Papua New Guinea among all the Pacific islands has the highest numbers of deaths which accounted 546 followed by Fiji 390 [1].

According to WHO cancer has been associated with

certain factors such as tobacco farming and use, dietary patterns, and alcohol consumption [6]. In addition, no access to quality health care, poverty, no health insurance, and culture are some other common determinants of cancer [7].

Despite this certain forms of cancer have been found to be preventable [8]. It was found that between 30% and 50% of cancer deaths could be prevented by avoiding risk factors, including tobacco products, reducing alcohol consumption, maintaining a healthy body weight, exercising regularly and addressing infection-related risk factors [6, 9]. Health promotion activities and strategic plans are the only two ways that will prevent cancer and improve the health of all Pacific Islanders in the future.

To reduce the tremendous burden from happening, it is better to identify the determinants of cancer in order to prevent cancer, promote cancer awareness and control cancer epidemic through-out the whole Pacific countries. This systematic review, regarding the determinants and prevention for cancer is very important, as there has been no review done on this in the Pacific recently, and this will be the first. The purpose of this systematic review is to identify the common determinants for cancer and prevention for cancer in the Pacific.

## 2. Methods

This systematic review was conducted considering the guidelines provided by the Cochrane library using five frequently used databases by similar studies. The most common journals used included MEDLINE, Scopus, EMBASE, WEB of Science Electronic Database, Pubmed, and PsychINFO. To obtain more relevant studies, key words such as “determinants”, “prevent\*”, “strategy”, “cancer”, “Pacific”, “treatment” were used and combined using AND/OR to increase the search scope. Studies selected were published from 1<sup>st</sup> January 2000 to 1<sup>st</sup> January 2017 and were written in the English Language. Non English studies and those which did not fit the description of the key words were excluded.

Two independent reviewers scanned the titles of all selected studies and duplicated studies were omitted using the End Note software. Following this the reviewers analyzed the abstract sections of the studies and irrelevant studies were omitted. The remaining studies texts were then fully reviewed and any studies which were deemed irrelevant to the topic were removed (Figure 1). Thirty three studies were selected after reviewing the full text of the studies. The reviewers then went through the bibliography sections of the selected studies to obtain other relevant studies (3 studies). Finally 36 studies were included in the study.

Using the remaining studies a data extraction sheet was formulated (Table 4) which included the study information, population, methods and study results. Using the extraction sheet a descriptive analysis was made and the frequency and percentages of the results were reported.

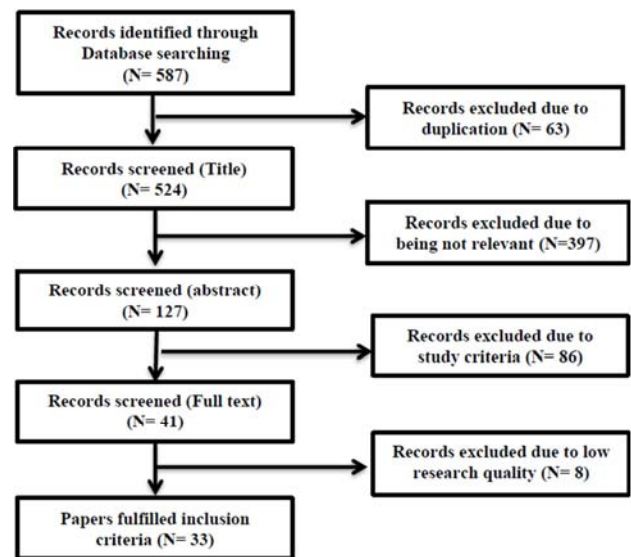


Figure 1. Article selection process.

## 3. Results

### 3.1. General Information of the Studies

As table 1, shows majority of studies (58.4%) were conducted between 2010 to 2016. USA Pacific countries such as Hawaii had highest number of studies (44%) which followed by South Pacific (33.4%) and Asia Pacific (16.6%) countries. While majority of studies did not report the age of participants, adults and older people (33.4%) were the most frequent age group which the studies were conducted among them. Half of studies did not report the gender of participants and 33.4% of studies were conducted among both male and female.

Table 1. General characteristics of the studies.

Factor	Frequency	Percentage
Year of the studies		
2000-2004	9	25
2005-2009	6	16.6
2010-2016	21	58.4
Region		
Asia Pacific	6	16.6
South Pacific Islands	12	33.4
Other countries	2	5.5
USA Pacific countries	16	44.5
Age of participants		
Children & Adolescents	2	5.5
Adults & older	11	30.6
Older	4	11.1
Not stated	19	52.8
Gender of focused studies		
Male	2	5.5
Female	4	11.1
Male/female	12	33.4
Not stated	18	50

The results of the study also showed that the pooled number of participants in these studies was included 6, 941,874.

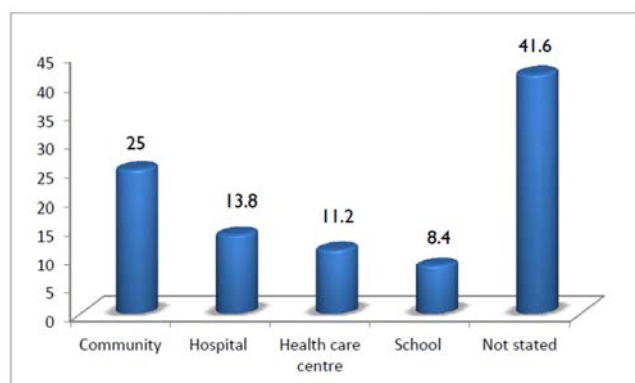
Majority of studies (86%) applied the quantitative design and 14% used the qualitative design. However, 83% of

studies did not report the sampling method, but random sampling was the most frequent sampling method (8%). Amongst the studies that used quantitative study design, 36.1% used questionnaire for collecting the data while all of the qualitative studies (8.3%) applied focus group and in-depth method for collecting the data (Table 2).

**Table 2.** Methodological characteristics of studies.

Factor	Frequency	Percentage
Type of the studies		
Quantitative	33	86
Qualitative	3	14
Sampling method		
Random	3	8
Convenience	1	3
Purposive	1	3
Snowball	1	3
Not Stated	30	83
Data collection tool		
Questionnaire	13	36.1
Focus Group & In-depth Interview	3	8.3
Not stated	20	55.6

However 41.6% of studies did not mentioned the place of the studies, 25% of studies were conducted in community which followed by hospital based studies (13.8%), health care based studies (11.2%), and school based studies (8.4%) (Figure 2)



**Figure 2.** Frequency of studies based on the place of conducting.

### 3.2. Determinant of Cancer

Table 3 shows the common determinants for cancer in the Pacific region. Out of the 36 studies, 26 studies (72%) listed the determinants of cancer. The common determinants for cancer were categorized into three areas including the services factors (11 studies), detection and treatment factors (8 studies), and individual factors (7 studies).

Low income status was reported as the most common determinant in service related factors (11.1%) which was followed by lack of insurance (8.33%), cost of services (5.6%) and lack of access due to geographical location (5.6%).

In detection and treatment related factors, unavailability of cancer detection methods such as screening, mammography, cholesterol screening, and bone densitometry was reported in 7 studies while inadequate treatment was only recorded in 1 study.

Unhealthy foods and dietary habits (13.8%) and limited health education and awareness (5.6%) were highlighted in the individual related factors of cancer.

**Table 3.** Determinant of Cancer.

Determinants	Frequency	Percentage
Detection and Treatment Factors		
Unavailability of cancer detecting method	7	19.5
Inadequate Treatment	1	2.78
Service Factors		
Lack of insurances	3	8.33
Cost of services	2	5.6
Low income	4	11.1
Lack of accessibility (geographical location)	2	5.6
Individual Factors		
Limited health education & awareness	2	5.6
Unhealthy foods or dietary habits	5	13.8

### 3.3. Prevention of Cancer

Based on the prevention for cancer alone, 22 studies stated the most common prevention for cancer which focus on improving health care system (10 studies) such as screening, intensive follow up and surveillance, health education and awareness (8 studies), policy implementation (5 studies), and immunization (3 studies) as the least common prevention for cancer. Some factors listed above were mentioned in multiple studies.

## 4. Discussion

The aim of this study is to identify the common determinants and prevention for cancer in the Pacific in order to suggest some health promotion strategies that will improve and prevent cancer among pacific people in the future. The results show that available treatment, affordable services, and knowledge are the most common determinants of cancer in the Pacific countries. In addition, the results shows that the most common determinant of cancer included poor cancer detecting methods such as screening, mammography, and bone densitometry, unhealthy foods or dietary habits, and patients also received treatment based on their status. This was followed by type of affordable services and available services relating to cancer such as life insurance, cost of services, low salary, poverty and location. The least common determinants of cancer found by this study involved the limited knowledge about cancer in the Pacific.

Moreover it was found that 70% of deaths from cancer occur in low and middle income countries such as Pacific Islands Countries (PICs) [10]. There are numerous reasons as to why cancer deaths are higher in lower and middle income countries such as PICs but a majority appear to be due to the unavailability of services and as previously stated the lack of knowledge regarding the topic. Pacific islanders are regularly exposed to the risk factors for cancer, yet treatment and services are not available, accessible or even affordable for the individuals residing in the region [11]. In addition, developing countries have limited resources allocated toward prevention of cancer and treatment of cancer [12]. In PICs,

cancer patients received better treatment and services when referred to the US and the other developed countries when compared to the patients receiving treatment and services within their own PICs [13].

The next determinant found by this study was that of poor knowledge. The total number of reviewed articles that measured Pacific islander's knowledge about cancer alone accounted for 2 articles out of 36. Knowledge about cancer in the Pacific is the least common determinant in the Pacific yet it is one of the key strategies for cancer prevention [14]. Limited knowledge about cancer reduces the possibility of early detection. This in the long run can result in patients seeking advice at stages where the cancer is no longer treatable.

In addition to this poor communication between health specialists in the Pacific can result in poor knowledge among the population about the prevention of cancer [15]. In regards to the study participants in two of the analysed articles stated that if prior information about the cancer had been available patients would have been more likely to attempt to change their lifestyles and behaviour in an attempt to prevent the outcome [16]. Hence in order to improve and prevent cancer in the Pacific, good communication between health specialists and citizens should be prioritized and considered as a way for improving health and cancer prevention in the Pacific. This communication will be essential in the process of health promotion.

The next common determinant of cancer among Pacific people was the availability and affordability of services including insurance policies. In a study conducted it was found that cancer patients from the Pacific island countries who have access to better health care services in the United States received cancer services based on their insurance status [17]. In regards to insurance status, people with insurance received good services and good treatment compared to those who did not have insurance [18]. Cost of cancer surgeries or services can vary depending on the types of services provided for them but cost of surgeries alone in cancer patients is very expensive [19]. Poverty is also one of the common determinants of cancer services in the Pacific. Pacific islands are categorized as middle and low income countries which show that poverty is evident in the Pacific. According to LM Baldwin people living in rural areas appeared to receive less services when compared to those living in urban areas [11]. This shows that the types of services provided in the rural areas varies when compared to

the services provided in the urban areas.

Furthermore another major issue identified was the poor screening and case identification methods present in the Pacific. Cancer detecting methods such as screening, mammography, cholesterol screening, and bone densitometry done among Pacific islanders are key tests for identifying various cancers. According to V Wong (2004), early cancer detecting methods similar to these are not accessible or available in certain places in the Pacific [20]. This shows that there is a large gap in the early detection stages and if targeted correctly can be beneficial to the treatment of cancer in the Pacific. Hence early detection is a necessary step to reducing the prevalence of cancer.

Lastly the most common prevention for cancer in the Pacific included immunization (HPV vaccines & screening test followed by surveillance), health education or awareness, policy implementation, and improving health care system. According to the WHO, "between 30-50% of cancer can currently be prevented by avoiding risk factors and implementing existing evidence-based prevention strategies [1]. One way to address this issue is to by adapting some of the health promotion strategies such as PEN model in society in order to provide health services includes cancer and all types of services to the people of the Pacific living in rural areas and urban areas [21].

The study set out to investigate literature ranging from the year 2000 to 2017 in the hopes of strengthening the results and providing scope. However key limitations in this study were the absence of non-English literature and the omission of grey literature.

## 5. Conclusion

The results of this study show that cancer patients in the Pacific have limited knowledge about cancer. This also revealed however that services and treatment toward cancer are indeed available, accessible, and affordable in some areas in the Pacific. However for the countries where the services were not readily available, outside treatment appeared to be the most common source of treatment and cancer related services. Hence in order to improve the health and prevent cancer among Pacific people, health specialist in PICs needs to address all these identified common determinants of cancer among cancer patients from the Pacific in the past in order to come up with new strategies or prevention for cancer in the future.

**Table 4.** Data Extraction Sheet.

	Study Information	Population	Methodology	Results
1	Untalan et al [22] Year: 2004 Type Of Study: Descriptive study (cross-sectional) Country: Hawaii	Population: Total 195 # Of Male: 116 # Of Female: 79 Age group: Ranges from 0-19 yrs.	Place: Hospital Sampling Method: Random Data collection tools: Not Stated	Prevention To improving the health care systems in both the Pacific Islands and in Hawai'i.
	Ou et al [23] Year: 2004 Type Of Study: Descriptive study	Population: 237 Cases # Of Male: 93 # Of Female: 144 Age Group: 41-50 yrs.	Place: Hospital Sampling Method: Not Stated Data collection tools: Interview	Prevention The implementation or existence of a national comprehensive cancer control strategic plan would facilitate greater identification, prevention,

	Study Information	Population	Methodology	Results
	Country: Kiribati			and treatment of cancer patients.
3	Ou et al [24] Year: 2004 Types Of Study: Descriptive study Country: Nauru	Population: 124 # Of Male: 46 # Of Female: 78 Age Group: Ranges from 10-86 yrs.	Place: Hospital Sampling Method: Not stated Data collection tools: Not stated	Prevention A national comprehensive cancer control strategic plan and the implementation of that plan would facilitate greater prevention, treatment and control of cancer. Determinant Gender
4	Beltran et al [25] Year: 2016 Types Of Study: Cross-Sectional study Country: America	Population: 192 # Males: 71 # Females: 121 Age Group: Male 19-62 yrs Females age ranges from 18-50 yrs.	Place: Not Stated Sampling Method: Snowball Data collection tools: Survey & Interviews	Determinant Ages Prevention Providing cancer education or awareness
5	Thompson et al [26] Year: 2014 Type Of Study: Cross-Sectional Country: America	Population: 800,000 # Male: 9363 # Female: 62543 Age Group: Men: ranges from 50-75 years Women ranges from 21-75 years	Place: Not Stated Sampling Method: Not Stated Data collection tools: Not Stated	Determinant Ethnicity Prevention Language and gender concordant primary care providers and culturally tailored online health resources may help improve prevention cancer screening in Asian Populations.
6	Foliaki et al [27] Year: 2014 Type Of Study: Cross-Sectional study (Survey) Country: Fiji	Population: 1261 Cases # Male: # Female: 1261 Age Group: Age ranges 16-64 yrs.	Place: Health Sub district (Health care) Sampling Method: Not Stated Data collection tools: Not stated	Prevention An on-going active education campaign Future policy decision on the most appropriate methods
7	Ka'ano'i et al [28] Year: 2004 Type Of Study: Cross-Sectional (Survey) Country: Hawaii	Population: 454 # Male: Not stated # Female: Not stated Age Group: Not stated	Place: Health Care Sampling Method: Not Stated Data collection tools: Questionnaire	Prevention Participation in cancer screening and prevention activities
8	Tajima and Moore [16] Year: 2002 Type Of Study: Descriptive Country: Asia Pacific	Population: Not stated # Male: Not stated # Female: Not stated Age Group: Not stated	Place: Not Stated Sampling Method: Not Stated Data collection tools: Survey	Prevention Tobacco Control Population-Based Prevention And Cancer Control Cancer Knowledge Transfer And Dissemination Building And Enhancing Capacity
9	Juon et al [29] Year: 2008 Type Of Study: Descriptive Country: Asia Pacific in America	Population: 1775 #Male: 619 #Female: Age Group: 20-49 yrs	Place: Churches & community Sampling Method: Not stated Data collection tools: Not stated	Prevention Develop and implement culturally tailored educational campaign
10	Garland et al [30] Year: 2008 Type Of study: Case Studies Country: Asia Pacific Regions	Population: 3332258 # Male: Not Stated # Female: Not stated Age Group: Not stated	Place: Not Stated Sampling Method: Not Stated Data collection tools: Not Stated	Prevention Introduction of HPV Vaccine Health Educating the Population about range of sexual health issues, safe sex, good eating behaviours, smoking.
11	Tsark [13] Year: 2007 Type Of Study: Descriptive Country: US-associated Pacific Island Countries	Population: # Male: # Female: Age Group:	Place: Community (4 states) Sampling Method: Not stated Data collection tools: Survey	Determinant Over crowding Poor Hygiene Underdeveloped public works system Foods have contributed to concurrent increase obesity Prevention Seek Funding to expand cancer prevention and control capacity in regionally appropriate ways.
12	Garland et al [31] Year: 2006 Type Of Study: Descriptive Countries: 175 countries world wide	Population: 175 countries #Male: Not stated # Female: Not stated Age Group: Not stated	Place: Not Stated Sampling Method: Not Stated Data collection tools: Not stated	Determinant Effect of Vitamin D on Ovarian risk Oral contraceptive used Sun exposure
13	Chelimo and Elwood [32] Year: 2015 Type Of Study: Descriptive Country: New Zealand	Population: 6820 # Male: 2050 # Female: 4770 Age Group: Not stated	Place: Health care centres Sampling Method: Not stated Data collection tools: Not stated	Determinant Age Gender
14	Lee et al. [33]	Population: 33787 Cases	Place: Community	Prevention

	Study Information	Population	Methodology	Results
	Year: 2009 Type Of study: Descriptive Country: Taiwan	# Male: 30176 # Female: 3611 Age Group: 20-98 years	Sampling Method: Not Stated Data collection tools: Not stated	Intense follow-up surveillance to the estimated risk in each individual case.
15	Jongudomkarn et al [34] Year: 2015 Type Of Study: Qualitative Cross-sectional (Focus Group) Country: Thailand	Population: 45 participant #Male: 14 # Female: 31 Age Group: 32-70	Place: Community Sampling method: not stated Data collection tools: Focus group & interview	Prevention Family first: role modelling beginning at the personal and family level. Local leverage: using village community forums to reduce alcohol drinking. Gentle growth: making the first step and treading gently; Respect, Redemption, and Rehabilitation: valuing the person to re-integrate them in the village society.
16	Arbyn et al [35] Year: 2011 Type Of Study: Descriptive Country: Worldwide 182 countries	Population: 182 Countries #Male: Not stated #Female: Not stated Age Group: Not stated	Place: Not stated Sampling Method: Not stated Data collection tools: Not stated	Prevention New effective preventive strategies. Surveillance, including high-quality cancer registries, linked to screening and vaccination registries is essential to track the impact of these prevention strategies and to Provide the foundation for advocacy, national policy and global action.
17	Hubbell et al [36] Year: 2004 Type Of Study: Descriptive study Country: America	Population: 797670 # Male: Not stated # Female: Not stated Age Group: Not stated	Place: Community, School, & Health care centre Sampling Method: Not Stated Data collection tools: Not stated	Prevention PICCN is advancing the national goal of eliminating cancer-related health disparities through its cancer awareness and research activities for Pacific Islanders.
18	Brindel et al [37] Year: 2009 Type Of Study: Case-Control study Country: French Polynesia	Population: 359 # Male: 44 # Female: 315 Age Group: 18	Place: Not stated Sampling method: Not stated Data collection tools: Not stated	Prevention Recreational physically activities are recommended for obese people.
19	Kagawa-Singer and Pourat [38] Year: 2000 Type Of Study: Cross-sectional Country: America	Population: 66952 -2756 Non-Hispanic women -64196 Non-Hispanic white women # Male: # Female: 66952 Age Group: above 18 yrs	Place: Community Sampling Method: Not stated Data collection tools: Interviews & Survey	Determinant Poverty Prevention Increase cancer screening
20	Kagawa-Singer et al [39] Year: 2006 Type Of Study: Qualitative (Focus Group) Country: America	Population: 173 # Male: 84 # Female: 89 Age Group: Not Stated	Place: Community & school Sampling Method: Convenience Data collection tools: Focus group & interviews	Determinant Belief Causes of breast cancer: getting hit on the breast, having too many children, breast fondling, and bad circulatory systems poor hygiene, having too many children, having husbands who have sex outside of marriage using birth control Prevention Community Education Community training Train health care providers to improve access to screening Set up mobile screening in the community during annual celebration. Policy advocacy Increase access to screening
21	Coughlin and Uhler [40] Year: 2000 Type Of Study: Cross-sectional (Qualitative) Country: America	Population: 6048 Asian and pacific island Women # Male: Not stated # Female: 6048 Age Group: 50 yrs +	Place: Community Sampling method: Random & clustering Data collection tools: Survey & Interview	Prevention Continued efforts to ensure that Asian and Pacific Islander women who are medically underserved, including those without health insurance, have access to cancer screening services.
22	Shin et al [17] Year: 2012 Type Of Study: Case Study Country: Asia Pacific Region	Population: 1526778 # Male: 471289 # Female: 1055489 Age Group: Not stated	Place: Not Stated Sampling Method: Not stated Data collection tools: Not stated	Prevention Establish a surveillance system Priority can be given to population-based cancer registration, Improve health care systems to diagnose and

Study Information	Population	Methodology	Results
23 Meredith et al [41] Year: 2012 Type Of Study: Descriptive Country: New-Zealand	Population: Not stated # Male: Not stated # Female: Not stated Age Group: 22-65+ yrs.	Place: Not Stated Sampling Method: Not stated Data collection tools: Not stated	manage cancer specifically in low- and middle-income countries. Prevention Continued efforts are needed to reduce infectious disease and improve screening program uptake among Pacific people.
24 Sneyd and Cox [42] Year: 2011 Type Of Study: Descriptive Country: New Zealand	Population: 14802 # Male: 5935 # Female: 8867 Age Group: 40-80 Yrs.	Place: Not stated Sampling method: Not stated Data collection tools: Not stated	Determinant Age Ethnicity
25 Lee et al [43] Year: 2011 Type Of Study: Descriptive Country: America	Population: 52491 # Male: Not Stated # Female: Not Stated Age Group: 50 yrs.+	Place: Community Sampling Method: random Data collection tools: Interview & survey	Determinant Ethnicity
26 Tanjasiri and Tran [44] Year: 2008 Type Of Study: Country: America	Population: # Male: # Female: Age Group:	Place: Community & school Sampling Method: Not stated Data collection: Not stated	Determinant Gender
27 Wong and Kawamoto [45] Year: 2010 Type Of Study: descriptive Country: Hawaii	Population: 153 # Male: # Female: Age Group:	Place: U. S military health care Sampling method: Not stated Data collection tools: Not stated	Determinant Ethnicity
28 Biggar et al [46] Year: 2011 Type Of Study: Retrospective case Country: New Zealand	Population: 133 # Male: 79 -49 pacific ethnicity -34 Maori # Female: Not stated Age Group: Not stated	Place: Not stated Sampling Method: Not stated Data collection: Interviews & survey	Determinant Age Ethnicity
29 Robison et al [47] Year: 2002 Type Of Study: Descriptive Country: United State	Population: Not Stated # Men: Not Stated #Female: Not Stated Age Group: Not Stated	Place: Not stated Sampling Method: not stated Data collection tools: Not stated	Determinant Influenza vaccine Cholesterol screening Bone densitometry Mammography Number of physicians visits of patients for check-up. Prevention Immunization Screening via Visual Inspection with acetic acid (VIA) or Pap smear Intervention Medication use human papilloma virus tests to screen women Monitoring Appropriate follow-up for abnormal results.
30 Shin et al [48] Year: 2015 Type Of Study: Descriptive study Country: Western Pacific Regions	Population: Not Stated # Men: Not Stated #Female: Not Stated Age Group: Not Stated	Place: Community Sampling Method: Not stated Data collection tools: Not stated	Determinant Influenza vaccine Cholesterol screening Bone densitometry Mammography Number of physicians visits Determination Limited Health Education and Awareness to public Lack of Breast and cervical cancer screening programs
31 Steele et al [49] Year: 2014 Type Of Study: Qualitative Study (Cross-sectional) – (Surveillance). Country: United State	Population: 294843 # Men: 4500 #Female: 4167 Age Group: 60 +	Place: Not stated Sampling Method: Not stated Data collection tools: not stated	Prevention Quit using tobacco and alcohol Change of nutritional practices Resource sharing Cultural appropriateness Volunteer interest Partnership collaboration
32 Meredith et al [50] Year: 2012 Type Of Study: Descriptive studies Country: New Zealand	Population: Not Stated # Men: Not Stated #Female: Not Stated Age Group: Not Stated	Place: Not stated Sampling Method: not Stated Data collection: Interview & survey	Prevention Quit using tobacco and alcohol Change of nutritional practices Resource sharing Cultural appropriateness Volunteer interest Partnership collaboration
33 Blair et al [51] Year: 2013 Type Of Study: Descriptive studies Country: New Zealand	Population: Not Stated # Men: Not Stated #Female: Not Stated Age Group: Not Stated	Place: Community & hospital Sampling Method: Not stated Data collection tools: survey & interviews	Determinant Age



	Study Information	Population	Methodology	Results
34	Wu et al [52] Year: 2010 Type: Cohort Study Country: American Samoa	Total: 55 Male: Female: 55 Age: 19 & older	Place: Communities Sampling Method: Purposive Data collection tools: Focus groups	Determinant Cost of services Participants received treatment from the hospital staffs depending on their status.
35	Pobutsky et al [53] Year: 2004 Study: Cohort Country: Hawaii (U. S)	Total: not Stated Male: Not stated Female: Not stated Age: Not stated	Place: Communities Sampling Method: Not stated Data collection tools: Land based telephone survey	Determinants No insurance Low income Low education Living in rural areas
36	Terada et al [54] Year: 2016 Study: Cohort Country: Hawaii	Total: 301 Male: Not stated Female: Not Stated Age: 53.6 ± 10.0	Place: Hospital Sampling Method: Not stated Data collection tools: Not stated	Determinant No Insurance

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